Anja Hendel
Wolfgang Messner
Frank Thun (Eds.)

# Rightshore!

## Successfully Industrialize SAP® Projects Offshore

Springer

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Anja Hendel · Wolfgang Messner · Frank Thun
Editors

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Anja Hendel
anja.hendel@gmail.com

Dr. Wolfgang Messner
wolfgang.messner@capgemini.com
wolfgang.messner@gmail.com

Frank Thun
frank.thun@capgemini.com
fthun@web.de

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# Foreword

Offshore delivery creates the opportunity to improve quality and to allocate resources in a better way. It is not a question of saying 'yes' or 'no' to India; it is about organizing a distributed delivery process that embraces onsite, nearshore and offshore services.

Creating the right mixture is what Capgemini calls Rightshore® . Used as a strategic instrument, it can be a highly effective answer to ever increasing demands and decreasing budgets. And it is one way to industrialize service delivery on a global scale while increasing one's ability to innovate. By allocating resources correctly, Western companies can thus realize a number of competitive advantages.

Extending the level of quality delivered depends on the way collaboration is organized by the Western company, the level of expertise in setting-up the project, preparing and transforming the organization and factoring in cultural differences. Comprising many years of experience with offshore projects, this book shares learnings, knowledge in addition to strategies to create opportunities – avoiding bad investments and setting up successful delivery models that create value tailored to the needs of the individual company.

*Baru Rao*

*Antonio Schnieder*

# Preface

ERP[1] harmonization remains high on the agenda of CIOs: 82% plan to invest more in ERP harmonization and consolidation.[2] Evaluating their investments, they focus on productivity increases and clearly measurable cost savings. ERP backbones are thus continuously enhanced with new features and higher integration. At the same time, customers scrutinize the costs of seemingly endless reworks of their ERP systems.

These drivers result in an ever increasing competitive pressure on IT organizations and ERP service providers to adjust delivery models. As a consequence, software development processes need to be industrialized, relying more and more on offshore delivery of ERP implementations from low-cost locations using standardized methods and sophisticated distributed delivery tools. This type of global delivery model represents the optimum combination of processes, end-to-end methodologies and quality procedures, with high-quality skills and sufficient resources available internally or externally on a global basis. Offshoring is the name of the game in the IT industry, and no large firm or IT service provider can afford to ignore the ever expanding delivery centers in India.

## Target audience

This book is designed for business and IT managers aiming for drastic efficiency gains in their next ERP initiatives by embracing a global delivery model. Part I provides readers with a solid understanding of ERP offshore implementation, while Part II features case studies from projects conducted for renowned global clients. This book focuses on SAP implementations, though all considerations also apply to other ERP systems.

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[1] ERP = Enterprise Resource Planning

[2] Cf. Camoin G, Larson U, Moch N (2006) European CIO survey: Views on Future IT Delivery. Capgemini Consulting Services, p 26

## Added value

The editors of this handbook live and work in countries situated on both sides of the offshoring spectrum. We all have many years of experience in successfully managing and running projects between Europe, the US, and India.

In this context, we are frequently asked about the prerequisites and methods for conducting offshore projects, and whether offshoring offers any real advantages. In this book we discuss the advantages and challenges of offshoring in an open and honest fashion. We especially focus on Rightshore® , Capgemini's mature concept for a global delivery strategy, and demonstrate how projects with India can be run effectively.

There are many challenges in offshoring application development to India. Notwithstanding, there are many opportunities for effectively utilizing global delivery models. In a few years time, when the headlines about India have faded away, everyone will wonder how SAP projects were ever pursued without a global delivery model.

## The structure of this book

The structure of the book does not demand reading in a linear fashion but allows you to browse, jump, or hunt for the chapters that are most relevant to you.

**Part I – Aspects of Offshoring to India**

This part covers the management perspective.

**Chapter 1, The Rightshore® Model** examines the European and American offshoring market and alternative offshoring strategies. It outlines Capgemini's global delivery model, named and branded as Rightshore® , while already introducing some of the topics mainly covered in later chapters.

**Chapter 2, Offshoring in India – Opportunities and Risks** describes the three success factors of India's IT industry: human capital, a thriving industry, and the creation of synergies between knowledge-based sectors. In addition, it highlights the limitations and risks associated with the current expansion of the IT industry in India.

**Chapter 3, Economic and Business Effects of IT Offshoring** offers decision makers and business shapers a better understanding of the rationale and economics of offshoring, as well as its effects.

**Chapter 4, Industrialization of Application Implementation** draws a parallel between the industrial revolution and packaged application development. It builds the case for a software factory approach of SAP application development.

**Chapter 5, Offshore ERP Services** explains the six application-related services – customization, testing, training, development, data migration, and upgrade – thereby laying the foundation for part two of this book.

**Chapter 6, Transforming the Front-Office** describes the necessary changes in the organizational structure and IT governance processes of companies offshoring their SAP projects.

**Chapter 7, Intercultural Aspects of Project Management in India** highlights peculiarities in managing intercultural projects between Europe and India. This chapter describes some of the elements required to understand the many facets of India.

**Chapter 8, Managing from a Distance: Virtual Delegations to India** presents the results of a study analyzing the various aspects that make offshore projects successful.

**Chapter 9, How to Start a Rightshore® Project** shows how to successfully initiate an offshore project and leverage the full potential of the offshore concept.

**Part II – Case Studies for Rightshore® Projects**

The second part aims at IT project managers looking to learn from real-life case studies of successful projects leveraging the global delivery model. Even if you are already convinced that you will offshore to India, this chapter will offer you many practical ideas from different SAP projects.

**Chapter 10, Case Study: A New Sales Planning Platform for the Automotive Supplier Industry** shows the project setup and utilization of the Rightshore® approach through distributed delivery of the Capgemini Business Intelligence Factory in Bangalore, India.

**Chapter 11, Case Study: Remote Customizing** describes an otherwise typical SAP implementation at a client where remote customizing is used for the first time.

**Chapter 12, Case Study: Testing for the Utilities Sector** describes how the test function of a project was successfully implemented trough the capabilities of the Testing Factory in India.

**Chapter 13, Case Study: Preparation of Training Material for Manufacturing Industries** provides an overview of things to consider when developing end-user training material.

**Chapter 14, Case Study: Software Development for a Global Manufacturing Company** highlights the team setup, processes and methods used for the ABAP and XI development preparing the template and related roll-outs.

**Chapter 15, Case Study: Data Migration for a Global Semiconductors Manufacturer** shows the experiences we made during an international roll-out program in the area of data migration.

**Chapter 16, Case Study: Distributed Delivery of an SAP Solution at a US Life Science Company** provides insight into a major ERP implementation at a world

leading pharmaceutical company performed with a 'One Team' approach for remote customizing.

**Chapter 17, Case Study: Management Learnings for Distributed Delivery from a Major Engagement in the CPR Industry** gives insides about real project challenges and issues on a large SAP engagement, where major parts where delivered from offshore.

## Acknowledgements

We would like to thank all companies, projects and their team members named and unnamed in this book. This publication is based on experiences obtained in these projects, for which efforts often went beyond the usual project work.

At Capgemini our gratitude goes to Holger Martens for supporting the Distributed Delivery initiative and the process of writing the book.

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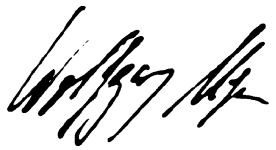
Last but not least, our special thanks go to Ralf Gerstner at Springer for accompanying the editing and production process of this book.

*Anja Hendel*



*Wolfgang Messner*

*Frank Thun*

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# Part I
# Aspects of Offshoring to India

# Chapter 1
# The Rightshore® Model

**Frank Thun**

**Abstract** Nowadays, there is a wide range of experience with offshoring IT services. Delivery from offshore locations is strongly established in the United States and the United Kingdom, while continental Europe still lags behind. In Europe, nearshore models still dominate the market. A framework for building an optimal combination of onsite, nearshore, and offshore delivery capabilities is provided by Capgemini's Rightshore® model.

## 1.1 The market for offshore IT services

The worldwide IT service market size amounts to $ 672bn in 2006 (+6.4% compared to 2005)[1]. Within this market, offshore delivery is growing at 14.5% in Europe and 18% in North America, thereby soaking up more and more market share.

**Table 1.1** Offshore IT service growth and market share[2]

| **Offshore services in Europe and the US** | | | | | 2006-2010 CAGR |
|---|---|---|---|---|---|
| US IT services growth | | | | | 6.8% |
| Offshore services in the US | | | | | 18.0% |
| Western Europe IT services growth | | | | | 5.8% |
| Offshore services in Western Europe | | | | | 14.5% |
| **Offshore services: Market share** | 2006e | 2007e | 2008e | 2009e | 2010e |
| US | 4.3% | 4.6% | 5.3% | 5.8% | 6.4% |
| Western Europe | 1.3% | 1.4% | 1.5% | 1.6% | 1.7% |

[1] Cf. [Gartner 2007, p6]

[2] Cf. [HSBC Global Research 2007, p7–8]

Anja Hendel, Wolfgang Messner, Frank Thun, *Rightshore*
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The offshore market in Asia Pacific (APAC) is growing at an even higher rate, albeit from a lower base. IDC states that 79% of the offshore market is spent by North America, 17% by Europe, and 4% by APAC. South America's and Africa's market shares are negligible.[3]

### *1.1.1 Demand for offshore IT services in Europe*

In Europe, approximately 34% of the IT service market is related to application design, realization, test, and roll-out.[4] The bulk of this is in the ERP area.[5] In contrast to application, infrastructure management and support, this share is set to increase in 2007 (see figure below). Thereby, due to the given cost pressures and a lack of skilled resources onsite, offshoring Application Implementations gets more and more into the focus of CIO's.

Pressure on ERP implementation service providers, i.e. IT departments or external service providers, to come up with new, more efficient delivery models is growing. More and more decentralized delivery models will be used (see Figure 1.2).

External offshore and distributed delivery are performed from geographically dispersed locations. All other IT delivery options in Figure 1.2 are mainly executed onsite. In the study at hand, nearshore encompasses service providers working fully or partly on client sites.

The share of offshore and distributed delivery in IT budgets has increased by 2% to a total of 6% between 2004 and 2006. This growth is bound to accelerate rapidly:

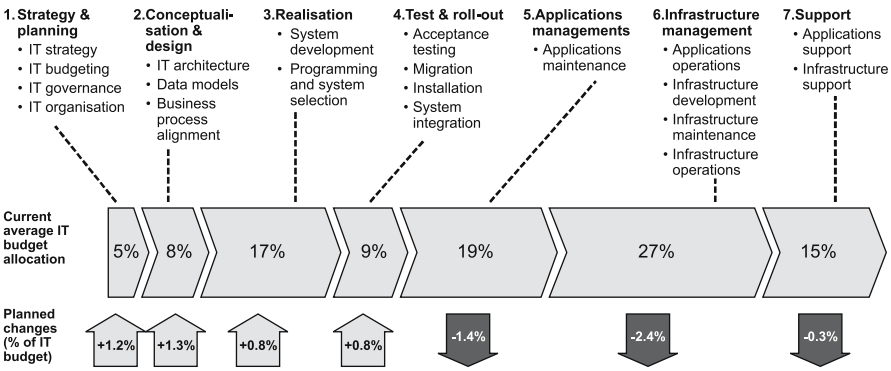


**Fig. 1.1** IT budget allocation along the IT value chain and planned changes[6]

[3] Cf. [IDC 2004]

[4] This chapter is largely based on 162 interviews with European CIOs. Cf. [Capgemini 2006, p12]

[5] Exact data is hardly available, as ERP market data surveys fail to distinguish ERP license and service revenues.

[6] Cf. [Capgemini 2006, p20]

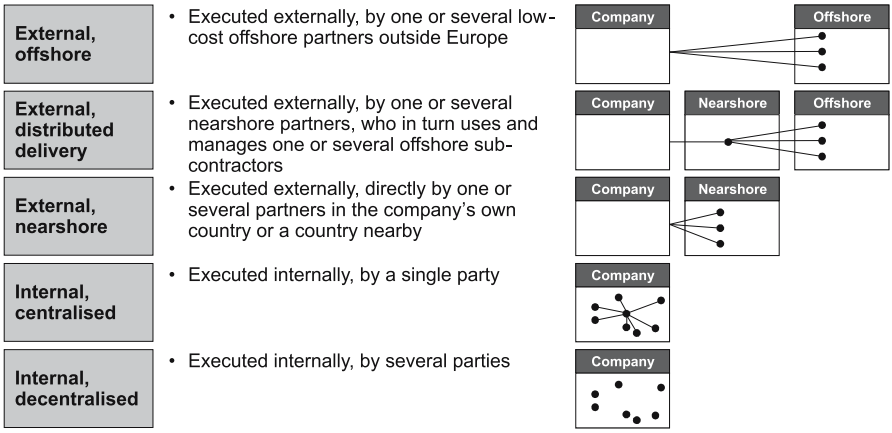


**Fig. 1.2** IT delivery options

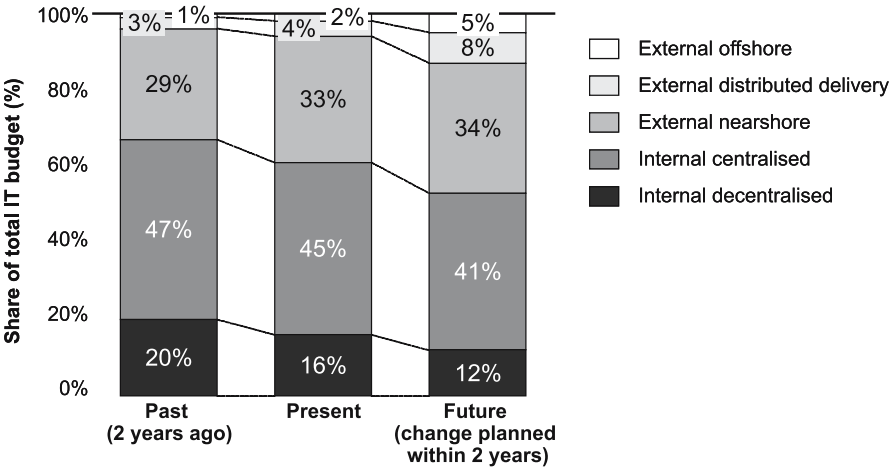


**Fig. 1.3** IT budget snapshot of delivery options from 2004 to 2008

13% of IT budgets are forecasted to be spent via offshore and distributed delivery in 2008.

While there are significant geographical and cultural differences in adopting offshore delivery – with the UK leading in Europe, followed by the Nordic countries and the Netherlands – these differences appear to be slowly diminishing. Here, global companies play an important role by being early adopters of offshore delivery. Global companies are five times more likely to utilize offshore or distributed delivery. By embracing offshore, global CIOs claim to have saved 15 to 20% compared to former internal delivery.

### 1.1.2 Comparison of the demand for Offshore IT services in North America and Europe

HSBC lists three main differences between Europe and North America:[7]

1. Offshore is less politically accepted in Europe
2. Nearshore capacity is more developed than in the US
3. The multitude of languages spoken in Europe makes use of India-based resources more complicated than in North America

The adoption of offshore delivery models has been much more rapid in the US. Even in the Western European high-cost countries, geographical and cultural proximity has led to more extensive nearshore delivery than in the US. This continues to be a major factor, slowing down the adoption of offshore delivery models. Even so, offshore IT services rendered for Europe still grow at 2.5 times the rate of the overall IT service market in the region, whereas they are growing at 3.1 times the respective rate in North America.[8]

Table 1.2 shows an overview of chances and challenges of western geographies while offshoring to India. General risks like cultural differences, etc. are not included in the overview.

The US is challenged by major time differences to India of about 10 hrs, but has only few language issues. For this reason, a lot of work has been done using landed resources[9] from offshore. When the offshore market moved to Europe it basically

**Table 1.2** Chances and risks for the offshore market in Europe

| Market | Chances | Challenges |
|---|---|---|
| USA | • Language<br>• Rates | • Time difference |
| Europe (UK) | • Language<br>• Rates<br>• Time difference | |
| Europe (west) | • Time difference<br>• Rates | • Language |
| Europe (east) | • Quantity of qualified resources<br>• Time difference | • Rates |
| Europe (north) | • Time difference<br>• Language<br>• Rates | |
| Europe (south) | • Time difference<br>• Language | • Rates |

[7] Cf. [HSBC Global Research 2007, p9]

[8] Cf. [HSBC Global Research 2007, p2]

[9] Landed resources are Offshore resources working onsite.

started in the UK, due to the language advantage. Crossing the Atlantic brought another advantage: The time difference halved to just is just 5h30. The further east in Europe, the less time difference gets a problem, especially in Nordic countries where working habits are to start work early. In contrast to the rest of continental Europe, Nordic has another advantage of being well versed in the English Language. Even so the time zone difference is reduced in Eastern Europe, this advantage is evaporates as wage differentials dwindle. Offshoring in eastern or southern Europe is largely driven by market shortages in the supply of skilled resources.

### *1.1.3 The supply of offshore IT services*

While more and more global companies have set up IT service departments offshore, that growth is outstripped by far by the growth of external offshore delivery models.

On the supply side, Gartner ranks Tata, Infosys, Wipro, Accenture and IBM as leaders in the application service market in Europe and North America.[10] In Europe, these are joined by Capgemini, and in North America by Cognizant, whereby both companies are ranked as challengers outside their respective home markets. Capgemini is especially strong at offshore services for package-based application implementations, its competitors are more geared towards application outsourcing. The top 10 suppliers (in terms of revenue) share only 25% of the market.[11] There is a very high number of small and medium suppliers operating in the IT service market.

In contrast to the overall application services market, the market for offshore delivery is a lot more focused. HSBC reckons that, in 2005, 84% of offshore IT delivery has been performed by Indian pure players, i.e. Indian owned companies like

**Table 1.3** Presence of major suppliers in India

| Presence in India (2007)[12] Company | Employees in India | Total no. of employees | Percentage in India |
|---|---|---|---|
| IBM | 53,000 | 200,000 | 27% |
| Accenture | 35,000 | 170,000 | 21% |
| Capgemini (incl. Kanbay) | 17,500 | 80,000 | 22% |
| EDS | 15,000 | 120,000 | 13% |
| CSC | 7000 | 80,000 | 9% |
| LogicaCMG | 3000 | 39,000 | 8% |
| Atos Origin | 1500 | 47,000 | 3% |
| TietoEnator | 600 | 16,000 | 4% |

[10] Cf. [Gartner 2006, p12]

[11] Cf. [Gartner 2007, p7]

[12] As per information recieved from media communications of the individual companies in October 2007; figures for EDS, CSC and Atos Origin are based on [HSBC Global Research 2007, p8]

Tata, Infosys, Wipro etc.[13] Established IT service companies in Europe are struggling to counter the emergence of the pure players. They have built up a massive presence in India (see figure below), but despite high growth, continue to trail behind the pure players in terms of growth and profitability. Consequently, stock evaluations for pure players have sky-rocketed over the last years.

IT organizations and service providers are challenged with adapting the heart of their operating model to offshore delivery. With this book, we like to provide insights, points of view, and case studies of seasoned offshore veterans.

## 1.2 Rightshore® approach

Which delivery model should be chosen by a company for a given project at hand? Performing the right work in the right place at the right time for the best economic value is a matter of getting it to the right place.

### *1.2.1 Choosing the right location*

Front-office teams, located onsite, manage the projects. Sharing the same language, culture, and turf as our customers, they have deep knowledge of their markets and industries. They are in charge of designing optimal solutions.

Back-office teams, located onshore, nearshore or offshore, run the process-driven parts of the projects. They combine the benefits of cost-efficient, skilled labor, economies of scale, and maximum productivity with quality.

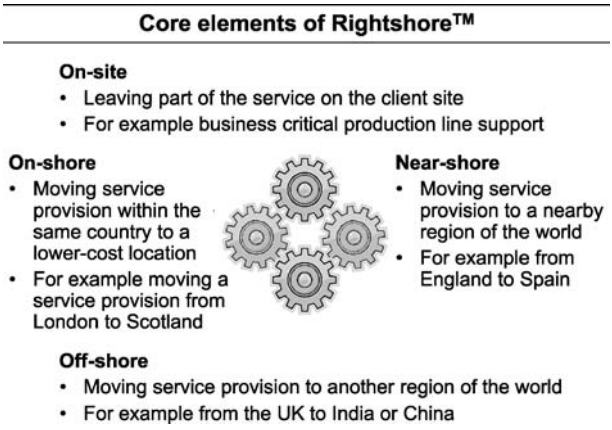


**Fig. 1.4** Capgemini's Rightshore® Delivery Model

[13] Cf. [HSBC Global Research 2007, p8]

A model for evaluating which delivery location to choose is given in Table 1.4. Based on a series of expert interviews[14], provides an first indication which delivery location (onsite, nearshore or offshore) appears to be suitable for a given project situation. The suitability will vary depending on the service which is to be offshored as indicated in the table below by the different weightings attached to each evaluation criteria. The values given are examples taken from a major project of a global electrical equipment manufacturer (see case studies in the second part of this book):

**Table 1.4** Model for evaluating delivery locations for development and customizing streams of projects (example)

| Criteria | | | Service Offerings | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Development | | | Customization | | |
| | | | Value | Weight | Result | Value | Weight | Result |
| Cost sensitivity | 1 Low | 10 High | 9 | 10 | 90 | 7 | 8 | 56 |
| Speed to deployment | 1 Low | 10 High | 10 | 4 | 40 | 10 | 3 | 30 |
| Degree of user interaction | 1 High | 10 Low | 8 | 4 | 32 | 2 | 2 | 4 |
| Clarity of scope | 1 Low | 10 High | 5 | 3 | 15 | 4 | 6 | 24 |
| Size of engagement | 1 Low | 10 High | 9 | 3 | 27 | 9 | 7 | 63 |
| Engagement duration | 1 Low | 10 High | 9 | 4 | 36 | 9 | 6 | 54 |
| Complexity of engagement | 1 High | 10 Low | 3 | 3 | 9 | 3 | 2 | 6 |
| Communication infrastructure | 1 Low | 10 High | 3 | 6 | 18 | 3 | 8 | 24 |
| Cultural affinity | 1 Low | 10 High | 2 | 4 | 8 | 2 | 2 | 4 |
| Availability of skilled resources | 1 Low | 10 High | 7 | 7 | 49 | 4 | 2 | 8 |
| **Sum** | | | | **48** | **324** | **53** | **46** | **273** |
| **Weighted mean** | | | **65** | | **6,75** | | | **5,93** |

The weighting of each criteria is dependant upon the services that are to be delivered from offshore. If speed is of essence, delivering customizing from offshore is not very attractive, while the project is only marginally slowed down by shifting development offshore. Basically, a weighting greater than five favors offshore delivery, while a weighting less than five favors onsite delivery.

- Cost Sensitivity: The cost pressure on the budget. For a project undertaken for a electrical equipment manufacturer the cost of delivering 11,000 man-days of developments offshore was appalling, triggering the move to offshore. The case for offshore customizing was string, but somewhat less attractive as still significant parts of Customizing had to be delivered onsite restricting potential cost benefits
- Speed to deployment: Business importance of project result to be delivered as soon as possible. This was all important for the electrical equipment manufacturer, as the timing of roll-out to 130 Countries were depending on the first deployment projects.
- Degree of User Interaction: The more User Interaction is needed to come up with an optimal result, the less offshore is recommended. Examples of this are tasks where Designs are best iteratively designed, for example complex reports or

[14] Own research and cf. [Capgemini 2006, p12]

pricing procedures, innovative screen layouts, pioneering the appliance of a technology to a new field etc.
- Clarity of scope: The more all elements and details are already known at start of the project, the better the project can be sliced into distinct deliverables and pick, pack and shipped offshore.
- Size of engagement: Setting up Distributed Delivery is requiring investments in management, training, infrastructure and methodology and communication. This overhead is easier to bear for large projects, although – subject to the services and experience of the organization – might be acceptable for small projects as well.
- Engagement duration: Similarly, overhead incurred in setting up a stable offshore operation is easier to bear over a longer project duration.
- Complexity of engagement: A Project which crosses several lines of managerial responsibility, has high dependencies on other projects or external partners, relies on new, non mature technology is less stable and therefore less suited for offshore delivery.
- Communication Infrastructure: The more advanced the communication assets available to the project are and the better the track record of the project community is to utilizing them the easier it is to offshore work.
- Culture affinity: Is the business ethic consistent with the course of the company and do work habits, attitudes match with the targeted offshore location?
- Skilled Resources available: Available Skill Capacity at short notice for fast ramp-up or ramp-down might not be available, making offshore an attractive option. For a major development operation, for example, it might be difficult to come up with a reliable number of developers needed prior to specifications being finalized. Still, any delay because of resource acquisition, staffing or onboarding might not be compatible to project deadlines. In this example offshore can provide a more scaleable alternative.

Using the weighted average mean an indication towards the suitability of a delivery location can be gained.

The electrical equipment manufacturer went for full scale offshoring of all development, keeping a small number of offshore developers rotating between on- and offshore. More and more customizing was transferred to offshore after the template had been build. While using a hybrid delivery mode while during pilot project delivery, offshore customizing teams delivered the bulk of customizing in the vast deployment phase of this project.

Naturally, this model is subject to a number of severe limitations. Beside a significant covariance between some Criteria there are no-go thresholds not represented in the model. E.g. if the degree of user interaction for all parts of the project is extremely high, offshore will not be an option at all independently of the total score as all available advantages of personal, face to face interaction need to be used. On the other hand, these extreme circumstances will realistically just be given for a subset of tasks within a service that is considered to be offshored: Some Customizing objects or developments might be subject for a high degree of user interaction, and

| Weighted Mean | Offshore fit | Delivery location |
|---|---|---|
| 10 9 | Sure bet | Offshore |
| 8 7 | Recommended | Offshore |
| 6 5 4 | Average fit | Nearshore or offshore |
| 3 2 | Not recommended | Onsite or nearshore |
| 1 0 | No way | Onsite |

**Fig. 1.5** Recommendations based on results for evaluating delivery locations

others might still be a contender to be delivered from offshore. A project has to be sliced and packed even inside each streams and the evaluation weather to offshore or not has to made for each of those packages.

Furthermore, the model does not help in choosing the exact location of the offshoring centre. It delivers a recommendation regarding a delivery location category, but does not help to decide to – for example – if to choose Poland or Mexico as Offshore location. For such a decision other factors must be taken into account as well, such as political stability, local skill capacities, cost differentials, language and Cultural Proximity.

### *1.2.2 Client example: when offshore is not the answer*

A European subsidiary of a global manufacturing company with 11,000 employees in 17 countries decided to outsource applications maintenance to cut costs. The applications mix covered legacy ERP systems and custom-developed applications, on a mainframe platform deployed across France, Germany, Belgium, UK, Ireland, Sweden, Spain, and Italy.

Discussions quickly uncovered a major stumbling block: end users needed local support in seven European languages. Despite some obvious cost savings, offshore service providers were clearly not the answer.

The problems were solved with a three-tier Rightshore® approach. Onsite, a dedicated group of functional consultants remained close to the business users in each of the eight countries, supported by specialists who speak the local language. Nearshore, a team of technical consultants located in France was able to fly out at short notice to support critical show-stoppers; while – offshore – the main service delivery team was based in India.

### 1.2.3 Client example: a perfect model and 47% cost reduction

A leading UK-based retailer was under severe pressure to cut costs right across the board. Offshore outsourcing seemed an obvious route to reduce IT budgets, but business users, worried about potential system downtimes affecting the movement of stock to stores, were not convinced. How would an offshore team relate to their business needs? The solution was a front-office/back-office model. A small onsite team rotates offshore every four months, carrying critical knowledge of the business out to the offshore operation, while the offshore team comes into the front-office, bringing technical skills to deal with any mission-critical problems in real time.

At the end of the first twelve months, the retailer reported a 47% reduction in application maintenance costs.

### 1.2.4 Enabling Rightshore® : distributed delivery framework

To enable the distribution of services across multiple locations, work needs to be orchestrated by one shared model across all locations, i.e. by a framework for distributed delivery.

A distributed delivery framework is a standardized set of procedures, tools, best practices and guidelines. It helps optimize the distribution of work from onshore to offshore and facilitates clear communication, methods, and process consistency between all the stakeholders and teams, around the globe. It enables com-

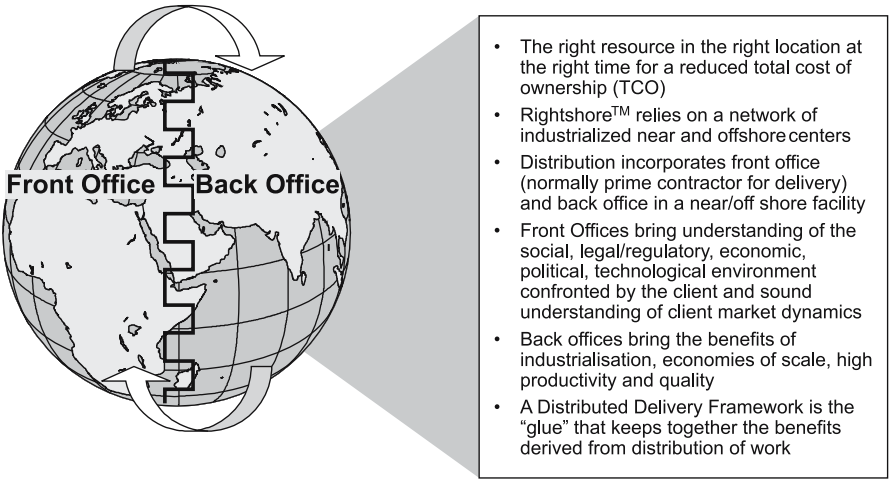


**Fig. 1.6** A Distributed Delivery Framework provides a solid foundation for Rightshore®

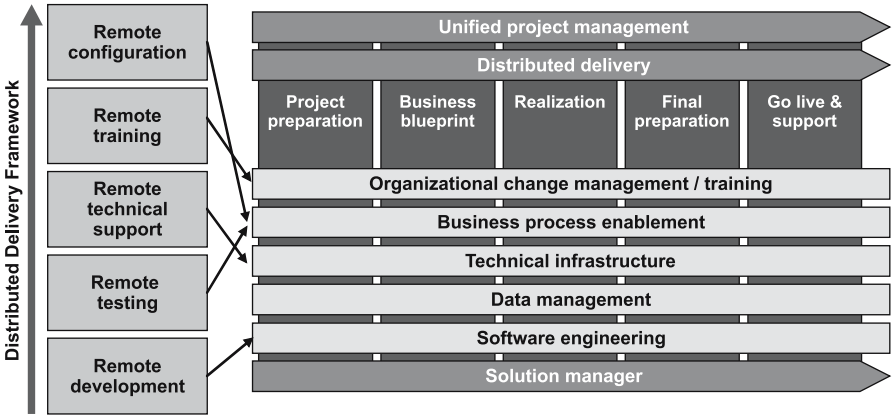


**Fig. 1.7** Linking a Distributed Delivery Framework to a unified Project Management Model for ERP implementations

panies to bring more complex work to offshore countries at lower cost and lower risk.[15]

Technically, it creates the communicational infrastructure supported by a set of communication tools, for example VOIP calls, video conferencing, or tracking systems.

A distributed delivery framework needs to be embedded into a companies IT service delivery model.

## Conclusion

Offshoring IT services for ERP implementations can be done from a range of geographically distributed locations. Depending on the nature of the required service, each delivery option will reap different cultural, political, proximity, and cost benefits. The evaluation whether or not to offshore should be done for every service (customizing, development, testing etc.) at package level. However, there is one important prerequisite: in order to have all delivery options available, a company needs to invest into building a common distributed delivery framework, or engage a partner who aligns distributed delivery centers based on such a framework. The capabilities needed for this are elaborated in the second half of part one of this book. But before that, let us take a step back and look at the macroeconomic impact, the business rationale, and cultural implications to open up the field before jumping to the "micro" level, i.e. project perspective.

[15] Elements of a distributed delivery framework are explained in chapter 'Industrializing ERP Implementations' in this book.

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# Chapter 2
# Offshoring in India: Opportunities and Risks

**Wolfgang Messner**

**Abstract** India's success in the IT industry is mainly driven by three factors: human capital, a thriving industry, and the creation and utilization of synergies between knowledge-based sectors. However, offshoring exposes companies to different levels of risk compared to their home countries. Furthermore, India's growth is not unlimited, and its insufficient infrastructure and the number of criminal elements in the political arena are hurdles which will have to be cleared. The current expansion of the IT industry in India causes the market to overheat, with all the related challenges in terms of quality and costs.

## 2.1 India's roots of success

The 1990s heralded the age of globalization in the software industry. This decade saw the rise of the three Is: India, Ireland, and Israel, each of them specializing in different aspects of software delivery. India focused on offshore software development, Israel acted as an incubator of software products, and Ireland dedicated itself to localization and programming services.

India's success in the IT industry has been so extraordinary that many books, magazines, and newspaper articles are trying to make sense of how this developing country was able to become a glitzy technology powerhouse. Its triumph is mainly driven by three factors: India's vast human capital, a successful industry, and the creation of synergies between knowledge-based sectors.

### *2.1.1 Human capital*

India's vast human capital is the first and most important driver of its remarkable IT offshoring success. The country's population has an average age of around 26, and India has started to look on its growing population as a potential asset. By 2035,

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India is expected to overtake China as the world's most populous nation; India's annual population growth rate of 1.6% is twice as high as in China.

There are some 14 million young university graduates in India with up to seven years of work experience. This is 1.5 times the size of China's pool and almost twice that of the US. The India pool is topped up by 2.5 million new graduates every year. About 25 percent of all engineering graduates are considered suitable for employment in multinational companies.[1] However, in less specialized degrees such as the arts and humanities, only 10 percent would be considered. The proportion of suitable engineers in Central Europe is generally considered to be about twice as high.[2]

Around 1.2 million Indians hold engineering degrees from a four-year study program and an additional 2 million hold engineering diplomas from three-year programs. Thanks to the growing population in India, the suitable pool of talent is growing faster than in countries with offshore demand as well as in other countries on the supply side, such as China. Notwithstanding, forecasts suggest that by 2008 demand is likely to exceed supply. It is fortunate, then, that Indian engineers are more mobile than their counterparts in other nations, which means the IT hubs can attract employees from other cities.[3]

The quality of India's universities varies extremely. The top schools for technical education and management education, such as the seven Indian Institutes of Technology (IITs), the six Indian Institutes of Management (IIMs), and the Indian School of Business in Hyderabad (ISB), have world-class status and rank among the top universities in Asia. The IITs and IIMs are at position 57 and 68 respectively of the worldwide university ranking of the Times Higher Education Supplement.[4] These universities take pride in stringent selection processes and accept only about two percent of applicants. Apart from these examples of educational excellence, there is a rather steep decline in quality in the remaining 200 universities and 12,600 colleges.[5]

NASSCOM – the IT industry association – collaborates with the government to increase the scope and scale of the IITs and IIMs. Companies have a vital role in IT education. Prior to assigning young graduates to customer projects, they offer between four and twelve months of corporate education. Besides specialized training on IT topics such as SAP, ABAP, Java, and office applications, the focus is on personal development, e.g. English communication skills and intercultural awareness.

### *2.1.2 Industry*

India's industry is vibrant and ever evolving. But it has successfully created a top layer of several large multinational firms.

[1] Multinational companies typically look at language proficiency, quality of education, and cultural adaptation when deciding on the suitability of candidates.

[2] Cf. [Farrell/Kaka/Stürze 2006, p29]

[3] Cf. [Farrell/Kaka/Stürze 2006, p31]

[4] Cf. [Times 2006]

[5] Cf. [Müller 2006, p72]

Gartner, the market research company, has identified 30 major IT companies providing application-related services from India.[6] This list comprises traditional IT service providers from the US and Europe, pure-play offshore providers with roots in India, and emerging providers from other offshore nations. As the market is growing and changing at a rapid pace, it would not be feasible to state employee figures and company details in a book. Picking a vendor from among this list is hence down to the vendor selection process.

### *2.1.3 Synergies between knowledge-based sectors*

About 30 years ago, India decided that if it was ever to become a global player and developed country, it would first have to become an information technology country and build on its historical reputation in mathematics. In the early days of India's independence, agriculture contributed to 55.4 percent of national income, compared to only 25.5 percent today.[7] India's central planning in the 1970s helped to kick off a long-term plan, focusing initially on education and training. Having first ensured the availability of human resources for the IT market, India's government then created a business-friendly environment for the IT services industry. It established fiscal advantages for Indian companies in the offshore IT market, including exemption from all company taxes, which can amount to 48 percent for a foreign-owned company in India. Considering that India's domestic market is extremely price sensitive, this is even more of a reason for an Indian company to look for offshore revenues. When India started to move into offshore business process outsourcing (BPO), the Indian industry coined the term ITES, which stands for IT Enabled Services, and enjoyed the same tax benefits as IT development.[8]

In other segments of the services and knowledge sector, growth can be explained by the deregulation and general liberalization of the Indian economy. Many new industries such as TV and mobile telephony were open to private equity right from the beginning. India's pharmaceutical industry moves to the forefront and virtually swamps the world market with generics. Ranbaxy is today already market leader in India and among the global top 10 producers of generics.[9] Ranbaxy aims to use the revenues generated in the generics business to transform its organization towards an innovative company independently financing its own research & development and marketing the developed drugs under its own brand. As in the IT sector, innovation costs in R&D are substantially below US or European levels. Companies with limited capital can thus risk large research ventures and thus manage to join the international arena.

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[6] Cf. [Iyengar/Karamouzis/Marriott/Young 2006]

[7] Cf. [Chandra/Rau/Ryans 2002, ch12]

[8] Cf. [Davis 2004, ch3]

[9] Cf. [Müller 2006, p85]

Historically, sectors like manufacturing were either a public sector business or a license raj protected by the government.[10] The government has only now initiated a turnaround with respect to this situation, and plans to increase and thereby effectively double the share of industrial production in economic output to 30% by 2020.[11] This will realize similar growth rates as in the services industry. The renaissance of industrial production begins in areas that are as astonishing and unusual for a developing country as the dynamic IT sector. Never before had India achieved any significance as producer and exporter of labor-intensive mass production. But now India delivers technically complex industrial goods to the world markets: parts for automotive and aircraft construction, medical technology, telecom equipment and large plants. In this area as well the country skips the low stages of industrial export. One of the reasons is the insufficient infrastructure which does not allow for the development of large-scale factories with low-margin mass production.

This also means that India avoids direct economic competition with China in areas where the country is ill prepared and well below world standards.

## 2.2 Major outsourcing locations in India

IT development and BPO have grown in various locations in India (see Figure 2.1). Many BPO companies tend to avoid the major cities because of high infrastructure and human capital costs, and instead prefer the so-called 2nd-tier cities. IT offshoring companies are mostly clustered around the major cities because of their need of skilled employees which congregate in the major cities.

In India's north the focus is on three regions: Mumbai, Delhi, and Kolkata. In the Mumbai region, the city of Pune has scooped up some work previously performed in Mumbai itself. Pune is an independent city itself, but sufficiently close to Mumbai to allow business with Mumbai-based clients. The Delhi metropolitan region is usually termed as the National Capital Region (NCR) and comprises the cities of New Delhi, Noida, and Gurgaon. The city of Kolkata is an upcoming location with increasing importance for outsourcing organizations. Despite its poor international reputation stemming from its historical association with poverty, it today boosts of a good infrastructure at lower operating costs than in other established locations.

In the south, IT development and BPO is concentrated on the technology triangle of Bangalore, Hyderabad, and Chennai. Bangalore is often referred to as the Silicon Valley of India; it has grown from a garden city, where pensioners would move to spend their retirement years, to a supercharged city of rapid growth. Mysore is an upcoming location some 150 km from Bangalore; its infrastructure is still cheaper compared to Bangalore, and it is also an attractive location for employ-

[10] Cf. [Chandra/Rau/Ryans 2002, ch12]

[11] Cf. [Müller 2006, p87]

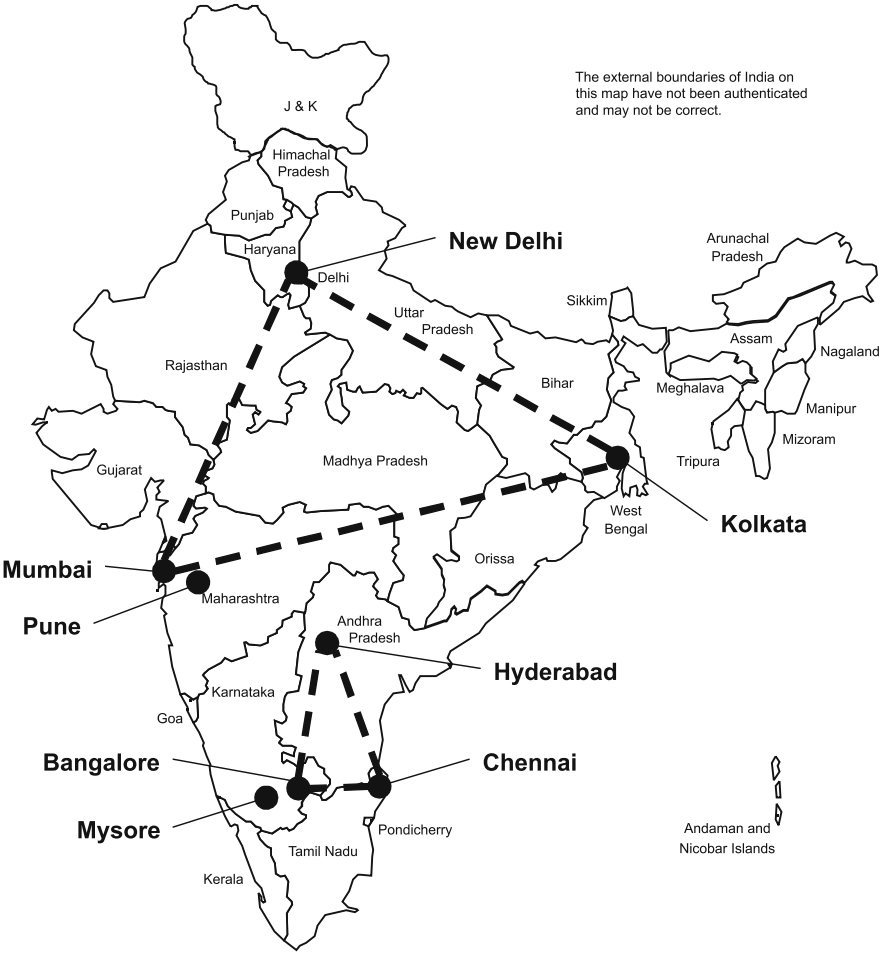


**Fig. 2.1** Major outsourcing locations in India

ees. Chennai and Hyderabad are beginning to earn a strong reputation in BPO services.

## 2.3 Country risk assessment India

One criterion for decisions on offshore locations is country and regional risk. Offshoring exposes companies to different levels of risk compared to their home countries. Country risk has four dimensions: risk for business continuity (which can culminate in country outage), the risk of government regulatory changes (sovereign risk), risk of data theft, and currency risk.

### *2.3.1 Risk for business continuity*

Business continuity is the ability of a firm to continue its core operations; it can generally be affected by four forces (see Figure 2.2).

War, terror, and riots

India and Pakistan have fought over the territory of Kashmir in two wars in 1947–48 and 1965. Since then, many smaller conflicts have taken place in the region, including suicide attacks of religious militant fighters. The last full-scale war between India and Pakistan took place in 1971, and the threat of a nuclear conflict is the key restraint on both countries. In the last years, Indian relations with Pakistan have continued to improve, with full diplomatic relations restored in May 2003.

Other borders are also under dispute, occasionally flaring into the public consciousness. The border of the Indian states of Assam and Meghalaya with Bangladesh saw violent skirmishes in April 2001. The long running border dispute with China on the frontier with the Indian state of Sikkim was peacefully resolved in July 2003.

Even though Al-Qaeda accuses India of killing Muslims in Kashmir with US support and has put New Delhi on its list of targets,[12] the chances of Al-Qaeda mounting a full-scale attack on India appear rather slim. However, the Subcontinent is increasingly becoming the breeding ground for Islamic terrorists.

On December 28, 2005, Prof. emeritus Dr. Munish Chandra Puri of IIT Delhi was shot while attending a conference at IIT Bangalore. Three other scientists and a lab assistant were seriously injured in the attack. The shooting was declared a terrorist

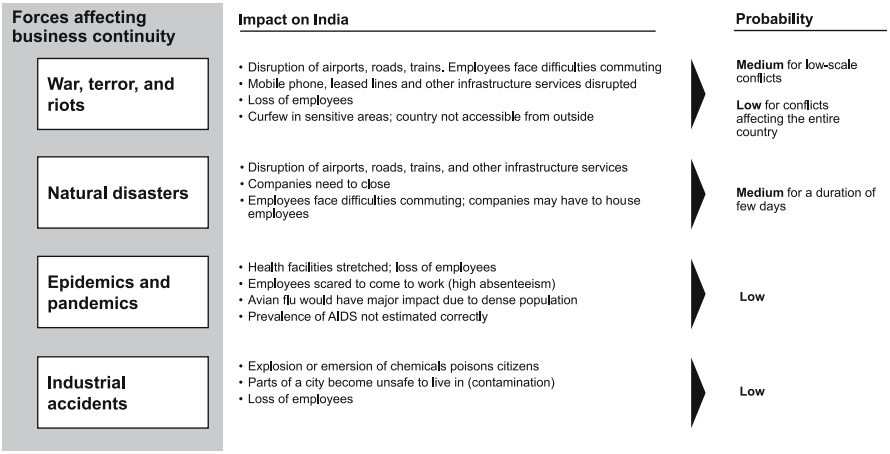


**Fig. 2.2** India country risk scenario of IT offshoring

[12] As declared in an Al-Qaeda video by Azzam Al Amriki in August 2007, cf. [Bagchi/Mohan 2007]

attack, making it the first in Bangalore. However, no definite connection to any specific terror group could be established.

The seven bomb blasts in the Mumbai suburban trains on July 11, 2006, were carried out by Lashkar-e-Tayyaba (LeT) and the Students Islamic Movement of India (SIMI).[13] 209 commuters died and 714 were injured. LeT is one of the largest and most active Islamic militant organizations in South Asia. Founded in Afghanistan and currently believed to operate from Pakistan, their primary objective is to end Indian rule in Kashmir. SIMI was founded in India in 1977 and aims to 'liberate' India from western materialistic cultural influences and convert the country to an Islamic society. The organization is now feared to be infiltrated by Al-Qaeda. Earlier bomb blasts in Mumbai occurred in December 1992, when hundreds of people were killed and the city was paralyzed by religious violence triggered by the destruction of the Babri Mosque. In 1993, serial bomb blasts killed more than 250 people and damaged the Bombay Stock Exchange; these were believed to be orchestrated by mafia don Dawood Ibrahim in retaliation for the demolition of the mosque. Similar bombings occurred in 1998.

One of the suicide car bombers, Kafeel Ahmed, who drove a car into Glasgow airport on June 30, 2007, was an engineer from Bangalore working towards a PhD in computational fluid dynamics. In 2005 and 2006 he had been working with Infotech, an outsourcing company in Bangalore.

There are frequent clashes between Hindus and Muslims in the country leading to widespread violence. In December 1992 and January 1993 tensions rose between Hindus and Muslims in Mumbai. 900 people died in the riots and some 200,000 fled the city. The riots did not only affect slums but also apartments and other gated complexes.

In addition, riots between different castes occur sporadically. In June 2007, a full-blown caste conflict took place between Rajasthan's dominant tribes, the Meenas and the Gujjars. The Meenas considered themselves to suffer from quota benefits in both, government and educational institutions, if the Gujjars were to be granted a similar status. "Large Meena mobs were seen traveling on tractors, armed with country-made guns, pickaxes and other weapons, heading towards the areas where the Gujjars had created road and transport blocks. Their aim was to attack the Gujjars and remove the obstruction and render their protest futile. The violence has spread despite the heavy army and paramilitary deployment and the shoot-at-sight orders in Sawai Madhopur and Bharatpur districts."[14] As a result, the Jaipur-Agra highway very much resembled a war zone.

### Natural disasters

In India, natural disasters predominantly occur in the shape of earthquakes and flooding.

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[13] Cf. [CNN 2006]

[14] [ToI 2007a]

Mumbai is situated in seismic zone 3 (of 5). Since 1618, nine quakes have been reported directly in Mumbai. The last one occurred south of Mumbai in 1967 and killed 200 people. On January 26, 2001, the State of Gujarat and the city of Ahmedabad, just over 200 km north of Mumbai, were subject to an earthquake measuring 6.9 on the Richter scale. According to official sources, 19,800 people were killed and more than 166,000 injured, 20,717 of which seriously. Other IT centers such as Bangalore are situated in seismic zone 1 and have not yet recorded any major quakes.

Flooding is a major problem during the monsoon season. In 2005, without any previous weather warnings, heavy rains hit Mumbai and resulted in the international airport being closed for thirty hours. Many offices had to remain closed for several days. Some employees were taken by surprise, did not leave office on time, and had to be housed on site. During the monsoon rains, in most Indian cities trees are uprooted, compound walls crash down, and streets are temporarily flooded knee-deep with water, bringing traffic to a standstill.

The most recent large-scale disaster to strike India was the tsunami of December 26, 2005, hitting the Tamil Nadu coastline and upcoming IT city of Chennai. The tsunami claimed more than 10,000 lives in India alone and caused USD 2bn of damages. One should note that India refused all offers of help from foreign governments, though it did accept help from aid agencies. In fact, during this crisis India emerged as a regional leader and was able to reach out to its neighboring countries to provide help.

### Epidemics and pandemics

During the monsoon, India is frequently hit by diseases spread by mosquitoes. The chikungunya fever hit India in 1963, 1965, 1973, and 2006. In 2006 it was declared an epidemic and claimed 81 lives in the state of Kerala alone.[15] Other mosquito-borne diseases include malaria and the dengue fever.

A possible outbreak of the Asian flu would certainly cause a pandemic with disastrous effects in India because of the country's dense population. There is no reliable veterinary infrastructure in place to detect and contain early outbreaks.

As a global epidemic, AIDS is beginning to turn into a catastrophe in India. Spread is still far below the more than twenty per cent in South Africa, though this is due to the dense population. UNAIDS estimates state that in India between 3.4 and 9.4 million people are HIV positive or have developed AIDS.[16] In addition to segments of the population generally at higher risk, the infection now also affects the rest of the population. More and more 'clients' of prostitutes are by now business

[15] Cf. [ToI 2006]

[16] Cf. [UNAIDS 2005, p27]. Note that calculating HIV/AIDS statistics is fraught with difficulties the world over, but the figures are especially controversial in India. Some states, such as Bihar, do not collect any data. An estimated 80% of HIV/AIDS carriers are never tested, and few of those who are actually report the result. Data on India is extrapolated from only 670 sentinel sites across the country, cf. [Johnson 2005, pW15]

people or work in the service sector. In Mumbai some 54% of female sex workers are HIV positive, in Karnataka with capital Bangalore this figure is at 23% and 47% for women working outside brothels.[17] One UN Agency believes the number of Indian infections will rise to 12 million by 2015, and the CIA predicts 20 to 25 million by 2010.[18] This means employees in the Indian IT offshoring sector will also be affected. However, these figures cannot be used to assess the level of risk for companies, as the structure of staff in IT offshoring differs significantly from the general population. One option is to offer regular, free of charge and anonymous tests across all hierarchy levels of a company, as is already routine practice in South Africa. Epidemiologists would then be in a position to make more accurate predictions for the development in the next ten years.

AIDS annihilates the advantages of software factories with less expensive software developers: direct and indirect costs of AIDS add to the salaries and wages (see Figure 2.3). Discounting the future expected costs from the current status sheds a different light on the prevention efforts of companies, as they are then viewed as investments to avoid future costs instead of pure current costs. The fight against AIDS can only be won through preventive measures, and anti-retroviral therapies help to extend life expectancy and thus productivity of employees by an average of five years. In South Africa the business case for a therapy shows cost saving potentials of up to 40%.[19]

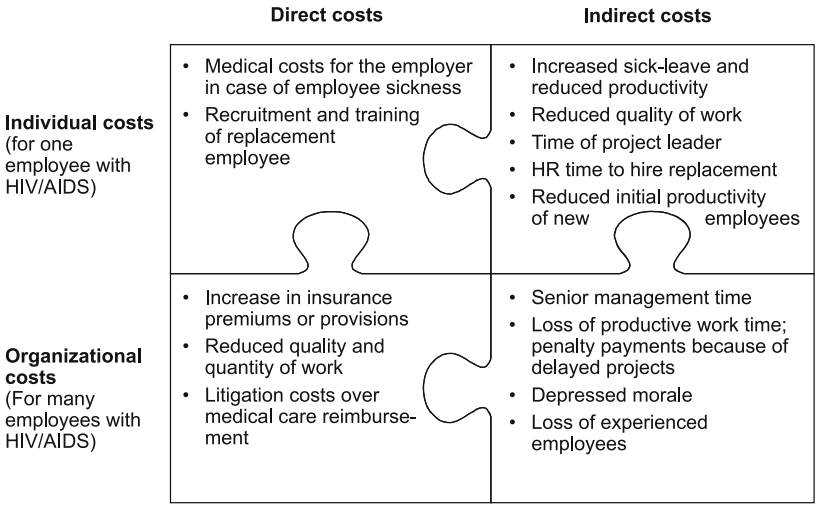


**Fig. 2.3** The costs of AIDS to IT offshoring[20]

[17] Cf. [UNAIDS 2006, p29]

[18] Cf. [Economist 2004, p9]

[19] Cf. [Rosen et al. 2003]

[20] Adapted to IT industry from [Rosen et al. 2003]

AIDS also reduces demand for products and services in India itself, as the disease frequently affects the main bread winner of a family. In the Indian middle classes, one generation is typically responsible for supporting children as well as parents; and the pension plans of parents usually depend on the income of children. When the main source of income disappears and all savings are spent on medical bills, the extended family is left in poverty. In turn, AIDS and poverty may become causes of civil unrest.

Industrial accidents

On April 14, 1944, the vessel SS Fort Stikine carrying mixed cargo of cotton bales, gold, ammunition and explosives, caught fire in Mumbai harbor and was destroyed in two giant blasts. Eleven neighboring vessels sunk and 800 people died. Glass windows broke up to $12\,\mathrm{km}$ away from the docks. $500{,}000$ tons of debris had to be removed by $8000$ men to bring the docks back in operation.

Today, Mumbai still has 900 hazardous industries located in close proximity to residential areas.

### *2.3.2 Sovereign risk*

Some thirty years ago it was common to fear confiscation, nationalization, and expropriation in India. In 1977, the Indian government in fact made business so uncomfortable for foreign companies that IBM decided to pull out entirely from the country. IBM had commenced operations in India in 1955 with long-term objectives for growth and increase of market share through an improved competitive stance. The Government of India wanted to ensure that foreign direct investment would fall in line with India's development priorities. The Foreign Exchange Regulation Act (FERA) became effective on January 1, 1974, and was India's means to achieve this objective. The Reserve Bank of India (RBI) subsequently analyzed IBM's activities in India and concluded that IBM had to reduce its foreign equity to 40 percent. The Government of India contended that IBM was reaping very high profits from importing the then already obsolete and outdated IBM 1401 computer system which was sold and leased at standard global rates. IBM was repatriating these profits without transferring any sophisticated technology to India. Additionally, IBM India had to pay headquarter expenses to the parent company, and the Government of India understood this as repatriation of hidden profit. IBM was willing to partly adhere to the FERA and submitted a proposal for restructuring its business. However, then Prime Minister Morarji Desai communicated to IBM that no exception was possible. IBM was not willing to accept these terms and reluctantly decided to withdraw from India; IBM ceased operations in India on May 21, 1978.[21] Following IBM's departure from India, changes in the international business climate forced the government to

[21] Cf. [Negandhi/Palia 1988]

set new policies for the development of the computer industry in India. By 1988, IBM was again actively seeking and securing new business in India and formally returned in 1991 by forming an alliance with Tata,[22] which they later bought out.

In today's global world it is somewhat difficult to imagine such kind of events to occur. But in the offshore continuum, there is a danger of host country governments "using their increased bargaining strength to demand concessions from multinational corporations in respect of equity holding, management control, localization of top-level management, and mandatory export commitments. The multinational corporations, on their part, need to respond constructively to policy changes. They need to understand host country governments' priorities and gear their strategic and long-range planning towards maintaining a favorable leverage position."[23] Just imagine the Indian government were to change tax or subsidy structures – it could make India far less attractive an offshore destination.

The effect of interference by foreign governments also needs to be considered. In May 1998 India conducted nuclear tests in the Rajasthan desert. Pakistan answered by detonating its own nuclear devices, and the international community fiercely condemned these activities. The US did not allow any kind of exports from India (including software) into their territory, though these restrictions were lifted after a few weeks.

### *2.3.3 Dealing with data theft*

Allegations that Indian call center employees are stealing credit card and other personal data frequently make it to the headlines, culminating in news about companies withdrawing their operations from India.

IT companies in India conduct comprehensive background checks before offering employment to candidates. To support the tracking of employment history, in early 2007, NASSCOM – the National Association of Software and Service Companies in India – launched a national skills registry for IT professional. Security compliance programs, comprehensive security audits, authentication, and sometimes even physical access control on project level have become commonplace in the software industry and are supported by workshops aiming to enhance employees' knowledge and awareness of data misuse.

In addition to preventive measures, there are several laws which apply to data theft and misuse in India. Complaints can be filed for theft, cheating, criminal breach of trust, dishonest misappropriation of data, or criminal conspiracy under the provisions of the Indian Penal Code (IPC) of 1846, and for hacking under the Information Technology Act (ITA) of 2000. Offences under IPC and ITA allow for an arrest without warrant, are non-bailable, and as penalties carry fines as well as imprisonment from one year to life sentences. Civil proceedings for copyright infringement under the provisions of the Copyright Act (CA) of 1957 and the Specific Relief Act

[22] [NYT 1991]

[23] [Negandhi/Palia 1988, p33]

(SRA) of 1963 are also initiated in case of data misuse. Penalties under these acts can range from hefty fines to temporary and permanent injunctions.[24] The Indian government is currently in the process of amending the ITA to address data privacy and security issues. These provisions will allow for control processes to ensure adequate integrity, security, and confidentiality of electronic data.

While laws are in place to address data security issues, the Indian legal system as such remains a concern. Delays are common, and it can take more than ten years for a case to be resolved. More than three million cases are pending in India's 21 high courts, and in subordinate courts across the country an astounding 26.3 million cases remain open.[25]

### *2.3.4 Currency risk*

A major issue in offshoring is the currency risk, i.e. the risk of exposure due to volatile exchange rates. A rise in the value of the Indian rupee eats into the profits of the Indian services companies. Analysts say that a one per cent rise in the rupee against the dollar cuts 30 to 50 basis points from the operating margins of software services exporters. Alternatively, of course, offshoring might get more expensive for customers.

In the first half year of 2007, the Indian rupee (INR) was Asia's best performing currency. It gained 9% in strength and hit 40.28 against the USD. In August 2007 it reached its highest levels since May 1998.

Apart from times of general economic crisis, currency risks can be mitigated by determining the currency of payment, or by currency hedging. However, currency fluctuations also offer some opportunities: until 2006, Indian companies benefited from a constantly weakening rupee against the USD.

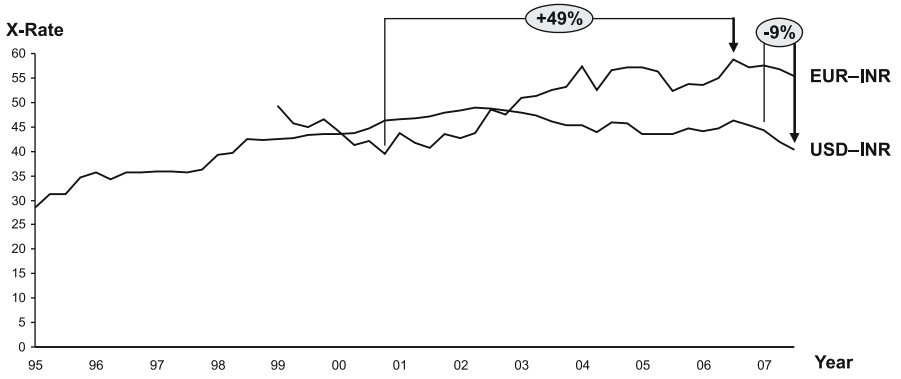


**Fig. 2.4** Exchange rates EUR and USD against INR

[24] Cf. [Manghan/Wugmeister/Titus 2007]

[25] Cf. [HeadlinesIndia 2007]

## 2.4 India's delimiting factors

### *2.4.1 Infrastructure*

India's infrastructure – or rather the lack of the same – is the main concern for senior managers of multinational companies.

Among the various infrastructure constraints, power supply is probably the most fundamental, as electricity is clearly indispensable for the IT industry. The establishment of business parks with power supplies backed up by diesel generators has helped to soften the issue. Other infrastructure constraints, such as water, roads, and ports are significant bottlenecks for the manufacturing industry. In fact, one of the reasons the software and services industry was able to take off in India was that they do not heavily depend on these types of infrastructure.[26] However, new airports and better airport management become increasingly important: due to the rise of the software industry and the need to transfer knowledge and thus send analysts and developers to Europe or the US, every year some 250,000 additional seats have to be added to flight capacity to and from India.[27] Both Bangalore and Hyderabad will open new international airports in the first half of 2008. Unfortunately, the new Bangalore airport is located far outside the city with no railway or adequate road connections ready for its opening, which is why jokingly people already refer to the project as the only airport worldwide that can only be reached by air.

India's telecom infrastructure is in a poor state; telecoms remained a government enterprise until very recently, and it was the rise of India's software industry that has drawn attention on the dramatic changes in the telecommunication sector. International links and bandwidth need to improve for the Indian IT industry to realize its growth projections.

For India to stay ahead of other offshoring countries, a lot more and faster investment into the infrastructure is required. Only the government can mobilize funds to upgrade airports, roads, utilities, and the communication network.

### *2.4.2 Criminalization of politics*

The criminal structures in Indian politics are the most obvious challenge facing the country's democracy today. Organized crime has discovered the advantages and opportunities coming with political power. A political mandate offers immunity and opens access to public funds. Mafia organizations infiltrate political parties and terrorize voters particularly in slums and less developed areas to warrant their candidates' victory. Nearly a quarter of all federal MPs are subject to investigation ranging from embezzlement to bank robbery, taking of hostages, murder and rape. In the regional parliaments the share of politicians with a criminal past is said to be

[26] Cf. [Basu 2004, ch10.3.2]

[27] Cf. [Müller 2006, p65]

even higher.[28] The scandals are frequently uncovered by the press and cause public uproar. However, the public excitement soon passes and things continue as before.

One of the reasons for this is the ambivalent relationship of the Indian upper classes and business people to corruption. Although they may find it morally condemnable, they are also only too willing to pay extra to accelerate the process of renewing a driving license, getting a telephone connection, or having the income tax declaration processed. Indians spend an astounding 210bn rupees (approx. 4bn EUR) each year on bribes. [29] The poorest of the poor are those suffering the most – hardly any school accepts new pupils without payment of bribes.

### *2.4.3 Overheating*

Even though India has been developing its export-oriented software development sector for more than a decade, there remains a clear scarcity of experienced middle managers. New market entrants often aim to hire their middle management from established operations instead of investing into the mentoring and training of their own staff. Other countries increasingly recruit middle managers from India. This trend is clearly reflected in the increase of wages. On average, entry-level software

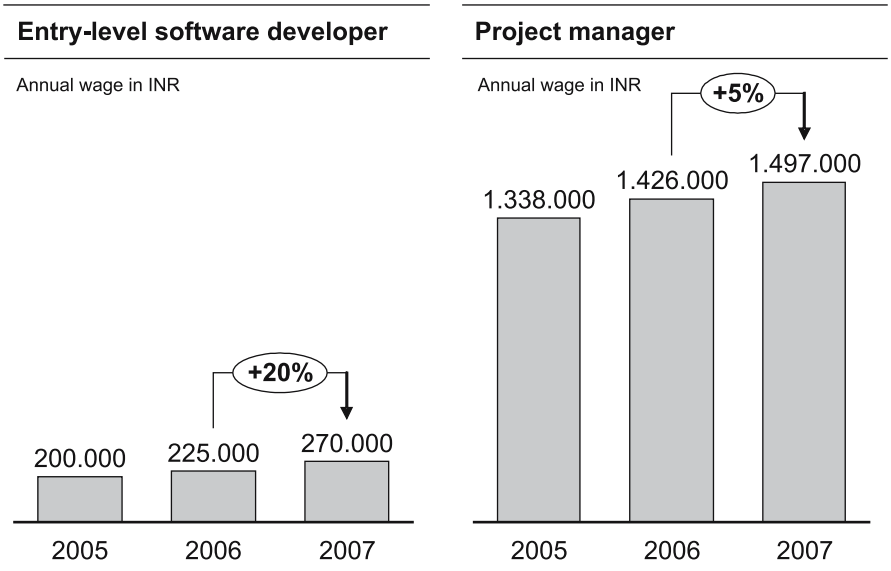


**Fig. 2.5** Wage inflation in India[30]

[28] Cf. [Müller 2006, p227]

[29] According to Transparency International, cited in [Müller 2006, p230]

[30] Source: Capgemini market research; see also [ToI 2007c]

developers currently earn an annual wage of 270,000 INR (6750 USD) and project managers 1,497,000 INR (37,400 USD). Salaries are increasing up to 20% every year (see Figure 2.5).

Salary levels in India may still double in the years to come and reach the levels of Brazil and Mexico. But because of dispersing demand, they will not reach the levels of the countries with offshore demand. Instead, they will most likely be capped at 30 percent of average US wages.[31]

Moreover, an estimated 40,000 IIT graduates have left the country and now work in the US. The recession in Europe and economic slow-down in the US have helped to somewhat improve the quality of India's workforce. The US is no longer viewed as the perfect destination to live in and pursue a career, and many Indians are now moving back to their home country.

## Conclusion

India has become successful as a software factory perfecting industrialized software development. The story of offshoring is, in many ways, the success story of the Indian industry. Offshoring to India, companies nonetheless also expose themselves to different levels of risk compared to their home country. Fortunately, the Indian government is responding to concerns about the country's infrastructure and security. There are many steps an IT services company can and should undertake to reduce risk; a good business continuity plan should help to minimize the impact of incidents in India.

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# Chapter 3
# Economic and Business Effects of IT Offshoring

**Wolfgang Messner, Stephan Weinert**

**Abstract** The effects of IT offshoring are contentious. Policy makers, business executives, and academics express strong and often conflicting views. This paper aims to offer decision makers and business shapers a better understanding of the rationale and economics of offshoring, as well as its effects. Offshoring has important implications for companies and service providers. However, offshoring also to various degrees affects the wealth of Western countries and their workforce. As a receiving economy, India can realize significant benefits through direct foreign investment.

## 3.1 Putting the effects of offshoring into perspective

The ability to offshore IT depends on a pool of well educated and trained employees in an offshore location, a sizeable gap between their income expectations

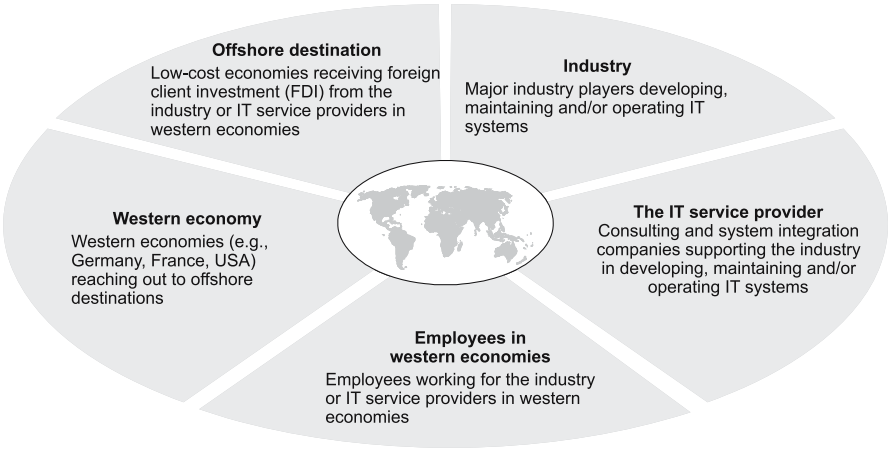


**Fig. 3.1** Perspectives of offshoring effects

Anja Hendel, Wolfgang Messner, Frank Thun, *Rightshore*
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and those of their peers in the home markets, a robust communication technology in place between distributed locations, and sufficient faith in the stability of the offshore location. Emerging markets such as India have increasingly been meeting these requirements since the 1990s. But offshoring also has important implications for companies, markets, and employees on the demand as well as the supply side.

At the highest level, it presents an opportunity for the industry and IT service providers to create more value at lower costs. This means a boost for the global economy, i.e. for the economies of the demand as well as the supply side. However, the benefits of offshoring are not necessarily distributed equally among the market participants. Particularly employees in developed economies, whose jobs are effectively displaced, feel less secure and may suffer temporary or even longer lasting unemployment.

Figure 3.1 shows the market participants that we will examine in more detail in the following chapters.

## 3.2 The business case for the industry

Although the market trends are now generally more positive and IT budgets cautiously expanding, most companies remain firmly focused on improving or achieving cost-efficiency and profitability. The cost chase is not over yet. More than half of the companies surveyed by Capgemini[1] state that achieving cost efficiency is the primary business objective for IT. However, some variations exist between the industries. Companies in the industrial sector focus more on reaching or increasing profitability (and hence on achieving cost efficiencies), whereas companies in the service industries are more aggressively targeting growth.

During the last few years, companies have been steadily increasing the use of external IT sources and now maintain an open mind towards leveraging cost opportunities through offshoring. Global companies are very much trend leaders in this respect.

Reducing IT expenditures while at the same time maintaining IT capabilities is an immense challenge for the industry. During the last period of recession, many companies have applied a lawn-mower approach to cost cutting. In many cases this has drastically reduced strategic investments and thus meant the end for many IT plans with value potential (see Figure 3.2, top two diagrams).

The general improvement in economic and business conditions worldwide has had a positive impact on the business outlook of companies. More than two out of three companies experience a business performance upturn, while only 6% see a negative business trend. This improvement in business performance has also increased companies' willingness to invest in IT. Most of the surveyed companies report increasing or stable IT budgets. However, IT budgets are not increasing at

[1] Cf. [Camoin/Larson/Moch 2007]

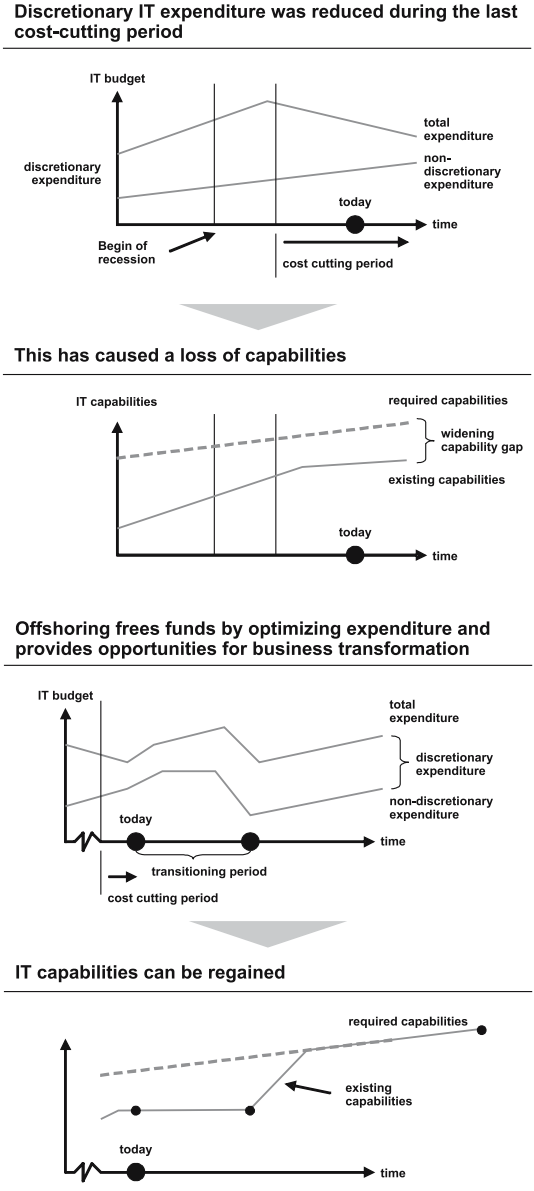


**Fig. 3.2** IT offshoring rationale for the industry

the same rate as the overall business performance. 65% of companies experience an improving business performance, whereas only 36% are upsizing their IT budgets (see Figure 3.3).

Missing IT capabilities will have to be redeveloped at high costs, which in turn will lead to higher overall IT expenditures. This is exactly where offshoring comes into the picture. The non-discretionary IT expenditures can be reduced by utiliz-

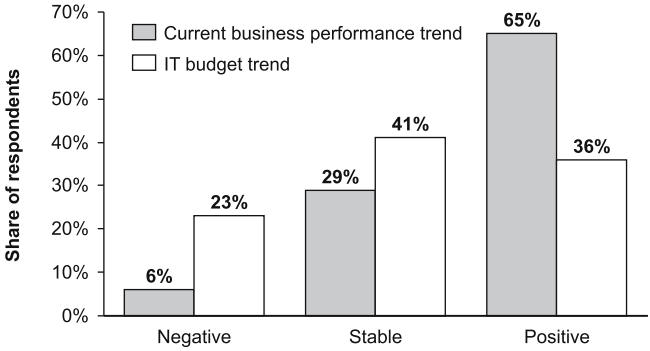


**Fig. 3.3** Trend in business performance and IT budgets[2]

ing the existing wage arbitrage, which in turn unlocks financial means to support strategic investments and regain strategic IT capabilities (see Figure 3.2, bottom two diagrams).[3] However, when cost efficiencies allow one company to expand its competitive options, competitors need to match this development or risk losing market shares. "Offshoring is becoming part of the larger environment of hypercompetition: companies are swept into faster and faster cycles of competitive responses and reactions in order to remain financially viable and cost competitive. Not offshoring may well become a strategic peril."[4]

A major risk of offshore outsourcing may not be directly related to technical issues but the expectations of the internal organization towards offshore savings. Lower hourly labor rates do not necessarily translate into lower costs. Critical considerations include the transition processes of a supplier, productivity rates, service delivery capabilities and quality commitment. These factors can impact the overall project costs and the value gained from the offshore engagement.

Unfortunately, many executives assume that labor arbitrage will yield savings per individual employee (e.g. a full-time equivalent in India will cost 40 percent less), thus neglecting the hidden costs and differences in operating models.

- Selecting the vendor and managing the contract
- Transition to the offshore model
- Ramping up the offshore team
- Losing productivity due to cultural differences[5]
- Building an internal team and developing its skills to manage the offshore relationship.

Working together with IT service providers, companies can transfer the management of these hidden costs to the provider.

[2] Adapted from [Camoin/Larson/Moch 2007, p8]

[3] For considerations on how to reduce non-discretionary IT expenditures during recession, cf. [Messner 2004]

[4] [Carmel/Tjia 2005, p94]

[5] See chapter 'Intercultural Aspects of Project Management in India' in this handbook.

Many IT executives ask for the best ratio of offshore versus onshore work, i.e. the share of IT headcount and IT budget that should be offshored. The method of defining numeric goals was introduced by Jack Welch, the former CEO of General Electric (GE), and his 70:70:70 rule[6] is often translated as follows: 70% of all IT work should be outsourced, of which 70% is to be outsourced offshore, of which 70% should go to India.[7] Such numeric targets are a good approach towards implementing a cost-reduction strategy and integrating it in the personal goals of IT managers. However, there is no such magic number for the offshore equation. Smart companies adjust the offshore numbers based on measurable financial results and other benefits.

## 3.3 The provider perspective

The general economic downturn in 2002–03, customers negotiating more aggressively, and the intensifying competitive pressure has seen the margins of IT vendors in free fall. At first glance, offshoring bestows IT service providers with a possibility to increase their margins by reducing the blended cost-rate of their project teams.

But IT service providers will find that their new low-cost wage structures offer a variety of other opportunities to increase their competitiveness and boost revenue growth. Vendors witness a dramatic shift in the importance of their service lines: customers are now less inclined to invest in highly customized integration projects and instead demand more standard application package solutions along with the necessary integration effort from a single service provider.

The software factory approach with its sizeable pool of available resources supports this shift in service lines and enables IT vendors to deliver more and bigger projects. This could certainly also be achieved in Europe, though at higher costs and slower speed. One of the advantages of offshoring is that it draws from a large pool of consultants to achieve quick ramp-up times (time to get projects started) and shorter project durations (time to completion).

Many jobs offshored by IT service providers may be considered undesirable and lacking prestige in the developed economies, yet they are highly attractive in emerging markets. GUI customization, ABAP development, testing, and bug fixing are typical examples from the domain of implementing packaged applications. Consequently, offshore resources not only cost less but they are also more enthusiastic about their jobs, which in turn also means better performance. While many offshore tasks are routine, talent has a specific meaning in the software business. Talent represents the top of the software labor pool, and it is those resources who can innovate and are hence not easy to find. Software companies prefer to establish centers in locations that are a magnet for talent. Companies come to these locations because

[6] The GE 70:70:70 rule states that 70% of GE's IT work should be outsourced, of which 70% should go to global preferred vendors, 70% of which should be done on the vendor's premises (which may be offshore), cf. [Carmel/Tjia 2005, pp94–95]

[7] Cf. [Carmel/Tjia 2005, pp94–95]

of available talent – and talent comes due to the presence of attractive companies.[8] In the 1990s, Silicon Valley was the global technology hotspot. Today, the evolving new technology clusters are situated in India and China. Tapping into the Indian talent pool enables innovation in software companies, such as the development of new software packages or prototypes to conduct customer presentations which would otherwise be unaffordable.

Similar benefits are sought by companies establishing their own offshore operations. Using these 'captive centers' is becoming more popular especially among global companies. This approach combines the low-cost benefits of offshoring with the potential for better control and customer intimacy. The biggest downside of this approach is that it requires a critical mass to become feasible and that the potential risks associated with offshore operations remain in-house.[9]

Despite the increased optimism in general market conditions, which is reflected in IT investments, most companies remain firmly focused on reaching or increasing profitability as opposed to growth. As mentioned above, more than half of the companies regard achieving cost efficiency as the primary business objective for IT, followed by providing flexibility and generating revenues.

Looking to the future, companies expect the shift from internal to external sourcing options to continue and the use of offshoring and distributed delivery to accelerate. In fact, 58 percent of companies today consider outsourcing and 39 percent offshoring. On average, companies plan to shift more than 7 percent of the IT budget towards distributed delivery and offshore options in the next two years.[10]

"At present, most companies are doing more or less the same things offshore that they have been doing at home, in the same fashion but at lower costs. However, the difference in the labor to capital cost ratio in emerging markets means that redesigned offshore processes could be much more productive."[11] Industrialized package implementations use a consistent, standardized and detailed set of processes and tools that are measured and optimized to deliver predictable results. Adopting industrialized processes will extend the roles of project managers and team leads. They now need to regard themselves as process managers, i.e. learn how to establish, maintain, control and tune production chains in which each deliverable is built by various people.[12]

## 3.4 The effect on Western labor markets

While offshoring is, on average, beneficial for Western companies, there is much more controversy in Western economies about the effect of offshoring on the do-

[8] Cf. [Carmel/Tjia 2005, p98]

[9] Cf. [Camoin/Larson/Moch 2007, p25]

[10] Cf. [Camoin/Larson/Moch 2007, p16]

[11] [Farrell 2006, p5]

[12] See chapter 'Industrialization of Application Implementation' in this handbook

mestic labor markets. The fear generally is that offshoring will lead to redundancies on a large scale, thus spelling trouble for the wealth and social stability of Western countries.

This needs to be analyzed with extreme caution. No statistics on the impact of offshoring are available from official authorities.[13] Determining its exact extent is further complicated by the lack of a commonly agreed definition. Depending on the type, offshoring can belong to different categories: service offshoring, for instance, falls into the category of cross-border trade, whereas captive offshoring[14] is classified as foreign direct investment (FDI).[15] There is thus no valid statistical database, which makes precise predictions very difficult indeed. Nevertheless, certain tendencies can be observed when taking various sources of information into account.

At first glance, recent publications appear to suggest that offshoring is a major threat to the labor forces of Western economies. For instance, it is estimated that around 400,000 service jobs were already lost in 2003 due to offshoring. This number is likely to increase to approximately 3.3m by 2015.[16] In the financial services industry estimates state that USD 356bn of the industry's total cost base will be offshored within the next five years. In turn, this would mean that some 2m jobs are going to be relocated.[17] Some economists see a potential of approximately 20 percent of jobs to be moved from the EU, Australia, Canada and the US to offshoring countries.[18] Other studies conclude that about 11 percent of all US jobs are threatened by offshoring.[19] What is perhaps even more important, offshoring does not exclusively affect lower-skilled labor. Today's offshoring also appears to pose a threat to those who traditionally were hardly affected by overseas relocation strategies – the well educated, skilled and highly paid white collar workforce in the service industries. If these jobs are lost on a larger scale, various macro-economic problems are likely to emerge. First, if these people become permanently redundant the state loses income tax, the burden for the social welfare system increases and consumption will decrease. Furthermore, the skills of these people lie fallow and consequently do not contribute to economic growth. As such, it would appear that offshoring has a negative effect on an industrialized nation's overall competitiveness.

Given these findings, can we conclude that offshoring will lead to higher unemployment rates in the Western world? When merely looking at its direct effect, the answer can only be "yes". But does offshoring really cause mass redundancies? When putting the figures into perspective, a different and much less threat-

[13] Cf. [Kirkegaard 2005, p5]

[14] 'Captive offshoring' can be defined as the outsourcing of goods or services to units which are part of the intra-organisational network, and which are predominantly located in low-cost countries. This usually requires greenfield or brownfield investments.

[15] Cf. [Schaaf 2004b, p4]

[16] Cf. [Agrawal/Farrell 2006, p58]

[17] Cf. [Deloitte Research 2003, pp1–2]

[18] Cf. [OECD 2004, p5]

[19] Cf. [Bardhan/Kroll 2004, p6]

ening picture emerges. Although differences in the levels of offshoring-related unemployment can be found in the relevant literature, there is a generally consensus that a huge gap exists between jobs at risk to offshoring and the number of jobs actually offshored. For instance, if 3.3m service jobs are expected to be lost in the US by 2015, then offshoring should cause about 250,000 layoffs per year. Compare that with the 15m people in the US who lose their jobs each year as part of the normal dynamics of the labor market, and offshoring-related unemployment actually accounts for less then 2 percent.[20] Thus, the overall effect of service offshoring appears fairly modest. This is also because many service jobs, by their very nature, cannot be offshored. Typical examples for service industries scarcely affected are business consulting, retailing, catering and personal care. These already account for approximately 70 percent of all service jobs.[21] Research further confirms that mass redundancies due to offshoring are but a myth.[22] The effect of job relocation is in fact small: its peak so far was 1.1 percent in 2002. Considering that the reemployment rate from 1979 to 1999 was 69 percent in sectors other than manufacturing,[23] the overall impact of offshoring on Western labor markets must therefore be regarded as limited.

Although empirical evidence quite clearly demonstrates that offshoring does not lead to massive redundancies in Western economies, it still has a negative albeit rather small effect on employment. However, offshoring can still be beneficial for a Western economy in general and employment in particular. Taking the US as an example, for every dollar of costs moved offshore a net gain of USD 0.12 to 0.14 flows back to the US economy. A main reason for this profit lies in the ability of laid-off workers to be reemployed within a short period of time. This requires flexible labor market regulations and the skill-set of the unemployed to be upgraded for them to be able to fulfill more complex and higher value jobs. The more rigid labor market regulations in Germany and France, on the contrary, are the main reason why offshoring results in a net loss for these Western economies.[24]

As the example demonstrates, service offshoring can still be good news for Western economies and their workers. However, this requires that key decision-makers create the right conditions. They must ensure that labor market regulations are sufficiently flexible for laid-off personnel to be quickly reemployed. This is a puzzle politicians need to solve. What is perhaps even more important, the managements of companies conducting offshoring need to contribute to the economic prosperity of their nations. The unemployment caused by their offshoring operations can only be eased if a fair portion of profits is reinvested in domestic markets to create new jobs. A flexible labor market is of little help to laid-off workers when no adequate new jobs are available. Offshoring can therefore only be turned into good news for

[20] Cf. [Brainard/Litan 2004, p3]

[21] With respect to the US; cf. [Agrawal/Farrell 2006, p59]

[22] Cf. [Kirkekaard 2004, pp27–28]

[23] Cf. [Agrawal/Farrell 2006, p60]

[24] Cf. [Farrell 2006; Blanco/Farrell/Labaye 2006]

the labor forces of Western economies when key decision-makers in politics and business alike are willing to establish the right conditions for economic growth and stability in the Western world.

## 3.5 The effect on Western economies

One of the most controversial debates today is about offshoring and its effects on the creation of wealth in the Western world. Some argue that offshoring is generally beneficial for both, Western companies and economies. Critics on the other hand take the view that offshoring is a threat to Western nations, as it causes a decline in prosperity and consequently undermines social stability.

The following sections will analyze the debate in more detail. Focusing on the US, France, and Germany we will critically evaluate the arguments of offshoring advocates and opponents to validate or discard some of their standpoints.

That offshoring can have a negative effect on the Western economies has been demonstrated in a series of studies.[25]

Both the French and the German economies suffer from offshoring. For every Euro spent in offshoring operations a loss of EUR 0.15 in France and up to EUR 0.27 in Germany is incurred (see Figure 3.4). A main reason for these deficits is that French and German companies nearshore primarily to Eastern Europe and, in

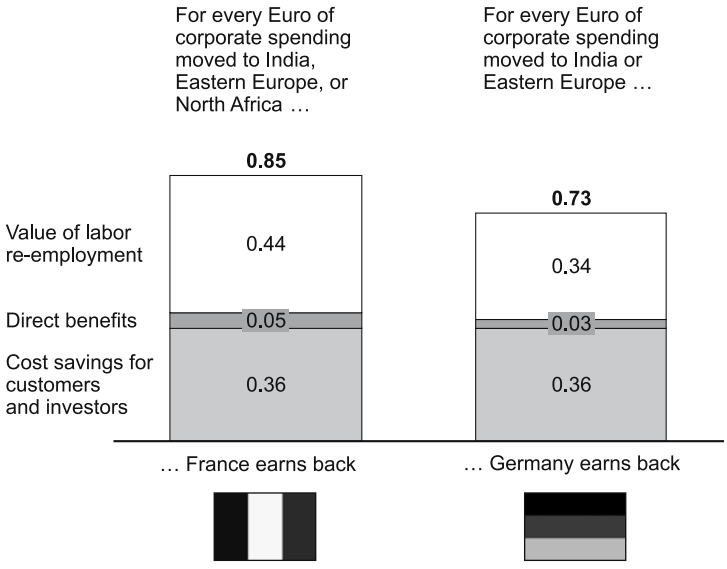


**Fig. 3.4** Economic impact of service offshoring on France and Germany[26]

[25] Cf. [Agrawal/Farrell 2006; Blanco/Farrell/Labaye 2006]

[26] Adapted from [Blanco/Farrell/Labaye 2006, p145]

the case of France, to North Africa. Here, labor costs are higher compared to India which is the preferred offshoring destination of US firms. Thus, cost savings are less significant. Moreover, direct benefits through additional exports to the offshoring countries and repatriated profits are estimated at EUR 0.05 and EUR 0.03 in France and Germany, respectively, compared to EUR 0.07 and EUR 0.09 in the US. The main reason why the US gains from offshoring is the reemployment rate. When people are able to find new jobs within a short period of time, private consumption is not likely to fall significantly. Furthermore, the social welfare systems are less affected. Considering that the more flexible labor market in the US enables laid-off workers to be reemployed quickly, compared to France and Germany, indirect offshoring-related benefits are estimated at EUR 0.57 in the US compared to just EUR 0.44 and EUR 0.34 in France and Germany.

Potential negative effects of offshoring on Germany have also been spurred by the criticism of Hans-Werner Sinn, head of the Munich based Institute for Economic Research, who coined the phrase 'bazaar economy'. He argues that Germany's position as the world's leading export nation is not at all a sign of substantial economic success. Although German companies have been very successful in exporting – the export rate in the years 2000 to 2004 was 7 percent net and as such much higher than in the European Union (4.8 percent) or the US (2.45 percent) – Sinn argues that only a fraction of the overall value was created domestically. The larger proportion of value derived from imports as a basis for future exports.[27] As a result, Germany appears to degenerate to a mere trading platform, a trend that has its roots also in outsourcing and offshoring. In its extreme form, the industry does no longer produce but merely assemble what was imported from abroad. Value creation could thus be lost, which may lead to further redundancies.

Can we hence conclude from these findings that offshoring is rather negative for some Western nations, and in particular for Germany? Before answering this question, we should first look at the arguments of offshoring advocates.

As mentioned above, offshoring can also be beneficial for Western economies. The USA is frequently mentioned as an example in this context. Every dollar spent on offshoring to India leads to a return of USD 1.13 to USD 1.14, leaving a net gain for the US economy of USD 0.13 to 0.14. But the Indian economy also benefits from each American dollar, USD 0.33 to be precise, thus effectively creating a win-win situation.[28] Figure 3.5 shows the actual composition of these net gains.

What about Germany? Looking at other studies, researchers come to much more positive results. Especially the view that due to offshoring (among other factors), Germany will turn into a 'bazaar economy' can hardly be supported. It is a fact that the import share as input for German exports has steadily increased over the last years and has now reached 39 percent. However, with more than 60 percent of value created in Germany, speaking of a mere "bazaar economy" is an exaggeration. It only reflects the international division of labor in today's global economy and tells us little about competitive advantages. The German export boom seems to have

[27] Cf. [Bofinger 2005, p30]

[28] Cf. [Agrawal/Farrell 2006, pp57–66]

USA

| | |
|---|---|
| Cost savings | $ 0.50 – 0.53 |
| Direct benefits | $ 0.07 – 0.09 |
| Value of re-employed labor | $ 0.57 |
| Potential benefit | $ 1.14 – 1.17 |

India

| | |
|---|---|
| New employment | $ 0.10 |
| Retained profits | $ 0.10 |
| Higher profits of local suppliers | $ 0.09 |
| Taxes | $ 0.04 |
| Potential benefit | $ 0.33 |

**Fig. 3.5** Net gains for the US and Indian economies for every dollar invested by US companies[29]

supported rather than hurt the economy. Gross domestic production was spurred by strong exports and could consequently rise within seven years from 16 percent to 21 percent.[30] Furthermore, many German industries are competitive because they are able to buy cheaper materials or services abroad instead of relying on more expensive domestic supply.

In the light of what has been said above, outsourcing and offshoring may be regarded as a driver for economic success rather than a restraint. Ultimately, the term 'bazaar economy' does not adequately reflect Germany's situation. Companies are increasingly engaged in outsourcing and offshoring, but the share of own production in exported goods remains high. And even if this were not the case, we should not conclude that a low share of in-house production automatically leads to a declining economic performance. The Netherlands are a good example in this context, an economy relying much more on trade but on average outgrowing Germany.[31] Hence, we cannot generally state that offshoring has a negative impact on national economies.

Most authors agree that offshoring will play an even more important role in the future than it does today, and that it will be a major factor in improving the competitiveness of Western companies. However, there is much less consensus when it comes to the effects of offshoring on the economic performance of Western nations. Research in this field often lacks validity or produces highly contradictory results.

Notwithstanding, we can assume that offshoring is at least indirectly beneficial for Western economies, for instance when Western companies reinvest at least some of the financial offshoring benefits in their domestic markets.

The debate between offshoring critics and advocates is thus likely to continue. More research is needed in the future to provide better insights into the relationship between offshoring and the economic performance of nation states.

[29] Adapted from [Agrawal/Farrell 2006, pp59, 63]

[30] Cf. [Bofinger 2005, p30]

[31] Cf. [Schultz 2004, p71]

## 3.6 Foreign direct investment in India

Foreign direct investment (FDI) is the investment by multinational firms in foreign countries to control assets and manage any kind of production activities in those countries.[32]

The Indian government is eager to receive and keep foreign direct investment. Between 2000 and 2005, the share of the gross national product attributed to offshoring grew from two to five percent.[33] In turn, foreign companies receive a smorgasbord of enticements such as tax holidays, import duty exemptions, and subsidized land.

Offshoring critics claim that foreign companies exploit workers and flout labor regulations. However, investments seeking to leverage efficiencies are the biggest advantage for India: new jobs are created without directly threatening domestic companies. Foreign companies pay higher wages than those offered by their domestic competitors. In India's business process outsourcing sector, wages are 50 to 100 percent higher than those in other domestic white collar sectors demanding comparable skills.[34] Most foreign companies also offer more benefits, such as health insurance, transportation to work, and training. While foreign software companies do not compete for market shares in India, Indian software companies or call-center operators catering for the local market are affected by this war for talent. They can usually only hire less qualified employees who do not meet the requirements of the international players. For instance, the call centers of local telephone and cell phone providers in India are staffed with employees who do not speak English clearly and fluently; a UK or US customer would most likely refuse to converse with them.

On the other hand, the Indian government spends a substantial amount of money to promote foreign direct investment in India – investments that would have been made anyway. For instance, India waived its 35 percent tax on corporate profits for companies that moved back-office processing and IT jobs to the Subcontinent, a concession worth some € 5000 annually for an IT and € 1660 for a BPO[35] employee.[36] During the early days of offshoring, such concessions may have been necessary to offset perceived risks. But with a mature offshoring market in India, decision makers rarely take such financial incentives into account. In fact, "Most of the executives [. . . ] would rather see the government spend its money upgrading the local infrastructure."[37] Not without reason, as India urgently needs to develop its infrastructure, i.e. roads, uninterrupted power and water supplies, airports, and ports, to remain attractive as an offshore destination. In addition, the country has to get a grip on the in places disastrous environmental conditions – smog caused by

[32] Cf. [Kyaw 2003]

[33] Cf. [Müller 2006, p64]

[34] Cf. [Farrell/Remes/Schulz 2006, p73]

[35] BPO = business process outsourcing

[36] Cf. [Farrell/Remes/Schulz 2006, p74]

[37] [Farrell/Remes/Schulz 2006, p75]

traffic, lack of adequate sewage plants, and the absence of a sufficient recycling or waste disposal system.

## Conclusion

In the developed countries, critics will continue to lament that companies betray their employees by transferring work to offshore locations. Yet research demonstrates that the economies of developed countries can benefit from offshoring. New jobs in developing countries are not only created in the IT area but also in the support industry, thus helping to raise the overall standard of living.

The creation of offshore software factories diffuses best practices of implementation around the world and leads to lower prices. This in turn results in higher profits for companies, which can be reinvested in improving the capabilities to pursue new business opportunities.

Of course, it cannot be denied that offshoring destroys jobs of software developers in the developed economies. Those hardest hit may face long-lasting unemployment and a loss of social status. It is thus difficult to understand why some European governments and corporations fail to do more to make labor forces more flexible, encourage employment change, and thus ease the suffering of displaced personnel.

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# Chapter 4
# Industrialization of Application Implementations

**Frank Thun**

**Abstract** Integrated software packages are at the heart of any medium to major sized company. More than fifteen years after the start of the worldwide ERP boom in the early 90s, the forces of globalization and the proliferation of communication technology are about to push the package implementation industry to a new level of maturity.

## 4.1 Package implementation services

These days it is hard to find any medium or major sized company that does not run a packaged system such as ERP, CRM, SCM solutions[1] – or even multiple packages. Since the beginning of the package boom in the 1990s, the market has continued to grow, not even deterred by the economic downturn around the millennium.

Companies implementing packages have undergone sometimes painful processes and made valuable experiences. Nonetheless, the fundamental approaches to package implementations have not changed much since the 1990s. Despite attempts to invent new implementation methods and the advent of SOA[2] in recent years, the package implementation industry appears slow to mature.

With the forces of globalization fully unleashed in Europe, unceasing cost pressures, spreading of Anglo-Saxon best practices and the emergence of world-class IT providers especially in India, the approaches to and the results of package implementations will change profoundly.

This paper outlines the anticipated changes, which can fundamentally be summarized under the headline "industrialization". The first part presents the current status of the package implementation business on a project as well as industry level.

[1] ERP = Enterprise Resource Planning, CRM = Customer Relationship Management, SCM = Supply Chain Management

[2] SOA = Service Oriented Architecture

Anja Hendel, Wolfgang Messner, Frank Thun, *Rightshore*
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Building upon that, the discussion then focuses on the elements and impacts of industrialization.

### *4.1.1 Status quo: best practice is king*

Package implementation resembles surgery – often at the heart of a corporation. Defining the targets is like boiling down the future vision of the business to its essence. If done well, it is comparable to the mind-boggling process of developing a new business idea into an executable, budgeted business plan.

Rarely can such an exercise be done without relying on external specialists. Through their experience and skills, clients will get new insights. The project targets, methods, timeline and organization will evolve in this process and culminate in a contract. Even if project ownership is fully internal, various management hierarchies organized in business lines, geographies and departments will always need to be aligned with the common target via a document expressing the shared vision and the duties of every organization involved.

A contract is usually developed by combining customer and contractor input. Usually, both sides are armed with their 'standard' versions of a contract. The final contract is built by combining these two, with the customer contract usually setting the framework and dominating all legal phrases, while the contractor dominates the specification of services and the delivery method.

The contract being defined, every package implementation is handled – either explicitly or implicitly – in five phases:

- Planning: project perimeters, e.g. scope, are described and aligned between all parties. The project organization, procedures, logistics and staffing are defined and communicated
- Business blueprint: design and validation of processes, system functions, data structures and technical infrastructure
- Realization: the systems are customized and developed according to specifications. Data is identified, cleansed and harmonized. The system landscapes are set up
- Final preparation: the processes and systems are tested. Training material is created and trainings commence
- Go-live: the systems are prepared for go-live, data is loaded and people are trained. The system is supported by the project team for a number of weeks until professional application management takes over

All projects follow this kind of waterfall model in one way or other. SAP, for example, set the method for its flagship product $R/3$ in 1997 with the publication of its ASAP method. The SAP implementation industry is fundamentally aligned to that model. Iterative, exploring or prototyping methods play a very limited role. Despite attempts to propagate those models[3], they have just found a place in a water-

[3] Cf. [Keller/Teufel 1998]

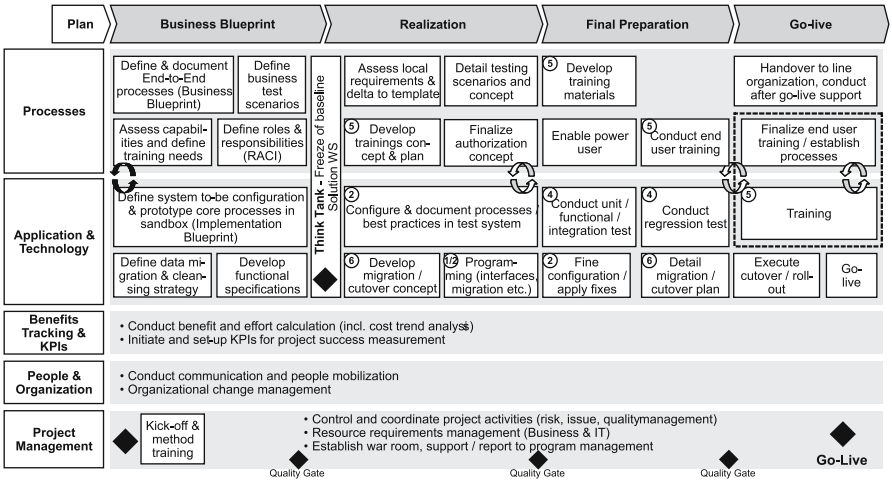


**Fig. 4.1** Classical package implementation method

fall model for the prototyping of processes to demonstrate functionality or develop major enhancements within a package implementation.

Perhaps the biggest factor for the dominance of the waterfall model is the technology of package systems itself. These are highly integrated – and hence very complex – systems with huge interdependencies between the individual components. Analysts have demanded more modularity, i.e. to move away from the "monolithic bloc" towards an open, loosely coupled, service oriented architecture since the late 1990s. This topic is now on the agenda of package companies but is likely to take a number of years to show a considerable effect.

## *4.1.2 Capability maturity model*

Prior to evaluating the level of maturity of the package implementation industry, let us take a look at the definition of maturity levels used in the capability maturity model (CMM):[4]

Level 1 – Initial

At maturity level 1, processes are usually ad-hoc and the organization does not provide a stable environment. Success in these organizations depends on the competence and heroics of their people and is not based on the use of proven processes. In spite of this ad-hoc and chaotic environment, maturity level 1 organizations often

[4] Cf. [Chrissis/Konrad/Shrum 2003]

produce products and services that work; however, they frequently exceed the budget and schedule of their projects.

Maturity level 1 organizations are characterized by a tendency to over-commit, abandon processes in times of crisis, and not being able to repeat their past successes.

Level 1 software project success heavily relies on high-quality people.

### Level 2 – Repeatable

At maturity level 2, success is repeatable. The processes may not repeat for all projects in the organization. However, the organization may use a basic form of project management to track costs and schedule.

Process discipline helps to ensure that existing practices are retained during times of stress. When these practices are in place, projects are performed and managed according to their documented plans.

The project status and delivery of services are visible to management at defined points (for example, at major milestones and upon the completion of major tasks).

Basic project management processes are established to track costs, schedule, and functionality. The minimum process discipline is in place to repeat earlier successes on projects with similar applications and scope. There is still a significant risk of exceeding cost and time estimates.

### Level 3 – Defined

The organization's set of standard processes, which is the basis for level 3, is established and improved over time. These standard processes are used to establish consistency across the organization. Projects establish their defined processes according to the organization's set of standard processes described in tailoring guidelines.

The organization's management establishes process objectives based on the organization's set of standard processes and ensures that these objectives are appropriately addressed.

The scope of standards, process descriptions, and procedures represents a critical distinction between level 2 and level 3. At level 2, the standards, process descriptions, and procedures may differ substantially in each specific instance of the process (for example, in a particular project). At level 3, the standards, process descriptions, and procedures for a project are tailored from the organization's set of standard processes to suit a particular project or organizational unit.

### Level 4 – Managed

Using precise measurements, management has effective means of control. In particular, management can identify ways to adjust and adapt the process to particular

projects without measurable loss of quality or deviations from specifications. Organizations at this level set quantifiable quality goals for both, process and systems.

Sub-processes are selected that significantly contribute to the overall process performance. These selected sub-processes are controlled using statistical and other quantitative techniques.

A critical distinction between maturity level 3 and maturity level 4 is the predictability of process performance. At maturity level 4, the performance of processes is controlled, and quantitatively predictable. At maturity level 3, processes are only predictable in terms of quality.

Level 5 – Optimizing

Maturity level 5 focuses on continually improving process performance through both, incremental and innovative technological improvements. Quantitative process improvement objectives for the organization are established, continually revised to reflect changing business objectives, and used as criteria in managing process improvement. The effects of deployed process improvements are measured and evaluated against the quantitative process improvement objectives. Both, the defined processes and the organization's set of standard processes are targets of measurable improvement activities.

Process improvements and common causes of process variations are identified, evaluated, and deployed.

Optimizing processes that are nimble, adaptable and innovative depends on the participation of an empowered workforce aligned with the business values and objectives of the organization. The organization's ability to rapidly respond to changes and opportunities is enhanced by finding ways to accelerate and share learning.

A critical distinction between maturity level 4 and maturity level 5 is the type of process variation addressed. At maturity level 4, process design is concerned with addressing special causes of process variations and providing statistical predictability of the results. Although the processes produce predictable results, the results may be insufficient to achieve the established objectives. At maturity level 5, process design is concerned with addressing common causes of process variations and adapting the process to improve process performance (while maintaining statistical probability) to achieve the established quantitative objectives of process improvement.

### *4.1.3 Quo vadis package implementation industry?*

Package implementation still is a very young industry. If we define the start of the industry as the introduction of SAP $R/2$, it all began in 1979. Compared to the automotive industry and its start around 1891, this is hence a very young industry of some 28 years. In 116 years, the automotive industry has evolved from a craft

into a global industry. Looking at the evolvement of its organizational models in the production area, let us draw some parallels to the package implementation industry:[5]

- 1891–1912: Handcrafted automobile: the automobile was built according to the norms of any other crafts. Norms and standards were fully in the hands of experienced craftsmen
- 1913–1924: Mass production – H. Fords assembly line models: production was based on assembly lines with a worker responsible for one specific task, thereby incurring substantial specialization and allowing for time and cost benefits as well as economies of scope
- 1925–1969: Globalization: spread of automotive industry assembly lines around the world (e.g. acquisition of Vauxhall and Opel by GM in 1925/1929)
- 1970–1989: De-verticalization/Just-in-time (JIT)/lean manufacturing: reduction of the vertical degree, i.e. from raw material to parts to assembly, integration. This enabled more flexible and specialized production arrangements
- 1990–2005: Zero Defect/Kan-Ban/team-based production: production models shift from tayloristic assembly line models to quality-focused continual improvement models. In addition, flexible production models using one line for multiple models achieve prominence in manufacturing as well as product design
- 2000: Mass customization: enabled by modern production and information technology, products get increasingly varied

Today, automotive production is commonly regarded as fully mature. Using the CMMI® scale of organization and process maturity, the automotive industry would rank at 5, i.e. it uses statistical analysis to predict and continually improve processes in an analytical, well defined and controlled organization.

So what is the score for the package implementation industry?

Package implementations basically follow standard waterfall methodologies, e.g. for SAP ASAP (see above). Nowadays, people are usually experienced and highly skilled in package implementations and project management to control scope, schedule and costs. Best practices are kept and re-used. Hence CMMI® level 2 criteria: passed.

Practically all major customer and certainly most medium-sized established consultancies have defined standard implementation processes that are implemented consistently across projects. Processes are tailored according to project requirements and tailoring guidelines. While one could argue about the level of detail and the degree of consistency of these models, CMMI® level 3 is – by and large – achieved.

Some major consultancies such as Capgemini have even invested in consistent, quantitative prediction techniques for package projects to monitor and forecast some targets elements of projects. But even for global consultancies, these moves are not

[5] Cf. [Walter/Kaiser 1994]

as comprehensive, detailed and consistently applied as automotive production control or supply chain techniques. Because of this lack, there is rarely enough evidence that a professional organization in the ERP implementation business qualifies for CMM level 4.

But is this comparison to the automotive industry a fair one? After all, the automotive industry produces tangible products that you can for example use to impress your neighbors, while a package implementation is delivering a bundle of people, organization and system transformations – in a word: services. Your neighbors are thus rather unlikely to understand what it is all about. Let us take a look at what you and your neighbors are in for in the next chapter.

### *4.1.4 The services revolution*

In his groundbreaking article on the service revolution, Uday Kamarkhar argues that manufacturing has been the first to be affected by globalization, while information intensive businesses have only now started to see any effects.[6]

While entire businesses such as data entry or credit card processing in the financial sector have been transformed for good, and global outsourcing of IT operations is in full swing, the focus shifts towards the transformation of more interactive and complex business services, such as package implementation. The physical domain, such as brick-laying or nursing, will remain local but not the business of package implementation. Alas, now your neighbor will be even more puzzled about your job.

In North America and the UK, hardly any project is delivered exclusively onsite. At least the developments are offshored and more and more data migration, testing, customizing also follow that route. By now, entire package upgrade projects are delivered offshore. Continental Europe is following the trend, with Scandinavia leading the way ahead of Germany and the Netherlands.

The key enabler for this service revolution is technology:

- "Think of technology as creating an information assembly line-information today can be standardized, built to order, assembled from components, picked, packed, stored, and shipped, all using processes resembling manufacturing. Industrialized information becomes steadily more efficient, less expensive, and more highly automated. The costs of logistics and storage are minimal; only labor and intellectual property matter."[7]

Industrialization is what will take the package implementation business towards the next level of maturity, i.e. CMMI® level 4. And there is a compelling pressure to do so for every company and employee, with the plain objective of survival in the global marketplace.

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[6] Cf. [Karmarkar 2004]

[7] Cf. [Karmarkar 2004]

## 4.2 Industrialized package implementation

An industrialized package implementation uses a consistent, standardized and detailed set of processes and tools measured and optimized to deliver predictable results. Realizing an industrial package implementation value chain for every project will take an organization to CMMI® Level 4.

The next sub-chapter analyses the targets of industrialization and its perceived trade-offs. Nuts and bolts of an industrial assembly line for package projects conclude this chapter.

### *4.2.1 Targets of industrialization*

Industrial package implementation aims for a set of the following targets:

1. Factor cost savings: without doubt the most important driver for industrialization of package implementation. Factor cost differences currently allow to employ 5 to 8 offshore resources for one onsite resource
2. Flexibility in time and capacity: having additional 20 skilled package specialists available in two weeks time (for example) is a challenge which in a local marketplace every company would be hard pressed to deliver. But looking at a global resource pool, companies are in a much better shape to meet this challenge at acceptable costs
3. Flexibility of approach: commonly regarded as a weak point of industrialization. It is here that solid industrial engineering is necessary to prevent the project from being stifled by rigid procedures. Alas, this challenge is not unlike that of the automotive industry in its switch from pure mass production to platform-based, flexible line production systems where customer facing parts are treated differently than none customer facing parts
4. Customer intimacy: does an industrialized package implementation commoditize the package implementation business? Looking again at the automotive industry, all platform-based production, even the operation of shared production sites with identical models except for look-and-feel, did no harm to the uniqueness of automotive brands. In package implementations the customer facing onsite team is still around and will even gain a stronger focus on the customer, as time consuming technology basics are taken care of by the offshore team
5. Resource availability: skills are limited and time to market is crucial. Companies hampered in their initiatives look offshore to eliminate these bottlenecks
6. Speed: time to market is of key importance for package implementations, especially in global roll-out operations. There is simply not enough time to invest and re-invest in the development of sufficient knowledge in local teams. Industrialized delivery looks like a promising way to standardize approaches

and keep a core of highly skilled onsite resources running local projects with a responsive executing back-office in support

7. Security: package implementations based on productive systems are very much the last thing companies want to see people experimenting with. Instead, they rely on tried and tested methods to prevent system break-down, fraud, pro-longed implementation time, etc. However, the industrial delivery of package implementation projects puts much higher demand on the connectivity of clients systems and networks. While the technical solutions are there, the security policies fail to reflect those yet
8. Quality: while time and costs are dimensions of quality which are bound to improve with industrialization, the question is much more complex with respect to the solution quality of package systems, which is notoriously difficult to measure even in terms of business cases. We can safely expect the average solution quality to increase and variance to be reduced, as industrialization encompasses enhanced control and repeatability
9. Reliability: as the package implementation industry has grown in maturity from level 2 to 3, there are fewer stories about mismanaged projects. With industrialization, reliability will increase. However, while experimenting with industrialization, new stories are bound to emerge
10. Independence: dependence on a single package implementation service provider can be a costly thing. While on the surface industrialization appears to promote the inter-changeability of providers, this is only true for the back-office. The onsite element is still deeply knowledgeable in customer process and system solutions and will be as hard to replace as today
11. Innovation: industrialization and innovation are not contradictory, as the automotive example demonstrates. Industrialization forces a new work organization on projects, which will in turn provoke innovative responses in the tool and process area. What is more, savings realized by industrialization will cause new project types to emerge which were hitherto not attractive, for example in the small to medium enterprise segment.

Any industrial value chain needs to be laid out to emphasize a set of these targets, while accepting trade-offs with other targets.

### *4.2.2 Elements of the industrial package implementation value chain*

In an industrial value chain, work is defined, picked, packed and shipped by a design center and to a factory, where the product is assembled, tested and rolled out to customers. Likewise, package implementations resemble collaborative efforts of design (i.e. onsite team) and production (i.e. offsite team). During the full lifecycle, the onsite and offsite teams co-exist and work is handed back and forth between those teams.

The onsite and offsite team are dispersed in different geographical locations. The onsite team is located with the customer, while the offsite team is located in an area that enables companies to leverage differences in factor costs, escape skill shortages or simply drive out economies of scale that outweigh any additional coordination costs.

The onsite team is organized in several streams, typically business, development, data, training, and basis streams augmented by several supporting streams such as testing, project management, change management/HR. The onsite team focuses on:

- Designing (in other words blueprinting) the project's final deliverable in all its dimensions, e.g. business process, application functions, customizing and developments, data formats, training requirements, etc.
- Building the parts of the system that do not lend themselves to be picked, packed and shipped to the offsite team, e.g. business processes and developments that need to be iteratively defined with the customer while building the solution. Examples are:
  - Complex interfacing solutions to local manufacturing execution systems
  - Complex local tax or pricing procedures
  - High-level supply network planning solutions that can be applied in a myriad of ways

The offsite team is organized in the same streams as the onsite team. Its task is to build the parts of the system described, picked, packed and shipped by the onsite team. The offsite team has no design responsibility, except for technical designs of the basis and developments that are hidden in layers not visible to and interesting for the customer.

All streams onsite and offsite can be pictured as delivering certain parts to the final system, such as a car is made of parts supplied by a multitude of internal and

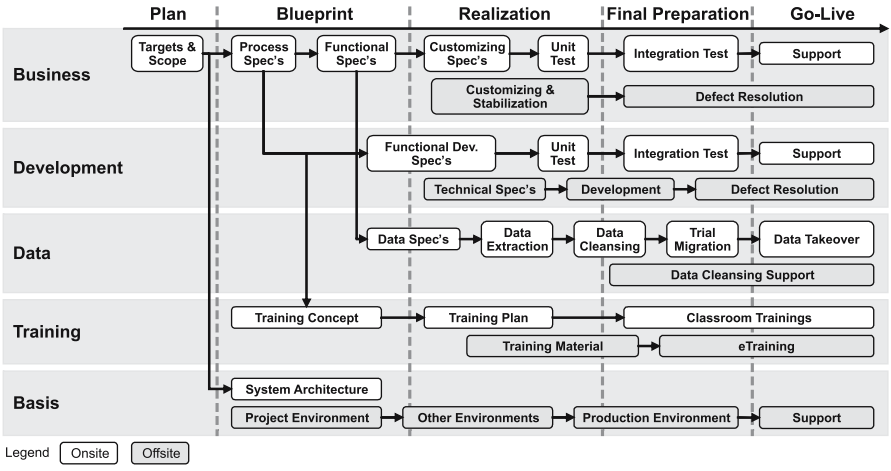


**Fig. 4.2** Main tasks performed on- or offshore in a typical ERP implementation

external suppliers. Final assembly starts in the final preparation phase and continues until go-live.

The illustration below provides an overview of the main deliverables per phase and stream by onsite (in white boxes) and offsite teams (in light grey). In addition, it provides some inherent assumptions about the distribution of work between on- and offsite teams: All parts of the system that do not lend themselves to be picked, packed and shipped to the offsite team remain onsite. Decisions need to be taken on all deliverables according to their individual nature and local circumstances, but the principle distribution of work between on- and offsite teams pictured below should cover the vast majority of cases.

To avoid complexity, dependencies between the different deliverables have been omitted deliberately. In the next chapter we will zoom into the next level of detail on one stream, taking development as an example.

### *4.2.3 Example of an industrial process for one stream*

These days, any package implementation in the US will involve an element of offshore development. In Europe this is far less common. Distributed development processes have been at the heart of the offshore boom in the IT industry since the early nineties. Very detailed software development approaches are utilized across the software industry.

Package implementation development approaches are not as detailed, as this project type differs significantly from a custom software development:

- The development framework and language is predetermined by the package system's technology
- Most developments are extending the packages functionality rather than changing it. Fundamental changes are discouraged
- Every development is very closely connected to functional requirements and the solution is largely pre-determined by the package system itself

Strict software architecture exercises, e.g. in comprehensive methods such as RUP[8], are not required. Distributed development can rather proceed on a per item basis along the following principles:

- Deliverable tracking: every development, its status in the process chain, its history, its due dates, the people who worked on and approved it, efforts, issues, etc. must be known at any time
- Real-time transparency: tracking information must be available on- and offsite. All changes are processed in real-time
- Push information at handover or issue creation to avoid delays

[8] RUP = Rational Unified Process

- Statistical measurement on development item level to compare individual performances to benchmarks and create a sense of responsibility in the distributed process
- Statistical measurement on various aggregate levels to predict progress and issues and detect project or process level defects early on

Figure 4.3 represents an example for a development process. Each development step is documented in a tracking tool called DDL (Distributed Delivery Log) which is used as a single source of truth for reporting. Review and approval steps are pictured by a diamond icon. Documents and systems used at certain steps of the process are

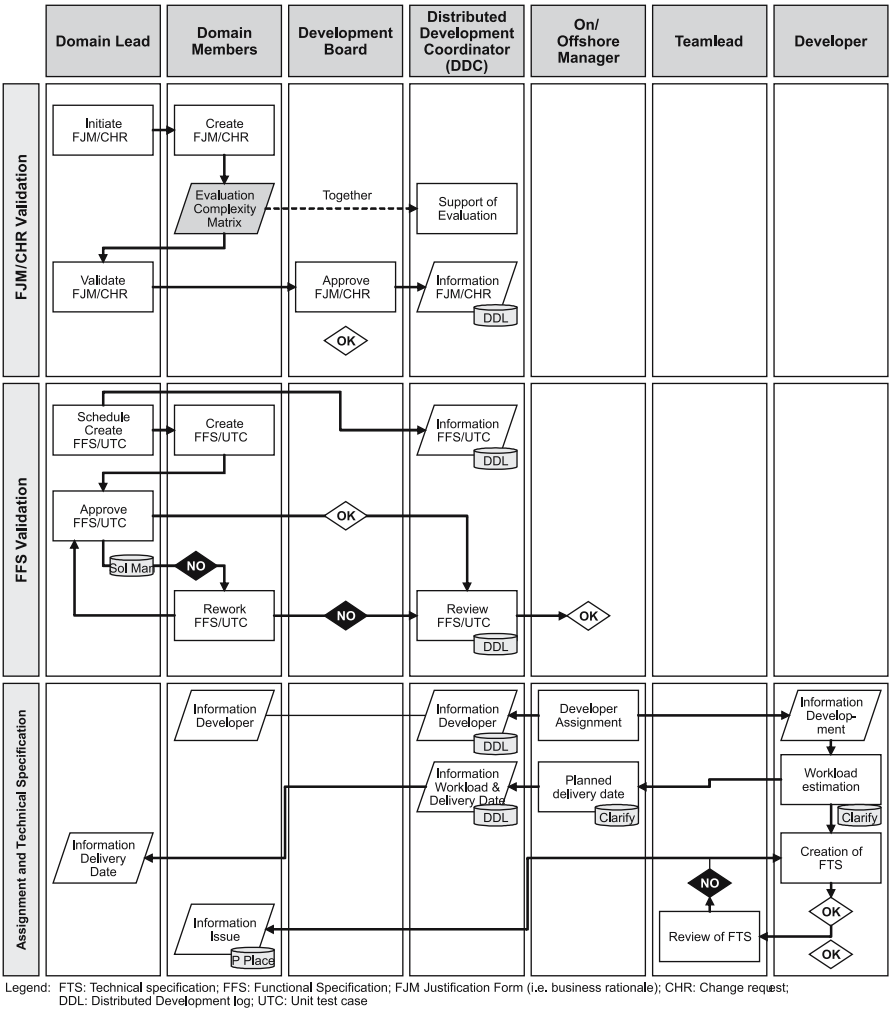


**Fig. 4.3** Offshore development process flow-chart

documented with light grey icons (symbolized by paper and bins) at the lower end of a step. The vertical axis shows the main phases of the development process from validation of the business requirement document to the unit test of the development.

### *4.2.4 The new project discipline: process management*

For every single development you need to manage some 50 process steps distributed to 7 different roles, which might in turn mean 50 or more people involved.

But it gets even more complex. Now imagine you industrialize all other streams as well. The 5 streams defined above might comprise more than 350 process steps, 35 roles and a multitude of people involved. Isn't that quite unmanageable?

Well, it's not. First of all, the processes used for every stream are rather similar. In any case, it represents a sequence of document creations and approvals based on an easily comprehensible principle. Specifications need to be defined in close alignment with the customer, while the execution can be handled offsite. The deliverable flows of an industrialized project are not unlike any other package implementation, the major differences are that the flows are more formalized and more roles participate.

But is industrialization restricted to a major package implementation? Definitely, if one has to set up the environment and repeatedly train the processes for every single project. But if the standard organizational and tool framework is in place and at least the key resources are trained, there is no reasons why one should not re-use it. Project managers will be keen to re-use approaches and organizations will encourage project managers to do so, as the industrialized process will provide automation, reliability and efficiency to the implementation process. After all, no organization would want to go back from CMMI® Level 4 to 3.

In adopting industrialized processes, the roles of project managers and team leads will be enhanced. They now need to regard themselves as process managers, i.e. learn how to set up, maintain, control and tune a production chain in which each deliverable is built by various people. Their skills resemble those of line managers in a manufacturing organization. Measuring becomes critical for ex-post as well as ex-ante analysis. Quantification, comparison to bench-marks and the adherence to a standard process become more important.

Technology is here to help you pick, pack and ship information between the various stages. The internet, messaging, collaboration and workflow tools are there to take the strain away – if properly used.

### *4.2.5 Enablers of industrialization*

Standardization, technology and training are at the heart of picking, packing and shipping information, i.e. of industrialization.

Standardization

In spite of any technology glitz, without the standardization of processes and deliverables, picking, packing and understanding information is impossible.

- Detailed templates have to be used which are specific to the types of developments at hand, e.g. projects need to employ specific templates for each form, report, interface, conversion or enhancement program plus subtypes for specific technologies used
- Project procedures such as virtual "net-meetings", communication rules, minutes, issue tracking, etc. need to be shared and applied
- Each deliverable needs to be built along consistent rules described in detailed stream procedures (e.g. a development handbook). To warrant compliance with these rules, automated and manual review procedures need to be in place
- Reporting based on one single source of truth for all teams involved
- Standard reports using KPI definitions applied across the project or organization
- Consistent usage of the project toolsets according to pre-determined rules, e.g. no parts of the project should be allowed to build their own island of tools or deviate in the usage of tools from other teams, if reporting or understanding of project processes would otherwise be thrown into disorder

Technology

The adequate use of technology is the major enabler for industrializing services. The following technologies need to be applied in package implementations:

1. Real-time tracking tool accessible on- and offsite. This is the single source of truth for the entire project and not merely a single stream. All reports are drawn from here. Document, workflow and issue management systems refer to this tool. Therefore, data entry in the tool is restricted to authorized project resources. Data comprises a unique deliverable id, name, status, various due dates, efforts, responsible and classification data. Issues are stored or linked comfortably within or through this tool
2. Electronic communication: email, instant messaging by chat, voice and video and net-meetings are required to mitigate the geographical division of the team. No matter how far people are situated from each other, they are very close if their voices and faces are just a mouse-click away
3. Electronic collaboration tools: internet forums, net-meeting, and collaborative mind-mapping tools supplement electronic communication tools for synchronous or asynchronous creative group efforts
4. Connectivity: the capability to connect to project tools from anywhere at anytime is very much at the heart of service industrialization. Without reliable, fast and easy to set up connectivity, any distributed development effort is doomed. Even as early as during the sales phase of a project, connectivity must be planned and contractually agreed. There are major challenges, as each

company operates its own network, has its own security policies, has systems hosted by a multitude of vendors and each application or tool has its own connectivity requirements. In addition, standard remote access connections provided by application vendors do not suffice, as those are mostly limited to remote access for users and are not available for developers or basis administrators. Access hence needs to be contractually defined, including tools to be used as well as connectivity requirements. Technical feasibility should then be checked at a high level, while any open point should be covered in the contract on the basis of assumptions, thus offering security for both sides regarding the huge impact on costs that missing connectivity can have

5. Project planning and time tracking tools: project planning needs to be visible to everyone at aggregate and stream level, and time needs to be posted by all team members based on this structure. Project plan and task allocations need to be available for everyone involved. Instead of local copies of power point plans in various versions and ages, one centrally stored project plan with integrated time keeping is required to keep track of the solution. The deliverable tracking tool needs to be integrated to capture efforts on task and deliverable objects at the same time. Software vendors such as Microsoft or Niku provide tools to create and publish project plans and track time based on one central version of the plan
6. Document management tool: specifications and work products, e.g. customizing objects or developments, need to be accessible for everyone, changeable only for authorized team members, and be integrated into the workflow and deliverable management. Packages provide proprietary tools for this purpose, e.g. SAP's Solution Manager. Third-party document management tools may provide a better document management solution but do not allow to track system deliverables (e.g. customizing, programs, etc.)
7. Issue management tool: as deliverables are created in a distributed process, issues (or defects) must be captured and addressed. This involves all project phases, blueprinting, realization, testing and go-live. Although excellent issue management tools are available on the market (e.g. Mercury), the skill is to integrate them with – predominantly – deliverable tracking
8. Workflow management tool: workflow permeates deliverable tracking, communication and document management tools. Its primary use is to push information to the project community based on pre-defined conditions. It is a major challenge to set up and integrate workflow systems across multiple systems, as a project is not a static entity (as e.g. processing insurance claims is). Workflow systems have to be lean to avoid excessive system integration issues. Therefore, integrating the system in the deliverable tracking tool is usually a good idea, as deliverable tracking contains the single source of truth on all deliverable data
9. Analytical reporting tool: based on the single source of truth on deliverable data, the processes of each stream must be monitored and deviations analyzed. Most systems stop at reporting deliverable status figures, i.e. how many deliverables have a certain status at a certain point in time, and compare these

with the figures of the last period. Predictability can be achieved by linear or non-linear trend analysis

10. Systems that allow the analysis of movements, i.e. analyzing which deliverable changed status at what point in time, take this one step further. There might be any kind of movements hidden in aggregated status figures, e.g. while the total number of deliverables may still be constant compared to the previous period, the whole world might have changed because some deliverables have been pushed backward in status (due to defects) and others forward.
    It is here that all the efforts to build industrial processes and tools come together: if the industrial landscape has been set up correctly, results and issues can be monitored, predicted and acted upon before a issue occurs. Implementing an analytical reporting layer on project processes is what allows the package implementation industry to reach maturity level 4.

It is easier to devise an impressive array of technologies to support a package implementation than to ensure that these technologies are actually used. First and foremost, communication tools need to be comfortable for individuals to use. Therefore, installation effort needs to be minimal, reliability of systems and connectivity high, and system performance fast. In addition, the tools need to be integrated, e.g. no-one is interested in stream forums if they need to change networks, forfeiting all open connections and go through annoying authorization screens. Tools hence need to be integrated and work in parallel sessions.

The task of doing all this technological integration planning and execution exceeds the scope of a single project. A company needs to contribute to a project with

1. an integrated management framework of processes, standards and tools
2. specialists – let us call them "Industrial Engineers" – who are able to bring this feat of industrial engineering into the project by tailoring the standard framework to the situation in a specific client project.

### Training

Even the best designed processes, standards and technologies will fail if they are not consistently known and applied. In the planning phase project team training needs to be given by class-room, e-learning and individual coaching. Normal project team training contents apply, such as targets, scope, timeline, tasks, organization structures, templates, standards, tools, communication. The differences are:

- A lot more time needs to be allocated to train the project team in standards and tools
- Connectivity already needs to be in place for the training of tools
- Project and team leads need to be trained in managing
  - geographically dispersed, virtual, i.e. distributed teams
  - processes with a focus of quantification and analytical reporting.

Project team training needs to be a regular feature of the project during all phases, as especially offsite team members are on- and off-boarded according to the current phase.

### *4.2.6 Impact on the organization of companies*

On an organizational level of a company, changes are even more drastic. Every organization that manages and handles many package implementations in parallel, such as internal or external consultancies, business and IT departments, needs to define and maintain their set of industrialized processes in all dimensions:

- Processes per stream
- Project resource skills
- Templates
- Tools
- Technology

An organization has to actively manage these standard processes to develop economies of scale and scope, e.g. a high utilization of offsite teams can only be achieved by implementing first class cross-project visibility of resource demands and supply for any given skill at any point in time. The promise of a scalable capacity that comes with offsite development can only be fulfilled at an acceptable price if capacity requirements are predictable. The usual procedure to staff a project at kick-off, increase it as required during the phases, but basically forget about the project resources at organizational level for the duration of the project will no longer work.

What is more, an organization needs to find a way to tailor their set of industrial processes to client processes and the actual situation. Any attempt to stick to its own processes will fail, as projects are always collaborative efforts that need to be aligned with and adapted to more or less fluid targets and environments. The response to this cannot be to forgo all benefits of industrialization for the sake of a CMMI® level 2 or level 3 project, but use additional industrial engineering during the ramp-up phase of a project and in case of significant disruptions. Industrial engineering describes the following skills:

- Interface own processes and tools with the clients processes and tools, e.g. interfacing of tracking or time keeping system to exchange data, alignment of project roles, creating inter-accessibility for document servers, etc.
- Plan and execute technical connectivity.
- Modular design of streams with well defined and controlled hand-overs, allowing entire streams to be flexibly coupled or de-coupled. The development stream might for example be covered by the customer's IT department, exempt from the process framework and managed via a set of hand-overs at pre-defined milestones.
- Design robust processes that are simple and sufficiently flexible to respond to external disturbances, e.g. to avoid over-engineering of workflow systems with

rigid frameworks, status changes, authorizations and large number of marginal resources as roadblocks for change.

On organizational as well as project level, people with industrial engineering skills for the implementation processes will are in the foreground. They assist project managers in setting up and maintaining processes and drive the consistent application of these processes.

## Conclusion

It's time to grow up for the package implementation industry. The package implementation industry is in for a service revolution. Compelling factor cost savings and the opportunity to tap into global resource pools will drive this revolution throughout this decade.

Organizations have only just started to explore the realm of managing virtual teams with its considerable technological challenges on connectivity and the need to transform the front-office. In an industry that has so-far been governed by opportunistic behavior in sales and more or less strictly applied best-practices in delivery, the skill to decouple client facing sales and front-office processes and industrialized services offshore needs to be mastered by clients and consultancies alike.

Standardization and performance measurement will be at the forefront of the industry, not unlike the scientific, quantified, stochastic analysis and prediction models used in the manufacturing industries today.

Technology is very much at the core of this revolution, as it allows to pick, pack and ship ever more complex information. With the advent of service oriented architectures during this decade, the transformation of the industry will continue to accelerate and more nimble meshed- up package systems and companies are created.[9]

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# Chapter 5
# Offshore ERP Services

**Anja Hendel**

**Abstract** Even if the offshoring of development and application management tasks is comparatively common these days, delivering others services within an ERP project still remains a challenge. The following article provides an overview of service offerings which are feasible to offshore and is stating requirements in terms of size and organization. It will highlight the risks, challenges and advantages of this type of delivery model.

## 5.1 Offshoring an ERP Service to India

### *5.1.1 Which services can be delivered offshore?*

Delivering software development from India is an established procedure for the software industry. Nevertheless, it still remains a challenge to efficiently deliver project work for ERP projects from India.

First experiences were made in the United States and UK. This involved work in the development area for ERP projects with so-called "landed resources", which means that Indians worked onsite in the US and UK for a project. There are many more areas in which services can be offshored. Working with landed resources represents a good starting point, but fails to deliver the full potentials of distributed delivery.

This book focuses on the six service offerings development, customizing, testing, training, data migration and upgrade. Please see Table 5.1 for a more detailed overview of the individual components.

Each service offering has different characteristics and pre-requisites.

The three functional service offerings customizing, testing and training are closely related. They all require experienced functional resources to be imple-

[1] FRICE = Forms, Reports, Interfaces, Conversion (data migration programs) and Enhancements (changes to standard coding)

Anja Hendel, Wolfgang Messner, Frank Thun, *Rightshore*
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**Table 5.1** Detailed overview of service offerings

| Service offering | Description | |
|---|---|---|
| Development | Approach | Development of software based on functional specifications<br>• New custom built software<br>• Software enhancements – FRICE[1] |
| | Scope | • ABAP, Java/.net, C/C++, etc.<br>• SAP: ECC5, BW, CRM, XI, SRM & EBP, APO, HR, Portal, etc.<br>• Siebel, Peoplesoft, etc. |
| | Input | • Functional specification<br>• Unit test cases |
| | Output | • Technical specification<br>• Executable software<br>• Unit test documentation<br>• Support during cut-over |
| | Benefits | • Highest level of cost savings due to the size of the work package and the comparatively independent offshore project<br>• Flexible capacity management (staffing & de-staffing of projects) |
| | Limitations & risks | Rigorous business requirement analysis and documentation helps to avoid putting the offshore team on the wrong track |
| Customizing | Approach | Configuration of packaged application software |
| | Scope | • SAP: ECC5, BW, CRM, XI, SRM & EBP, APO, HR, Portal, etc.<br>• Siebel, Peoplesoft, etc. |
| | Input | • Business process documentation<br>• Detailed organizational structure<br>• Unit test cases |
| | Output | • Customized processes<br>• Unit test documentation<br>• Support during cut-over |
| | Benefits | • Onsite team can focus on client interaction and gathering of business requirements, while offshore resources provide updated configuration<br>• Offshore team specializing in the customizing of packaged applications, to keep the system working according to specification during the build phase and to prepare various system environments (clients etc.) |
| | Limitations & risks | High level of interaction between onsite and offshore team required |
| Testing | Approach | Testing of an application which has either been built onsite, offshore or by a third party:<br>• Performance/stress testing<br>• Regression testing<br>• Support for integration testing<br>• Support for user acceptance testing |
| | Scope | • SAP: ECC5, BW, CRM, XI, SRM & EBP, APO, HR, Portal, etc.<br>• Siebel, Peoplesoft and any other application/ software |

**Table 5.1** (continued)

| | | |
|---|---|---|
| | Input | • Processes, test cases<br>• Configuration, business & test data |
| | Output | • Test observations and analysis |
| | Benefits | • Affordable rigorous testing<br>• Offshore resources trained in applications and testing methodology<br>• Flexible capacity management (staffing & de-staffing of test team) |
| | Limitations & risks | • Detailed test cases required for offshore testers to gain business understanding<br>• Limited suitability for high-risk business areas, e.g. high-value payments |
| Training | Approach | Creation of custom-made end-user training material for a new application or set of functionalities |
| | Scope | Any application/software |
| | Input | • Business process documentation<br>• Application with sample data |
| | Output | • Various forms of training material (handbook, help file, CBT, etc.)<br>• Preparation of trainer & delivery of training |
| | Benefits | • Increased user acceptance and decreased operational risk through professional documentation<br>• Leverage expertise of training faculty |
| | Limitations & risks | The main documentation language is English – translation to local languages leads to additional costs and involves risk |
| Data Migration | Approach | Migration of other ERP/EEA Systems, multiple legacy systems and multiple instances to a single SAP $R/3$ instance. Support in harmonizing and cleansing of source data |
| | Scope | Any data to be migrated to SAP, Siebel, Peoplesoft |
| | Input | • Data and target system authorization<br>• Business requirements |
| | Output | • Cleansed and harmonized data in the target system<br>• Upload Documentation<br>• Data Issues |
| | Benefits | • Usage of specialized tools<br>• Use of Mapping templates |
| | Limitations & risks | • Clear definition/ownership of roles and responsibilities<br>• Clear definition of organizational coverage and data scope |
| Upgrade | Approach | Migration of a client installation from one release to the next<br>• Analysis and selection of new features<br>• Customization<br>• Data cleansing and migration<br>• Testing<br>• Documentation<br>• Training and roll-out |

**Table 5.1** (continued)

| | | |
|---|---|---|
| | Scope | • SAP: ECC5, BW, CRM, XI, SRM & EBP, APO, HR, Portal, etc.<br>• Siebel, Peoplesoft, etc. |
| | Input | • Documentation of business requirements<br>• Previous release and customization |
| | Output | • Executable software/customized processes<br>• Program and user documentation<br>• Test cases and documentation<br>• End-user training material (optional) |
| | Benefits | Typically more specialization of Offshore resources in upgrades due to a high number of projects delivered |
| | Limitations & risks | Onsite business requirement study necessary to leverage the full potential of the upgrade |

**Table 5.2** Service offerings and their pre-requisites

| Service offering | Specialties | Main Pre-requisites |
|---|---|---|
| Development | • Object driven<br>• Clear hand-over (i.e. by functional specification) | • Documentation and process discipline<br>• Thorough and controlled development standards |
| Customizing | • Highly collaborative<br>• Process context knowledge is key to translate business requirements into application solutions or workarounds | • Detailed specification from onsite<br>• Meeting maturity (collaborative design and feedback sessions)<br>• High communication tool competency |
| Testing | • Object driven (by test script or logged defect)<br>• Process and data context knowledge is important | • Detailed test scripts from onsite<br>• Effective data preparation |
| Training | • Object driven (by training unit) | • Sufficient design documentation down to transaction level |
| Data Migration | • Object driven (by data object)<br>• Data context know-how is important | • Integrated project organization with client, esp. for data preparation, cleansing, validation and correction |
| Upgrade | • Schedule driven (mini-project which combines characteristics of all service offerings) | • Transparent and detailed scope |

mented. Furthermore, they can be implemented by the same resources in a more or less sequential fashion. After customizing, training material needs to be created and testing conducted. While there is a significant overlap between these three offerings in terms of timing, the same resources can be utilized.

Development and data migration are also closely related. Data migration projects need to be developed and operated. By implementing both service offerings, the same resources who build the programs are able to operate them during data upload.

### 5.1.2 To which extend should offshore be involved?

The decision which services to offshore depends on two main parameters: complexity of communication effort and lead time. Figure 5.2 shows an overview of activities and their offshoring potential grouped by these two parameters taking Development as an Capgemini example.

All deliverables marked in dark grey with a long to medium lead time and low to medium complexity and communication effort can be delivered offshore. The activities marked white with high complexity and long to medium lead times should be delivered nearshore. In all cases, where a very short lead time is essential, the service offering should be considered to be delivered onsite (marked in light grey).

This does not mean that highly complex developments cannot be delivered offshore at all, but specification needs to be very detailed. In addition, a lot of interaction and communication between the onshore and offshore teams is mandatory.

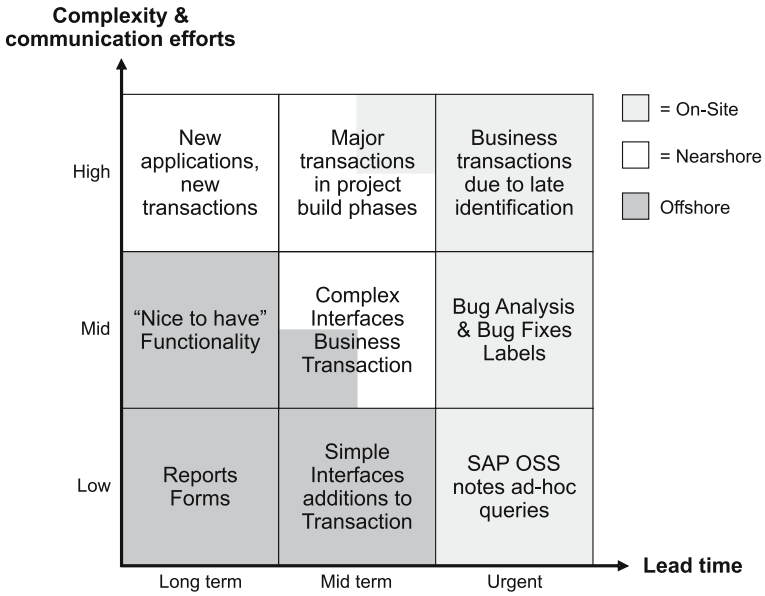


**Fig. 5.1** Development delivery options

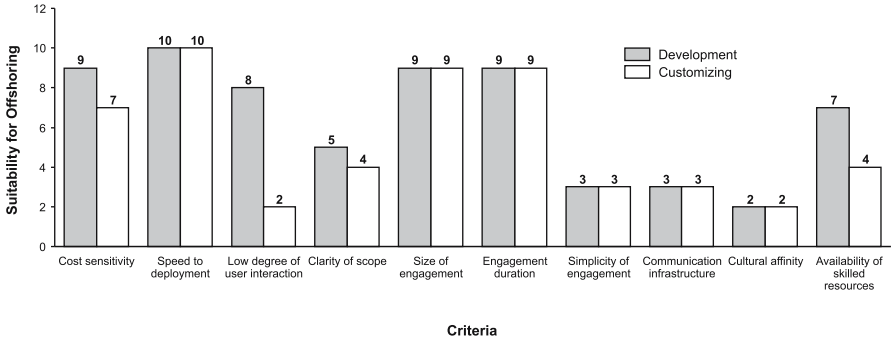


**Fig. 5.2** Suitability for offshore delivery for development and customizing

The advantage of this Rightshore® model is that

- tasks are distributed according to their complexity and urgency while taking into account the competencies of the different locations
- continuity is assured by local people familiar with the project on the client premises
- nearshore development centers optimize the communication efforts
- offshore development centers for less critical requirements offer real cost advantages
- roles and responsibilities of the parties involved are clearly defined.

The suitability of delivering services from offshore depends on the nature of each service. Taking Capgemini's Rightshore® Model, those factors are for the example of development and customizing.[2]

Figure 5.2 provides percentages for the workload of typical SAP Project streams for onsite and offshore delivery as Capgemini usually delivers them. These values are typical for standard SAP projects, but may vary largely depending on specific project environment.

### *5.1.3 Which project size is required?*

When we started to deliver projects from India, the most common statement from project managers was: "Our project is too small to deliver parts of it offshore". Alas, surprisingly, the average size of an offshore team is 9 resources[3].

To convince the project leads to use offshore resources, we started to define a calculation for the overall additional coordination costs which occur during the setup of an offshore team.

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[2] See chapter "The Rightshore® Model" in this hand book.

[3] Figure from Capgemini India 2006.

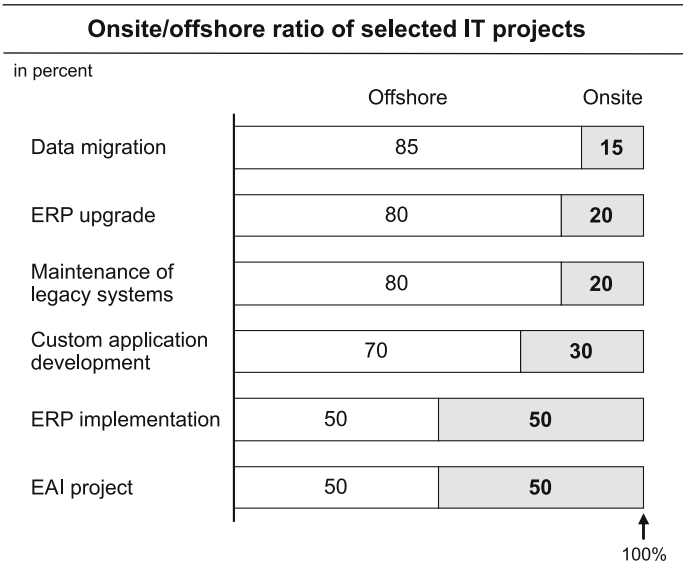


**Fig. 5.3** Onsite/offshore ratio of selected projects

**Table 5.3** Additional coordination effort for offshore teams

| Activity | Effort (PD) | | | |
|---|---|---|---|---|
| | PMO[4] | Team Leads | Consultant | Total |
| Establish contract | 1 | | | **1** |
| Select offshore manager | 1 | | | **1** |
| Arrange site meetings & visa | 5 | | | **5** |
| Determine scope and capacity | 3 | | | **3** |
| Set up organization | 5 | | | **5** |
| Align standards | 3 | 5 | | **8** |
| Educate teams | 4 | 4 | 16 | **24** |
| Kick-off offshore work | 1 | 1 | | **2** |
| **Total** | **23** | **10** | **16** | **49** |

The scenario is based on the assumption that the client project manager and the team have no offshore experience. We have four teams within the scenario project. One team (development or functional) consists of four consultants and four client resources. Further assumptions are that we have a rate difference between onshore and offshore resources of EUR $600/\text{day}$ and a blended rate for onsite resources of EUR $1000/\text{day}$.

Please see Table 5.3 for an overview of the additional activities required to set up an offshore team and the corresponding efforts per team and activity.

If we multiply our blended rate of EUR $1000$ with this additional effort of 49 PD, we will incur additional costs of EUR $49{,}000$. When we divide this figure by the

[4] PMO = Project Management Office; includes project lead and assistant

rate difference of EUR 600, the result is 82 PD. This means that the break-even can be achieved with a volume of work transferred to offshore of merely 82 PD. In other words, offshoring in this case generates financial benefits (ROI – return on investment) with volumes exceeding 82 PD.

### *5.1.4 In which project phases should offshore be utilized?*

Figure 5.4 provides an overview of the service offerings that can be delivered offshore for a typical ERP implementation model.

The business blueprint phase, which comprises the main process analysis, offers few opportunities for offshoring. Here, the opportunity is to send Indian colleagues onsite for a workshop to get acquainted with the onsite team, the client and the project processes.

The realization phase is the moment the offshore support will peak. Major parts of the development and customizing work, setup of the authorization concept, as well as first unit testing and support in data cleansing and harmonization tasks can be delivered offshore.

Even in the final preparation and go-live phases many time consuming elements can be delivered offshore. The training materials for the different end and key user trainings can be prepared in India, as well as the development of the test cases in the training system. The same applies to the fine-tuning of the system and bug fixing following the integration and regression tests. Finally, the migration data can also be uploaded offshore.

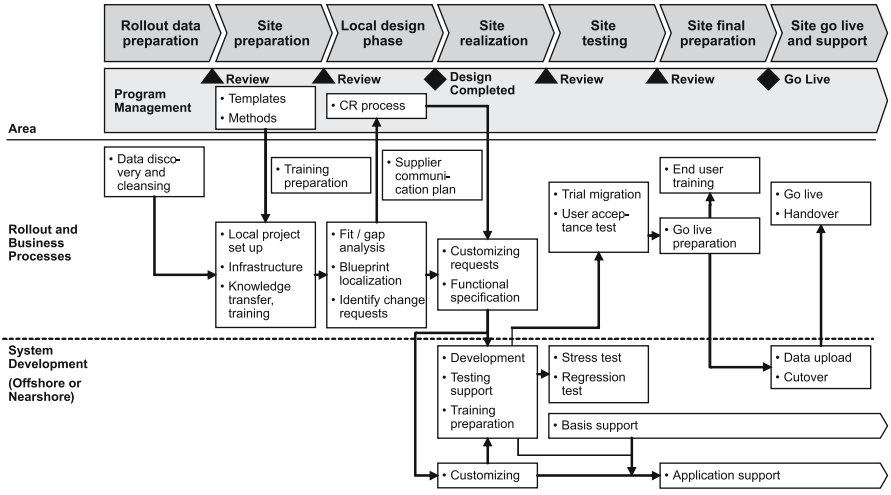


**Fig. 5.4** Overview of project and services to be delivered

## 5.2 Why utilize service offerings from Offshore?

Flexible Capacity

During a project lifecycle it is often rather difficult to plan and cover all peaks and down times. The offshore model has made us comparatively flexible in ramping up and down functional and technical consultants on a weekly basis according to our current estimates and requirements. Offshoring provides an opportunity for projects to flexibly ramp up/down resources with less budget impact. Resources can be kept on the bench at more acceptable costs.

Costs

Pure Labor cost arbitrage advantages do not translate 1:1 into savings.

Figure 5.5 features an overview of the respective cost savings as well as additional costs for communication, management, fees, etc for a typical unit of work within a development stream.

The first 60% of cost savings are due to the lower rates in India, but 20% of extra costs need to be added for additional communication and management (onsite and offshore manager, instant messaging, net-meeting, etc.). On top of this, 10% needs to be added to cover extra VAT and fees for visa processes, etc. The total cost saving generated through offshoring thus amounts to 30%. These savings can be increased by 10% to 40% through the industrialization of offshore processes. This will take

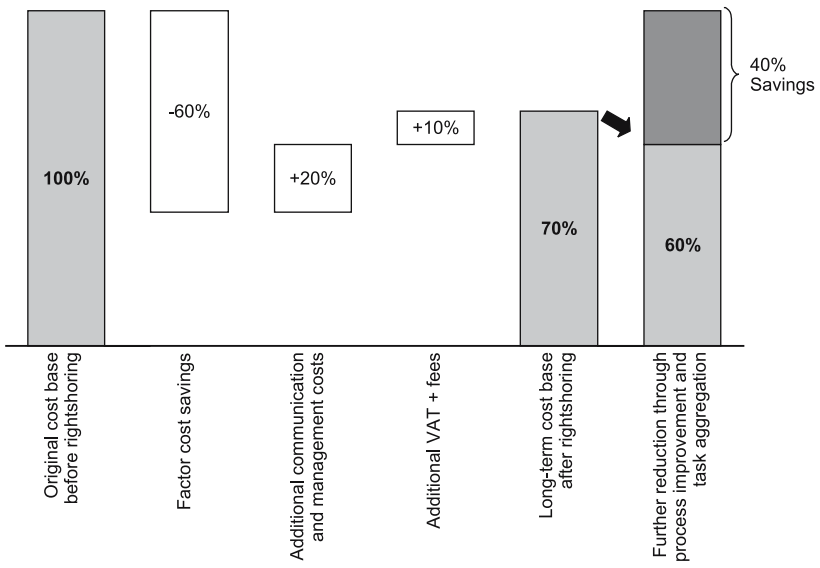


**Fig. 5.5** General Rightshore® cost savings[5]

[5] [Messner 2004]

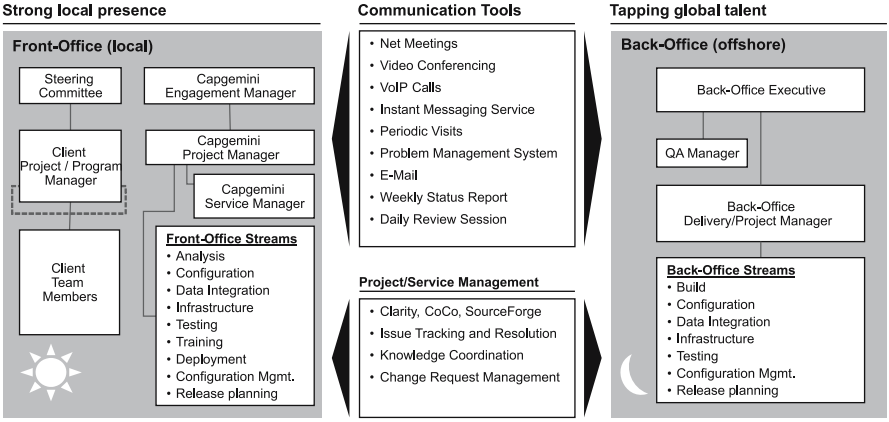


**Fig. 5.6** Distributed delivery framework[6]

some time, as the project and client organizations need to be comfortable with this distributed model.

Quality

Offshore resources are trained in the use of standard tools, templates and documentation. Rigorous use of standards is often enforced by CMM certification processes. Onboarding cost will thus be limited. Resources experienced to work in such environments are well aware of any pitfalls and organizations have all means in place (KPI reporting, Quality Review Structures) to ensure high quality consistently.

## 5.3 Which elements need to be implemented for Offshoring of Services?

### *5.3.1 Team structure*

The structure of the team has to ensure strong local control while fully integrating the offshore resource pool into the project. The so-called onshore and offshore coordinators are at the heart of each project with offshore delivery. These coordinators organize the collaboration between the onsite and the offshore team.

Their main task is to ensure the coordination and communication between the distributed teams. The challenge here is to avoid bottlenecks between the two teams and instead ensure and support one-to-one communication between the on- and the offshore team.

[6] A standard set of tools and methods integrating Capgemini s Deliver™, QMS & CMMi systems that are based on years of experience.

### 5.3.2 Procedures and standards

- Processes and standards, activities, integration points and well defined hand-offs and deliverables per project phase are required to ensure a successful distributed delivery.
- Roles and responsibilities: As already described before, the onsite and offsite roles need to be clearly defined and communicated. Clear governance structures ensure adequate communication and escalation processes and procedures.

Tools and communication

- Communication tools: Appropriate written, oral, or personal communication channels need to be in place for individual tasks. This requires an adequate technical, budget and organizational setup to enable onsite and offshore visits, video conferences, tracking tools, email, etc.
- Data security: To ensure a high level of data security, the latest standards for network security and encryptions have to be applied, which means client-specific physically isolated networks and different setups according to client needs. One should not underestimate all these technical setups and requirements, as without them, the best processes and procedures are bound to fail.

### 5.3.3 Offshore factory organization

When using offshore resources for multiple service offerings within a project, a delivery factory model can be in order to leverage more synergies between the different services that are delivered from offshore. An example for such a factory organization can be found in Figure 5.7.

Very much like a manufacturing facility, distributed delivery factories require clearly defined product creation and management processes. Utilizing the fundamentals of industrial manufacturing – standardized components, specialized skill sets, harmonized processes, predictability and scalability – a distributed factory can achieve a superior level of delivery quality. Industrializing the ERP implementation processes can provide benefits in terms of economies of scale, geographic distribution, load leveling, and rigorous product and process control.

Examples for synergies by embracing a common delivery model across service offerings are given in Table 5.4.

Advantages for adopting a factory based model are:

1. Processes: Establishing a low cost, high volume, repetitive factory based on reliable and industrialized processes is one of the targets that can be realized more easily using the distributed model. The distributed delivery concept does not work without well defined processes. Therefore, these processes have to be defined, established and communicated across the organization.

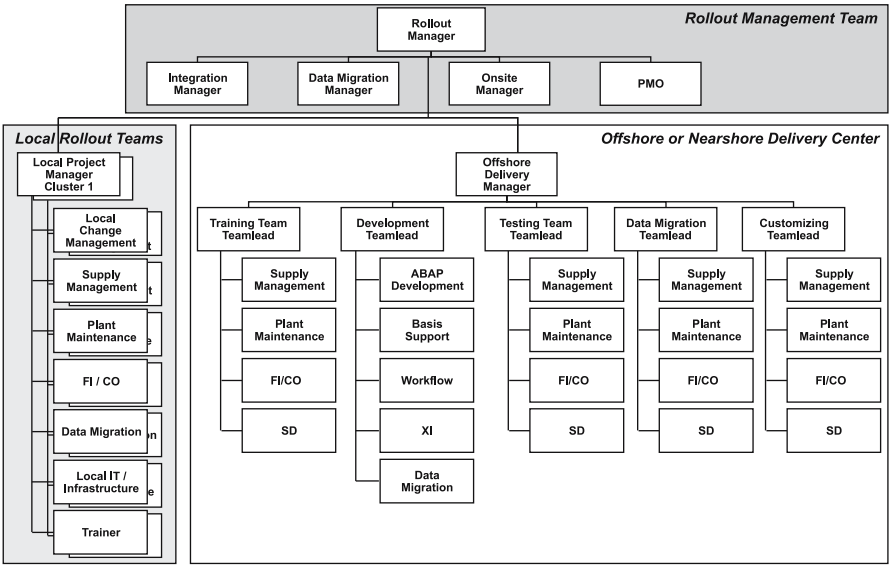


**Fig. 5.7** Factory organization example

**Table 5.4** Synergies of delivery factories

| Synergy area | Description |
|---|---|
| Deliverable tracking | • Common tracking procedure<br>• One standard reporting |
| Organization | • Onsite coordinators responsible for multiple service offerings<br>• One integrated factory organization<br>• Mass handling of mobility issues |
| Resources | • Shared resources across all service offerings<br>• Higher flexibility within the different factories, if used for several projects |
| Hand-over | System support and application management are an integral part of the factory |

2. Flexibility: Using delivery factories offers flexibility by shifting resources between these factories. For the resources, this provides the opportunity to develop their skills in different directions while working for the same customer and within the same set of processes. From a project and management point of view, this flexibility means an improved handling of peak times. One example could be an ABAP developer interested in BW. Assuming that on one project the workload for the development team is reduced at the end of the realization phase but that at the same time the BW is at risk of not being able to deliver on time. The ABAP resource switches to the BW team and can thus contribute to meeting the deadline. The resource may not be a BW expert but is already

familiar with the business process for BW reports as well as with the business contact.
3. Knowledge: Delivery factories are excellent at leveraging functional and technical knowledge across for the entire program, as they ensure a smooth knowledge transfer from the implementation project (built) to the support organization (run).
4. Integration: The organizational structure of the delivery factories creates accountability for system integrity by defining just one team in charge of "touching" the system. The close link between the built and the run teams warrants an adequate documentation and knowledge transfer from one phase to the next.

## 5.4 Key performance indicators, reporting and risks

There are a number of risks frequently discussed prior to delivering service offerings offshore for the first time. Figure 5.8 assesses these risks depending on probability and project impact. The size of the circle correlates with the difficulties faced with risk mitigation.

1. Long lead time to resolve issues and gaps: As there is no opportunity for a quick face-to-face communication, lead times to resolve issues and close gaps are longer on average.

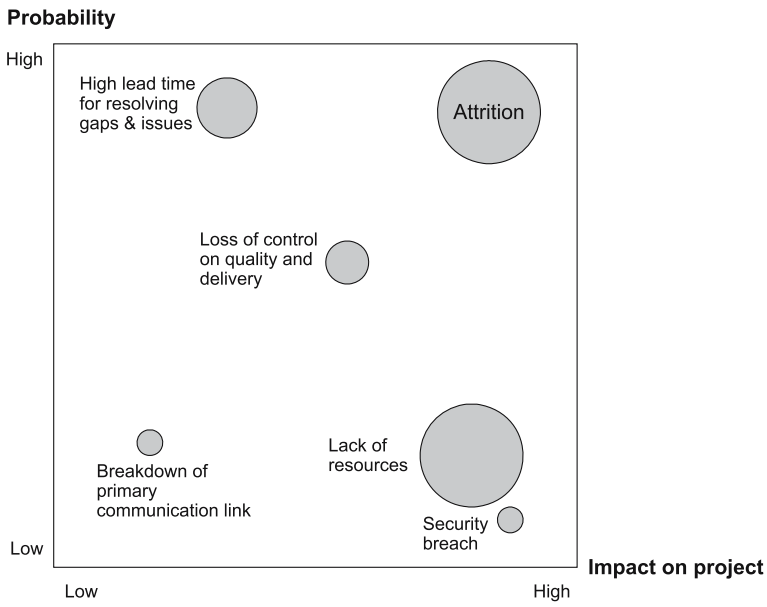


**Fig. 5.8** Risk matrix

2. Loss of control over quality and delivery: Coordinating and managing a team situated thousands of kilometers away, with another cultural mindset and environment and working in a different time zone raises the issue of losing control over quality and delivery.
3. Security breach: There are technical and human security risks associated with offshoring activities to India. In the development area, companies fear that the source code could be stolen or that the technical environment is not adequately protected from unauthorized access.
4. Breakdown of the primary communication link: Another concern in the technical area is that internet connectivity may become disrupted and no exchange of information is possible for longer periods of time.
5. Lack of resources: Once the decision has been taken to offshore activities to India, the risk is that despite fast hiring and onboarding procedures the right resources may not be available to support the service offerings because India is a fast developing country.
6. Attrition is a risk companies with offshore experience are very much aware of. India is one of the fastest developing countries worldwide and current positions do not translate into lifetime relationships. Indian experts are highly interested in developing their skills, and if their tasks fail to promote their skill development they will seek another position within the company or leave the company and project altogether.

Taking a critical look at the risk matrix, one will discover that most risks just as well apply to working with onsite resources. There are a number of action companies can take to mitigate these risks:

- Agreement on a format to communicate issues, followed by regular interaction
- Clear definition of roles and responsibilities, milestones, and deliverables subject to predefined standards
- Strong organizational values; structured learning and counseling
- Strong onsite PMO with well defined escalation processes and documentation standards
- Maintaining redundant communication links (frame relay, satellite, VPN)
- Adequate resource planning upfront; access to the resource pool across service lines
- Improving IT security by leveraging all technical options such as swipe cards, separate LAN, anti-virus software and secure ID cards.

## Conclusion

Delivering a combination of service offerings offshore will be the future for every project. Globalization implies that new ways of collaborating across continents are required, as working from India, at home offices and in virtual teams becomes more and more commonplace.

Some companies even establish offices in SecondLife[7] to create a virtual space to meet and develop new ideas and collaborate for projects. In the ERP area the delivery of service offerings offshore will also become business as usual.

Part II of this handbook portrays several project examples and describes how to deliver different service offerings within an ERP implementation project.

## References

1. Messner W (2004) Enabling Business Transformation by Offshoring IT to India. In: Clement R, Gadatsch A, Juszczak J (eds) IT-Controlling in Forschung und Praxis Vol 11

[7] SecondLife is a virtual world with a 3D environment which is fully created and developed by it 'citizens'.

# Chapter 6
# Transforming the Front-office

**Frank Thun**

**Abstract** Offshoring requires a new, re-organized front-office to bridge the distance between design activities onsite and build activities offshore. This article analyses the new role of the front-office, illustrates the delivery models, and explains the revised set of required capabilities.

## 6.1 Introduction

Offshoring parts of the ERP value chain requires the front-office to change. Taking Karmarkar's definition of the "Service Revolution" and its central enabler, technology:

"Think of technology as creating an information assembly line – information today can be standardized, built to order, assembled from components, picked, packed, stored, and shipped, all using processes resembling manufacturing."[1]

It is the front-office that is standardizing, designing and shipping the design to the offshore team. It is the front-office that is testing components and assembling the software solution with process, organizational and human changes according to the requirements onsite. This article explores the new or changed capabilities needed for the front-office. The analysis is built on an earlier article "Industrialization of package Implementations" which highlights the need to change. The focus is on explaining which capabilities need to be changed or developed and – in the closing sections of the articles – on suggesting how this change might be tackled.

In this article, the term "front-office" is used synonymous to the "onsite" team, and "back-office" stands for "offshore".

[1] [Karmarkar 2004]

Anja Hendel, Wolfgang Messner, Frank Thun, *Rightshore*

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## 6.2 The role of the front-office in ERP implementations

The front-office is wheeling and dealing between the customer onsite and the offshore team. It sets the standards (likely within a frame of industrial standards set across engagements), trains the project team, creates designs, picks which designs are to be done offshore, ships those designs and coordinates any issues during their production. The front-office tests components and assembles them into the final solution by embedding them into the local information system, organizational and human context. But it should **not:**

1. Monopolize the customer contact. Offshore teams need to have direct access to customer resources. Delays and distortions of communication due to a front-office middle-man or translator involved need to be avoided. Front-office personal should rather initiate, facilitate and control the effectiveness of communication.
2. Aim to ship everything offshore. Some tasks require intense direct iterations between business and ERP specialist to develop an optimal solution. People frequently make the mistake to understand this limitation as "do not send complex stuff offshore". In fact, very complex developments or prototypes can be built offshore, as long as the requirements are precisely described. A judgment call is required by the front-office team, taking into consideration the individual communication skills of the business requestor(s) and the offshore resource(s) available. Typical examples are complex reports, work-flows or pricing routines. Pricing can be very complex to set up because of a vast number of conditions including legal obligations. They are best built by iteratively tweaking the system and looking at the same screen. Even so, given sufficient individual communication skills onsite and offshore, the business requestor and offshore consultant may successfully share a screen and converse via phone to achieve as good a result as any. It takes sound judgment based on the understanding of individual communication skills and experience to decide which mode of delivery to choose. We would recommend a conservative approach which at first plans to deliver more onsite and then shifts increasingly more work offshore in later phases.
3. Be a "content free" facilitator. The front-office team sets the "meta" standards of work, i.e. deliverables, phases, gate-reviews, plans, assignments, validation procedures of designs and builds, test procedures etc. More importantly, it also owns the business, functional and technical design of the overall solution. The front-office team is the architect and the engineer of a building. It needs to shape the overall solution that is built for the customers, decomposes it into deliverables and coordinates its construction. Any change during the realization phase must be evaluated by the front-office team to warrant the overall validity of the solution.

A typical distribution of work between front-office (white boxes) and offshore (grey boxes) is pictured in Figure 6.1.

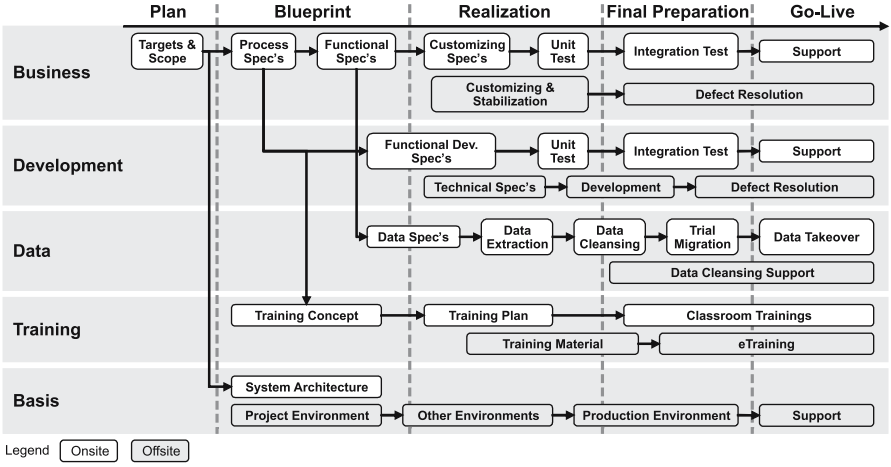


**Fig. 6.1** Distribution of work between front-office and back-office in a typical ERP implementation

In the plan, blueprint and the first half of realization phase the onsite team designs the overall solution and defines the individual deliverables. Beginning with the realization phase the front-office team shifts into a coordination, testing and issue solving mode before entering into the tightly scripted go-live phase.

## 6.3 Delivery models

Two main models of offshore delivery can be distinguished:

- Factory Model: For each stream (i.e. customizing, training, testing, support, development, data) there is a dedicated factory organization with one lead and dedicated resources per stream.
- One Team Model: The organization of the front-office team is mirrored offshore. For each front-office team, mostly organized by a combination of functional and technical domains, there is one corresponding back-office team.

Figure 6.2 shows an example for a typical One Team delivery model.

In this organization, front-office team leads take charge of a combined team of onsite and offshore resources. Resources might be shared across teams (e.g. Resource A), but they are always reporting to a front-office team lead for the type of work they are delivering. The streams take a secondary priority in the matrix, i.e. they do not have resource ownership and are limited to setting standards, solving issues across teams and reporting. Streams are led by the front-office distributed delivery coordinator (DDC) with the exception of the development stream, which is typically led by the front-office technical lead.

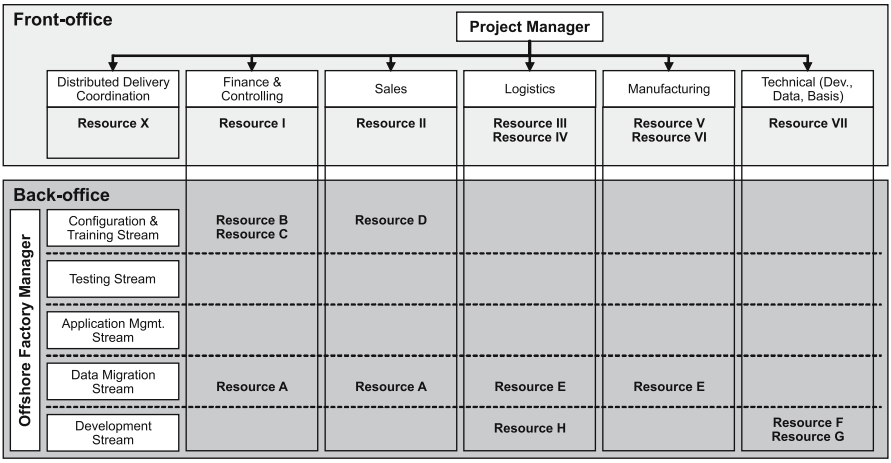


**Fig. 6.2** One team delivery organization (example)

In a factory organization the streams have priority over the front-office teams. Offshore resources are attached to the streams and every stream is headed by a offshore lead. These leads are reporting to the front-office DDC. Stream Resources might still be assigned to work exclusively for a front-office team, but the leadership of resources is not lie with the front-office team but with the back-office team lead.

The main advantage of the one team model is the strong context knowledge of offshore resources at the sacrifice of process control, whereas factory models achieve tight process control while sacrificing the context knowledge of offshore resources.

Mixed models are possible. Development, data migration and support lend themselves well to the factory model, while customizing, training, testing and (to a certain degree) support are more suitable for the one team model. Ultimately, the decision on a model depends on the project situation, for example:

- A standard one site implementation project where distributed delivery in unknown to most project team members. The factory model is advisable here. As the factory model has the biggest impact on the performance of the customizing teams, an experienced DDC and a single offshore stream lead for all functional streams (customizing, testing, training) can mitigate a great deal of factory model weaknesses.
- A standard one site implementation model where distributed delivery is well known to the project team. The One Team model will achieve the best results, as team can be trusted more to apply distributed delivery processes consistently across teams.
- A roll-out with several projects in parallel: factory model. Resource sharing across project is the key here. The more standardized the roll-outs, the more a factory model is advisable. For those odd roll-outs that are considerably more complex than other projects in scope of the program, a one team model should be considered for functional streams.

**Table 6.1** Comparison of 'one-team' and 'factory' model of offshore delivery

| Criteria | One Team Model | Factory Model |
|---|---|---|
| Process control | Weak. Processes might be interpreted and applied differently per team, leading to confusion offshore and data mismatches. | Strong. DDCs control process of each stream and ensure the consistent use of standards and high quality of data in the collaboration platform database. |
| Context knowledge | Strong. Offshore consultants are fully integrated in front-office teams from design to realization and go-live. | Weak. Offshore resources mostly stay within their streams and do not get any insights beyond. |
| Offshore resource motivation | Strong. Offshore resources are part of the project "adventure". | Weak. Offshore resources are left with their stream "silos" and tend to feel isolated and at the mercy of the front-office. |
| Sharing of resources across projects | Weak. Offshore resources are allocated to a project. Assignments to two project at the same time will impact both projects, as process are likely to be different due to a lack of process control in the one team model. | Strong. The stream is able to provide services to any project, as it less depends on project content knowledge. |
| Utilization and effectiveness | Neutral. The more experienced the front-office team leads are in distributed delivery, the better the utilization and effectiveness of the offshore team. If the front-office team is inexperienced in distributed delivery, it will have a negative impact. | Neutral. Factories depend on the ability of front-office DDCs to provide accurate delivery forecasts in order to plan their resources. This in turn depends on the stability of the project itself and the experience of the DDC and front-office team leads. |

Please find below an example for a full factory organization in a highly standardized global deployment project to 130 countries with an average number of 80 users per site.

Here, DDCs are allocated to each deployment project, while offshore factory management is reporting directly to program management. Please note that this is an organization form for an industrialized deployment, i.e. it has been adapted after design, build and test of the template.

## 6.4 Introducing the Distributed Delivery Coordinator

DDCs are setting process standards, templates and tools for the project prior to kick-off. After that, they are wheeling and dealing between front-office and back-office teams:

- Liaise with the front and back-office, manage client expectations and maintain strong working relationship with the client
- Create the Distributed Delivery project charter, processes, templates and tools. Each stream needs to have a different set of processes
- Manage and lead collaboration between front-office and back-office
- Maintain correct staffing of the project/service and ensure that the team knows their roles and responsibilities
- Manage the cost, quality, plan, schedule, risk, issue and communication of the offshore project
- Prioritize and allocate tasks to the front-office and back-office project team
- Execute formal reviews, management reviews and conduct status meetings
- Forecast business peeks and troughs
- Report to project sponsor, governing council, and steering committee
- Keep track of customer satisfaction and the KPIs
- Escalate issues to senior management

DDCs are needed independently of the selected delivery model. In a factory model, they have resource responsibility for offshore teams, and in a one team model they have to rely on their influence and the backing of project management.

With the size of the project and the number of streams offshored, the number of necessary DDCs increases.

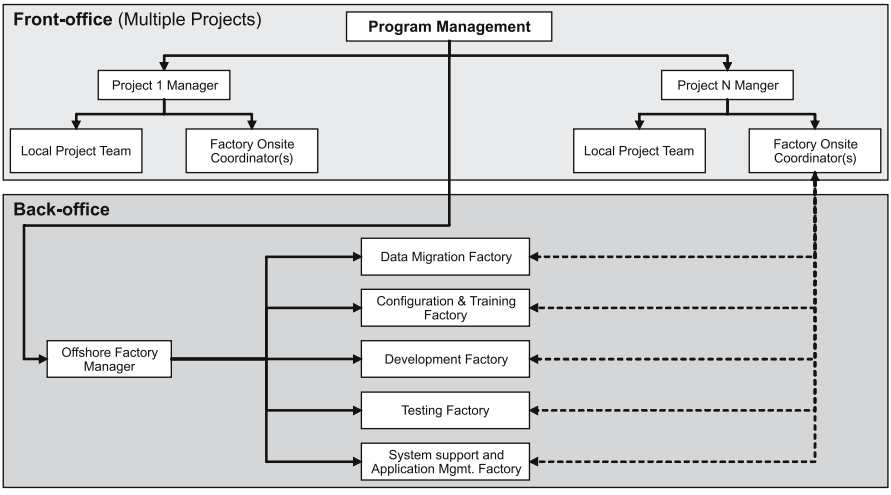


**Fig. 6.3** Back-office factory delivery organization (example)

**Table 6.2** Bridging the distance between virtual teams[2]

| | **Types of Tasks** | | | |
|---|---|---|---|---|
| Communication modes | Generating ideas and plans and collecting data | Problems and appropriate answers | Problems in need of answers | Negotiating technical or inter-personal conflicts |
| Audio Only | Marginal fit | Good fit | Good fit | Poor fit |
| Video only | Poor fit | Good fit | Good fit | Marginal fit |
| Data only (email, bulletin boards) | Good fit | Marginal fit | Poor fit | Poor fit |

## 6.5 Assessment of capabilities required

There is just one element of the ERP implementation value chain that changes: the distance between teams. Taking a simplistic view, capabilities need to be deployed that bridge the distance, i.e. negate the impact of distance. One obvious aspect are technical capabilities, i.e. voice and video conferencing, web sessions, instant messaging etc. Depending on the problem at hand, these technologies offer more or less adequate solutions (see Table 6.2).

While the application of a communication technology itself depends on numerous technical and economical factors that tremendously influence its effectiveness (e.g. video conferencing quality is still rarely at peek level in nowadays projects), the underlying challenge is to shape the tasks and the frequency of communication. In other words: the way information is "picked, packed, stored and shipped" determines the kind of problems that need to be discussed between on-and offsite and determines the frequency of communication. Richness of information is a key topic here: if a task is very well understood by team members onsite and offsite, the expected result and any dependencies are clearly described and the team members have a good grip on the context information of their project and stream, they are in a position to work straight towards a target while keeping communications focused on validations of work and problem solving. Technological capabilities need to go hand in hand with changed organizational capabilities.

Thirdly, to apply communication technologies and revised organizational capabilities has repercussions on job roles and profiles. Some face to face skills are devalued, while others such as structured communication skills, preparation and documentation skills become more important.

The next chapter lists and explains the capabilities required by the front-office.

[2] Cf. [Duarte/Snyder 2006]

**Table 6.3** Electronic communication standards

| Capability | Description | Today | Challenges | Examples |
|---|---|---|---|---|
| IP driven audio conferencing | Phone conferences, IP-driven conferences | Phone conferences are commonplace, IP-based not | Aligning security standards across organizations; license costs: making conf. call lines freely available on demand and ad-hoc for team members | Classical conf. call lines; Instant messaging extensions with audio, e.g. Skype, Google Talk, Web-Ex, etc. |
| Ad-hoc video conferences | Web-cams, video conference equipment sets | Rarely used at project level, mostly limited to steering committees and project management | Bandwidth of project locations, investment in fixed equipments and rooms | Any kind of video equipment and software |
| Webbased data conferences | Emails, instant messaging, desktop-sharing, Web-casts | Collaborative, cross company use of instant messaging and desktop sharing is used rarely | Instant messaging and desktop-sharing across networks; licenses costs; user training | Microsoft Office Communicator, Web-Ex |

### *6.5.1 Technological capabilities*

The front-office needs to fully embrace the method for distributed, or sometimes called "virtual", team management. The key enabler of any distributed team management theory is technology. Technology bridges the distances and provides the foundation. Still, it is not suffice to rely on technology alone without adjusting organizational and human resource aspects. However, success would be very limited without the right mix of technology.

Communication

Nowadays, electronic communication is much enhanced by selecting one application that blends audio and data conferences, e.g. Microsoft Office Communicator 2007, Web-Ex, Skype, etc.[3] Using this kind of application, team members will:

- know who is accessible at any point in time (due to user status lists maintained in instant messaging applications)

[3] Each application has certain limits on functionality, such as number of users in a conference, support of video equipment, security requirements, etc.

**Table 6.4** Electronic collaboration standards

| Capability | Description | Today | Challenges | Examples |
|---|---|---|---|---|
| Collaborative document management | Shared fileservers; version mgt; document lock | Commonly used | Integration with workflow deliverable tracking; bandwidth at project locations | Microsoft Sharepoint, Lotus Notes |
| Deliverable lifecycle management (assignment and tracking, defects) | Excel lists, collaborative tracking applications | Excel is standard, collaborative tracking applications not | License costs of collaborative tracking applications | Microsoft Excel, SourceForge |
| Integrated project tracking | Effort tracking; resource workload mgmt. | Commonly used | Integration to deliverable tracking | MS Project, Niku Clarity |
| Collaborative team calendar | Integrated, accessible individual and group calendars | Sometimes used | Integration across organizations; integration with collaborative tracking platform | MS Office communicator 2007, Google Calendar |
| Web bulletin boards | Wikis, forums | Rare usage of other than conventional, physical bulletin boards | Changing habits from creating meta documents in office files towards publishing these contents directly in Forum or wiki posts | SourceForge, GNU |

- can invite one or multiple people to start a text or audio conversation without the need to dial any numbers
- be able to schedule conferences in a group calendar or arrange a conference ad-hoc
- can start to share screens at any point in time
- be able to even share video information (although with very limited quality due to inferior equipment at individual work-places)

Obviously, such integrated communication suites foster communication considerably.

### Collaboration

New applications are being developed which aim to combine most forms of electronic collaboration. For example an application called SourceForge. It provides:

**Table 6.5** Support for tools

| Capability | Description | Today | Challenges | Examples |
|---|---|---|---|---|
| Support for electronic collaboration and communication tools | Setting up tools, training, defect solving, reporting support | Very rarely in place | Embedding of support costs in contract calculations | PMO support of tools, dedicated IT department support |

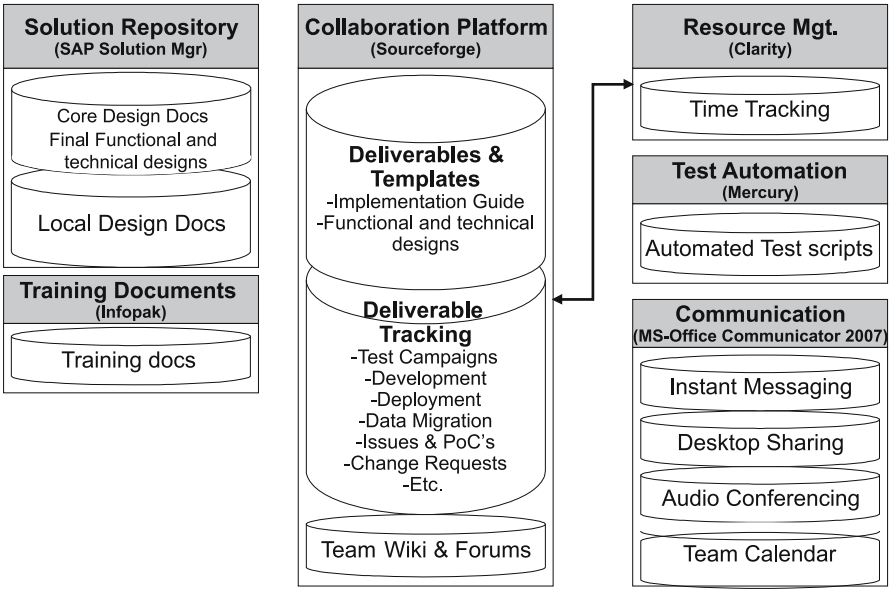


**Fig. 6.4** Tools landscape of a major ERP implementation project for a global manufacturing company

- a platform to track deliverables and store documents by anyone, accessible across organizations
- integrated workflow functions to review documents, alerts on deliverable assignment or status changes
- cross project task lists and workspaces
- forum and wiki functionality
- integrated reporting functionality

All information relevant for project work is maintained in just this one collaboration platform. This is the single source of truth for the project. Non value adding work for aligning multitudes of Excel lists is thereby eliminated. In effect, this is achieved by a feat of informational engineering not unlike the functioning of an ERP system itself: All information is simply stored in one place and used by any application and by whoever needs the data: misalignments are eliminated.

Support

The previous two capabilities are mandatory for any effective project. With this number of new applications, interfaces between different applications need to be built and, in face of a largely untrained user community of a project, resources need to be available to support this infrastructure. These resources can be provided by the project itself or be shared across projects.

Please find below a tools landscape of an actual project supporting front and back-office.

Communication capabilities are provided by MS-Office Communicator 2007, collaboration primarily by SourceForge with an interface to the time tracking and resource load managment system Clarity. Additional tools need to be maintained:

- Training document construction and publication (Infopak)
- Test automation by using predefined scripts and data (mercury). Still, test campaigns and resulting defects are managed in SourceForge. Although Mercury provides superior functions for defect management and reporting, SourceForge has been preferred to have all information in one system (defects, design documents, change requests, authors, delivery dates, versions) rather than split information sources
- SAP's Solution Manager is maintained as a storage for all final design documents in order to serve as the base for the support phase after go-live

### *6.5.2 Organizational capabilities*

Standard Delivery Model

In Figure 6.5 all project streams are listed vertically, project phases horizontally. Every box is equivalent to one deliverable (which sometimes consists of a number of sub-deliverables, for example developments or test scripts). Each deliverable and sub-deliverable has a unique number used in deliverable tracking. Each phase ends with a gate (indicated by a pyramid). Dependencies are indicated by line. Responsibilities are indicated by the color coding of boxes.

So far, this is applicable to offshore and pure onsite projects alike. What distinguishes an offshore project is that each stream uses a specific production process involving numerous hand-overs between individuals and teams for its deliverables.[4] These production processes need to be well described and will not succeed on any major projects if not a) supported by strong tools and b) integrated in a detailed overall delivery model.

[4] For descriptions of stream-specific offshore production processes, please refer to the case studies of this book.

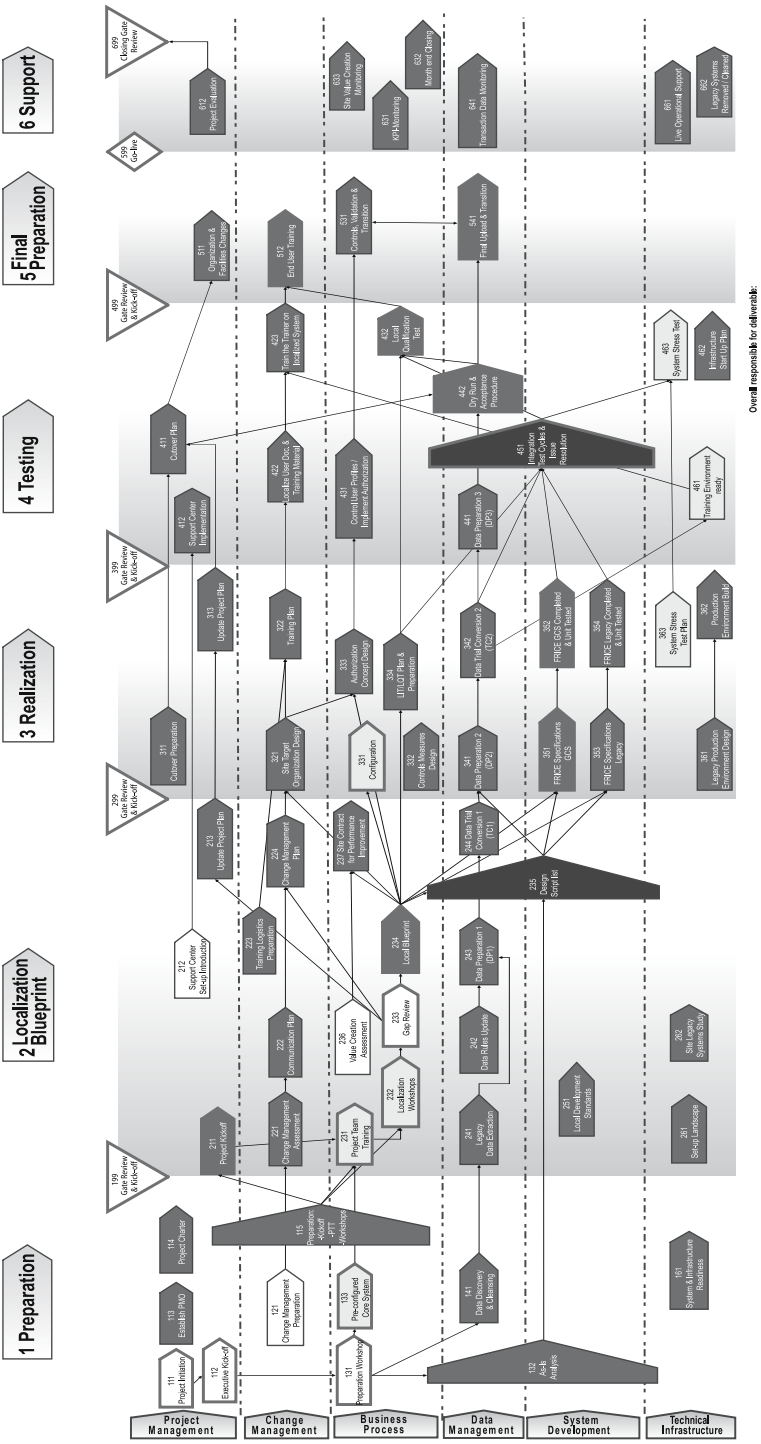


**Fig. 6.5** Delivery model of a major ERP implementation for a global client

**Table 6.6** Standard delivery model

| Capability | Description | Today | Challenges | Examples |
|---|---|---|---|---|
| Delivery approaches adapted for Distributed Delivery | Deliverable explanations and templates, listed dependencies, examples | Standard models are commonplace, albeit not for offshore delivery | Integrate offshore in today's ERP delivery model | ASAP, ValueSAP etc. |
| Process orientation | Standard production processes and RACIs per stream, focusing on effective handovers | Very weak process orientation regarding production processes inside project itself | Design and train and control stream specific processes | Remote development processes, remote customizing processes, remote testing processes etc. |
| One team model | Define a compatible front-office and back-office organization | No focus on offshore delivery models | Adapt organization to needs of front and back-office | See chapter "Delivery" Models below |
| Ex-ante, cross project benchmarking | Benchmarking of KPIs and analytical analysis during projects to forecast and mitigate deviations | Ex-post benchmarking limited to high level KPIs (financial and schedule variance) | Apply consistent standards across projects | Project portfolio analysis |

Distributed Work Procedure Discipline

Effective distributed work requires changing established behavioral patterns. Each individual will find it more cumbersome to document every specification, change or defects in a standard template, uploading it in a standard tool and describing it with a set of mandatory meta-data. Everyone will find that conferences with offshore will only deliver satisfying results if properly prepared. Discipline is the key in a distributed project environment. This is even more true for the front-office, which is the architect, engineer, facilitator and controller of the overall effort.

To ensure that work procedures are adhered too, training and control are needed. Controlling of the project should be by stream based on a defined set of KPIs for the deliverables of a phase. Progress must be quantified by counting deliverable status and analyzing movements week by week. The necessary tools exist, if a collaboration platform to track deliverables is in place. Now, this data needs to be utilized in a manner comparable to the basic controlling of manufacturing lines. There is no need to get lost in Six Sigma statistical analysis, but even analyzing weekly movement data requires a solid amount of information engineering.

Figure 6.6 illustrates a week by week reporting of the status of development objects during the realization phase. The numbers of developments are shown in each bar. The lowest bar shows the number of developments finished, the next one

**Table 6.7** Procedure discipline in distributed work

| Capability | Description | Today | Challenges | Examples |
|---|---|---|---|---|
| Documentation excellence | Rigorous documentation of any specification or change | Partly weak or ex-post documentation of designs, test-scripts defects etc. | Implement documentation discipline: work is not considered to be done until documented | Functional designs of developments, configuration designs |
| Tools excellence | Utilize tools to support and enforce work procedures | Most projects rely on local single user excel lists and do not utilize tools | Make tools an integral part of any project management decision | Integrate change management processes with stream production approach |
| Conference maturity | Meeting discipline esp. regarding attendance, timing, agenda for pre-reading, early log-in of hosts, tool-supported minutes and follow-up | Weak discipline to fully leverage remote conference's potentials | Changing established habits of onsite teams | Keeping a standard meeting agenda and timing; stick to one meeting language, etc. |
| Quantitative project control | Control projects based on a set of KPIs per stream. Each stream should be viewed as a production chain and monitored as such for progress, productivity, speed and bottlenecks of the entire chain as well as its component teams. The target is to identify delays and causes early on | Deliverable-based approach with three status: open, in progress, done | Establishing and maintaining single source of truth; quantify and think in numbers | KPI reports per stream and phase showing status and movements |

the ones unit tested (Dev validated by Integrator), Development ready for testing, Development in work and Functional Specification (FFS) in work. With this graph, project management can check

- if progress is sufficient to meet a deadline
- the status and – by looking at the RACI – which teams are responsible for bottle necks
- whether the scope is under control

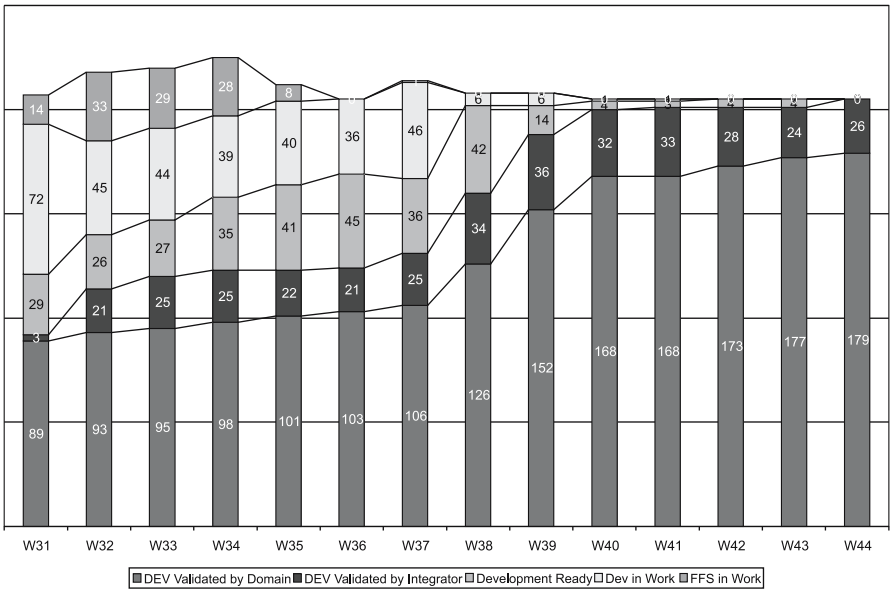


**Fig. 6.6** Example for a weekly KPI-driven development report

What cannot be controlled via this graph is:

- How many developments changed status during the last weeks. The information shown is based on aggregate information: even if no change of aggregate numbers has occurred, there might be a lot of activity going on, for example when 50 developments were declared ready for unit testing but all had defects and reverted back to the development in work and then the development ready status within a week
- Average throughput times
- Delays and overruns by object
- Number of iterations between development and testing
- Number of change requests received
- Number of defects per development object

Beside these additional reports, a filter and drill-down function is needed to analyze the data top-down. Experience suggests that many people not familiar with the rigorous style quantification in offshore project are surprised and quickly distrust data. Even if they or their teams have entered all object data themselves.

Basically, the problem of providing accurate workload and resource forecasts is the same for distributed delivery projects and non-distributed delivery projects. It is aggravated because:

- Offshore is mostly used for parts of the value service delivery, typically development. In a large number of cases information on exact resource profiles and numbers is transmitted offshore too late. As the project is focused on its imme-

**Table 6.8** Support process

| Capability | Description | Today | Challenges | Examples |
|---|---|---|---|---|
| Mobility support | Assist business travel and visa procedures for travel between front-office and offshore | Lack of experience in the various legal options and limits to international mobility | Local legal regulations on visas | Business visas only available for certain level of employees, certain work, durations and number of days in a given period |
| Workload planning excellence | Planning with a stable core team of resources on and offsite; rolling, Six weeks forecast of workload in order to schedule resource on- and off-boarding | Less change of staffing levels during a project | Achieve accurate forecast | |

diate deliverables, there might be a degree of uncertainty about the scope or if a gate will be passed, etc. Offshore requires firm dates just as the front-office. Six weeks is a good lead time, more is likely to be unstable, with less lead time offshore might be unable to deliver resources in time

- Costs are not high for taking or keeping extra offshore resources onboard, even though there is no workload yet. From a risk perspective and for some additional gains in knowledge of the project, this might be done at an acceptable cost, but offshore resources are kept on hold for too long, making them likely leave the project or company. In a local project on one site, costs and easily visible de-motivation usually keep overstaffing at bay, but in a distributed environment this is a real problem. Good people in particular tend to leave if not challenged

Additional help, for example by a project management office (PMO), to support data integrity, track deliverables etc. is not necessary simply because the project has an offshore component – provided a collaboration platform has been put in place properly. With this platform in place, every project resource and stream lead become owners of their own data. Especially front-offices teams not experienced with offshore projects tend to shy away from the organizational discipline imposed by a consistent set of processes and tools and respond by putting a PMO between them and “all the paper stuff”. This should be avoided for efficiency, but even more for the sake of effectiveness. Positioning a PMO between the single source of truth and parts of the project team, front-office resources become detached from project reality.

### 6.5.3 Human resource capabilities

Distributed Delivery changes the skill profiles required to run front-offices. The following tables list all competency changes needed. Although all usual business, ERP, project management, behavioral skills are still necessary, some skills become more important. Those are listed in Table 6.9.

**Table 6.9** Architecture and engineering skills

| Capability | Description | Today | Challenges | Examples |
|---|---|---|---|---|
| Business architecture excellence | Front-office resources are leading the overall design of the solution or – if the solution has been designed – are taking care that solution will be implemented to meet targets of the project | Solution architecture role tends to become "drowned" in a huge amount of engineering obligations | Create thorough solution architecture skills | Controlling scope, making judgment calls on design changes |
| Project process standards | Knowledge of process standards and their tailoring towards situation at hand | Deliverable orientation and only weak production chain focus inside project | Some more spontaneous, intuitive management styles will fail | Building stream deliverable lifecycle mgt. processes, RACI's, organization, staffing and adequate tool support |
| Number driven project management style | Forecasting and measuring the project and team performance quantitatively | More qualitative then quantitative mgmt. | Engineer reliable, efficient and transparent KPI measurement process | Progress reports by status, Movement reports etc. |
| Information engineering excellence | Engineer each deliverable to be built by multiple people. Include defect mgt. and support aspects | More reliance on personal knowledge build-up than on pre-planning | Engineer documentation efficiently to avoid excessive documentation | Avoid redundancy of documentation (i.e. avoid "copy & paste" sessions); maintainability |
| Tools competence excellence | Having a toolset that can be applied to the individual macro or micro situation at hand | Less tool support as proximity of team limits need for tools | Designing tool support across organizations | Tailoring deliverable tracking and communication tools to client requirements/limits |

As the bulk of production work is shifted offshore, onsite is pushed into the role of design owners and coordinators. While front-office teams are reduced in numerical strength, the very nature of coordination work in the production phase will position the front-office much closer to the client. After all, the front-office is responsible for the quality of designs, and offshore looks towards them as the first point of contact in case of problems. And with the approval of designs, the commitment that designs will work has effectively been given to the client, too. The front-offices thus become solution architects.

The front-office will the more be able to focus on the value-adding architectural activities the better it has done its solution engineering job, i.e. the better it has adapted and trained processes, organization, tools. If the front-office is proficient in operating this engine of distributed delivery, it will produce excellent results by continuously improving the solution quality and preparing the business for change.

Two elements of a distributed delivery project change the equation of effective communication. Firs, the lack of face-to-face contacts needs to be compensated by better team management, more refined one-to-one and one-to-many communication skills and the ability to read between the lines. Second, the process, organization and tools set up for the project require and enable communication to be more fact based. Instead of relying on personal impressions based largely on experiences, actual numbers should be used to substantiate problems and solutions. In this sense, the front-office's work becomes more fact oriented. As reasons for individual performance or lack of it cannot be observed directly, management needs to assess performance based on results.

At this stage of industry maturity with distributed delivery, human resources policies should encourage the use of distributed delivery, as organizational and individual habits need to be changed. Financial and capacity limits may hint strongly towards distributed delivery, but perceived risks and the necessary effort to learn new skills may tip the balance against it. Incentives are required to overcome this initial change barrier.

Transferring parts of the project offshore transforms the entire project team into a virtual team. All processes, organization and tools are set up accordingly and ready to be used by resources at any location. In this way, offshoring is the driver towards adopting non-traditional working arrangements such as telecommuting. Telecommuting is especially attractive to foster the integration of part-time resources, such as technical application experts.

### *6.5.4 Obsolete skills*

The front-office will be transformed profoundly. In addition to what we have already seen, are there any further changes due to skills that are no longer needed? No, there are not. There is less need for technical resources, but their skills will still be necessary onsite to create high quality designs. All indicators point towards even more IT enablement of business changes, and to identify and pursue these opportunities technical resources need to discuss them face-to-face with business experts.

**Table 6.10** Communication skills

| Capability | Description | Today | Challenges | Examples |
|---|---|---|---|---|
| Teamwork excellence | Ability to work in virtual teams | Team member proximity | Trusting in offshore partner and acting on results | Willingness to explain and re-explain, facilitation skills between parties |
| Intercultural competence | Ability to build bridges across cultures | Mostly few experiences | Cultural sensitivity | Interpretation of "yes" answer to a question |
| Virtual team leader-ship excellence | Evaluating team members strength and assignment of jobs according to their strength | Done with hindsight of face-to-face contacts | Less clues to judge strength's and evaluate reasons for performance or non-performance | Identification of root causes for delays from afar |
| Non face-to-face Communi-cation excellence | Ability to listen and explain, Proficiency in audio, video and data conference | More face-to-face communication | Revise personal toolsets and meeting behaviors | Creating time slots in conferences for people to state concerns |
| Trusted client-advisor | Become a trusted advisor and solution architect; Ability to explain clients needs and dynamics of distributed delivery projects | Onsite project team is more an engineer-ing team then an architecture team | Re-positioning of front-office team | Invest more time in evaluation of change request and inventing alternatives |
| Advanced social networking | Sensitivity to individuals without having at disposal face-to-face contact | Easier and higher incentive to care, as most people are onsite | Social networking in virtual teams | Connecting to people outside work patterns in order to build trust |
| Change management excellence | Increased need for change management skills to create more client intimacy by indulging in change management efforts | Dedicated, non content driven change mgmt. resources | Repositioning of front-office team | Collaborative validation sessions; iterative design sessions |

Skill requirements on front-office teams are increased on all levels, from team members to team leads and project managers.

**Table 6.11** HR policies

| Capability | Description | Today | Challenges | Examples |
|---|---|---|---|---|
| Career incentives for DD | Make successful distributed delivery an element of career requirements to encourage distributed effort | Incentives set upon successful delivery | Building organizational and individual experience with Distributed Delivery | Defining percentages of project budgets to be delivered offshore in annual target agreements |
| Telecom-muting | Encourage non-traditional working arrangements | Mostly onsite delivery | Building trust in virtual teams | Aligning time zones; Integrating part time resources in project even so they are at third party locations |

## 6.6 Creating the transformation roadmap towards distributed delivery

As business architecture and engineering skills become a focus of front-offices, they will become more trusted advisors for business transformation than ever before. The complexity of this change is major, as the sample transformation maps in Figure 6.7 and Figure 6.8 demonstrate.

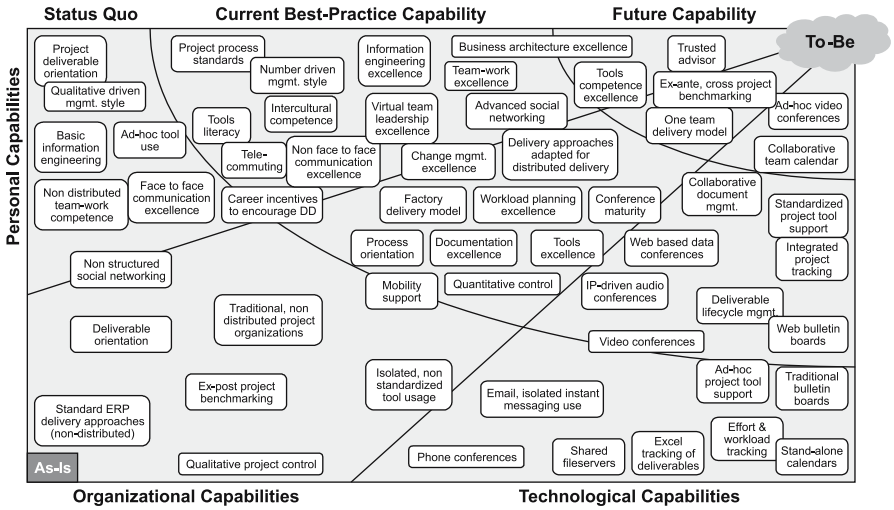


**Fig. 6.7** Distributed delivery – transformation map

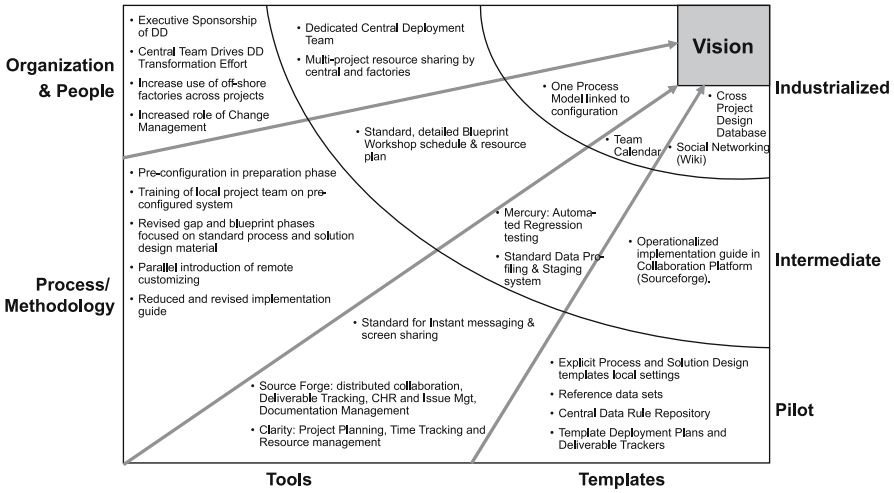


**Fig. 6.8** Transformation map (example)

Each box of this map represents one or a set of personal, organizational or technical capabilities needed. The first tier to the left displays the status quo, the middle tier the current best practice, and the right tier capabilities that are likely to be needed in the future.

Individuals can prepare for this change by referring to virtual team management literature, distributed delivery courses and by starting to apply modern communication and collaboration technology. But more pressure is on companies to provide the necessary standardization of delivery approaches, project processes and tools. Without a standard well understood by employees and applied consistently across projects, distributed delivery will perform below potential and usage will be limited to its easier forms (development, support).

This equally applies to companies implementing ERP and the consultancies who support them. None but the largest companies can ever hope to cover all aspects of distributed delivery, but company standards should notwithstanding be defined, known and trained to facilitate designing and implementing an optimal solution for a project. The resulting model will likely be a combination of client and consultancy models, processes and tools.

Organizations need to start mapping their transformation journey towards distributed delivery. Trainings, internal initiatives to define delivery models and processes and identify and blueprint tools need to be launched. Let us take a look at a transformation map of a major manufacturing organization.

This company is currently using offshore development and has identified the need to extend its usage of offshore for customizing, testing and data migration. It has defined a first stage to build and apply basic elements of its distributed delivery approach in a pilot project, before developing further capabilities.

## Conclusion and outlook

Working in a front-office will be very different from working in current ERP projects. The focus will be on design and information engineering to tune the array of processes and tools to the specific situation at hand. In the later phase of the project, the front-office will become the team a) operating the delivery engine and b) keeping ownership of the business architecture and solution design. This will most profoundly change the perception by the business: the front-office will increasingly be seen as a partner in developing the IT platform for the business side. This will be fostered by:

- a new type of resource emerging in the front-office who is a lot more versed in communication, business and technology
- the trend towards service oriented business and IT architectures which need a front-office able to combine the fields
- the need to make judgment calls on design changes and propose new business solutions – while avoiding disruptions to back-office production work – in an ever accelerating business context, where implementation speed and flexibility is the key to success.

But will front-offices loose their technical competencies in this process? After all, if front-offices only design and never build, they are bound to loose their technological edge. In order to mitigate this risk, some companies engaged in distributed delivery have already responded by sending technical resources for initial trainings and real project work offshore, typically for periods of 3 to 12 months. These resources will make excellent, if still junior, front-office workers later on. Senior resources will continue to build key parts of the solution onsite, as most complex, crucial and time critical parts will still be handled by the front-office, especially if new technologies are involved. The required number of resources with intermediate profiles, i.e. those who are not the most senior ERP specialists and do not have the necessary business and communication skills for the front-office, will decrease.

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# Chapter 7
# Intercultural Aspects of Project Management in India

**Wolfgang Messner**

**Abstract** Emerging economies such as India offer a unique mix of low wage rates and highly skilled and motivated personnel. However, many resources and project managers are comparatively inexperienced when it comes to cultural aspects of doing business. Indians may have traveled on business and become aware of some of the differences between individual countries; Europeans are likely to have worked mostly within their own countries and hence have limited experience with Asian cultures. To become effective members of the global workforce, Indians and Europeans need to learn more about some of the peculiarities of their respective cultures.

## 7.1 Significance and implication of culture

"Culture is man's medium; there is not one aspect of human life that is not touched and altered by culture. This means personality, how people express themselves . . . , the way they think, how they move, how problems are solved, how their cities are planned and laid out, how transportation systems function and are organized, as well as how economic and government systems are put together and function."[1] Various anthropologists highlight different aspects of culture in their definitions; three characteristics are common:

- Culture is not innate but learned
- The various facets of culture are interrelated
- Culture is shared and thus defines the boundaries of different groups

"Culture is more often a source of conflict than of synergy. Cultural differences are a nuisance at best and often a disaster."[2] It is important to accept that ". . . deny-

[1] [Hall 1976, p16–17]

[2] [Hofstede 2007]

Anja Hendel, Wolfgang Messner, Frank Thun, *Rightshore*
DOI: 10.1007/978-3-540-77288-0, © Capgemini Deutschland GmbH 2008

ing culture and obscuring the effects that it can have on human talents can be as destructive and potentially dangerous as denying evil."[3]

## 7.2 The worldview of Hinduism

Religions influence cultural practices and aspirations. India boasts a staggering religious diversity: 80.5% of the country's population are Hindu, 13.4% Muslim, 2.3% Christian, and 1.9% Sikh.[4] In comparison, only 16% of the world's population are Hindu, 18% Muslim, and 6% Buddhist, while 33% are Christian.[5]

Hindu moral philosophy is governed by two core principles: karma and dharma. The word karma derives from kri meaning 'to do'. Karma originally signified a power to determine your destiny based on individual behavior and actions. The sacred texts of the Upanishadas (around 700 B.C.) commanded individuals to be responsible for their personal conduct and not expect the priesthood alone to safeguard their destiny through the performance of sacred rites. Dharma represents a guide in social and moral issues and is as such closely connected with karma. Basically, the idea is to break the chain of rebirths through the appropriate performance of one's dharma, i.e. adhering to one's duties and responsibilities. Later on this concept was incorporated in a theory of caste based on the social division of labor and the ethical imperative of doing your very best in any given situation. Each person had the moral responsibility to learn from the elders, which included the wisdom of the progeny.[6]

## 7.3 Cultural dimensions

The following dimensions have an effect[7] on the functioning of societies, groups, and individuals:

- Social inequality, including the relationship with authority
- The relationship between the individual and the group
- The individual's concept of gender, i.e. the social and emotional implications of having been born as a boy or a girl

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[3] [Hall 1976, p7]

[4] 2001 census, cf. [CIA 2007]

[5] Cf. [Gupta et al. 2002, p20]

[6] Cf. [Gupta et al. 2002, p20–21]

[7] In 1954 two Americans, the sociologist Alex Inkeles and the psychologist Daniel Levinson, published a broad survey of the literature on national culture. They suggested issues that qualify as common basic problems worldwide. Twenty years later, Geert Hofstede studied a large body of survey data about the values of people in more than fifty countries around the world working in the local subsidiaries of one large multinational corporation; cf. [Hofstede/Hofstede 2005, p22–25]

- Ways of dealing with uncertainty and ambiguity, which relates to the control of aggression and the expression of emotions
- Orientation of the individual towards the near or long-term future

### *7.3.1 Handling the inequality of power*

Inequality exists in any society. Societies can be distinguished by the way in which they deal with these inequalities; this can e.g. be measured with the power distance index[8]. The index expresses the extent to which the less powerful members of a society accept that power is distributed unequally, and is calculated from three survey items:

- Frequency of non-managerial employees being afraid of expressing disagreement with their managers
- Subordinates' perception of the decision-making style of their superiors
- Subordinates' preference for their superiors' decision-making style

Table 7.1 shows that India ranks highest in terms of unequal power distribution. The French speaking part of Europe (France, the French part of Switzerland, Belgium) and the southern European countries (Portugal, Spain, Italy, Greece) come closest to India but still show less power distance. The Netherlands, Central Europe (Germany, Austria, the German speaking part of Switzerland), U.K., and Scandinavia are on the opposite end of the scale.

In the small-power-distance world of Europe, subordinates and superiors consider each other as fundamentally equal. Hierarchical structures are established for convenience, and roles may change. It is e.g. not entirely out of the order for a superior in the organizational structure to report to a subordinate in a specific project

**Table 7.1** Power distance index for India and European countries[9]

| Country | Power distance index | Country | Power distance index |
|---|---|---|---|
| Austria | 11 | Italy | 50 |
| Denmark | 18 | Spain | 57 |
| Switzerland (German) | 26 | Greece | 60 |
| Norway | 31 | Portugal | 63 |
| Sweden | 31 | Belgium | 64 |
| Finland | 33 | France | 68 |
| Germany | 35 | Switzerland | 70 |
| Great Britain | 35 | **India** | **77** |
| Netherlands | 38 | | |

[8] Cf. [Hofstede/Hofstede 2005, p39–72]

[9] Extract from [Hofstede/Hofstede 2005, p43–44]

situation. Subordinates expect to be consulted before their managers take decisions. In addition, the salary ranges between hierarchies are comparatively small.

In large-power-distance countries such as India, superiors and subordinates consider each other as fundamentally unequal. The organizational structures of companies and project teams are based on this inequality, and team members expect to be told what to do. One will find a tall hierarchy of people and reporting structures. Managers do generally not consult their teams before taking a decision but request support from their superiors. Salary systems show wide gaps between top and bottom of the organization. A CEO of a large Indian software organization can easily earn some 300,000 EUR gross per year, whereas a manager will take home around 1000 EUR per month, and a young graduate will receive a monthly salary of 300 EUR.

Leaders from all areas of Indian society – the political arena, from the business world, and sports – are a very common topic of discussion. "The importance of leadership is also attested to by the fact stat statues of a variety of leaders – political, social, and religious – are erected all over, from big cities to small towns. A large number of public-service institutions such as hospitals, schools, colleges, and airports are named after leaders. Portraits of historical and religious leaders are often voluntarily displayed in public places such as shops, cafes, and offices."[10]

Traditionally, Indian private companies had been owned and managed by families long established in the business community, notably the Gujaratis, Parsis, Sindhis and Marwaris. These communities had developed a high level of internal trust with a close network for business opportunities, loans, information and other resources.

As some of these family businesses grew and endeavored onto the international business stage, their leadership was now reflecting a juxtaposition of heterogeneous elements of two divergent cultures. In many of these companies the top leadership positions – especially that of the CEO – are still in the hands of family members. However, they have mostly been trained internationally and hold degrees from top U.S. or U.K. universities.[11]

In spite of these changes, Indian executives are not yet fully 'Westernized', i.e. made compatible with the way 'Westerners' are thinking and acting. Adopting the Western management style is a rather superficial phenomenon, as it does not appear to change actual personalities. When experiencing stress, Indian managers may well fall back on more traditional ways of getting things done.

A recent study reported by Harvard University, INSEAD, and INETOP examines the top leadership style of modern Indian business organizations.[12]

The Indian group is characterized by higher scores compared to the Western norm in the dimensions challenging, inspiring, enabling and modeling, and lower in the dimension of encouraging (see Figure 7.1). The results also suggest that Indian

[10] [Chhokar 2007, p978–979]

[11] Cf. [Kakar et al., 2002]

[12] In 1999 a study was carried out by [Kakar et al., 2002] involving 23 hybrid companies in India based on the Leadership Practices Inventory (LPI), a widely used 360-degree instrument for leadership evaluation in the organizational world. The findings were compared with LPI-figures from the USA. The delta values in Figure 7.1 are taken from this study.

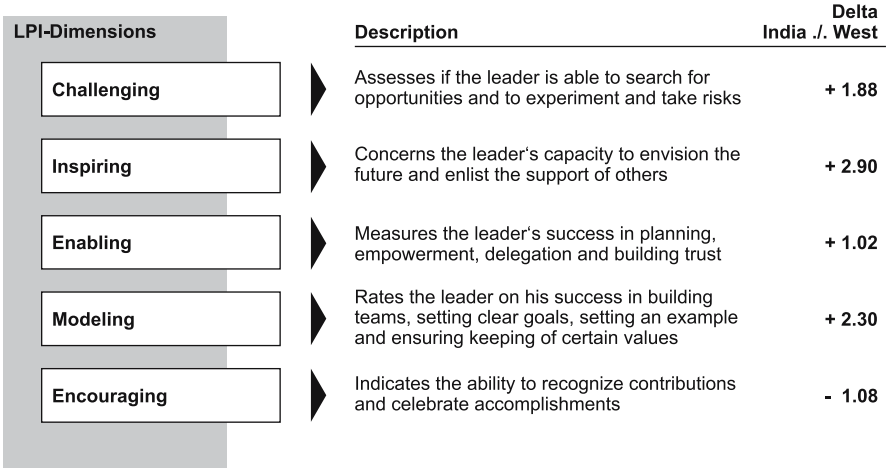


**Fig. 7.1** Assessment of leadership practices in India and the west

senior managers feel more committed to the leadership of their companies than their Western counterparts. One cultural explanation for this phenomenon might be that Indian managers tend to idealize their CxOs.

### *7.3.2 Collectivism vs. individualism*

Individualism characterizes societies with loose ties between individuals. Everyone is expected to look after themselves and their immediate family. Collectivism is the opposite and it relates to societies in which people are integrated into strong groups which protect them in exchange for unquestioned loyalty. The survey and the index calculation are done along work goals.

Table 7.2 shows that wealthy countries usually score high on individualism. In individualist societies, the relationship between employer and employee is conceived as a business transaction. Poor performance on the part of the employee is an accepted reason for contract termination.

Because of the socialization patterns of families, Indians are more likely to perceive company leaders, patriarchal elders of the extended family and jat[13] as wise, caring, dependable yet demanding figures. However, today this idealization of leaders is no longer completely blind to their (organizational) deficiencies.

Changes occur not only at the leadership level. At all other levels – from junior developers to senior project managers – employees no longer come from the traditional business communities. However, they are resourced from a vast range of upper and middle class families from urban and small-town India. Some of them

[13] jat (Hindi) = caste

**Table 7.2** Individualism index for India and European countries[14]

| Country | Individualism index | Country | Individualism index |
|---|---|---|---|
| Portugal | 27 | Switzerland (German) | 69 |
| Greece | 35 | France | 71 |
| **India** | **48** | Sweden | 71 |
| Spain | 51 | Denmark | 74 |
| Austria | 55 | Belgium[15] | 75 |
| Finland | 63 | Italy | 76 |
| Switzerland (French) | 64 | Netherlands | 80 |
| Germany | 67 | Great Britain | 89 |
| Norway | 69 | | |

have already grown up in nuclear families, but they have still been inculcated with the ideas and values of an extended family where more than one generation lives under one roof. Through their education at colleges, universities and institutes of engineering or management they have been exposed to Western management techniques. These ideas may sharply differ from the traditional family and cultural values. Recently, the concept of extended families is acquiring a new importance in urban areas.[16] There is an increasing number of women pursuing professional careers outside their homes, and grandparents are now frequently considered a welcome childcare resource.

### *7.3.3 Assertiveness vs. modesty*

A high assertiveness index is associated with a society where emotional gender roles are clearly distinct. Men are supposed to be assertive, tough, and focused on material success. Women are considered to be more modest, tender, and concerned with quality of life. On the other hand, in societies with a low assertiveness index gender roles overlap. Both men and women are supposed to be modest, tender, and concerned with quality of life.

In low assertiveness cultures, e.g. in the Scandinavian countries and the Netherlands, conflicts are preferably solved by compromise and negotiation. In France, there is occasionally a lot of verbal insult between bosses and subordinates. But behind this apparent conflict there is a sense of understanding which enables both parties to continue working together. In high assertiveness societies, like Germany, Great Britain, Italy, the German speaking part of Switzerland, and Austria, there is a general feeling that conflicts should be battled out.[17]

[13] Extract from [Hofstede/Hofstede 2005, p78–79]

[15] Average between 72 for Belgium Walloon and 78 for Belgium Flemish.

[16] Cf. [Chhokar 2007, p991]

[17] Cf. [Hofstede/Hofstede 2005, p143]

**Table 7.3** Assertiveness index for India and European countries[18]

| Country | Assertiveness index[19] | Country | Assertiveness index |
|---|---|---|---|
| Sweden | 5 | **India** | **56** |
| Norway | 8 | Greece | 57 |
| Netherlands | 14 | Switzerland (French) | 58 |
| Denmark | 16 | Germany | 66 |
| Finland | 26 | Great Britain | 66 |
| Portugal | 31 | Italy | 70 |
| Spain | 42 | Switzerland (German) | 72 |
| France | 43 | Austria | 79 |
| Belgium[20] | 52 | | |

India scores with a medium assertiveness index. India's society continues to be male dominated; the number of women in higher echelons of all professions is still minuscule. Many continue to be homemakers and are expected to do so.[21] There is a substantial fear of losing face in the Indian culture, and problems are often communicated only when it is far too late to take corrective action. While Central Europeans – and especially Germans – give very direct feedback on deliveries, in India issues will almost never be communicated openly.

The author once interviewed a junior Indian software engineer and asked her to describe her response to a problem she encountered in one of her tasks. 'Sir, I can work 14 hours a day, no problem. I will do my level best to solve the problem on my own.' – 'All right, but if you are still unable to solve it, when will you inform your boss?' – 'I will first ask my friends to come and help me find a solution.' – 'But what if this doesn't help? If you have to deliver on a Friday afternoon, when will you finally tell your boss, that you can't do it?' – 'On Friday morning.'

Communication is also less direct; e.g., a 'yes' might only denote 'yes, I understand you', a 'done' could stand for 'I will start doing it tomorrow'.

### *7.3.4 Avoiding uncertainty*

Ways of handling uncertainty are part of any culture worldwide. All human beings have to face the fact that they do not know what will happen tomorrow. Avoiding uncertainty is the extent to which members of a culture feel threatened by ambiguous or unknown situations. This is expressed through the level of nervous stress and the need for rules.

[18] Extract from [Hofstede/Hofstede 2005, p120–121]

[19] Named as masculinity index by [Hofstede/Hofstede 2005, p120]

[20] Average between 60 for Belgium Walloon and 43 for Belgium Flemish

[21] Cf. [Chhokar 2007, p990]

**Table 7.4** Uncertainty avoidance index for India and European countries[22]

| Country | Uncertainty avoidance index | Country | Uncertainty avoidance index |
|---|---|---|---|
| Denmark | 23 | Switzerland (French) | 70 |
| Sweden | 29 | Austria | 70 |
| Great Britain | 35 | Italy | 75 |
| **India** | **40** | Spain | 86 |
| Norway | 50 | France | 86 |
| Netherlands | 53 | Belgium[23] | 95 |
| Switzerland (German) | 56 | Portugal | |
| Finland | 59 | Greece | |
| Germany | 65 | | |

Table 7.4 shows an entirely new grouping of countries compared to the previous three dimensions. There are high scores for Mediterranean countries and medium high scores for the German speaking countries Austria, Germany, and Switzerland. India scores medium low, with the U.K., Sweden, and Denmark scoring even less.

In countries with a high score, employees and managers alike typically look for long-term employment; a job is considered a long lasting relationship. Attrition rates in the Indian software industry are a continuous challenge for HR departments. They can be addressed successfully by reaching out to the extended family and connecting family and business life.

In strong uncertainty avoidance countries, life is hectic and people are driven by an inner urge to be constantly active. In weak uncertainty avoidance countries, people work hard if there is a need for it, but they also like to relax. Time is not an ever-present concern.[24]

European employees are regularly surprised by the number of hours their Indian colleagues spent at the office. It is important to understand that this is just another aspect where the Indian differs from the Western work culture. A lot of social life is happening at the work place, colleagues become friends, lunch breaks are prolonged to catch up on social life, and surfing the Internet is a frequent means of entertainment during office hours. Indian companies these days restrict the usage of the Internet to certain hours in a day or block access altogether. Likewise, Indian employees are surprised by the Western concept of distinguishing between official and private time. It would be absolutely unimaginable in India to leave the office at five in order to go home and take the dog for a walk. In India, even weddings are postponed because of important upcoming business trips.

Despite the good education and expertise of Indian programmers, there are discrepancies in how projects are delivered; agreed final delivery dates are frequently

[22] Extract from [Hofstede/Hofstede 2005, p168–169]

[23] Average between 93 for Belgium Walloon and 97 for Belgium Flemish.

[24] Cf. [Hofstede/Hofstede 2005, p183]

not adhered to. While to a certain extent this is normal in project delivery throughout the world, some aspects can be attributed to this different understanding of time. "The natural act of thinking is greatly modified by culture; … there are many different and legitimate ways of thinking."[25] The West prefers and values one of these ways – it is called 'logic', a linear system of reasoning which has been with the Western world since the days of Socrates. This system of logic is seen as synonymous with truth and has taught Western people to think linearly rather than comprehensively. Sequential thinking is suited to solving certain kinds of problems, whereas polychronic thinking and comprehensive processes are better adapted to other types of problems. What is irrational about Western behavior is that linear thinking is often used when comprehensive thinking would lead to better results.[26]

When people in Western cultures are serious, they usually prefer to do one thing at a time. This requires some kind of implicit or explicit scheduling. There are social pressures – when interacting within their own culture – keeping most Westerners within this understanding of time which has been termed monochronic (M-time).[27] However, the majority of the world population in Asia, Africa, the Middle East, South America, and some parts of Mediterranean Europe, emphasize the involvement of people and completion of transactions rather than adhering to preset schedules. In these polychronic time (P-time) systems, several things are happening at once.

At the long-distance bus stations of India, one is surrounded by other travelers vying for the attention of the ticket clerk. There is no order as to who is served next. In order to get on the bus, people try to board all at the same time. In Germany, on the contrary, if one does not have a ticket for a public bus, one is required to take the front door, and the driver will sell tickets to one person at a time. Even if there is a queue of ten or more passengers, the driver will not leave the bus stop before all passengers have purchased their tickets.

Particularly distressing to monochronic people is the way how appointments are handled by their polychronic colleagues. Appointments in India simply do not carry the same weight as in the Western world; they are constantly shifted around and key planning is always changed right up to the very last minute. People scheduled to deliver a presentation in front of clients at nine in the morning might show up at ten – and not be in the least concerned.

In the Western world, little in business and social life is exempted from the strict rules of M-time, which are woven into the daily life of Westerners. By scheduling, they compartmentalize and focus on one thing at a time. But it also denies them context.[28] Scheduling by its very nature selects what will and will not be attended to and done. It permits only a limited and predictable number of events within a working day; less important things are simply omitted if time runs out.

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[25] [Hall 1976, p9]

[26] Cf. [Hall 1976, p11/243]

[27] [Hall 1976, p17]

[28] Cf. [Hall 1976, p18]

P-time in India is also built into the language. Depending on the context, the Hindi word kal either means yesterday or tomorrow.[29] When an Indian programmer says that the work will be finished tomorrow, it only means that it will not be ready today.[30]

There is a connection between time and space; they are mutual functions. Indians are almost never alone. They interact with several people at once and are continually involved with each other. Scheduling is difficult unless they have technically mastered M-time. But how can someone discuss a project deeply and carefully in such an environment? Well, it's impossible. Many people in India have to put up with work spaces and environments that cripple the performance of their jobs. Space is tightly locked into the bureaucratic ranking system. The HR department would require the privacy of offices, yet the rank of HR consultants makes a separate office bureaucratically unfeasible. Cubicles are only for 'important' people of a certain career level upwards.[31]

In order to overcome these differences in offshore projects managed by Westerners, it is best for the M-time Westerner to allow the P-time offshoring team to set their own mini-milestones and to trace every such deadline progressively. With some intercultural experience, it is possible to ask probing questions, anticipate the different understanding of time, and calculate the 'Indian factor' accordingly. The P-time Indian will need to learn and exercise M-time behavior much in the same way as a foreign language is learned and used. This will help to avoid psychological stress and confrontation with their Western M-time counterparts and customers.

### *7.3.5 Long-term vs. short-term orientation*

Long-term orientation means looking for future rewards, and in particular involves attitudes such as perseverance, thrift, and a positive attitude towards savings. As a counterpart, short-term orientation stands for respecting tradition, keeping face, and fulfilling social obligations.

East Asian countries generally top the scale, and India is also far ahead compared to all European countries; the Scandinavian countries have the highest scores of all European countries.

In long-term oriented environments such as India, family and work are not separated. Managers are allowed time to build up a business or get a project running. In short-term-oriented societies, the bottom-line financial results are always a major concern and driving factor. "Managers are rewarded or victimized by today's bottom-line even where that is clearly the outcome of decisions made by their predecessors…".[32]

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[29] Cf. [Messner 2004; Messner 2006, p228]

[30] Cf. [Carmel/Tjia 2006, p 181]

[31] Cf. [Hall 1976, p21–22]

[32] [Hofstede/Hofstede 2005, p219]

**Table 7.5** Long-term orientation index for India and European countries[33]

| Country | Long-term orientation index | Country | Long-term orientation index |
|---|---|---|---|
| **India** | **61** | Italy | 34 |
| Denmark | 46 | Sweden | 33 |
| Netherlands | 44 | Austria | 31 |
| Norway | 44 | Germany | 31 |
| Finland | 41 | Portugal | 30 |
| Switzerland | 40 | Great Britain | 25 |
| France | 39 | Spain | 19 |
| Belgium | 38 | | |

European companies dealing with offshore projects also have to get used to the idea that the attrition rate of Indian software staff is higher than in the Western world. Careers generally develop faster – and resources in India expect it to be that way. Frequently, Indians take up a job in a renowned Indian company only to get international experience and finally move abroad. If employers fail to offer this kind of IT tourism – because offshoring is still more cost efficient than remote people sourcing – the employees will very soon reconsider their career choices. Secondly, in the boom time of the Indian software industry, developers could at any point in time find another job which in addition would probably come with a pay rise of 20% and more. This is undoubtedly tempting. It will need to be monitored closely how the salary situation in India is developing over the coming years. In 2006, Indian enterprises have increased salaries by an average of 14%, the highest increase in the Asia-Pacific region.[34] For 2007, a stabilization in the IT industry is envisaged at 14.5%.

Attrition is also happening at a faster rate. If employees quit, they have quit for good and might be leaving the day after for a better opportunity abroad. With their plane tickets already booked, they simply do not care about their appraisal any more and there is no way of making them respect the contractually agreed notification period. The Indian judicial system is overburdened with petitions and there is a good chance that such disputes will receive a court hearing only after five years; that is, if the whereabouts of the former employee can actually be traced.

We also need to note that in the last three years Indian IT service companies have managed to control attrition rates by focusing on career development, training, and including the family in company affairs. Thus, they have managed to create a stronger bonding and a perspective for the Indian IT engineer. Some Indian IT service companies – including the Indian subsidiary of Capgemini – now have attrition rates which are equal or lower than those of their European counterparts.

[33] Extract from [Hofstede/Hofstede 2005, p211]

[34] Cf. [Times of India 2007a]

## 7.4 Intercultural communication

Working together with Indian colleagues during projects, one cannot help but notice some peculiarities in the style of communication.

### *7.4.1 High-low context communication continuum*

The meaning of words is inextricably bound to the context of communication. In a low-context (LC) communication, most of the information is explicitly stated. High-context (HC) communication is just the opposite; most of the information is implicit and thus hidden in the context. In this case, very little information is explicitly transmitted as part of the message.

No culture exclusively ranks at one end of the scale. The German speaking countries of Europe – Germany, parts of Switzerland, and Austria – are considered on the lower end of the communication continuum. Most Asian countries and India are just at the opposite end of the scale: they are high-context communication societies.[35]

In email communication between India and Europe, the following phenomena are frequently encountered: an email written by an Indian project team member to the European counterpart comes across as cryptic, incomplete, and difficult to understand for the European. Why is this so? The email is written in high-context communication based on pre-programmed information which is deemed already available to the European receiver and in the general setting of the project. The message as such written by the Indian contains only little information. On the other hand, a task assignment sent to India by a European project leader will contain very detailed instructions. The European expects the Indian colleague to start working on the task immediately – based on the instructions provided. In this low context communication, most of the information is explicitly stated in the transmitted message. However, the Indian colleague – coming from a high-context culture – would expect background information, one or two telephone conferences in order to get an overview of the task assignment in the context of the project; the Indian colleague is hesitant to start working immediately based on the detailed email alone.

### *7.4.2 Different use of English*

In intercultural encounters with India, the parties are likely to use languages other than their mother tongues. In India there are 15 officially recognized languages[36]

[35] Cf. [Hall 1976, p85–101]

[36] The 15 official languages are (in alphabetical order): Bengali, Telugu, Marathi, Tamil, Urdu, Gujarati, Hindi, Malayalam, Kannada, Oriya, Punjabi, Assamese, Kashmiri, Sindhi, and Sanskrit;

and more than 1,600 mother tongues and dialects. Most Indians are brought up by their parents in more than one of these languages. Hindi is the national language and primary tongue of about 30% of the people,[37] but is only widely spoken in the North. In the Southern states there have been several attempts to restrict the usage of Hindi.

The problem of not having one common language has been resolved by the use of English in business; it thus enjoys associate status. However, trade languages are pidgin forms of the original version of English. The use of pidgin English restricts communication to those issues for which this simplified version actually has words.[38] It is important to note in this context that recently some regional governments in India have begun to resist using English as a medium of education.[39]

Literature on intercultural communication frequently recommends learning the language of the host culture in order to establish a more fundamental intercultural understanding by adopting the host culture's reference framework.[40] Because Indians do not have one common native language, becoming fluent in one of the Indian languages will be of little help for Western business people. On the other hand, an Indian who maintains a good command of a Western language other than English will more easily integrate in the culture of the business partner. For example, Germans are often considered to lack a sense of humor. More than anything, this simply means that they have a different sense of humor which is not easily understood by foreigners.

Even if the parties involved in an intercultural communication have a good command of English, it will sometimes still be very difficult to understand what people actually mean. There are so many versions of English in this world, from UK-English to US-English, and Australian English. What is more, English has become the world business language and is spoken by people of various backgrounds and with different levels of proficiency as a second or third language. But even native English can be misinterpreted. Please refer to Table 7.6 for some common examples.

These misunderstandings can become even more apparent, if non-native speakers literally translate their language into English. Some prominent examples are given in Table 7.7.

In India, English is the language of the educated classes participating in global business. This is an inheritance from the colonial past of the British Empire. How-

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Hindustani is a popular variant of Hindi/Urdu spoken widely throughout northern India but is not an official language; cf. [CIA 2007]

[37] Cf. [CIA 2007]

[38] Cf. [Hofstede/Hofstede 2005, p327–328]

[39] In September 2006, more than 800 schools in Karnataka were asked to close because they use English as their medium of instruction instead of Kannada (the mother tongue of the children). In addition, nearly 600 schools in and around Bangalore lost their license for violating this policy; cf. e.g. [Times of India 2006]

[40] Cf. [Hofstede/Hofstede 2005, p328]

**Table 7.6** Common misinterpretations of native English

| What the English say | What they mean | What is understood |
|---|---|---|
| I hear what you say | I disagree and do not wish to discuss it any further | S/he accepts my point of view |
| With the greatest respect | I think you are wrong/ I think you are a fool | S/he is listening to me |
| Not bad | Good or very good | Poor or mediocre |
| Quite good | A bit disappointing | Rather good |
| Perhaps you would like to think about/I would suggest/It would be nice if … | This is an order. Do it or be prepared to justify yourself. | Think about his/her idea, but you can do as you like |
| By the way/incidentally | This is the primary purpose of the discussion | This is a side remark and not very important |
| I was a bit disappointed/It is a pity you did not … | I am most disappointed and upset | Something has gone wrong, but it doesn't really matter |
| This is an interesting point | I think this idea is wrong, doesn't lead to anywhere/ I don't agree | S/he is impressed |
| Could we consider some other options | I don't like the idea | S/he wants to evaluate other options and hasn't yet decided |
| I will bear it in mind | I won't do anything about it | S/he will probably take it up later |
| Please think about it some more | It is a bad idea. Don't waste any more time on it | Good idea, keep working on it! |
| I am sure it is my fault | It is your fault! | S/he is admitting that it was his/her fault |
| That is an original point of view | You must be crazy | S/he likes my idea |
| You must come to dinner sometime | I am not inviting you, I am just being polite | S/he will soon invite me to his/her home |
| I see a challenge with something (American English) | It is difficult and not worth doing it | S/he can do it but it may take some more time |
| I have an issue with something (American English) | I have a problem with it and I don't like it | There is a small hurdle but s/he is working on it |

ever, most Indians do not speak English at home, but rather their local language. Their English, though fluent, may thus have some gaps. They also tend to speak very fast and at an even pace without much of intonation, making it more difficult to understand. In addition, they speak a lot and take very long to explain things which

**Table 7.7** Misunderstandings in non-native English

| Native language | What they say in English | What is meant | What is understood |
|---|---|---|---|
| Dutch | You are my best horse in the stable | A compliment | I am being compared to an animal! |
| Spanish | I will do it now/I will send you the information now | There are three words for 'now' in Spanish: ahora = by the end of the day ahorita = within an hour ya = within minutes | S/he will do it/send me the information immediately after our conversation |
| Finnish | We should not discuss problems! | There are two translations for 'problem' in Finnish: Tehtävä = a task to be solved Ongelma = trouble (someone needs to be blamed for it) | S/he wants to avoid talking about problems! |
| German | I have found the following errors/bugs in your deliverable | A list of things that need to be corrected | This is an unfriendly message. S/he is accusing me of being incompetent |

**Table 7.8** Meaning of Indian English

| Indian English | And what it means |
|---|---|
| Contractor | Although it is a common term in the global software industry, using this term can lead to misunderstandings. A contractor in India can also be someone who cleans the toilets. Similarly, a vendor is not always a much respected term. The word consultant fits better in an Indian context. |
| To pre-pone[42] a conference | To move to an earlier time, i.e. the opposite of postpone |
| Rank holder | Someone who is at the top of his class at university |
| To crib about something | To complain about something |
| I have a doubt about the project | I have a tiny question – but I definitely will not question the entire project |
| Done! | I will start doing it tomorrow |
| Yes | Yes, I have heard you |

can be maddening to impatient listeners from Europe: is not alien to us in India. We are able to talk at some length. [. . . ] We do like to speak."[41] Some words in Indian English also have different meanings (see Table 7.8).

[41] [Sen 2005, p3]

### *7.4.3 The Indian wiggle*

Particularly South-Indians have a perplexing habit, when listening to you, of shaking the head in a manner that appears to be saying 'no'. This is named the Indian wiggle. Given the context of the conversation, this can have a variety of meanings: 'yes', or 'I'm listening', or 'it makes sense what you are saying', or 'I agree', 'sounds good', or 'go on'.

The author knows of one example where a German was delivering a software training to a group of Indian IT engineers in Bangalore and asked them if he was making sense and could move on to the next topic. The Indians were shaking their heads, meaning 'go on – we have understood'. The German however took it for a 'no' and started to repeat explaining the same thing. Later, he said he had the feeling that he did not come across very well and had difficulties communicating. The Indians, however, gave the feedback that the German obviously did not know much about the subject and kept repeating the same thing.

## 7.5 Overcoming the differences

### *7.5.1 Learning intercultural communication*

The process of learning intercultural communication comprises three phases: awareness, knowledge, and skills.[43] It all starts with awareness, the recognition that one carries a particular mental software depending on the way one is brought up in a certain environment – and that others carry a different mental software for equally good reasons. Knowledge follows awareness. One learns about the other culture's symbols, their heroes, and their rituals. While it is unlikely to share the values of the other culture, one at least gets a grasp of the underlying reasons for differences. With continuous practice in communicating with the other culture, one builds intercultural skills and learns how and when to apply the symbols of the other culture.

Intercultural communication can be learnt in different ways. Traditional courses focus on specific knowledge of the other culture, such as geography, history, customs, hygiene, fundamental dos and don'ts. Another type of course[44] focuses on awareness of cultural differences in general. The knowledge and skills taught in such courses pay attention to acknowledging differences and better understanding the origins of 'culture shock'. It is recommended that such courses be attended by all staff dealing with India, including management level. The people acting as decision

[42] Cf. [Times of India 2007a]

[43] Cf. [Hofstede/Hofstede 2005, p358]

[44] As explained earlier, local language courses do not contribute much to intercultural communication with India.

makers in the home country for the people involved in intercultural communication will develop a greater understanding of the difficulties involved.

The intercultural learning process itself is culturally constrained. Western ways of teaching intercultural differences cannot be used with an Asian audience; the risk for trainers is too high to convey something other than what they actually try to teach.

### *7.5.2 Language*

Language should be used carefully across long distances. Firstly, metaphors and long sentences should be avoided. It is advisable to switch to International English. Even though the usage of synonyms within a text enriches its quality, they can be confusing to not-so-fluent English speakers. For international communication, the repeated use of the same word appears more sensible. Things that have been agreed upon via one communication channel should be reconfirmed via another channel. For instance, if a solution was agreed on the phone, it would be a good idea to confirm the same via email. Most of the times it is better to pick up the phone, talk an issue through, arrive at a common understanding, and only then send an email to confirm matters. This avoids starting back-and-forth email communications with an extended cc-list.

It needs to be emphasized that "… communication technologies will not by themselves reduce the need for intercultural understanding."[45] The perceived dominance of communication technology, such as email, Internet, skype, and chat, over culture is an illusion. "The software of the machines may be globalized, but the software of the minds that use them is not."[46]

### *7.5.3 Distance*[47]

The intercultural differences between India and the European countries described above may be overcome through the targeted use of expatriates and their specific skills. Expatriates are experienced in dealing with other cultures, have a command of the language, and are competent partners for the business and technological aspects of a project. This 'multicultural fluency' cannot be acquired through seminars or brief project assignments abroad. Companies should hence consider several criteria in selecting expatriates:[48]

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[45] [Hofstede/Hofstede 2005, p331]

[46] [Hofstede/Hofstede 2005, p330]

[47] This chapter is the abbreviated version of a previous publication by the author; Cf. [Messner 2006]

[48] Cf. [Bittinger 2003, p3–4]

- To what degree has the candidate acquired cultural sensitivity and adaptability through his/her stays abroad?
- Is s/he fluent in the host language? A European expatriate in India should at least have a business proficiency in English. In turn, an Indian expatriate in Germany should in addition to English also have at least a basic command of German.
- Is the candidate able to work independently and without close contact to superiors and colleagues?
- Does the candidate understand the corporate culture?
- Is the candidate willing to travel and move home? How does the candidate's family view the foreign assignment?

Using expatriates is a costly affair for the dispatching company. A European employee working in India costs three to four times as much as at home. What is more, frequently the success rate is rather disappointing. Soft and often underestimated risk factors are the underlying reason for failure. Inadequate cultural skills and insufficient recognition by the foreign company often cause stress and burden the partnership with the offshoring partner.

There is no universally applicable expatriate strategy, as the individual companies and India projects differ significantly. However, clear frameworks and processes should be developed. The objectives of the assignment need to be clearly defined and aligned with the company and/or project goals.[49] Key elements of 'fitting in' are for example an understanding of local customs, social networks, and integration in the host country.[50] An expatriate socially isolated in India would be conceived as displaying Western arrogance and enjoy no trust, which means the mission was a failure right from the start. Those failing to recognize the many social and religious facets of every day life in India will always remain outsiders.

There are more than 20 million people of Indian origin worldwide – and particularly in the English speaking countries – who have experiences with the Indian and Western cultures.[51] The Western companies would be well advised to tap into this resource pool to bridge the intercultural gaps to the offshore vendors. However, personnel has to be selected carefully. Some Indians have been living abroad long enough to be out of touch with the current business practices in India. This could potentially cause havoc in intercultural teams, as the Indian business culture has developed rapidly in the last 20 years and these employees would be neither recognized by the Indian nor the Western parties. Other Indians have distanced themselves from their original culture and are no longer interested in interacting with Indian colleagues.

Many Indian offshore companies rotate the colleagues working onsite, aiming for Indian staff to gain at least a fundamental affinity to the Western culture, though the structure of onsite teams is thus frequently disrupted.[52] This rotation principle is also often used as a means to motivate Indian employees; especially for junior

[49] Cf. [Gelbrich 2004, p264]

[50] Cf. [Knotts 1989, p33]

[51] Cf. [Bittinger/Iyengar 2003]

[52] Cf. [Sinha/Terdiman 2002, p8]

colleagues international assignment still hold a special attraction. In addition, this approach represents a potential workaround if long-term work permits for Indians are difficult to attain.

## Conclusion

In order to efficiently work together "… we must stop ranking both people and talents and accept the fact that there are many roads to truth and no culture has a corner on the path or is better equipped than others to search for it. Furthermore, no man can tell another how to conduct that search."[53]

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# Chapter 8
# Managing from a Distance: Virtual Delegation to India[1]

**Dirk Holtbrügge, Katrin Schillo**

## 8.1 Virtual delegation in the context of IT offshoring to India

India is the leading provider of offshore IT services. The country has enjoyed large growth rates since the beginning of the offshoring development and exported IT services worth close to 8bn Dollars in 2004.[2] Nowadays, the technology centers of India, such as Bangalore, deliver services for nearly all large companies around the world.

However, implementing offshore projects with Indian partners frequently faces a number of issues.[3] In particular, the substantial cultural diversity between members of project teams and their Indian colleagues should not be underestimated, as the different perception of time and acceptance of authority heavily impact collaboration and communication on a daily basis. Thus, many companies had to learn the hard way that a substantial share of expected savings can be lost to additional efforts for communication and management. These issues are further heightened by the lack of immediate physical interaction between the project partners, as the majority of collaboration happens on a purely virtual level.

The main reason for this is that most foreign companies outsourcing IT services to India send no or only few executives and functional experts to India to manage the service delivery process on site. In most cases, contact is instead remote and virtual.

An international assignment is called virtual when "an employee does not relocate to a host location, but has international responsibilities for a part of the organization in another country which they manage from the home country."[4] Virtual assignees remain in their home country most of the time. Compared to expatriates, virtual assignees are not delegated abroad. They work at headquarters and use mod-

[1] This study is part of a large research project "Export of Remote Services" funded by the German Federal Ministry of Education and Research (www.exfed.de).

[2] Cf. [Sahay et al. 2003, p13]

[3] Cf. [Hammes et al. 2007]

[4] [PricewaterhouseCoopers 2000, p31]

Anja Hendel, Wolfgang Messner, Frank Thun, *Rightshore*
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ern electronic media such as email, conference calls or videoconferences to communicate with their international colleagues, customers or suppliers. Interacting with individuals situated in other countries and with different cultural background has become a major part of their everyday work[5].

Regardless of their particular shape, virtual assignments are characterized by the spatial separation of private and business life. Virtual delegates live and interact in one culture, yet collaborate mainly with people from another culture. While virtual assignees are physically located at headquarters, they belong to a foreign subsidiary from an organizational and operational point of view.

Virtual assignments offer several advantages (Table 8.1). One advantage is the ability to work abroad without actually traveling, i.e. virtual expatriates work internationally without leaving their familiar surroundings. The time of absence is reduced, which also improves the work/life balance. Another advantage is that families do not have to relocate. This enables children to follow their education and spouses to maintain their own careers, both aspects avoiding conflict within families. Likewise, reintegrating virtual expatriates is a lot easier. Virtual assignees never lose contact to headquarters and their local colleagues, because they remain integrated in the decision-making processes and networks. Moreover, virtual assignments are often cheaper than traditional forms of expatriation. For example, there is no need for salary premiums as a compensation for relocating abroad. Finally, training for family members is superfluous since they remain in their home country.

**Table 8.1** Characteristics of traditional and virtual foreign assignments

| Traditional foreign assignments | Virtual assignments |
|---|---|
| Advantages | |
| • easier control of subsidiary operations<br>• positive image of delegates as ambassadors of headquarters<br>• easier implementation of technical and management knowledge<br>• talented managers gain international experience | • ability to work abroad without traveling<br>• improved work–life balance<br>• lower costs<br>• greater flexibility in recruitment (no need to consider personal or family restrictions) |
| Disadvantages | |
| • difficult adaptation to conditions in the host country<br>• low continuity of management due to limited delegation terms<br>• high expatriation costs<br>• problems for families in which both partners have a career<br>• repatriation problems | • reduced face-to-face contact with colleagues and customers<br>• less pregnant communication through electronic media<br>• continuous switch between home and host country interactions<br>• high demands on communication and intercultural skills |

[5] Cf. [Holtbrügge/Schillo 2006]

A major disadvantage of virtual assignments is that it limits the opportunities for communication. Since face-to-face contacts with colleagues, customers or suppliers are reduced to a minimum, no firsthand learning of the foreign culture takes place. Because of the large geographical distance, the virtual assignees and their counterparts communicate mainly through email, conference calls or videoconferences, while personal meetings and face-to-face communication are very limited. For example, there is no opportunity to meet and chat with colleagues in the hallway or during lunchtime. Due to the lack of these simple means of communication, there is a greater likelihood of misunderstandings and issues of intercultural management. In addition, communication through electronic media becomes more complex due to different communication styles and time zones. Moreover, virtual assignees have to switch continuously between home and host country interactions, which may have a negative impact on their work commitment and identification. The demands on virtual assignees for communication and intercultural skills are thus very high.

This chapter is organized as follows: the next section explains the methodology of an empirical study of virtual delegations to India. Following an outline of the actual and potential use of virtual delegation to India, the chapter then discusses the most important issues of intercultural management. Based on this analysis, requirements on intercultural trainings for virtual delegations to India are derived. The chapter then ends with a short summary and conclusion.

## 8.2 Methodology

In early 2007, we conducted an empirical study among multi-national companies (MNCs) in India to evaluate if virtual delegation is already used and how its potential for the next years is assessed. India was selected because it is the major offshore site in the world. Moreover, many MNCs have established operations in India only in the last years, allowing them to implement the most recent management techniques. Since virtual assignments are a very innovative form of staffing overseas positions, they may be particularly relevant in India.

We contacted the chambers of foreign trade of the EU countries in India and thus received a large number of contact addresses. All subsidiaries of MNCs headquartered in the EU were contacted via email and asked to participate in the study in January 2007. A hyperlink in the email led participants to an online questionnaire, where they were able to choose between a German and an English version. To ensure that the two language versions were comparable, the original German language questionnaire was translated into English by a professional translator using the translate/re-translate method. After four weeks, we sent a reminder to those companies that had not answered so far. We eventually received 72 usable questionnaires.

To be able to measure the “use of virtual delegates”, we first explained our understanding of the concept of virtual delegation to the respondents. We defined virtual delegates as “employees located at headquarters working predominantly for the subsidiary using electronic media for communication.” The participants were asked to

assess the actual and the potential use of virtual delegates in their subsidiary to realize six objectives [(i) transfer of technological, administrative or sales knowledge, (ii) transfer of corporate culture, (iii) supervision and control of the subsidiary, (iv) compensating lack of local managers, (v) further training of employees, and (vi) ensuring efficient coordination and communication] on 7-point Likert-type scales ranging from 1 = "virtual delegates are not used at all" to 7 = "virtual delegates are used very extensively".

Another online survey comprised a questionnaire of 36 closed questions which derived from the available theoretical and empirical studies on virtual delegations and teams[6]. The participants were presented a list of potential issues which they were asked to assess by frequency and relevance. In an open question at the end of the questionnaire, the participants had the opportunity to name issues they already had to face but which were not mentioned in the survey.

We accessed information from the internet portal 'openBC' (now 'Xing') to identify survey participants with sufficient experience in virtual delegation. This platform specially designed for business people has 1.45m users worldwide[7] and allows a member search by position and tasks. Entering the search phrases 'virtual', 'international', and 'global' we were able to identify and contact potential participants.

In total, the questionnaire was sent to nearly 470 openBC members via email hyperlink, accompanied by the request to forward it to further potential participants. As forwarding the hyperlink was a simple process, we cannot be certain how many people eventually received the questionnaire. However, we can reasonably assume the number of people contacted so far exceeds 470. 108 of the distributed questionnaires were opened, and some 55 percent actually fully completed. This results in a total number of 59 participants. This number may appear rather low but needs to be compared to the overall available number of potential participants. Although the overall number of virtual delegates is unknown, based on the available literature and practical experience we can safely assume this number to be (still) comparatively low. We can thus derive representative conclusions even from this small sample.

## 8.3 Use of virtual delegates in India

55.6% of the companies participating in the first survey came from the trade and services sector and 44.4% from the production industry. The average age of the analyzed subsidiaries was 13 years, with the oldest subsidiary established in 1949 and the newest in 2006. The Indian subsidiaries employ an average of 1,786 people and are part of companies with an average total number of employees of 9,806.

A first important result of our study is that virtual delegation is actually used. Only a very small number of respondents stated that virtual delegation is not used in their company at all. While former conceptual studies point out the advantages of

[6] Cf. [Grundgreif/Holtbrügge/Schillo 2007]

[7] Cf. [XING 2006]

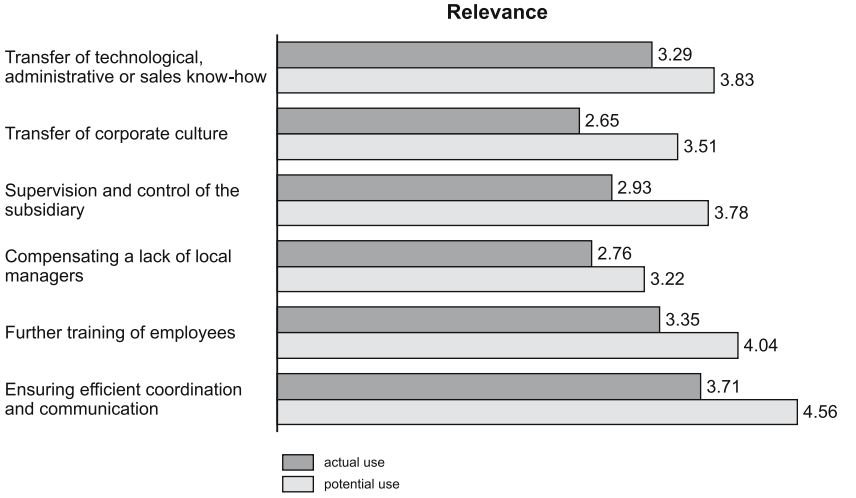


**Fig. 8.1** Motives of using virtual delegates

virtual assignments, our study is thus the first to empirically prove the relevance of this new form of staffing overseas positions. However, we need to take into account that the subsidiaries in our sample are comparatively large. It has yet to be proven if virtual assignments are also used in smaller subsidiaries and in other regions of the world.

Figure 8.1 shows the actual and potential use of virtual delegates for different reasons. The most important aspects are to ensure an efficient coordination and communication between headquarters and subsidiaries and the adequate training of employees, followed by the transfer of technological, administrative or sales knowledge. The least important motive is to compensate a lack of local managers in the host country.

Our study reveals that the future potential of virtual delegates is much higher than their actual use. We can thus expect the relevance of virtual delegation to India to increase in the next years.

## 8.4 Intercultural management issues of virtual delegation to India

Virtual delegation is a new and innovative form of personnel assignment offering many advantages compared to the traditional way of international deployment. However, there are also a number of issues, which are explained below in more detail[8].

[8] Cf. [Grundgreif/Holtbrügge/Schillo 2007]

### *8.4.1 Communication*

Intercultural communication

One key issue of virtual delegation is the communication of assignees with their interaction partners, and specifically the fact that the partners have different cultural backgrounds.

In an international context, core activities such as the exchange of information and ideas, jointly taking decisions, conducting negotiations or the leadership and motivation of staff generally require the ability to successfully communicate with people of a different cultural background[9]. This particularly applies to virtual delegation. "For virtual delegation the risks do not so much stem from the insufficient manageability of technical systems but the inability of partners to interact due to cultural differences"[10]. Most issues are caused by interpretation problems, insufficient language skills and a different context orientation.

Cultural interpretation issues

The process of receiving a message from a sender of a different culture can be explained by applying the semiotic concept of 'signifier' and 'signified'[11]. This concept understands a message or signal to be composed of a signifier (i.e. the carrier of the message, e.g. a word or sentence) and a signified (i.e. the meaning associated with the signifier). Allocating a meaning to the signifier, due to the specific cultural background recipients resort to their 'reservoir of signs'. Figure 8.2 illustrates this process.

The first case describes an effective communication. The recipient recognizes the signifier and allocates to it the meaning intended by the sender. In the second case the recipient recognizes the signifier but is unaware of its exact meaning. However, the recipient is able to allocate a similar meaning from his/her reservoir of signs, but this may cause misunderstandings potentially leading to an ineffective communication and conflicts. In the third case there is no communication at all, as the recipient is unable to allocate any meaning to the message received[12].

For virtual delegations, the problem of communication stems from the fact that the coding and decoding process does not take place in identical but different cultural conditions: "Translating meanings into words and behaviors – that is, into symbols – and back again into meanings is based on a person's cultural background and is not the same for each person"[13]. The probability of the recipient being unable

[9] Cf. [Adler 2003, p247]

[10] Cf. [Iten 2000, p206]

[11] Cf. [Beamer 1992, p285]

[12] Cf. [Beamer 1992, p287]

[13] Cf. [Adler 2003, p249]

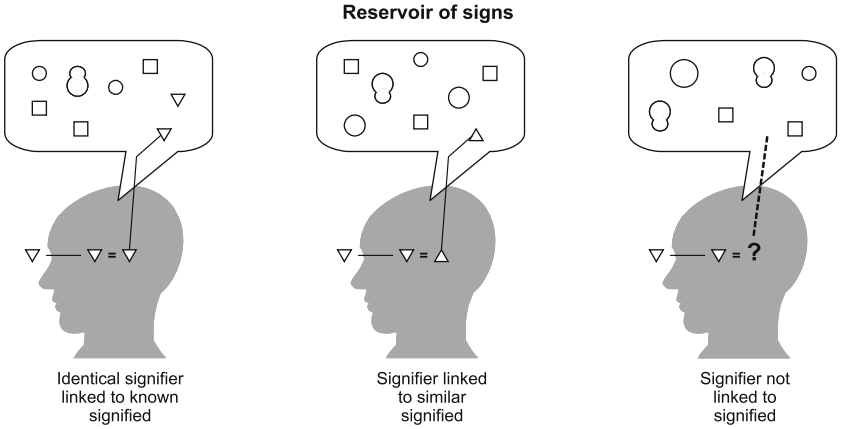


**Fig. 8.2** Allocation of signifier to signified[14]

to decode the sender's intended message is proportional to the cultural distance between the communicating partners[15].

Insufficient language skills

Another reason for a diverse coding and decoding of a message may be the use of different signifiers or communicative codes in the shape of language[16]. Communication between members of different cultures is likely to involve at least one partner not using his or her mother tongue. In case of virtual delegation it is likely to be the delegate who has to communicate in the language of the host country. "Mastering the language of the host country is a prerequisite for high quality intercultural communication."[17] However, communicating in a foreign language requires "a far higher level of complexity involving more risks for understanding"[18] than communication between individuals using the same mother tongue. This particularly applies to virtual delegation, because here communication is predominantly based on electronic media, which compared to personal communication offer significantly less variety.

Communicating in the host language may cause difficulties for delegates, as they are subject to so called "learning linguistic limitations".[19] Phrasing may for example remain unclear to the interaction partners in case the vocabulary is not sufficient for a more differentiated presentation of a subject, or the delegate may fully avoid

[14] Source: [Beamer 1992, p288]

[15] Cf. [Adler 2003, p249; Konopaske/Ivancevich 2004, p150]

[16] Cf. [Knapp 2003, p113]

[17] [Thomas 2003, p104]

[18] [Knapp 2003, p113]

[19] [Knapp 2003, p121]

a subject for the same reason. Other issues are caused by involuntary offences or insults by the virtual delegate. For example, the interaction partners may find it discourteous or offending if the level of openness typically used in the mother tongue is transferred to the less direct language of the host country. On the other hand, communication may remain vague if the mother tongue happens to be less direct than the language of the host country. A combination of both issues may occur when the virtual delegate lacks the vocabulary to soften statements with phrases such as 'possibly' to come across less direct, demanding or confrontational. This 'reduced modality' can also offend the interaction partners and lead to unintended conflict.[20]

The difficulties of the above issues of learning linguistic limitations stem from one communication partner, namely the one communicating in a foreign language. This situation changes when a third language is used which is foreign to both interaction partners. In the Indian business context this language is typically English. In this lingua franca communication both partners face the same difficulties. For virtual delegates this may at first offer a certain degree of relief, provided their command of English is superior to their knowledge of the host country's language. In addition, this weakens the subjective awareness of delegates that their language difficulties may mean they themselves are the very cause of problems. However, provided English is not the mother tongue of any party, communicating in the English language enhances the risk of linguistic misunderstandings, as we can safely assume both parties do not communicate on a native level[21]. "Even if we assume that both parties have an excellent command of the third language, we would nonetheless have to conclude that in this case intercultural communication will not be possible on a very high level".[22]

### Different context orientation

A further source of issues in intercultural communication is the volume of information contained in the message. In high context cultures such as India, only a very limited amount of information is contained in the explicitly formulated message, as it is mainly hidden in the context of communication. In low context cultures such as Germany, messages usually contain a large amount of immediate information, i.e. the intended meaning is directly and immediately expressed within the message.[23]

Problems may occur due to a different context orientation of the communication partners.[24] A different context orientation may for example cause recipients to not identify parts of the message intended by the sender, which means there is a 'contextual loss' in the process of communication. Contextual loss can be expected if the sender has a high and the recipient a low context orientation. In the opposite case,

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[20] Cf. [Knapp 2003, p121]

[21] Cf. [Knapp 2003, pp122]

[22] [Thomas 2003, p104]

[23] Cf. the concept of context orientation by [Hall 1981, p85]

[24] Cf. the integrated model of intercultural communication by [Holtbrügge/Kittler 2007]

the recipient may allocate more meaning to the message than the sender intended. This unintentional enhancement of meaning by the recipient is referred to as 'contextual noise' and can be expected if a low context sender transmits a message to a high context recipient. This means that in an intercultural context a lower degree of effectiveness can be caused by different cultural contexts.

Next to a low effectiveness of communication we can envisage further issues. For example, contextual loss may effect recipients to understand elements of a message which they failed to recognize as the result of an unclear phrasing on the part of the sender. Likewise, recipients may view elements of the message unintended by the sender as offensive due to contextual noise. This issue is heightened by the tendency that in case of misunderstandings and other communication problems the reasons are frequently believed to be with the communication partners and their individual weaknesses and mistakes, which may cause conflicts and lead to a complete breakdown of communication. Virtual delegates then face a serious risk for their relationship with the interaction partners and the success of their mission.

### Limitations of communication by media

In addition to cultural differences, another key characteristic of virtual delegation is the geographical division between the physical and virtual working environment, resulting in the need to conduct the exchange of information predominantly via electronic media.[25]

Numerous authors indicate the issues of communication by media in the context of virtual teams[26]. The biggest issue is believed to be the insufficient capability of electronic media to adequately transmit the elements of a message which exceed the purely verbal level, i.e. mere spoken and written communication. "Information technology has limits and may not be able to transfer the same rich social, emotional, and non-verbal information present in traditional face-to-face settings (...). For example, information rich non-verbal cues such as facial expressions, voice inflections, and gestures, normally present in traditional settings, may be lost or distorted through computer mediated communication systems."[27] While only 7 percent of the meaning of a statement is transported on the verbal level, 38 percent of the message is transmitted via para-verbal (e.g. intonation and volume) and 55 percent via non-verbal elements (e.g. facial expression, gestures and body language).[28]

As electronic media are not or only to a limited degree able to transmit paraverbal and non-verbal elements of messages, the risk of misunderstandings and conflicts between the partners of communication increases along with their more com-

[25] Cf. [Holtbrügge/Schillo 2006, p322]

[26] Cf. [Gibson/Manuel 2003, p61; Roebuck/Brock/Moodie 2004, p360; McKinney/Whiteside 2006, p85; Rosen/Furst/Blackburn 2006, p231]

[27] [Kayworth/Leidner 2000, p187]

[28] Cf. [Mehrabian 1972, p108]

mon use. In face-to-face communication the recipients' gestures allow for a conclusion whether or not they have actually understood the intended message[29]. If senders have the opportunity to observe and interpret the recipients' signals, they can repeat or rephrase messages to prevent misunderstandings. This kind of corrective feedback is not or only to a limited degree possible in the media communication typically used for virtual delegation. Further potential for conflict stems from the fact that emotional elements of communication such as humor, anger or frustration are difficult to convey via media[30]. For example, if the humorous intention of a message is misunderstood due to missing para-verbal or non-verbal information, the recipient may feel offended. This communication problem then is worsened by the fact that the sender is unable to receive the anger of the recipient and hence does not see the need for an apology or clarification of the original intention.

One important influence on the extend of issues and conflicts is the level of media richness of the communication medium used. The media richness theory distinguishes different communication media by the "levels of richness according to the number of cues they are able to convey, the timeliness of the feedback and the capacity of natural expression"[31]. The higher the media richness of a communication medium, the lower the risk for misunderstandings and conflicts. Compared to other communication media, video conferences have the highest media richness.[32]

However, another study[33] highlights that the communication medium with the highest level of media richness is the least common. In a survey of 351 people working remote from 29 European countries, only 9 percent stated to use video conferences often or very often. Instead, the media most commonly used to interact across geographical distances are phone and conference calls with 85 percent and emails with 95 percent. Whereas the phone offers the possibility to transmit para-verbal elements in addition to verbal messages and thereby to some degree restricts the risk of misunderstandings and conflicts, the risk is particularly high for communication via email.

Email communication is another source for issues;[34] emails offer recipients the opportunity to ponder over the message for a longer period of time compared to other forms of communication. The repeated reading of and reflecting on the message may heighten any problems of the recipient in understanding the message and thus render a resolution of the issue less likely. Furthermore, as it takes comparatively long for senders to compose emails, there is the risk that their specific viewpoint is too firmly embedded in the message, which means they are less prepared to consider potential compromises. In addition, the very knowledge that communication partners also have sufficient time to consider their formulations reduces the likelihood of insults to be perceived as purely unintentional.

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[29] Cf. [Roebuck/Brock/Moodie 2004, p360]

[30] Cf. [Rosen/Furst/Blackburn 2006, p231]

[31] Cf. [Warkentin/Beranek 1999, p274]

[32] Cf. [McKinney/Whiteside 2006, p82]. In order of media richness, the other media analyzed were phone, email, fax, and traditional letter.

[33] Cf. [IBM Business Consulting Services 2005, p4]

[34] Cf. [Friedman/Currall 2003, p1338]

The principally unlimited length of emails also contributes to potential communication issues. If the recipients fail to consider all information contained in a rather long email they received, for example because of time constraints, the senders of the original message may perceive their communication partners not to have allocated the same priority to the email. Among the volume of information, there is furthermore a tendency for recipients to remember those elements of the message which had the highest (and mainly negative) impact on them. "If, say, a series of seven or eight arguments are made, but one was especially anger-provoking, then it is that most anger-provoking argument that is likely to dominate memory, overshadowing points where there was more room for constructive engagement."[35]

Intercultural communication by media

The issues of communication by media described above can heavily influence the collaboration across distances even in a mono-cultural context. If this communication takes place between partners of a different cultural background, problems can reasonably be expected to extend. "Non-verbal signs are more commonly used in intercultural communication to compensate for language deficits (...). If the partners fail to support their communication non-verbally, the inconsistencies will (...) irritate their opposites."[36] There is a heightened potential for conflict in intercultural communication by media compared to traditional face-to-face communication: "The cultural misunderstandings can even be worsened, as the parties involved have fewer sensory information at their disposal."[37]

The extent of problems in communication by media to be expected for virtual delegation also depends on the specific host country. One important factor is the context orientation of a culture as described above. As in high context cultures a substantial share of meaning is transmitted by para-verbal and non-verbal information, communication by media with people from these cultures can reasonably be expected to be particularly problematic[38]. "High context cultures (e.g. India) rely more heavily on one's ability to read the non-verbal cues than in low context cultures (...). Such cues are missing from electronic media."[39]

### *8.4.2 Different understanding of time*

A different understanding of time in different cultures can also cause problems for virtual delegation. "Every aspect of international business, from the management of

[35] [Friedman/Currall 2003, p1339]

[36] [Blom/Meier 2002, p84]

[37] [Iten 2001, p170]

[38] Cf. [Holtbrügge/Schillo 2006, p324]

[39] [Welch/Worm/Fenwick 2003, p107]

joint ventures to the first meeting in any international undertaking, is permeated with temporal behaviors and potential problems and misunderstandings as a result."[40] Our analysis hence also allocates a particular importance to this aspect. We thereby distinguish between a different understanding of appointments and deadlines and that of time horizons.

### Appointments and deadlines

One of the most quoted time concepts is that of monochrone (M-time) and polychrone (P-time) time orientation, which distinguishes the two concepts as follows: "M-time emphasizes schedules, segmentation, and promptness. P-time systems are characterized by several things happening at once. They stress involvement of people and completion of transactions rather than adherence to preset schedules".[41] For a member of a monochrone culture such as Germany, an appointment signifies a fixed moment for an activity, e.g. a meeting or conference, which needs to be adhered to. An appointment is thus part of a daily schedule and aligned with other appointments. Changes of appointments or expected delays should be communicated as soon as possible to be able to realign the overall schedule.[42] Given that virtual delegates situated in a monochrone culture frequently rely on technical tools such as videoconferences, for which they need to book a time slot, they have a particular need to align their schedules with their working environment. This means they need to fall back on a reliable planning and scheduling.

Interaction partners from a polychrone culture such as India are most likely not to use a comparably strict schedule: "Scheduling is difficult if not impossible with P-time people".[43] Indians view a delay or change of schedule upon short notice as normal. However, for their monochrone partners this means a disruption of their pre-defined schedule. They might have to deal with idle times or re-schedule other appointments, causing anger and frustration. From a monochrone perspective, it is rather likely that people affected will identify their frustration to be the result of the misconduct of their polychrone partners. Not clarifying the issue could lead to a negative attitude towards the polychrone partners. If the frustration is communicated, however, the risk is that conflict may arise from the counterpart viewing the issue from a polychrone perspective, thus having the perception of being unjustifiably accused. Both scenarios can likewise interfere with the relationship between the partners and thus hinder an effective collaboration[44].

This similarly applies to the completion of tasks. Here as well members of monochrone cultures value a precise scheduling and adherence to defined deadlines, including individual steps and intermediate objectives. As members of a poly-

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[40] [Bluedorn/Denhardt 1988, p316]

[41] [Hall 1981, p17]

[42] Cf. [Bluedorn/Felker Kaufman/Lane 1992, p23]

[43] [Hall 1981, p22]

[44] Cf. [Saunders/Van Slyke/Vogel 2004, pp24]

chrone culture, Indians tend to define the timeframe for tasks far less precise or fully abjure such practice. Similarly, their approach to realizing the objective is not predetermined by advance planning but is subject to frequent alterations of workflows and priorities[45]. Here, a different time orientation may thus also lead to misunderstanding and conflict and threaten an efficient collaboration.

Virtual delegates from monochrone cultures collaborating with polychrone cultures face the additional challenge of interacting with this culture only during some of their daily working time. They lack the opportunity to familiarize themselves with the polychrone understanding of time outside the working environment. Just as Hall developed his distinction of monochrone and polychrone understandings of time based on his observation of people from different cultures and their daily interaction, delegates living in the host country also have the opportunity to experience the understanding of time in the local culture. Traditional delegates can learn through their observations of and experiences with every day aspects, such as waiting for delayed public transport or guests, to view this situation as normal and thus adapt their own perception and behavior to this reality. One key result of this learning process would be that delegates no longer understand specific behavior (e.g. the perceived belated arrival of partners for an appointment) of other people as erroneous or impertinent but as a consequence of their cultural background. When delegates have undergone this learning process, the potential for misunderstandings and conflicts due to a different understanding of time decreases[46].

Unfortunately, virtual delegates from a monochrone culture hardly have this opportunity. Their daily work is set in a monochrone environment and marked by pre-defined plans, appointments and schedules. This environment offers hardly any opportunity to become aware of the own time orientation. The same applies to their interaction partners, who in turn exclusively work in their own polychrone environment. Therefore, if virtual delegates are not already aware of their own time orientation and the one of their partners (e.g. through earlier international experiences or intercultural trainings), the result will be a heightened risk of intercultural misunderstandings and conflict.

### Time horizons

A different understanding of timelines and planning horizons may also cause problems for virtual delegation. Temporal depth – a concept of time horizon – describes "how far into the future and the past people think about things".[47] The future-oriented time horizon is of particular importance to virtual delegation, as this has a direct impact on decisions and the planning of objectives and measures. The investments of organizations increase with temporal depth and the extent of the time

[45] Cf. [Bluedorn/Felker Kaufman/Lane 1992, p23]

[46] Cf. [Bluedorn/Felker Kaufman/Lane 1992, p25]

[47] [Bluedorn/Standifer 2006, p201]

horizon. This observation supports the assumption that the time horizon of an individual or a group determines or at least heavily influences their planning horizon.[48]

For virtual delegates from a culture with a comparatively short-term orientation such as Germany, delegation to India, which has a longer-term orientation, may hence cause conflicts when planning and scheduling milestones and measures. They may not be prepared to surrender short-term success and benefits, while their partners may view this as necessary to achieve long-term objectives. Compared to traditional delegates, this issue is heightened by the fact that virtual delegates in Germany are physically located in an environment preferring a short-term time horizon. This hampers and potentially renders impossible a joint planning, leading to dissatisfaction and frustration on both sides and putting at risk the success of the virtual delegation.

### *8.4.3 Trust*

Another frequently mentioned issue is the development and maintenance of trust between virtual delegates and their partners. Virtual delegates have only to a very limited degree the opportunity to establish a personal relationship with their partners through immediate contact[49]. Reasons for this are the geographical distance and the different cultural background of the partners[50].

Partners in immediate geographical vicinity may in addition to the formal and task-related communication also interact on a more informal level, e.g. in a brief chat during a coffee break. This helps partners to establish a personal relationship, and it allows them to get an idea of the trustworthiness of each other[51]. Virtual delegates do for the most part not have this opportunity of informal communication, i.e. opportunities to establish and develop trust are very limited.

Cultural differences between the partners also impact the development and maintenance of trust. One key factor is the perceived mutual similarity: "Being like each other raises the degree of trust".[52] A low degree of perceived similarity (e.g. due to different cultural backgrounds) may in turn negatively affect the level of mutual trust. The main reason for this is that a person's cultural background is one of the key factors in determining the sense of belonging to a specific group. If the interaction partner of this person is of a different cultural background, this partner will be perceived as belonging to a group different than the own. The problem is that there is often suspicion between members

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[48] Cf. [Bluedorn/Standifer 2006, p201]

[49] Cf. [Holtbrügge/Schillo 2006, p322]

[50] Cf. [Gibson/Manuel 2003, p59]

[51] Cf. [Lawley 2006, p13]

[52] [Lawley 2006, p14]

of different groups, simply due to their very belonging to different groups initially[53].

The cultural background of partners also determines the significance of mutual trust in the interaction of virtual delegates and their counterparts. Long-term establishment of trust is particularly important for the success of delegations to high context cultures.[54] We can also expect that the potential risk due to the lack of opportunity to develop and maintain trust increases with the context orientation of the host culture.

### *8.4.4 Leadership from a distance*

One of the key attributes of virtual delegates is their decisional authority towards their foreign employees. This leads to the issue of leadership of geographically remote employees, also known as 'distance leadership'[55] or 'virtual leadership'[56], which for example affects the areas mentoring, management and promotion of staff.

#### Social presence

One essential prerequisite for an effective management of employees is that staff actually experience and respect leadership. In a traditional environment, i.e. in case of immediate geographical vicinity between managers and employees, managers have various possibilities to establish their leadership and remind employees of their presence. The seating arrangement in a meeting, a closed office door or other implicit social messages can already convey the relationship between managers and staff[57]. By definition, virtual delegates have a very limited access to these possibilities, as they need to rely on electronic media to establish their presence with employees.[58] Similarly to the effectiveness of communication by media, creating this tele-presence largely depends on the richness of the communication media used[59]. Given the so far comparatively restricted use of communication media with a high level of richness, the opportunities to establish a social presence are highly limited for virtual delegates[60].

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[53] Cf. [Gibson/Manuel 2003, p62]

[54] [Holtbrügge/Schillo 2006, p324]

[55] Cf. [Holtbrügge/Schillo 2006, p324]

[56] Cf. [Lawley 2006, p13]

[57] Cf. [Zigurs 2002, p344]

[58] This is coined 'telepresence', cf. [Zigurs 2002, p344]

[59] Cf. [Zigurs 2002, p342]

[60] Cf. [Iten 2000, p116]

### Controlling of employees

Another factor complicating the management of employees by virtual delegates is the insufficient possibility to monitor and control staff. "All kinds of direct control are difficult when team managers are not at the same location as the team members".[61]

One option to overcome this obstacle is to introduce 'electronic performance monitoring' systems.[62] These allow to capture work data of employees such as log-in times or keystrokes as well as the monitoring of phone calls or email traffic for type and quality. However, these systems are of rather limited practical use, as this kind of monitoring is more likely to negatively affect staff satisfaction and cause stress than actually improve performance.

Another option to meet the challenges of managing staff from a distance is to transfer responsibility to these employees and grant them a degree of freedom in taking their own decisions. One example for this delegating leadership concept is 'management by objectives'. This approach is based on the idea that targets are agreed which employees need to realize. The evaluation is then based exclusively on the degree to which these targets have been achieved, i.e. employees are largely free to realize the objectives any way they see best[63]. "While direct leadership strategies are possible in conventional teams, members of virtual teams might be managed more effectively by empowerment and by delegating managerial functions to the members."[64]

### Motivation of employees

The success of a virtual delegation furthermore depends on the capability of delegates to motivate their employees from a distance. This capability is largely determined by the leadership style and application of management tools. Due to this close link between leadership and motivation, issues with the effectiveness of leadership styles in different cultures also directly affect the possibilities to motivate staff from a distance. For example, in a hierarchic culture such as India a delegating leadership style is likely to have a negative effect on the motivation of staff, whereas in less hierarchic cultures the same approach may actually deliver positive results. Geographical distance also affects the possibilities to motivate staff. "Physical disconnectedness (...) can lead to various challenges of members' work motivation due to any of the following reasons: It is more difficult to implement common goals, feelings of anonymity and low social control may lead to social loafing, self-efficacy

[61] [Hertel/Geister/Konradt 2005, p80]

[62] Cf. [Hertel/Geister/Konradt 2005, p80]

[63] Cf. [Holtbrügge 2007, p199]

[64] [Hertel/Geister/Konradt 2005, p81]

is more difficult to maintain due to reduced feedback, and trust is more difficult to build."[65]

Mentoring of employees

Finally, another problem in management from a distance is the mentoring of employees.[66] The relationship between mentors and their protégés should ideally last for many years and result in a relationship of equals and possibly even friendship[67]. It is an important method of developing personnel and highlights numerous advantages for the organization, mentors and protégés.[68] On the organizational level mentoring can help to achieve an improved assessment of individual performances and promote new and promising talents. Mentors thereby have the opportunity to improve their leadership and communication skills, while protégés benefit from the knowledge, capabilities and networks of their mentors.

However, these advantages only apply to a certain degree in the context of virtual delegation, as mentoring is also subject to the limitations of this particular situation. The main issue here is the geographical distance between mentors and protégés. The introduction of virtual mentoring or tele-mentoring together with the implementation of the usual mentoring activities by electronic media is one way of overcoming these issues.[69] "However, building and refining interpersonal skills requires one-on-one contact between mentor and protégé. There must be direct observation of the protégé at work or with other colleagues"media.[70]

## 8.5 Training for virtual delegates in India

In the last paragraph, we have outlined several intercultural management problems of virtual delegation to India. One instrument to overcome these problems might be intercultural training. Given that the efficient performance of virtual delegates is most likely to substantially rely on their competence in communication technology and intercultural communication, the development and maintenance of these skills is crucial for their success.

Intercultural training is a "formal effort to prepare people for more effective interpersonal relations and for job success when they interact extensively with individuals from cultures other than their own."[71] The available literature offers several con-

[65] [Hertel/Geister/Konradt 2005, p84]

[66] Mentoring is the "one-to-one relationship between a mentor with advanced experience and knowledge and a protégé with less experience and knowledge" [Harvey/Wiese 1998, p34]

[67] Cf. [Harvey/Wiese 1998, p35]

[68] Cf. [Mathews 2006, p162]

[69] Cf. [Knouse 2001, p163]

[70] [Knouse 2001, p166]

[71] [Brislin/Yoshida 1994, p183]

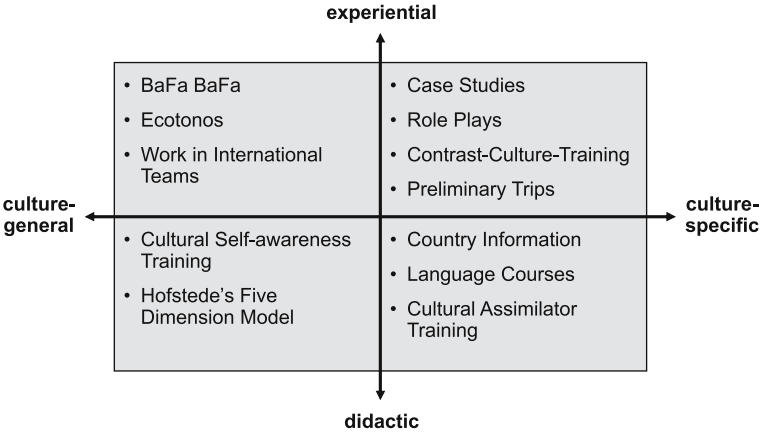


**Fig. 8.3** Typology of intercultural trainings[74]

cepts, methods and instruments of intercultural training.[72] They can be differentiated by two criteria:[73] the process or method (didactic vs. experimental) by which training is delivered and the content (culture-general vs. culture-specific) of the training. Based on these criteria, four categories of intercultural training can be distinguished: didactic/culture-general, didactic/culture-specific, experiential/culture-general and experimental/culture-specific training (see Figure 8.3).

- Didactic and culture-general trainings convey information about a culture in general as well as its influence on management practices and interpersonal behavior in particular, mainly using cognitive approaches such as lectures, discussions, films, and culture-general assimilators.[75]
- Didactic and culture-specific approaches offer information about a specific culture. For example, country facts and historical backgrounds are imparted with similar methods used in didactic and culture-general trainings. Moreover, language and culture assimilator trainings may be applied.[76] A culture assimilator is a collection of critical incidents. These are short reports describing situations in which a problem pertaining to cultural adaptation or cultural differences between interacting parties occurred. Among different descriptions the trainees then have to select the best explanation for a particular situation.
- The aim of experiential and culture-general trainings is to let participants experience situations which might occur in real-life intercultural encounters. Several simulations and self-assessments such as BáFá BáFá, Barnga or Ecotonos have

[72] e.g. [Fowler/Mumford 1995; Seelye 1996; Cushner/Brislin 1997; Landis/Bennett/Bennett 2004]

[73] Cf. [Gudykunst/Hammer 1983]

[74] Source: [Welge/Holtbrügge 2006, p231; with reference to Gudykunst/Hammer 1983]

[75] Cf. [Gudykunst/Guzley/Hammer, 1996, p66]. Moreover, the trainings might also explain different concepts of culture such as those developed by [Trompenaars 1993; Hofstede 2001; House et al. 2004].

[76] e.g. [Mitterer/Mimler/Thomas 2006]

been developed to this end.[77] Another culture-general simulation is Explanatorius, which particularly aims to assess and train the communicative competence of participants[78].

- Experiential and culture-specific trainings such as culture-specific simulations or role-plays, contrast-culture trainings and preliminary trips offer trainees the opportunity to experience the norms, values and symbols of a specific culture. The main difference to didactic trainings is that they not only convey cognitive but also emotional and behavioral competences.

Virtual delegates have specific training requirements which differ from those for traditional foreign assignments[79]. Two differences in training content are particularly important, namely the lack of personal experiences in the foreign country and of face-to-face communication. As pointed out earlier, virtual assignees remain in their home country most of the time. Because of this spatial separation of private and business life, there is no need to adjust to the living conditions in the foreign country, only to the specific work context. For example, virtual delegates do not have to learn how to eat rice with their hands, to greet people or to dress appropriately. In contrast to traditional expatriates, virtual assignees in India will not experience hot summers, power cuts or crowded busses. As a consequence, work-related content is more important than content related to the private realm.

Due to the lack of face-to-face communication, trainings for virtual assignees should include information about new technologies such as videoconferences, chat rooms, blogs or WebEx-sessions and their compatibility across national and organizational borders. In contrast, knowledge of important elements of face-to-face communication such as gestures or dress code is less relevant. In addition to learning how to use new technologies, virtual delegates have to be able to select the appropriate communication media according to the given task and cultural context they work in ('netiquette').[80] For example, training about different national cultures based on the works of Hofstede, Trompenaars and others might be provided.[81] Information about different communication styles and trainings is particularly useful when it takes into account the characteristics of electronic media. Intercultural training might be efficient, if the content is adapted to the specific requirements of virtual delegation. Work-related content is more efficient than private life-related content. Moreover, information on electronic communication technologies and their culture-specific use are more efficient than information on face-to-face communication.

For virtual delegation it could be established that cognitive elements such as information about work-related aspects of other cultures and the culture-specific use of electronic media are indispensable. This can be conveyed most efficiently through didactic methods such as lectures, presentations or fact sheets. Experiential methods, on the other hand, appear less important. In virtual assignments, communica-

[77] Cf. [Shirts 1995; Steinwachs, 1995; Hofner Saphiere 1995]

[78] Cf. [Holtbrügge/Kittler, 2006]

[79] Cf. [Holtbrügge/Schillo 2007]

[80] Cf. [Rosen/Furst/Blackburn 2006]

[81] Cf. [Duarte/Snyder 2001]

tion takes place mainly via electronic media. This offers communication partners the opportunity to reflect longer on possible answers and the use of specific expressions. Spontaneously acting according to the culturally accepted fashion is less important because virtual work offers an opportunity for reflection prior to sending an answer.

Moreover, virtual delegates are often hurried to prepare for their assignments. Particularly if they are assigned to a temporary project instead of filling a permanent position in a foreign subsidiary, preparation time tends to be very short. As a consequence, an adequate intercultural training must be comparatively short and flexible. In this case, trainings using electronic media such as CDs or DVDs, which could be performed independently of time and location, would be preferable. Therefore, didactic training is more efficient than experiential training. Moreover, training in virtual classrooms is more efficient than training in traditional classrooms.

Intercultural trainings have the greatest impact when they are offered not only to the virtual assignees but also to their counterparts in the host country. As mentioned in the previous section, one of the greatest challenges for virtual assignments is to avoid intercultural misunderstandings and build trust without regular face-to-face contact. One important objective of training is therefore to standardize the knowledge of all participants and develop a common basis for collaboration. Moreover, they enable them to learn about the cultural norms and values of their respective counterparts. Consequently, intercultural trainings are particular efficient when attended by all participants of a virtual interaction.

The actual impact intercultural trainings have on the efficiency of virtual assignments is also determined by several other variables. One important influence is the cultural distance between virtual delegates and their counterparts in the host country. Cultural distance can be defined as the mean difference of the norms, values and attitudes between two cultures.[82]

Theoretically, this phenomenon could be explained by the concept of high-context and low-context cultures developed by Hall (1966). As we have seen before, the communication between members of two cultures is the more successful the more similar the mindsets of the counterparts are. Reversely, communication between one individual belonging to a high-context culture and another individual belonging to a low-context-culture may lead to misunderstandings. As a way of addressing communication problems, intercultural training is then particularly important when the cultural distance between virtual delegates and their counterparts in the host-country is particularly large as between Germany and India.

Another factor is the amount of international experience of delegates. This is in accordance with the literature on traditional assignments, which states that intercultural training is the more important the less internationally experienced trainees are.[83]

Finally, the impact of intercultural training on the efficiency of virtual delegations depends on the nature of the particular assignment. Long-term virtual expatriates interact with individuals from one foreign culture over a period of at least one

[82] Cf. [Kogut/Singh 1988; Shenkar 2001]

[83] Cf. [Webb 1996; Bennett/Aston/Colqunhoun 2000]

year. The virtual assignment is an important period in their work life and a major criterion for future promotions. As a consequence, culture-specific training is essential to convey the characteristics of a particular culture. Virtual frequent flyers, on the other hand, switch permanently between interactions with individuals from several foreign cultures. Their basic requirement is not the adjustment to one particular culture but the flexibility to interact simultaneously with members from different cultures. Moreover, virtual delegation to different host countries may occur rather spontaneously, which means detailed culture-specific trainings are not feasible.

## Conclusion

Virtual delegations are accompanied by several intercultural management issues such as a lack of face-to-face communication, different time zones and communication styles, language barriers and the lack of common mechanisms to establish and develop trust. Intercultural trainings are a useful tool to overcome these challenges. However, they have to be adapted to the specific requirements of virtual expatriates. Moreover, intercultural trainings should not exclusively be offered to the virtual delegates but also to their team members in the home country as well as their counterparts in the host country.

Our study reveals that even leading companies in the area of virtual and remote work have only taken the first steps in this direction so far. Since virtual delegations are expected to continue gaining significance in the future, companies should invest in the analysis of intercultural management issues and intercultural trainings. For many companies in India, virtual delegation is set to become a main topic of human resource management in the next years.

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# Chapter 9
# How to Start a Rightshore® Project

**Ole Samuelsen**

**Abstract** This chapter describes how to successfully kick off an offshore project and fully leverage the maximum potential of the offshore concept. It furthermore covers some of the main challenges in offshore projects and how to adjust project management to handle these challenges. Finally, the chapter offers some practical advice as well as some examples of what can happen if project management fails to handle these challenges in time.

Please note that the chapter does not focus on a package software implementation alone, although examples of ERP development projects are used throughout. Instead, the content of this chapter can be applied to all types of distributed projects.

## 9.1 Introduction

Once the decision is made to move part of a company's IT development or software maintenance to an offshore location, project management faces a number of additional challenges to the ones of traditional projects. If these challenges are addressed during the setup of the project, project management will be able to leverage a smoother project at a lower price and with higher quality and predictability.

On the other hand, failure to address these issues right from the beginning could mean budget overruns and delivery of a product that does not meet customer expectations[1].

This chapter discusses how to handle these issues during the start-up phase of the project, and offers some advise and hints based on the author's experience.

The main stakeholders within an offshore project are:

**Project owner:** the project owner finances the project and defines the overall scope of the project.

[1] Cf. [Moore 2005b, p1-4]

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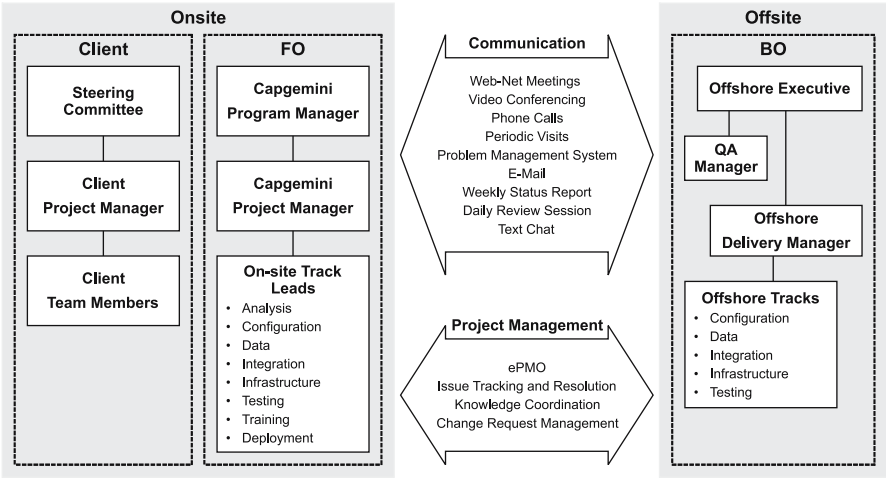



**Fig. 9.1** Organization of an offshore project

**Front-office (FO):** the part of the project closest to the project owner and working as a bridge between the project owner and back-office. The client and FO together form the onsite team.

**Back-office (BO):** the back-office is a remote location where typically the main share of 'production' takes place. In an offshore setup, the BO is located in another country or even continent.

The model in Figure 9.1 shows a typical organization for an offshore development project.

Delivering an offshore project implies the client and supplier adapting their views compared to a traditional project delivery and changing their way of working to fully utilize the potential of the offshoring model.

Identifying and addressing these challenges right from the beginning of the project allows to fully leverage the offshore model and thus offer the client a project of higher quality and predictability at considerably lower costs.

The chapter furthermore discusses how these challenges can be identified and successfully addressed during the project setup.

## 9.2 How offshore outsourcing projects differ from other projects

The most obvious characteristic of an offshore project is the geographical separation of the parties working together.

As a consequence of this separation, the communication and collaboration between the parties are likely to suffer unless these issues are handled proactively.

The main issues are[2]:

- Time difference
- Geographical distribution
- Culture differences
- Communication and collaboration

### *9.2.1 Time difference*

Any time difference between the FO and BO can render it virtually impossible for all project members to be working at the same time. This section uses the time difference between India and Central Europe as an example.

There is a time difference of 4.5 hours between India and Central Europe in winter and 3.5 hours during summer. As a consequence, the Indian and European working days only overlap for a few hours.

This requires a number of guidelines for efficient and effective planning, for example:

- **Morning European time is afternoon Indian time** and should be dedicated to communication and coordination. If possible, **move the working day** at both ends. Just one hour earlier in Europe or one hour later in India provides 12.5% more overlap for an 8 hour working day.
- Try to **organize work** in such a way that the onsite and the offsite team can continue their work even though the other party is not available.

One aspect of the time difference often neglected is the difference in **national holidays**. Most European countries have national holidays around the same time of year (Christmas, Easter, and summer vacation in July or August), but Indian national holidays differ from that routine. In India, there are a few holidays during Christmas, none at Easter but instead a week in October/November for the Diwali festival. Summer holidays are also at a different time of the year; most people in Mumbai take their summer vacation in May, for example.

Generally, the national holidays differ from state to state within India. It is advisable to collect information about the holiday periods for the state in India where the BO centre is located, and ensure that critical periods of the project, e.g. releases, are scheduled outside both, the FO and BO holiday periods.

Good experiences have been gained by publishing a combined calendar for onsite and offshore teams listing all national holidays chronologically. The national holidays for a typical central European country (example is Denmark) and India are listed in the table below. Please note that some of the Indian holidays are general non-working days and that others are religious holidays where only the believers of specific religions are celebrating.

---

[2] Cf. [Goolsby 2002, p4; McCarthy et al. 2004, p25-28/52-54]

**Table 9.1** National holidays in Denmark and India (Mumbai)

| Onsite Date | Occasion | India Date | Occasion |
|---|---|---|---|
| January 1 | New Years Day | January 26 | Republic Day |
| April 13 | Maundy Thursday | March 4 | Mahashivratri |
| April 14 | Good Friday | March 16 | Bakri-id |
| April 16 | Easter Sunday | March 20 | Holi |
| April 17 | Easter Monday | April 1 | Bank's year end |
| May 12 | Prayer Day | April 5 | Gudhi Padwa |
| May 25 | Ascension Day | April 12 | Ram Navami |
| June 4 | Whit Sunday | April 14 | Dr. Ambedkar Jayanti |
| June 5 | Whit Monday | April 15 | Mohurrum |
| June 5 | Constitution Day | April 21 | Good Friday |
| December 24 | Christmas Eve | May 1 | Haharashtra Day |
| December 25 | Christmas Day | May 5 | Chattrapati Shivaji Maharaj Jayanti |
| December 26 | 2nd Christmas Day | May 18 | Buddha Pournima |
| | | June 15 | Id-e-Milad |
| | | August 15 | Independence Day |
| | | August 21 | Parsi New Year |
| | | September 1 | Ganesh Chaturthi |
| | | September 30 | Bank's half-yearly closing |
| | | October 2 | Mahatma Gandhi Jayanti |
| | | October 7 | Dusserha |
| | | October 26–28 | Diwali |
| | | November 11 | Guru Nanak Jayanti |
| | | December 25 | Christmas. |

### *9.2.2 Geographical distribution*

In traditional software development projects, all participants are geographically located close to each other, either in a "same physical localization scenario"[3] or in a "cross town scenario"[4]. In the first instance, the participants are located in the same room, building or complex, while in the latter they are located in the same town.

Project members working close to each other find it easier to share comprehensive and detailed knowledge about the project and specific client business and establish a common vocabulary. This helps to develop a common project culture, which incorporates a large pool of shared information without any need for explicit communication measures.

Any misunderstandings or issues calling for a meeting in person can be settled comparatively easy and within minutes or a few hours.

[3] [Prikladnichi et al., p419]

[4] [Prikladnichi et al., p419]

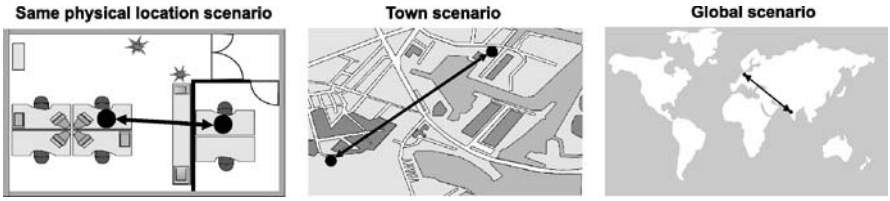



**Fig. 9.2** Location scenarios

When the development is moved offshore, the project shifts to the "global scenario"[5] where establishing a common culture does not happen as naturally as in the "same physical localization scenario" or "cross town scenario".

In the "global scenario" project management needs to actively collaborate with the distributed teams to establish a common culture and view of the project. The product specifications handed over to the offshore team hence need to be significantly more detailed to ensure that all necessary background information is available to successfully develop the product.[6]

**Story:** In a project which introduced a self-service luggage check-in for a European airline faced substantial delays in the BO's acceptance of the specification until it was discovered that none of the Indian project participants had ever been inside an airport and thus had no background knowledge about check-in procedures. Onshore team assumed that definitions such as "gate" and "check-in" were widely known and did not care to define them explicitly, thereby leaving the Indian developers guessing.

### *9.2.3 Cultural differences*

One of the most challenging issues in offshore projects is the cultural difference. Even if employees have good language skills, they will almost by default interpret written and verbal communication through the filter of their own culture.[7]

There are a number of guidelines which can be used to handle the intercultural aspects of collaboration[8].

[5] [Prikladnichi et al., p420]

[6] Cf. [Moore1 2005, p2]

[7] Cf. [Snyder 2003]

[8] See 'Intercultural Aspects of Project Management in India' in this handbook.

- **Be open to and aware of the cultural differences between the onsite team and the offshore team.**
  One side of the project trying to enforce one single perspective or view on the project might lead to unnecessary conflicts and misunderstandings[9].
- **Discuss perspectives and expectations openly.**
  Different cultures have different views and expectation towards different aspects of co-operation and communication. We hence recommend to openly express and discuss what the parties expect from the project and each other.
- **Prepare a project glossary.**
  Different cultures often use words and phrases not in the same fashion. It is therefore a good idea to set up a glossary defining the meaning of terms and phrases frequently used during the project.

**Example:** In Europe the word "estimate" signifies a guess that by definition has some uncertainty attached to it. In India the word "estimate" means a commitment, and many times BO do not give any estimate before all uncertainties are clarified. Instead, the Indians use the term "guesstimate" for "estimate" in the European understanding.

### *9.2.4 Communication and collaboration*

Ensuring smooth and efficient communication and collaboration between the participating individuals and groups is mandatory for all projects.[10] When the project is conducted onshore (where all parties are geographically located close to each other), a specific physical environment is often established at a single location. Setting up a project-specific environment facilitates a closer coordination between the teams and individuals of the project, and any issues in need of clarification can be handled quickly. In addition, this offers project management the opportunity to establish a common project identity which nourishes the collaboration between the individuals and teams[11].

However, when the project groups are distributed across several countries or continents in an offshore project, setting up a common physical development environment is not an option. Instead, alternative strategies need to be applied which ensure a close communication and collaboration between the distributed teams[12].

Using the concept of virtual teams helps to span a bridge across the different organizational styles of the distributed groups and facilitate a common project identity.

[9] Cf. [McCarthy et al. 2004, p26]
[10] Cf. [McConnell 1999, p286]
[11] Cf. [Mikkelsen 1981, p116]
[12] Cf. [Goolsby 2002, p6/11]

**Concepts of virtual teams**[13]

- Integrate levels of leadership across locations
- Develop a clear sense of purpose for each project team
- Define a clear set of priorities across the entire project
- Build a common culture of collaboration, information sharing and accountability throughout the project
- Define the roles and responsibilities of all team members
- Use team member visits to establish trust and personal relationships, thus clearing the offshore hurdle
- Focus on process transparency within the teams
- Ensure a clear and meaningful communication and a well defined handling of deliverables between the teams
- Invest in cross-team training
- Deploy collaboration tools such as phone or video conferences
- Track progress and celebrate team success

## 9.3 Key issues in getting started

The key to success in offshore projects is to realize the differences compared to traditional development projects and recognize that these differences need to be addressed from day one.

This chapter presents a number of best practices based on the experiences from a multitude of offshore projects in India using Capgemini's Rightshore® framework.

In addition, other "traditional" best practices, for example the management of development projects, should also be applied to distributed projects but will not be explicitly mentioned here.[14]

Instead, this section exclusively describes best practices in addressing the additional challenges distributed projects face in an offshore context.

In the author's experience, these are the best practices with the biggest positive impact specifically on offshore projects. However, they should not be applied to a project without consideration for the specific circumstances of that project. Each best practice should hence be tailored to the specific project requirements.

This chapter discussed the following best practices:

- Experience reuse
- Include the BO in the scoping of the project
- Identify expectations
- Appraisals and evaluations
- Roles and responsibilities

[13] Cf. [Bell 2003]

[14] Cf. [McConnell 1999; Mikkelsen et al. 1981]

- Communication plan
- Kick-off
- Infrastructure
- Expectation management
- Organizational references
- Maturity model
- Knowledge transfer

### *9.3.1 Experience reuse*

It is advisable to involve people with offshore experience in the project, e.g. a project manager with relevant capabilities or a coach able to support management along the way.

### *9.3.2 Include the BO in the scoping of the project*

The initial scoping of the project is often done exclusively by the onsite team, and the BO is not included in the project until the overall scope of the project is defined. This is NOT an optimal approach.

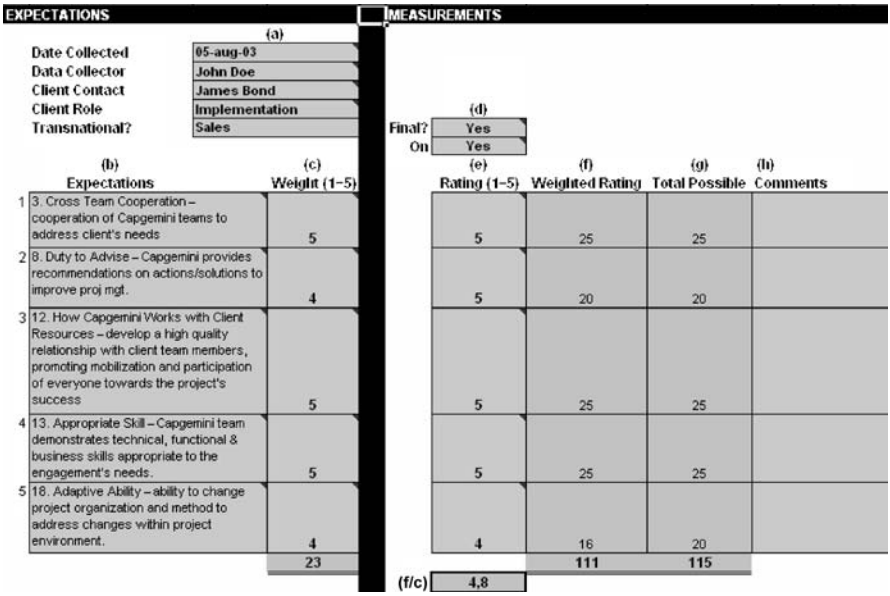
The BO should be included in the project definition as early as possible. Among the three parties (Client – Local Capgemini (FO) – BO), the BO is frequently the one with the longest and most detailed experience with offshoring. This knowledge and experience should be leveraged in the project definition phase as early as possible.

By including the BO in the definition phase, the project will benefit from the fact that initial knowledge about the scope and purpose of the project is being transferred to the BO at an early stage, which can speed up the initialization of the BO teams.

### *9.3.3 Identify expectations*

Clear expectations should be defined and communicated between the parties. Expectation tracking tools such as the Capgemini OTACE (On Time and Above Client Expectations) concept offer an excellent framework. The purpose of the expectation tracking tool is to identify client expectations early in the project and then compare them with actual performance throughout the project lifetime.[15]

[15] Cf. [Spafford 2003]



EXPECTATIONS

| | (a) |
|---|---|
| Date Collected | 05-aug-03 |
| Data Collector | John Doe |
| Client Contact | James Bond |
| Client Role | Implementation |
| Transnational? | Sales |

MEASUREMENTS

| | (d) |
|---|---|
| Final? | Yes |
| On | Yes |

| | (b) Expectations | (c) Weight (1–5) | (e) Rating (1–5) | (f) Weighted Rating | (g) Total Possible | (h) Comments |
|---|---|---|---|---|---|---|
| 1 | 3. Cross Team Cooperation – cooperation of Capgemini teams to address client's needs | 5 | 5 | 25 | 25 | |
| 2 | 8. Duty to Advise – Capgemini provides recommendations on actions/solutions to improve proj mgt. | 4 | 5 | 20 | 20 | |
| 3 | 12. How Capgemini Works with Client Resources – develop a high quality relationship with client team members, promoting mobilization and participation of everyone towards the project's success | 5 | 5 | 25 | 25 | |
| 4 | 13. Appropriate Skill – Capgemini team demonstrates technical, functional & business skills appropriate to the engagement's needs. | 5 | 5 | 25 | 25 | |
| 5 | 18. Adaptive Ability – ability to change project organization and method to address changes within project environment. | 4 | 4 | 16 | 20 | |
| | | 23 | | 111 | 115 | |
| | | | (f/c) | 4,8 | | |

**Fig. 9.3** Example of an OTACE scorecard from an actual project

The expectations may include hard facts that can be measured directly, such as productivity (lines of code per hour), number of errors per KLOC[16] and meeting of delivery milestones. In addition, indirect or subjective measurements can also be used. This may, for instance, include flexibility in terms of quick ramp-up and ramp-down, ability to adopt new knowledge, and client support in identifying new business opportunities.

An interesting observation often made during the expectation tracking activity is that the expectations evolve throughout the project lifetime.

**Example:** In one of our offshore projects expectations were rather steep at the beginning (e.g. cost vs. lines of code, meeting of deadlines and number of errors per line of code). As the project matured and the client became more confident in the BO's ability, the expectations evolved towards softer factors such as the ability to contribute to the client's processes, participation in design of the next release and outsourcing of activities closer to the client's core business.

The key to success is to define the expectations in advance and then evaluate them against actual performance.

[16] KLOC = Kilo lines of code

### 9.3.4 Appraisals and evaluations

Projects frequently experience the phenomenon that the FO and the BO slowly but steadily drift apart in their work. The FO is occupied with defining the specifications for future releases and evaluating the previous deliveries from the BO, while the BO is occupied with the production of the next release. This means that the BO and the FO are not exactly on the same page when communicating and have different perspectives on the project at any given time.

It is therefore advisable to define some fixed appraisal points for the projects when the performance and results of the project can be discussed, offering an opportunity to change workflows and collaboration, if required.

### 9.3.5 Roles and responsibilities

We recommend to define and document the individual roles in the entire project for both, the offshore and onsite teams.

The role definition should at least include the mandate of a specific role, the forum the role is part of, and its equivalent on the other side.[17]

Please find below some sample roles and responsibilities of a typical offshore development project. Depending on the size and complexity of the project, there can be up to 30 different roles.

**Table 9.2** Example of roles and responsibilities from an actual development project

| Role | Responsibility |
|---|---|
| Engagement Director | Managing all aspects of engagement and its context. He/she is responsible to track:<br>• Client satisfaction using a framework such as OTACE<br>• Verification of the financial and commercial integrity of the engagement |
| Engagement Manager | • Overall performance of the development effort across onsite and offsite teams<br>• Creation of development plans with time & cost figures<br>• Resolution of Capgemini owned development & consulting issues<br>• Co-ordination of work with the client and liaising on issues around the development process |
| Onsite Coordinator | • Monitor scope and provide initial development estimate<br>• Perform Onsite Consultant responsibilities<br>• Co-ordinate work with Offshore Coordinator<br>• Co-ordinate and review specifications and code |

[17] See 'Development for Manufacturing Industries' in this handbook for hands-on experience in setting up a project model and roles.

**Table 9.2** (continued)

| Role | Responsibility |
|---|---|
| | • Obtain sign-offs<br>• Perform/coordinate testing<br>• Initiate migration of development to System Test, User Acceptance Test (UAT) and Production<br>• Facilitate issue resolution |
| Offshore Coordinator | • Monitor scope, review and validate specifications, development estimates and code<br>• Perform Design Analyst responsibilities<br>• Facilitate communication between the offshore team and the Onsite Coordinator<br>• Assign development work to appropriate developer (onsite/offshore)<br>• Report and review weekly status with Onsite Coordinator<br>• Coordinate test results with Onsite Coordinator<br>• Facilitate issue resolution |
| Onsite Consultants | • Analyze business requirements and functional specifications<br>• Where contracted on time & material basis, provide consultancy services such as creating canonical format specifications, Integration Project Assessment Reports (IPAR) and Integration Functional Specifications (IFS)<br>• Group interfaces into schemas and categorize interface complexity levels<br>• Design and development for complex/new type of interfaces that require much iteration and communication with the Business Project Team<br>• Analyze test requirements and test results<br>• Provide a local point of contact for further analysis and/or resolution of a support issue |
| Design Analysts | • Monitor scope<br>• Create Technical Specifications and confirm development estimates<br>• Review test results with Client<br>• Review the work throughout development and provide technical assistance when needed |
| Developers | • Complete development and documentation per functional and technical specifications according to approved standards<br>• Complete internal peer review |
| Quality Control Coordinator | • Provide guidelines for code reviews, test script preparation and execution of unit testing<br>• Co-ordinate the QC process and sign-off the components that pass unit testing |
| Unit Test Script Writer | • Liaise with onsite team (with help of Onsite Coordinator) to understand all testing scenarios<br>• Write Unit Test scripts to cover all the possible scenarios |
| Unit Test Executor | • Coordinate with the offshore/onsite functional team to ensure that adequate data is available for all scenarios to be tested<br>• Execute the test scripts and maintain the defects log<br>• Inform the development team regarding the defects<br>• Complete and sign-off the testing process |

### *9.3.6 Communication plan*

Offshore projects always need extra vigilance in ensuring that the right information is available to the right people at the right time. There are many ways in which information can be diluted between senders and recipients (language, accent, technical terms, culture, etc.), and management needs to pay attention to setting up and maintaining the right channels of communication.[18]

The communication plan should at least cover the following issues:

- Which information should each person/role produce/receive?
- Which meetings should be held, and who should attend?
- How often should meetings be held (daily, weekly, monthly, etc.[19])?
- Which communication channels should be used (email, personal meetings, phone and video conferences, etc.)?[20]
- Reporting plan and flow.

If feasible within the given project budget, each project member should at least once during the project have the opportunity to see and experience the working life at the other side. Personal bonds can be tied between the project members during mutual visits, and everyone gets an idea of the challenges the colleagues at the other side typically face on a daily basis. It is especially important for the key members of

**Table 9.3** Extract of an overview from an actual communication plan

| Channel/vehicle | Description | Frequency | Potential stakeholders |
|---|---|---|---|
| **Face-to-face communication channels and vehicles** | | | |
| Regular Senior Management Meetings | Meetings of the CEO and president, and their direct reports | Monthly | Senior Management |
| Steering Committee (SC) Meetings | Monthly meetings of the Steering committee | Monthly or at milestones | Senior Management<br>Stakeholders<br>Project Management |
| Communication Liaison Meetings | Meetings to update communication liaisons and discuss communication and collaboration issues | Weekly | Communication Liaisons<br>Group and Division leadership<br>Process owners and leaders |
| Staff Meetings | Periodic meetings of organizations, chaired by organization leader | Weekly | Local Management<br>Staff meeting |

[18] Cf. [McCarthy et al. 2004, p72]

[19] Project managers and sub-project managers should have daily phone conferences with their respective counterparts. This assures that no information is 'forgotten' and that any misunderstandings are identified promptly. Daily conversation also tunes the ear and mind to better understand the information from the counterpart. Finally, it eliminates any hesitation or fear of talking with colleagues 'on the other side'.

[20] We recommend to prepare a small Minutes of Meeting (MoM) after each phone or video conference to ensure that any ambiguities are clarified.

**Table 9.3** (continued)

| Channel/vehicle | Description | Frequency | Potential stakeholders |
|---|---|---|---|
| **Print communication channels and vehicles** | | | |
| Project Guide | Summarize the business case for the project, drivers for change, the value proposition, and the process through which it will be designed and implemented | Once at onboarding | All employees |
| Project Newsletter | Publication designed to provide an status review of the project and update on design team activities | Monthly | Process owners<br>Department heads |
| Project Vision Brochure | Brochure providing a summary of the project visioning session | One time | All employees |
| Project Q&A Guide | Written document containing frequently asked and/or anticipated questions regarding the project | Bi-monthly | Information Systems Organization<br>Finance Organization<br>Process leaders and stakeholders<br>Communication Liaisons<br>Project Team<br>SMEs |

the offshore team to visit the onsite team to get acquainted with the client's mindset and business.

Table 9.3 contains examples of communication specifications from an existing communication plan. Besides the list of communication activities, the communication should also include a specification of the individual communication object and how it is maintained, distributed and stored for later reference.

### *9.3.7 Kick-off*

As any other project, an offshore project should start with a kick-off event.

The purpose of the kick-off is to set the scene for the project and present the overall goals and boundaries to the project team members. This kick-off event would usually comprise a gathering of all project members and include a presentation of the project to the participants and a social part where everybody gets the opportunity to meet.

This setup is not applicable to most offshore projects due to the price of airline fares and accommodation. It is hence necessary to have two separate kick-off sessions, one for the people working onsite and one for the offshore team.

There are a number of best practices for kick-offs in offshore projects:

- Let the management team from the onsite team participate in the offshore kick-off and vice versa.

- Have the client participating in both sessions.
- Encourage good social connections between the key managers onsite and offshore[21]. One idea could be to have them function as each others tourist guide in their respective cities.
- Let the participants in the kick-off define the identity of the project, and stick to that identity throughout the project. (e.g. "We will provide Client X with the ability to save Y % of their expenses during the next Z years").
- Use storytelling actively.

### *9.3.8 Infrastructure*

In all projects it is necessary to define and install a development environment used to develop the software product the client requires. Clients often have a running development environment installed at their premises prior to the outsourcing of development, and it is a straightforward strategy to let the offshore team use the client's development environment by setting up a remote access (Citrix, VPN, remote terminal and other).

On the other hand, one could also decide to install another version of the development environment at the offshore location to reduce the dependency of the FO development environment on the communication lines between BO and FO.

When deciding whether the offshore project should be tightly coupled to the FO development environment or have a separate environment installed, several aspects need to be taken into consideration.[22]

The table below lists some of the key pros and cons of the two strategies. However, the bottom line is that infrastructure issues should be considered meticulously before the project is initiated, and the performance of the infrastructure must be monitored throughout the project lifetime to ensure that the infrastructure will not become a bottleneck in the project.[23]

**Table 9.4** Pros and cons of loosely vs. tightly coupled development IT systems

| Coupling of IT systems | Pros | Cons |
|---|---|---|
| **Loosely coupled (duplicate environments)** | No dependency on online connectivity. | Double installation of IT systems<br>Knowledge of system configuration has to be transferred from FO to BO. |
| **Tightly coupled (single environment)** | Responsibility for system configuration is at one location (onsite). | The project highly depends on availability, bandwidth and response time of the communication channel between FO and BO. |

[21] Cf. [Snyder 2003]

[22] Cf. [McCarthy et al. 2004, p32; Goolsby 2002, p15]

### *9.3.9 Expectation management*

The need to define specific expectations between the individual project parties was previously mentioned in this chapter. The following sections discusses some more aspects of expectation management which, if not handled pro-actively, might have a negative impact on the project.

#### Organizational references

Any organization has its own reference framework and mindset.[24] This includes topics such as how to approach specific challenges, interpretation of professional vocabulary, project governance and others. Working in a specific development group, any individual will learn to adopt the culture and language of the group's framework and expect other development projects to apply the same framework.

In many cases the reference framework differs between the onsite and the offshore team. The European culture is, for example, very adaptive towards the client's culture and references, whereas the Indian development culture is fine-tuned towards delivering custom-specific software in a very predicable way and with high quality.

The differences in development culture and reference framework can in many cases lead to misunderstanding and frustration, unless all project parties are very clear and precise in their expectations towards the other parties.

**Example:** A customer wanted to introduce the Rational Unified Process™ (RUP) method in a stream of a running an Offshore project. They started by introducing a Use-Case concept and modeling based on the Universal Modeling Language, but all other aspects of the project ran as an ordinary waterfall project. When the BO was told that the project had switched to the RUP metrology, they assumed that the project was following the standard RUP metrology. However, this expectation was never communicated and lead to a number of misunderstandings between the BO and the FO later on in the project.

The best advice is to train all project participants to be very clear about their own expectations toward the other parties. Make it acceptable to discuss and formulate expectations with colleagues, both onsite and offshore. The discussion of expectations should be an integral part of the regular management coordination between FO and BO.

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[23] Independently of the selected strategy, we highly recommend to appoint one project member responsible for infrastructure issues both onsite and offsite. The two responsible project members should frequently coordinate their effort.

[24] Cf. [Ware 2003]

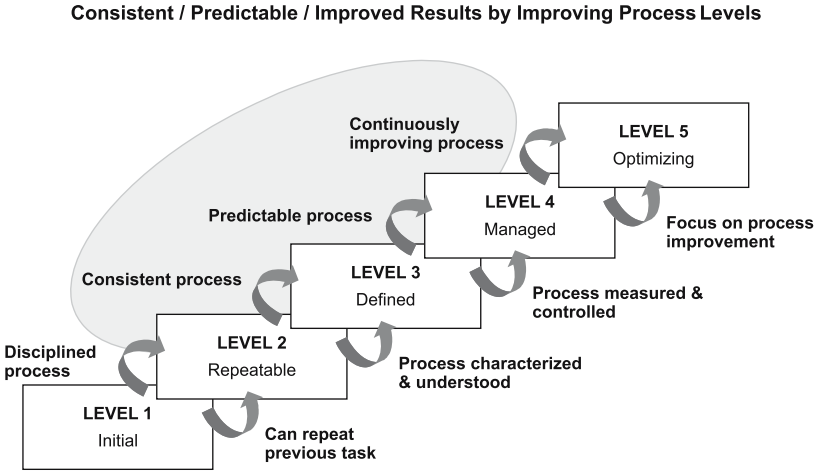


**Fig. 9.4** Overview of the CMMI® model Overview of the CMMI® model

### Maturity model

Most projects outsourced to one of the major offshore centers in India need to comply with the CMMI® level 5 standard. This does not mean that projects have to run in a specific fashion but that they have to meet certain criteria in terms of traceability and measurability.[25]

Very few companies in Europe use the CMMI® framework, and many people who are not familiar with the CMMI® metrology regard the overhead for measuring and analyzing the processes as 'non-productive' activities.

CMMI® offers a framework for the continuous measurement and analysis of processes, and thereby the possibility to continuously improve productivity.[26]

All project participants need to acknowledge that for the offshore part of the project CMMI® compliance is mandatory, and that it is a cornerstone in assuring the high level of quality and predictability in offshore projects.

## *9.3.10 Knowledge transfer*

Another key aspect of offshore projects is the transfer of necessary knowledge from the FO/client to the BO. The knowledge to be transferred will typically belong to the categories below, though other areas might also be affected:

- General introduction to the client and the business.

[25] Cf. [McCarthy et al. 2004, p32]

[26] Cf. [Chrissis et al. 2005]

- General introduction to the applications that need to be developed and/or maintained, and the external dependencies.
- The client's development processes.
- Introduction to the working environment (HW, SW, tools, infrastructure).

Clients often hesitate to offshore their IT work because of the amount of documentation necessary to transfer knowledge. One way of handling this obstacle is to introduce measures that transfer knowledge more effectively and efficiently than simple wall-to-wall written documentation.

One of the most efficient ways of documentation is to combine a video recording with a short reference manual. Let an expert prepare a presentation of a topic and record it on video. The video can then be viewed by all who need to know in the project. Combine this with a short reference manual that can be used in the daily work afterwards.

**Example:** In order to ease the onboarding of new members in the BO team, a number of presentations were recorded by subject matter experts. These DVDs were then placed online and made accessible to all project members.

Another efficient way of combining knowledge transfer and documentation is to let some of the BO team visit the client/FO to create the documentation of the current systems in collaboration with the onsite colleagues. The documentation can then be made available to the BO team, and the people who participated in producing the documentation can act as knowledge hubs when they return to the offshore team.

After the initial knowledge transfer at the initialization of the project, additional knowledge transfer can be performed using the concept of 'shadowing' and 'inverse shadowing'.

The concept of shadowing and inverse shadowing means that people requiring information about a topic follow ("shadow") the current 'expert' in their daily work within the topic. After a while, the roles are then switched and the current experts assist their "disciples" until they can manage by themselves.

## Conclusion

Offshore projects face a number of additional challenges co mpared to traditional projects: time differences and geographical distribution, handling of cultural differences and ensuring successful communication and collaboration across the locations.

Preparing for these challenges right from the start of the project helps to fully leverage the advantages of the offshore setup.

**Table 9.5** Issue checklist

| Activity | Description |
|---|---|
| Reuse experience | For first time offshore projects, involve a person with offshoring experience in the project. |
| Include BO | Include representatives from the BO in the overall planning and scoping of the project. |
| Time difference | Organize the cross-team activities of the distributed team in a fashion that minimizes the time they need to wait for a response from another team. Include the holiday calendar of all the distributed teams in the overall planning. Avoid critical activities, e.g. releases, during a holiday period. |
| Cross-project identity | Build a project identity which defines the overall priorities as well as purpose and goal for each team. |
| Cultural differences | Handle cultural differences by encouraging social relationships across borders, and by making it acceptable to discuss expectations varying by culture. Define a project glossary. |
| Manage expectations | Collect the client's expectations at the beginning of the project. Track the expectations against their observations regularly through the entire lifecycle of the project. |
| Roles and responsibilities | Define the roles and responsibilities for all teams and team members of the project. |
| Communication plan | Define the information flow between the teams, including which meetings are held and who should attend, which material is produced by whom and for whom. |
| Kick-off | Conduct kick-offs at each site of the project. Make sure that the purpose and overall structure of the project is well communicated. |
| Infrastructure | Appoint infrastructure responsibility at each site. Let all people responsible for infrastructure communicate on a regular basis. |
| Knowledge transfer | Conduct knowledge transfer between the sites in a controlled and measurable way. |

Many studies have been done in the last decade on how to increase the dynamics of project teams in a distributed setup, and concepts such as virtual teams[27] and distributed delivery frameworks[28] have evolved.

In order to apply these best practices, a well orchestrated kick-off of a project is a prerequisite, especially regarding work scheduling, onboarding of resources and knowledge transfer.

The short checklist of issues in Table 9.5 should be consulted when initiating an offshore project. This list does not include all activities required for a new project but only those that amend the activity list of traditional onsite projects.

[27] Cf. [Bell 2003]

[28] Distributed Delivery Framework (DDF): Capgemini's framework for the handling of projects distributed across countries and continents.

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# Part II
# Case Studies for Rightshore®

# Chapter 10
# Case Study: A New Sales Planning Platform for the Automotive Supplier Industry

**Reinhard Haerle**

**Abstract** A combined project team of the client and Capgemini Consulting developed a new global Sales Planning solution based on the SAP NetWeaver2004s – Integrated Planning technology for the company.

The project setup incorporated and utilized the Rightshore® approach through distributed delivery of the Capgemini Business Intelligence Factory in Bangalore, India.

The project successfully leveraged an industrialized approach and could thus realize savings in investment of approximately 30% compared to a classic project approach without distributed delivery.

## 10.1 Client situation

### *10.1.1 Client description*

The client is a leading international supplier of automotive electronics and mechatronics. As a development partner of the automobile industry, the company manufactures a comprehensive spectrum of products in the drivetrain, engine management electronics and fuel injection area that simultaneously improve engine performance and reduce emissions.

Information and car communication systems enhance driver comfort and comprise instrumentation, audio and navigation equipment, telematics, multimedia applications, and entire cockpit designs. The application of the company's products, such as airbags, ABS or access control systems, increases chassis and carbody safety. An in-house sales department markets the products for retrofitting of passenger cars and trucks and focuses on fleet management, audio and navigation systems.

Anja Hendel, Wolfgang Messner, Frank Thun, *Rightshore*
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### *10.1.2 Market challenges and drivers*

Automotive suppliers continue to face unrelenting cost pressures as year-on-year price reductions continue and Original Equipments Manufacturers (OEM) force additional concessions once contracts are awarded. The share of manufacturing done in low-cost countries increases and overcapacities grow.

Those who want to be successful and thrive in this environment must continuously strengthen their position as global full service providers to OEMs. Their success depends on the organization's ability to accomplish growth and handle diversification and increasing operational complexity.

The client management also faced these challenges in the top line growth engine through:

- new business and process capabilities and
- responsiveness to customers and industry shifts

The client management accepted the challenge and acted accordingly. They decided to re-design their global sales planning processes and establish a global sales planning platform that at the same time supports the business and optimizes the processes.

### *10.1.3 New global sales planning and reporting solution*

Faced with this situation and the existing shortcomings, the client managers responsible initiated a project to address these issues.

The project started in April 2007 with the process definition, global alignment of business requirements and the solution design. It was very important to realize business benefits for all stakeholders involved and solidly demonstrate the business case. The letter had to be accepted and signed off by senior management.

The following attributes characterize the sales planning. Sales planning is:

- a structured, future-oriented and recurring process
- a combined top-down and bottom-up process
- a cross-divisional, cross-functional and cross-regional process
- across management and legal structures
- integrating sales and finance as part of the overall financial management planning process
- part of several process areas (CRM, SCM, Finance, etc.)
- based on CRM processes and solutions
- business-driven and enabled by IT
- based on already existing analytical data (using SAP BW data)

During the project and business blueprint, major benefits for the client had to be identified and proven:

- Contribution to the business result (proven by business case)
- Integration of different planning processes and variants (e.g. rolling forecast, long-term planning, etc.)
- Commitment to sales planning by all stakeholders involved
- Reduced planning loops and improved cycle time
- Closed planning loop with target setting
- Defined and standardized procedure to conduct compliant sales planning

The project faced tough budget and time restrictions and we thus had to deliver a smart project approach to convince the senior management.

This required leveraging the distributed delivery approach to meet the given project framework in terms of time, scope, quality and budget.

## 10.2 Project objectives

### *10.2.1 Business objectives*

The steering board provided the project team with the following major business objectives for the new sales planning:

- Globally optimized, standardized and harmonized processes and procedures
- Involvement and alignment of all relevant stakeholders (responsible for achieving the sales targets)
- Aligned target setting
- Integrated strategic (long-term and mid-term) and operational (short-term) perspectives
- Based on a harmonized information model
- Delivery of consistent and accurate information for different views (business units, divisions, regions, products, etc.)

### *10.2.2 IT/technology objectives*

From an IT or technology perspective, the project also had to fulfill a number of major objectives:

- Integration in the existing SAP BI and ERP environment
- Replacement of different existing (heterogeneous legacy) sales planning solutions
- Parallel setup to the ongoing SAP BW release change
- High-quality documentation, specification and solution
- Design and solution architecture that can be scaled and enhanced
- Performance optimization in terms of processes and applications

- Low total cost of ownership
- Transfer of dedicated knowledge and skills and development of capabilities on the client side

### *10.2.3 Budget, timeline and other dependencies*

In addition to these challenging business and IT objectives, we had to deliver the project within a tight budget and short time frame. The solution had to go live at the beginning of 2008 to ensure we were in time for the 2009 budget planning process.

We hence developed a project setup and plan that leveraged the Capgemini BI Factory capabilities and capacity and in addition ensured that we adhered to the budget.

Since the client maintains a global presence and has businesses in all regions, which all have different characteristics and requirements towards the sales planning process, we noticed some concerns within the organization about our distributed delivery approach. We thus had to prove that our project setup would successfully deliver the results.

### *10.2.4 Client expectations – OTACE*

Client expectations were high and documented within the Capgemini OTACE[1] process with the following priorities:

1. Quality of deliverables
2. Client-focused attitude
3. Engagement and budget management
4. Cross-team cooperation
5. Responsiveness

Following the OTACE process, we requested feedback after the completion of the business blueprint and asked the client to rate our performance on a scale from 1 (lowest grade – not satisfying – below requirements) to 5 (highest grade – exceed expectation – way above expectation).

In July 2007, after the business blueprint phase, we received an overall OTACE result of 4.6, which in this kind of challenging project environment is a value for the entire team to be proud of, demonstrating an excellent client satisfaction.

[1] OTACE is the Capgemini client satisfaction survey that evaluates and documents the 'On Time and Above Client Expectation' objective.

## 10.3 Project approach and methodology

### *10.3.1 General considerations*

Based on the client's project history, we knew that we had to develop a project approach that met the requirements and considered the readiness of the organization for industrialized IT through distributed delivery. We thus defined the project phases illustrated in Figure 10.1. This figure also provides an overview of the share of Rightshore® during the individual project phases.

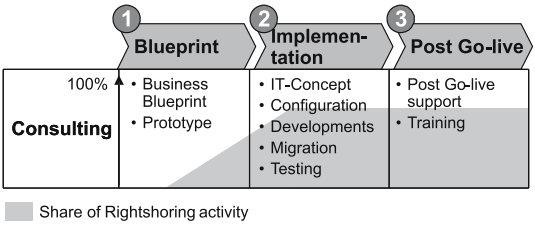


**Fig. 10.1** Project plan with phases

### *10.3.2 Methodology*

The so-called Distributed Delivery Framework is a customized methodology based on the Capgemini Deliver methodology, specially designed for Rightshore® projects. This methodology has been adapted to the specific requirements for business intelligence projects in the SAP BI area. We successfully applied this methodology for our project and used its phases, templates and tools.

### *10.3.3 Project phases*

Analyzing the phases and their activities in detail, we can see which parts we shifted to and supported by the Capgemini BI Factory.

During the business blueprint phase, the project required the full attention of the business and industry expert team, which had to design the new business processes and support the client throughout the phase.

Based on the Capgemini sales planning process template, the project team defined and aligned the process globally and derived the IT requirements.

In addition, we wanted to provide a preview of the future IT solution and demonstrate the look and feel to the target audience. We thus enhanced the business blueprint phase with a prototype stream to develop an attractive prototype or so

**Table 10.1** Onsite and offshore skills

| Project phase | Major deliverables/areas | Onsite skills | Offshore skills |
|---|---|---|---|
| Business blueprint | Business blueprint | Process and industry expert | |
| | Business case | Business and industry expert | |
| | Prototype | SAP BI application expert | SAP BI application expert |
| | Change management | Change manager | |
| Implementation | IT concept (technical SAP BW & IP) | SAP BI application expert | SAP BI application expert |
| | Data quality management | Senior architect | |
| | Customizing and development | SAP BI application expert | SAP BI application and development experts |
| | Migration | SAP BI and migration expert | SAP BI and migration expert |
| | Testing & training | SAP BI application expert | Test, SAP BI experts |
| | Go-live | SAP BI and migration expert | SAP BI and migration expert |
| Post Go-live | Support | SAP BI application expert | SAP BI application expert |
| Project Management | Project plan, risk management, etc. | Engagement manager<br>Onsite manager from BI Factory | Offsite manager |

called 'A sample'. This prototype had only selected functions and was based on the SAP NetWeaver2004 platform, including a small set of data.

During the implementation phase, we increased the Rightshore® part and involved more offshore SAP BI application experts. The offshore team was managed by an onsite manager who started early during the implementation phase onsite.

Throughout the implementation phase we shifted more and more activities towards the BI Factory to leverage the available capacities and expertise.

### *10.3.4 Project organization*

The project organization (Figure 10.2) shows the general setup and organization of the project. We divided the entire project team into two major streams, one responsible for the business processes and content and the other for the IT solution and implementation. Within these project teams, we assigned responsibilities to ensure accountability and the required transparency.

These responsibilities had been commonly defined and communicated within the team, for which we used the RACI[2] methodology.

[2] RACI defines responsibilities and stands for R = responsible – for doing the work; A = accountable (only one), C = consult, I = inform.

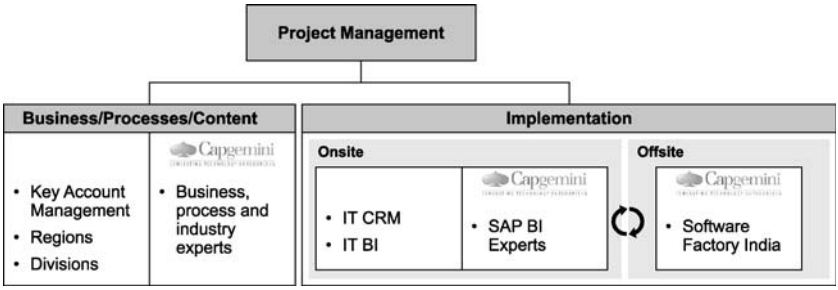


**Fig. 10.2** Overall project organization

## *10.3.5 Roles and responsibilities*

**Table 10.2** RACI of onshore and offshore activities (excerpt)

| Project phase | Activities | Onshore | Offshore |
|---|---|---|---|
| Business Blueprint | High-level as-is analysis | A/R | |
| | Process model and business blueprint | A/R | I |
| | Business case | A/R | |
| | IT architecture and application concept | A/R | I |
| | Implementation, interface, roll-out strategy and migration planning | A/R | C |
| | Prototype development | A | R |
| Implementation | IT concept | A/R | R |
| | Customizing and developments | A/R | R |
| | Migration | A | R |
| | Testing | A | R |
| | Training | A | R |
| Post Go-Live | Support | A/R | R |

## *10.3.6 Major activities, templates and tools*

We used the following templates for the distributed delivery work and the related tracking and monitoring activities:

**Table 10.3** Overview of templates and tools (excerpt)

| Project phase | Template/tool | Main intention |
|---|---|---|
| Project management | Estimation & effort template | Support for effort estimation and project planning |
| Implementation | Functional specification template | Established documentation of specifications for BI work |

**Table 10.3** (continued)

| Project phase | Template/tool | Main intention |
|---|---|---|
| | Review checklists<br>Delivery checklist<br>Model review checklist<br>Report review checklist | Ensure quality of documents for completeness, understanding, cross-checks, detailed descriptions, etc. |
| | Technical documentation templates:<br>• Data target template<br>• Multicube<br>• Infocube<br>• ODS<br>• Master data template<br>• Web templates | Ensure quality of documents for completeness, understanding, cross-checks, detailed descriptions, etc. |
| | Unit testing | Ensure results of unit testing through documentation of test plan, test cases, test results, etc. |
| | Naming convention | Alignment of technical objects to ensure consistency within applications |

## 10.4 Distributed delivery as key to success

### *10.4.1 How we leveraged distributed delivery*

Although the overall effort in person days increased by approximately 10%, we realized overall savings in the project investment of approximately 30% compared to a classic project approach.

This means we achieved substantial benefits for the client while ensuring project delivery within time, scope, budget and quality.

Three factors helped us to leverage the distributed delivery:

1. The prototyping approach during the business blueprint phase enabled by the BI Factory – onsite
2. Leverage of the BI Factory during the implementation phase – onsite manager and offsite delivery
3. Ongoing support through offsite resources during the go-live and support phase

### *10.4.2 Why we did it this way, and why we succeeded*

We knew that we would not succeed if we used a classic approach to this global project, but that we would have to develop something new instead.

It was important for us to start with a mixed approach and then integrate the Indian colleagues gradually rather than use a pure offshoring model from day one.

We were thus able to increase the share as required and maintain the right balance.

Based on this successful delivery and experiences with our client, we were able to leverage the offshore facilities even better and increase their share in future projects. For example, the client would now be able to run the new sales planning solution through this approach.

## 10.5 Benefits and lessons learned

### *10.5.1 Critical success factors and potential project risks*

We had to manage a number of potential project risks to ensure the delivery and fulfill expectations. If we take a closer look at these potential project risks from a distributed delivery perspective, we can demonstrate how we handled them successfully:

**Table 10.4** Project risks and risk mitigation (excerpt)

| Project risks | Potential impact | Responsible | Templates, tools and risk mitigation |
|---|---|---|---|
| Scope changes | High | Project management | Requirement documentation, change requests |
| Resource availability | High | DD coordinator, onsite management | Resource planning, estimation and effort template |
| Solution quality | High | Team | Detailed documentation |
| User acceptance | High | Team | Prototype |
| Delays in schedule | Medium | Project management | Distributed delivery framework |

In addition to these potential risks, we had to ensure that the following major topics were covered and adequately addressed:

- Infrastructure – access by external partners to client systems always requires forms and even formal processes to ensure compliance and security. Accessing client networks and BI platforms from India requires additional efforts, even though they are fully integrated in the Capgemini network
- Accommodation for Indian onsite colleagues considering specific preferences (kitchen, food, WLAN, public transportation, etc.)
- Visa topics (requiring some lead time)

**Ten lessons learned from this distributed delivery project:**

Even with our knowledge and experience from previous projects, we had to learn a number of valuable lessons that we would like to share:

1. Quality assurance is a must
2. The use of templates (e.g. for work packages, etc.) is mandatory
3. We recommend to use local business experts and IT architects during the first projects with a client
4. Onsite coordination is required
5. Offsite remote access requires some time
6. Communication takes time and requires patience
7. We recommend an early integration of distributed delivery (e.g. for prototype)
8. An onboarding kit for all Indian onsite colleagues has proven valuable
9. Language issues occur even in global companies (e. g. desktop settings for language, documents, etc.)
10. Distributed delivery offers big advantages and opportunities

### *10.5.2 Benefits for the client and the project*

Looking back and reflecting on the project, we were able to achieve some major benefits for the client organization and delivered according to the objectives. Major benefits that could be realized thanks to the distributed delivery approach were:

- Detailed documentation and specification of the requirements and the IT solution
- Easy hand-over to production and savings in the run phase of the application – optimized total cost of ownership
- Good availability of resources and capabilities
- Easy scalability of BI resources through the BI Factory
- Delivery on time and within scope and budget
- Approximately 30% lower implementation cost

Overall, we realized savings through the BI Factory approach of approximately 30%. Despite some additional overheads (e.g. Indian onsite manager, communication, etc.), we delivered a successful high-quality project within the given time frame, scope, and budget. The key to success was the right mixture of local (German) resources from Capgemini Consulting and offsite Indian BI Factory capacities.

## Conclusion

The sales planning solution could only be delivered to our client because the project team was dedicated and committed to the project and prepared to face the challenges that came with it. The prototyping (through the BI Factory) contributed much to the acceptance by and understanding of the business side.

Major improvements and benefits for the client with regard to the sales planning process were:

- Integrated sales planning enables a holistic view of the sales pipeline
- Increased supply chain performance through high-quality sales data
- Synchronized planning horizons (rolling forecast, budget, mid-term planning)
- Clear responsibilities and involvement of stakeholders
- Integrated processes and applications reduce planning effort
- Sales data is stored and maintained in one consistent IT solution
- Replacement of heterogeneous legacy systems
- High-quality documentation and delivery of the planning application through a combined onsite and BI Factory approach
- Development on SAP NW2004s Integrated Planning platform ensures the investment and provides cutting-edge technology

For future projects we would look into an even higher contribution from the BI Factory because the parties involved have successfully mastered their learning curve and established a stable set of templates, procedures as well as the emotional intelligence to handle the cultural challenges between the client site and Bangalore.

# Chapter 11
# Case Study: Remote Customizing

**Cécile Maupas**

## 11.1 Business insights

The client is a global player in the field of aeronautical braking and carbon brakes. It equips more than 2800 commercial aircraft across the world with wheels and carbon brakes, including 250 airline companies and 20 airforces, and offers them global support. As a system integrator, the company also provides excellence and innovation for braking, actuating, steering and monitoring systems. An Airbus partner for many years, the company also equips several different Boeing programs.

The company boasts impressive market figures:

- 37% market share
- 214 airline customers
- 25 different aircraft types
- Every six seconds, one of these aircraft applies its brakes somewhere in the world

What is more, the company continuous to grow: during the first half of 2007, it accepted as many sales orders as in the entire year 2006.

The company's activities are deployed on industrial sites around the globe.

Given this tremendous growth context, and taking into account that the aerospace industry works in US$ while the company's industrial facilities are mainly situated in the Euro country, the company decided to enlarge its USA facilities. This decision denoted a change in the organization and the introduction of a worldwide supply chain practice to organize global supplies – all structural changes the company's current information systems (with one per site or activity) could not handle.

The board of directors decided to launch a major project to implement an information system for operational management that fitted the industrial stakes and catered for the company's priorities.

The SAP $R/3$ system was their choice for the ERP application to support their global operations. And Capgemini was selected to support the integration.

With the same appetite the client demonstrates for technical excellence and innovation, they selected an integrator who should provide SAP implementation best practices and offer industrial methodology and organization. The client took this

Anja Hendel, Wolfgang Messner, Frank Thun, *Rightshore*

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project opportunity to upgrade its information systems (IS) to the best practices worldwide and learn to collaborate with a full-size Indian team.

## 11.2 Engagement overview

The growth of its international market share and the economic constraints led the company to deploy its worldwide industrial strategy. It therefore decided to place a substantial industrial investment to be able to flexibly adjust its industrial capacity to market demands. Because of these organizational changes, the company had to profoundly refine its governance and processes, mainly in supply chain and supplier management. Furthermore, the company was planning to extend its current supplier network, which had hitherto been firmly based on its European history, to a worldwide network mainly operating in the dollar zone.

The client decided to redesign its information system and align it with the demands to ensure growth and continuity.

The company selected the SAP solution for its new industrial worldwide information system. The new SAP system was deployed by another project on all its industrial sites in France and in America.

The client had already been operating SAP for sales, distribution and finances for a few years. They were used to working with an application management team situated at an outsourcing location. When Capgemini delivered the sales and distribution project, the client already had made successful experiences with remote development.

The company hence asked Capgemini to develop the project using the capabilities of Capgemini India. Not only was this an opportunity for the client to reduce costs but also to experience the quality of our Indian team.

The client's IS organization understood the advantages of establishing customizing processes with the Indian team: the team operated in English, had an international understanding of business requirements, and could thus substantially contribute towards the company's international growth plans.

## 11.3 Organizational project structure

The first objective of the project was to develop a vision for the aligned processes of the different activities and sites. This visioning phase continued for two months and was facilitated by five management consultants. According to the scope, the vision and overall project duration were not unlike any other SAP implementation with business streams, a technical stream and project management all delivered onsite.

For the realization phase, a major change occurred with the onboarding of the Indian back office team. The back office team consisted of SAP functional consultants and SAP developers.

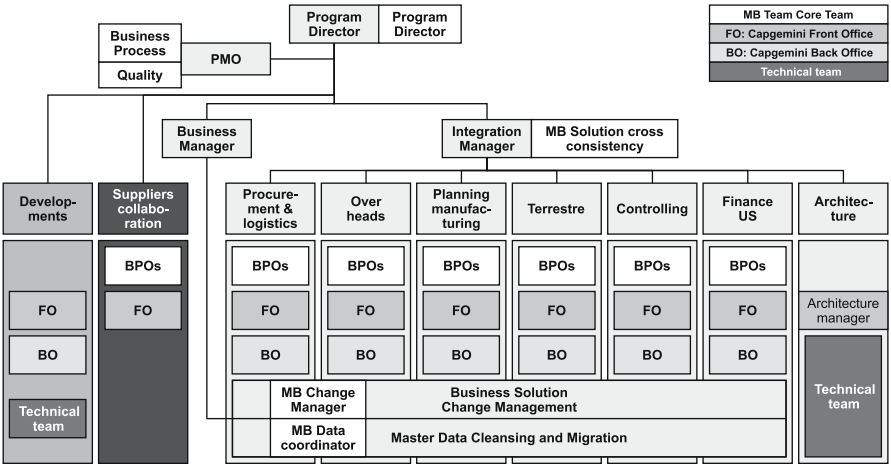


**Fig. 11.1** Project organization during realization phase

The back office did not change the overall realization structure. We added back office consultants to each business stream and onboarded five Indian SAP consultants (one each for modules FI, CO, and PP, and two for MM). To ensure a consistent solution, the business processes and management rules were described in detail by a shared team of business process owners on the client side and Capgemini SAP consultants.

However, adding one Indian consultant per stream meant these people were far from the (onsite) management team. One of the Indian managing consultants was hence nominated as the person in charge of the team, coordinating and reporting from the Indian site. We also had an onsite coordinator acting as gatekeeper and whose role was to facilitate communication, offer support to onsite resources, and focus on process control, communication improvement and reporting. The plan was to share this resource between the onsite and offshore teams, working six weeks for France and two weeks for India.

All members of the development team were located in Mumbai, India. A coordinator in France organized the development planning and ensured that the functional specifications were detailed enough for the development team, which meant that the Indian development team was able to work with the technical specifications without the need for frequent queries with the French team.

## 11.4 Challenges and resolutions

Few SAP implementation projects use remote customizing. We identified the following challenges at the beginning of the project.

The first challenge was to ensure an adequate Indian staffing in line with the progress of the project. Our solution was to involve the Indian team even prior to the realization phase. The action plan was

- to involve an Indian manager in the kick-off to promote collaboration from day one
- to onboard an Indian "onsite" coordinator to help prepare the project
- for the client and front office to visit Mumbai at the beginning of February 2007.

The next challenge we faced was to rapidly onboard the Indian team to restrict the project duration to one year. We initiated a collaborative way of working, where the Indian team would add value on methodology and the French team on business requirements and client intimacy. Our plan of action was

- to conduct a Remote Design & Configuration (RDC) workshop with the onsite and offshore teams in France
- for the Indian manager to implement an RDC awareness workshop and application on MB
- to organize a knowledge transfer with Indian consultants for four weeks at the French site.

The third challenge was to realize a high-quality design and guarantee a common way of working. Our solution was to build a virtual project site and implement a number of tools to mitigate the geographical distance, for example, video, web, and phone conferencing as well as online meeting services.

Project management took into account the capabilities of these tools in adapting the design workshops and assigning deliverables. The figure below highlights our recommended approach.

This chart summarizes the way client business process owners, onsite consultants and Indian consultants work together. Each of them has specific responsibilities: the

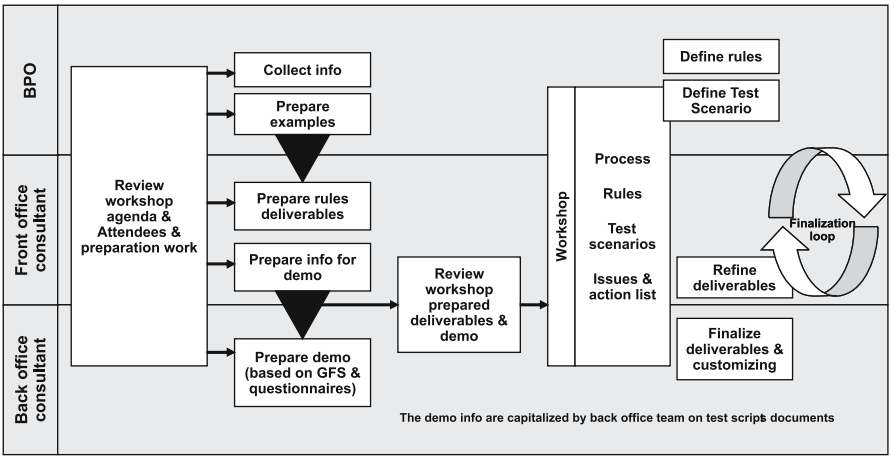


**Fig. 11.2** Virtual project site

process owners collect and communicate the requirements, the onsite consultants facilitate and challenge the design of the requirements on the business side and the SAP solution, and the offshore consultants propose a solution in SAP, prepare demos and perform the related customizing. There were a number of pre-requisites and restrictions linked to this approach:

- The first condition was to work with few people: one client resource, and one French and one Indian consultant. It may appear simple, but there are so many good reasons for involving more people.
- The second condition was to adhere to a very detailed schedule and agenda. This was a major success factor in efficiently setting up this distributed project. In general, process owners and onsite consultants need to collaborate closely but are frequently tempted to improvise meetings and soften up agendas to be able to flexibly respond to the requirements of other streams. This often prevents teams from working smoothly with offshore consultants, for example because the front office did not think it worthwhile to minute a meeting or a discussion with process owner – a task that would only have taken a few minutes. At the end of the day, many topics are thus not shared with offshore consultants. Documenting and communicating decisions thus represents a key success factor.
- The third condition was that requirements shared with the back office but that were unmet needed to be stabilized somehow. From an offshore perspective, consultants cannot be online with the onsite team all day long, and they are not in the position to help on processes and rules about which the client does not have a clear idea.

In addition, as for any project, the major condition was that each individual agreed to play the game. No one can and should be forced to work with an offshore team by managerial decree alone. Instead, it takes highly developed communication skills, persistence, patience and trust. Acquiring the necessary level of maturity is something the onsite team has to work on.

## 11.5 Lessons learned

We had to learn from the people involved in the project. On paper, an offshore customizing project has organizational and methodological challenges. In real life, the project's main challenges turned out to be team building, relationships and communication.

Lesson 1: English is the project language

For a team to design a solution, the team members need to work in the same language. As Indians speak English, the front office team (client representatives and Capgemini consultants) also had to work in English. In our project, we were able to

write in English. But although we tried to speak English from the very first workshop, our vocabulary was simply not good enough. For any complex problems, the French consultants and process owners hence needed to switch to French.

The real life situation is that onsite consultants have to endorse a buffer role:

- They are the link to the client: they have to collect all specifications, explain and detail the SAP solutions, and are the single point of contact for the client team.
- On the other hand, onsite consultants are also the single point of contact for the Indian consultants. In our project, each French consultant had one Indian counterpart, not two or more. But even one was not easy to manage on a daily basis, and that was not taking into consideration the problem of synchronizing holidays.

### Lesson 2: The local immigration laws impact the quality of working relationships

One key success factor for us was to have our Indian colleagues onsite for some weeks at the beginning of the project to share daily working life and be at the same physical location at least during the blueprint phase.

But making travel arrangements was not easy because of legal visa limitations. The number and duration of visits to France is restricted for Indians, and it was a very tedious and lengthy process to get work permits. It took us five months to organize for the Indian onsite coordinators to be able to join us onsite.

### Lesson 3: On a virtual "project site", management has to be at a unique place

Common Capgemini vocabulary in the Rightshore® development context includes the terms 'front office' and 'back office'; a wording that sounds very nice to French 'front office' consultants. It seems easy enough for a Cartesian mind: the back office is our supplier, they have responsibilities, duties, etc. They have to be autonomous and report to us. Our French understanding of the world is mixed with a flavor of charity, or even colonialism. Many a time, some of our French onsite consultants said that if offshore consultants were more professional, they would have asked more questions, would have done more coordination, and would have implemented management processes. At the end of the day, they should have done all things we did not manage.

The lesson of this project is that the management of a project cannot be shared with the offshore site but needs to be done by the front office. As a consequence, each time an issue occurs with offshore delivery you will need to reflect on which communication message or management process failed. This is not an easy job for project mangers or consultants. However, it is vital for the organizational advancement of the project and the individual development of skills.

Lesson 4: Schedule a call every day

Management is our front office responsibility and extends to all levels of the project hierarchy. Each front office consultant needs to endorse this responsibility. Team members need to call their Indian colleagues on a daily basis to exchange information, check the daily workload, address issues, etc.

Lesson 5: Educating people is key

Who are the consultants who are able to work efficiently from the back office?

At the very beginning, we thought senior consultants would be able to propose new processes and solutions. However, as we learned together, Indian consultants frequently had to work "in the dark", as their sole access to the client was through the French front office. This is not a position any senior consultant wants to be in. We thus had to learn to enrich the jobs of offshore consultants while maintaining design and process control from onsite.

On the other hand, front office positions are not any easier: front office consultants have to be able to design a solution and guide the client. They should have SAP expertise as well as facilitation skills, and speak English fluently. Such resources are hard to find and a lot of support has to be provided to onsite consultants to adapt to this new role.

# Chapter 12
# Case Study: Testing for the Utilities Sector

**Amit Ghag**

**Abstract** Research has shown that offshore software testing saves companies up to 75% over in-house costs. It also improves the quality and reliability of the testing effort. Moreover, it is a low risk way of developing mature offshore outsourcing skills. This article describes how the testing function of a utility sector project was implemented successfully using the Rightshore® concept, and explains the key challenges and the lessons learned during the course of the project.

## 12.1 Why Rightshore® for the testing solution

The definition of Rightshore® – at the right place, at the right time, with the right resources – clearly indicates the flexibility required for distributed delivery projects to leverage the existing project execution infrastructure and reduce the overall cost of ownership for the client. It is an attempt to deliver the same high-quality product as with an onsite project team but at reduced costs and without compromising on the associated risks.

Cost is not the only factor when deciding whether a project can be executed from different geographical locations. The various factors are shown in Figure 12.1.

Careful evaluation of these factors in close collaboration with the client can help to decide how to distribute the work onsite, onshore, nearshore and offshore. The success of a Rightshore® project depends to a large extent on the decisions made during this analysis phase. Capgemini uses tools such as the Rightshore® index and the Rightshore® test assessment that can provide effective analyses of the above factors.

In our project, the weight of the above factors varied significantly across the different product releases. Each release was incremental by adding significant new features. The work distribution had to be reconsidered for each release to provide maximum benefits to the client.

Some of the key risk factors that decided the Rightshore® planning for our project are discussed below.

Anja Hendel, Wolfgang Messner, Frank Thun, *Rightshore*

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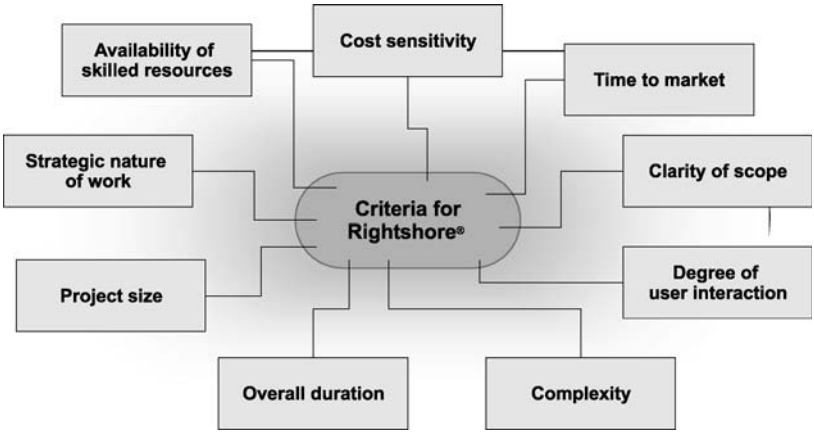


**Fig. 12.1** Criteria for Rightshore®

1. **Time to market** – Market pressure was high for a unique product such as the one we were developing. It was critical to deliver the featured services to the five million+ users before any competition arose. Therefore, it was necessary to optimize the way testing was done within the project. To make full use of the available time, the distributed teams worked closely together to deliver the testing solution; the Mumbai team passed on the baton to the US team at the end of their working day, and the US team returned it back to the Mumbai team at the end of their working day.
2. **Degree of user interaction** – Certain features of the application required the client experts to frequently interact with the project team. Due to this constraint, these features had to be tested onsite. To address this drawback, we successfully managed to develop a process to overcome this limitation during witness testing. While the onsite testers executed the tests together with the client, the offshore testers captured the results of their tests in a predefined format, providing the evidence of the test execution and the necessary data. This allowed us to effectively simulate the witness testing seamlessly from the offshore location.
3. **Availability of skilled resources** – Highly skilled testers are easily available in India, with the testing discipline showing one of the highest growths among the various IT disciplines. In our project, we used the Mercury QuickTest Professional automated test execution tool. The necessary skills were readily available among the Mumbai team. However, during the earlier phases of the project, there was a lack of skilled testers at the onsite location and they had to use the services of the business team to perform high-level testing.
4. **Clarity of scope** – Many requirements were not clear during the earlier releases in the project. The documentation merely focused on high-level business requirements. However, in a project where many decisions were left to the architecture and design teams, it was difficult for a tester to understand whether a particular implementation was a business requirement or an unwanted feature.

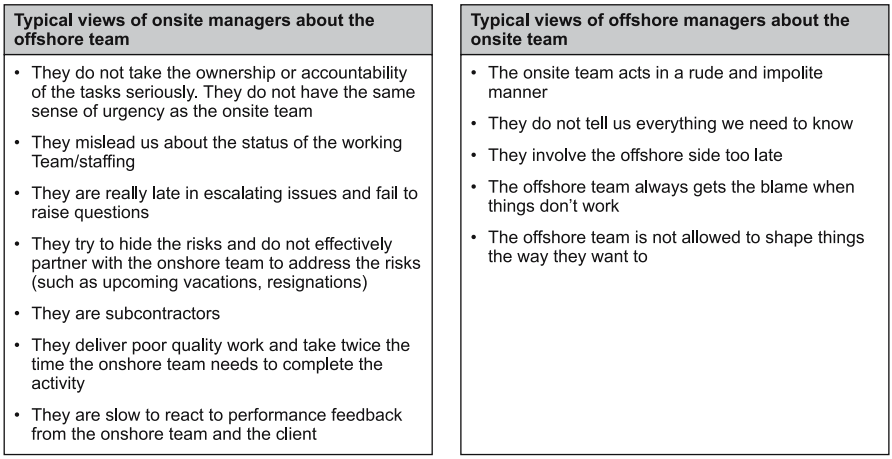


**Fig. 12.2** Typical views of managers

In addition, for evolving products like this, it is common that new features are added or deferred on a regular basis.

5. **Complexity** – From a technical implementation perspective, the project was very complex. However, we followed a systematic approach towards transferring the complex work from the onsite to the offshore location. Initially, only screen-based testing was done offshore. Later on, as the client felt more confident about the quality of work done offshore, complex features were transferred to the offshore location. Ultimately, the offshore team was involved in some of the most critical features of the application.

The aim of distributed delivery using the Rightshore® model is to provide maximum benefits to the client at reduced risks with regard to the above factors, while keeping the total cost of ownership at a minimum.

## 12.2 Implementation and challenges

Even though there are several advantages of the Rightshore® approach, it is extremely important to implement it correctly to outweigh any associated risks. Incorrect implementation may increase risks, and projects may overrun the budgets. Identifying the challenges involved in such projects and addressing them right at the beginning of the engagement can help to avoid or mitigate these risks.

Apart from the common software project management risks, there are additional risks associated with distributed delivery projects, even more so in the Rightshore® context. Project management has to focus continuously on the client requirements and the project risks when allocating the resources and activities across the distributed teams. In addition, there are the usual challenges of project management.

Unless measures are taken to address these misconceptions, the distributed teams will not be able to operate as "one team". There are cultural differences that have to be taken into account when people from different cultural backgrounds are involved in one project. Factors like hierarchical relationships, assertiveness, collectivism and power distance play an important role in understanding the cultural aspects of different regions. Cross-cultural sensitization training for the team can provide a boost in establishing and reinforcing the "one team" approach.

Our project had a testing effort of more 12,000 person days spread over 5 product releases. Approximately 2000 person days were invested in building, maintaining and upgrading the automated regression testing suite. The product featured some 25 functional areas with approximately 175 use cases. The unique domain of the project added to the complexity of implementation and testing. More than 5000 test cases were identified and some 5000 defects reported by the testing team. The scale of the project demanded establishing a seamless distributed testing team.

To close some of the gaps between the distributed teams, we decided to distribute photographs of all team members. This helped us to associate a face with the name of the person we interacted with on a regular basis. Apart from that, offshore team members traveled to the onsite location and vice versa. This helped us to establish a good relationship between the teams facilitating open discussions on various issues. We successfully managed to create an environment in which all team members had the impression of dealing with a familiar person working in another part of the world.

No two engagements are the same. Defining common evaluation criteria is thus important for the teams to be measured on one quality scale. We followed Capgemini's OTACE policy to identify whether our services were effective and efficient in providing a solution to the problem. After the evaluation, discussions between the onsite and the offshore team leads helped to identify the areas which had some room for improvement. Thus, in line with the optimization concept in level 5 of the capability maturity model, we endeavored to improve continuously. The progressive increase of the OTACE rating in our project is evidence for the effectiveness of the evaluation process.

### *12.2.1 Distributed testing organization*

Setting up the distributed testing organization is a challenge in itself. Apart from considering the typical Rightshore® factors described earlier, it is crucial to keep the testing organization sufficiently flexible to address the changing business risks.

We delivered more than five product releases during our engagement, and in each release the associated business and delivery risks had to be reconsidered. From the Rightshore® perspective, this is essential in order to provide the best services to the client at minimum risks. Consequently, the distribution of the test teams (onsite–offshore) across the geographic locations varied from 36%–64% to 64%–36%.

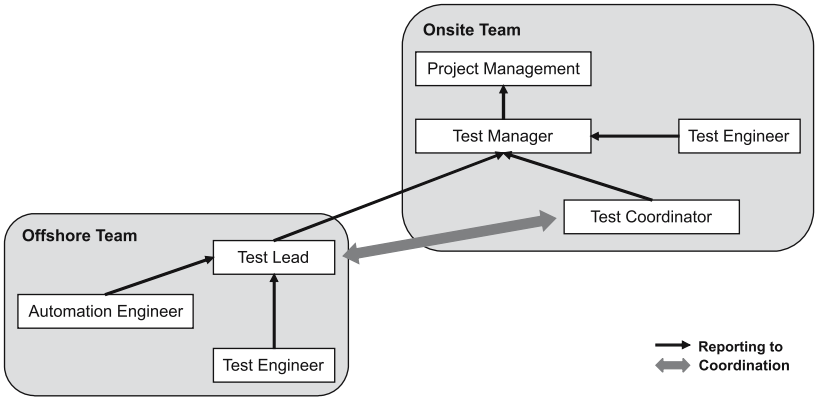


**Fig. 12.3** Testing team organization structure

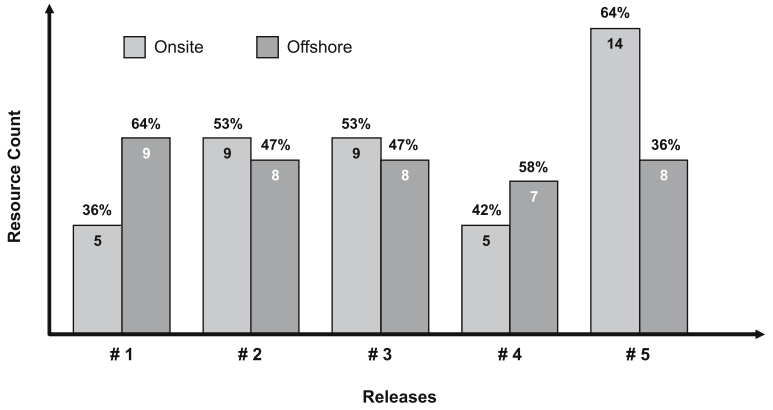


**Fig. 12.4** Resource distribution across several releases

As shown in Figure 12.4, the variations in the team distribution may not be linear. In fact, the distribution is governed directly by the risks involved. For instance, in our first release, a lot of screen-related testing had to be carried out that did not require in-depth business knowledge. This could easily be done at the offshore location. At the same time, some of the use cases were related to critical business processes. This kind of testing had to be conducted in close cooperation with the client, for which onsite was the right choice.

In intermediate releases, the testing was almost evenly spread between the distributed teams. A common fallacy is that the offshore – onsite ratio should always be 70–30 or 80–20. One of the key ideas of the Rightshore® delivery approach is to identify the right place for the delivery at any point in time. In our case, based on the risks involved, we realized that an even distribution between the onsite and the offshore teams was best suited to ensure optimal delivery in these releases.

In the latest release, the client wanted to gradually take over the management and development of the project. Therefore, even though the offshore team possessed significant business knowledge, the strength of the onsite team was increased by almost 200%. Most of the new resources to join the team were client employees. The new team members would gradually take over the responsibility from the offshore and onsite team before taking over the entire testing discipline. This represents a typical development when a project is transferred to the client.

In most cases, the onsite test manager is responsible for planning and control. For the most part, this is down to sheer feasibility. In distributed delivery projects, clients generally want to have easy access to project management. Most of the project management is hence done onsite. A test manager who develops and implements a successful test strategy and a test plan has to interact closely with the rest of the project management team. It thus makes sense to have the test manager work onsite, which was also the case in our project.

Depending on the risks involved, tests can be either designed and executed onsite or offshore. The test manager has to determine the best ratio to address the associated risks.

Thus, organizing the distributed testing teams appropriately according to the solution offered is a crucial part of successful Rightshore® delivery.

### *12.2.2 Sharing responsibilities*

To implement the Rightshore® model it is necessary to ensure that the distributed teams take ownership for the tasks and deliverables assigned to them. Not only does this create a feeling of shared responsibility, but it also makes the distributed teams responsible and accountable for their deliverables. The roles and responsibilities should be clearly defined and adhered to throughout the project.

Capgemini's Distributed Delivery Framework for Testing (DDF–Testing) provides a mechanism for addressing the clear definition of responsibilities between the distributed teams. The RACI-VS chart is used to list all activities, tasks and deliverables specific to the project in different phases. The representatives from all distributed teams should be involved in the preparation of this chart. This ensures that all teams understand their own responsibilities as well as those of others. This document needs to be approved to allocate it an official status.

To safeguard the interests of the offshore teams it is important to involve them in the decision making process at every stage of the testing lifecycle. This reinforces the "one team" approach and avoids the perception of subcontracting. Everyone in the entire, though distributed, project team is responsible for making the project a success. Finger pointing and blame games have no place in such a model.

In our project, the distribution of work was more or less based on feature sets in the application. Each feature set could have several use cases involved. The intention was to make sure that all the related information was available for the team working in the same geographic location. For very complex features, the distribution was

| RACI-VS Matrix | | |
|---|---|---|
| | A – Accountable | I – Informed |
| | R – Responsible | V – Verifies |
| | C – Consulted | S – Sign-off |
| Disciplines/Deliverables | DDF Testing Scenario | |
| | Onsite | Offshore |
| **Test Case Creation and Execution** | **ACVS** | **R** |
| FTC_UC001 | FO-Test1 | BO-Test2 |
| FTC_UC002 | FO-Test1 | BO-Test1 |
| FTC_UC003 | FO-Test2 | BO-Test1 |
| FTC_UC004 | FO-Test2 | BO-Test1 |
| FTC_UC005 | FO-Test1 | BO-Test2 |
| FTC_UC006 | FO-Test1 | BO-Test2 |
| FTC_UC007 | FO-Test1 | BO-Test1 |
| FTC_UC008 | FO-Test2 | BO-Test1 |
| FTC_UC009 | FO-Test1 | BO-Test2 |
| FTC_UC010 | FO-Test2 | BO-Test2 |
| | | |
| **QTP Test Creation** | **CVS** | **RA** |
| FTC_UC001 | FO-Test3 | BO-Test3 |
| FTC_UC002 | FO-Test3 | BO-Test3 |
| FTC_UC003 | FO-Test3 | BO-Test4 |
| | | |
| **QTP Enhancements** | **CVS** | **RA** |
| Scripts with enhancements | FO-Test3 | BO-Test4 |
| | | |
| **Test Environment Setup and maintenance** | **RA** | **CI** |
| | | |
| **Offshore Test Status Reporting** | **I** | **RA** |
| Weekly status report | FO-Test4 | Bo-Test5 |

**Fig. 12.5** Section of the RACI-VS chart

done across the locations to ensure that the knowledge was available in both teams and thus to minimize the risks related to knowledge management.

Due to technical limitations, the test environment management and support functions were operated onsite. Test planning was entirely done onsite since interaction with the client, the project manager and other business experts is essential for this phase. The test design and execution was split across the distributed teams based on the availability of skilled resources and the level of knowledge within the teams. Automation was primarily driven by offshore making full use of its potential and keeping in mind the fact that there were very little or no dependencies from the onsite business team.

Finally, it is important to remember that the success of this delivery model depends on a consistent and rigorous adherence to the implementation guidelines. In many cases, adequate processes are defined for a project and then abandoned later when the delivery pressure increases. Keeping the faith in the defined processes should help the team to stay focused even when facing tight deadlines.

## 12.3 The testing process

During the testing process, it is defined how testing will be conducted during the course of the project execution. This process identifies the path to be taken by the testing team in order to carry out different quality control activities. Even though the overall testing process does not have to be customized for a distributed delivery project, some of the individual activities have to be aligned to support the onsite–offshorecoordination. There are some additional activities that also have to be carried out in order to facilitate seamless testing.

Typically, the following points have to be considered in a distributed environment:

- How work is allocated between various distributed teams
- How work is estimated and planned for distributed teams
- How responsibilities and the scope of work are defined for distributed teams
- Clearly defined entry, exit and acceptance criteria and agreement by distributed teams
- Additional management and coordination between distributed teams

Our testing process in this project was as described in the following figure.

We had three phases at a broad level – planning, design and execution. Planning was typically executed onsite with offshore support. One lead resource provided technical leadership to the offshore team. The offshore test lead, the onsite test lead/coordinator and the test manager had regular discussions on the overall status, risks and priorities, issue resolution and defect management.

Test design and execution were performed both onsite and offshore. The offshore process was slightly different to accommodate the distributed delivery as-

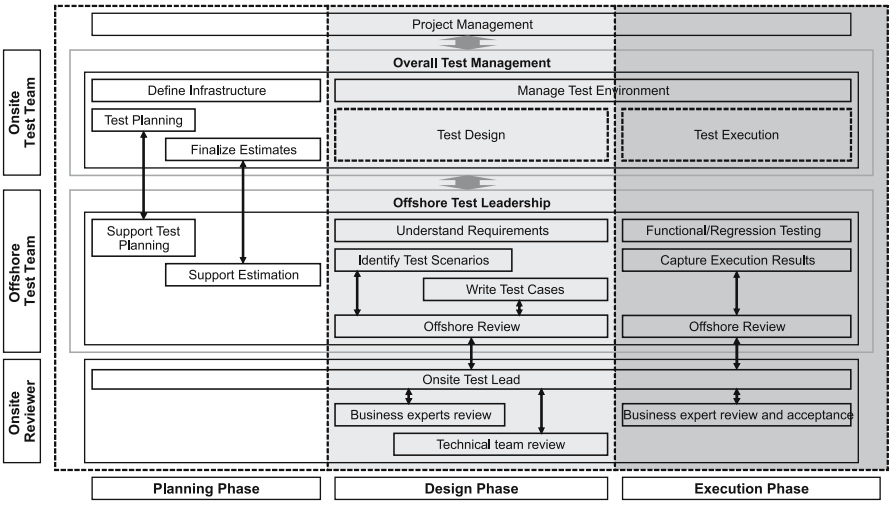


**Fig. 12.6** Customized testing process

pect. A very rigorous review process was put in place for all deliverables, especially those in the test case design phase. The test scenarios and cases were reviewed at several levels by the offshore lead, onsite lead, business analysts, subject matter experts, development leads, design leads and architecture leads. Each review level focused on different aspects of the deliverable. For instance, the subject matter experts and business analysts focused on the functional coverage of the test conditions; the development lead, architecture lead and the design leads focused on the technical aspects of the test case. This type of technical review was essential, as there was significant amount of low-level testing to be carried out. In addition, high-level and low-level design documents were also a major part of the test basis. The technical reviewers also assisted us in finding ways to test extremely complex requirements.

Functional test execution was followed by regression testing, which also substituted witness testing. It was easy for the onsite team to perform the tests in presence of the client. However, the offshore team usually had an overlap of only 30 to 90 minutes with the US working hours. It was impossible to perform the tests in such a short time. Therefore, we developed a different approach by which the offshore testers should capture the results of the execution in a predefined format. The captured information – usually preconditions, execution steps and post-conditions – should be sufficient to be accepted as evidence of complete execution. This was one of the deliverables for the offshore team that required client approval to be considered complete.

In the same way we customized our test process, every Rightshore® testing project will have to design a process to adequately address the project risks. Trying to make a process defined for one project fit another project without customizing will rarely work, and should be avoided.

## 12.4 Communication between distributed teams

Communication plays a very important role in the successful delivery of projects with distributed delivery models. The inherent challenge for such projects is to always ensure the timely exchange of accurate information. This is complicated by the fact that the teams usually work in different time zones. If the correct and up-to-date information is not available to the teams, there is a serious risk for duplications or unnecessary efforts.

A proper communication plan should be developed during the early stages of the testing lifecycle and help to identify and establish adequate channels for exchanging information. Ideally, this plan should identify the kind of information that needs to be exchanged between whom, the mode of communication, the format of the written information (for e.g. reports), who should be contacted for what kind of information or escalation, etc.

In many cases, lack of this knowledge causes the information to be sent either to wrong parties or unnecessarily to multiple parties. This may cause delays in getting

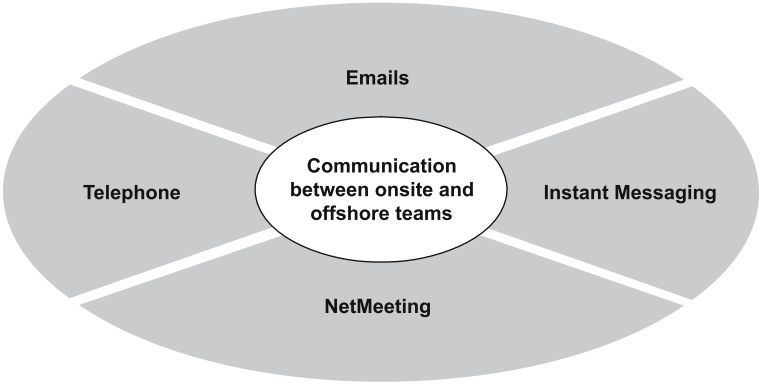


**Fig. 12.7** Modes of communication

the required responses, which may consequently have a negative impact on schedules.

We created an information chart with three contact levels for different communication categories such as databases, infrastructures, deployment, testing, development and business. The contact information, e.g. desk telephone number, mobile number and Instant Messaging, was included in this chart.

Lists of deliverables were identified during the early stages of the testing lifecycle. The templates for these were finalized and made available to the team. The aim was to ensure that the team was familiar with all required deliverables and to maintain consistency across the project. Typical deliverables for a testing team are test plan, test strategy, test case documents, automated test scripts, test reports, test logs, defect reports and status reports.

An onsite test coordinator was appointed to facilitate the exchange of information between the cross-border teams. Similarly, the offshore test lead was the single point of contact. He had to communicate with the onsite coordinator to facilitate discussions with other teams on topics such as business, data, infrastructure, etc.

Several modes of communication were used in this project to ensure a smooth and regular exchange of accurate information.

**Telephone calls/conferences** – This is the best mode of remote communication if everyone involved understands the same language and accent. The most important benefit is that the answers to queries can be available immediately, which improves productivity.

We used this mode of communication very often in the project. Business and application knowledge was transferred effectively from onsite to offshore during telephone conferences. Most of the query resolution also happened during telephone calls. The weekly status meetings were held by telephone conference calls.

**E-mails** – This is the most common (but time-consuming) mode of communication in IT projects. However, it must be used complimentary to telephone conversations. Sometimes, valuable time may be lost if one person writes an e-mail and has to wait for the other person to reply. These delays can be avoided by making a tele-

phone call. In other cases, when the information is not instantly available, the other person may need some time to gather this information and send it out by e-mail.

**Instant messaging** – This mode is effective when the languages/accents prove to be a communication barrier during telephone calls. Instant messaging, though slow, manages to convey the information correctly and allows people to think before they write messages.

AOL instant messenger (AIM) was our tool in this project. Since some of the testers had initial difficulty understanding the accent of our onsite colleagues, AIM proved to be very effective in conveying the right information quickly.

**NetMeeting** – This tool was used in conjunction with telephone conference calls during the knowledge transfer phase. It has proven to be a very effective method for sharing concepts and often works better than simple telephone calls. The discussion can include charts, graphics and other useful online resources.

Planning and establishing a proper communication process between the distributed teams plays a crucial part in the success of the project.

## 12.5 Tools to improve productivity

There are several activities and tasks in a software development and maintenance project that are repetitive in nature. If these tasks are monotonous, the team member performing them will be prone to making errors. Such tasks are usually boring and the team member may not feel the work to be sufficiently challenging. This may have a negative impact on productivity and the reliability of output.

Tools are available for most of these activities, especially those related to application testing. These tools can perform the monotonous tasks and thus allow the software engineer to focus on more important activities. In every project, project

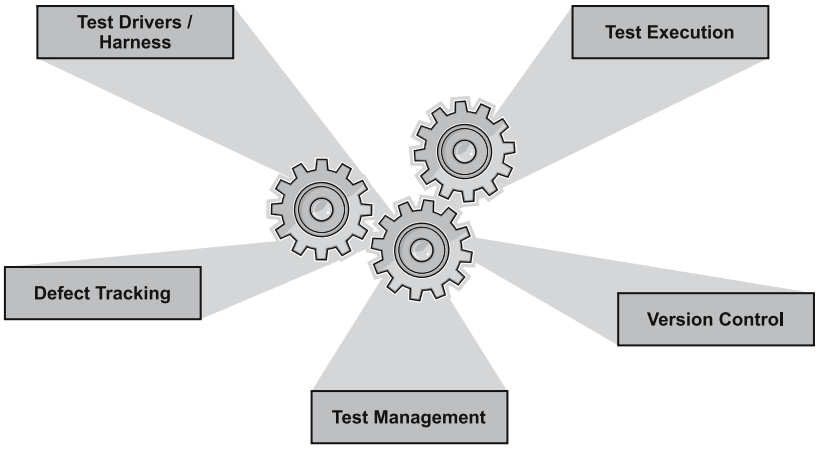


**Fig. 12.8** Types of tools to improve testing productivity

management should consider using tools wherever possible to increase the productivity of the activities and improve team morale. There are also some low-cost tools available for tighter project budgets.

In our project, we used various types of tools to unburden testers from routine work.

**Test execution** – We used Mercury QuickTest Professional for extensive and repeatable regression testing. Even though the initial investment was higher, the return on investment was realized quickly due to the approach taken for this project. The automated test execution saved about 90% of the total manual execution time. The tool was used to perform extensive data preparation and routine tasks and ensured reliable test execution and reporting every time the scripts were run. The time saved by automated test execution was used for other critical tasks, thus increasing the overall productivity. This tool is specifically useful for distributed delivery models since the scripts can be executed over night. The results can then be analyzed by the team in a different geography, thereby making use of time that would otherwise be wasted.

**Test harness/drivers** – Several features of the application were driven by batch processes running in the background. There were also features that had to be tested in the middleware. Since there were no screens to test these functions, the development team provided us with test harnesses and drivers wherever necessary to facilitate the testing of these areas.

**Defect tracking** – We used Rational ClearQuest for defect management. This tool helps to track defects along their entire lifecycle. In the project, the tool was a central repository that the distributed teams could access via the web. It also provides features for querying and reporting the defect summary. This significantly reduces the time required by a test manager to consolidate the defect-related information that is to be presented to the customer or senior management.

**Test management** – This is the most important tool for a test manager, which, however, is for budget constraints often not used. Notwithstanding, there are several inexpensive test management tools available on the market. It is advisable to invest in such a tool to save time on administrative tasks involved in test management. We plan to use the TestManager tool for test planning and management in future releases. This tool also provides accurate test reports at any point in time. The tool is essential in distributed delivery models where the latest information from different geographies needs to be available to the test manager. This benefits the test planning at every stage of the testing lifecycle, allowing the test managers to take critical decisions based on the information provided by the tool.

**Version control** – It is very important to have a common repository for all documentation and artifacts created during the project execution. Especially in a distributed delivery environment, the teams at the different locations should have access to the latest set of artifacts at any point in time. In addition, a version control tool allows you to retrieve the previous version, if required. We used Rational ClearCase in our project. The tool's web interface allows access to the repository from various delivery centers.

Apart from these tools, there are several others that can be used for various testing activities. Correct implementation of a tool guarantees that testing is carried out in an effective and efficient way.

## 12.6 Lessons learned

Every engagement offers us the opportunity to learn new things that can improve our performance for future assignments. Please find below a list of some of the lessons learned during our engagement.

1. **Ensure agreement on scope and estimates from both sides** – In a distributed delivery scenario, we often come across situations where a particular task or activity is not explicitly assigned to any of the teams. When things go wrong, the teams start blaming each other and stating it was out of their scope. To avoid such situations, we explicitly used WBS to identify and assign all possible tasks and activities of the testing phase. The offshore team had its own mechanism to validate the estimates sent by the onsite team. If case of a mismatch, we had discussions to identify the gaps and the risks involved. Whenever the offshore estimates were higher, and no adjustment in the schedule or effort was possible, we immediately highlighted the risk and worked on a mitigation. Finally, it is necessary for both parties to agree on the scope and estimates, and the underlying risks, if any.
2. **Well defined hand-off points throughout the test process** – When the work packages are transferred from one team to another in a distributed environment, they have to pass certain exit criteria. The DDF provides a checklist for every testing phase. It describes the criteria that must be met before the phase can be considered closed. For instance, when we move to the test execution phase, we have to ensure that all the test cases are reviewed and signed off. The execution tools should be set up and accessible, test data must be available for the test team to use during the execution. The aims to ensure that none of the considerations important for the success of the next phase are neglected. Following this procedure was challenging in our project, since the test management was the responsibility of the client. They had their own processes for testing, and convincing them to follow additional processes was not an easy task. We still maintained this checklist for the offshore team, using it as a tool to track and highlight risks wherever appropriate.
3. **Distribute business/application knowledge horizontally** – The project team needs to understand the business problem that their project is going to address. This makes them think from a problem solution perspective rather than just implementing what is documented in the requirements. We recorded the subject matter experts presentations about different feature sets on DVDs. These were then circulated among the distributed teams, which helped the teams to understand the facts explained directly by the subject matter experts. In addition, we

conducted knowledge sharing sessions within the teams where testers responsible for a specific feature set would share their business knowledge with the remaining team. This exercise also facilitated the rapid transfer of feature sets across the teams, thus reducing the need for additional knowledge transfer. The team was virtually ready to work on any feature set at short notice. This enormously reinforced the Rightshore® model.

4. **Test environment availability** – During the test execution, access to the test environment is one of the most important factors to be considered by the test manager. It is easier to manage test environments if they are available locally. If the environments have to be accessed remotely, solving any related issues becomes more difficult. In our case, the test environments were located in the US. This was necessary because specific hardware was required for testing which was only available in the US. At a later stage, we were able to access simulators which meant that this dependency no longer existed. However, the test environments remained in the US. At times, this constraint caused delays when there were issues with the environment that could not be handled from offshore. 24x7 onsite support was required for the environment, which was rather cost-intensive. Deploying the test environment locally, wherever possible, usually works out to the benefit of the test team.
5. **Use test management tools to improve productivity** – A test manager always needs access to the latest information about the team's progress to be able to evaluate the project status. This information gathering and consolidation was difficult since our teams were located in different geographical zones. Significant amounts of time and effort were spent on this activity because it had to be done manually. The team members had to provide this information to their leads, the leads had to consolidate the information and send it to the test manager. The test manager ultimately processed all this information to get the final status. Moreover, the validity of this information depended on how accurately it was captured by the different people involved. A test management tool could have helped to solve this problem. Some test management tools support test planning, test design, test execution, defect tracking and reporting. The time and effort saved by using such tools could have been used for other important project work. It was later decided that the team would use Rational TestManager as the test management tool.

## 12.7 Critical success factors and best practices

Capgemini's many years of experience in distributed delivery with Rightshore® focus suggests consideration and implementation of the following aspects for a successful delivery of distributed testing solutions.

- Involve the offshore team early in the bid process to validate estimates and jointly define the solution and approach.

- Use structured communication plans to review status, resolve issues, identify risks, and escalate as needed. Cover the mode, frequency, how and when communication will occur.
- Involve the testing team early in the project lifecycle.
- Agree on explicit and quantifiable acceptance criteria for the quality of deliverables.
- Create a dedicated testing team and separate test environment.
- Understand the scope, role and responsibility of each stakeholder involved in the delivery process. The offshore team should have a clear understanding of the client expectations and the management commitments. The process framework should cover precise deliverables, hand-offs, standard tool sets, etc.
- Have the offshore team provide an onsite coordinator as a facilitator for the communication between shores.
- Ensure an adequate requirements and test management process with clear traceability.
- Use a common estimation methodology for testing based on test point analyses (TPA) and web-based services (WBS) at every stage during the lifecycle.
- Involve business experts to validate test scenarios and test cases.
- Ensure adequate infrastructure: connectivity and access to the test environment.
- Ensure well-defined defect management lifecycle and tools.

## Conclusion

Rightshore® is an advanced concept that goes beyond the scope of conventional distributed delivery models. Since there is no fixed ratio for resource distribution, it offers the flexibility required to execute the project from the best location and thus allowing for higher efficiency, optimized costs and minimized risks. It provides significant additional benefits compared to conventional delivery models. However, it is important to remember that it also introduces new additional inherent risks. If these risks are addressed adequately, we can provide maximum benefits to the client.

With the ever increasing number of projects being implemented using the Rightshore® approach, we are bound to learn our lessons from various aspects of the project delivery in this context and refine the model to perfection.

# Chapter 13
# Case Study: Preparation of Training Materials for Manufacturing Industries

**Dinesh Agrawal, Denys Auroy**

**Abstract** The client is a large multinational and present in more than 130 countries offering numerous product lines. The program aims to build, run and deploy SAP in these countries by the year 2010. In order to deliver such a complex engagement, Rightshore® centers were actively used in the project. This article provides an overview of one of the sub-projects of the program: the development of end user training material. This involved over 4500 person days of effort, of which around 3000 were delivered from Rightshore® centers. "Information systems practitioners and researchers widely acknowledge that providing appropriate end user training is critical to successfully implementing systems, and key to promoting productive use of the technology[1]."

## 13.1 Importance of end user training

The implementation of an Enterprise Resource Planning (ERP) system refers to information systems, business processes, and people. Basically, it is a changing procedure in organizations that strive for high performance across the entire company. Business process transformation is about changing a company's focus – from products to customers. Information systems are replaced by a homogenous system environment that integrates all information into one common system. The behavior and skills of personnel across the company are adapted to perform in the new "world".

The big challenge of the implementation is to have adequately trained people for a high-performance organization. Because of the substantial effect technology changes have on the job functions of employees, companies are increasingly recognizing the importance of providing end users from all business functions with the training and tools necessary to effectively utilize these newly implemented systems. While it is a comparatively small cost component of the overall ERP implementa-

[1] [Compeau/Olfman/Sein/Webster 1995, p26]

Anja Hendel, Wolfgang Messner, Frank Thun, *Rightshore*

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tion, such trainings and tools are critical factors for companies to achieve the expected return on their substantial IT investments. SAP recommends that 12% of the expenses budgeted by its clients for system integration and implementation services should be dedicated to end user trainings and tools.

Our client realized the importance of training services within the program and thus established a large team called "Change Management & Deployment (CM&D)" with the mandate to effectively develop training materials and provide trainings for end users.

Capgemini was to provide the training services to the client as part of the contract. These services included the development of training material and a training strategy as well as the actual training of end users.

Training material development is the last (though one of the most critical) of all major activities during typical SAP implementations. This is because the development of training contents is initiated once all aspects of the implementation are configured/developed, tested and tested again. As the last activity before the go-live and cut-over, there are tremendous time constraints that increase the risks associated with a successful implementation.

So why can it not be done in parallel with other activities such as development and testing?

These are some typical reasons:

1. Availability of manpower
   The project team is usually responsible for developing training materials and sometimes even for the actual training. As the team is mainly occupied with other implementation activities, they find little or no time to develop or conduct the trainings, which in turn is also the easiest component to be postponed.
2. Stabilization of business processes and the solution
   "The only constant is change" is a very common saying. This particularly applies to productivity enhancing solutions (read SAP implementation). In most implementations, business processes and the solution continue to evolve across the entire development time frame. In such a situation, developing end user training material becomes a difficult task, as it means continuously aiming for a moving target.

Overcoming the above constraints through some skilful planning may offer significant advantages, e.g. those listed below:

1. Reduced time for implementation
   Executing the training activity in parallel to other implementation activities would significantly reduce the time for each implementation/rollout. This would result in significant cost and time savings.
2. Professionally managed training services
   Development of end user training material is a very skilful activity and requires professional knowledge. If professional writers are involved, manuals of better quality will be created resulting in better training programs and enhanced understanding by end users.

3. Better time management of critical resources
   As critical resources would not be burdened with creating the documentation, their time can be managed more efficiently.

Capgemini realized the tremendous advantages of running the training services in parallel to other activities in this project. Using the Rightshore® approach, centers in India were identified to participate in project work.

Training services are one of the least common services outsourced to offshore locations by top tier IT service providers. For Capgemini, this attempt also represented an enormous challenge.

The following statements summarize the advantages of using Rightshore® centers in India:

1. Availability of experienced resources
   India is home to a large number of trained and experienced SAP consultants. Using these readily available resources reduces the pressure for front offices in terms of recruitment.
2. Commercial reasons
   One of the biggest advantages of offshoring to India is cost savings. Companies have been able to save between 30 to 40 percent for most services by outsourcing processes to India.
3. Time zone advantage
   India has an average time difference of four hours from Europe. This time difference can be put to good advantage, as people working for a project across locations can achieve 12 hours a day together.
4. Fast ramp-up and ramp-down of resources
   Owing to the availability of a large number of resources and projects, it is easy to manage ramp-ups and ramp-downs in the project team, offering significant cost benefits.

## 13.2 Training organization

On this project, we had one onsite team called ‘training stream’ (TS) and two offshore content development centers in India, i.e. Bangalore and Mumbai, called the ‘training factories’ (TF).

These three teams were considered a single team (‘training team’) distributed across three sites (see Figure 13.1). The Indian training factories were divided into two locations based on the availability of skilled personnel across the centers (see Figure 13.2).

### *13.2.1 Training factory*

The training factory was managed by an offshore project manager.

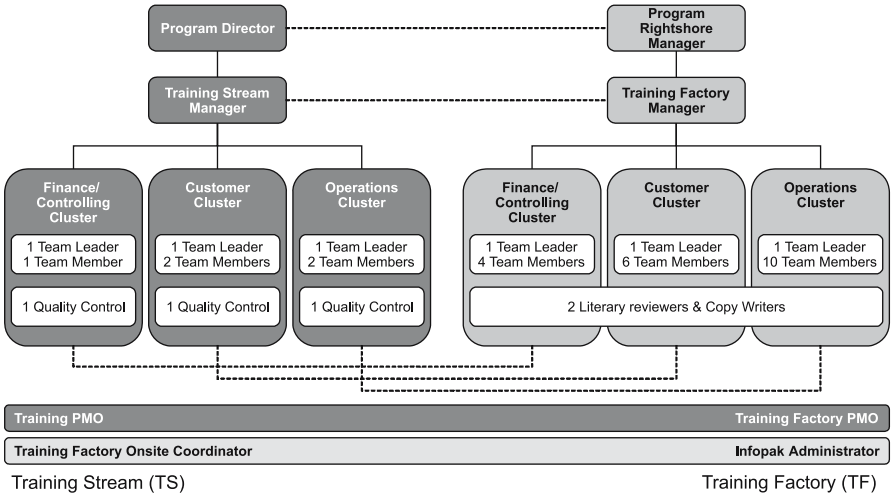


**Fig. 13.1** Training team organization chart

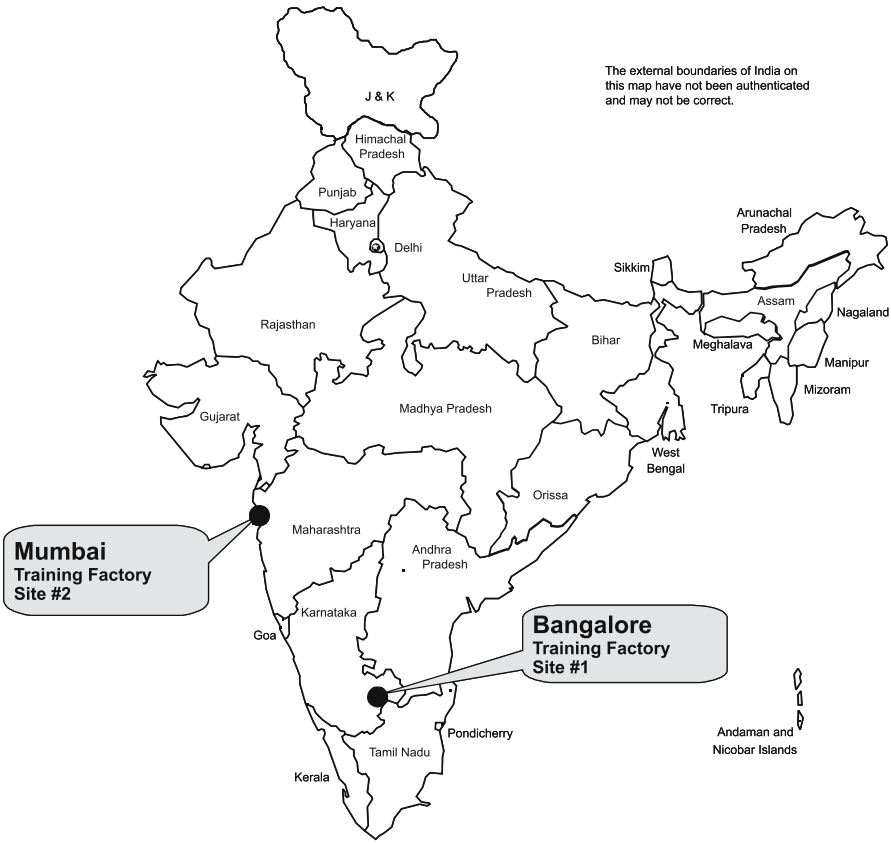


**Fig. 13.2** Training factory locations

Each cluster comprised a team lead and several consultants (numbers according to estimated effort). In addition, two consultants in each location were trained on the documentation tool Infopak[2] and worked as 'Infopak Administrators'.

Two literary reviewers and copy writers were responsible for checking the language quality of the documentation produced in the training factory.

Emphasis was placed on onboarding all consultants within a cluster at a single location (Bangalore or Mumbai) to improve communication and control within a cluster, headed by one team lead.

### *13.2.2 Training stream*

The training stream was located onsite and headed by a training stream manager. The training stream consisted of at least one member from each cluster. (A cluster was a collection of business areas in the program). Associated to each cluster were several apprentices working as 'quality control consultants'. In addition, a PMO was associated to the training stream to coordinate work across various teams in the implementation and offshore factories.

## 13.3 Roles & responsibilities

The adequate definition of roles and responsibilities was the key to the effective project implementation. In this context, it is important to note that this was the first project of this kind to be executed by Capgemini India.

Roles and responsibilities as listed in Figure 13.4 were identified. Several people can be allocated to each role or one person can be assigned to several roles, as the project required.

## 13.4 Scope & magnitude of work

'Concept to classroom' (C2C) was the name of the initial discussion to transform the vision of change management and training and actual conduct of training classes across all rollout centers.

The main features of the vision were as below:

1. To develop 'role-based' end user training material.
2. To look beyond the initial training sessions for end users. This required that the training material created could be reused.

[2] Infopak is an integrated suite of software that accelerates the development, organisation, and distribution of documentation, training materials, and online help to maximise the effectiveness of learning materials. Infopak product is owned by RWD inc.

**Table 13.1** Roles and responsibilities for the documentation project

| Roles | Responsibilities |
|---|---|
| Training stream manager | Participate in the project design phase.<br>Act as a coordinator between TS offshore project manager and TS team leads for critical issues during different phases of the project.<br>Plan deliverables as per schedule.<br>Ensure staffing of training stream as planned.<br>Alignment with the build team project manager on change request management (after detailed training material design = TCD has been finalized).<br>Report project status to senior manager with regular analysis of plan vs. actual for project deliverables.<br>Ensure compliance with the quality process standards during the entire project.<br>Fix the project deliverables.<br>Have regular meetings with the client regarding change management and project and deliverables status. |
| Training stream team lead | Participate in the project design phase.<br>Act as a coordinator between TF onsite coordinator and build team leads for critical issues during different phases of the project.<br>Plan and execute deliverables as per schedule.<br>Coordinate with onsite TF coordinator for change request management (after TCD has been finalized).<br>Coordinate with onsite TF coordinator at a later stage for document validation with the client.<br>Support the project manager with regular analysis of plan vs. actual for project deliverables.<br>Align with team members for document production and provide solutions for any technical issues.<br>Ensure compliance with the quality process standards during the entire project. |
| Training stream PMO | Onboard the new members in TS and TF teams.<br>Help the new team members to fill in the required documents to join the team.<br>Participate in document upload and review.<br>Follow up production of training documentation produced in training factory and training stream. Produce the daily progress report and training dashboard for the training team and project management.<br>Coordinate and follow up on access rights to client servers for the new team members with the client authorization team.<br>Maintain the onboarding documents in the TRoom[3]and respective folders<br>Ensure compliance with the quality process standards during the entire project.<br>Maintain the TRoom with latest documents and minutes of meetings, etc. |
| Training stream quality control | Check the documents produced by the training factory for compliance with training document rules (TDR).<br>Produce the daily quality dashboard for training team management. |

**Table 13.1** (continued)

| | |
|---|---|
| Training factory manager | Participate in project design phase.<br>Act as a coordinator between TS onsite project manager and TF team leads for critical issues during different phases of the project.<br>Plan and execute deliverables as per schedule.<br>Ensure staffing of training factory as per planning.<br>Coordinate change request mgt. with the onsite TS project manager (after TCD has been finalized).<br>Report project status to senior manager with regular analysis of plan vs. actual for project deliverables.<br>Ensure compliance with the quality process standards during the entire project. |
| Training factory team lead | Participate in project design phase.<br>Act as a coordinator between TF onsite coordinator and TF team members for critical issues during different phases of the project.<br>Plan and execute deliverables as per schedule.<br>Participate in document preparation and review.<br>Coordinate change request mgt. with onsite TF coordinator (after TCD has been finalized).<br>Coordinate with onsite TF coordinator at a later stage for document validation with the client.<br>Travel to the onsite location for knowledge transfer (KT) and recording sessions with the build team.<br>Support project manager with regular analysis of plan vs. actual for project deliverables.<br>Coordination with team members in document production and provide solutions for any technical issues.<br>Ensure compliance with the quality process standards during the entire project. |
| Training factory team member | Execute deliverables as per schedule.<br>Participate in document preparation and review.<br>Coordinate with the onsite TF coordinator at a later stage for document validation with the client.<br>Travel to the onsite location for KT and recording sessions with the build team.<br>Provide solution for any technical issues to peer team members.<br>Ensure compliance with the quality process standards during the entire project.<br>Ensure that deliverables have the quality expected. |
| Training factory PMO | Onboard the new members in TF team.<br>Help the new team members to fill in the required documents to join the team.<br>Participate in document preparation and review.<br>Coordinate and follow up with onsite PMO for the new team members to gain access rights to client servers.<br>Maintain the onboarding documents in the TRoom and respective folders.<br>Ensure compliance with the quality process standards during the entire project. |

**Table 13.1** (continued)

| | |
|---|---|
| Training factory Infopak administrator | Configure Infopak for the entire project.<br>Install Infopak on the computers of team members.<br>Train users in how to use Infopak.<br>Maintain glossary.<br>Publish documents on the Web.<br>Launch help pad settings for SAP help.<br>Troubleshoot documents for errors.<br>Record and create documents for the known SAP skills. |
| Training factory literary reviewer | Review the English language content of the developed document.<br>Review the format of the document.<br>Check compliance with the training document rules (TDR). |
| Training factory copy writer | Review the English language content of the developed document.<br>Review the format of the document.<br>Check compliance with the training document rules (TDR). |

3. To provide tutorials during class room sessions and also Web-based learning.
4. To offer context-sensitive help when working in SAP.
5. To form the basis for creating master data in training environments.

This meant that the business knowledge (to be transferred) had to be summarized into training units and aggregated into flexible training curricula (one training curriculum per job profile).

### *13.4.1 Deliverables*

The key deliverable for the training documentation project was to create "role-based" end user training material.

The training material to be developed was divided into three types based on the contents and the usage of the document:

1. TUI – training unit introduction
   PowerPoint introduction to be used during sessions (paper version to be given to trainees). This document would basically contain:
   - Agenda
   - Drill down from process to transaction
   - Major business rules and key principles
   - Sub-process and variants studied with link to exercises/cases.
2. TUT – training unit tutorial
   Word document provided to each trainee. It would contain:

[3] TRoom is a Capgemini collaboration tool that allows sharing information, ideas, etc with clients and third parties.

- Main rules, exercises and cases
- Trainer's guide
- Business process assessment form (quiz)

3. UDD – user documentation
   Word & Infopak document. It contained:
   - Detailed explanation – "step-by-step" job events/transactions with screen shots. A "job event" is the daily job that a person would do linked to one (or several) transaction(s).

### *13.4.2 Production methodology*

The entire document creation process can be divided into five parts:

1. Creation of the training catalogue matrix (TCM)
2. Creation of the training catalogue document (TCD)
3. Knowledge transfer (KT) and recording sessions
4. Editing of documents
5. Validation of documents.

There is a complete set of pre-defined activities to be performed by the person responsible for each of the above processes. For more details on the document flow, please refer to Figure 13.3.

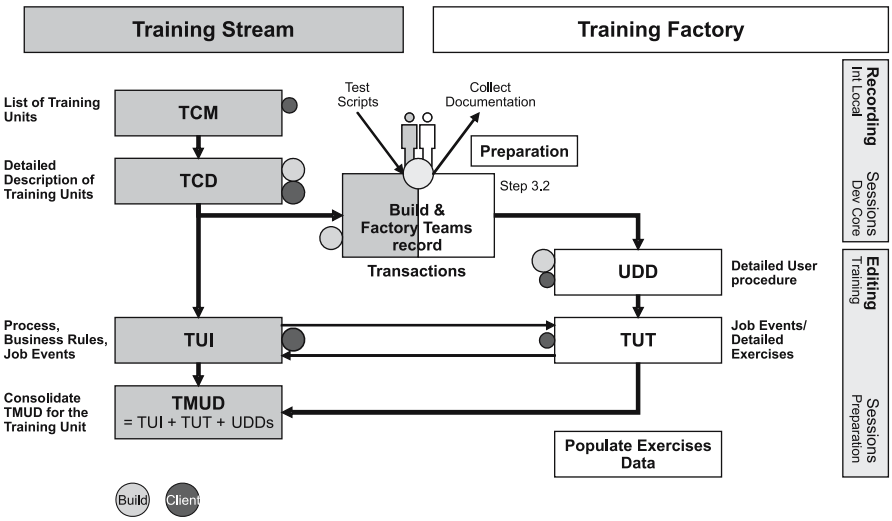


**Fig. 13.3** Documentation flow across the teams

Creation of TCM – training catalogue matrix – onsite

To create the above deliverables, the client created a comprehensive list of all 'training units' to be prepared, called the 'training catalogue matrix'. The basic inputs for this document were the business authorization matrix (BAM) and the business process guides (BPG).

These list the training units and user documentation.

This document contains the following:

- Sub-processes
- Target audience
- Timelines
- Transactions
- Major learning targets
- Scheduling information

Creation of TCD – training catalogue document – onsite

A TCD lists the detailed design of training units and user documentation. Each line of the TCM would be created as a TCD.

It would list the following:

- Detailed learning goals, rules, etc.
- Case
- Exercises
- Master data

A TCD is prepared by the training stream members in collaboration with the client and the build consultants.

This TCD is very similar to the functional specifications in a development project and the most essential guideline for documents to be created by the offshore centers.

The two steps above are done onsite, as they require high level of client involvement. Face to face workshops are conducted to define the same. TCM actually forms the skeleton of the documentation, giving shape to the entire documentation activity, while the TCD and training materials describe the actual content.

KT and recording sessions – offshore & onsite

Upon the receipt of a validated TCD (validated by the client) by the offshore teams, the cluster team lead allocates the TCD to a team member. It is important for the cluster lead to do a proper allocation so that the load across members is consistent while ensuring that each member is allocated a TCD matching their core skills. This also helps to single out training units where there is a deficiency of skills

offshore, so that a different approach to produce these documents can be identified.

The team members go through the TCD to understand the business content and the transactions mentioned in the TCD. In this process, they also work through other business process documents such as the business rules, business process guides, and process diagrams to understand the processes being implemented. This enables them to develop a list of questions drafted as a "KT Checklist". They also try to run the transactions in the development systems to better understand the processes.

After this process, the offshore team members travel onsite to meet the build consultants. Here they record the entire transaction flow (using documentation tools such as Infopak) together with the build consultants, who can also provide answers to the questions noted in the "KT Checklist". These recordings are basic outline documents that are edited and enhanced to include business and process contents for creating the UDDs.

Editing of documents – offshore

Once the recording sessions have been completed onsite, the offshore team members start to create the UDDs offshore. This is a very critical aspect of the entire process because it confirms whether the knowledge transfer (KT) has been successful or not. This step is the value that SAP consultants add to the document after the KT. The offshore training consultants work individually during this phase, but they can contact the training stream or the build consultants if required.

Typical challenges during this phase are:

1. Formatting patterns of the documentation tool – each documentation tool (Infopak in this case) has its own formatting patterns, which are very critical. Any changes to these patterns result in documents not being publishable on the Web or the subsequent creation of other documents such as cue cards.
2. Enhancement of the document with business process knowledge – the UDDs need to be enhanced to include the business and process knowledge of the client. It is imperative for the team members to have understood the solution under development. A transaction could be used for different purposes in SAP, but the solution might require it to be used in one way only. Such explanations need to be included in the system. This means that the team members must have thoroughly understood the solution.
   There are several ways to mitigate the risks. The most important among them are:

   - Help from the offshore cluster lead.
   - Contact with the build consultants onsite using instant messaging and emails.
   - Co-ordination with the build consultants through the training stream.

3. Usage of English – the documents created should have correct patterns and use standard English. At times, this may be a major challenge because most consultants are not experienced in writing manuals and/or documentation.

One way to mitigate the above risks and/or challenges is to review the documents offshore. This review process includes the following steps:

1. **Peer review** – this review is done by another team member to ensure that all formatting patterns are complied with and that the document is complete from the solution perspective.
2. **Final review** – the team lead does the final review of the document to ensure that the correct business processes are reflected in the documents.
3. **Language review** – the documents are reviewed by the literary reviewers and copy editors to ensure a concise and correct use of the English language.

For each of the above reviews, review templates are available that are completed by each of the reviewers. Once the review process is finished, the document is sent onsite for validation.

Validation of documents – onsite

The validation of documents created offshore follows several steps prior to the final validation by the client. The following is a list of the entire process:

1. **Quality control** – the documents are first checked for compliance with the TDR. The TDR are a comprehensive set of dos and don'ts for all documents. This is done by the quality control apprentice in the training stream. Documents that do not meet the TDR are sent back to the offshore team for corrections.
2. **Content control** – the pre-checked documents are then assessed by the training stream cluster leads for their contents. If corrections are required, the documents will again be sent back to the offshore team.
3. **Solution enrichment** – this is done by the build consultants. They review the documents to ensure that the solution described in the document is consistent with the solution actually being implemented. The offshore team is responsible for any corrections required.
4. **Document integration** – the TUI document is created by the training stream. Each TCD can have more than one UDD but only one TUI. The TUI is integrated with all the UDDs for the training unit. A complete TU (training unit – TUI + TUT + UDD(s)) is presented to the client for validation.
5. **Client validation** – the complete TU is assessed by the client to ensure completeness. If any changes are required, they will be handled by the offshore team.

During the entire process, the documents are stored in various folders in the shared drives, which depict their current status in terms of various stages of validation. These folders are synchronized once a day between the offshore and onsite servers to ensure that each server is updated with the latest documents.

## 13.5 Process enablers

To effectively reap the benefits of industrialization and improve processes for delivery, the processes need to be fine-tuned and constantly upgraded/adapted to meet new challenges while incorporating the latest learnings.

The project used a variety of tools and processes to deal with this, some of which are highlighted below:

### *13.5.1 Issue log*

All questions that were raised in the offshore factories were immediately registered in the issue logs. These logs were then periodically checked during meetings and their resolution communicated to all parties. This helped to track issues faced by resources located across centers and communicate the solution.

### *13.5.2 TWINs management*

The structure of the documentation is very process-based. Some transaction codes can be repeated across several documents. To eliminate multiple documents reflecting the same transaction codes and processes, TWIN management has been very effective. Documents were identified as TWINs of the original document, thus eliminating the need for one or more duplicate document.

### *13.5.3 Weekly meetings*

As the project included multiple challenges, regular meetings at various levels were held to ensure problems were handled as soon as possible:

- Each cluster lead offshore and onsite had a meeting every two days to communicate open issues and facilitate resolutions.
- Weekly meetings between the offshore managers and onsite managers to review the progress of deliveries.
- Weekly meetings between the training stream manager onsite and the client to review the validation status of documents.

Apart from the meetings, managers and team leads traveled between the offshore and onsite locations to hold quality and delivery reviews and look at bottlenecks in the process.

### 13.5.4 Training Material Production (TMP) – status tracker and reporting

To manage the project effectively, data in documents was required to control the project at various stages of the production. TMP was a list maintained by the team leads that was updated every day. This data was used by the following people (apart from the training project team):

1. **Build consultants** – The data was used by the build consultants to plan their work to record transactions during the KT sessions. It was also used to plan their schedule and to review the documents during the validation process.
2. **Client** – Specific sections of this document were shared by the client, providing an overview of the entire situation and allowing the client to plan the review and validation of documents.

One such status report is represented in Table 13.2.

A visual status report of the global process is represented in Figure 13.4.

Ten statuses were defined (5a to 5j), with a different actor for each status. The numbers in red indicate the number of TUT & UDD in each status across the entire process. This report was produced daily.

**Table 13.2** Sample daily status report

| Type | TUT & UDD target | TUT & UDD produced | TUT & UDD enriched | TUT & UDD delivered | TUT & UDD validated by client |
|---|---|---|---|---|---|
| TUT | 132 | 122 | 96 | 51 | 17 |
| UDD | 507 | 474 | 330 | 164 | 48 |
| Total | 639 | 596 | 426 | 215 | 65 |

### 13.5.5 Communications management

With project teams not co-located, communication becomes one of the most important factors for project success and is at the same time the most difficult to manage. Recognizing this important factor, the project team took a number of initiatives:

### 13.5.6 Contact list

A contact list of all team members on either side was prepared and made available to all members. This included their landline and cell phone numbers.

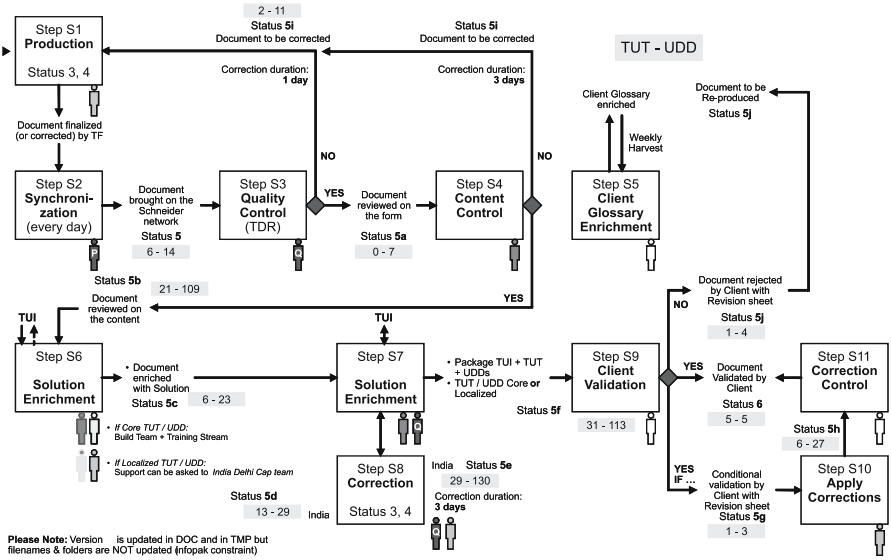


**Fig. 13.4** Visual daily status report

### *13.5.7 Voice over IP (VOIP)*

VOIP phones were made available to the offshore teams to allow for a close contact with their onsite partners.

### *13.5.8 Instant messaging software*

Instant messaging solutions such as GIMS, Yahoo and Skype were used very effectively and to great advantage.

These procedures were incorporated in the "onboarding process" for all consultants – onsite and offshore. This ensured that all team members understood the importance of communication, while initiating the installation/implementation of the processes.

### *13.5.9 Tools & templates*

Selecting the tool to record the transactions is a very critical aspect of the project. Tools can only be selected once all factors have been carefully analyzed. RWD Infopak was used in our project, which is also the tool recommended by SAP.

The document templates need to be finalized before the production of the documents commences. This ensures that standards are defined and in place.

## 13.6 Key challenges

1. Frequent changes to the solution
   As highlighted earlier, the creation of training documentation is usually the last of all activities in an ERP implementation. In this situation, the stability of the solution is assured and certified by frequent tests.
   In this kind of project, the solution evolves during the implementation period. Hence, a completed document would need to be changed as and when the solution changes. This requires documents to be reworked frequently, which has its own spin-off effects on the offshore team such as irritation over the fact that the same documents need to be changed time and again.
2. Resource planning due to a lack of estimation methods
   Resource planning, e.g. for training documentation, is very crucial for a project. In our case it was even more difficult because of the type and complexity of the project. There was no historical record or experience to fall back on. The most difficult aspect was to estimate the time required to create a document, as this estimate forms the basis for planning resources across the project period.
3. Language and writing skills
   Writing a user document requires writers to take the perspective of end users. This is a big challenge for SAP consultants, who generally focus on the solution. Making the consultants understand the intricacies of a documentation exercise was hence crucial.
   Furthermore, the language skills of consultants play an important role. The writing skills of consultants differ, which means that documents of various standards are created.
   Furthermore, consultants typically lack the language skills required for writing published English.

## 13.7 Lessons learned

Each project is an experience and each experience is a lesson learned. And if the project is the first of its kind, there will be no dearth of lessons learned. Some of our most important lessons learned are listed below:

1. Change management
   As highlighted in the "Challenges" section, the frequent changes to the solution was a key challenge. To overcome this, "Change Management" of the solution should be followed strictly and the training team should always be kept in the loop. This ensures that documents can be reworked in time as the solution changes.
2. Training document rules (TDR)
   Creating documentation is a very subjective skill. To minimize the impact of writing skills and maintain standardization across documents, a set of rules

should be codified as the "Training Document Rules". This would form the guiding principle/document for all resources.

3. Identification of skill/knowledge gaps
   All documents to be prepared should not be evaluated at the same level. Instead, each document should be weighted in light of a number of factors such as complexity of the solution, availability of knowledge/skill in the offshore centers, etc. Based on these parameters, a documentation strategy for each document should be created. For example, simple documents do not need to be recorded onsite, while complex documents should be created onsite with the help of the build consultants. This avoids several iterations during the validation process.
4. Intimacy and trust are the only way to build one single team across two countries and three sites
   This challenge lead to an excellent "Collaborative Business Experience", as the onsite and offshore teams had to work closely together and form one unit:

   - The onsite training stream completed the low-level design. They knew all the different actors and experts from both the client and the Capgemini side. It was easy for them to introduce the training factory team to the onsite platform people to facilitate and support them in their day-to-day activities.
   - All training factory consultants who produced the documentation are SAP experts (covering all modules, even special ones such as CRM, PS, etc). Their SAP skills, their motivation and energy were a showcase for all.

One key success factor in forming a single team across two countries was the **intimacy and trust onsite/offshore** that were established all along the different phases and at all levels (managers, team leaders, team members):

- This is a gradual process based on frequent, frank and realistic communication, and achieved over a period of time through personal interactions.
- It allowed to go beyond cultural frontiers while respecting each other's cultural particularities.
- Intimacy must be maintained though periodic face2face "re-synchronizations".
- Successfully establishing intimacy requires a snowball effect to include all levels of the teams.
- Intimacy needs to be encouraged and cannot be enforced.
- Intimacy and trust are important on the same level and can support teamwork when established across levels.

### *13.7.1 What has been produced – figures*

**821** documents (22,359 pages) integrated in **130** "Training Unit packages" have been produced in **less than 4 months by 35 people** distributed across **2 countries and 3 sites** (see Figure 13.5).

| | TUI | | TUT | | UDD | | TOTAL | |
|---|---|---|---|---|---|---|---|---|
| | # docs | # pages | # docs | # pages | # docs | # pages | # docs | # pages |
| **Bus Area** | **128** | 4,395 | **149** | 2,758 | 544 | 15,206 | **821** | 22,359 |
| **Operations** | **64** | **1,932** | **85** | **1,450** | **292** | **7,598** | **441** | **10,980** |
| Distribution Execution | 21 | 569 | 21 | 366 | 89 | 2,584 | 131 | 3,519 |
| Order Execution | 6 | 133 | 6 | 97 | 37 | 1,006 | 49 | 1,236 |
| Production Execution | 9 | 443 | 29 | 416 | 69 | 1,534 | 107 | 2,393 |
| Supply Chain Management | 16 | 445 | 16 | 292 | 58 | 981 | 90 | 1,718 |
| Supplier Relation Management | 4 | 109 | 4 | 109 | 21 | 800 | 29 | 1,018 |
| Quality Control | 7 | 192 | 8 | 149 | 15 | 581 | 30 | 922 |
| Master Data | 1 | 41 | 1 | 21 | 3 | 112 | 5 | 174 |
| **Customer** | **30** | **1,102** | **30** | **599** | **143** | **4,995** | **203** | **6,696** |
| Business Structure | 7 | 242 | 7 | 133 | 33 | 931 | 47 | 1,306 |
| Marketing | 3 | 84 | 3 | 25 | 6 | 295 | 12 | 404 |
| Pre Sales | 6 | 161 | 6 | 117 | 19 | 739 | 31 | 1,017 |
| Sales Execution | 10 | 454 | 10 | 246 | 71 | 2,494 | 91 | 3,194 |
| Customer Satisfaction | 2 | 78 | 2 | 35 | 5 | 182 | 9 | 295 |
| Return Management | 2 | 83 | 2 | 43 | 9 | 354 | 13 | 480 |
| **FICO** | **32** | **1,263** | **34** | **709** | **105** | **2,365** | **171** | **4,337** |
| Controlling | 14 | 643 | 15 | 326 | 35 | 1,015 | 64 | 1,984 |
| Finance | 18 | 620 | 19 | 383 | 70 | 1,350 | 107 | 2,353 |
| **General** | **2** | **98** | | | **4** | **248** | **6** | **346** |

**Fig. 13.5** Statistics of document creation

## Conclusion

'Offshoring' is a word generally used for labor cost arbitrage. In our global and interconnected world, jobs that can be done at a lower cost are offshored to gain competitive advantages. But a truly deliberate and forward-driven organization would look beyond these advantages of offshoring. The offshoring components need to be treated as 'centers of delivery excellence' ready to deliver beyond the obvious.

This project has been one such case. The primary motive of undertaking the initiative was to reduce the implementation cycle by working on various activities/processes in parallel. But conducting several activities in parallel is fraught with the risks of cost escalation. Hence, the most critical success factor for this type of project is to manage costs while delivering quality against a moving target.

The creation of training documentation has been one of the biggest challenges in and more importantly the flag bearer of its success. The entire work in the project was distributed across centers both onsite and offshore. What is more, offshoring was not done for the purposes of costs savings alone. Factors such as skill shortages and quality improvements were equally important.

Another point discussed previously is the concept of "innovation" in the project. In large and complex deployments, there is always tremendous pressure to reduce the critical path, and reams of paper and teams of people spend many hours figuring out ways to do so. This project managed to do just that and move the entire training activity from the critical path.

# References

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# Chapter 14
# Case Study: Software Development for a Global Manufacturing Company

**Anja Hendel**

**Abstract** The client is a world leader in power distribution and control systems. The program is a global SAP implementation with rollouts to 136 countries across the world. In order to deliver these projects in the required timeline, major parts of the project have been delivered from abroad. The following article provides an overview of the delivery of (pre-dominantly ABAP) developments for the template and different rollout projects summing up to over 11,000 Person Days (PD).

## 14.1 ERP Implementation

### *14.1.1 The Program – A EUR 1.6bn Challenge*

The client is a world leader in power distribution and control systems. The fast development of their business environment challenged them to become progressively more global.

At the end of 2004, Capgemini and the client signed a European outsourcing contract for a period of ten years. As a result of this contract, Capgemini took over a large number of client employees and IT systems in Europe in 2005. Additionally, Capgemini was selected to initiate a program to build new global business processes and the related global SAP system as a solution for the client's four divisions (North America, Asia Pacific, Europe and Iberia & International). Capgemini was also responsible for setting up this global SAP template in collaboration with the client and carrying out the implementation for selected pilots in the European region.

The program allowed the client to seize a major opportunity to drastically improve performance and thus create significant business benefits while simultaneously lowering IT costs.

Since 2005, the program has consisted of:

- Building and implementing a global system;

Anja Hendel, Wolfgang Messner, Frank Thun, *Rightshore*

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- Managing and reshaping their European IT through an efficient partnership with a company that is able to ensure sustainable employment of their IT people and deliver an improved IT service level.

Once the program is fully implemented, the client will operate its business based on:

- Aligned business processes that will increase efficiency in all areas. The resulting model will share the best internal practices from all countries.
- A global view of customers, distributors, and suppliers and ultimately and improved cooperation between these partners.

The program is key for the client's ability to improve sustainable customer service, efficiency and growth in a global, competitive market.

### *14.1.2 Scope of Offshore in the Project*

"Location will no longer be the key to most business decisions. Companies will locate any screen-based activity anywhere on earth, wherever they can find the best bargain of skills and productivity"[1]. This is exactly the key message behind the Rightshore® concept, as it means to assign the right resource from the right location at the right time. In the end, all resources will work with the same set of tools and according to the same procedures. Nevertheless, they will work in different time zones and cultures, and with different mother tongues and distances from the core team.

Within the client program, Capgemini used offshoring to India to maintain the existing IT systems and set up the global SAP template with rollouts in 136 countries all over the world. The Capgemini service offerings used in the client's SAP project are described in Table 14.1.

**Table 14.1** Services delivered from offshore

| Service from Offshore | Description |
|---|---|
| Remote development | All technical tasks from technical specification to unit testing of the program |
| Remote customizing | Customize entries and translate authorizations |
| Training material creation | Develop training material and support the training academy |
| Testing | Support in developing script, implementing the Mercury[2] tool and setting up the product testing environment |
| Data migration | All conversion steps (and creation of error reports for harmonization support) up to the cut-over and the trial conversion |
| Support of all project tools | Maintain and support the implementation guideline, initialize Project Place and Solution Manager (documentation tools) and conduct and support project team training |

[1] [Cairncross (1997)]

### *14.1.3 Offshoring of Development Activities*

Offshoring of development activities is the most established of all offshore service offerings. For years, most large-scale software companies have had their development centers in India and other "low salary–high education level" countries. Nevertheless, it is still a challenge to realize the full potential of offshore projects. Many countries, especially non-English speaking countries, still struggle to deliver such projects.

Main reasons to utilize offshore Development for the project were:

1. Availability of resources
   Due to the difficulty of finding adequate resources, teams are often rather mixed with client, internal and external developers (freelancers and other sub-contractors). In contrast to that, the Indian expert pool is familiar with a consistent set of standardized procedures, which are only slightly adapted to the client's wording and specialty areas. Therefore, it is much easier to work according to the known quality requirements.
2. Clear definition of work packages
   Due to the clear definition of tasks to be carried out, development tasks are easy to offshore. Even "classic" project models use a developer in charge of the technical design, the development and the first unit testing. The interfaces between the developer and the functional consultant are clearly defined (e.g. the handover of the functional design and test cases). The only aspect that is different is the location of the developer and therefore the way of communication.
3. Fast ramp-up and ramp-down processes
   Due to the huge scope of the project it was sometimes quite difficult to plan when the first functional specifications would arrive, and to cover all peak and down times. The offshore model made us more flexible in ramping up and down developers on a weekly basis depending on our new estimates and requirements.
4. Commercial reasons
   As discussed in Chapt. 14.1.2, there are also commercial reasons for offshoring development activities. Resources from India are simply much less expensive than those from Europe.

## 14.2 Setting up a Development Organization

### *14.2.1 Development Organization*

With our client, we maintain an onsite development team located near headquarters, a nearshore development team located in the same country and an offshore development team located in Mumbai, India.

[2] Mercury is a software testing tool for deploying high-quality applications quickly and effectively.

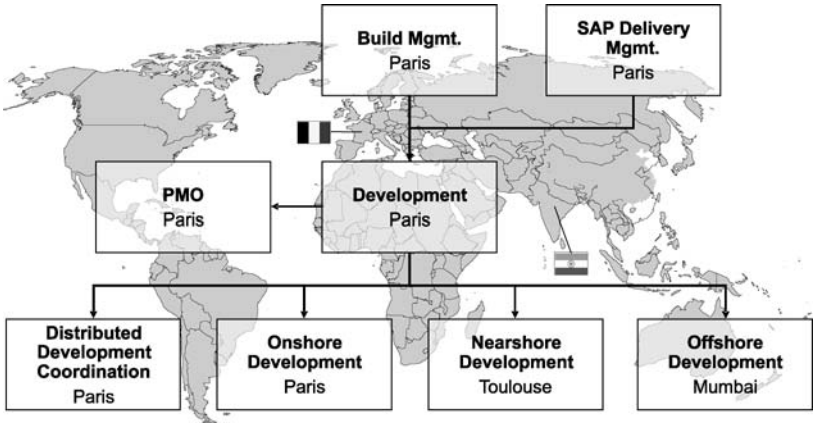


**Fig. 14.1** Development organization

There are several reasons for setting up the development organization at three different locations.

The 11,000 PD development effort included several developments that already existed in the original SAP system. All of these had to be integrated into the new system. As the coding was commented in the local language, it made sense to use a native developer for this task. Since transferring code is a rather easy task, we decided that the nearshore development centre was to carry out this activity.

The client used SAP's Exchange Infrastructure (XI) as the middleware for all their interfaces. Since there was not sufficient knowledge about this new technology available in the project team, the functional consultants required some special support. Especially when testing the interfaces we decided to work with an XI expert directly at headquarters onsite. In addition, there were two "fast track developers". These were junior resources which carried out minor changes and supported the functional consultants in technical analyses and questions. All other developments and the related specifications and testing tasks were performed in Mumbai.

To make a development service offering with a distributed delivery a success, you need to ensure that the organization is transparent. For this purpose, the development team of the project developed a "who's who" presentation to provide an overview of the organizational structure and a one pager about each development resource.

### *14.2.2 Roles and Responsibilities*

To ensure that the development process can run correctly, the roles and responsibilities have to be clearly defined. We defined seven roles (see Table 14.2) for the development process. Depending on the size and complexity, there can be several people for each role or you can also assign several roles to one person.

**Table 14.2** Roles and responsibilities for the development process

| Role | Responsibilities |
|---|---|
| Functional team lead | Initiate and validate change requests<br>Schedule the creation of functional specifications and unit test cases<br>Approve functional specifications and unit test cases<br>Weekly meetings with Distributed Development Coordinator (DDC) to align with the development progress and to proceed with issue resolution<br>Validate developments |
| Functional team members | Create change requests<br>Create functional specifications and unit test cases<br>Rework functional specifications and unit test cases<br>Resolve development and documentation issues (issue log to be used for that)<br>Perform unit testing based on unit test cases |
| Development decision board | Responsible for change requests that will become part of the development scope<br>Scope and change control |
| Distributed development coordinator (DDC) | Accept functional specification prior to development and continuously update the Distributed Development Log[3](DDL)<br>Owner of the DDL (single source of truth)<br>Support domains and development team in case of issues and questions<br>Report development forecast and progress to development management |
| On-/offshore manager | Monitor scope of developments<br>Support the DDC with initial and re-estimation of the development effort<br>Select a team of developers with the appropriate skills (ABAP, XI, Java, ...) and experience for the project<br>Monitor the progress of the development as per the documented development guidelines for this project<br>Facilitate communication between the offshore team members and the DDC<br>Ensure offshore/onshore team knows and applies development norms and standards as well as templates<br>Report weekly status to the DDC<br>Review test results with the DDC |
| On-/offshore team lead | Review the work throughout development and provide technical assistance when required<br>Identify and review critical developments<br>Ensure compliance with development standards with regard to specification, developments, documentation and test<br>Monitor typology of objects to be delivered to ensure optimal integration and efficiency in developments<br>Suggest changes to the object to ensure that the object developed meets the business requirements in the functional specification and that it is efficient and developed as per the programming standards laid down by the project<br>Assign developer according to availability of expertise, capacity and communication intensity |
| Development team member | Create technical specification from an approved functional specification and unit test case<br>Estimate workload for relevant development<br>Complete development and documentation as per approved functional/technical specifications and according to approved programming standards<br>Perform internal peer review for objects developed by another developer in the team<br>Document and/or help document basic test cases for objects being developed<br>Perform basic testing and document test results<br>Document issues in the issue log |

## 14.3 Development Manual

### *14.3.1 Development process*

For our project, it was key to align the defined development processes, communicate them to all team members and ensure that they were easy to find and understand by everybody. For project marketing reasons, we created a large plot of the process and displayed copies in all areas. The advantage of this is that such a plot is easy to find and whenever somebody has a question regarding the process you can discuss the issue directly with the plot in front of you.

The development process can be divided into four main parts: Requirements identification, functional specification, technical design and development and testing.

For each of the process steps there is a clearly defined person responsible for this specific step. For all outputs of the processes, there is a clearly defined document or a destination where they are to be stored. This process applies to all resources, regardless of where they are located.

**Requirements identification**

These process steps are meant to allow control of the development scope. In general, most development requests are created during the blueprint or gap analysis phase. In most cases, there are only a few new development requests during the realization, testing and cut-over phases. These new developments should all be requested via the functional team lead. He/she is in charge of the functional scope, which is the prerequisite for development requests. In addition, such scope changes should be approved by the development decision board that represents the project management decision.

**Functional specification**

After the scope has been defined, the functional requirements have to be defined and the functional team lead has to validate the specifications. In addition, the coordinators should double-check if the information in the functional specification is sufficient to start writing the technical specification. For this purpose, standardized check lists can be used. If the functional specifications do not meet the requirements for writing the technical specification, the functional consultants have to be informed and rework the document until it passes the quality gateway of the distributed development coordinator.

**Technical design**

After this stage, the developments are assigned to the developers based on their complexity and area. The challenge for the coordinator is to find the best match in each case. To perform this task, it is therefore very useful to know the abilities of the developers and the functional consultants. In the beginning, the coordinator prob-

[3] The distributed development log (DDL) is a list that contains the development scope with all required details (development ID, developer, functional consultant, effort estimation, etc.) and is therefore the single source of truth.

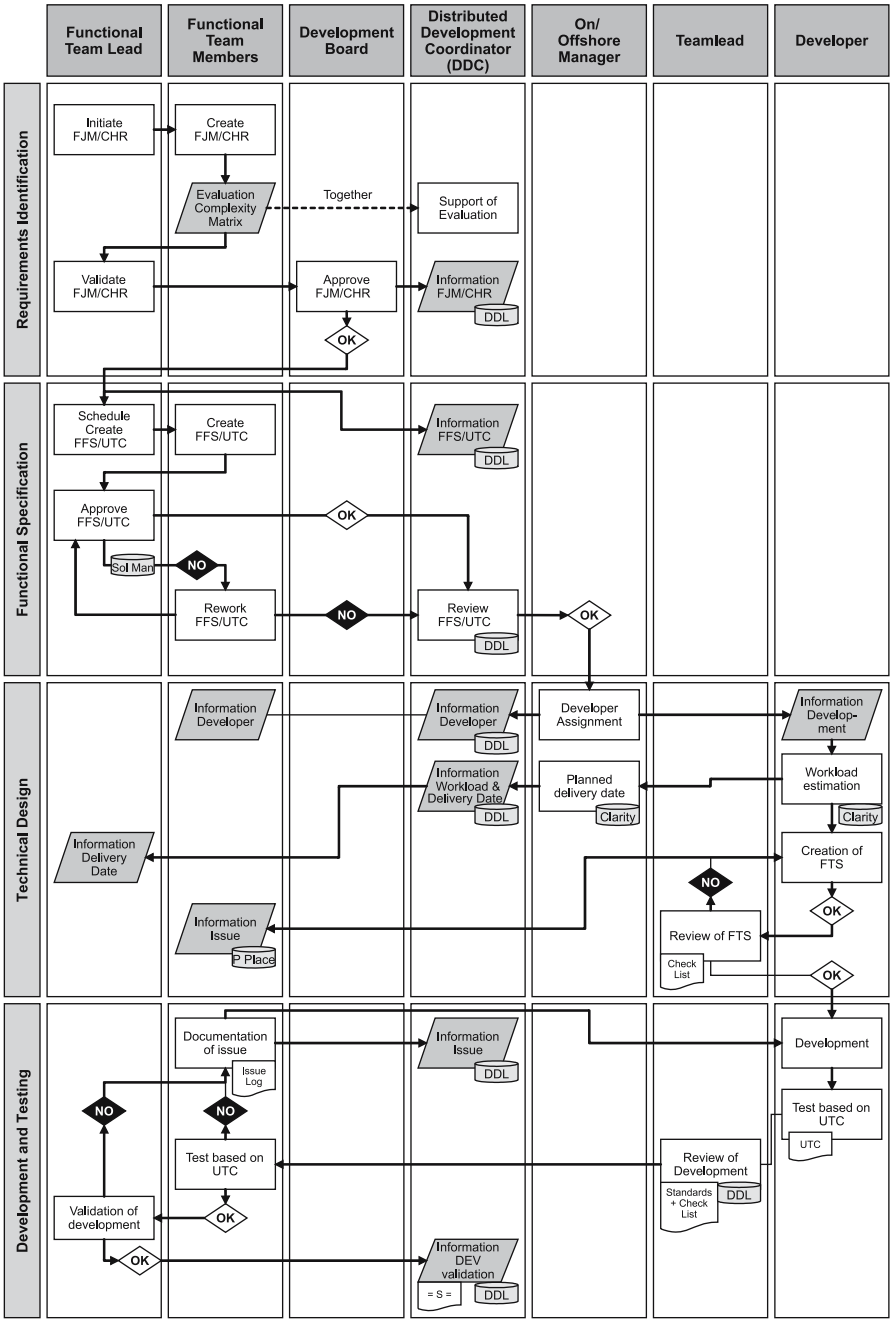


**Fig. 14.2** Description of the development process

ably does not know the developers well enough, which is why a strong alignment with the offshore manager is very important.

When the assignment of a developer starts, the distributed delivery coordinators should ensure that the functional consultant knows which developer starts to work on which specification and when.

The first questions will arise when the technical specification is being created. It is important to ensure that proper communication tools are in place, e.g. instant messaging. In addition, issue management should be set up effectively. You can find more information about issue tracking in Chapt. 14.3.2.

**Development and testing**

Development creation and first unit testing are phases in which the functional consultant and the developer collaborate closely with each other. During this stage, tools for sharing screens (e.g. Microsoft NetMeeting™) are very important. The coordinators should not be involved excessively in supporting the communication at this level because the "pair" should already know each other and be able to work together efficiently to find errors and deliver the required results.

### *14.3.2 Operating Instructions*

Apart from the general development processes, various other project tasks have to be carried out that require a more detailed description. Keeping the idea of industrialization of processes in mind, it is useful to create manuals for tasks such as reusing old source code, conducting transport management or requesting a developer or object key.

**Issue tracking**

Whenever two people work together on a topic – like the developer and the functional consultant on the business requirement – questions arise and information is created that is not part of the documentation. To provide a platform for such communication and to ensure efficient documentation, these questions, remarks and answers should be stored in an "issue log".

**Technical integration**

Reusing software components between different team members is not only difficult across distributed teams, but also across all software development organizations. It is not the technical reuse that is the problem, but identifying the development components that can be reused for other developments and finding ways of distributing the information that such components are already available.

**Quality assurance**

For our project, as with all Capgemini projects, there were clearly defined quality gateways within the entire development life cycle. The major quality policy within Capgemini is called OTACE, On Time and Above Client Expectation. Internally, the project is seen as the client for offshore resources. Therefore, the onsite project manager and coordinators evaluate the work of the offshore team in regular meetings (depending on the project duration and the scope).

For this project, every six to eight weeks, the DDC traveled to India for face-to-face meetings with the offshore managers to hold quality reviews for processes, deliverables and results. These meetings were a good opportunity to leave behind the operative business and review and challenge the overall situation and status. Furthermore, these were occasions for meetings with the offshore team to get better acquainted.

## 14.4 Getting in Touch

Establishing direct communication channels between the developer and the consultant is a key success factor. During phone calls and other direct communication, the "team members get to practice speaking and, just as important, listening to conversations in English. They learn more about each other – which builds trust – and get a sense of what skills other members bring to the team."[4]

First of all, there should be a contact list containing information about all team members. This contact list should contain all contact data (phone number, instant messenger user, development user, etc). Additionally, a 'who's who' presentation with a photo of the team member, their skills and also personal interests will help you to easier establish a relationship, as the team members have a picture in mind and get some background information about their counterparts, which will help them to do the 'first step'.

No matter how open-minded and motivated your on- and offshore team members are, there will be a time in your project where the pressure on everybody in the team is very high. It is easy to forget people when they work seven hours flight time away. Therefore, you will need somebody onshore to facilitate and support both the onshore and the offshore team. The distributed development coordinator wheels and deals between these two teams and takes care of issues, facilitates the communication, keeps track of the status and is the single point of contact for all questions and remarks.

Never try to make savings that impact the connection between team members from on- or offshore. It is hard to believe, but many companies run global projects, where not all developers have landline phones. Mobile phones will increase the productivity and availability of the offshore developers even more. Often, the excuse of costs is put forward. While this was certainly a valid factor a few years ago, a call from an Indian cell phone to a European landline number costs as little as EUR 0.13 per minute

When the industry introduced the first mobile phone, nobody thought that one day mobile phones would surpass landlines all around the world. When the first chat rooms and instant messaging tools arrived, who thought about managers sitting in front of their PC and chatting with colleagues and business partners? But living and working in a global and distributed environment creates opportunities for new

[4] [Snyder 2003]

tools and methods. Instant messaging is a highly recommended method for ensuring good and efficient communication within distributed teams.

Another way of communication is the NetMeeting tool that allows you to share the screen on your PC. This can be very useful for technical discussions or testing phases. Visualizing situations on screen helps to speed up the search for errors and improve the communication between the distributed teams.

Actual visits are also very useful for such high-volume projects. During our project, we invited developers in charge of quite complex developments to come to headquarters for some days to kick off the development together with the functional consultant. This built trust and supported the future communication between them. In addition, the DDCs traveled to India every six to eight weeks to meet and work together with the team and improve the communication between each other.

## 14.5 Tools, Templates and Standards

As standardized procedures and operating instructions are crucial, there should be a clearly defined pool of tools, templates and standards to support these development processes.

### *14.5.1 Effort Estimation*

The development team used a matrix to estimate the effort of the standard developments. The effort was rated based on the type of development (form, report, interface, conversion, and enhancement) and the complexity (low, normal, high, very high). This way, a fixed effort could be determined for each combination given.

### *14.5.2 Resource Planning*

Planning has to follow the defined scope, effort and time line. Usually, you should calculate the first onboarding week with a productivity of only 50%. This is because

**Table 14.3** Development efficiency

| Veteran: Junior | 1:1 | 1:2 | 1:3 | 1:4 |
|---|---|---|---|---|
| % junior | 50 | 66 | 75 | 80 |
| Development efficiency | 100 | 75 | 66 | 55 |

developers – no matter if onshore, nearshore or offshore – need time to familiarize themselves with the environment, understand the project background and get all the necessary administrative information and authorizations (users, etc).

It is an advantage to have teams that consist of a mix of veterans and juniors. Based on our experience in other projects, a veteran/junior mix of 1:1 achieves the highest productivity. The more juniors are assigned to a veteran, the lower the development efficiency.

### *14.5.3 Planning and Time Tracking*

Development planning can start based on the development scope, effort, priority of the developments and resource planning. A tool that links planning and time tracking (e.g. Clarity) is the ideal solution for monitoring the efforts.

At our client, each development is split into different tasks for which time can be tracked:

1. Qualification & design
2. Realization and UTC (Unit Test Case)
3. Review
4. Rework during internal validation
5. Rework during external validation

### *14.5.4 Standards and Quality*

There are several tools on the market that ensure that the source code is of high quality and verify that the defined naming conventions are used. In our project, the tool used for this was Code Inspector[5]. This covered the "hard facts" of the source code. For the "soft facts", experienced resources performed review tasks. Every development and specification passes through an internal review process before it is delivered to the functional consultant.

At a more general level, all offshoring companies have to meet the requirement for the CMMI® (Capability Maturity Model) Level 5 certification. This is no longer an exceptional certification but is absolutely essential to win the big bids in the market. Maturity level 5 focuses on continually improving process performance through both incremental and innovative technological improvements. Quantitative process improvement objectives for the organization are established, continually revised to reflect changing business objectives, and used as criteria in managing process improvements.

[5] Code Inspector is an SAP tool for checking repository objects regarding performance, security, syntax and adherence to name conventions.

### 14.5.5 Status Tracking and Reporting

For the client project, there was a list that specified the total development scope. This list was maintained by the distributed development coordinators. As this list contained the scope and the status, there had to be one owner responsible for the document. Having such a list managed by everybody will cause confusion and nobody will now the history between the different developments.

Reporting should be closely linked to the customer requirements and the audience for which the report is developed. From a development point of view, the following is a typical status report:

| | Status | CO | CR | EP | FI | HR | LO | MD | MF | PU | QU | SA | SR | BW | BC | Total | Delta |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Cancelled | 5 | 25 | 1 | 2 | 1 | 6 | 2 | 16 | 13 | 8 | 44 | 3 | 3 | 1 | 130 | 5 |
| | On hold | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Domains | Domain shift | 1 | 0 | 0 | 1 | 0 | 8 | 0 | 1 | 1 | 0 | 2 | 7 | 0 | 0 | 21 | 0 |
| Domains | FJM Identified | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Domains | FJM Qualified | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Domains | FJM Approved | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1- |
| Domains | FFS in progress | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 4- |
| Domains | FFS completed | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2- |
| Development | FFS validated | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 |
| Development | Qualification & Design | 0 | 2 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 6 | 2 |
| Development | Realization & UTC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 3 | 0 | 5 | 6- |
| Development | Review | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5- |
| Development | Rework during Internal Validations | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Development | Rework during External Validations | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1- |
| Development | Changes | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 |
| Test | Development Ready | 2 | 1 | 4 | 2 | 1 | 3 | 1 | 7 | 3 | 2 | 6 | 3 | 0 | 1 | 36 | 10- |
| Test | DEV Validated by Integrator | 3 | 2 | 1 | 2 | 3 | 4 | 13 | 15 | 3 | 0 | 3 | 1 | 13 | 0 | 63 | 11 |
| Test | DEV Validated by Domain | 13 | 1 | 8 | 31 | 1 | 33 | 11 | 39 | 25 | 15 | 40 | 23 | 16 | 0 | 256 | 11 |
| V1 | **Percentage** | **68** | **11** | **57** | **86** | **20** | **72** | **42** | **62** | **78** | **88** | **80** | **85** | **47** | **0** | **68** | |
| | | **25** | **34** | **15** | **39** | **6** | **60** | **28** | **80** | **46** | **25** | **96** | **37** | **37** | **2** | **530** | |

**Fig. 14.3** Development progress

### 14.5.6 Documentation

For the client project it was important to ensure that documentation could be accessed from all locations and from everybody involved in setting up the system. The commonly used shared drive is no longer the best solution.

In our project we used the SAP Solution Manager tool for all business process related documentation. This tool logically links the documentation and the solution. Thus, you can easily find the correct solution and the relevant documentation.

For all general project documentation, such as project plans, task lists, etc., the project used a common document management tool that was easily accessible from around the globe.

## 14.6 Lessons Learned

Whenever a project is completed, it is time to look back and consider the things you have learned. After this great experience of working with and setting up this organization, we can highlight several important points that have to be taken into account when setting up or running an offshore development organization.

*Think in Deliverables not Tasks*

Do not start micro-managing each single task at a resource level. As there are project deliverables in each project phase, there are also deliverables to be defined between offshore and onshore teams. Typical offshore deliverables in the development area are technical specifications, source code and unit testing.

*Manage Offshore Resources as Individuals*

Whenever there is a project where people work at two different locations, the way people view certain things can differ from one location to the other. To avoid problems, see and treat the people at the other location as individuals and not as a conglomerate.

Schedule visits (combined with quality gateways) to meet the offshore resources personally. This helps to get an idea of who is behind that name tag.

*Direct Communication from Functional Consultant to Developer Offshore*

The functional consultant is the single point of contact for the business and the related development requirements. Whenever there is an open question the functional consultant should be the only people in charge of clarifying the issues. This is why the developers should address their questions directly to the functional consultant. Every additional person between them will be a bottleneck and a source of confusion and increase the effort and time required.

*Use Workgroup and Communication Tools*

Workgroup tools and work flow functions help to significantly reduce the follow-up effort of coordinators and improve transparency.

It is also important to make a decision about the communication tools in the ramp-up phase of your team or project. Some companies still use instant messaging

services that do not conform to the corporate rules and security guidelines. The same applies to the availability of NetMeeting services.

Always remember that you are managing individual resources. These people have their own personalities and preferred ways of communication. Some may prefer to talk to each other, others may express themselves better in writing. From a project coordination perspective, it is important to ensure that all communication channels are available.

*Align and Test the Network Infrastructure Early and Thoroughly to Avoid Delays in Communication*

Infrastructure is an important factor to consider when you set up teams in different locations. Remember that not only the system connection and access rights have to be managed but also the workgroup and communication tools from all the different locations and computers, as well as the authorization to use these tools in the different companies. Even if the infrastructure appears to be a minor point in the beginning, it may cause endless and time-consuming discussions if it is not managed immediately and running without problems.

*Control Productivity and Quality KPIs*[6] *Weekly*

Managing such a huge number of people requires high-level planning, coordination and reporting skills. As already mentioned in Chapt. 14.5, you should plan and check your productivity on a regular basis to ensure that you can monitor the quality of your output.

Figure 14.4 shows a reporting graphic that was used for the weekly status reporting during the project. A development can only be seen as finished once the functional consultant who requested the function has validated it. This report shows the number of developments in each development step, starting with the preparation of the functional specification by the functional consultant and leading to the validation of the development by the functional consultant. All steps in between have to be covered by the development teams onshore and offshore and coordinated and tracked by the DDC. The DDC as the master of the DDL is responsible for reporting the progress.

*Build Bridges Between Offshore and Onshore Teams*

Even if physically separated, people from onshore and offshore teams should work as one team. Establish shared status meetings to ensure that all people involved get the same message. Feel free to use all technical support you can get for these meetings (video conferences, NetMeetings, etc.).

There should be a combined kick-off meeting where people meet in person. It is also useful to organize some weeks for key players from offshore to work on the

[6] KPI = key performance indicator

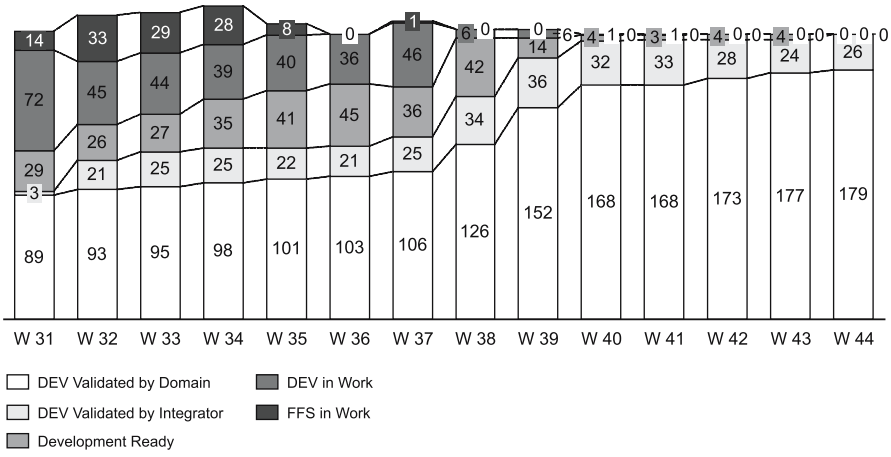


**Fig. 14.4** Reporting

project onshore to promote a feeling of intimacy. Establish direct communication via e-mail, phone and instant messaging services. Organize face-to-face meetings to discuss complex topics.

The onshore and offshore managers and the distributed delivery coordinators should meet in person (every six to eight weeks and on demand) to clarify open issues, review progress, try to improve the process and work physically together with the team and have a chat with the other team members.

*Different Time Zones Add Value*

The fact that there is an average time difference of four hours is often mentioned as an issue, due to the fact that during this time the onshore and offshore teams do not work together. However, if for example the functional team discovers an issue late in the evening and informs the offshore team via email, it can be a very positive experience to see that the issue is resolved the following morning. This means that the time difference also adds four hours of working time to your project.

## Conclusion

Collaborating with clients and consultants on international projects makes it easier to use offshore resources. If you take a closer look at current SAP projects, you will find that most of them are staffed very internationally to account for the fact that the solutions required nowadays are a far cry from the green field approach. We need to have cultural awareness, but not only between Western countries and India, but also between Finns and Italians or Swiss and Spanish project members. In the end, it is the people who make the difference. It is important to be open-minded and

willing to stick to the procedures and rules to enable the delivery of different service offerings from all over the world.

We all know from our daily lives that communication is more difficult the further the distance between people. If people do not work on the same floor, they will never meet at the coffee machine. If we are not in the same building and have to take a taxi or the car, there will no longer be spontaneous meetings. If our communication partners are in another city, we will most probably meet them only very occasionally. I may not convince you that there is no difference between traveling three hours from Paris to Bucharest or traveling eight hours from Paris to Mumbai, but the question is, will you meet them more often because you save five hours traveling time? And even if the answer is 'yes', do you think this will significantly improve communication and improve your way of working from a communication point of view?

To ensure smooth delivery of distributed work it is important to define clear procedures and develop transparent reporting methods for the hard facts, to keep control of the deliverables. Additionally, you have to have trust in people who work out of your sight. For some people it may be an issue if people do not work at the same location. For them, outside walking distance means outside their control. People on the other site of the world can sometimes be more committed to the work they do than the person surfing the net right next to you. Physical availability means nothing in our job. What is important is to deliver the tasks on time and with the right quality. The objective is to successfully deliver the project on time, with the desired quality and by a highly motivated team from all over the world, no matter where the individual team members are located.

For our client this meant that by using the right combination of well-aligned processes, solid communication tools, defined and controlled standards, a focus on people and pro-active monitoring, Rightshore® was a huge success. Thus, they were able to cut down on development expenses by 60% without any quality differences compared to classic pure onsite development teams.

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# Chapter 15
# Case Study: Data Migration for a Global Semiconductors Manufacturer

**Anand Kantawala**

**Abstract** The customer is a global leader in consumer electronics, semiconductor manufacturing, and medical equipment. The program objective was to create a global core template and then rollout the template to the existing plants all over the world. There were many sub-projects involved, among them also a data migration stream. The following provides an overview of the scope, setup and challenges for the data migration stream, which was delivered predominantly from offshore.

## 15.1 Objectives

The project was to create the ERP backbone for 18 manufacturing and engineering sites in 11 countries within the shortest possible time. The key objectives were:

- Provision of reliable business information;
- Integration and consistency across all processes;
- Standardization & simplification of processes and systems;
- Reduction of the number of systems and system interfaces;
- Enabling future growth and quick adaptation to new business requirements;
- Substantial savings through central development & system support.

### *15.1.1 The Program Approach*

The general program approach was to create a global core template and rollout the template to various countries worldwide. The sites were to receive a fully preconfigured SAP system covering most transactional business processes. During the entire program a central project support organization was in place that monitored central development and support activities. The key principle for the core design was to make maximum use of SAP standard business processes in order to achieve:

Anja Hendel, Wolfgang Messner, Frank Thun, *Rightshore*
DOI: 10.1007/978-3-540-77288-0, 

**Table 15.1** Distributed delivery areas

| Distributed delivery area | Scope |
|---|---|
| Technical development | • Writing technical specifications<br>• Coding<br>• Initial unit testing |
| Data migration | • Developing data conversion object<br>• Initial unit testing<br>• Actual data loading in sand box and later in production<br>• Creating error report and communication to function lead<br>• Support during integration testing, trial run and cut-over period |
| Project support tool | • Modifying/tailoring existing customer project support tool<br>• Designing, coding & testing (.net technology)<br>• Generating training document for support tool |

- significant streamlining of existing systems and reports;
- elimination of non-business critical systems and reports;
- minimization of the number of system interfaces between SAP and (local) legacy systems.

### *15.1.2 Distributed Delivery within this Program*

In this program, Capgemini used its India center for technical development, data migration and project tool support.

## 15.2 Data Migration

Data migration is the process of transferring data from a source system to a new target system. There are various reasons for data migration:

- Implementation of a new system;
- A merger or acquisition;
- Changing legal requirements;
- Consolidation of systems.

Data migration is a task that is very often underestimated and therefore may cause major issues during the cut-over. Businesses mainly focus on processes rather than on data, as it is merely a vehicle for them. But even the best processes will not work without proper data. Hence, one major challenge is to focus on data migration at the very beginning of the project and get people from the client site (because only they are able to determine the right data) to support the data extraction process, lead the data harmonization and check the uploaded data in the target system.

"Poor-quality data continues to hamstring organizations by limiting their agility, causing waste and wrong decisions, and adding significant business risk."[1]

Data migration is a perfect opportunity to work on the improvement of data quality.

## 15.3 Why Use Offshore for Data Migration Activities?

The major factor for our project was the cost advantage. However, there were also a number of other advantages:

- Experienced resources: availability of well trained and experienced resources and their command of the English language make Indian resources an ideal choice.
- Utilizing resources with project knowledge and no need for further onboarding: resources from the development team who developed the data migration objects (in SAP's LSMW[2]) formed the heart of the data migration team.

### *15.3.1 Data Migration Strategy*

The overall conversion strategy for this program was a 'big bang' strategy. The site that was to migrate data would stop using the current systems (those that were

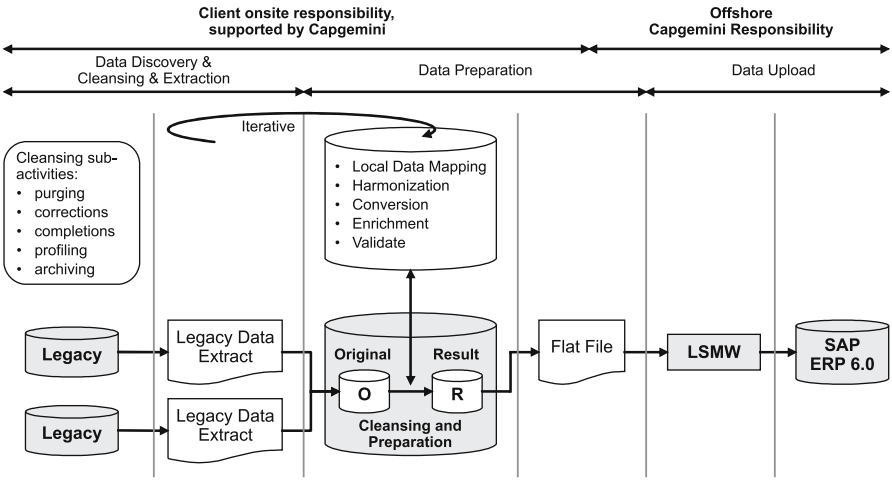


**Fig. 15.1** Data migration methodology

[1] [Friedman 2007].

[2] LSMW = Legacy System Migration Workbench

to be replaced by SAP) at a certain time, migrate all relevant data to SAP and start working in SAP after the successful data migration. All systems for all rollouts were shut down at the same time, and afterwards SAP was used as the central system for this site. The data from the old legacy systems was either migrated to SAP or archived.

The data migration process can be grouped into three major areas:

1. Data discovery, cleansing and extraction: the rollout sites were responsible for data discovery (discovering all source systems where required data was stored) and data extraction;
2. Data preparation: once data had been extracted, it had to be cleansed (deletion of duplicates, etc), harmonized, enhanced, converted to the new organization structure and validated. All this was done by local client resources with support of local consultants;
3. Data upload: finally, an upload file was created. The upload programs with corresponding quality and dependency checks were developed by the offshore resources. The conversion programs used for automatic data migration were developed by the core development team (in LSMW) during the build phase

### *15.3.2 Data Migration Scope*

The data migration scope is measured by the number of data migration objects and the data quantity of each object.

Data objects in scope of this program were all required master and transactional data objects in finance, controlling, logistic (sales and distribution and production planning), material management and plant maintenance domains. A scope list was sent from the core team to each rollout team. The rollout team checked and selected the data objects according to local requirements. If additional data had to be loaded, a gap was raised. Migration of historical data was not allowed.

For each object a decision had to be taken whether automatic data upload or manual data entry should be performed. The major factor when determining whether the upload should occur manually or automatically is the volume of the data.

### *15.3.3 Data Dependencies*

The challenge is not only to extract and harmonize the required data from the source systems but also to load this data to the target system in the right sequence. For each rollout, the first object to be loaded was the material master. This was done approximately four weeks before the cut-over weekend. Figure 15.2 shows an example of data objects and dependencies.

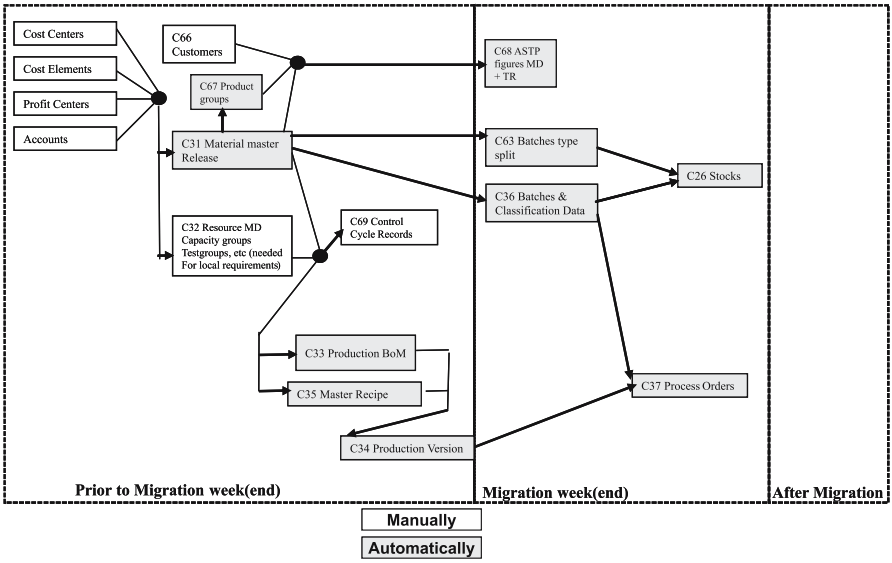


**Fig. 15.2** Data object dependencies

The objects to be migrated prior to the migration weekend (on the left in Figure 15.2) are master data objects. Dynamic data objects (on the right in Figure 15.2) had to be migrated during the cut-over weekend and were thus rather time critical.

The conversion programs used for the automatic data migration were developed by the core development team (in LSMW) during the build phase.

### *15.3.4 Data Migration Planning and Milestones*

Data migration tasks last throughout the entire project. The general rule is that data migration tasks cannot start early enough, as all tasks and steps tend to require a lot of time.

**Phase 0: Preparation**

- Conduct a workshop at a core or local project site
- Communicate the agenda to key persons in advance
- Educate key persons in the data migration process flow and key activities
- Explain their involvement, roles & responsibilities and get commitment
- Educate the team with regard to the data file (UT document), type of data, conversion rules (if applicable), etc.

**Phase 1: Setup and Scoping**

- Data discovery and cleansing
- Define high-level scope
- Create work plan, etc.
- Reconcile core SAP data file with legacy data extractor of a site (during rollout only)

**Phase 2: Blueprint finalization**

- Set up script list (status tracking list)
  - Data scope
  - Data source, volume, responsible, built and test progress
- Site data conversion scope study
  - Data conversion strategy
  - Data conversion scope
  - Data dependencies
  - Data clean-up plan
- Kick off reconciliation activities (during rollout only)
- Copy global core data conversion template (LSMW) for rollout/site release
- Reconcile all data conversion objects of the template for the release site
- Conduct a unit test; validate data file and data migration objects (LSMW)
- Support during user acceptance tests of both data and objects

**Phase 3: System Realization**

Functional design data conversion

- Data conversion (extraction, mapping, translation)
- Mapping sheet
  - Field scope (key, required, optional)
  - Naming convention

Legacy data preparation completed and unit-tested

- Data extraction ready
- Data conversion, harmonization and enhancement ready
- Upload programs ready

Start validation activities

- Prepare project plan for activities of data migration with timeline and person responsible for the process
- Upload and validate data in sand box; pre-production as per project plan

- Get sign-off from client for migrated data

**Phase 4: System Testing**

- Start-up, cut-over, backup plan
- Dry run and acceptance procedure
- Final countdown
  - Prepare project plan for data migration prior/during/post cut-over period
  - Prepare production system (BASIS team activity)
  - Complete data migration activities, object by object as defined in the above diagram
  - Validate the data in the SAP system (production environment)
  - Get sign-off from client for migrated data

**Phase 5: Implementation**

- Final upload and transition

### *15.3.5 Data Migration Delivery Model*

As we have already seen in previous sections, a number of interdependent activities and persons are involved in the data migration project. Involvement of multiple teams, presence at different locations (e.g. actual users and functional owners at one location, core team members and functional experts at another location, data loaders

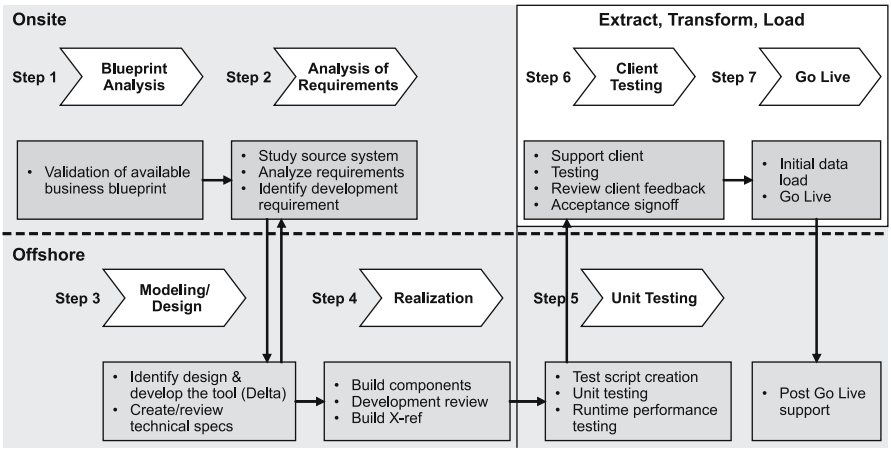


**Fig. 15.3** Delivery Methodology

at another location) and a variety of skills and knowledge levels make the migration of data a very challenging task. It demands coordination and communication based on a common delivery model.

This was the first time the client used offshore resources for data migration activities, and it was the first time the offshore location handled these activities on such a massive scale (almost 85% of the data uploading activities were done offshore for a system that comprised about 16,000 users in finance, logistics, production, sales, service and maintenance). The stakes were very high because the success of pilot site was on the critical path of the entire program. The overall project timeline was almost four years and involved some 30 rollouts.

### *15.3.6 Data Team Organization*

Three teams were defined for the data migration project to ensure a smooth delivery.

1. Local team (project site)
   - Coordinating with actual users and/or data owners to extract data from the legacy system
   - Cleansing this data using middleware tool (for more details, please refer to the next section under header tools)
   - Generating the data file in the pre-defined format and forwarding it to the core team members
   - Understanding the error logs (forwarded by data loading team), explaining to data owners and help them resolve any errors

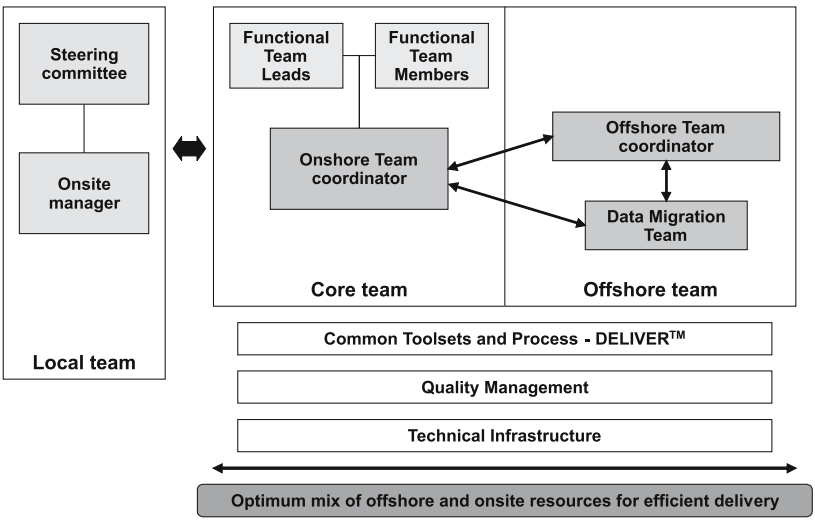


**Fig. 15.4** Team structure

- Support the core team and data owners in the validation process

2. Core team (project manager and project coordinator, reduced to one team member once the process had become more matured)
   - Detail level of planning and overall controlling of activities
   - Coordination and/or communication with team 1 and team 3
   - Facilitating issue resolution and/or escalation (if and as required)
3. Offshore team (four resources)
   - Developing data migration objects in SAP
   - Running the tool and uploading data in SAP
   - Generating error report and communicating it to the core site (team 2)
   - Supporting the client during testing, cut-over period and post go-live.

Creating team 3 from the development team was a great asset, as this meant no requirement for onboarding/offboarding, induction/mentoring or knowledge transfer activities. One person from this team worked as a coordinator, a role that became more important during the release/rollout in the East Asian countries.

### *15.3.7 Data Team Roles*

We defined six roles for the development process at the core site (see Table 15.2). Depending on the size and complexity, there can be several people for each role or several roles assigned to one person.

Furthermore, a number of single points of contact (SPoC) for legacy data were defined. These "data owners" were legacy experts responsible for:

- Interacting with data stream leads to define mapping and cleansing rules;
- Resolving data issues;
- Providing sign-offs for data migrated in their area of ownership.

### *15.3.8 Project Delivery with Offshore Resources*

The project was divided into the template build and deployment phases.

During the template built phase, the functional team identified the data requirements. All requirements had to be signed off by the project steering committee. A justification form had to be used to capture the requirement. Once approved, functional specifications were created and the development of the upload programs started following the validation of the specification by the client's business team.

During the deployment phase, the core team coordinated all local and offshore work. A regular conference call with all teams involved was used to share progress,

**Table 15.2** Team members

| Roles | Responsibilities |
|---|---|
| Functional team lead | Initiate and validate change requests (if any)<br>Schedule the data migration activities:<br>• data extraction<br>• data mapping in middleware<br>• data cleansing<br>Approval of the data file and forwarding it to the onsite coordinators<br>Daily meetings with onsite/offshore coordinators and managers to align the data upload progress and proceed with issue resolution (if any)<br>Validate data in the SAP system |
| Functional team members | Define and own the target specification for data migration for that module<br>Define the interdependencies in the target system that would affect the order of data loading<br>Define the mapping and cleansing rules<br>Resolve mapping issues<br>Create change requests (if any)<br>Extract data from the legacy system<br>Map data in the middleware and data cleansing<br>Generate file of data (to be uploaded)<br>Resolve issues of data upload and documentation (using issue log)<br>Check data in SAP system based on input from team lead<br>Responsible for SAP configuration for a specific module |
| Steering committee | Responsible for change requests to become part of the data migration scope<br>Scope and change control |
| Onsite manager | Monitor scope of data migration activities<br>Monitor the progress of all activities<br>Facilitate communication between the offshore team onsite coordinator and functional team lead<br>Ensure the offshore/onshore team use the same defined standards/templates and tools for data upload activities<br>Report daily/weekly status to the project manager<br>Validate requirements<br>Carry out gap analysis<br>Facilitate communication between Rightshore® and onsite teams for issue resolutions and change requests |
| Onshore/offshore team coordinators | Review the work throughout data upload activities<br>Provide technical/functional assistance when required<br>Identify and review critical issues<br>Ensure compliance with standard templates and tools for data upload activities<br>Monitor deliverables to ensure optimal integration and efficiency<br>Assigns tasks to developers<br>Inform status of data upload (object-related) to functional team members<br>Align the test results with the migration coordinator<br>Review and report weekly status to the migration coordinator<br>Ensure acceptance sign-offs and offshore delivery evaluation |
| Offshore data migration team member | Estimate workload for relevant data migration activity<br>Complete data migration activity and document in the approved standard template<br>Perform internal review for data upload by another member of the team<br>Perform basic level of checking and document results and errors |

discuss issues and track actions. The deployment milestones for the data team were:

- Successful extraction of data from the legacy system;
- Successful completion of data mapping in the middleware and data cleansing;
- Provision of data file to the deployment team;
- Successful upload of the data files in SAP.

Before the cut-over weekend (the weekend before the go-live), two data team resources traveled to the local site to support activities on the cut-over weekend and provide continuous data support for one week after go-live. This was the only activity the data team had to provide onsite. The client stopped data entry upon business end on Friday. Prior to switching off, the client extracted transactional data from the legacy systems. This dynamic data included, for example, open purchase orders, open sales orders, account receivables, account payables etc. This data was migrated to the SAP system on the cut-over weekend.

### Lessons Learned

Clockwork timing is critical. Everybody must adhere to the project plan and schedule. Before finalizing the plan, there should be an open discussion among all stakeholders, as their personal buy-in to the plan is essential. Most activities are interlinked, and delay in one activity will cause a chain reaction. On the cut-over weekend people need to be available at all times to take quick decisions and do quick fixes if required.

Two full data migration cycles that cover the extraction from the legacy systems all the way to the checks and the validation of the data in the SAP system should be executed. This will ensure the quality of the data, the reliability of the data migration processes and the feasibility of time schedules.

The validation of the data by the client is mandatory for each of these trial migrations. This means that key transactions have to be run using migrated data. For example, if material and vendor data is migrated, clients need to run test scenarios for purchasing to create purchase orders or PIRs (purchase info records) for all migrated material types. If stock data is migrated, the client will also have to compare the stock valuation of the legacy system with the new SAP system.

## References

1. Friedman T (2007) Key issues for Data Quality 2007, Gartner Research

# Chapter 16
# Case Study: Distributed Delivery of an SAP Solution at a US Life Science Company

**Kent Bracken, John Carlucci**

**Abstract** The client is the US branch of a global pharmaceutical company. As a result of organic and inorganic growth over the years, the business system landscape became fragmented and inefficient. In order to position the company for future growth, the client needed to integrate and standardize their business processes and systems.

The client embarked upon a fifteen month SAP implementation project, leveraging Capgemini's Distributed Delivery Framework (DDF) model. The DDF model comprises an onshore project team and an offshore team that has extensive responsibilities for both development and configuration activities. This article provides an overview of the approach taken to integrate the offshore team, focusing on the processes used to support the distributed configuration activities.

## 16.1 ERP implementation

### *16.1.1 Meeting the challenges of a global company*

The client is part of a global pharmaceutical company involved in the manufacturing, marketing, and import/export of pharmaceutical products. This is a truly global company with operations in several countries across Europe, North America, and Asia.

The US branch of the company serves the North American marketplace and includes both headquarters and manufacturing operations. The company recognized the strategic advantage that an integrated SAP platform could bring for its North America operations. The company was also aware of the many challenges which stood in the way of their goal of continued growth and efficient operations:

- Many financial and operational processes were highly manual
- Compliance requirements demanded solid integration
- An integrated solution was required to manage the increasingly complex organization

Anja Hendel, Wolfgang Messner, Frank Thun, *Rightshore*

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- The company needed a better platform to improve collaboration between the growing number of business units to take advantage of future opportunities
- The legacy applications were becoming outdated

One of the client's main objectives for the project was to establish a scalable, flexible platform which would address these challenges and allow them to quickly integrate planned acquisitions and support future business expansion.

### *16.1.2 The project*

The project was kicked off at the North American headquarters, and was completed fifteen months after project start. The SAP ECC 5.0 implementation included finance, procurement, customer order management, human resources (including manager and employee self-service functionality), warehouse management, and business warehouse (data warehousing). Challenges within the organization brought on by competing business priorities forced the project team to bring innovation, industrialization and enhanced client intimacy to bear. The deployment was accomplished in three waves: human resources in the initial wave was implemented 10 months after the project start, procurement was implemented one month later and all remaining functionality was implemented in the following month. An extension of the SAP functionality to Canada and Latin American distribution was completed in month 15 of the project. The table in Figure 16.1 demonstrates the scope of SAP functionality implemented in more detail.

The project activities were structured based on Capgemini's SAP Methodology DeliverSAP, which follows a standardized phased implementation approach illustrated in Figure 16.2.

| | | | |
|---|---|---|---|
| FI | General Ledger | HR | Personnel Development |
| FI | Accounts Payable | LES | Warehouse Management (FG) |
| FI | Accounts Receivable | LES | Materials (FG) Distribution |
| FI | Asset Accounting | LES | Sales Order Management |
| FI | Special Ledger | LES | Shipping |
| FI | Banking | LES | Transportation |
| CO | Profit Center Accounting | LES | Billing |
| CO | Overhead Cost Accounting | MM | Purchasing |
| CO | Profitability Analysis | MM | Inventory Management (FG) |
| CO | Project Systems (Project Acctg. portion) | MM | Invoice Verification |
| HR | Personnel Administration | CA | CATS (Project Time Tracking for cost allocation) |
| HR | Employee Self Service | CA | EDI |
| HR | Management Self Service | BW | Business Warehouse |

**Fig. 16.1** Functional scope

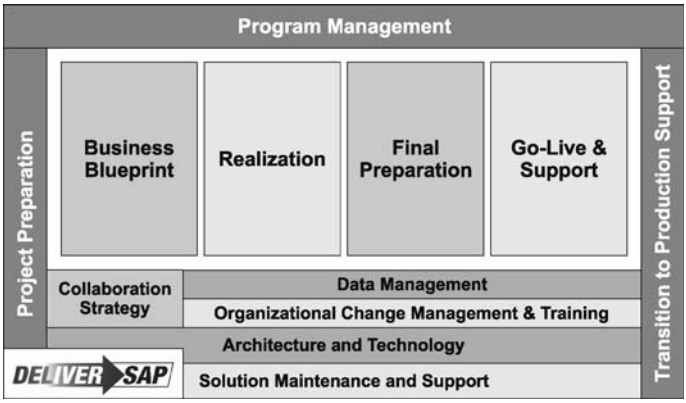


**Fig. 16.2** Project phase overview

The design approach for the project was focused on evaluating the business requirements from each of the impacted functional areas against the standard SAP functionality and leading practices, "Design by Acception". This evaluation was done through a series of "Rapid Design Workshops" utilizing the input and approach described in Figure 16.3.

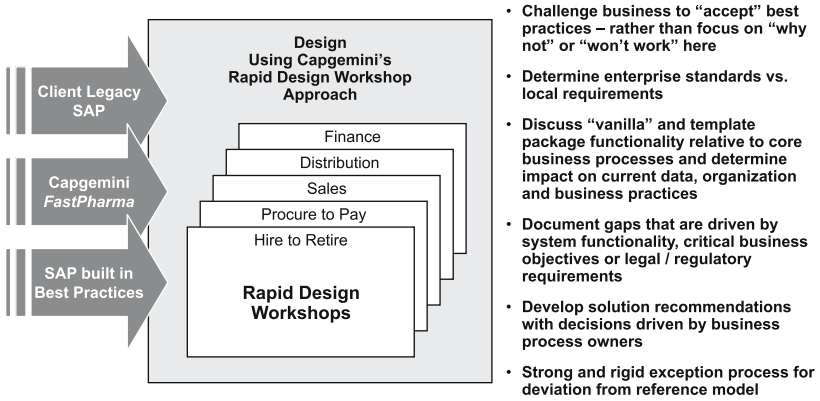


**Fig. 16.3** Rapid design workshop input and approach

## *16.1.3 Offshoring considerations*

**What activities were performed offshore**

Not all implementation activities lend themselves to distributed delivery; therefore, the level of offshore work will vary by work stream and project phase. For this

project, two primary areas were defined to best leverage the offshore resources, and comprise the highest proportion of the work performed offshore:

- Business process enablement (configuration)
- ABAP development (coding)

The combination of periodic onshore activities, spread across the different phases of the project, and the work done offshore, was deemed to be the most effective use of the offshore team.

**Considerations for offshore configuration**

Cost reduction is generally perceived as the most common driver for offshore project work. While it is true that offshoring offers significant opportunities for cost savings, there are other important reasons why this project elected to do much of the project work offshore. There are, for example, an increasing number of highly skilled resources in the development centers with SAP functional and technical skills. The fact that they work in large, established development centers means there is a broad talent pool readily available to meet changing project demands, be it for increased manpower or different skills. This supports a fast ramp-up or ramp-down of the team, as required. It also offers the team access to a great depth of experience within the same development center in both technical and functional areas.

Performing SAP configuration offshore is one of the newer and less well established service offerings. However, it is being done successfully and offers several advantages, thus making it an attractive alternative to the traditional project structure. The approaches to and processes for performing configuration offshore are continuously refined and further developed, leading to better guidelines for implementing successful projects. Plus, an increasing number of project leaders and SAP analysts, both onshore and offshore, are becoming experienced with remote configuration. This project leveraged these improvements by piloting a newly enhanced Capgemini framework for the distributed delivery of SAP projects.

### *16.1.4 Innovative approach to business alignment*

One of the innovative aspects of the project was the use of Capgemini's Accelerated Solutions Environment (ASE). The ASE is a work area designed to stimulate creativity that is combined with a unique methodology to provide a highly collaborative working environment to generate rapid results.

The team designed three ASE sessions to expedite the blueprint process and facilitate cross-functional input and buy-in to the new process models. The first session focused on executive alignment, and involved all key executives and decision makers from the functional areas impacted by the project scope. This group worked together to provide a mutually agreed and solid starting point for the project team:

- Validated project goals, objectives, scope and measures for success
- Confirmed executive alignment on the project approach, milestones and timing
- Defined roles and responsibilities required to make the initiative a success
- Developed a risk mitigation strategy for the project and across the enterprise
- Developed the business communication plan going forward

The second session was a business process design ASE focused on defining the core enterprise-wide business processes, and making decisions on key business and data issues needed by the team to develop the Blueprint. The third session was the blueprint confirmation ASE where individuals from across the business were brought together to confirm that the blueprint was complete and that the project team was prepared to move to the realization (build) phase of the project.

## 16.2 Building a distributed project organization

### *16.2.1 Project organization*

The onsite project team was centrally located at the company's North American headquarters, while the offshore team was situated at the Capgemini development centre in Mumbai, India. The project team was organized by five core functional business areas (finance, sales, distribution, procurement and HR), with cross-functional support teams for system validation, data management, data warehouse, change management & training, SAP Basis administration, security, development, legacy applications and interfaces. The organization chart in Figure 16.4 illustrates

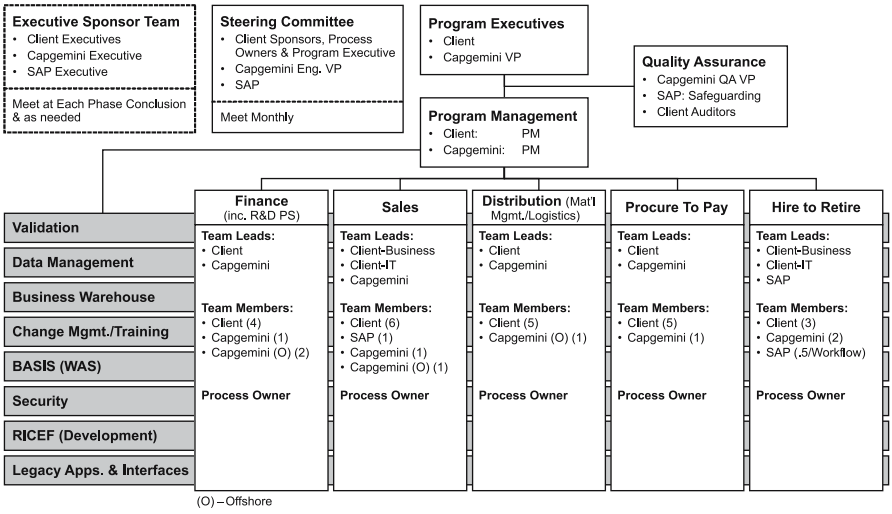


**Fig. 16.4** Project organization

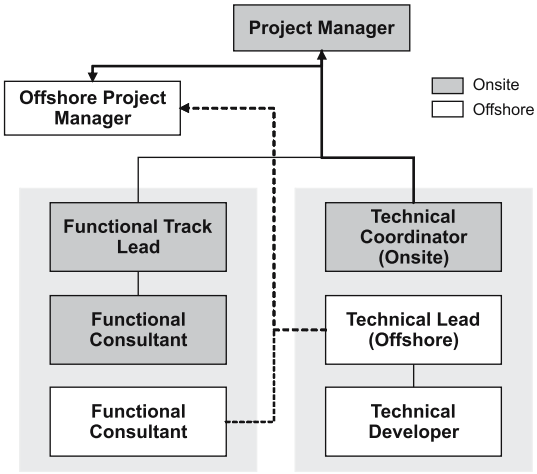


**Fig. 16.5** "One Team Concept" with clearly defined roles and responsibilities

a key element of the project approach, namely the co-teaming of Capgemini team members and client business and technical team members. This facilitated the integration and communication between business and consultants.

The coordination between the onsite and offshore teams was carried out on the basis of the "one team" concept illustrated in Figure 16.5. This concept relies on frequent communication between the onshore and offsite teams. Onsite/offshore communication for the functional teams took place directly between the offshore configuration analysts and their corresponding onshore functional track leaders. For the development team, all offshore team communication went through the onsite coordinator.

### *16.2.2 Roles and responsibilities*

To ensure adequate coordination of the distributed team as well as a smooth running development and implementation process, it is essential for the project manager to clearly define the requirements and responsibilities for each project role, and for all team members to fully understand their responsibilities. Table 16.1 provides a summary of the client and consulting positions filled for a distributed delivery project:

**Table 16.1** Roles and responsibilities

| Role | Onshore/ Offshore | Responsibility |
|---|---|---|
| Executive Sponsors | Onshore | Own the program. Final authority to set priorities, approve scope, and settle company-wide issues. |
| Steering Committee | Onshore | Maintain a high-level oversight of the project. Have responsibility for the overall success of the project. |

**Table 16.1** Roles and responsibilities

| Role | Onshore/ Offshore | Responsibility |
|---|---|---|
| Program Executives | Onshore | Ensure consistent project lifecycle steps and practices. Define project management standards. Monitor project status. |
| Project Manager (onshore) | Onshore | Manage daily operation of the project. Ensure compliance with project management standards. Accept and be responsible for project deliverables. Communicate project status. Develop and maintain the risk management plan. |
| Offshore Project Manager | Offshore | Responsible for offshore project planning, coordination and the daily management of the project. The Project Manager is also responsible for overseeing the resolution of identified issues. |
| Business Process Owners | Onshore | Conduct the final approval for the business design. Support the template-driven approach. Arbitrate cross-functional and process-specific issues. |
| Functional Team Lead (IT) | Onshore | Manage the development of the functional and/or technical design. Provide process integration with other technical areas. Plan, track, and manage the execution of team tasks. |
| Functional Team Leads (Business) | Onshore | Motivate business participation in the area. Identify the requirements of the business area. Resolve issues and gaps as spokesperson of the business area. |
| Team Members | Onshore | Support the definition of the functional area requirements and processes. Support the review of the solution design for completeness. Support data conversion and change management activities. Participate in user testing and training activities. |
| Organizational Change Management | Onshore | Develop and manage a communication strategy for end-users and other affected parties within the organization. Develop the recommended training approach and coordinate trainings. Facilitate the process of measuring organizational readiness throughout the project. |
| Functional Consultant (onshore) | Onshore | Functional experts in a specific functional stream. Support the definition of the functional area requirements and processes. Support the review of the solution design for completeness. Support data conversion and change management activities. Participate in user testing and training activities. Communicate with the respective user group onshore and functional/technical team offshore. |
| Functional Consultant (offshore) | Offshore | Functional experts in an individual functional stream. Support the definition of the functional area requirements and processes. Communicate with the functional team onshore and technical team offshore. |
| Technical Coordinator (onsite) | Onshore | Responsible for the technical coordination with the offshore team. Act as a single point of contact for status on all technical objects. |
| Technical Developer | Offshore | Responsible for all technical development. |

## 16.3 Project and configuration processes

### *16.3.1 Getting started*

Compared to working with a team located onsite, the successful execution of a project by a distributed team requires more rigorous planning, communication, methods and tools. There are a number of critical factors in making the remote team successful, but the two which the project team found most essential were establishing adequate communication channels between the team members and defining rigorous project procedures.

**Establish channels of communication:**

"Connectivity" comprises both the physical connections for communicating and sharing information between all team members and the knowledge connections of the team. The project team covered this important aspect by bringing the offshore team onsite during the blueprint phase, which allowed the overall team to:

- develop a common understanding of the project
- get to know each other and become familiar with their business and consulting counterparts
- understand the business requirements that were gathered during the blueprint design sessions

**Develop a common understanding of the project:**
The project scope, project timeline, and the processes and procedures for managing the project and developing the solution need to be well defined for a distributed project team. They also need to be clearly communicated to the team and complied with to be effective. Co-location of the core team allows the team members to become familiar with the processes used for the project.
**Getting to know each other:**
The "One Team Concept" was a key element of our approach for the project. For any team to be successful, the team members need to know each other. Although it may not always be feasible for all team members to spend time together, it is important for the offshore team leaders and functional leaders to be co-located for some time with the onsite team during the early stages of the project. This allows them to develop a common understanding and establish channels of communication essential for the daily project activities. The "One Team Concept" didn't just consist of including the offshore team for realization activities, but having them involved from start to finish.
**Understand the Business Requirements:**
Key members of the offshore configuration team joined the onshore team during the blueprint phase of the project and participated in the blueprint design workshops, where they worked with the business owners and functional analysts to understand

the business requirements and define approaches to the solution. They furthermore collaborated with the local project team in developing the initial design, and then returned to the development centers in India to continue working with the expanded team. These sessions allowed them to understand the business functions and unique requirements of the client, the issues behind the design, and priorities for conflicting requirements.

#### Establishing methods and processes

**Documentation**
Most successful ERP projects have defined processes and deliverables for project management and the development/configuration activities. However, formalizing these processes is especially vital for a distributed project team. In addition, it is not enough to merely present them in a kick-off session, as they need to be available for review and reference throughout the project lifecycle. Some of the specific project management deliverables of key importance for distributed teams are:

- Clear scope of work defining the activities to be performed by the offshore and onsite teams
- Documented project organization structure, specifically the integration between the onsite and offshore teams
- Formal and agreed definition of acceptance criteria for deliverables
- Defined processes and hand-offs for the technical development and functional work
- Documented and clearly communicated testing strategy

**Project methods**
For our project, the onshore and offshore teams used the Capgemini DeliverSAP methodology along with complementary processes from the SAP Distributed Delivery Framework (SAP DDF). DeliverSAP is a web-based tool providing guidance for all phases of the SAP project. The SAP DDF provides specific processes and guidelines for projects using a distributed team.

### *16.3.2 SAP configuration with a distributed team*

Performing ERP configuration offshore offers several advantages for an SAP implementation, but also presents a number of challenges that need to be met.

#### Remote configuration – the challenge

The challenge of remote configuration is that the configuration consultants need to define the solution and not merely configure it. They must closely collaborate

with the business users on a regular basis, even though they are separated by time zones and continents. They need a firm understanding of the business requirements, leading business practices, alternative process approaches, and SAP configuration options and capabilities – not just the mechanics of the configuration. Traditionally, analysts would develop the solution in a series of workshops and frequent review iterations face to face with key business users to ensure the solution covers the business requirements and objectives, even though these needs may evolve during the project.

Overcoming the inherent problems of a distributed project team is essential to make the process work and the project successful. The challenge is to provide the tools, processes, activities and other support that enable the team to collaborate effectively. In addition to the described project approach, transparent communication between all team members was vital to the success of this distributed project, as described in the "Effective communication" section to follow.

## Remote configuration – our approach

The blueprint and realization of the functional design was performed by a joint onsite and offshore team. The division of work was determined based on evaluation criteria defined during the project preparation phase. An onsite lead was responsible for each of the main processes and the functional design, and acted as the primary interface for the business side in terms of scope and requirements. The sub-processes were divided among the onsite and offshore resources based on the scope and characteristics of the necessary work. For this project, the sub-processes assigned to the offshore team were carved out in relatively complete functions, allowing the offshore team to take ownership of a function and work more independently within

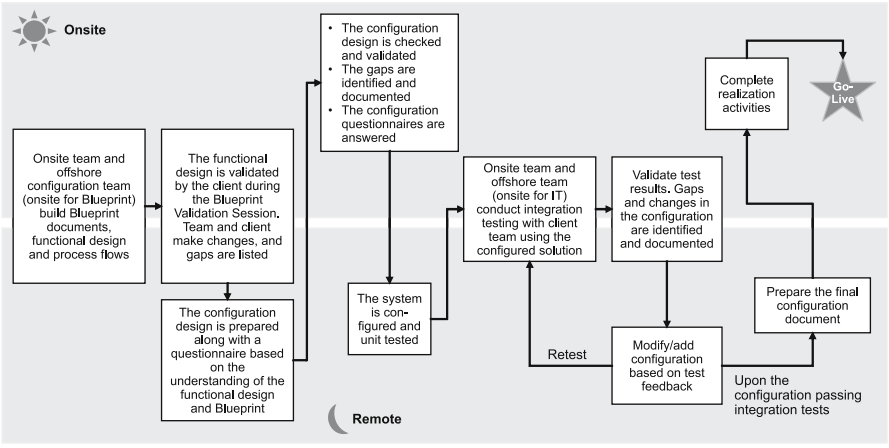


**Fig. 16.6** Remote configuration process – an illustration

that specific area. For example, configuration of classification, batch management, pricing, master data, and output determination can be segmented and assigned to the offshore team.

The functional team members both onsite and offshore were involved early on in the blueprint phase and participated in the design workshops to ensure they had the opportunity to capture the necessary design knowledge and establish a working relationship with the business and project team members. This team worked directly with the business users to develop the blueprint design documents and business flows. Once the blueprint workshops were completed, the offshore functional team members returned to their home location to focus on realizing their assigned functional design areas. As the configuration was refined, it was reviewed, checked and validated by the onsite team. The final configuration and the unit testing were performed by the responsible SAP analysts – whether onsite or offshore.

## 16.4 Effective communication

As we have seen, the challenges to be addressed in distributed delivery are overcoming the issues of team separation and making the activities of each team as transparent as possible. This includes clearly communicating the project processes, guidelines, decisions, and issues.

In this project, contact between the teams was predominantly established by phone and email. What made these technologies effective was defining the timing

**Table 16.2** Meeting schedule

| Meeting | Frequency | Day/time | Attendees |
|---|---|---|---|
| Executive Sponsors | At each major milestone | TBD by team | Executive Sponsor and Steering Committee |
| Steering Committee | Monthly | Steering Committee Schedule | Steering Committee and Program Executives |
| Project Management | Weekly | Weekly (starting week 1) | Program Executives, Program Management, Process and Work-stream Team Leads |
| Process & Work Streams (separate meetings per team) | Weekly | TBD by team (30–45 minutes) (starting week 1) | Team Leads, Process Owners |
| Offshore Synchronization | Weekly and as required | TBD by team (starting week 4) | Team Leads, Program Management, and Offshore Team Members |
| Development Team | Weekly | TBD by team (starting week 5) | Technical Team Leads and Process Team Leads (including offshore coordinator and team) |

of regular communication and the availability of contacts. In addition to the regular meeting schedule presented below, other standard contact points included:

- Review of all specifications for development objects by the onsite coordinator prior to sending them to the offshore team, and review of specifications directly with the offshore developers to establish a common understanding.
- Regular communication between the offshore functional analysts and the onshore functional team leader about all issues regarding business requirements and functional configuration.
- Clear documentation of all key project documents including project issues, decisions, project organization and contacts, and making them available to all team members in the shared project knowledge repository.

## 16.5 Distributed Delivery Framework and standards

### SAP DDF overview

The team piloted the application of a newly defined Capgemini approach for distributed SAP projects known as the SAP Distributed Delivery Framework (SAP DDF). This tool offers a common framework for executing SAP implementation projects in a distributed delivery model and describes how the offshore centers collaborate with the onsite teams. SAP DDF uses an integrated governance approach, common tools and project methodology and a consistently applied delivery model to successfully manage and execute projects in a distributed environment.

Based on the DeliverSAP methodology, the framework delineates the activities and responsibilities on the level of phases, stages and deliverables, and provides a comprehensive set of templates, tools, procedures and sample deliverables across the entire SAP implementation lifecycle.

## 16.6 Lessons learned

The team learned a number of key lessons in terms of the Distributed Delivery Framework, such as viewing the entire team as one integrated group, scheduling frequent communication, onboarding onshore and offshore team members in the same way, and staffing offshore team members onshore to facilitate knowledge transfer and team building. But there are also some additional suggestions for future projects:

1. Bring the design and configuration teams together for key activities
   Involve the offshore team responsible for design and configuration in selected blueprinting, testing and go-live activities as soon as possible. The key here is to successfully manage the time that the offshore resources spend onsite. In this

project, there was a 90 day threshold for onsite time which was planned and utilized in three distinct timeframes:

- 30 days during the blueprint phase
  - Allowing the offshore team to understand the design requirements, initiate the functional specifications for development objects, and establish working relationships with their US counterparts from Capgemini and the client.
- 40 days during integration testing
  - The team was engaged in testing the functional configuration and development objects and preparing training materials.
- 20 days during cutover/go-live and post implementation support
  - Selected offshore team members joined the onsite team a week before go-live to assist in the cutover activities, and then stayed for an additional two weeks for post go-live support.

2. Define specific configuration focus areas for the offshore team
   Divide the design and configuration work effort in a fashion that allows the offshore team ownership of specific areas of configuration or sub-modules (e.g. project systems, assets, pricing).
3. Assign senior configuration leads to the offshore team
   The offshore team members responsible for the configuration activities need to have sufficient business acumen and SAP implementation experience to understand the business issues and define appropriate solutions.

## Conclusion

Distributed project teams are becoming a more common characteristic of ERP projects, but for these projects to be successful project management and team members need to adopt an innovative approach. Whether team members are situated in multiple locations to be close to the business, or in different countries to leverage offshore advantages, the separation requires a more rigorous planning and communication routine as well as advanced methods and tools.

Our client successfully leveraged offshore configuration by following a number of essential guidelines. One key to success was the way the "One Team Concept" was carried out. The offshore team was brought onsite at key points allowing the full team to work side by side, which meant team members were able to develop a common understanding of the project and get to know the business, each other, and the rules of the engagement.

# Chapter 17
# Case Study: Management Learnings for Distributed Delivery from a Major Engagement in the CPR Industry

**Prasad Acharya, Vijaya Chintada, Nitin Garg, Jeetendra Jha**

**Abstract** The client is a leading company in the consumer products and retail industry (CPR) with multi-billion dollar annual sales. This article gives an overview of the Rightshore® development sub-project of their business transformation program. It describes challenges typically faced in delivering a large complex Rightshore® project and possible ways for handling these challenges. This is documented by way of key learnings, typical project management situations and how this was addressed during the engagement. By focusing on some key messages along with examples from the engagement, the article attempts to highlight unique learnings and possible ways of addressing project management issues while dealing with similar large and complex offshore development projects.

## 17.1 The engagement

The client is a leading North American company in the consumer products and retail industry (CPR) with a strong focus on developing brands. Capgemini was associated with the client for several years working very closely on this business transformation engagement. In order to deliver such a complex and large engagement, Rightshore® centers in India were actively used in the project, resulting in tremendous advantages for the client in terms of flexibility of skills, quicker ramp-up on a larger scale, complex technology delivery, cost advantages and ready availability of a pool of resources and numerous additional benefits.

The business issues faced by the company early in this decade included the following

- Largely silo structure that was inconsistent with their strategy
- 'Tired' operating processes and 'outdated' technology
- A critical need to revamp the business structure
- Innovation getting stifled, this was key to success in the industry
- Inefficient use of shared services

Anja Hendel, Wolfgang Messner, Frank Thun, *Rightshore*
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The client embarked on a large business transformation project to resolve these issues. The focus was on two areas: building financial and shared services capabilities and setting up a robust supply and demand chain. Through multiple go-lives and involving several of the businesses in the program, the client sought to transform itself to cater for what they believed will be a new way of doing business.

The company invested significantly in this program, which helped to consolidate their system landscape, move away from disparate legacy systems and set up systems that changed the way they do their business and thus establish better ways to address customer requirements. This transformation project was expected to address all the critical issues the company faced at the time and cater for the growing needs of its customers.

Capgemini was engaged with the client as a transformational partner for several years and helped the client with

- Putting together a transformation agenda
- Building the technology strategy and design, including infrastructure, data and application software
- Concurrent implementation
  - Business model – Service-Oriented Enterprise (SOE) with a new business structure, processes, and change management
  - Technology – Service-Oriented Architecture (SOA) with infrastructure, data and application software integration and implementation

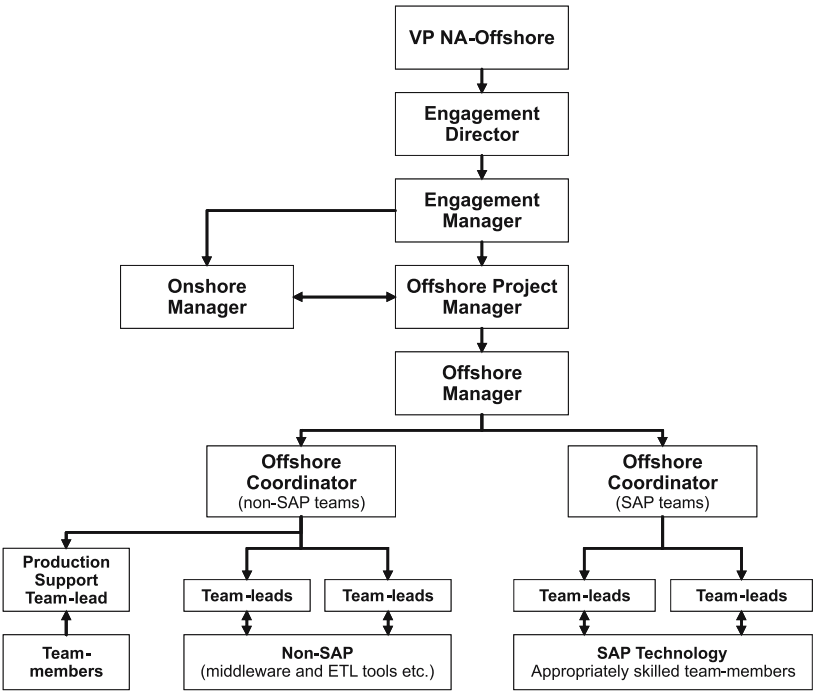


**Fig. 17.1** Team structure

The transformation program meant significant economic benefits for the client:

- A redefined business model
- The opportunity for competitive positioning by enabling strategic options that had not been considered before and by creating new operating and technology platforms
- The capacity to respond to the end customer and flexibility through a SOE
- Better focus on a demand chain PULL approach rather than the traditional supply chain PUSH approach.

For Capgemini, this was one of the largest engagements carried out in North America with several hundred resources (onsite and offshore) during peak times and significant presence of Capgemini for large durations of the engagement. It also provided an opportunity for further capability development:

- SOA/SOE in practice: extensive integration of all disciplines
- Rightshore® delivery: over 0.5 million hours since delivery from India had been engaged
- Building skills in new dimension areas and across technologies

## 17.2 Offshore operating model

The team structure adopted for this engagement focused on operational efficiencies, flat team structures with teams working on various technologies, distributed

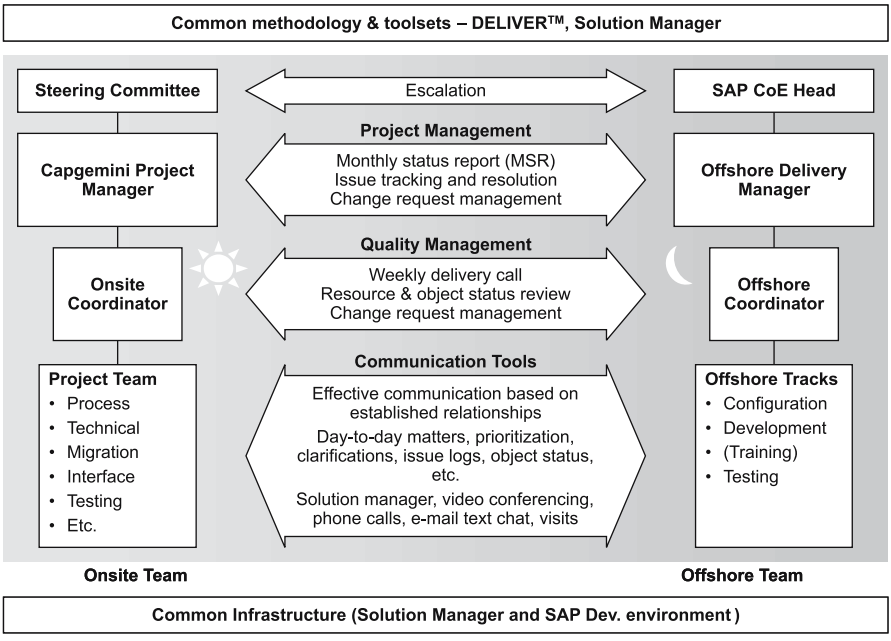


**Fig. 17.2** Escalation process

delivery across centers with clear reporting to coordinators and beyond. A project management office (PMO) team was responsible for all project management office activities and focused on reports/dashboards and analyses required for the project. There was a high level of delegation of day to day work with direct reporting to onsite counterparts to ensure minimal bottlenecks at offshore locations.

The project team created a delivery governance structure that clearly documented the escalation process that was to be followed between the onsite team, the client and the offshore team. This process was based to a large extent on the standard governance structure used for most Rightshore® projects. This structure is shown in Figure 17.2. In addition, several new communication trackers for capacity and utilization trends, planning versus actual reports, project metrics and KPI reports were shared at regular intervals to ensure that all key stakeholders had the relevant information about the status of the project. Regular client visits to India and visits by key members of the Indian management team to the account ensured excellent communication and appropriate escalation channels.

Table 17.1 lists the different roles and responsibilities of some key positions in the project.

**Table 17.1** Roles and responsibilities

| Roles | Responsibilities |
|---|---|
| **Engagement Manager** | • Attend steering committee meetings<br>• Provide direction to the team<br>• Participate in strategic decision making at high levels<br>• Continuously review the program direction with program sponsor<br>• Sign-off of deliverables and progress<br>• Review and sign-off of changes to the project scope |
| **Project Manager** | • Prepare the project charter and the scope of the project to be delivered from Rightshore® locations<br>• Select and set-up remote team with the skills required for the project<br>• Educate the team members about the distributed delivery approach and ensure adherence<br>• Monitor scope of delivery in terms of nature and number of deliverables and change requests<br>• Ensure that the issues in the project are handled effectively and escalate the same as and when required<br>• Document the remote development and testing process for the client and ensure the functioning of the remote team as per the process<br>• Ensure balance and distribution of development work to appropriate team members<br>• Monitor quality reviews of the work throughout the delivery<br>• Facilitate communication between the Rightshore® and the onsite team<br>• Project progress and status to the onsite managers and engagement manager periodically as agreed<br>• Ensure review of test results with the onsite coordinator and provide Rightshore® development support for change requests when needed<br>• Ensure adherence to organizational quality processes with respect to various standards |

**Table 17.1** (continued)

| Roles | Responsibilities |
|---|---|
| **Offshore Manager** | • Monitor scope of developments at Rightshore® locations<br>• Select a team of developers with the appropriate skills and experience for the project<br>• Monitor the progress of the Rightshore® development as per the documented Rightshore® development guidelines for this project<br>• Facilitate communication between the Rightshore® team members and the onsite coordinator<br>• Be responsible for the final delivery of the object<br>• Report weekly status to the onsite coordinator/Rightshore® project manager |
| **Offshore Coordinator** | • Support the onsite coordinator with initial and re-estimation of the development effort<br>• Assign documentation/development/review work to appropriate team members<br>• Review the work throughout the development and provide technical assistance if required<br>• Ensure coordination between onshore and Rightshore® teams for test data uploads<br>• Review test results with the onsite coordinator |
| **Onsite Coordinator** | • Help functional consultant to develop specifications with the right quality and arrive at effort estimations<br>• Validate functional specifications for completeness to enable further development at Rightshore® locations<br>• Allocate development work to Rightshore® teams<br>• Facilitate functional specification issue resolutions from Rightshore® locations<br>• Facilitate communication between the functional onsite team and the technical Rightshore® team<br>• Review the Rightshore® development before delivery and provide technical assistance when needed for minor onsite work for objects that are developed at Rightshore® locations<br>• Coordinate test results (defect log) with the functional team<br>• Facilitate defect resolution from functional tests with Rightshore® team<br>• Ensure coordination between onsite and Rightshore® teams for test data uploads<br>• Report and review weekly status to the PMO onsite<br>• Document processes relevant to this project including inputs from the onsite functional team<br>• Escalate issues to the Rightshore® /onsite project manager in time |
| **Technical Consultants** | • Participate in design workshops and recommend approach for development<br>• Produce technical specifications<br>• Design and develop programs/reports as assigned<br>• Assist in peer review/QA review as per role assigned<br>• Execute the project plan<br>• Maintain defects, changes, review comments, object documents etc. that are part of the software development life cycle (SDLC)<br>• Team leads coordinate the development work for team members reporting to them<br>• Perform other technical development activities as required |

## 17.3 Scope of work undertaken

The scope of the offshore development project comprised the technical design and development of program code using SAP and non-SAP middleware products as part of the offshore/remote development approach. The development objects included reports, enhancements, conversion, interfaces and forms using SAP technology. In addition, non-SAP middleware development was carried out using various other technologies. Rightshore® teams were also used extensively for remote functional configuration, design and testing activities.

## 17.4 Key challenges and learnings from the engagement

An engagement as large as this provides numerous challenges and learnings for the teams working at onsite and offshore locations. For example, these challenges included the use of new technology, huge team sizes, distributed delivery across centers, the complexity of the work to be undertaken and rapid ramp-ups and ramp-downs in team sizes. However, the engagement also provided tremendous learnings for the offshore project management team and all team members involved in the engagement.

The following sections summarize the key learnings and messages the team gained in the course of this engagement. Project situations that occurred during this engagement are provided as examples and the actions taken in response to the situations are explained. The examples given can certainly not be applied to all project management situations. However, in many large complex engagements with a significant proportion of offshore delivery, project managers (PMs) may face similar situations and the information provided here may be useful for managers engaged in similar projects.

### Be upfront!

As a project manager, it helps to be upfront in all situations – be it with stakeholders, customers or resources. Taking the "bull by the horns" may prevent many a crisis situation.

**What would you do as a project manager?**

**The situation was as follows:** In the first few months of the engagement, the client expected to talk to and confirm every resource that was recruited for the project. Since the team consisted of hundreds of resources during the development phase, this would have been quite time-consuming.

**Actions taken:** The project management team was upfront with the client and explained that this was not a recommended approach. The question here was that of ownership and responsibility. The India team was responsible for the delivery and should therefore select the team members. With this approach during the initiation phase of the project, the project team proposed that only the managers and a few SMEs (subject matter experts) would be consulted.

The client accepted this approach and there were no more interviews at team member level in which the client was involved. The client now has confidence in the offshore team to staff appropriately and according to the relevant requirements.

The onboarding of resources or roll-offs are planned jointly and the client put the offshore project management team in charge of identifying the required resources. By being upfront about the potential issues, the team was able to avoid what could have been a significant problem for both the client and the offshore team. In general, when a new team is set up, clients would like to interview resources before confirming them, especially when it comes to key resources. However, once the key resources have been identified, the processes have been set up and there have been first work progresses, this becomes less of an issue as the mutual confidence between the client and the offshore project management team grows. Especially when setting up a large team, it is not possible to talk to all the resources and upfront communication can resolve possible conflicts before they occur.

**What would you do as a project manager?**

**The situation was as follows:** The client's project team structure was aligned with the businesses they were in and they wanted the offshore team structure to be aligned in the same way. However, this was not a good option for the offshore team since a large part of the team was technology-focused and it was more beneficial to align the team according to the relevant technology area. This was especially true since multiple technologies were to be used and some of them were used for the first time.

**Actions taken:** The project management team was upfront with the client and explained that aligning the offshore team structure along the lines of the onsite team structure would not be productive for the project. The team explained the advantages that could be gained from having delivery streams aligned by technology. For example, this would help in optimizing the usage of resources. Since the pool of resources at the offshore location was under one structure, there were other ways of ensuring that the business knowledge was shared across the teams. In addition, given the large size of the team, an alignment by businesses could result in sub-optimal utilization of resources.

Even though the client was very keen on having the team aligned as per their structure, by being upfront early on in the project, we could convince the client of the advantages of the offshore approach for the team structure. This was more practical for the client situation and hence worked better for the project as a whole. Further to this, many changes were made to the structure at the offshore location to accommodate changes in the client situation and optimize the structure as the project evolved.

**Assumption is the mother of all evils!**

During the day to day project management activities, project managers tend to make various assumptions with regard to the scopes, timelines, communication, delivery process etc. Surprisingly, consulting and system integration companies also assume that customers will not go for anything against conventional wisdom. Questioning every assumption and putting a business case for any new suggestion or advice, will get buy-in from clients and other stakeholders. The key message is not to make assumptions, but to question and reevaluate all parameters before concluding the right steps further on.

**What would you do as a project manager?**

**The situation was as follows:** The client/front office expected the offshore team to staff a team of 20+ resources for a new technology that Capgemini India had never used before. The technology was also new to the market and hence resources were scarce. What were the choices?

**Actions taken:** The initial assumption at the offshore location was that this would not work and the offshore project management team was not convinced this could be achieved. After a detailed analysis of the situation, the project management team felt the need to inform the client about the situation and devise a plan to cope with the situation. Surprisingly, the client bought in to the idea suggested by the offshore project management team. The 80:20 rule was applied with great success. Both the client and Capgemini benefited significantly from this. 20% experienced resources in the technology required were hired and guided 80% trained consultants who had the basic technology skills.

The approach used resulted in a remarkably successful deployment at the offshore location. The dual skilled team was a real advantage as the project benefited from complex deliveries where resources needed to understand both technologies. The mix also enabled easier planning of deployments and subsequent roll-offs from the project. The client did not follow the conventional

approach and looked for resources that had all the required skills. The 80:20 approach was a win–win situation for the client and for Capgemini. The initial assumption that the client would never approve of the 80:20 rule would have taken the project nowhere. Hence, another key learning from this project was that you should always question all assumptions we have about delivery, processes, tools and project management practices. This ensures that the best approach is used to achieve the best possible results.

**No one likes surprises!**

Most delivery practitioners don't like surprises. Most customers and project managers follow a fairly planned schedule of work and anything that catches them off guard causes issues. This needs to be avoided at all costs and a concerted effort from project managers will go a long way in ensuring a successful project delivery.

**What would you do as a project manager?**

**The situation was as follows:** As a project manager you have a holiday week coming up with only two working days. Would you grant selective leave for individuals or allow leave for more than 90% of the staff to enjoy the holiday season? How much in advance do you communicate?

**Actions taken:** For an entire week early into the project, of a team of 80, only eight resources including the project manager were working. The offshore team informed the client about the situation but without sufficient notice resulting in a huge escalation that took weeks to resolve. In particular in large and complex engagements in which every day lost can have a significant impact on milestones, you should try to avoid surprises. Any changes in plans need to be communicated in advance to ensure that the client is not caught off-guard. It is also important to recognize the cultural differences between offshore consultants and the client. The offshore team needs to be aware of all the nuances and try to avoid any unpleasant surprises.

**The right people for the right job!**

As project managers, it is important to focus on effective project management more than anything else. This means to try and find the balance between cost, quality and time. It is important to delegate tasks wherever possible and have the right people for the right job. Project managers need to practice the task of deploying the right people for the right job diligently.

**What would you do as a project manager?**

**The situation was as follows:** There were huge expectations from the client in terms of offshore reporting with regard to the available capacity, the work delivered, planning versus actual, trend reports and a host of other daily and weekly reports. As a result, the offshore project management team lost focus on the key issues required to run the project. From the client's perspective, these reports were critical given the volume of work carried out by the offshore team. The offshore project management team did not use the right people for the job.

**Actions taken:** An appropriate management bandwidth is crucial in order to enable project managers to focus on the critical work on hand. The offshore project management team struggled through this for weeks without any help, because they assumed it was their job to do these tasks. The team let the resources focus on deliveries and paid a lot of attention to the numerous status reports that had to be delivered each day.

During one of the engagement lead visits from the US, the position of a full-time PMO (project management office) was suggested. In many small build projects a full-time PMO is not necessary because the project manager performs most of the tasks in question. Reports in general at pre-defined intervals make the client feel comfortable in terms of how well the work is progressing. The perception of the work achieved at the offshore location needs to be managed and countered. Reports generated by the PMO therefore play an important role. Several reports, including day-to-day status reports, project metrics reports, trend reports, dash board and KPI reports are now being generated by the PMO. This is of immense value to the client and the project management teams.

For large and complex engagements, a PMO team will work wonders. What had never been planned or thought about for an offshore BUILD team delivery, was implemented here. By setting up a PMO team, the management bandwidth could be increased and the accuracy of offshore reporting could be improved significantly. Due to the success in this project, this approach is now being used for numerous BUILD and implementation engagements.

The client generally agrees to have a full time PMO for a large engagement as this provides significant benefits and lets the project management team at the offshore location focus on delivery management and related issues. By deploying the right people for this task, the project management team got the work to be carried out with much greater efficiency and accuracy.

**Plan & think "out of the box"!**

Normal is boring! It is important for us as project managers that we plan ahead and think "out of the box" for unique problems. Unique project management situations need to be handled with unique solutions. As project managers, we should not hesitate to go against conventional wisdom. Many a times, some unique solutions, although very simple on the face of it, can resolve the issues on hand.

**What would you do as a project manager?**

**The situation was as follows:** The client asked you to roll off ten people from the current headcount of 70 and keep 60 for the next two months during the post go-live of one of the phases. You want to hold on to all 70 as you have already rolled off more than 100 resources. The argument in favor of holding more resources is larger group familiarity with client processes and methodology, the nature of work etc. This will help in the next ramp-up of the same project. The argument against holding another ten resources is that it requires additional budget and the client is not prepared to have overruns as a result of carrying the costs of ten additional resources.

**Actions taken:** A training and vacation plan during lean periods of the project was introduced to keep the budgeted hours to 60, but still have 70 on the headcount. The offshore project management team explored every possible way to send people on mass training – both with regard to soft skills and technical skills. During the peak development phase of the project, the opportunity to nominate people for trainings is minimal due to day-to-day delivery pressures. In addition to this, several resources postponed their vacation until after the go-live period or to lean phases of the project.

With a meticulously planned training and vacation plan, the offshore project management team was able to provide resources with training on the project – this was not billed to the client. In addition to an advance planning, resources were encouraged to take vacation during lean periods. Trainings were carefully selected to ensure they were useful for the engagement. The net effect was that the client had 70 resources, but got billed for an average of 60 resources. Training and advance notification to people on vacation in that period meant that the hours actually billed to the client were close to the hours budgeted.

The client found this was a good method of retaining the knowledge of its project among a larger team and manage the next ramp-ups better, since the offshore team had more resources that could provide continuity to the project. Even though this appears to be simple solution, it had an enormous impact on our delivery. It showed great commitment and co-ordination from the offshore team to do what is best for the project.

**What would you do as a project manager?**

**The situation was as follows:** An unexpectedly high amount of work to be completed in a short period of time necessitated an additional ten resources every week for ten weeks. In simple terms, close to 100 resources had to be ramped up within a few months. As a project manager, you are faced with all possible issues regarding identification of resources, onboarding, training, appropriate team structures, alignment of skills etc. This makes delivering the work committed, on time and above client's expectations a huge challenge.

**Actions taken:** The offshore team took several approaches to solve the problem. Some of them are listed below.

- Contract with another pure-play Indian partner. Due to the immense volume of work and expected concerns in the offshore team's ability to ramp up so many resources, the client was looking at options of having additional partners. Capgemini suggested to the client that the deliveries would be done completely by Capgemini India and we would deploy resources from other companies that are well-versed with the technology and that would work under the Capgemini offshore team's project management. The client accepted this and agreed to have India manage this team. Capgemini retained its association with the client, and the other partners were reporting to the offshore project management team for all deliveries carried out from India.
- Deliver across centers. For the first time, delivery was carried out across multiple centers. By having a clear governance structure and independent teams across centers and by putting together the delivery binders for common delivery approach/methodology/tools etc., seamless delivery was made possible across locations. PMO reporting was standardized, but the project had extended teams in another location. This solution ensured an extremely quick ramp-up and it utilized the technology knowledge available in one center but unavailable in another one, and also provided a disaster recovery program for the client. The result was a very successful delivery that continues across locations to this day, and many other projects have since emulated this approach in BUILD engagements.
- Cross-training on skills. The need for having several resources ready to be deployed on a new technology can be addressed by a combination of subject matter experts (SMEs) deployed on projects along with trained resources who have the background knowledge about the underlying technology. With the client's buy-in, this was put to good use by deploying some SMEs for each team and the majority of them cross-trained in the required technology. This also helped the project in providing a career path for many of the resources in newer technology and it reduced the risk of managing recruited resources with knowledge of only this technology.

Once the project would be completed, this would become an issue. Cross-training helped the team in achieving the numbers needed and securing great commitment from resources deployed on the projects. The project benefited significantly because it simplified the deployment of the multiple technologies required for the engagement. This again was a win–win for Capgemini and the client.

These out-of-the-box solutions addressed huge ramp-up challenges that otherwise would have been extremely difficult to achieve.

**Unique situations require unique solutions!**

No two projects are the same. Hence, the best of our experiences can only equip us for dealing with a larger variety of delivery situations. However, as project managers we always need to be prepared for the unexpected. Every situation needs to be dealt with by recognizing the issue, significance, and uniqueness associated with it. Unique situations therefore require unique solutions.

**What would you do as a project manager?**

**The situation was as follows:** There were about 200 resources at offshore locations, and traditionally for such a large offshore team involved in implementation or BUILD projects, 10–15 resources are typically deployed to the onsite roles. Unfortunately, due to visa issues, only a few people could work at the onsite location with the client.

**Actions taken:** Some of the actions taken included: an extremely flat offshore structure with only three managers, independently run teams for each stream, direct delivery of work to onsite counterparts, and remodeled delivery flow that avoided that every offshore delivery had to go through the PM co-ordination team. The onsite team did not review all the work completed, simply because they did have no bandwidth to do so. Offshore quality processes were strengthened to ensure that the delivery was of high quality albeit delivered across centers. Batches of people traveled throughout the project terms for short stints instead of longer stints. A few resources were deployed for a longer duration, and the majority of them traveled for short durations.

This allowed easier deployability onsite. Capgemini used Rightshore® to the core – the 'Right resources at the right time' during critical stages of the project onsite. This also reduced the TCO (total cost of ownership) to the client. The consultants who worked onsite for a short period had the knowledge of client processes/workshops etc. and, hence, when they returned to the offshore sites, were of great help to the offshore delivery. All of these solutions helped in addressing the unique project situation.

**Expectations management is half the battle won!**

Many projects fail because the ground rules are not set and what is expected is not clearly communicated among the parties concerned. Expectations management among the stakeholders is key to managing projects well.

**What would you do as a project manager?**

**The situation was as follows:** There was a huge volume of work for the offshore teams as a result of a slow ramp-up of resources. In addition, there was a break in development effort caused by holidays. The client proposed weekend work to compensate for lost hours due to delayed ramp-ups.

**Actions taken:** Weekend work was accepted but without setting all the expectations right initially, and the offshore project management team had a huge expectations issue both from the client and the resource side. Although the Capgemini engagement team from North America was with the offshore team on all the people issues this caused due to the commitments made by the offshore team with regard to regular weekends, the expectations were already set with the client for multiple weekends of work, and it was difficult to reverse this midway. The project team worked through almost all the weekends over the critical six months development phase which caused larger issues on the people management side at the offshore locations. A lesson learnt from this was to manage expectations better in future phases.

The project management team undertook long-term measures – special remuneration for weekend work at offshore locations, careful planning of weekend work with the client so that there was sufficient notice, close monitoring of development load to ensure people are called in only if required, rotation of resources at lead/developer level over weekends etc. This helped in cutting down significant weekend work, since the work that had to be done on weekends was planned well in advance and the offshore team was able to push the majority of work to be closed during regular working days. This expectation management resulted in less than 4–5 weekend work in the next phase of delivery.

**Transparency in dealings will win you bouquets!**

It takes time to earn the trust of the people we deal with. However, this holds us in good stead during the rocky phases of the engagement. By being an effective partner, by being upfront about issues and transparent in our dealings, we gain the project stakeholders' respect. Empathy is the key, no one needs our sympathy. We need to be transparent with key stakeholders and empathizing with changes to business needs; client situations will always be beneficial to the team.

**What would you do as a project manager?**

**The situation was as follows:** The key SME (subject matter expert) on the engagement was proposed by the leadership team to lead a new engagement – this was in his interest, as he was keen to move out of the account, and in the interest of the company. The client did not accept his roll-off easily, since he was of great value to the project.

**Actions taken:** The offshore project management team put forward a case that took into account the individual's productivity, shared with the client the *MOVE OUT* or *MOVE-UP* policy on the engagement that focused on providing a higher role for long serving individuals on the projects or let them move out of the engagement to pursue other opportunities. This approach would significantly help manage people's expectations on the project and get better productivity from motivated team members. When we are transparent with the client about a problem and make the client part of our team in solving the issue on hand, we will get decisions that are truly to the benefit of our projects.

Although the client was reluctant to lose an individual from the project team, they shared the offshore project management team's opinion that an unproductive resource would be of little use to the project. By being transparent about the problem on hand, the offshore team avoided an issue that would not be in the interest of the project. The client showed terrific flexibility and understood the issue and agreed to remove the person from the project. This flexibility provided to the offshore sites was a big boon for rotating resources and keep what was truly productive for the engagement. Transparency with the client on the real issues gained the client's buy-in and trust that the offshore project management team did what was best for the project.

**Communication is the key to a good relationship!**

The importance of good communication can never be overemphasized. As project managers, we often tend to take this lightly. We had some great learnings on the communication front during this engagement. Good communication includes all the basic tenets – being upfront, document any issues, plan the frequency of communication, differentiate between planned communication (daily or weekly reports) and unplanned communication, have a clear communication channel and governance structure that indicates escalation mechanism, include internal and external communication etc.

**What would you do as a project manager?**

**The situation was as follows:** One of the team members at the onsite location completed his tenure. His replacement was yet to get his visa and we were struggling with getting his visa dates. The issue was pending for several weeks, but there was a good chance of a resolution within a few days time.

**Actions taken:** We postponed communication on this, hoping that the visas would come in time. It proved to be a bad decision. All we would have had to do was communicate the issue on time and we would have had a solution. Due to our late communication, we were not able to close the issue. In fact, there were serious issues since the client got doubts about our ability to support them well and in critical situations. There were multiple options that could have been explored, if the communication from offshore had been on time.

A long-term solution was put in place. A formal visa tracker communicated every fortnight, indicating the status of each and every resource to travel and already onsite. This became an established process of communication on visa statuses for all stakeholders. Given the significant number of resources who travel on large engagements like this, effective communication by way of a tracker keeps everyone aware about the status from offshore.

**What would you do as a project manager?**

**The situation was as follows:** Delivery schedules had gone awry, volume of work had increased, and the quality was suffering. It was found that there was a communication breakdown between the project management team and team leads with the offshore team members.

**Actions taken:** It is important to be a 'messenger of bad times' – a hard talk with all people involved, get them to understand the importance of how badly we are doing as a project, and ask them for ideas to improve helps. A one-week 'learning session' from a previous go-live had a tremendous impact on the team for future work. There was a greater buy-in from resources when they understood the true impact of their work on the business of the client, and how important it was for the offshore team to make this a success.

As a learning, regular communication from the project management team was planned – by way of meetings, communiqués to the team, sharing key milestones, successes and challenges on the engagement. This proved to be an important tool for getting the team to work in unison in the interest of the project. Having regular communication with the team is a clichéd term, but there is no better way for effective delivery than to have excellent communication with all stakeholders.

**Experience is not the only thing that counts!**

You do not need to have the experience of having done something to do something. As project managers, we often tend to walk down the beaten path and hesitate to take risks. We quote past experience and use that as a reference point to do things or avoid complexities. Experience helps us tremendously, but if we relied only on that, we would never be able to take new initiatives.

**What would you do as a project manager?**

**The situation was as follows:** There was an opportunity to build on a skill that we had never dealt with before or let it pass, since it was too difficult to recruit and manage. Given that, it is important to ensure excellent quality for all work carried out from offshore; otherwise, you face the challenges of taking on something where you have no experience and increase the risk of delivery manifold.

**Actions taken:** As a project manager, it is always a difficult situation when you are given a choice of adding more work, especially in a technology where you lack experience. It is a delicate balance between committing to taking the work up and risking a failure and not taking it up and risking losing additional work and demonstrating to the client the support that can be provided. On a large, complex multi-technology engagement to be carried out offshore, these are regular situations to be faced. Over-committing is also not in our interest, and the client project cannot be put in jeopardy, if this is managed poorly.

We took up the work after careful deliberation, but without a single resource/SME in that technology. Team members with experience with a related technology were given the challenge of picking up the skill, self-learning and delivering. Subsequently, we were able to hire people with technology skills, too.

This required the client to place tremendous confidence in us in terms of the processes we had, our onboarding mechanism and our delivery governance. This gave them the comfort about our ability to put together a team and deliver a technology we had never used before. Our past experience with accepting similar challenges of putting together teams for a technology with no experience and our track record in doing that also generated the client's confidence in our ability to do this regularly.

The work carried out on this engagement had a ripple effect, with offshore being able to deliver across many technologies, many of which had not been done before. If experience was the only thing required, the offshore team could not have pitched for work on several areas which we managed to engage the client in.

**Opportunities are unlimited!**

Any account is a goldmine. If you have your foot in it, make sure you expand your footprint. As project managers, we need to constantly support clients in their needs and demonstrate flexibility and foresight in addressing client requirements. On a large complex engagement, there are several opportunities and the client is constantly looking at partners, particularly from offshore locations, to realize the value propositions of reducing their TCO (total cost of ownership).

**What would you do as a project manager?**

**The situation was as follows:** There were a few resources with skills no longer required for the project. There were carrying costs involved in holding them, they did not have the right skills the project needed, and it was a major people management issue since they did not see a career path beyond this engagement with the skills they were working in.

**Actions taken:** Cross-trained resources who are no longer needed in the technology. The client was presented a combination of people who knew the technology and cross-trained resources who were aware of client processes/methodology for delivery etc. This account continues to rely on offshore people for subject matter expert (SME) skills in this area, and we won additional projects on the back of excellent delivery on this technology. Resources found great value in picking up another skill, too. We built in a practice of more than 30 people who did some of the most complex work from India in this technology. It was a win–win for both the client and Capgemini.

**There is always a GAIN in PAIN!**

You can create a business opportunity, if you look for one. It is possible to convert even the worst circumstances into an opportunity that provides great value to the client and tremendous business potential to us. Start small, but plan big. Present our past successes to the account to demonstrate our abilities to deliver consistently.

**What would you do as a project manager?**

**The situation was as follows:** Your resources were expected to work as production users for a period of 3–6 months to support the client immediately after the go-live. Challenges were aplenty – we had a complete mismatch of skills, it was a huge people management issue for the project, since skilled resources rarely want to work as production users who are different from production support on the technology they are skilled at.

**Actions taken:** The account converted this into a BPO opportunity and presented this to the client. Knowledge transition was ensured between the delivery team and the BPO team, and today we have a BPO team that continues to support the client on operations, in what was meant to be a short-term project deploying resources on production environment. For project managers, it is important to recognize the pain areas of the client and put together a value proposition to support them. If the offshore project team had continued to use the skilled resources as production users for months, it might have become a big issue. By turning this into a separate team that can focus on this, potentially huge issues were closed and a good opportunity was not lost. It is important to find ways to address key issues so that a win-win situation for the client and the offshore team is created. An important lesson for the offshore team was to identify every activity as an opportunity – however big or small the same may be.

**An India visit will always bear fruits!**

It helps to plan bringing in key stakeholders directly to see how we deliver. Frequent visits by the client or by key staff from onsite teams can open up new perspectives. These visits can be planned well to ensure client visits do not become routine visits to our premises, but result in concrete benefits to all stakeholders.

**What would you do as a project manager?**

**The situation was as follows:** The client was expected to make a day trip to the premises. Broad objectives included visits to the team and looking into the delivery processes.

**Actions taken:** It helps to plan the visits carefully working with the onsite contacts and to have the expectations of the visit well documented. We knew the pain areas were in two areas – competency support and data warehousing. Extra effort was made to ensure that – in addition to presenting the offshore delivery process/methodology, our tools etc. with the support of our onsite engagement team – we also included sessions on competency support from offshore and data warehousing.

This resulted in work in both areas during the months following the client visit. An important learning for us is that these client visits need to be viewed not just as a review of the work done here. With a little homework in understanding the client's pain areas, meticulous planning of what could be of value to them, we can go a long way in alleviating the pain areas and supporting the client.

In addition, some of the key team members from the onsite team working offshore for a few weeks helped to increase the bonding, helping to solve issues faster. It also created a network among the teams and helped us in moving to a ONE-team concept – onshore and offshore. Instead of the typical 2–3 day visits, the project planned a 2–3 weeks visit in India for the client team members. This helped them to understand the delivery processes in India better and it helped the offshore project team with some valuable feedback and improvement suggestions that came as a result of this offshore stint.

# Authors

**Prasad Acharya** is an associate director with Capgemini in Bangalore (India), where he also heads the SAP practice. He has gathered delivery and engagement management experience from SAP projects across various geographies. He holds a post-graduate diploma in management (PGDM) from the Indian Institute of Management Lucknow (India) and a degree in computer engineering from the National Institute of Technology Karnataka (India).

**Dinesh Agrawal** is a manager with Capgemini in Bangalore (India). His experience is in managing multiple education centers and with SAP consulting assignments in the UK, USA and Europe. He is a certified Chartered Accountant from the Institute of Chartered Accountants (ICA) of India and a certified Cost Accountant from the Institute of Cost & Work Accountants (ICWAI) of India. He holds a degree in Commerce from Sambalpur University (India).

**Denys Auroy** is a managing consultant with Capgemini in Saint-Priest (France). After working on numerous ERP implementation projects as the project manager, he specialized in training activities for international rollouts of ERP projects. He graduated with specialization in computing science from Institut National des Sciences Appliquées in Lyon (France).

**Kent Bracken** is a senior manager with Capgemini in Chicago (USA). His experience is in managing distributed delivery of ERP systems. He has lately been delegated to India as an area coordinator for the Central US region. He holds a Master of Management degree with specialization in management information systems and finance from the Northwestern University Illinois (USA), a B.Sc. degree from Utah State University (USA), and is PMP certified.

**John Carlucci** is a senior manager with Capgemini in Chicago (USA). His areas of focus include process reengineering, full life cycle systems implementation, and project management. He holds a B.Sc. degree from Pennsylvania State University (USA) and is APICS certified.

**Vijaya Chintada** is a manager with Capgemini in Bangalore (India). He is experienced with technical consulting and the management of distributed delivery implementation projects. He holds an MBA with specialization in marketing and systems from the Berhampur University (India).

**Nitin Garg** is a senior manager with Capgemini in Bangalore (India). He has good experience in setting up and delivering large projects using the Rightshore® approach for the USA and European countries. He is an engineer with computer sciences background.

**Amit Ghag** is a senior consultant with Capgemini in Mumbai (India). He has experience in providing technical leadership to Rightshore® testing projects with focus on test automation. He has a B.Eng. in electronics and telecommunication engineering from Mumbai University (India) with a PG Diploma in advanced computing from C-DAC India. He also holds a practitioner certificate in software testing from ISEB (UK).

**Reinhard Haerle** is a principal consultant with Capgemini in Germany with focus on consulting and business intelligence (BI). He heads Capgemini's Central Europe business intelligence team and coordinates the distributed delivery for BI. He holds an advanced degree in business administration (Dipl.-Kfm.) from the Philipps University in Marburg (Germany).

**Anja Hendel** works for the Corporate IT of Celesio AG in Stuttgart and was a senior consultant with Capgemini in Stuttgart, Germany. She has experience in managing technical teams with a focus on big international SAP template and rollout projects. She holds a degree in combined business administration and computer science from the University of Cooperative Education Stuttgart (Germany) and a B.A. from the Open University (UK).

**Dirk Holtbrügge** is professor and head of department for International Management at the University of Erlangen-Nuremberg (Germany). He was a visiting professor at the State University St. Petersburg (Russia) and frequently holds lectures at universities in China, India and Russia. His main research interests are in the areas of international management, human resource management with a focus on Asia and Eastern Europe. He received his doctorate and his post-doc habilitation from the University of Dortmund (Germany); he holds an advanced degree in business administration (Dipl.-Kfm.) from the same university.

**Jeetendra Jha** is a senior manager with Capgemini in Mumbai (India). He has extensive delivery and both, onsite and offshore project management experience for multiple technologies. He holds a master degree in computer applications (MCA) from Pondicherry Engineering College (India).

**Anand Kantawala** is a manager with Capgemini in Mumbai (India). His experience is in managing cross-cultural projects from India and Europe. He holds a B.Sc. with

specialization in physics and an M.Sc. in computer science and application from the University of Ahmedabad (India).

**Cécile Maupas** is a vice president with Capgemini in Paris (France). Her experience in focused on business process improvement; she leads international ERP projects with Rightshore® development. She holds a masters degree in economics from the Paris X University and a master of finance and strategy from the Institut d'Etudes Politiques de Paris.

**Wolfgang Messner** is a director with Capgemini in Bangalore (India). He is experienced in business consulting and dealing with cross-cultural teams with a focus on application management and packaged software development. He was visiting faculty at the Indian Institute of Management Bangalore (India) and holds a doctorate (Dr. rer. pol.) in marketing from the University of Kassel (Germany), an MBA from the University of Wales (UK), and an advanced degree in computing science (Dipl.-Inform.) from the Technical University Munich (Germany) and the University of Newcastle-upon-Tyne (UK).

**Baru Rao** is CEO of Capgemini India and a director of the Capgemini Group. He has been closely associated with the growth of the Indian software industry for the past 25 years. He holds a masters degree in electronics and electrical engineering from the Indian Institute of Technology Kharagpur, India and a Ph.D. in the area of software engineering from the Indian Institute of Technology Mumbai (India).

**Ole Samuelsen** is a principal consultant with the Project Management and Architecture group of Capgemini in Copenhagen, Denmark. His experience comes from coordinating several international projects in Europe and as Liaison for a large Danish Rightshore® project in Mumbai. He holds a BSc. in electrical and computer engineering from the Technical University of Copenhagen and is member of the International Project Manager Association.

**Katrin Schillo** is a senior research assistant at the department of International Management at the Friedrich-Alexander University of Erlangen–Nürnberg (Germany). Her main research interests are in the areas of management of intercultural relations, virtual delegation, and the internationalization of small and medium-sized enterprises. She holds an advanced degree in business administration (Dipl.-Kffr.) from the Friedrich-Alexander University in Erlangen–Nürnberg.

**Antonio Schnieder** is member of the Global Management Board of Capgemini S.A. Paris where he holds global responsibility for Consulting Services. He has 28 years experience in the consulting, IT and outsourcing business. He holds a master degree in business and engineering after studies at the Technical University Munich (Germany), Freie Universität Berlin (Germany) and London Polytechnic (UK).

**Frank Thun** is a principal consultant with Capgemini in Germany and heads the sales logistics consulting team. He has experience in designing and executing busi-

ness transformation projects in North- and Middle America, Asia and Europe. He holds an advanced degree in Economics (Dipl.-Vw.) from the University of Kiel (Germany) and the University of Glasgow (Scotland).

**Stephan Weinert** has worked as a research associate at the Chair of Innovation and Production of the University of Wuppertal (Germany), as well as at the Center for Strategic Management and Globalization of the Copenhagen Business School (Denmark). He holds a doctorate in international management and an advanced degree in business administration (Dipl.-Ök.) from the University of Wuppertal (Germany). He received his MBA from the University of Birmingham (UK). His research focuses on International Management, especially on service offshoring.

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