Felix Langenmayr

Organisational Memory as a Function

The Construction of Past, Present and Future in Organisations

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With a foreword by Dirk Baecker

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Felix Langenmayr
Zurich, Switzerland

Acknowledgements

Contents

Foreword

One of the most interesting problems in organizational studies–as in social systems studies in general–consists in asking what kind of social structure is apt to deal with a temporal change that needs both routine behaviour and innovation. If social systems in general feature a kind of chaotic, unpredictable, and intransparent behaviour which from moment to moment allows them to opt either for change or for continuity–and to interpret both as reproduction–, organizations are deeply challenged by the need to reproduce identity of programs, personnel, culture, and cognitive routines–i.e., their so-called decision premises–while again and again adapting to changing environments.

Felix Langenmayr proposes to call "memory" of organizations their ability to fulfil that seemingly paradoxical demand. He introduces a systems theoretical and constructivist notion of memory to explain how organizations meet the demand. And he ventures into a case study of a fast growing organization–dubbed Entertain Corp., an entertainment and technology company–to empirically research into the question how a kind of memory work is done which uses the present to selectively recall–and forget–pasts suitable for the understanding, interpreting, and designing of an uncertain future.

Langenmayr starts by looking at the present state of the art in social memory studies. He emphasizes that a notion of memory based on an imagery of storage and retrieval might not be apt to catch the temporal problems of a recursive working on past and future in the light of a changing present. A constructivist understanding of memory might be better suited instead, because here memory is comprehended as a function participating in the construction and reproduction of the organization as part of an ongoing process of sense-making within the organization. Moreover memory is also understood in this context as a function being able to both recall and forget, or, as Luhmann says, to discriminate between remembering and forgetting. A case of a fast-growing organization is presented whose very growth presents the organization with both change and the need to provide for rules and regulations to assure continuity. How, then, can those rules and regulations fit in with an organization operating within a technologically and politically complex environment that needs strategic and tactical changes almost every day? Langenmayr refers to the introduction and handling of a Corporate Venture

Guide as a possible reference point for an inquiry into the daily memory work of Entertain Corp.

After discussing more traditional notions of memory, more often than not employing a misleading storage metaphor to understand it, Langenmayr takes an altogether different lead by looking at a notion of organizational memory as a function within an operationally closed organizational system. Organizational systems reproduce by communication of decisions, referring to "decision premises" for any recursive binding of those decisions, and thereby temporalizing their structure to be able to select among different pasts and futures, which are apt for understanding and designing the present. Niklas Luhmann's differentiation among programs, personnel, communication channels, organizational culture, and cognitive routines as different decision premises is presented as a suitable heuristic for launching into a more detailed empirical study.

Langenmayr reflects on the state of empirical research within a constructivist epistemology as observer-dependent and as a constant back and forth between different notions, used as metadata to order data, and with the data either fitting or not to the metadata to which it is allocated. To select a focus of his research Langenmayr spent six month of participating observation within the Research & Development Department of Entertain Corp. and made protocols of conversations, interviews, and a study of archival documents. The selection of the R&D Department proved suitable since its future orientation collides instructively with the need in most other departments to ensure the existence of routines for dealing with their staggering growth.

The study informed by these empirical approaches impressively describes how Entertain Corp. moves within its time horizons of past, present, and future, aiming for decision premises, recalling, and devaluing them within a process of communication that is revealing at any time – to the observer – how the present of the organization is a product both of an oscillating future due to uncertain prospects and a selectively, but not necessarily consensually remembered past. Langenmayr is able to show by looking more closely at selected sequences of conversations how both decision premises and time horizons are constantly switched, recombined, alleviated, and modified to allow the organization to reflexively deal with its daily pressures. In fact, only an understanding of the organization as a communicating entity is suitable for grasping how all of its structures are reflexive structures in constant mutual conflict and reintegration.

The study converges on a modelling of memory as a function by means of George Spencer-Brown's calculus of form. The form of the organizational memory (p. 170) shows how any communication of a decision within the organizations recursively refers to alternatives within the context of different premises and different time horizons demanding of

any actor within the organization the calling and recalling of the distinctions necessary to both distinguish between different alternatives, premises, and time horizons, and to combine them with respect to present situations and environmental challenges and opportunities. If anything that form shows how an organizational memory cannot be understood as the aggregate of the individual memories of the actors, but must be understood as a function operating on the level of the social system of communication.

Dirk Baecker
Basel
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"One must become supersaturated in memory before one can recognize the unknown. The road to excess leads to one's *own forms*. In order to discover one's self must first be made unrecognizable."

(Clark Coolidge 1975)

1 Introduction

This research project is about the past as well as the future in organizations in general and about an organization's temporal contextualization in particular. How organizations are able to construct a present with respect to their past and future is still a key question in organization science. The research project is based on an empirical case study, in which an R&D department has been followed for a six month-period in order to analyse how an organization orients itself with respect to its past, present and future from the perspective of communication-centred social systems theory.

This introductory chapter aims to position the research project in relation to the contemporary debate on this topic and specifies the aim as well as the central question of this research on the basis of an empirical example. Furthermore the structure of this work is introduced.

1.1 Organizational memory studies: A status quo

> Memoria, mother of the muses (including Clio, the muse of history) is the basic form of our relationship to past, of our existence in time. (Olick, Vinitzky-Seroussi, & Levy, 2011: 6)

In the ancient world memory was already a phenomenon of great interest. Since then, the concept of memory has fascinated countless philosophers, writers, psychologists and other intellectuals who contemplated our embeddedness in time. In everyday life, the idea of memory plays a key role – for example, when it comes to remembering names, places or other facts. The strength of this concept is at the same time its weakness, because it is utilized in everyday speech in so many ways, that the notion of memory has nearly lost its general meaning; namely, 'our relationship to [the] past' and 'our existence in time' (Olick et al., 2011: 6). Studies on memory have become prominent in the past thirty to forty years. With the help of numerous concepts related to memory, psychologists, psychiatrists, cultural scientists, philosophers and so forth have tried to capture our relation to time in general and to the past, present and future in particular. In contrast to other social sciences, such as cultural studies, history or sociology, which have introduced a multitude of contemporary concepts of memory into their respective fields, organization studies and

management sciences since the early 1990s have been dominated by a single concept of memory, the so called 'storage-bin model' (Walsh & Ungson, 1991), which describes memory as a 'static repository' (Nissley & Casey, 2002: 37) of information. Organization studies utilized the notion of memory primarily in the context of knowledge transfer from past to present and via the present to future contexts (Anand, Manz, & Glick, 1998; Casey & Olivera, 2011; Fiedler & Welpe, 2010; Hackbarth & Grover, 1999; Lehner & Maier, 2000; Stein & Zwass, 1995; Walsh & Ungson, 1991). This concept of organizational memory has been associated with organizational change (Moorman & Miner, 1998), optimized decision-making (Markus, 2001; Ozorhon, Dikmen, & Birgonaul, 2005), organizational learning (Cross & Baird, 2000; Hanvanich, Sivakumar, & Hult, 2006) and innovation processes (Moorman & Miner, 1997), among other things. Besides this practical interest in the topic, it was most likely the introduction of new media, such as the computer, and the new possibilities of storing information they introduced that motivated researchers to conceptualize this new phenomenon with the existing notions of memory as a storage device (Hassell, 2007; Martz & Shepherd, 2001; Randall, Hughes, O'Brien, Rouncefield, & Tolmie, 2001).

In the field of organization studies prior research conceptualized organizational memory (OM) 'as a collective that stores information' (Fiedler & Welpe, 2010: 382). In their paper on 'organizational learning', Levitt and March (1988) were among the first to introduce the notion of organizational memory and explicitly make the distinction between the individual level of learning and remembering and the organizational level of memorizing. According to Levitt and March (1988), organizations 'conserve' experiences on the basis of organizational routines 'in documents, accounts, files, standard operating procedures, and rule books; in the social and physical geography of organizational structures and relationships; in standards of good professional practice; in the culture of organizational stories; and in shared perceptions' (Levitt & March, 1988: 327). The authors therewith laid the ground for what became the most cited perspective on memory: the 'storage bin' model by Walsh and Ungson (1991), which divides memory in a storing, retention and retrieval processes and defines organizational memory as a 'structure of repositories in which different forms of knowledge are stored' (Fiedler & Welpe, 2010: 382). Because of its accessible nature, this 'mechanical model' became the dominant concept in most studies on organizational memory (Anand et al., 1998; Casey & Olivera, 2011; Fiedler & Welpe, 2010; Hackbarth & Grover, 1999; Lehner & Maier, 2000; Stein & Zwass, 1995). Nevertheless, more recent research has criticized this notion of memory for being 'only concerned with the retention of useful knowledge, and the forgetting of redundant knowledge' (Rowlinson, Booth, Clark, Delahaye, & Procter, 2010: 76) and calls for a 'social constructionist approach' and a 'sociologi-

cal and historical reorientation within OMS [Organizational Memory Studies]' (Rowlinson et al., 2010: 69) in order to develop a notion of memory that is based on a contemporary, rather than an out-dated, 'narrowly positivistic' (Schatzki, 2006: 1867) perspective.

This call for a more 'constructionist approach' goes hand in hand with the recent criticism of the usage of metaphors like organizational learning, organizational knowledge or organizational memory, which have not been derived systematically on the basis of the original domain of interest, such as psychology, biology or neurology, for example (Boxenbaum & Rouleau, 2011; Tsoukas, 1991). These critics argue that 'a transfer from one epistemic sphere to another through the creative use of metaphors' (Cornelissen, 2006: 1579) can only develop its full theoretical strength if it is derived systematically on the basis of the contemporary paradigms of the original field (Cornelissen, 2006). Although Walsh and Ungson (1991) borrow their 'storage metaphor from individual-level memory processes' (Walsh & Ungson, 1991: 63), they only cite one source from psychology (Cowan, 1988; Walsh & Ungson, 1991). With that exception, however, the notion of memory as a simple storage device is largely neglected within contemporary research in the field of neurology, as well as psychology. Instead, most studies draw on processual and constructive paradigms that define memory as a process of temporal reconstruction in which every actualization of past conditions affects subsequent remembrance and where 'the only proof of there being retention is that recall actually takes place' (Bartlett, 1932; James, 1890: 654; Sara, 2000; Tulving & Thomson, 1973).

In view of these concerns, I established this research project on the basis of Niklas Luhmann's theory of social systems in general and his notion of social memory in particular for the following reasons: first, both Luhmann's theory of social systems and his notion of social memory are in line with the recent call for the constructivist and sociological reorientation of organizational studies on memory (Rowlinson et al., 2010). His theory of social systems is epistemologically positioned within 'radical constructivism' (Luhmann, 2005c; Watzlawick, 1984). Second, Luhmann's theory of social systems has been systematically developed in an interdisciplinary manner and incorporates biological and cybernetic paradigms, such as the notion of autopoiesis, which was originally developed by the cognitive biologists Humberto Maturana and Francisco Varela for the description of living systems (Maturana & Varela, 1980). Considering Luhmann's systematically interdisciplinary references to cognitive and biological sciences, it seems inevitable that his theory of social systems has generated a promising basis for a new notion of organizational memory. Luhmann's notion of memory as a function also derives from Heinz von Foerster's (1948, 1965) notion of memory, which is based on quantum physics and challenges the idea of memory as a repository, in

line with contemporary paradigms of research on memory. Foerster describes memory not as a storage device, but as an actual selective process deriving the state of a system. This is complemented by contemporary research on memory, which states that remembrance could only be proven on the basis of the actual recall (Sara, 2000; Tulving & Thomson, 1973). Third, Luhmann's theory of social systems enables scholars to combine the micro-level of the interactions that constitute memory with the meso-level of organizations (Schoeneborn, 2011). This aspect goes beyond the common critics of Organizational Memory Studies, but takes advantage to describe not only the role of memory, but also to analyse how exactly organizational memory constitutes itself within the daily operations of an organization.

Until now, Niklas Luhmann's notion of social memory has not been introduced to a broader audience. This is because his magnum opus, 'Gesellschaft der Gesellschaft' (Theory of Society), in which his concept of social memory plays a significant role, was only recently translated from German into English (Luhmann, 2012). In addition, Luhmann did not introduce his notion of social memory to organization studies and references to memory as a function are vague in his major monograph on organizations 'Organisation und Entscheidung' (Luhmann, 2006, Trans. Organization and Decision), which translates as 'Organisation and Decision' and is still not available in English. Although Luhmann and other scholars have written about memory within social systems in general (Baecker, 1991; Luhmann, 1996, 2012) and the memory of the economic (Baecker, 1987) and political system (Luhmann, 2002) in particular, Luhmann merely indicates why social systems and organizations need to have a memory function, without clarifying how organizations constitute memory and how such a memory would actually appear empirically (Luhmann, 1997). In his paper 'The control of Intransparency' (Luhmann, 1997), Luhmann explained adequately why social systems, and organizations in particular, need to possess the function of memory in order to locate themselves in time and thus deal with their indeterminacy. However, the processes through which this function is established in an organization remain to be elaborated on a theoretical as well as an empirical basis.

1.2 Problematization: An Organization between past, present and future

In the following I would like to briefly reference a field study in order to derive and illustrate empirically the central question of this research. I conducted an ethnographical field study between September 2010 and February 2011 at an entertainment and technology company. Data collection consisted of (1) participant observation, (2) semi-structured inter-

views and (3) archival data. More detailed information on the methodology and data collection is provided in *Chapter 4*. Here I describe the empirical setting that caught my attention and served as the foundation of this research project.

The aspect of the case organization that mostly caught my attention was its tremendous growth in its early years and how the organization dealt with this. The pace of growth seemed to be a real challenge for the organization, which had to deal with an enormous increase in staff, from 300 in 2005 to 1,400 in 2008 (367% increase), growth in revenues, from €143 million in 2005 to €420 million in 2008 (194% increase) and at the same time a massive growth of around 100,000 new active customers per year. This led to the drastic expansion of the technical system, which had to cope with the rapidly rising number of customers. During this time, employees sometimes did not know who to talk to, because there were so many new recruits and changes in competencies. The organization, here dubbed Entertain Corp., struggled with its own growth and growing complexity, because its structures had not been designed for such fast and enormous growth. Overall, the organization had great difficulties in dealing with this expansion and increase in complexity.

Many fast-growing organizations deal with increasing complexity by introducing new structures in the form of guidelines. As in every other organization, Entertain Corp. developed these guidelines on the basis of past experience to guide future behaviour and decision-making. The most prominent guideline at Entertain Corp. was the so-called 'Corporate Venture Guide'. This guideline describes how a new development at Entertain Corp. should be temporally structured, what resources could be requested, when these resources could or should be requested and, most importantly, which requirements, such as descriptions of ideas, roadmaps, product strategies and so forth, need to be fulfilled at each stage in order to move on to the next stage of the process.

It became obvious in talks with the members of the R&D department that this venture guide has been very successful in dealing with the fast-growing complexity of Entertain Corp. At the same time, however, the venture has always been a problem for the R&D department, which depended on other departments for the integration of new developments into the technical system of Entertain Corp. and for launching the final products. It often happened that other departments refused to provide their resources, if the development of a new product had not been officially set up according to the venture guidelines. As the 'creative cell' (as they describe themselves), the R&D department focused more on creative product development and refused to subdue itself to fixed structures that decreased the members' freedom and creative workflow. Thus while parts of the organization were referring to the past and the resulting structures, the R&D department tried to resist this orientation to the past

in order to develop innovative products on the basis of potential demand. The result was a highly productive R&D department, yet one that found difficulty in convincing the rest of the organization of the worth of the innovative products it had come up with. Thus, only 10 out of 30 products developed by the R&D team were launched between 2007 and 2011.

It would appear that the venture guide and the orientation to the past that it indicated have been a driving element within the organization since the period of extreme growth between 2005 and 2008. Both the venture guideline and other formal processes and guidelines have been portrayed as a positive stride, since they improved the ability of the different departments in referring to how things should be done, and more especially to how they were done in the past, in order to cope with the overburdening growing complexity of the present.

> This is one example, the venture processes are one of the more mature processes, that are excellent, creates transparency and has certain key rules so you know if you want to make a big investment, do a project, you can enter this process and you can be sure that it's treated along the way, that it's checked at certain gates are passed, that you will finally be able to implement it if you get the resources for doing it. (Operations Manager)

Although the usage of guidelines has helped the company deal successfully with its tremendous growth, there are surprising differences in this usage. There appear to be tricks to avoid complying with guidelines or, even better, to manipulate and abuse them in order to realize projects that would have failed the requirements of the venture guidelines.

> On the other hand, if you want to get things done, it might be that you pretend once in a while but I would say from a formal process in assigning resources, money to things, this venture process is probably the best process that we have in the company, really. (Marketing Manager)

Staff working in other departments think that having so many guidelines limits the possibilities for action, because these guidelines are based on past demands, not on potential demands that might arise in the future. These people wish for the usage of guidelines to be flexible in order to prevent the company from being permanently oriented to the past and to requirements that might not be relevant today.

> I would like to mention that there are many guidelines and rules. Yes, that's a constant constraint. As I said, the people, especially when they are new, think, okay there is a guideline and in any case I always have to do what is written on this sheet of paper and, until now at least, we don't train people how to act in the best way, rather than simply follow a list of activities just because someone wrote it down maybe five years ago. So I often experience this problem at Entertain Corp. where someone says 'we can't do this because of this and that rule.' I don't give anything about the rules, I can explain why it

is important that you do something else now and that it works in this case, but not in every case. (Production Manager)

Another great example of the conflict between past and future orientation is the development of an iPhone application that the R&D department produced without setting up a proper venture process (see also *Subsection 4.4.2*). In late 2010, the R&D department finished developing an iPhone application that was going to be released before Christmas that year. Nevertheless, other departments refused to provide the R&D department with the resources that would have enabled it to get the application ready for the market, because the application had not been developed according to the official venture guidelines. An altogether intense conflict between the different departments arose (see also *Subsection 4.4.3.2*) and was dominated by power struggles between the mobile department and the R&D department. Whereas the R&D department argued that the application would play a strategic role in the future success of the business of Entertain Corp., the mobile department stuck to the past by emphasizing the importance of the venture guideline and its success during the years of tremendous growth.

Two main issues drew my attention here: first, how Entertain Corp. had been dealing with its internal conflicts, as well as with its enormous growth rates of about 200% to 300% from 2005 to 2008. Second, how Entertain Corp. had been able to deal with the seemingly random orientation to either the past or the future in order to make a decision. I observed that conflicts between different stakeholders were part of the day-to-day business at Entertain Corp. For example, whenever there was a decision to be made, other opinions or different judgements were expressed about the situation in which the decision was meant to be made. Staff or departments argued with each other constantly and pressed hard for their preferred alternatives to upcoming problems. This was done explicitly – for example in meetings in the course of open discussions on current topics – or implicitly – for example, when the rest of the organization refused to allocate resources for helping the R&D department to develop a new product, arguing that the R&D department had complied neither with the venture guidelines, nor with how things have been done in past. These different judgements derived from different perspectives on the same issue. The empirical data has shown that these perspectives often depend on different temporal orientations. Whereas the R&D department is primarily oriented to the future, the other departments are oriented to the past, arguing that 'we have always done things like this' and claiming that they adhere to the developed guideline. In addition, there always appear to be a number of possible pasts and futures on the basis of which an alternative could be either rejected or preferred. Like the future, the past is only one possible perspective. As in the example, the guidelines

have been used in completely different ways to support very different arguments, depending on the temporal perspective of the R&D department or the mobile department. This demonstrates that there is neither a single past nor a single future perspective determining situations of conflicting alternatives, but several – in other words, a contingency of temporal perspectives. In the previous case involving R&D, the department could have followed the guidelines and thus stuck to the past to enable the fast development of the mobile application, but they rejected this option due to different temporal perspectives on the same problem. Whereas the mobile department evaluated the situation on the basis of the past, and thus on the venture guideline, the R&D department referred to possible future scenarios and evaluated the present situation on the basis of an 'outdated' and thus inappropriate guideline.

The previous empirical examples lead to the following research question: *How does an organization locate itself in time on the basis of its memory in general and in the three time dimensions of past, present and future in particular?* As already indicated in the subsection above, this research concerns social memory studies in general and Luhmann's notion of memory as a function in particular. The purpose of this study is twofold: first, to review and problematize the existing notions of organizational memory. Second, to develop a notion of organizational memory as a function on the basis of Niklas Luhmann's theory of social systems. Memory is generally used in social memory studies to describe and analyse the relationship of past, present and future and how individuals and social settings deal with these fundamental distinctions. Concerning Luhmann's notion of memory and his conceptualization of organizations, Luhmann (2006) does not give a clear answer to the question of how the selection of temporal dimensions is made, but indicates that organizations develop a memory function for dealing with the selective possibilities, which are assumed by the organization's complexity as well as the different temporal dimensions of past, present and future (Luhmann, 1997, 2012). He refers to the notion of memory developed by Heinz von Foerster (von Foerster, 1948, 1965, 1993b), which explains that history-dependent, but at the same time unpredictable systems, need memory. Memory enables these unpredictable systems to selectively draw on the non-actual time dimensions of past and future in order to allocate themselves within their present state to make sense of their unpredictable state and their environments. This applies also to organizations and explains why they need a memory function that discriminates between remembering and forgetting by updating one version of the past and not another one.

This study is based on the conceptual framework of Niklas Luhmann's social systems theory, as well as Spencer Brown's *Laws of Form.* This work relies on an understanding of organizations as 'communicative accomplishments' (Bastien & Hostager, 1992) in general and Luhmann's con-

ceptualization of organizations as communicative systems that reproduce themselves through their own elements, or communications, in particular, as well as his notion of social memory as a function, to develop a new understanding of organizational memory. Furthermore, this study makes use of Spencer Brown's notion of the form in order to illustrate complex theoretical and empirical interrelations. In addition, this work draws on a six-month longitudinal field study at an entertainment and technology company to illustrate and further develop the theoretical concepts in detail.

1.3 Structure of the thesis

This section provides a brief overview of the remainder of this work. This study consists of seven chapters, including the introduction and the overview of the literature. *Chapter 2* starts with a brief overview of social memory studies in general to provide a basic idea of the importance and range of influence of such research. The most relevant notions of social memory are also introduced in the same chapter. These include Maurice Halbwach's concept (1925) of collective memory as well as Jan Assmann's notion (1988) of cultural memory. In addition, Luhmann's concept of social memory as a function is introduced to lay out the theoretical foundations of this study. Finally, this chapter provides a review of the most prominent concepts of organizational memory, focusing on their epistemological foundations and key findings. Together with the empirical case presented in Chapter 1, the review of the main concepts of organizational memory serves as a backdrop for a critical discussion of these notions.

Chapter 3 introduces the notion of organizational memory as a function on the basis of Niklas Luhmann's conceptualization of organizations as communicative accomplishments in general and his notion of social memory as a function in particular. In this chapter, I argue that an organization needs to possess a memory function in order to orient itself within time to deal with its self-produced indeterminacy.

Chapter 4 presents the methodological considerations that studying Luhmann's theory of social systems involves. First of all, the epistemological assumptions of empirical research based on Luhmann's theory of social systems are introduced. Subsequently, the methodology used in the case study is presented. Finally, an empirical case is developed on the basis of the data collected during a six-month field study in an entertainment and technology company.

Chapter 5 contains detailed illustrations of the organizational memory function. It draws selectively on the field study presented in Chapter 4 and illustrates the concept of organizational memory as a function. First,

the role of decisions, as well as decision premises, in the context of an organizational memory function is derived.

Chapter 6 goes beyond the illustration of the organizational memory function as well Luhmann's thoughts on memory and time within an organization. On the basis of an empirical analysis it is shown how an organization draws selectively on certain specific facets of the past and future and not on other ones.

The final discussion in *Chapter 7* refers to the main objective of this study and integrates the discussions presented in the previous chapters. It reconsiders the research question, as well as the theoretical frame, presents concluding reflections, and discusses the findings and contributions of the study. It also reflects on the results of the empirical research and points to avenues open to future research.

2 Social memory studies

I would now like to contextualize OMS in a broader stream of interdisciplinary research on the conceptualization of memory as a social phenomenon. First, I want to take a closer look at the different aspects of social memory and shed light on the usage of this interdisciplinary concept. In this section I will start with the different perspectives of social memory studies, highlighting the different aspects and research questions related to the concept of social memory. Second, I will argue that the sociological view of social memory seems to be the most important perspective in organization studies and I will then introduce the most cited concepts of social memory; namely, Maurice Halbwach's concept (1925) of collective memory and Jan Assmann's notion (1988) of cultural memory. Third, I will introduce Niklas Luhmann's notion of memory as a function and an alternative concept, on which this work will focus.

2.1 Social memory studies across different disciplines

The phenomenon of memory, as the interplay between the distinctions of past, present and future, is a phenomenon that was widely explored in antiquity. In antique societies, memory was central to the understanding of the world and its inhabitants. Memory was a synonym for continuity, endurance, security and orientation, and was used to conjure 'the cultic powers of the past to underwrite solidarity and motivate action' (Olick et al., 2011: 3). Philosophers, authors, poets and so forth have been struggling ever since with the phenomenon of memory and its complex constitution, but at the same time they have been fascinated by its profound significance. Although nobody could claim to understand fully the characteristics and constituting elements of memory, its importance was never denied. In modern times, memory became increasingly a synonym for remembrance and thus of the past. Memory is associated with repetition and with the desire for transformation. At the same time, memory constrains, because it restricts the creation of something new by referring to the past (Esposito, 2002: 7 ff.). Memory still is a central concept 'of being in time, through which we define individual and collective selves' (Olick et al., 2011: 37).

Memory has been the object of analysis by numerous scholars, starting with the philosophers of classical antiquity such as Plato and Socrates, who imagined the mind as a wax tablet and memory as a kind of storage bin (Draaisma, 2000: 24). As we will see later, these metaphors are still in use, but can now cause confusion. From antiquity, the phenomenon of memory has been analysed and conceptualized in a variety of disciplines, but mainly within psychology (e.g. Bartlett, 1932; Ebbinghaus, 1913; Freud, 1919), history (e.g. Becker, 1932; Koselleck, 2002), neuroscience (Eichenbaum, 2002; Kantsteiner, 2002; Smith, 2000) and sociology (e.g. Durkheim, 1915; Giddens, 1994; Halbwachs, 1980, 1992; Luhmann, 2012). Whereas in the natural sciences scholars search for the *biological basis* of memory on the individual level (e.g. Eichenbaum, 2002; Schacter, 1997), in the social sciences memory is examined from a social, as well as an individual perspective. This study mainly focuses on research on social memory and integrates some insights from biological or neuroscientific research on memory.

Since the late 1970s there has been a so called 'memory boom' according to the research on the phenomenon of memory (Olick et al., 2011: 3). This trend has been weakening since the beginning of this century, although many publications on the topic still come out in the field of social memory thinking (e.g. Blaschke & Schoeneborn, 2006; Fiedler & Welpe, 2010; Lee & Guobin, 2007; Makdisi & Silverstein, 2006; Ozorhon et al., 2005; Rowlinson et al., 2010; Schatzki, 2006; Schwartz & Kim, 2010; Smith, 2006; Stern, 2006, 2010). The conceptualization of social memory is an interdisciplinary object of research. However, all disciplines describe memory as a complex and important phenomenon that is extremely hard to capture but is crucial for describing and analysing the relationship of past, present and future and how individuals and social settings deal with this fundamental distinction.

Within *sociology* the concept of memory is most often used with regard to identity. Drawing on the classic works of Durkheim (1915) and Halbwachs (Halbwachs, 1925, 1938, 1939), sociologists 'have explored collective memory as a major source for, and carrier of, identities' (Olick et al., 2011: 42). According to Halbwachs, scholars could use memory to define social variety by analysing the memory of different classes, families or religions (Halbwachs, 1980). In this context, sociologists have studied social memory 'as an integrative force that overcomes individual and partisan interests and bequeaths to large collectivities a sense of purpose and sacrifice' (Olick et al., 2011: 42). Other sociologists refer to memory as a function that enables society to reproduce itself and its constituting elements, such as communication (Baecker, 1987, 1991; Luhmann, 1998). Sociology has also benefited from the exploration of social memory in two other significant ways. First, the 'temporalization of sociological concepts' and second, the 'more processual theorization of modernity' (Olick

et al., 2011: 42). Before the extensive study of social memory began in the 1970s, sociologists referred mainly to the present in comparison to past moments, but scarcely explored the issue of how society was able to overcome or reflect on the difference between past and present. The conceptualization of social memory gave sociologists the opportunity to conceptualize society according to temporal differences between past, present and future. Accordingly, sociologists such as Anthony Giddens (1994) or Niklas Luhmann (1995b, 1998) developed processual and temporalized conceptions of modernity and thus accentuated the complexity and reflexivity of later modern society.

In contrast to sociologists, historians associate memory mainly with epistemological questions (Cubitt, 2007). They regard memory and history as distinct, whereas in other fields, scholars 'see them as continuous with each other' (Olick et al., 2011: 43). They argue, for example, that 'history is a certain kind of organized and inferential knowledge, and memory is not organized, not inferential at all' (Collingwood, 1999: 8). Whenever a remembrance is simply remembered without the context of any historical evidence they regard it as memory and not as an historical statement. By contrast other scholars regard history as 'an art of memory' and reject the difference between these two concepts (Hutton, 1993). Several sceptic historians reject the concept of social memory. Their criticism is based on the 'unreliability of individual memory' and they demand a clear distinction between history and social memory (Olick et al., 2011: 44). Nevertheless, there are many historians who use memory in fruitful ways and even take advantage of 'the discrepancy between fact and memory', for example, to increase 'the value of oral sources as historical documents because such discrepancies reveal how ordinary people caught up in historical events make sense of their experiences' (Portelli, 1991: 26). Jan Assmann, for example, combines memory and history in his concept of 'mnemohistory', according to which history is 'the ongoing work of reconstructive imagination' (Assmann, 1997: 9).

Psychologists concentrate on the 'individuum' and use controlled experiments to examine the nature of memory and mind. Although memory was long equated with storage, individual memory is no longer associated with the 'storage bin' concept. From the beginning of the twentieth century this concept was already questioned and replaced with other concepts, according to which remembering is not a matter of retrieval 'but of recombination and creation' (Semon, 1921). Psychological experiments focus mainly on the recall of information, as well on the external settings of remembering. Several studies have demonstrated that the social environment is a crucial aspect of remembering (e.g. Baroni, Job, Peron, & Salmaso, 1980; Schacter, 1983). Olick et al. (2011: 45) sum this up by stating that remembering 'often involves a new combination of stored engrams noise, extrapolation, and features of the present. As such, re-

membering is a matter not of retrieval but of recombination and creation.' For studies on social memory, this validates experimentally that even individual memory is socially embedded by, for example, cultural categories or social settings in general.

Besides sociology, history studies and psychology, many other disciplines contribute to the study of social memory – for example, philosophy (e.g. Gadamer, 1989; Mead, 1929; Nietzsche, 1997; Ricoeur, 2006), architecture (e.g. Rosenfeld, 2000; Young, 2000), museum studies (e.g. Bennett, 1995; Crane, 2000), archaeology (e.g. Alcock, 2002; Jones, 2007), literary criticism (e.g. Felman & Laub, 1992; Huyssen, 2003) and media studies (e.g. Edy, 2006; Landsberg, 2004). Although all these different disciplines involve various research interests they contribute

> to [a] shift [of] our focus from time to temporalities, and thus to [understanding] what categories people, groups, and cultures employ to make sense of their lives, their social, cultural, and political attachments, and the concomitant ideals that are validated. (Olick et al., 2011: 37)

While most of the disciplines contributing to the notion of social memory focus on how societies make sense of themselves in the context of time, there are great differences in how they achieve this. In the following subsection three of the most important concepts in cultural and sociological sciences are examined in more detail.

2.2   Social memory from a sociological and cultural perspective

The previous subsections provided a rough overview of memory in general and of the study of social memory in particular. In organization studies the most important and most cited concepts of social memory are generally derived from sociology. These include the concepts of social memory developed by Maurice Halbwachs (Halbwachs, 1925, 1939, 1980) and Aleida and Jan Assmann (e.g. Assmann, 1999a, 2006; Assmann, 1997; Assmann, 2005) in particular. In the following subsections I would like to discuss briefly these fundamental concepts of social memory in more detail:

> if the role of sociology is to investigate the different ways in which humans give meaning to the world (Trigg, 2001: 42), and if memory is crucial to our ability to make sense of our present circumstances, researching collective memory should be one of its most important tasks. (Misztal, 2003a: 1)

In this citation Misztal (2003a) derives the importance of social memory out of a psychological and individual perspective on memory. Due to the fact that memory is fundamental to experiencing and understanding the

world as an individual, society depends on memory for making sense of present circumstances. However, within social studies the idea of memory is an interpersonal act and must thus be considered as being almost beyond the range of description with the help of individual capacities. Although remembering is traditionally an individual act, remembering takes place within a social setting and can thus scarcely be distinguished from the intersubjective past. Therefore, individual memory is the result of 'social experience – that is, the representation of the past in a whole set of ideas, knowledge, cultural practices, rituals and monuments' (Misztal, 2003a: 6). Although the investigation of memory should be central to mainstream sociology, the topic is relatively neglected (Schmitt, 2009: 14 f.). Apart from the elaborated conceptualizations of collective and cultural memory discussed by Maurice Halbwachs (Halbwachs, 1966, 1967, 1980) and Aleida and Jan Assmann (e.g. Assmann, 1999a, 2006; Assmann, 1997; Assmann, 2005) several concepts of memory from a sociological perspective do exist (e.g. Esposito, 2002; Olick, 1999; Schmitt, 2009). Despite this, however, there are few fully established theoretical frameworks for the study of memory. Great theorists such as Giddens or Goffman, refer to and use the idea of memory as a source of identity and worldly wisdom, yet without having developed their own concepts of social memory. In the next two subsections, I examine Halbwachs's concept of collective memory, as well the concept of cultural memory developed by Aleida and Jan Assmann and derive a concept of the tradition of social memory.

2.2.1   Maurice Halbwachs's concept of collective memory

> The mind reconstructs its memories under the pressure of society. (Halbwachs, 1992: 51)

Maurice Halbwachs (1877–1945) was the first to explore memory from a sociological perspective and introduce the idea of collective memory to the 'sociological vocabulary' (Misztal, 2003a: 50). More precisely, he introduced the concept of 'collective memory' in his posthumously published book (Halbwachs 1926), in which he stresses that this 'individual capacity is really a collective phenomenon' (Halbwachs, 1967; Misztal, 2003a: 4). Although Émile Durkheim mentions memory merely in the context of commemorative rituals and traditional societies (Durkheim, 1915), Halbwachs's idea of collective memory refers to Durkheim's concept of 'collective consciousness' (Durkheim, 1893/1997) as well the idea of 'social facts' (Durkheim, 1895/1982). In his writings, Durkheim emphasizes that every society interprets, assumes and therefore demands continuity with the past. Durkheim's concept of 'social consciousness' for example, explains how classes or groups initially influence the individual and collective behaviour of a certain class or group due to common aims or customs. Nevertheless, Halbwachs's theorizing of collective memory goes further than Durkheim's concept of collective memory as a 'social fact', which indicates the identity of individuals and groups. Halbwachs developed his idea of 'collective memory' referring to memory as socially conditioned. This means that the individual memory needs a collective framework, a social framework of remembering: 'The individual calls recollections to mind by relying on the frameworks of social memory' (Halbwachs, 1992: 182). There is no individual memory without collective and socially derived frameworks. Thus, collective memory is multifaceted, because there are as many memories as there are groups. Individuals internalize the frameworks mentioned above over time through the processes of socialization that involve communication and interaction. These social frameworks enable the members of a group to recall the past within the present and experience continuity. Without these social frameworks, it would not be possible to locate individual remembrances. Halbwachs observes that the most general and persistent frameworks are verbal conventions: (1) syntactic; (2) semantic; (3) and pragmatic rules of language (Halbwachs, 1966: 124). Such frameworks might include 'traditional beliefs', 'cults' or 'religion' (Halbwachs, 1992: 86 and 179). These frameworks are not stable and may change over time. This is how Halbwachs defines forgetting: these frameworks are not fixed and function more like premises of remembering, because they are used for orientation and localization within the process of remembering (Schmitt, 2009: 26). Memory is framed by these social frameworks, which are produced

through communication or the presence of other people or in certain places.

The previous subsection summarizes the basic ideas of Halbwachs's concept of 'collective memory'. His concept is not so much about the preservation of things gone, but more about the context of remembering. One indication of this is that the concept of simple storage does not dominate his notion of social memory and that he focuses on the time-dependent frameworks of remembrance. He emphasizes the difference between present and past frameworks and, on the basis of this difference, explains how remembrance is embedded and constructed within an actual social framework. He links individual memory with the social context. On the one hand, remembrances are not stored over time but reconstructed in a certain present situation with the help of social frameworks. On the other hand, these frameworks endure over time due to their collective character and their intersubjective prevalence within a social group (Halbwachs, 1967: 55 f.). The collective memory is more than just the sum of individual memories. It is the entirety of the collective and perpetuated social frameworks of a group, class or milieu and enables the individual to remember and to forget certain things more easily (Schmitt, 2009: 29 f.). In other words, it is a socially constructed, interactively and commutatively generated framework in social groups that mediates the individual process of remembering.

Halbwachs (1967) introduced sociality to the theoretical body of memory literature and showed that individual memory is strongly influenced by the social framework or social setting of which the individual is a part. His main contribution to the field is that social memory 'is the establishment of the connection between a social group and collective memory' (Misztal, 2003a: 51). Thereby, Halbwachs laid the foundation for the idea of organizational memory. The classic organization could be described as a social group which allocates tasks that need to be performed in order to achieve a collective goal. Thus, organizations qualify as entities possessing a 'collective memory' as Halbwachs understands it. Organizations build their own social frameworks, such as the organizational culture, and thus guide individual remembrance within an organizational setting (Harris, 1994).

With regard to the example presented in *Chapter 1*, Halbwachs's notion of social memory relates to the question of how Entertain Corp. managed to deal with its immense growth rates in the period 2005–2008. The notion of collective memory enables us to analyse the overwhelming demands that this kind of growth places on a company from a temporal and collective perspective. The dramatic increase in new customers led to an extraordinary increase in revenues, technology and organizational size. Entertain Corp. hired many new employees to deal with the great numbers of new customers. The organization grew from 300 employees

in 2005 to 1,400 in 2008 (by 367%). To some extent this growth changed the social framework of Entertain Corp. (see also *Subsection 4.4.1*). The organization defined itself collectively as a group of entrepreneurs with a distinct 'entrepreneurial' spirit and start-up culture. The two following citations indicate how certain parts of the social framework of Entertain Corp. changed.

> In my opinion, there was a big shift in culture because the entrepreneurial spirit that possibly was there, now it's shifted into a much more business-like setting, which is very important for organizations that are big and growing. (Developer C)

> Meanwhile, this changed because the company became so big that this pure delegation style could no longer work and they had to bring in more process logic and logistics and all this stuff, but I would say that at least till 2006 everything was driven by this entrepreneurial style of leadership with an enormous amount of delegation, which worked out quite well. (R&D Manager)

With organizational growth, the social framework of the employees at Entertain Corp. changed as well. The entrepreneurial style of work, which characterizes smaller and young companies and implies a low level of formal and hierarchical structures and a high rate of individual responsibility, was questioned. Established organizational members still stuck to the existing social framework, whereas the numerous new members had no idea about the predominant frameworks at Entertain Corp. The new organizational members were excluded from the older employees' collective memory, while the latter were excluded from the newcomers' collective memories. The memories of major events from the company's formative years, the first success stories and so forth (for more details please see *Subsection 4.4.1*) were not part of the collective memories of new employees. Moreover, the common experience of working for Entertain Corp. was not accessible to the new members and whenever the older employees talked about this experience, the newer recruits were unable to form the same associations. The different collective memories and individual backgrounds exacerbated the problems that arose during this period and made communication difficult. These examples show how the notion of collective memories helps to describe and analyse why it was that the rapid growth in the number of employees between 2005 and 2008 caused difficulties at the time. It also helps explain why the company needed to introduce new structures in order to bring the different backgrounds together and to facilitate communication within the organization.

In seeking an answer to the question of how organizations contextualize themselves in time, Halbwachs's notion of collective memory refers to his notion of the social framework. From Halbwachs's perspective, the past is perceived on the basis of the different social frameworks an indi-

vidual is embedded in; however, it is only the operative social framework that matters.

> Here it is only one framework that counts – that which is constituted by the commandments of our present society and which necessarily excludes all the others. [...] In short, the most painful aspects of yesterday's society are forgotten because constraints are felt only so long as they operate and because, by definition, a past constraint has ceased to be operative. (Halbwachs, 1992: 50)

With the help of this present operative perspective of remembrance he avoids the problematic of different social temporizations and the contingency of possible pasts. Halbwachs emphasizes the interrelation between an individual memory and its social embeddedness and the present social reality: 'even at the moment of reproducing the past our imagination remains under the influence of the present social milieu' (Halbwachs, 1992: 49). From his perspective, it is the present social framework that is responsible for which past is actualized and which is not. Within a different 'social milieu' or different social framework, a different past is remembered.

2.2.2   Aleida's and Jan Assmann's concept of cultural memory

> The term cultural memory signifies that memory can be understood as a cultural phenomenon as well as an individual or social one. (Bal, 1999: VII)

I would like to draw especially on the work of Aleida and Jan Assmann, who developed the most prominent theoretical concept of cultural memory in their field (Assmann, 1999a; Assmann & Assmann, 1994; Assmann, 1988). Their cultural perspective differs from the sociological perspective in various ways. The focus within cultural sciences is more on 'the link between past and identity' (Assmann, 2002a: 414; own translation) and centres on memory as a storage medium and only marginally on a functional perspective of memory. Both authors' starting point is Halbwachs's concept of 'collective memory', which they criticize for not being sufficiently differentiated to reflect the multifaceted characteristics of social memory (Schmitt, 2009: 47). Cultural memory stores latent knowledge, which is not required at a particular moment, but might be required in the future. It is thus a reservoir of unused possibilities (Assmann, 1999a: 137 f.). In order to develop the notion of collective memory further, Aleida and Jan Assmann differentiated between 'working and storage memory' (Assmann, 2006; Assmann, 2011: 80). Working memory deals with the actual process of remembering, whereas storage memory conserves information – for example, in written form. Storage

memory is described as a kind of a repository of unused possibilities and functions that orientate working memory.

Jan Assmann also distinguishes between 'cold' and 'hot' memory (Assmann, 2011: 50). Much earlier, Lévi-Strauss (1968) had differentiated between 'cold' and 'hot' societies. So-called 'cold' societies are more primitive and lack historical awareness, whereas hot societies are aware of the existence of history and have learned from their experiences to become a civilized society (Lévi-Strauss, 1968: 270). Jan Assmann (1999a) followed this basic idea and developed it further to talk about 'cold memory'. This refers to societies that do not develop further because they do not remember changes or modifications, whereas 'hot memory' utilizes remembrance in order to improve and to become a more civilized society.

Jan Assmann describes the invention of writing as the most important factor for the development of a differentiated and functioning cultural memory. With relation to cultural reproduction and cultural coherence, he highlights the importance of writing, without which societies are forced to repeat constantly their rites, ceremonies, or other cultural institutions. Jan Assmann describes this as transition from ritual to textual coherence (Assmann, 1999a: 89). The invention of writing 'marks the history in two phases: one of ritual repetition and one of textual interpretation' (Assmann, 2011: 80). Whereas ritual remembrance is 'based on repetition', textual continuity tolerates and supports variation (Assmann, 2011: 81). Writing seems to be an essential accomplishment for developing a fully differentiated cultural memory. The importance of writing reflects the role of the media in the formation of social memory, because writing, printing or the Internet open up new ways of storing and interconnecting pieces of information. For that reason, Jan Assmann concludes that the history of memory is more or less the history of its media (Assmann, 2002b: 414).

With the introduction of new media, especially writing, the potential for storing information increased dramatically. But what information or what kind of texts are stored and retrieved with the help of cultural memory? As more and more texts are produced, variation increases and has to be structured to reduce this overload of information. Texts are thus differentiated within a process of so-called canonization, which sorts the texts between important and unimportant. This canonization helps to limit the amount of stored texts because certain texts are highlighted as connectable or even desirable and others not. A text that is part of a certain canon is characterized as exemplary and thereby highlighted for further usage, like interpretations for example (Schmitt, 2009: 53). Thereby canonization does not merely emphasize that texts can be interconnected, but identifies which ones are important. Jan Assmann states that 'the collective memory is based on common knowledge and shared memory, [...], which is transferred with the help of a shared system of

symbols' (Assmann, 1999a: 139; own translation). According to this language usage is what mainly ensures that there is a common system of symbols, as well a common cultural sense. Culture is common knowledge on which basis identity is built and in this context cultural memory is the storage of this knowledge as well as the access to it.

The previous subsections summarize the basic ideas underlying the prominent theoretical concept of cultural memory, which was developed by Aleida and Jan Assmann. Their concept describes how latent knowledge or unused possibilities are stored through culture and differentiates between working and storage memory or 'cold' and 'hot' memory, which aims to capture the multifaceted notion of cultural memory. Moreover, their concept explains the importance of media in the study of social memory and the linkage between memory, collective identity and individual. The authors draw on several case studies (e.g. 'Egypt', 'Israel and the invention of religion') to show

> that any change in the organization of cultural memory – for example, through innovations in the manner of recording it (writing), of circulating it (printing, radio, TV), or of transmitting it (canonization, decanonization) – may bring with it the most radical alterations in collective identity. (Assmann, 2011: 140)

This quote summarizes their main contribution to the study of social memory, which focusses more or less on the storage medium (writing and circulation) as well as on the transfer over time periods and the change of collective identity. With regard to the example of Entertain Corp. (*Subsection 1.2*), their concept of cultural memory, like Halbwach's notion of collective memory, makes it easier to understand the role of culture and collective identity, as well as the role of written or rather archival documents (see also *Subsection 4.4.1*), in the process of fast growth in organizational size (from about 200% to 300% in this case). Aleida and Jan Assmann's notion of cultural memory helped analyse why Entertain Corp.'s extreme growth caused problems with relation to the existing culture and collective identity. Their concept also sheds light on the difficulty of integrating successfully new organizational members with different cultural backgrounds, as culture could always be an integrating and excluding force for new organizational members (O'Reilly, Chatman, & Caldwell, 1991). With the help of cultural memory, the role of storage devices, like the intranet or other archival data, for example, in the entry process for new organizational members, as well their effects on the collective identity, could be analysed on an overall basis. The notion of cultural memory focuses on the illustration of how information is stored over time and how societies make use of this information. Certain pasts are provided in the sense of cultural memory on the basis of the remembrance itself. It is the remembrances of the past that 'introduce an

order and a structure into that internal life that is socially conditioned and that link us to the social world' (Assmann, 2005: 1). In this sense, Assmann and Assmann do not analyse how social systems in general deal with the contingency of their own possible pasts, but illustrate how societies deal with the complexity of remembrance with the help of canonization. Assmann writes:

> Canonization is a special form of writing. Texts are not merely written down: their authority is increased. This increase in authority refers both to their shape (their wording) and their status, which is closely bound up with it. Authority means that everything the text says possesses absolutely normative validity. (Assmann, 2005: 64)

On the level of society such texts could be found in the Bible, the Torah or in a country's constitution. Within organizations, the corporate constitution or written corporate values might be an example, although these would not necessarily be described as 'absolute normative' texts that are valid in most of the cases.

2.2.3   The memory function by Niklas Luhmann

The memory of psychic and social systems cannot simply be seen as storing past states or events and keeping them available. What is past is and remains operationally unavailable. The memory, too, can be used only in given, actual operations, and thus only in the present. The real function of memory lies not in preserving the past but in regulating the relationship between remembering and forgetting; or, as Heinz von Foerster puts it, in the constant selective re-impregnation of one's own states (Luhmann, 2012: 162).

Niklas Luhmann developed his own idea of social memory, drawing on Heinz von Foerster's observations of memory, which were based on quantum physics, as well as on the latter's numerous publications on memory, in which he explains that memory cannot really be described as a storage device, although this is how it is often defined in everyday speech (e.g.von Foerster, 1948, 1965, 1993b). Moreover, Luhmann grounds his concept in the notion of intransparency, which is crucial to general systems theory and refers to a system's inability to observe its own operations in a holistic way. Luhmann developed this idea into the notion of 'self-produced indeterminacy' (Luhmann, 1997). This indicates that Luhmann developed his theory of society in general, and his notion of memory in particular, from a partly counter-intuitive perspective, which focuses on what is not done, rather than on what is done. He writes:

> The main question for a theory of society, however, is why almost all possible actions and interactions do not take place. They are apparently outside the schema of possible

motives and rational calculations. How does society manage to sort out what is possible? Why is it part of the meaning of the forms of social life that these vast surplus possibilities are disregarded as unmarked space? (Luhmann, 2012: 15)

One answer to his questions is his notion of memory, which plays an important role in the process of sorting out possibilities from impossibilities and in the 'disregard' of possibilities of the forms of social life. After a relatively short introduction into Luhmann's oeuvre, I discuss his notion of the social memory function in the light of the research questions that I developed earlier.

2.2.3.1 Luhmann's basic assumptions about memory

As already mentioned, Luhmann develops his notion of memory as a function by referring to von Foerster's concept of memory. Von Foerster defines memory not as a storage device, as it is often defined in general usage, but as a 'cognitive process'. Cognition as such is based on stimuli from the environment that stimulate a system. This stimulation is compared to the current state of the system, which is constituted by past operations. The alignment of the current arousal with the current state of the system is only possible with a memory, which is able to update past operations (von Foerster, 1993b: 305). Von Foerster exemplifies his approach with a metaphorical equivalent of a storage device: the library. Libraries store books and, whenever a person orders a book, she or he is provided with precisely this archived book. Within cognitive processes this is not possible, because they involve the processing of information and are not likely to bring back the same medium carrying the relevant information. Von Foerster differentiates between information and its medium, because cognition is not about the observable operations of remembrance, but about the ability to differentiate between information and its medium in order to process the information (von Foerster, 1993b: 302). This differentiation indicates that, unlike books, previous operations and actions are not available and cannot be activated in the present state. Cognition itself relies 'on neuronal mechanisms, which allow the identification, classification, and generalization of experiences and the comparison of these with other experiences independently of their medium' (von Foerster, 1993b: 304; own translation). In this sense, von Foerster argues that recognition and remembering are just the 'observable events' of memory and have to be differentiated from their constitutive operations of remembering. He describes the ability to remember as 'the result of complex processes or operations that transform experiences into expressions, i.e. into symbolic representatives of these experiences' (von Foerster, 1993b: 304; own translation). In this sense, memory is a present selective recourse and a

present anticipation at once. It is an ongoing process that links the past and the future and generates information about the present by comparing past circumstances with anticipated circumstances. Von Foerster's concept of memory refers to human beings, or rather psychic systems. Luhmann developed his own functional perspective on the social memory of social systems based on von Foerster's approach to memory.

Luhmann's notion of social memory is also based on insights from general systems theory; namely, on a system's 'intransparency' or 'self-produced indeterminacy'. This means that the system is not capable of observing and describing itself thoroughly (Luhmann, 1997). He introduced the phenomenon of intransparency, drawing on Heinz von Foerster's differentiation between 'trivial' ('predictable') and 'non-trivial ('unpredictable') machines' (1993a). The former type of machine 'couples deterministically a particular input state with a specific output state or, in the language of naïve reflexologists, a particular stimulus with a specific response' (von Foerster, 2003: 140). These machines are able to observe themselves and produce always the same output, as long as the predetermined function and the input stay the same. In contrast, non-trivial machines operate on the basis of their present condition, which is dependent on their previous operations and which the machine itself has to observe in order to connect the current operation to further consistent operations. These 'historical machines' never produce the same output twice, as the output depends on the current condition of the machine, which changes due to its ongoing operations. These machines are unpredictable and history-dependent at the same time (von Foerster, 1993a). On the basis of these non-trivial machines and the resulting second-order cybernetics, which is based on the idea of non-trivial machines or rather systems that observe their own observations, Luhmann draws on the concept of autopoiesis, which was introduced by Humberto Maturana (1975), to develop his theory of social systems. Autopoietic systems reproduce themselves through their own elements and thereby define the conditions of their own reproduction. Accordingly, social systems could be described as *intransparent* in the sense that their future operations cannot be foreseen in the present state of the system, because their conditions change with every operation and define subsequent operations. Within these operationally closed systems, reality could only be constructed by the system itself. The knowledge that the system possesses is

> no longer a representation of environmental states of affairs (in any symbolic form whatsoever) but as 'Eigenbehaviour' of a self-referential system. Reality is no longer the result of a resistance of the environment against knowledge attempts of the system, but the result of a resistance of operations of the system against operations of the same system. (Luhmann, 1997: 363)

Luhmann also drew on Spencer-Brown's notion (1969) of the form in general and the notion of 're-entry' in particular. In his book *Laws of form* (1969) Spencer-Brown showed how any observer – a system, a person, or a machine, for example – differentiates between a marked and an unmarked state and is thus able to indicate his, her or its observation.
With the help of what he calls 'the form' he illustrated his concept graphically.
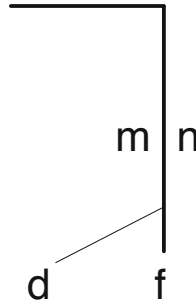
Figure 1: The form and its values

The notion of form that Spencer-Brown introduced is 'called the mark of distinction or, with respect to its operations, the cross' (Baecker, 2006: 123). The cross marks the asymmetry of a distinction. The inside of the distinction, in this case labelled 'm', is the marked state. The outside of the distinction, in this case labelled 'n', is the non-marked state. Any operation looking at a form 'f' discovers its three values: (1) the marked state 'm', (2) the unmarked state 'n' and (3) the distinction 'd'. Using the concept of 'form' Luhmann described how an observer observes or a system operates. The observation is based on the three components of the form. An observer marks (m) his observation by differentiating 'm' from everything else or the unmarked state 'n' on the basis of his distinction 'd'. Or as Seidl (2005b) puts it:

> The observer has to focus on one state, while neglecting the other. It is not possible to focus on both simultaneously. In this sense, the relation between the two states is asymmetrical. We have a *marked* state and an *unmarked* state. (Seidl, 2005b: 25; emphasis by the author)

In the further process of the system it is the marked space that serves as the basis for the next distinction, or rather operation. The unmarked space of possible alternative operations is forgotten for the moment.

Spencer-Brown also introduced the 're-entry', which describes 'a distinction into that which is distinguished by *itself*, or, more briefly, by re-entry of the form into the form' (Luhmann, 1997: 363).
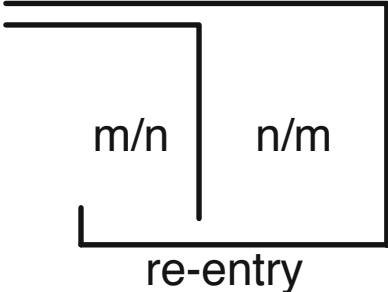
Figure 2: Re-entry of the form into the form and oscillation between marked and unmarked space

The re-entry describes the re-entering of the distinction into the distinction. Hereby the distinction occurs in two versions, 'one version is the distinction actually used, the other one is the distinction looked at or reflected upon' (Baecker, 2006: 124). The re-entry describes an oscillation between the marked and the unmarked state remembering the prior state. Luhmann adopted the idea of re-entry in his theory of social systems in general and autopoietic systems in particular. Autopoietic systems differentiate themselves from their environment through their self-referential operations (Luhmann, 1990b). For example, the economic system differentiates itself from the rest of the society with its self-referential operation or code of payment and not payment, which only makes sense within the economic system. With this code of payment the economic differentiates itself from its environment and constitutes an autopoietic system (Luhmann, 1994). At the same time, social systems are able to observe themselves and their operations; in other words, they are able to introduce the differentiation between themselves and their environment within themselves. A social system is thus able to observe, or rather to realize, its difference from its environment and thereby to enhance its own possible operations with the indeterminacy of its environment by observing its environment in contrast to itself. Finally, this increases the system's number of possible operations within the system. *Figure 3* captures the origin of self-produced-indeterminacy.
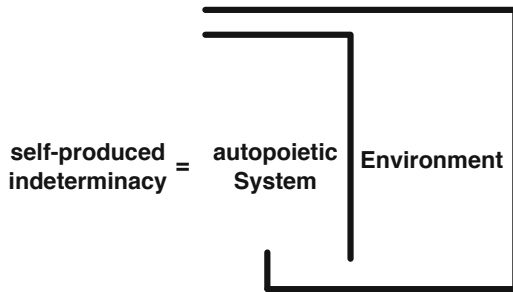
Figure 3: Re-entry of the distinction of system and environment

The figure describes the autopoietic system, which is differentiated from the environment through its own operations, and illustrates the re-entry of this distinction into its own distinction. This leads to a spillover of possible operations, as the indeterminacy of the environment is introduced into the system, and thus leads to 'intransparency of the system for its own operation' (Luhmann, 1997: 359). According to Spencer-Brown (1969), Luhmann describes this 're-entry into the system of the distinction between system and environment' as '*self-produced indeterminacy*' (Luhmann, 1997: 363; highlighted by the author). Indeterminacy is considered to be self-produced, due to the system's self-referential autopoietic reproduction of its own elements on the basis of its own elements, which is the starting point for its differentiation between the system and its environment. In order to deal with its intransparency, the system arranges its own operations by temporalizing them between past, present and future states in order to define and make sense of its present situation. The system must refer to past operations, which it cannot fully remember, and at the same time to a future that is not known. In this respect Luhmann writes:

> Temporalization means here generating a difference consisting of past and future. If the system only knew the past, or if the present of the actual operation were only a repetition of the past, it would reproduce itself as it is. If there were only future, the system would have to understand itself as constant deviation from its own state, e.g. as goal, and it would fall into deviation from deviation from deviation. (Luhmann, 1997: 364)

Thus in order not to avoid the reproduction of itself, which would probably lead to the breakdown of the system (because it would not be able to adapt to changing circumstances, or fall into an unending process of divergence), the system must acquire a memory function, which locates the system in time, as well an oscillation function, which is devoted to the

future and defines future possible operations. On the one hand the memory function enables the system to define its current state on the basis of past operations, and on the other hand, in order to realize the latter, it needs to oscillate between the marked and unmarked space of its operating distinction to realize self-produced indeterminacy. If both sides of the distinction were fixed, the system would be determined, which, as mentioned earlier, is not possible within operationally closed autopoietic systems. In this respect, the memory function 'discriminates continuously between forgetting and remembering' (Luhmann, 1997: 365) in order to actualize one operation that must be remembered for subsequent operations. At the same time, the unmarked space releases certain capacities with the help of forgetting. Luhmann writes:

> We go a step further with the thesis that the transfer function of memory relates to distinctions; or, more exactly, to indications of something as opposed to something else. The memory operates with what has been successfully indicated and tends to forget the other side of the distinction. (Luhmann, 2012: 351)

What is remembered or forgotten relies on the system's past, as well as on its future expectations. The memory function bases its present operation on both past operations and future expectations and delivers free capacity and possibilities to connect with possible future operations by constantly modifying its condition with the help of forgetting.

Spencer Brown's concept of oscillation (1969) has been broadened by Luhmann into 'any distinction which is used by the system for observations' (Luhmann, 1997: 365). This means that the actual operation of the system oscillates between the marked and the unmarked state, as illustrated in Figure 2. The system marks one state of the distinction and uses this marked state as a basis for the next operation. Thereby it remembers past operations ('marked space') by actualizing them and forgets past operations ('unmarked space') by neglecting them in the actual situation. Non-actualized operations are forgotten at that moment, but might be remembered at a later point in time – for example, because of changes in the circumstances that make the actualization of a certain operation necessary. With respect to the future, the system has to establish potential oscillations; 'the intransparency of the system regarding the past is controlled by memory, so the intransparency regarding the future is controlled by the distinctions which in every case are used as a framework of observation' (Luhmann, 1997: 366). For example, perhaps in the past you always used the car to go to work (marked space). This distinction is remembered while other options available in the past have been forgotten (unmarked space); however, in the future a bicycle might also be an option to go to work (capacity for future operations). In the present state it is memory that remembers or changes this distinction against the

distinction of car and bicycle, for example. It could also be that the distinction is no longer relevant to the context of transportation and is replaced by other options, such as walking and public transport. Thereby, memory enables the system to oscillate further by generating the capacity for further differentiation (Luhmann, 1998: 583). Or as Luhmann put it, 'the future cannot be constituted without opening possibilities of oscillation' (Luhmann, 1997: 366).

With regard to the previous assumption, I would like to introduce communication as an element of social systems. In contrast to the sociological tradition, which mostly focuses on actions or persons, Luhmann regarded communication as the basic element of social systems:

> Social systems use communication as their particular mode of autopoietic reproduction. Their elements are communications which are recursively produced and reproduced by a network of communications. (Luhmann, 2008: 86)

Moreover, Luhmann rejected the understanding of communication as the transmission of meaning or information from a sender to a receiver, which is associated with the famous Shannon-Weaver model of communication (Shannon & Weaver, 1949). Communication must be differentiated from transmission, because it cannot control how the receiver understands it. Luhmann rather 'suggests communication as an entity comprising the three components information, utterance, and understanding' (Luhmann, 2012: 36).
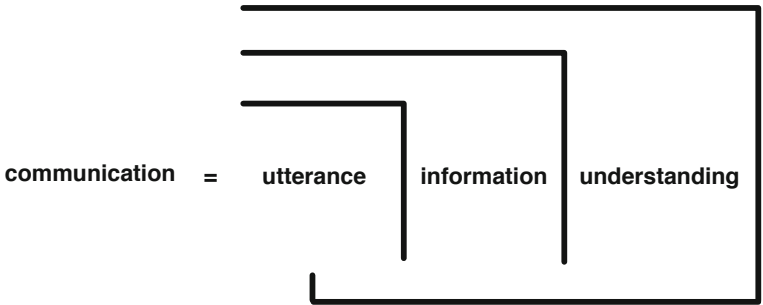
Figure 4: Entity of information, utterance and understanding

Communication as such is a process of selection. First, communication defines 'how and why something has been said' (Seidl, 2005b: 12) and marks it as an utterance. Second, it selects information from the realm of

possibilities and marks it as information and third, it marks under-standing by differentiating between utterance and information. In other words, ego has to differentiate between utterance (how and why) and information, in order to understand what has been communicated (see also Luhmann1995b: 137-175).

2.2.3.2   Three interrelated memory functions

As already mentioned, according to Luhmann's conceptualization, me-mory is neither a gate to past conditions nor a storage device in which information is stored over time and retrieved later. He prefers the notion of 'memory function', which identifies the system in the difference to their former conditions and thereby constructs the present system's reali-ty (Luhmann, 1998: 45). In order to answer the question of how memory functions, it is necessary to explain first why the function of memory is required and what problem the function of memory addresses. Systems refer to memory whenever they identify themselves in situations diffe-rent to their former conditions or whenever their constituting network of communication has problems sustaining its communicational process. Systems thus need to possess memory in order to observe and sustain these differences and ensure that the communicational process is conti-nuous (Luhmann, 1998: 578). Memory is not about going back into the past, it is about present operations and their determining circumstances. Moreover, it is not about asking where memory could be found, because memory is 'everywhere' (von Foerster, 1965). In a similar vein, Baecker states (with reference to Glanville): 'The system is its memory and the memory's addressee at the same time' (Baecker, 1987: 520; own translation; Glanville, 1978). Or according to Luhmann, memory is the permanent 'constant selective re-impregnation of one's own states' (Luhmann, 2012: 162). Systems need to possess the function of memory to test 'all incipient operations for consistency with what the system constructs as reality' (Luhmann, 2012: 349). Therefore, memory is a func-tional solution to a system's problems of sustaining its constitutive net-work of communications. In the context of society, and therewith of soci-al memory, these operations are communications. On the basis of Luh-mann's notion of memory, three interrelated functions have to be high-lighted: (1) the permanent examination of consistency, (2) 'discrimina-ting' between forgetting and remembering and (3) constructing reality.

As already stated, one function of memory is to ensure the consistency of the social system, which is constituted by communication, and at the same time to guarantee the ability to process communication by distribu-ting free capacity whenever the system forgets (Luhmann, 1998: 579). Luhmann states that forgetting is not the only function, even though it is

the most important one of working memory, because it enables the system to process information and guarantees the continuance of communication and thereby the continuance of the system itself. Memory does not meet the challenge of retaining past operations, but rather discriminates between the function of forgetting and remembering and sorts out which operation is relevant for now and therewith indicates possible future operations. On the contrary defining the marked space sets on the other side the unmarked space free and defines therewith the free capacities of the system, which are necessary to enable following operations. Systems that are blocked by previous observations lack the capacity of new excitation and therewith the ability to process new information (Luhmann, 1998: 579 f.). These two functions determine each other, as the ability of remembering is based on the ability of forgetting and is only possible because capacities are exposed to deal with upcoming events.

In the light of this, we will take a closer look at the relation of time and memory. Memory links past with present, but is not able to bring the past to the present due to the fact that – like everything else – it operates in the present. Instead memory enables the system to construct time and define the present by differentiating between past and future. According to this from Luhmann's perspective, the present is 'the distinction between past and future' (Luhmann, 2012: 350).

Present =   Past   Future
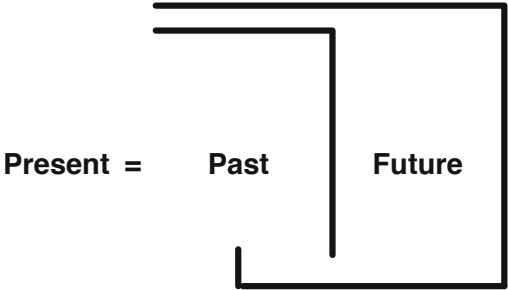
Figure 5: Difference between past and future

Memory is required to construct the unavailable time dimension of the past and differentiate it from the future, which is constructed with the help of oscillation. Memory enables social systems to operationalize time by observing differences between the past and the future and thereby 'manages this distinction' or, in other words, it 'controls the resistance of the system's operations to the [actual or present] system's operations' (Luhmann, 2012: 350-351). In other words, memory confronts the sys-

tem's present operations with past and possible future operations. The system is confronted with possible alternatives and has to resist them, because it cannot respond to all possible alternatives at once. Resistance allows the system to observe itself and to construct its present reality. In this sense, memory is responsible for constructing the reality of the system on which its future and actual operations are based (Luhmann, 1998: 581).

Memory observes and thereby defines the differences with which the system is observing its environment in present operations: 'The memory constructs structures only for momentary use to maintain selectivity and limit connectivity' (Luhmann, 2012: 18). Because social systems are operationally closed, they must generate their structures through their own operations. Such structures cannot be imported from the environment of the system into the operating system. Luhmann defines this as 'self-organization' (Luhmann, 2012: 50). Structures can only be derived and used within the system through the system's own operations in its present state. Every other operation can be ascribed either to the past or the future of the system. Thus, all operations, or rather communications, within a system have two functions: first, they derive the 'historical state' of the system, the starting point of every subsequent operation, and thereby define the current state of the system. Second, present operations frame the future possibilities of ensuing operations (Luhmann, 2012: 50). Structures are like anticipations of future operations and their connectivity to ensuing operations. This means that 'memory is then simply another word for an "enhanced inner organisation", which 'enables a system to draw inductive conclusions about future incidents from incidents in the past' (Baecker, 1987: 520; own translation).

As shown above, Luhmann challenges Halbwachs's idea (1980) of a collective memory, which in Luhmann's interpretation evokes the same or similar remembering by individuals, when they are part of the same social circumstances. In consideration of his concept of autopoiesis defining and constituting social systems as well organizations, social memory is not the result of communication, but is defined by the recursivity of communication (Luhmann, 2012: 352). Communication relies on its own capacity of sense-making of what is already known, what is at the same time ensured over time by its reuse. Luhmann describes this reuse of sense-making as the 'ongoing reimpregnation of communicatively usable meaning' (Luhmann, 2012: 352) and through this defines how society constituted by communication remembers.

Furthermore Luhmann discusses the fundamental effects of writing on the ability of a society to memorize information, in comparison to societies depending on the spoken word. Societies that have not established the ability to write, and therefore depend on the spoken word, refer to

'objects' and 'quasi-objects' to guide the memory function. Communication refers to

> 'the meaning and correct form of objects (houses, tools, places, and ways, or names of natural objects, but also of human-beings') (…) without doubts arising about what is intended and how to deal with it. (Luhmann, 2012: 353)

It is clear what these marked objects are and how they should be treated, so 'the memory function is marked by the assumption that there are "correct" forms and "correct" names and that knowledge of names gives power over objects' (Luhmann, 2012: 353). Moreover, there are so called 'quasi-objects' like 'rites or celebrations or narratable myths' (Luhmann, 2012: 353), which endow society with the function of memory. These 'quasi-objects' refresh the knowledge of something that is already known. With the introduction of writing, this object-based memory is enhanced with 'a more mobile memory, which can constantly be regenerated' (Luhmann, 2012: 354). Modern society developed and defined the concept of culture following the introduction of the printing press and of printed books. Culture is the functional answer to a complex society that needs to both forget and remember ever more and more. In that respect, Luhmann describes culture as kind of a 'screening process' that differentiates between forgetting and remembering and uses 'the past to determine the variation framework of the future' (Luhmann, 2012: 355). In a present state of a social system the function of culture is to identify 'distinctions into the past, which supply frames in which the future can oscillate' (Luhmann, 2012: 357).

In this subsection I introduced the general idea of Niklas Luhmann's notion of memory function, which does not refer to storing information, but describes a functional solution to the problem of self-produced indeterminacy. In the context of social systems, Luhmann's concept of memory could basically be summarized as: (1) the permanent examination of consistency; (2) the differentiation of forgetting and remembering and (3) the construction of reality. Luhmann argued that social memory is not a process of storage in the context of society, but lies within the constituting operation itself. It is the operation itself that actualizes and remembers the current state of the social system and at the same time neglects or forgets possible operations. By actualizing, or, in the words of Spencer-Brown by marking only certain operations, the 'inner organisation' enhances and 'enables a system to draw inductive conclusions about future incidents from incidents in the past' (Baecker, 1987: 520; own translation). Based on this 'inner-organization' the system's operations, or in case of social systems, communications are checked to see whether they are consistent with previous ones or not, or also whether they fit in with expectations for the future. At the same time, the 'enhanced inner organization'

structures possible operations and reduces their number. These structures mediate between remembering and forgetting, because they increase the possibility for choosing operations that could be derived from the past or the future and reduce the possibility for marking operations that are totally new to the social system. In a similar manner, the social system constructs its present reality by observing its own resistance to other possible operations.

Luhmann's notion of memory seems to describe a process of selection rather than a repository of information. How social systems sort out possible pasts as well as future horizons plays a central role in his concept. Although Luhmann has written extensively about organizations, he did not elaborate on the notion of organizational memory in his work. Nevertheless, Luhmann's notion of memory as a function would appear to be a promising concept for addressing the problem of contingent pasts and futures and observing empirically how Entertain Corp. dealt with its possible pasts and futures. In order to understand how this occurs in organizations, it is necessary to elaborate on organizational memory on the basis of Luhmann's theory of social systems.

2.3 Organizational memory

In this section, I will review the most important and most fully developed concepts of organizational memory, in order to outline the findings of previous works in Organizational Memory Studies (OMS) in general and the most important concepts that emerged from these works in particular. In the course of the review, I will examine the epistemological foundations of these concepts, as well as the key findings and implications of these studies. I will start with the classic idea of organizational learning, which was developed by Barbara Levitt and James G. March (1988) – among the first to introduce the idea of social memory to organization studies. Following on from this I will recapitulate the most cited and at the same time most criticized conceptualization of organizational memory, the so-called 'storage-bin model', which was developed by Walsh and Ungson (1991). I will also examine the interdisciplinary concept of organizational memory and knowledge management systems, on which Olivera (2000) has written in depth. Another important concept is the notion of organizational forgetting (Casey & Olivera, 2011; de Holan & Phillips, 2004; de Holan, Phillips, & Lawrence, 2004; Easterby-Smith & Marjorie, 2011), which has been neglected for a long time in the scientific discourse (Blaschke & Schoeneborn, 2006). Moreover, I review the idea of 'organizational remembering' by Feldman and Feldman (2006). Their notion of remembering introduces the practice of remembering within organizational settings. Finally, I will discuss Schatzki's notion (2006) of organizati-

onal memory as a practice structure, which draws on Wittgenstein's and also Assmann's, concepts of cultural memory.

2.3.1 Levitt and March's concept of organizational learning

The paper, which was meant to review the literature on organizational learning, is one of the first papers to introduce organizational memory. To understand how Levitt and March conceived (1988) organizational learning, it is necessary to introduce their starting point; namely, three 'classical observations' of behavioural organization studies: (1) 'behaviour in an organization is based on routines'; (2) 'organizational actions are history-dependent' and 'routines are based on interpretations of the past more than anticipations of the future; and (3) 'organizations are oriented to targets' (Levitt & March, 1988: 320). Levitt and March developed their notion of organizational learning and memory on the basis of these three fundamental assumptions. Their main aim was to examine why in organizations experiences, or, in their words, 'the lessons of history' (Levitt & March, 1988: 328), are not lost as a result of personnel turnover. According to the authors, organizations are able to 'conserve' experiences by means of organizational routines. The term 'routine' in the context of organizational learning, as they understood it, includes forms, rules, procedures, conventions, strategies, technologies as well as beliefs, frameworks, paradigms, codes, cultures and knowledge that is part of formal routines. As a consequence of their three basic assumptions and their definition of routines, organizations are ascribed to learn by 'encoding inferences from history into routines that guide behaviour' (Levitt & March, 1988: 320). An organization learns whenever organizational routines change because of 'trial-and-error experimentation' or because the organization seeks better routines (Levitt & March, 1988: 321).

Levitt and March (1988) leave open the question of how organizational experience is transferred into a network of routines, but list in detail how these experiences are stored within an organization; namely 'in documents, accounts, files, standard operating procedures, and rule books; in the social and physical geography of organizational structures and relationships; in standards of good professional practice; in the culture of organizational stories; and in shared perceptions' (Levitt & March, 1988: 327). Storing routines and transforming experiences into routines incurs certain costs and compels the organization to draw a distinction between relevant and irrelevant information. This process reduces the complexity of daily made experiences. It depends on whether the organizational environment is facing complex uncertainties or not. Moreover numerous systematic structures of routines exist within an organization, which are differentiated by 'subcultures, subgroups, and subunits' (Levitt

& March, 1988: 328). As a result, the organization has to deal with a multilevel memory structure. According to their model, there is no single organizational memory, but rather several levels of memory.

This concept of memory by Levitt and March (1988) also introduces organizational forgetting. Whenever experience is not transferred from person to person, the new members of an organization refer implicitly to 'written rules, oral transitions, and systems of formal and informal apprenticeships' (Levitt & March, 1988: 328). Not all routines are accepted within the organizational setting and are therefore neglected and forgotten. For this reason, only some routines are preserved. This may be attributed to the limited time at the disposal and the legitimacy of the socializing agents, conflicting normative orders or a lack of organizational control, among other issues (Levitt & March, 1988). As Levitt and March write:

> Some parts of organizational memory are more available for retrieval than others. Availability is associated with the frequency of use of a routine, the regency of its use, and its organizational proximity. Recently used and frequently used routines are more easily evoked than those that have been used infrequently. (Levitt & March, 1988: 328)

In this sense, organizational memory could be further differentiated into parts that are frequently used, and therefore more easily accessible, and parts that are seldom used and thus more easily forgotten. The likelihood of forgetting old and unused knowledge is therefore higher than that of forgetting permanently used knowledge (Argote, Beckman, & Epple, 1990). In this respect, Levitt and March (1988) refer to the 'reliability' of remembering knowledge or experiences that have been standardized in order to enhance this reliability. They note that, due to the organizations' 'ambiguity about preferences', standardizing the process of retrieval is difficult and might harm an organization's learning process. This is because processes of standardization 'reduce or eliminate the fortuitous experimentation of unreliable retrieval' (Levitt & March, 1988: 329). In this respect the standardization of retrieval limits the ability to learn from new experiences, which is based on experimentation and uncertainty. With reference to organizational memory, routines imply that memory is permanently undergoing changes. As routines change, the organizational memory also changes. This is interesting in the context of innovation, mergers and acquisitions and complex environments that are characterized by permanent and extensive change.

Levitt and March's paper (1988) on organizational learning, which also reviews the relevant literature, is one of the first papers to use the term 'organizational memory' on the basis of a theoretical discussion about organizational learning. The authors link knowledge, learning and memory and draw a distinction between the organizational and the indivi-

dual level of learning and remembering. Referring to the thinking they have developed on organizational learning and also organizational knowledge, organizational memory is represented by routines. Routines store history and therefore form the future pool of alternatives (Levitt & March, 1988). Levitt and March adopted a knowledge-based perspective, according to which organizations are defined as 'repositories of knowledge' (Conner, 1991; Conner & Prahalad, 1996). Although Levitt and March leave the question open as to how organizational experience is transferred into an organization's network of routines, their concept helps us to understand how organizations deal with the problem of fast growth and personnel turnover. With the help of routines an organization is able to store and retrieve experiences independently of the individuals who are a part of it. Their study concerns the problem of how knowledge can be preserved despite personnel turnover. Although they do not problematize the contingency of possible pasts and the embeddedness between possible pasts and futures, their notion describes the different layers of structures or in this case routines, which define access to the past. They discuss 'lower level routines' and 'general routines' and how these can be interrelated (Levitt & March, 1988: 328), nevertheless, they fail to describe how different routines deal with the problem of contingency and mainly focus on the 'recording', 'conservation' and 'retrieval' of experiences.

2.3.2   The 'storage bin' model

The most prominent theoretical model in the relevant literature on organizational memory is the 'storage' imagery, which was established by Walsh and Ungson (de Holan & Phillips, 2004; Spender & Grant, 1996). Their repository image, or storage bin model is the most widely accepted model in mainstream organizational memory studies (Rowlinson et al., 2010). Walsh and Ungson (1991) described organizational memory as a 'storage bin' containing stored information from an organization's history that could be used in current decision-making. Like Levitt and March (1988:), Walsh and Ungson's model of organizational memory also refers to the classic, but somewhat outdated notion of human memory, which comprises three phases: (1) acquisition, (2) retention and (3) retrieval. During the *acquisition* phase, organizational memory concerns mainly 'information about decisions made and problems solved' (Walsh & Ungson, 1991: 62). To describe the acquired information more precisely, they refer to 'the journalist's six questions (who, what, when, where, why, and how of the attributes of both a particular decision stimulus and response)' (Walsh & Ungson, 1991: 62). Acquired information thus not only concerns a decision as such, but also the reasons for any decision

and the context in which it has been made. The core of their idea of organizational memory is *retention*, which describes how the acquired information is stored over time until it is needed again and retrieved. Walsh and Ungson suggest that four internal and one external 'storage bins' accumulate the acquired information: (1) individuals, (2) culture, (3) transformations, (4) ecology and (5) external archives. During the final phase of *retrieval*, information is retrieved either automatically in situations of intuitive decision-making or in a controlled manner 'based on previous practices and procedures that have been shared and encoded in transformations' (Walsh & Ungson, 1991: 69). The different 'storage bins' are integrated into a single model that illustrates how information is processed from acquisition to retention and finally to retrieval.

As already mentioned, the 'storage bin' model evolved into the most recognized model within OMS, because it 'provided the first integrative framework for thinking about organizational memory' (Olivera, 2000: 813). The model includes several organizational characteristics which are related to organizational memory, such as organizational learning (Cyert & March, 1963; Huber, 1991; Levitt & March, 1988; Nystrom & Starbuck, 1984), organizational procedures (March & Simon, 1958) and organizational culture (Martin & Siehl, 1983; Schein, 1984), and combines their qualities for storing information into a model of organizational memory.

The view of organizational memory as some kind of storage bin or as a repository is common in the substantial literature on information systems or knowledge management (e.g. Hackbarth & Grover, 1999). Nevertheless, the notion is facing criticism from a number of different angles. Although Walsh and Ungson claim that their model is based on the 'individual-level memory processes' (Walsh & Ungson, 1991: 63), psychologists have rejected the model 'because it overlooks the distinctly human subjective experience of remembering' (Rowlinson et al., 2010: 69), such as the unpredictable process of recollection or the imaginative reconstruction of the past (Schacter, 1997, 2001). One shortcoming of the model is that it does not explain how memory is formed, but focuses on knowledge that is stored in this repository. In contemporary research in the field of neurology and psychology, the concept of memory as a simple storage device has been replaced with processual and constructive concepts that define memory as a process of temporal reconstruction in which every actualization of past conditions affects subsequent remembrance and where 'the only proof of there being retention is that recall actually takes place' (Bartlett, 1932; James, 1890: 654; Sara, 2000; Tulving & Thomson, 1973).

The concept of the storage bin mainly describes how information is stored but does not account for the far-reaching consequences assisting an organization a memory. Insofar as we understand memory as a mediator between past, present and future we will need to assist the organiza-

tional memory in achieving much more influence on the organization as a whole than is described by Walsh and Ungson. More is involved here than the correctness of information, which must be explored with the help of the notion of memory (Rowlinson et al., 2010). Memory is a central concept 'of being in time, through which we define individual and collective selves' (Olick et al., 2011: 37) that goes beyond the storage of knowledge and information. Nonetheless, serious critics and criticisms are hard to find and the storage bin model has been largely accepted within OMS literature (Anand et al., 1998; Argote, 1999a; Cohen & Bacdayan, 1994; de Holan & Phillips, 2004; Fiedler & Welpe, 2010; Hackbarth & Grover, 1999; Kyriakopoulos & de Ruyter, 2004; Moorman & Miner, 1998), in which memory is mostly defined as 'stored information from an organization's history' (Walsh & Ungson, 1991: 61), or 'retained knowledge' (de Holan & Phillips, 2004). Nevertheless the storage-bin model illustrates how information could be stored in organizations as in Levitt and March's notion of organizational memory (1988) and thus answers the question of how organizations are able to transfer their experiences and knowledge over time, even though their staff may change. This illustrates the importance of a social or collective notion of organizational memory and further develops the integration of organizational learning, organizational routines, organizational design, knowledge management systems or human resource management. Although Walsh and Ungson's concept of memory contextualizes the different storage bins and tries to interrelate them, it does not address the contingency of these different possible pasts in detail but, as already observed, focuses mainly on the storage and classification of information over time.

2.3.3 Organizational memory and knowledge management systems

After Walsh and Ungson introduced the storage bin model in 1991, the stream of works on knowledge management gained importance in management literature. During the last two decades, knowledge management systems became increasingly significant for researching how the experience and knowledge created by organizational members is collected, stored and accessed. Although the literature on knowledge management relies on the image of memory as a repository, it has developed categories such as the accessibility or creation of knowledge and tools that aim to improve these capabilities. The literature on knowledge management systems emphasizes the importance of knowledge within organizations and highlights the problem of loss of knowledge. Research on knowledge management systems emphasizes the benefits of easy access to information and the benefits of referring to existing solutions for conventional problems. Moreover it showed the importance of old know-

ledge for creating new knowledge by recombining already existing knowledge (Olivera, 2000; Schulz, 1998). In addition to this the transfer of internal knowledge enables the renewal of organizational capabilities through 'best practices' and supports the process of organizational learning (Cohen & Sproull, 1996; Snyder & Cummings, 1998; Szulanski, 1996). Organizations are aware of these advantages and developed organizational memory systems to collect, store and provide access to experiences (Lehner & Maier, 2000; Olivera, 2000). Knowledge-management is thus regarded as an important source of competitive advantage (Ozorhon et al., 2005; Parker & Case, 1993).

Like the storage bin model, organizational memory systems are defined as 'sets of knowledge retention devices, such as people and documents, that collect, store and provide access to the organization's experience' (Olivera, 2000: 815). There are two distinct forms: (1) computer-based information technologies and (2) social networks. Both will be discussed in greater detail in the following two sections. At this point it seems important to mention that memory systems are not independent, because they are connected in two ways: (1) the content is mostly not just part of one system but is contained in two or even more parts of the system (e.g., intranet, knowledge centre); and (2) memory systems are connected to each other through references to other memory systems in which knowledge can be located. For example, names included in an intranet lead finally to the location where expertise is located within the organization (Olivera, 2000).

According to Wegner et al. (Wegner, 1986; Wegner, Erber, & Raymond, 1991) the knowledge that is held by a group has two components: '(1) the information stored by group members in their individual memories and (2) directories held by group members that identified the existence, location, and means of retrieval of information held by other individuals' (Anand et al., 1998: 797). Organizational members interact with each other in order to encode, store and retrieve knowledge by means of communication interactions or transactions. The information stored in the individual memories of a group comprises internal and external components. The internal components are stored in the individual memories of the group members, whereas the external components are not personally known by group members but could be retrieved when required. Such information is stored in files, hard drives, or the memories of other persons (Wegner, 1986). Thus, directories carry information about the existence and location of external information, as well as how to retrieve information of this kind (Wegner, 1986). Furthermore, computer-based information technologies are an important method of storing knowledge within organizations. A shared electronic database stores, for example, market figures and common responses to a certain market development. The members of an organization fill these data-

54

bases with information so that other members interested in these data can have access to them whenever they face similar circumstances (Stein & Zwass, 1995).

At first glance, the organizational memory systems described here look similar to Walsh and Ungson's storage bin model (1991). Both models describe how organizations store experiential knowledge for subsequent decision-making. Nevertheless, there are conceptual differences between memory systems and storage bins. First, storage bin models, in contrast to memory systems, are not explicitly meant to fulfil the function of memory, although organizational culture and structures collect, store and make experiential knowledge accessible. Second, memory systems are concrete devices or entities with which an individual interacts with the explicit intent of gaining organizational experience. Third, memory systems structure, or at least recognize the necessity of structuring, dispersed knowledge. Indexing is seen as a key structural dimension of such systems. The storage-bin model recognizes that knowledge is dispersed among different bins, but not the dispersion within these bins nor how the knowledge is integrated later in the daily operations. Fourth, the storage-bin model ignores the explicit existence of information technology and other knowledge management initiatives, although information technology, for example, is an essential part of the organizational culture (Walsh & Ungson, 1991).

Knowledge management systems, which are more closely associated with practical issues, help explain how certain information is stored within an organization by means networks, as well as technological innovations such as computer networks. The literature also addresses the problem of organizational growth and how organizations are able to structure and deal with change. Moreover, it seeks to provide answers to the problem of growth in terms of knowledge and to the question of how it could be addressed with the help of technological solutions and organizational designs in order to cope with the growing complexity of a fast growing organization.

2.3.4 *Organizational forgetting*

In this section, I would like to take a closer look at organizational forgetting. Studies on organizational learning have shown that there are important reasons for emphasizing organizational forgetting, although opinions differ on whether forgetting is good or bad for the process of organizational learning. Here I would like to review the concept of de Holan and Phillips (2004), who established a typology of organizational forgetting by integrating different perspectives on this topic.

De Holan and Philips (de Holan, 2011a, 2011b; de Holan & Phillips, 2004) conducted several case studies on how and why organizations forget and developed a theory of organizational forgetting, which discusses the dynamics of organizational knowledge and presents a typology of organizational forgetting. From their point of view, mainstream studies on organizational learning overestimate the importance of learning and underestimate the importance of organizational forgetting (de Holan & Phillips, 2004).

De Holan and Philips (2004) adopted the knowledge-based perspective on organizations that was described above. From that perspective, the organization is seen as a repository of knowledge and the storage of knowledge enables the organization to coordinate individuals and to produce outcomes (Douglas, 1986). Existing knowledge, as well as new knowledge (in the sense of learning), is crucial to the organization's ability to improve organizational behaviour and thereby to retain its competitive advantage over other organizations (Argote & Ingram, 2000; Prahalad & Hamel, 1990). Following Olivera, De Holan and Phillips (2004) define organizational memory as 'sets of knowledge retention devices that collect, store, and provide access to the organization's experience' (Olivera, 2000: 815) and organizational forgetting as 'the loss, voluntary or otherwise, of organizational knowledge', which leads to 'to a change in organizational capabilities because of the absence of some piece of knowledge' (de Holan & Phillips, 2004: 1606).

De Holan and Phillips (2004) established their typology of organizational forgetting on the basis of two dimensions. First, they differentiated between 'accidental' and 'purposeful forgetting' (de Holan & Phillips, 2004: 1608) and second, they examined whether the forgotten knowledge had been newly acquired or already integrated in the organizational memory. The following table illustrates how they differentiated between the different kinds of forgetting (de Holan and Phillips 2004: 1606).

	New knowledge	Established knowledge
Accidental	Failure to consolidate DISSIPATION	Failure to maintain DEGRADATION
Purposeful	Abandoned innovations SUSPENSION	Managed unlearning PURGING

Table 1: Classification of forgetting

Dissipation describes the organization's inability to retain new knowledge in the organizational memory, which already entered the organization via knowledge transfer or creation. *Degradation* refers to retained know-

ledge that decays over time because of a lack attention and low effort remembering it. *Suspension* describes the process through which knowledge is removed before it becomes embedded in the organization's memory because it proves to be inadequate. Finally, *purging* describes the removal of already established knowledge from the organizational memory. This process, however, is not easy, because organizational knowledge is embedded in parts of the organization (de Holan & Phillips, 2004). The main challenge for organizations is how to forget inadequate, defunct knowledge and how to remember valuable knowledge. Their study draws on the prevalent storage-bin model, which describes organizational memory as a static storage device within the organization (de Holan & Phillips, 2004). The results of the study suggest that forgetting is often oversimplified as a 'function of time or use' (de Holan & Phillips, 2004: 1611) or specified as either a good or a bad feature of organizational memory and organizational learning.

The process of organizational forgetting, which is often described as a process of 'unlearning' (de Holan & Phillips, 2004: 1605), is mostly regarded as a by-product of organizational learning and organizational memory. However, it is not possible to talk about organizational memory and organizational learning without talking about organizational forgetting (Benkard, 2000; Blaschke & Schoeneborn, 2006; de Holan & Phillips, 2004; Hedberg, 1981; Starbuck, 1996). In the scientific discourse, organizational forgetting is discussed in three different contexts. First, because newly obtained knowledge is forgotten before it is transferred to long-term memory, avoiding forgetting seems to be an important part of successful learning (de Holan & Phillips, 2004: 1603). Second, knowledge is forgotten over time and organizational memory becomes fragmented (de Holan & Phillips, 2004). Third, several studies have argued that effective learning requires an existing logic to be replaced with a new logic. Forgetting is seen as fruitful and necessary for organizational change (Argote, 1999b; Benkard, 2000; de Holan & Phillips, 2004). The three different opinions on the function of organizational forgetting illustrate that forgetting affects the dynamics of organizational knowledge and also how differently the consequences of forgetting are evaluated.

2.3.5 *Organizational remembering*

In their 2006 essay 'on Organizational Remembering as Practice', Feldman and Feldman (2006) developed an alternative perspective on organizational memory. In contrast to previous studies, in their essay organizational memory is perceived 'as a collective, historically and culturally situated practice' (Feldman & Feldman, 2006: 880), rather than as an 'object of cognition' (Feldman & Feldman, 2006: 861) or a 'repository of

knowledge' (Walsh & Ungson, 1991). Their alternative view derives from a social and participatory concept of knowledge as what people do together in 'communities of activity' (Blackler, Crump, & McDonald, 2000) or 'communities of practice' (Wenger, 2000). From this perspective, organizational knowledge is conceptualized as networks of interrelating activity systems (Engeström, 2000). Within this theoretical framework, knowledge is generated through the constant process of 'remembering practices as a collective, heterogeneous phenomenon' (Feldman & Feldman, 2006: 862).

The central element of their conceptual framework of organizational remembering is 'historicity'. Whereas in Walsh and Ungson's study (1991) history deals as a framework constructed by top management, according to Feldman and Feldman (2006), history is a defining quality of organizational remembering. The authors argue (2006) that each act of remembering is linked to past and future acts of remembering and occurs in a specific time. Each act of remembering is part of a chain of remembering, therefore, organizational remembering is conceptualized as a practice and process and not as a 'manageable object' in the form of a bin (Feldman & Feldman, 2006: 869). Organizational remembering originates in individual as well as collective contexts that construct meaning through contextualized knowledge. The process of organizational remembering is therefore 'not a means of storage, but a process that actively constructs meaning' (Feldman & Feldman, 2006: 870) by every act of remembering, or in other words, by remembering information in context.

Feldman and Feldman furthermore argue that remembering is in essence a social concept based on Durkheim's proposition (1915) that cognitive categories do not just represent the world, but participate in its construction (Feldman & Feldman, 2006). This aspect highlights the importance of organizational remembering as the separation of 'good' (remembered) and 'bad' (forgotten) knowledge, which is categorized through a process of social, collective and ritual order (Feldman & Feldman, 2006). What is remembered or created is guided and judged by the values a tradition delivers. Tradition, in turn, is shaped by its 'historically, culturally, and individually differentiated enactments'. Generally speaking, 'from our cultural perspective, traditions provide meaningful frames for current and future organizational practices by grounding them in the past' (Feldman & Feldman, 2006: 875).

As mentioned above, Feldman and Feldman (2006) departed from the general concept of organizational memory as an 'object of cognition' and focused on the process of organizational remembering. Organizational remembering is characterized as 'a practice that is vital to making sense of change by interpreting it in relation to past and future practices' (Feldman & Feldman, 2006: 876). Remembering locates the organization

on a timeline in a process of continuous change. The practice of remembering is embedded in the collective, historical and cultural facets of organizational processing. Within this concept the role of organizational members is emphasized in contrast to concepts of organizational memory as an object. Individuals remember, make sense of new information and translate transmitted knowledge thanks to their cognitive and emotional capabilities. These processes are guided by frameworks of values and beliefs, which are themselves included in traditions. The notion of remembering by Feldman and Feldman (2006) is the first process-related and practice-based concept of organizational memory that rejects the static perspective of the storage-bin model that Walsh and Ungson (1991) developed.

Although the conceptual framework of 'organizational remembering' represents a social constructionist perspective Rowlinson et al. (2010) criticized it due to the fact that Feldman and Feldman's approach (2006) claims to be a 'sociological perspective' (Feldman & Feldman, 2006: 872), but does not go 'beyond a short discussion of Halbwachs' (Rowlinson et al., 2010: 74) or of other literature on social memory. Moreover, their concept is limited by a perspective that takes the individual as the basic unit of analysis and is thus not able to refine the concept of organizational memory to a holistic organizational perspective of memory.

2.3.6   *Organizational memory as practice structure*

Another recent approach to organizational memory is Theodore Schatzki's notion (2006) of organizational memory as practice structure. Schatzki builds on the work of Heidegger (1962), as well as on Assmann's work (2005) on cultural memory, and argues that organizational memory is characterized by the structure of practice. To explain the idea of 'practice memory', I would first like to introduce the complex theoretical background.

Schatzki conceptualizes organizations as a 'bundle of practices and material arrangements' (Schatzki, 2006: 1863). In his view, practices are 'structured spatial-temporal manifolds of action' (Schatzki, 2006: 1863). An R&D department, for example, involves research practices, decision-making practices, consulting practices and communication practices. These practices consist in action and structure. The structure of a practice has four basic characteristics: (1) 'understandings of [...] the actions constituting the practice' (Schatzki, 2006: 1864), such as knowing how to communicate within the organization; (2) explicit rules such as 'directives, admonishments, or instructions' (Schatzki, 2006: 1864); (3) 'teleologi-

cal-affective structuring'[1] (Schatzki, 2006: 1864) and (4) 'general under-standings, for example general understandings about the nature of work' (Schatzki, 2006: 1864). These four aspects of actions as practices are ar-ranged by 'material objects' such as '(…) persons, artefacts, organisms, and things' (Schatzki, 2006: 1864). So the organization as such consists of related practices embedded in material orders.

Schatzki examined 'organizations as they happen' (Schatzki, 2006: 1863). An organization 'happens' by performing actions as well as in the appearance of events. Both are embedded in its material arrangements. He furthermore differentiated between the objective time and the real time during which the organization can be observed. The objective time refers to the cosmic time and is thus the sequence of successive events, whereas real time describes '(…) the passage of a not instantaneous event (…)' (Schatzki, 2006: 1866). The real time in which an organization 'hap-pens' is highly complex, since every one of its constituent actions needs to be considered. Thus in order to observe an organization as it 'happens' it is also necessary to consider what is not happening, which makes it impossible to experience an organization in real time, 'as it happens' (Schatzki, 2006). Referring to memory, Schatzki writes:

> As organization actions are performed, how do things stand with those di-mensions of these structures that are not involved in the performances? My answer is: they are held in organizational memory'. (Schatzki, 2006: 1867)

There is more than just the observable organization constituted by its actions, and these unobserved structures must be recognized by the me-mory of an organization. Organizational memory is part of a practice. More precisely, Schatzki defines as practice memory the '(..) persistence of structure from the past into the present (…)' (Schatzki, 2006: 1868). On that basis, the sum of the organization's practice memories could be defi-ned as the memory of the organization. Memory is the resultant persis-tence of practice ordered by '(1) practical understandings (complexes of know-hows), (2) rules, (3) a teleological (-affective) structuring, and (4) general understandings' (Schatzki, 2006: 1868). Its content is a complex composition of structures defined by practical understandings, rules, teleological structuring, and general understandings. It is important to mention that organizational memory in this sense is not just an aggrega-tion of practices, but is itself a feature of practices. Schatzki writes:

> What in individual people corresponds to the structure of a practice are different com-binations of versions, or incarnations, of structural understandings, rules, and teleolo-

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[1] As 'teleological-affective' structures, Schatzki (2006) describes 'a range of ends, projects, actions, maybe emotions, and end-project-action combinations (teleological orderings) that are acceptable for or enjoined of participants to pursue and realize' (Schatzki 2006: 1864).

gies. Practice memory is not equivalent to the continuing existence of these incarna-
tions. [...]. Practice memory is an interactionally maintained feature of practice.
(Schatzki, 2006: 1869)

It is the persistence of the structure of a practice and in accordance with
this the influence of past decisions on the present that defines the practice
memory of organizations. In order to understand present practice, the
organization must reflect on its past.

Schatzki's conceptualization (Schatzki, 2006) of practice memory is
another great example of a social constructivist perspective on organiza-
tional memory. It is also the only concept that is able to disconnect from
the individual level to an organizational level of memory. Nevertheless,
Schatzki's approach has been criticized as 'idiosyncratic and philosophi-
cal' (Rowlinson et al., 2010: 74), which is not surprising, considering that
Schatzki regards himself as a philosopher. Moreover, Schatzki's notion of
practice and of practice memory emphasizes the contingency of practices
on the basis of its structures. The four types of structures mentioned ear-
lier, which consist of 'practical understandings, rules, teleological or-
derings, and general understandings' (Schatzki, 2006: 1872: 1869) 'organi-
ze', as Schatzki puts it, which practice is appropriate in a given present
situation. The question of how these different structures deal with their
own contingency is left open.

2.3.7 The current status of organizational memory studies

In the previous subsections, I reviewed the fundamental concepts of or-
ganizational memory, focusing on the key findings, critical aspects and
epistemological foundations of the literature.

Most of the approaches to organizational memory cited earlier refer to
memory as some kind of storage bin or storage space, where information
is stored over time and retrieved at a certain point in time, when it is
actively needed by the organization or by one of the members of the or-
ganization (de Holan et al., 2004; Levitt & March, 1988; Olivera, 2000;
Walsh & Ungson, 1991). Only Schatzki's notion of memory (Schatzki,
2006), which is based on a Wittgensteinian concept of practice, and the
concept developed by Feldman and Feldman (2006) ignore the repository
model and provide an alternative notion of organizational memory.

Table 2 summarizes the most prominent conceptual frameworks for the
study of organizational memory, as well as the epistemological founda-
tions and the key findings associated with each. Both the table and the
preceding review include studies that establish a distinct conceptual
framework. Following Rowlinson et al. (Rowlinson et al., 2010), I focus
on conceptual frameworks that provide holistic new insights into the

phenomenon of organizational memory. Works that do not develop a novel view of organizational memory have been excluded (e.g. Ackerman, 1998; Ackerman & Halverson, 2000; Brandon & Hollingshead, 2004; Casey & Olivera, 2011; de Holan, 2011a; Fiedler & Welpe, 2010; Lewis, 2004; Moorman & Miner, 1997, 1998; Ozorhon et al., 2005; Stein, 1995; Weick & Quinn, 1999).

	Definition	Epistemological foundation	Key findings and implications
Organizational learning (Levitt & March 1988)	'Inferences drawn from experience are recorded in documents, accounts, files, standard operating procedures, and rule books; in the social and physical geography of organizational structures and relationships; in standards of good professional practice; in the culture of organizational stories; and in shared perceptions' (Levitt & March, 1988: 327).	Positivist perspective; memory as a repository of knowledge.	• Organizational learning is routine-based, history-dependent and target-oriented. • Learning: 'encoding inferences from history into routines that guide behaviour' (Levitt & March, 1988: 319). • Memory as mediator between past, present and future.
Storage bin (Walsh & Ungson 1991)	'In its most basic sense, organizational memory refers to stored information from an organization's history that can be brought to bear on present decisions' (Walsh & Ungson, 1991: 61). Information is stored within six 'storage bins': individuals, culture, transformations, structure, ecology and external archives.	Positivist perspective; memory as a storage device.	• Memory as a repository of knowledge. • The 'first integrative framework for thinking about organizational memory' (Olivera, 2000: 813). • A methodology for studying organizational memory.
Organizational forgetting (de Holan, 2011a, 2011b; de Holan & Phillips, 2004; de Holan et al., 2004)	'the loss, voluntary or otherwise, of organizational knowledge' leading 'to a change in organizational capabilities because of the absence of some piece of knowledge' (de Holan & Phillips, 2004: 1606).	Positivist perspective; memory as a storage device of knowledge.	• Typology of organizational forgetting differentiates between 'accidental' or 'purposeful' forgetting of 'new' or 'established knowledge' (de Holan & Phillips, 2004: 1606).

Organizational memory systems (Olivera 2000)	'sets of knowledge retention devices, such as people and documents, that collect, store and provide access to the organization's experience' (Olivera, 2000: 815).	Positivist perspective; memory as a storage device.	• Introduces computer-based information technologies and social networks to OMS. • Empirical foundation of organizational memory. • Interplay between different memory systems: (1) overlap in content among systems, (2) 'memory systems are connected to each other through pointers to the location of knowledge in other systems' (Olivera, 2000: 826)
Organizational remembering (Feldman and Feldman, 2006)	'remembering as a practice that is vital to making sense of change by interpreting it in relation to past and future practices' (Feldman & Feldman, 2006: 876).	Social constructivist perspective; memory as a sense-making process.s	• Emphasize the personal quality of remembering • Underlines 'the historicity of memory, its associative character, and social-psychological constitution' (Feldman & Feldman, 2006: 861).
Organizational practice (Schatzki 2006)	'the perpetuation of practice structure should be understood as organizational memory' (Schatzki, 2006: 1863).	Social constructivist perspective; memory as persistence of structures of practices into the present by means of rules, practical and general understanding and teleological orderings.	• Organization as 'a bundle of practices and material arrangements' (Schatzki, 2006: 1863). • 'Actions are performed, and performances happen. The happening of an organization, therefore, is the performance of its constituent actions' (Schatzki, 2006: 1864). • 'The contribution of memory to identity is an important feature of memory' (Schatzki, 2006: 1867). • Epistemological foundation for memory to extend into the past, influence the present and establish the future.

Table 2: Basic concepts of organizational memory

While the concept of organizational memory is generally useful for studying organizations and related phenomena, such as organizational learning or change and development, it has become the object of criticism for several reasons. The 'mechanical model', which is dominant in OMS and according to which 'memories are stored as in computer files' (Rose, 2008: 65-66) has been widely criticized. More recent research suggests that experiences are recreated or reconstructed, rather than retrieved through memory (e.g. Schacter, 2001; von Foerster, 1948, 1965). Some critics argue that mainstream OMS is limited by a 'managerialist, presentist preoccupation that is only concerned with the retention of useful knowledge and the forgetting of redundant knowledge' (Rowlinson et al., 2010: 76). Rowlinson et al. (2010) outline the criticism in their paper on 'social remembering and organizational memory' and call for a 'social constructionist approach' and a 'sociological and historical reorientation within OMS' (Rowlinson et al., 2010: 69) that will allow researchers to exploit the maximum potential of organizational memory. The contextualization of the concept of organizational memory has also been questioned. The critics claim that, although terminology borrowed from other domains and metaphors like *organizational learning*, *organizational knowledge* or *organizational memory* allow scholars to extend their study on organization, most scholars lack the systematic approach that would enable them to benefit from their full theoretical value of these terms (Boxenbaum & Rouleau, 2011; Tsoukas, 1991).

With regard to the field study at Entertain Corp. (presented in *Subsection 1.2*), the concepts of organizational memory reviewed here can be divided into two groups: on the one hand, positivist concepts of memory as a repository provide a useful angle from which to examine the question of how Entertain Corp. has been able to deal with its tremendous growth of about 200% to 300%. One the other hand, the social constructivist approach of both Feldman and Feldman (2006) and Schatzki (2006) provide insights into the question of how organizations deal with the interrelation of possible pasts and futures. Most of the concepts sticking to the criticized repository image of memory are able to problematize the growth in personnel as well as of the technical infrastructure within the context of knowledge storage. The concept of organizational memory that Levitt and March (1988) and Walsh and Ungson (1991) developed for example, shed light on the question of how an organization manages to preserve knowledge despite extreme increases in personnel. On the basis of the knowledge management system developed by Olivera (2000), the technical solution to the storage of information and knowledge becomes central, but also illustrates the problematic of the interplay between storing and retrieving. Not everything that has been stored is retrieved and remembered at a later point in time: some things are forgotten. Olivera also introduced a social network perspective to the study of OMS, which

helped scholars understand the role of organizational design in the process of remembering and forgetting.

De Holan's and Nelson's notion of organizational forgetting (de Holan & Phillips, 2004) is also based on the storage repository image. Nevertheless their focus on forgetting helps us to understand how organizations deal with the loss of knowledge or information and at the same time release capacities that are necessary for their ongoing operation. The notion of forgetting helps to explain how in situations of extreme growth, as in the case of Entertain Corp., forgetting is an essential process for an organization to deal successfully with its own growing complexity. Their study helps us to understand how forgetting could be managed in order to derive new knowledge or to release future capacities. When Entertain Corp. implemented new structures, such as the venture process, it relieved its capacities by selecting these specific structures and not other ones. It released certain capacities and at the same time neglected other possible operations, which had not been part of the venture guidelines. The notion of forgetting can help explain why some knowledge is marked and selected but not how this is done.

With Feldman and Feldman's concept (2006) of organizational remembering a concept is introduced, which is based on a constructivist perspective of knowledge. Their concept describes the problem of immense growth on the basis of meaning and how this meaning of information changes as a result of personnel turnover, which is the consequence of extreme growth. In the context of the growth at Entertain Corp. their notion of organizational remembering as a practice enables us to focus more on the individual and at the same time on the collective of individuals, rather than on the manageable storage devices of an organization. With the help of the notion of remembering as a practice the problem of growth at Entertain Corp. could be problematized out of its individual as well as collective context in which these practices are embedded. When new persons join the organization, the meaning of knowledge changes not only because these people bring with them their 'individual emotional responses', a different 'biography' and changes in the organization's culture, but also because they lack a common history (Feldman & Feldman, 2006: 870). Moreover, Feldman and Feldman's concept (2006) helps us to understand the problem of change, which is evident in the challenge of the persistence of practice structures over time. Their notion of organizational remembering emphasizes that organizations make sense of change by observing change from past or future perspectives. Nevertheless, how exactly this takes place still remains an open question. Finally, Schatzki's notion (2006) of practice memory helps explain from a different epistemological angle how Entertain Corp. dealt with its immense growth. Schatzki suggested that it is necessary to observe '(…) potential teleological pasts and futures for organization members'

(Schatzki, 2006: 1872), while his approach reveals a temporal aspect of organizational growth by interlinking past, present and future. The past and the future possibilities of an organization such as Entertain Corp. affect its growth significantly. The new members of the organization challenge the persistence of past practice structures and inevitably question possible future practices, which are based on the neglected pasts. These changes lead to insecurity and provoke resistance from the older staff. Whenever the existing practice structures are questioned, new structures must be found in order to guarantee the ongoing operation of the organization. This is why Entertain Corp. had to implement the new venture process in order to prevent instability during its rapid growth. Analogous with the concept of remembering that Feldman and Feldman (Feldman & Feldman, 2006) put forward, Schatzki's concept emphasizes the interrelationship with and the embeddedness of the organization in time in order to derive the 'real time' of the actual action. How and why a specific past or future, for example, is preferred unfolds within the course of events as they occur and is defined by the incorporated structures as well as material arrangements. How these processes take place, however, remains unclear.

3 The concept of the organizational memory funtion

In this chapter I would like to define the concept of organizational memory on the basis of Luhmann's systems theory and his conceptualization of organizations as autopoietic systems (Luhmann, 1996, 1997, 2006, 2012). In *Subsection 3.1*, I explain why organizations need a memory function on the basis of the concept of organizations as autopoietic systems as well as on the notion of time. In 3.2 I focus on the operative characteristics of organizational memory and figure out the role that decisions play for a functional perspective of organizational memory. Finally, in 3.3 I bring together the operational level and the structural level of organizational memory as a function.

3.1 Memory as a function: An answer to 'self-produced indeterminacy'

> Memory represents the system's presence of the past and oscillation the system's presence of the future. (Luhmann, 1997: 364)

Drawing on the concept of memory developed by von Foerster (1965) and Luhmann (Luhmann, 1997, 2012), I would like to redefine organizational memory. Before going into detail, I shall return to the preliminary question of why organizations need the function of memory or, in other words, to what problem is memory the answer? In the second step I will introduce Luhmann's concept of organization and deal with the question of 'where' organizational memory could be observed and how it can be conceptualized.

As already mentioned, according to Luhmann (2005b), organizations are constituted by communication in general and communicated decisions in particular and are thus systems of decisions (Luhmann, 2006). The constitutive operations of organizations are communicated decisions that distinguish the organization from its environment. Organizations reproduce themselves through their own elements or, more

precisely, by their own communicated decisions (autopoiesis) and thereby form a network of communications that distinguishes each organization from its environment and from other organizations. Luhmann defines this process as the 'operational closure' of the organization

(Luhmann, 2012: 49). Decisions are 'compact communications' (Seidl & Becker, 2006: 26) that imply their alternatives and the process of choosing one alternative out of the sum of potential alternatives (Luhmann, 2006: 185).

| Decision | = | Marked/ chosen alternative | Unmarked/ excluded alternatives |
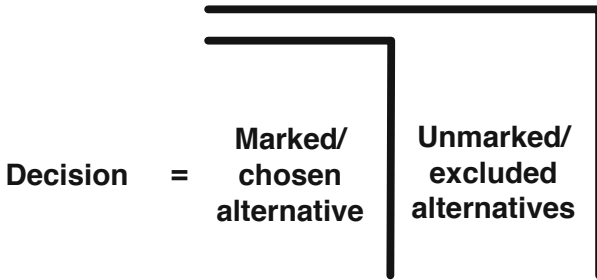
Figure 6: The form of a decision

Every marked, or rather chosen alternative in differentiation to its unmarked, or rather excluded, alternative defines a decision. *Figure 6* illustrates this with the help of Spencer-Brown's calculus of form. The chosen alternative serves as the basis of the next communicated decision, whereas the unmarked alternatives are excluded. Each decision expresses and communicates possible alternatives, expectations about consequences, preferences, as well the underlying decision rule in cases where is one these is involved (March, 1994). Organizations are 'systems that consist of decisions and they themselves produce the decisions of which they consist, through the decisions of which they consist' (Luhmann, 1992a: 166; translation: Seidl, 2005a: 39). From Luhmann's perspective, organizations constitute or differentiate themselves from the environment via communicated decisions and could therefore be defined as 'operating networks of communicated decisions' (Baecker, 2003: 153; own translation). The decisions of other organizations have no direct influence on a particular organization. No member of organization A has to act according to a decision of organization B. Therefore, the two organizations are operationally closed by their own communicative network of decisions.

On the basis of this definition of organizations, I would like to conceptualize organizational memory with the help of the temporal dimensions of past, present and future. I will begin by asking why is the past of any relevance to an organization? One might argue that the past is hardly ever relevant to the daily operations of an organization and that new business plans, production schedules or new investments primarily focus

on the future and are developed in the present. If organizations were to operate purely on the basis of their expected future they would have to reconstitute themselves constantly. In this case the past would not play any role in present decision-making and the organization would have to reconstitute itself, as well as its identity, again and again, at every single moment. This is scarcely possible because organizations such as multinational companies are far too complex to reconstitute themselves constantly. On the basis of this fact, as well as von Foerster's comparison between 'trivial' ('predictable') and 'non-trivial' ('unpredictable') machines (von Foerster, 1993b), organizations could be described as 'non-trivial' machines that are able to observe themselves, but are not able to observe their own operations in a holistic way (von Foerster, 1993a). Nevertheless, organizations, like 'non-trivial' machines, are 'historical machines' operating in the present, which again depends on the previous operation and therefore must be observed and remembered in order to connect the current operation to a further consistent operation. In organizations, any decision always refers to the previous decision. Organizations could therefore, be described as both unpredictable and history-dependent (Luhmann, 2006: 73). To locate itself in the present and to realize an ongoing process of communicated decisions, an organization differentiates between the past and the expected future. In other words, the organization needs to construct a past, as well as a possible and therefore expected future, in order to choose one alternative out of the totality of possible alternatives. The form in the following figure illustrates this: the present is based on the differentiation between the past and the expected future and the permanent oscillation between these two time dimensions. In other words, the present of an organization is based on its expected future and its defining past. Neither the dimension of the past nor the dimension of the future could exist independently of each other. The form in the following figure illustrates this interplay between the three different time dimensions and shows on which basis the present is constructed.

Present =   Past   Future
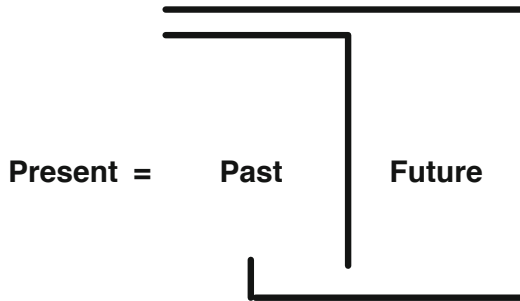
Figure 7: The present as the difference between past and future

After illustrating the linkage of the temporal dimensions, I would like to go back to the constituting elements of an organization. Luhmann developed von Foerster's notion of non-trivial machines further and defined organizations as autopoietic systems that reproduce their own elements by means of their own elements (Luhmann, 2005a, 2006; Maturana & Varela, 1980). According to this idea, while organizations define the conditions of their reproduction, they are *intransparent* in the sense that their future operations are not foreseeable, because their own and defining conditions change with every further operation, as is the case with 'non-trivial machines'. In addition, and as already explained in the previous paragraph, organizations differentiate themselves from the environment through their own operations and are not able to operate outside their own borders (Luhmann, 2006: 72). The constituting operations are communicated decisions that differentiate the organization from its environment and thereby constitute the organization as such, as well as its borders. Thus decisions *operatively close* the system with respect to its environment, which is not involved in the process of communicated decisions and therefore not tied to the consequences of those decisions. Operative closure defines the distinction between the organization and its environment and leads to the problematic of the organization's possible isolation from its environment. This raises the question of how an operatively closed organization is able to consider, observe and respond to its environment.
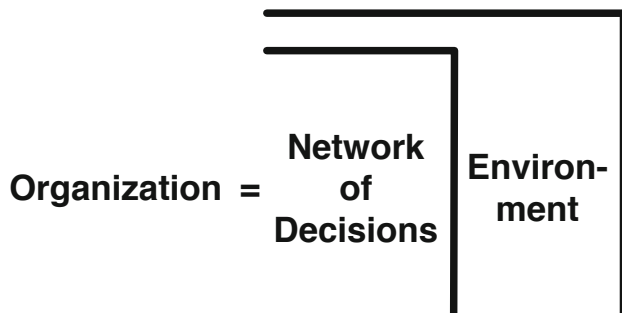
Figure 8: Organization as the difference between a 'network of decisions' and the environment

This distinction between a network of decisions and its environment defines the system's boundary. The notion of an organization as an operationally closed and self-referential system raises the question of how an organization is able to observe or sense its environment at all and adjust to changes. Because of their nature, which is defined by operative closure and autopoiesis, organizations are only able to open themselves to the environment through self-observation. Just as any observation is based on a distinction, self-observation is based on the distinction between self-reference and 'other-reference' and thus enables the organization to observe its environment differentiating itself from the other (Luhmann, 1993: 486). Spencer-Brown (Spencer-Brown, 1969) defines this kind of self-observation as 're-entry'; namely, 'a distinction into that which is distinguished by itself, or, more briefly, by re-entry of the form into the form' (Luhmann, 1997: 363). This fundamental observation enables self-awareness and is common to all systems, whether they are psychic or social, as long as they 'constitute their own operations' (Luhmann, 1993: 492).
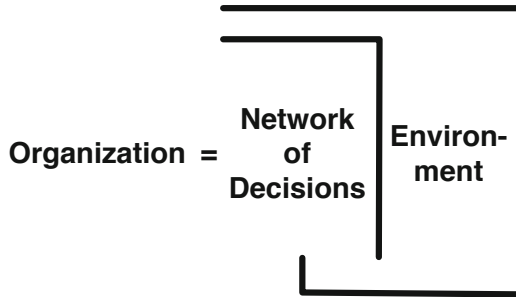
Figure 9: The re-entry of the distinction between network of decisions and its environment

The form in *Figure 9* describes the re-entry of the 'form into the form' and specifically the re-entry of the distinction between the network of decisions and its environment into the distinction. Based on the re-entry of the distinction, the organization enhances its self-observation with the distinction of itself and the environment on the basis of an oscillation between the two sides of the illustrated form. The organization's observation, based on its self-observation, oscillates or switches permanently between itself and its environment. This means that it enhances its self-observation with the distinction of itself and its environment and vice versa. The environment is part of the organization's observations and enhances and changes self-observation. Luhmann writes:

> All observation of the environment presupposes the distinction between self-reference and other-reference, which can be made only in the system itself (where else?). And this also makes it clear that all observation of the environment raises the question of self, of one's own identity. Since we can observe only with distinctions, the one side of the distinction makes us, as it were, curious about the other, stimulates us to 'cross' the boundary (as Spencer-Brown would say) that is marked by the form 'system and environment. (Luhmann, 2012: 49)

Although an organization enhances its ability to observe itself on the basis of the observation of its environment, the organization falls into a state of '*self-produced indeterminacy*' (Luhmann, 1997: 363; highlighted by the author). This 'self-produced indeterminacy' is not triggered by the infinite possibilities of the environment, because the organization is a closed system and can only be stimulated by its environment. Instead the indeterminacy is created by the system's self-reference and the organization's present state. First, the organization's present state is undetermined, because the organization observes its present on the basis of the distinction between past and future (see also *Figure 7*). The past and the

future are not determined. The future is unknown and the past is differently constructed. Second, at every moment the organization constructs its present anew. An organization operationalizes its present state in the form of decisions that mark the present state by linking past and future, because decisions are rooted in the past and at the same time point to an expected future. Marking the present state through decisions is only possible if the organization is able to ground its decision in past or future contexts ('non-actual time horizons') (Luhmann, 2006: 156). This is where the memory function is necessary, because it constructs past and future contexts in the present state of the organization. Thereby, the organization oscillates between an uncertain past, which is based on and organized by past decisions and its alternatives and a future that is no longer uncertain as it was previously, since it is now organized by the decision's intention (Luhmann, 2006: 158). Overall, the organization's self-produced indeterminacy is the result of the organization's observation of its present, which is marked by decisions and leads to an overlap of possible ensuing operations.

As the previous section indicated, the organization's undetermined present and its operational closure by its own operations leads to a spillover of possible operations and is consequently followed by self-produced indeterminacy. This indeterminacy is defined as self-produced, due to its self-referential autopoietic reproduction of its own elements. Thus, organizations need a memory function to 'recover a closed world' (Spencer-Brown, 1969: 56 & 69), which is, or at least seems to be, manageable. Organizations need a memory function to assure themselves about their own present, on which they constitute themselves, and their future, by drawing back to their past and decide in the present on the basis of an unknown future. The system's undetermined present is what calls for decisions and at the same time makes decision-making possible, because otherwise decisions would not be necessary or even possible. This is due to the fact that decisions can only be decisions as long as they refer to an unknown present. In order to deal with its self-produced indeterminacy, the system arranges its own operations by locating them between past and future states. Whereas 'trivial machines' are able to refer to linear causal correlations, 'non-trivial machines' and organizations must deal with disordered states 'in which multiple conditions come together' (Luhmann, 1997: 362). An organization must thus refer to past decisions and alternatives and to mark future states on the basis of its present intentions in order to be able to decide within the actual state. Memory is necessary as a consequence, because 'it represents the system's presence of the past and oscillation the system's presence of the future' (Luhmann, 1997: 364). At the same time, this temporalization enhances present operations with the 'imaginary space' of past and future. The past and the future are constructed 'time horizons' of the organization's present state,

which are certainly not part of the present state of the organization. This means that in order to develop a concept of organizational memory, we must ask the question: 'How are organizations able to observe themselves and their past and how are they able to figure out what could be relevant to their future?' One possible answer to this question is that they need to develop a memory function that will link the past, present and future and enable the organization to observe itself on the basis of past events in comparison to its actual circumstances.

According to the conceptualization of social memory in general and organizational memory in particular as outlined above, memory is defined as a function that is constructed by the system in its present state via its own operations. The memory function is the answer to the system's self-produced indeterminacy, which goes back to its operational closure and its autopoietic nature. Furthermore it constitutes itself on the basis of the system's differentiation from its environment and on the basis of every single operation that contributes to its autopoietic preservation. It reconstructs, or even invents the past of the system, if necessary, and at the same time frames its possible future in order to locate itself in the present and to choose one alternative out of the totality of possible alternatives. It operates only in the present and is part of every operation that 're-impregnates' the organization's capacity to operate on the basis of the present relevant operation or observation.

3.2 The core of the organizational memory function

According to the previous section, organizations develop a memory function, like any other social system, as they arise; that is, as they distinguish themselves from their environment with the help of a system specific operation, which at the same time enables the autopoietical reproduction of the system. In the case of organizations this operation and thus the differentiation of an organization from its environment, is defined by communicated decisions. Organizations constitute themselves via communications, or rather decisions, which are themselves 'compact communications' that imply their alternatives and the process of choosing one alternative from the totality of alternatives (Luhmann, 2006: 185). In order to define the basic element of organizational memory, the previous definition of organization prompts us to take a closer look at the constituting decisions of organizations. The starting point is the decision itself, considering that organizations are defined as 'operating networks of communicated decisions' (Baecker, 2003: 153; own translation). The process of decision-making begins with the formation of a company or organization, which itself is based on the decision to found a company that provides a certain product or service, for example. Organizational aspects

such as hierarchies, concrete aims or marketing campaigns are all a result of decision-making and thus part of the decision-making process. Each decision refers to an earlier decision, but at the same time presupposes an unknown future, due to the fact that a predetermined future would not call for any decisions, as everything would already be fixed and decided. It is indeterminacy that makes decisions necessary. According to the present of an organization, which is constituted by the difference of past and future – and therefore undetermined – present decisions form the present state of an organization by introducing a reference point for past and future circumstances. Consequently, every decision implies the observation of previous decisions and an oscillation between the possible alternatives of an expected future. This is where the memory function emerges, linking the past with the present and the present with the future on the basis of decisions. With the help of memory, the organization is able to distinguish whether it is 'self-determined through its past or through its future' (Luhmann, 2006: 157; own translation). Present decisions generally refer to past decisions and it is not possible to decide without drawing on any previous decision. Thus, 'future decisions are only rendered possible by the existence of past decisions' (Luhmann, 2005b: 95). At the same time, decisions always attempt to anticipate and form the future of an organization. This is why they are made.

On this basis, it is possible to assign three functions to memory and its elementary operations. First, these operations derive the 'historical state' of the system, the starting point of every subsequent operation and thereby define the current reality of the system. Second, present operations frame the future possibilities of ensuing operations or rather the criteria of consistency for subsequent operations (Luhmann, 2012: 50). Third, decisions mediate between remembering and forgetting. In order to illustrate these three functions, I would like to draw again on the basic form of the decision, which has been introduced before in *Figure 6* and is constituted by the marked alternative as opposed to the unmarked possible alternatives.
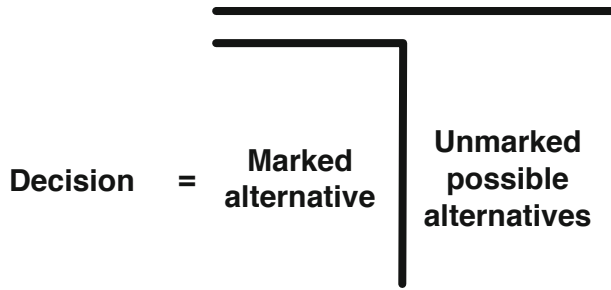
Figure 10: The form of a decision

Introducing to this form a temporal perspective a decisions can be described as the marked actual alternative, which has been marked as opposed to all past alternatives and all possible future alternatives.
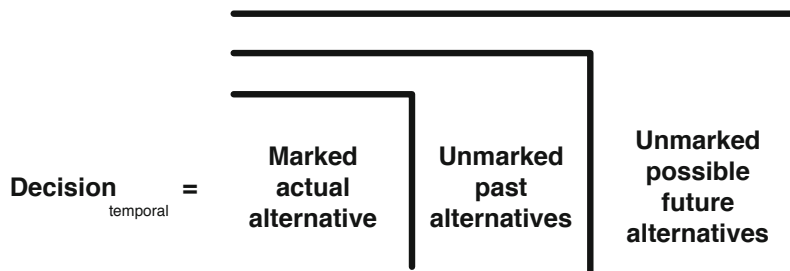
Figure 11: The decision as the nucleus of the organizational memory function

In order to derive the three functions mentioned earlier, the form presented in *Figure 11* helps us to understand where the need for these functions comes from and how they are developed by the organization. The form illustrates decisions as well as the core of the organizational memory function. The decision is the specific operation that distinguishes the organization from its environment and simultaneously organizes the difference between past and future (Luhmann, 2006: 157). A decision is remembered and used for ensuing operations, as all decisions refer to a previous decision. The decision is the constituting element of the organization, which organizes past and future by marking its past as alternative and its future as a distinction between the probable outcome of the decision and the fictive future state of the organization (Luhmann, 2006: 162). Every decision marks the historical state of an organization and defines a framework of possible distinctions for all subsequent decisions, which have to consider the previous distinctions that lead to the present decision. One example of this would be that once a certain product needs to fulfil certain requirements and therefore defines a certain set of distinctions on how to judge possible alternatives, a subsequent product development project is most often measured by similar or the same requirements. Thereby the organization enables itself to verify whether future possible alternatives and decisions are consistent with the organization's rationality or not. This process marks the consistency check of operations, which is essential if the organization is to constitute and differentiate itself from its environment by its own operations. Every decision marks a certain set of distinctions that have led to this decision and not to a different decision and therefore frames future decision-making. At the same time, the form marks what is forgotten for the moment. It is the unmarked state of the form of decision, which is defined by all the dismissed alternatives of the decision and at the same time marks the neglected and therewith forgotten possibilities of the decision. Although

the unmarked side of the decision is still part of the decision, the alternatives are not actualized in the present decision and are therefore 'forgotten' for the moment. The form presented in the previous figure shows that memory is involved in every operation of the organization by mediating and defining what is remembered and what is forgotten.

Another related memory function is the construction of reality. Analogous to the other functions, the construction of reality is based on decisions. Reality within operationally closed organizations can only be constructed by the systems themselves via their own operations.

> Reality is no longer the result of a resistance of the environment against knowledge attempts of the system, but [...] the result of a resistance of operations of the system against operations of the same system. (Luhmann, 1997: 363)

The organizational memory function identifies the organization in the difference to its former condition and thereby constructs the present system's reality. Organizations refer to the function of memory whenever they identify themselves through differentiation to their former conditions. Observing itself and constructing the current state is not about going back into the past, it is about the present decisions and the circumstances that determine them. Organizations require a memory function to test 'all incipient operations for consistency with what the system constructs as reality' (Luhmann, 2012: 349). The memory function enables an organization to construct reality by differentiating and aligning between its own resistance or own constitution and the present decision-making process of the system. In other words, memory confronts the organization's present decision-making with past and possible future decisions. In the course of this process an organization is confronted with possible alternatives and must resist them, since it cannot respond to all possible alternatives at once. On the basis of this resistance an organization observes itself through the distinction between self-reference and other-reference and is thereby able to construct its present condition in the context of its environment. In this sense, memory is responsible for constructing the individual reality of an organization (Luhmann, 1998: 581). Memory observes and thereby defines the distinctions on the basis of which the system observes its environment during its current operations.

The form in *Figure 11* also illustrates the memory function that is concerned with the permanent 'discrimination [...] between forgetting and remembering' (Luhmann, 1997: 365). There are many more alternatives than decisions that are part of the network of communicated decisions. This process of forgetting enables the organization to go on because it frees capacities that enable the organization to make further decisions. Remembering means actualizing or marking one site of a distinction and ignoring all other possible alternatives. In turn, forgetting means that

certain possible alternatives are not actualized or marked in a certain situation. Although they are not remembered or actualized they may still be remembered, however, at a later point in time. This indicates that the main function of memory is not remembering, but the mediation between what needs to be actualized and what can be forgotten by the organization. With the help of this function, an organization is actively able to frame itself and its future because every subsequent decision takes the present decision into account. The organization is also able to reorder its memories, because something that is forgotten at one point may be remembered in another situation. Similarly, what has been remembered might also be forgotten, because, for example, it is no longer relevant to the current situation (Luhmann, 1997: 365).

The last few paragraphs show that an organization that is constituted by its self-referential operations in general and by communicated decisions in particular develops a memory function in order to (1) examine the consistency of its operations, (2) construct its own reality and (3) 'discriminate' or mediate between what is remembered and what is forgotten for the moment. In sum, the organizational memory function is based on the constituting operations of an organization. These form the core of the memory function and are applied in every operation of the organization. Over time, the organization enhances its space of possible distinctions and increases its 'self-produced indeterminacy'. Moreover, on a higher level an organization develops systematically integrated structures from its operations, or rather decisions. According to Luhmann's view of organizations, these structures are defined as 'decision premises' (Luhmann, 2006: 222). The role which these decision premises play in the context of organizational memory is addressed within the next section.

3.3 Decision premises and the organizational memory function

> If an organizational system were a strictly sequential machine that draws at every point in time (however briefly, however fast) only one distinction, and consequently could carry out only one decision, it would suffice if it referred to the historical state in which it has brought itself. (Luhmann, 2006: 237; own translation)

The 'real life' of social systems and of organizations is different from that of sequential machines, which deal only with one operation at each point in time. An organization needs to deal with numerous and simultaneous distinctions, alternatives and decisions. This means that 'while something happens, something else always happens' (Luhmann, 2006: 237; own translation). Thus apart from previous and later decisions, different decisions may also be made at one and the same time. In order to prevent chaos – which would challenge the constant self-referential reproduction

or rather the communicative constitution of an organization – organizations develop a functional solution to the problem of simultaneity. The problem cannot be solved, but can be reduced by the structures that the system or organization generates over time. Within autopoietic organizations these structures are the result of the operating system itself and evolve over time. Luhmann conceptualizes these structures, following Herbert Simon's ideas (1957), as 'decision premises'.

The concept of decision premises was initially introduced by Herbert Simon and describes 'the structural preconditions that define – or create a decision situation' (Simon, 1957: 201). This definition refers to everything affecting the situation of decision-making, which can render difficult its feasible implementation. For this reason, Luhmann restricts the notion of decision premises to those structures 'that are themselves the "result" of other decision premises' (Seidl, 2005a: 42). These structures retain the organization's 'selectivity', as they provide already deployed distinctions that guide its observations and operations. In addition, these structures constrain the overflow of possible operations that result from an organization's 'self-produced indeterminacy'. The organization's structures, and thereby the organization's capacity of differentiating on the basis of already utilized distinctions, guide the organization's capacity to observe itself and thereby reduce the 'self-produced indeterminacy' by diminishing the ability of self-observation. The more distinctions an organization operates with, the merrier its observation capability and the greater the overflow of possible ensuing operations (Luhmann, 2012: 49). A system can construct and use the structures we have described only through its own operations at its present state. Structures can be said to anticipate future operations and their connectivity to ensuing operations on the basis of past operations. Because organizations are operationally closed, they need to generate their structures through their own operations and cannot import them from their environment. In this sense every decision that is made serves as a premise for another decision, which at the same time absorbs uncertainty, since present decisions may thus rely on decisions that have already been made and thus for example, on the information they comprise about possible alternatives. Over time, the organization establishes a multitude of premises that absorb the uncertainty of decision-making by relying on previous decisions and their related distinctions, which led to the making of a specific decision. These premises could either be the result of active decision-making – for example, decisions on formal rules and hierarchical structures – or they may evolve through time – an example of this are shared values or basic assumptions that are not the result of active decision-making. Premises are defined as 'assumptions' that do not need to be either proved or decided and can therefore be used to dilute the problem of contingency, since relevant decisions may refer to their premises (Seidl, 2005a: 42). Each premise is

used for a countless array of subsequent decisions and thus acts as a reference point for decision-making (Luhmann, 2005b: 95). Although decision premises generate the decision situation, they may also restrict it 'by creating a particular decision situation and not a different one' (Seidl, 2005a: 42). Furthermore, decision premises are the result of an 'increase of inner organization, which enables a system to draw inductive conclusions from past events on future events within its environment' (Baecker, 1987: 520; own translation). In this respect, decision premises can be attributed to the memory function of organizations.

Within the process of decision-making premises are like 'historical forces' that link past and present decision-making. Premises are essential not only for decisions that immediately follow a particular decision, but also for many subsequent decisions. Even decisions that take place much later in the decision-making process are influenced by previous decisions. Luhmann (Luhmann, 2006) differentiates between five decision-premises: (1) programmes, (2) communication channels, (3) personnel, (4) organizational culture and (5) cognitive routines. The first three are 'decidable' premises and come into existence with the help of explicit decisions, whereas organizational culture is an indirect result of decision-making. In addition, there are so-called cognitive routines, which capture how 'the organizational environment is being conceptualised by the organization' (Seidl, 2005a: 44) – for example, how many days should be taken into account for a delivery from a supplier. The following paragraphs outline the basic decision premises listed above:

Programmes. A programme defines the terms and conditions of objective correctness under which decision-making takes place. According to Luhmann, they enable the organization to reduce the uncertainty of decision-making in a general and preferred way by introducing fixed distinctions on the basis of which a decision is made (Luhmann, 2006: 265). There are two distinct kinds of programmes: conditional programmes and goal programmes. Conditional programmes are primarily input-oriented, whereas functional programmes are more output-oriented. Conditional programmes differentiate between conditions and consequences. For example, a warehouseman orders new products because the quantity of stored products has sunk below a specific value. In contrast, goal programmes differentiate between function and instrument and define the output or goal – for example, selling 10% more than last year. How this should be achieved is left open.

Personnel. Decisions on employees try to anticipate future decision-making (Luhmann, 2006: 287). The manner in which potential or existing organizational members reach decisions depends on their characters, individual motives, as well as professional experience and education. By matching potential employees and existing organizational members with particular job requirements, the organization establishes the criteria that

an employee must fulfil in order to be hired by the organization, assigned to a certain specific task or promoted (Delaney & Huselid, 1996). A human resources manager, for example, refers to certain job requirements in order to find the right employee for a specific job. Later on, when the applicant is an organizational member, she or he influences decision-making through her or his character and motives. However, it is the organization that decides on promotions, transfers or dismissals.

Communication channels. Communication channels are related to the organization of the organization and define, similar to programmes, how decisions are legitimated and accepted (Luhmann, 2006: 225). For example, who is in a position to decide and to give instructions? Who is able to present alternatives to whom? In this sense, communication channels are synonymous with the general idea of hierarchical coordination. They connect decisions with decisions and therefore enable the communicative process of decision-making. Positions are established and specified to address the communication of decisions. Communication channels enable organizations to observe and to handle their own complexity. Decisions about positions, hierarchies, competencies, processes, responsibilities or division of labour are just a few examples of communication channels that illustrate how decisions depend on particular communication channels.

Organizational culture. Within an organization, culture is the result of problems that could not be solved by instructions (Luhmann, 2006: 240). Organizational culture is the answer to modern organizational developments, which in comparison with former organization types must deal with fewer possibilities of control. These types of organization are less formal, face extensive as well as dynamic changes and are characterized by network structures. Organizational culture is a product of organizational history and links the past with the present and thereby with the future. Luhmann suggests that organizational culture is a 'complex of undecidable decision premises' (Luhmann, 2006: 241; own translation). Thus the problems that can be addressed through decidable decision premises, such as programmes, personnel or communication channels, do not refer to organizational culture. Every problem that cannot be solved by means of the decidable decision premises must refer to organizational culture. This is the focal point where organizational culture occurs. Nevertheless, organizational culture is indirectly the result of decision-making and captures all decisions that have led to a certain value or belief structure within the organization in an abstract manner (Luhmann, 2006: 242). On this basis organizational culture marks whether a decision or alternative is part of an organization or not. Decisions that do not reflect current values or beliefs are either not part of the organization, and thus ignored, or they redefine the organizational culture. While this definition of organizational culture would appear to be too general in its

nature on first sight, with its proposition that undecidable premises could be everything and nothing, it gains considerably in power once it is contrasted with, or differentiated from the notion of decidable premises (Luhmann, 2006: 242). On the other hand this form also gains accuracy, , while simultaneously avoiding entanglement in manifold precise imprecise definitions due to the precise definitions of decidable premises in organizational culture (Ouchi & Wilkins, 1985).

Cognitive routines. Cognitive routines include names, addresses, the availability of customers and suppliers or the common delivery periods of suppliers. Cognitive routines arise from organizational decision practices within the operative business and are reused over a period of time (Luhmann, 2006: 250). With their help, organizations reduce the uncertainty of the environment and originate decision options that would not have been possible without a conceptualization of the environment. Cognitive routines generate a space for decisions that is restricted by such normative premises as rules or laws. Organizations that involve dangerous technologies, for example, must rely on cognitive routines in order to avoid disastrous accidents.

On the basis of what has already been discussed, I would like to return to the basic idea of how organizations evolve in their environment in order to illustrate the role of decision premises in organizational memory as a constructed function. Organizations reproduce themselves through their own elements, or more precisely by means of their own communicated decisions (autopoiesis) and thereby form a network of communications that differentiates the organization from its environment. This general context has the result that the organization is highly dependent on its capability to reproduce. Luhmann defines this process as 'operational closure' of the organization (Luhmann, 2012: 49). Through operational closure the organization reduces the complexity of its environment and utilizes this closure to develop an intra-organizational complexity. Organizations develop intra-organizational complexity with the help of decision premises, which guide ensuing decision-making (Luhmann, 2006: 222; 2012: 78). Decision premises reduce the possible decisions and alternatives by predefining the basis of relevant decision-making and at the same time increasing the number of decisions that refer to a previous decision, which had ultimately led to this decision premise. Thus for example, when a manager decides to implement a standard operating procedure all subsequent decisions will need to refer to the decision to implement a standard operating procedure, once the procedure has become a successful part of the decision-making process. The number of possible alternatives decreases due to the defined standard operating procedure, which allows certain alternatives and discards others. Finally, all relevant decisions must stick to this procedure or premise.

Thus, organizations implement decision premises that are actively generated via decisions or passively developed over time. Decision premises help organizations constitute themselves over time so that they do not have to constantly re-constitute themselves afresh. This is how decision premises actualize the organization's past and construct future circumstances on the basis of already established distinctions that have led to previous decisions in order to overcome the present only perspective. Although organizations define their own conditions of reproduction, their future is intransparent because future conditions are not foreseeable. Their own defining conditions change with every decision that is made and at the same time reproduce the organization's limiting border, which is marked by the distinction of self and 'other-reference' (Luhmann, 2006: 222). Organizations are able to open themselves to the environment through self-observation because of this and as a result of their innate nature, which is characterized by operative closure and autopoiesis. All observations are based on a distinction; self-observation is based on the distinction between self-reference and 'other-reference' and thus enables the organization to observe its environment by differentiating itself from the other (Luhmann, 2006: 72). The organization thereby falls into a state of self-produced indeterminacy as Spencer-Brown (Spencer-Brown, 1969) has shown in his 'Laws of Form'. In order to deal with this indeterminacy, the organization constructs 'non-actual time horizons' (Luhmann, 2006: 156). This means that the organization constructs past and future contexts within the present state in order to organize its operations according to past and possible future contexts. In this manner, decision premises mark previous decisions and therewith distinctions that have been successfully used to reduce uncertainty and to open and expand the 'imaginary space' of the organization's past and future. Decision premises generate distinctions that facilitate the organization's self-observation and at the same time frame a possible relevant future for the individual organization. The following figure illustrates how decision premises support the organizational memory function described earlier.
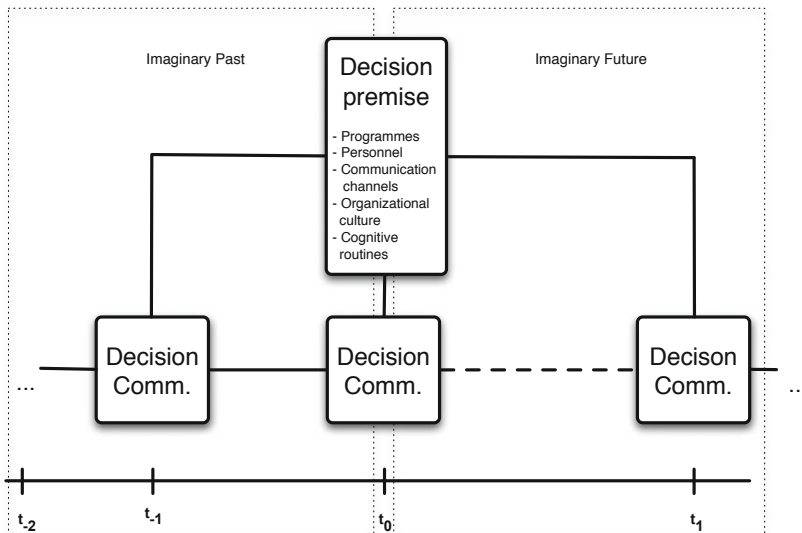
Figure 12: Decision premises and imaginary time dimensions

Figure 12 shows in an abstract and very simplified manner one of many ongoing communication processes within an organization. As already discussed in *Subsection 3.2*, a decision always refers to a previous or to several previous decisions. So the decision communication in t_0 refers to the decision in t_{-1} in order to orient itself and decide again, which would finally lead to a future decision in t_1. This is how decisions link past, present and future contexts. Over time, structures, or, as Luhmann calls them, decision premises, are developed on the basis of the operative decision-making process. These premises enable the organization to structure its rising complexity and to deal with the many simultaneous decisions by providing distinctions, which have been previously actualized. Decision premises are more general compared to decisions and serve as a reference point for a number of subsequent decisions. Thus whenever the decision-making process lacks a specific previous decision or when the connectivity of a certain communicated decision is questioned, decision-making could at least refer to one or another decision premise. Decision premises stand for a number of previous decisions and provide current decision-making with a number of possible distinctions in order to observe and construct the organization's reality in the present situation. Furthermore, the distinctions provided are used to construct an imaginary past, which describes how an organization observes and constructs its reality. Moreover, structures like decision premises enable organizations

to define, at least to a certain degree, on which basis future decisions will be made and thereby enable them to construct an imaginary space of the future. Thus in the case of the decision premise personnel, for example, whenever the human resource department chooses a new employee, it tries to create a fit between the applicant and the organization's future circumstances on the basis of the individual's past, or rather curriculum vitae, and on the results of a job interview. The department tries to predict how the new employee is going to act and decide in the future and at the same time predefines the organization's future by choosing one applicant, who will decide on the basis of his or her individual skills, perceptions or beliefs. This is just one example of how an organization constructs and influences its imaginary future from its present state.

Whereas the previous subsection developed the notion of organizational memory on the operative level of decisions, this subsection interrelated the notion of memory with the structures, or rather decision premises of an organization. So with the help of decision premises an organization expands its imaginary space into its past (t_1) as well as its future (t_2) possible conditions. This enhances the construction of an organization's reality, which is based not only on the observation of the organization's present, but rather on its past as well as the present. Thus relevant alternatives are assessed on the basis of the past in order to choose one appropriate alternative, instead of others. With respect to Luhmann's notion of memory and its functional answer to the system's self-produced indeterminacy, organizational memory is in charge of testing 'all incipient operations for consistency with what the system constructs as reality' (Luhmann, 2012: 349). It is a functional solution to the difficulty a system may have in sustaining its constitutive network of communications. Memory refers, or rather constructs, the system's history whenever necessary, and allows a look into the possible future by framing possible future operations. As already described above, decision premises reduce the system's complexity and organizations use them actively to deal with their own growing complexity.

Luhmann's notion of social memory as a function has been helpful to develop a notion of organizational memory from a social systems theoretical perspective. Nevertheless his notion lacks the means for describing how and why certain specific pasts as well as futures are chosen and not others. For example, at Entertain Corp., programmes were used to predefine future product development processes in order to reduce the organization's increasing complexity, which resulted from the company's growth rates of more than 200% per year. As was empirically shown in *Subsection 1.2*, structures within an organization, and therewith possible pasts, sometimes are and sometimes are not actualized, although it seems to be the same relevant situation. One example is the venture process that was introduced in order to structure all new development processes in a

designated way. Nevertheless, this venture process has been used in lots of different ways and has even been bypassed in order to release an iPhone application that had not been developed according to the strict guidelines of that process. Notions like resistance can problematize and describe how predefined structures could be turned upside down by employees (Courpasson, Dany, & Clegg, 2012; Mumby, 2005). Whereas the literature on organizational resistance is mainly concerned with resistance against power, organizational memory is able to embed and describe the selective usage of structures in the context of time and thus with respect to the retention and future horizons. This means that an organization goes beyond its current status and reflects on its own structures on the basis of past as well as possible future scenarios. This is only possible due to organizational memory, which enables an organization to oscillate between its actualized operations and its pool of non-actualized operations, as well as between its actual and possible premises, as it is able to derive the imaginary past of an organization. In this manner, the organization is able to observe itself and reflect on its own operations and structures (Luhmann, 1997). It is thus memory that remembers or actualizes certain premises and rejects or forgets others. Memory allows the organization to oscillate between what is remembered and what is forgotten, with the result that an organization always knows that if something is remembered or actualized something else has been forgotten. But how does this selection take place on the operational level? How is deviation from a predefined past, such as a guideline, legitimated with regard to its later remembrance? In other words how is a future remembrance of a deviation already included within the current decision-making? To answer these questions, I would now like to present an empirical perspective on organizational memory.

4 Case context: Entertain Corp.

The previous subsection has illustrated the difficulty of understanding the contingency of decision premises on a conceptual level. I would now like to examine and expand on Luhmann's notion of social memory on the basis of an empirical field study. First, I would like to introduce briefly the epistemological assumptions underlying my empirical research, which were inspired by Niklas Luhmann's systems theory. Second, I will discuss the methodology I used in this field study and finally, I will introduce the empirical case in detail on the basis of the ethnographical data I gathered, which I will then use to illustrate and develop further the notion of organizational memory from a systems-theoretical perspective in the following chapter.

4.1 The interrelation of theory and empiricism: Epistemological and methodological assumptions

> The ambition of empirical research is rooted in trust of its own tools and in the premise (the 'prejudice') that it can arrive at reality by these means, rather than only validating its own constructions. (Luhmann, 2012: 16)

Luhmann's citation reflects his perspective on the relationship between theory and empiricism. In his understanding, classical empirical research, in which theory is confronted with independent or even objective empirical data in order to validate the theory and the derived hypotheses, underlies the misconception that reality could be captured in an objective manner in the event of the right methodological 'tools' being taken up for generating data. Nevertheless he does not reject empiricism, but rather calls for the re-conceptualization of the interrelation of theory and empiricism. Within the field of organization studies (Schoeneborn, 2011; Seidl, 2005a; Seidl & Becker, 2006), there is a growing interest in Niklas Luhmann's systems theory; however, there are only few studies that rely on empirical data (Knudsen, 2011). One reason for this is that it still seems difficult to operationalize research questions based on Luhmann's abstract theory. Another reason is that theory-trained scholars tend to use Luhmann's theory more than empiricists do (Besio & Pronzini, 2010). Nevertheless, in order to fully exploit Luhmann's theory on social systems, scholars have requested an empirical opening (Nassehi, 2008;

Schoeneborn, 2011; Seidl & Becker, 2007). Empirical research that is based on Luhmann's systems theory involves a certain vocabulary, as well as a world-view that rejects the epistemological distinction between object and subject. As already indicated, the world is not an object described by the individual as absolute reality. Luhmann rather questions the existence of an objective reality as such (Luhmann, 2009: 34). The argument that reality does not exist 'independently [of] observers' (Besio & Pronzini, 2010: par. 4) is generally rooted in a constructivist notion of science and epistemology, which prohibit a separation the observer from his or her 'experience of reality'[2] (Baecker, 2012: 154). Within constructivism in general and systems theory in particular, the observer experiencing and describing his or her reality refers to distinctions that cannot be found outside, but have their origin within the system or observer (Luhmann, 1995a). The world, or rather reality, is not observable in this sense. Any observer who is constituted by his or her own operations can only refer to his or her own operations and therefore only to both his or her own operations and the available distinctions in order to observe the environment. Luhmann defines this as 'operative constructivism' following the operative closure of systems, as well as the self-referential construction of its environment and reality (Luhmann, 2012: 53). This means there is no 'reality' out there. Reality is constructed within the individual system (e.g. organization, science, psychic system) on the basis of its own self-referential operations and distinctions. Or as Besio and Pronzini put it: 'The ultimate reality is the reality of the system, which has to construct a network of observations while constituting to operate' (Besio & Pronzini, 2010: par. 6). This does not mean that the environment can be neglected as an observer can observe its environment, but changes the focus on the availability of possible distinctions for the observation of the observed environment or as Luhmann frames it: 'The unity of a distinction, with which the system observes is constituted internally by the system' (Luhmann, 2009: 39; own translation). The observed environment of any system, whether it is a social or a psychic system, depends on the available distinctions within the individual system itself to draw 'a distinction and indicating one side (and not the other side) of the distinction (Luhmann, 1995a: 43) in order to observe its environment. In this sense, it is the system and its way of observing the environment that predetermines the properties of its reality.

This also applies to science and its methodological access to empirical studies. It would not be possible for the system of science to observe the 'reality' of the world, because science, like every other social system as well, is not able to access its environment as such, but must refer to its

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[2] The term 'empiricism' is derived from the Greek term *empireia*, which means 'experience of reality'.

own operations in order to experience reality. Nevertheless, this does not mean that scientific methods can be chosen arbitrarily. The science system is constituted by its own operations, which are communications referring to the code of truth and false (Luhmann, 1992b). Its constituting operations define its continuity and mark a world that is constructed by the system itself on the basis of its own operations and available distinctions. Furthermore, the system's reality defines the criteria for the connectivity of its own operations. Whereas some scientific works are cited others are not and thus strengthen or weaken certain distinctions leading to a certain scientific reality. These distinctions are marked within the science system – for example, as rational criteria, methods, concepts or epistemological assumptions, like the present one. This is why within sociological systems theory both empirical work and conceptual research are regarded as products of the system itself and not as a possibility to observe the world as it is. Whether one uses a conceptual or an empirical approach does not change the fact that reality is always the result of a particular observer, the applied methodology and the chosen theoretical perspective. Methodology and theory have different functions in the science system. Whereas theories describe the world, methods define the rules that need to be followed 'to apply the code true/false to propositions' (Besio & Pronzini, 2010: par. 9). In this sense, both theory and method define the rules of 'correct' scientific communication (Luhmann, 1992b: 403).

Taking all of this into consideration, empirical research, on the basis of Luhmann's systems theory, is not about distinguishing between theory and independent empirical access to the world to observe a reality, but rather neglects the existence of an independent observer or methodology, because an observer is always biased by his or her theoretical distinctions. Empirical research on the basis of the theory of social systems is meant to exploit this awareness, in contrast to the classical concept, which strives to gain a more objective perspective by enhancing its methods of gathering data. From a social systems theoretical perspective, empirical research is more concerned with exploiting knowledge about the impossibility of objective observation and enhancing the theoretical perspective on the basis of theory-based empirical observations. In other words it is about enriching the theory on the basis of theoretically driven empirical data, attained through observation on the basis of theoretical distinctions and therefore could not inevitably be distinguished from its theoretical foundation. This means that objective observation is refused and marked as misleading, as we have seen in the previous passage. In this regard, theory-specific notions – for example, in the case of systems theory, the notions of communication, system, environment, observation, decisions and memory – are defined as 'metadata' (Baecker, 2012). These metadata enable the researcher to organize his or her data in order to

recombine them in such a way that new descriptions can be obtained. Furthermore, these notions could be handled like data, because they have been developed on the basis of empirical research, but at the same time could be developed and changed on the basis of further research. Consequently, systems-theoretical research 'is not simply the application of concepts to empirical data, but rather a circular testing of metadata on the basis of data, in such a way that the metadata allow the sorting of the data and of the data to revise the metadata' (Baecker, 2012: 162; own translation). Theoretical concepts provide both researchers and their audience with distinctions that on the one hand enhance the possibility of a shared basic observation and at the same time open up space for the recombination and revision of these distinctions on a theoretical basis, as well as by confronting the metadata with empirically derived data.

Taking all of this into consideration, this study aims to examine on the one hand Luhmann's notion of social memory and on the other hand to develop a notion of organizational memory based on the metadata provided by Luhmann's theory of social systems and of the case study mentioned earlier. Through this case study I intend to confront and enrich the notion of memory that has been developed in order to derive and revise the notion of organizational memory. To do so, I focus on the constituting operations of organizations, which are predefined by Luhmann's theory of social systems in general and his notion of organization in particular. As already outlined in *Subsection 2.2.3*, Luhmann's conceptualization of organizations is based on the concepts of autopoiesis and communication. As such, organizations reproduce themselves via communication and could best be described as recursive processes of communicated decisions. This concept of organization changes the way in which organizations are studied and observed, because it is not the human being ('psychic system') on which research focuses, but the communicative process of decisions. A closer look reveals that the change to a more communication-focused observation is not so very different at all. It is no longer the individual, but the constitutive process of communicated decisions that defines the social setting. This, however, seems to be a promising implication, since an outside observer cannot be expected to read the thoughts of other individuals.

Additionally, this study focuses on the functional dimension of organizational memory. Luhmann defines memory as a function, a solution to a certain problem, rather than something an organization possesses. In order to research this function empirically, Besio and Pronzini (2010) propose that scholars should apply what they call 'functional analysis'. This means that scholars should identify what problem organizational memory resolves. In the context of present work, this means that it is necessary to identify the functions of decisions and decision premises and to examine whether they correspond to the organizational memory

function or not, in order to illustrate the role of decisions and premises for the organizational memory. Two further questions that need to be answered are, how does the organization deal with the contingency problem of decision premises? And how are these premises actualized, or rather remembered and forgotten?

Addressing these questions as well as the research question from *Section 1*, I conducted a longitudinal field study, using ethnographical methods to gather my data (Agar, 2010; Pettigrew, 1990). An ethnographic methodology is suitable for constructivist epistemology because it does not locate 'the observer outside the observed, and instead assumes relationship' (Tuckermann & Rüegg-Stürm, 2010: par. 8). This will help the analysis of decisions and decision premises with regard to their role in organizational memory function. Therefore, I collected data with the help of (1) participant observation, (2) semi-structured interviews and (3) archival data. These methods of data-gathering are themselves constituted by communication and are predestined for observing communication.

4.2   Data collection

Data collection took about half a year, from September 2010 to the beginning of February 2011. During this period I was part of the administrative department that dealt with research and development issues at Entertain Corp., an online gaming and gambling company located in Europe. The research and development department (R&D) was set up in 2006 by the former CEO and a consultant in order to improve the innovative capacity of the organization. It was primarily an administrative department directly overseen by the former CEO. Before I started my research, I introduced myself to the department I was going to be a part of, and explained my research and fieldwork. To most other staff and to the department's external business partners, I was introduced as someone who would be writing a dissertation based on fieldwork conducted at Entertain Corp. and serve as an assistant to the head of the department. My placement helped me collect a great amount of data, as I was able to join most of the meetings, as well as informal talks at the coffee machine or during the Christmas party, for example. It was easy for me to observe the daily business of my department, as well as that of other adjoining departments, such as marketing, corporate communication, corporate social responsibility and the reception, because I had been given my own desk at a big open-plan office. In addition, I had unlimited access to meetings or any other event types in my department. This made it possible for me to get to know a great many other staff members from various parts of the company. My placement at the R&D department was a good choice, because this department actively collaborated with many other

departments. As I had my own desk and could use my own computer, I had no problems taking down field notes. After about three months of observation, as well talks with my major informant – the head of my department – I started to interview staff members throughout the company. Together with the head of department, whom I interviewed first and with whom I had permanent exchanges, we used the 'snowball technique' (Craig, 1999) to identify other organizational members who could provide insights into the mechanisms of Entertain Corp. Each formal interview was 30–90 minutes in length, digitally recorded and then transcribed verbatim. At the beginning of the last month of my field study the department I was part of moved to another office building within the city, where there was no open-plan office. The different departments, such as customer services or business development, were all on the same floor here, which meant that I could easily contact and have short conversations with staff at the shared coffee machine, for example.

At the time I was doing my research at Entertain Corp., the company employed about 1,500 people. More than the half of the staff were located in Austria, and the majority of the other employees worked in offices located in Sweden, Germany, France, the UK, Poland and Italy. The headquarters where I was doing my research was located in two office buildings. Administrative staff worked in a very old building, while the other building was derogatorily called the 'engine room', because it was very much more office-like than the other building. Product developing took place mainly in the second building. The organization is quite young as the two founders, who are still part of the company and members of the board of directors, founded it in the late 1990s. The company is subdivided into product divisions (e.g. product A, product B, product C) and supported by four administrative departments: human resources, communications, market development and compliance & legal.

In the following table I present the types of data that I gathered in the context of this field study.

Data type	Quantity	Original data source	Original (intended) purpose of collected data
Interviews	24	Informants (employees)	Analysis
Observational data	Approximately 1000 hours	Principal investigator's notes from 6-month field study	Analysis
Meeting minutes	52 pages	Principal investigator's notes from 22 meetings	Analysis
Videos	3	Marketing department	Internal as well as external communication. Focus on investor relations
Corporate magazine	17 issues	Corporate communication offices	Staff members
Organization charts	2	Intranet	Staff members
Guidelines	8	Informants (employees) and intranet	Staff members
Corporate presentations	19	Informants (employees), corporate homepage and intranet	Potential stakeholders and staff members
Song	1	Intranet	Staff members
Financial and annual reports	11	Corporate communication offices, public relations offices	Potential stakeholders
Press releases	145	Corporate communication offices, public relations offices	Potential stakeholders
Reports of shareholders' meetings (incl. invitation and agenda)	8	Mailing	Shareholders
Archival records	Approximately 200 documents	Factsheets, meeting minutes, announcements, job advertisements, event invitations	Staff members

Table 3: Data inventory

The collected data reflect many facets of the observed organization and allow an in-depth analysis of the organization's operations, structures and daily activities, which is essential in order to examine organizational memory.

4.3 Data analysis

As already indicated in subsection 4.1 the above collected data has been analysed on the assumptions of operative constructivism. This means, instead of distinguishing between theory and independent empirical access the theoretical concepts are intentionally used as pools of possible distinctions on which empirical observation can take place. Based on the research question and the theoretical perspective developed in *Chapter 3*, in which the phenomenon of memory as a function in general and organizational memory as a function in particular are introduced, the analysis of the collected data follows an iterative approach. This involved circling back and forth between the theoretical concept of organizational memory as a function, the collected data and the interpretations of this material. The data analysis proceeded in five stages. In the first stage, I created an overview of key events as well decisions at Entertain Corp. to develop possible 'chains of decisions' (Besio & Pronzini, 2010: par. 12). For each of the key decisions I identified and assembled the relevant ethnographic field notes, interviews and archival data.

On the basis of these key decisions and collected data I developed a 'thick description' (Agar, 2010) (Geertz, 1964, 1977), which is presented in the following *Subsection 4.4*. This thick description captures and explains not only the behaviour of the observed persons as well as decisions made at Entertain Corp., but also captures their contextual embeddedness, as for example in the case of the changing regulatory requirements Entertain Corp. is dealing with (see also *Subsection 4.4.1.1*). Furthermore important communicative acts are displayed to provide what is more of a micro perspective on the emerging decisions. With the help of the thick description it is possible to describe not only single decisions or a sequence of single decisions, but also the interrelation and contextualization of temporally separated decisions or simultaneous decisions. It is thus possible for example, to explicate the reasons for the decision to develop the venture process, its specifications and its final acceptance and consequences for following decision-making.

In the third stage the description developed together with additional data are used to conduct a 'functional analysis' (Besio & Pronzini, 2010: par. 29) and to illustrate the outlined theoretical framework and conceptualization of organizational memory from a social systems-theoretical perspective (see also *Chapter 3*). The aim is to illustrate how decisions and decision premises contribute to the development of a memory function. On the basis of the developed conceptual framework of *Chapter 3* the following three questions guided the coding of the data: (1) How do decisions and decision premises examine the consistency of subsequent operations? (2) How do decisions and decision premises contribute to the construction of reality? and (3) How do decisions and decision premises

enable 'discrimination' or mediation between what is remembered and what is forgotten for the present moment? For example, when a developer talked about the recognized need to develop a new mobile application, but described a situation in which "(…) it is difficult to come to the decision 'we simply do that now (…)'" because of other former decisions, which call for further improvements and not new developments I coded this as "consistency check" and "mediation between remembering and forgetting", as former decisions seem to deny new developments and therefore deny the consistency of other possible decisions and at the same time mark what is remembered – improvement of running applications – and what is forgotten – development of new application. The coded data is then used to illustrate which role decisions and decision premises play for the three functions of organizational memory. This is done by applying, or rather confronting the conceptual framework of organizational memory as a function with the data, in order to illustrate the functional usage of decisions and decision premises as organizational memory as a function.

In the fourth stage I analysed sequences of naturally occurring communication and employed detailed vignettes in order to explore how the organization deals with the contingency of possible pasts and futures (see also *Subsection 1.2* and *Chapter 6*). Or in other words, how is the organization dealing with the interplay between past and future in general and their selective actualization in particular. In a first step I coded each individual phrase according to its temporal orientation of past or future in order to analyse how an organization confronts and informs its present to overcome its self-produced indeterminacy. For example, the R&D Manager states 'What about hiring an experienced interactive designer?' I coded this as "future orientation". During the analysis, I identified and illustrated that this 'oscillation' between past and future is the main mechanism to construct a specific present and not another alternative one. In a second step I coded each individual phrase according to its addressed meaning dimension (e.g. factual or social). For example, when the Marketing Manager states that 'Entertain Corp. is a strong brand' I coded this as "factual dimension". Based on these codes I identified that the meaning dimensions enable and guide the social construction of certain pasts and futures and not other ones. I examine in detail how certain futures and pasts refer to a certain dimension of meaning in order to achieve a social understanding of both a specific past and especially of a specific future.

In a final stage these theory-based empirical observations are linked back to the original theoretical concept in order to further develop the notion of organizational memory as a function and to derive the final model of organizational memory as a function. This model states that organizational memory can be conceptualized as a three-level form consisting of: (1) decisions, which produce over time (2) decisions premises

and are finally embedded in (3) the three dimensions of meaning (see also *Subsection 6.3*).

4.4 Vignettes: The R&D department against the rest of the organization

The following 'thick description' (Agar, 2010; Geertz, 1964, 1977) is based on the collected data that were described above.

4.4.1 *The venture process as a consequence of growth*

The most important organizational structures at Entertain Corp. include the so-called 'ventures', which are described and defined in the 'Corporate Venture Guide – A guide through the Entertain Corp. Venture Process'. The initial version of this guide was introduced to the organization in June 2008. It was the answer to the company's tremendous growth in employees, from 300 in 2005 to 1,400 in 2008 (367%), in revenues, from €143 million in 2005 to €420 million in 2008 (194%) and at the same time in customers, i.e. 100,000 new active customers per year. This, in turn, had led to the substantial expansion of the technical system, which had to cope with the rising customer numbers. Moreover, Entertain Corp. developed an enormous variety of new online products.

> It was really a struggle in the years 2004, 2005, 2006 when we had growth rates of about 300% from year to year – 200%, 300%. I remember one of those years where I had to integrate only in my department over 70 people, and I really thought that this would tear us apart, because we had no processes, we had no organizational structure and none of the things that a huge organization needs. (Customer Service Manager)

In order to cope with this massive growth and the subsequent increase in complexity, the corporate project management office (PMO) developed the 'Corporate Venture Guide'. This guide is defined as 'the central point of information on the venture process. It provides you with important instructions regarding the preparation of decisions and the documentation of ventures' (Corporate Venture Guide 2008). The venture guide is meant to guide decision-making within the organization and at the same time to illustrate how decisions are evaluated. It reflects the decision criteria of Entertain Corp. 'in order to increase the transparency of ventures, to sharpen prioritisation and to enhance the quality of decisions and execution' (Corporate Venture Guide 2008). It is a typical guideline that has been developed for use in coping with the organization's complexity, to enable an ongoing communication process. The venture guide leverages

different interests and the resulting conflicts in order to enable a predefined and on-going communication process within the organization.

> It's not only a development process, it's something that can actually guide you through other business decisions. (Marketing Manager)

Normally, all projects at Entertain Corp. must be approved in order to secure a budget and technical support. The number of possible projects or ventures is limited for this reason. Each department must first deal with the venture regulatory, which is a requirement for the approval of new projects or for extending ongoing projects. To guarantee that everybody in the organization complies with the venture guide, the guide 'is part of the Corporate Rule set and hence valid for all divisions, departments and units' (Corporate Venture Guide 2008).

4.4.1.1 The venture process as a consequence of environmental changes and requirements

Apart from the immense and rapid growth in technical facilities, number of employees and revenues, Entertain Corp. also had to deal with environmental changes. The most central influence on the business model as well as on the daily operations had been a mostly unpredictable regulatory environment, due to changing legal situations. Since Entertain Corp. had been founded in 1997, it had been obliged to deal with a growing regulatory environment, which is reflected and discussed frequently in the annual reports and had also been a subject of several talks and discussions during my field research. When the company started in business, there were hardly any relevant laws or regulatory requirements, as the Internet and thus the business model of Entertain Corp., were new to the markets and the legislation of the individual countries. In the late 20th and the early 21st century, but when Internet had become a widespread medium, governments started to pass laws in order to control this new medium to some extent.

> The problem is that some of the stuff that we have to do now, we didn't have to do six years ago, especially that six years ago we were offering bets, now we're offering poker, bets, games, everything in addition, plus the regulatory requirements weren't there six years ago, so basically there was no law governing any kind of online gaming, it was like okay do whatever you want, now each country has its nice little what you have to do and this is a lot of effort, so probably this slows us down a lot, and you need a lot of people. (Database Manager)

Until the regulatory environment of Entertain Corp. became stricter, the company's strategy was to deliver all services in all countries through the

company homepage. At present Entertain Corp. offers its services on a separate website in every country where it operates: for example, www.entertaincorp.fr (France), www.entertaincorp.ar (Argentina) and www.entertaincorp.it (Italy). Once regulations became stricter, and several countries started to officially legalize online betting, the organization had to deal with different regulations in each country and to hire more employees in order to adjust to the different requirements.

> You need an expert for the French market, on how you have to encrypt the data there, and it's completely different in every other country. In another country, Spain, everything must be printable. Nobody ever prints anything, but the law says you must be able to print everything. So you need these experts and this slows the whole thing down, so it's much slower than before. (Database Manager)

How different these country-dependent regulations are is illustrated by the following example, which also shows how difficult it is for a company to cope all these different requirements and why it is necessary to standardize regulations across country borders.

> Some countries require you to keep data for at least ten years, in another country you have to delete it after seven, which makes the actual solution you do very hard and you must make different versions of the software for different countries, just because it's the law there. The governments of this planet are not ready for the internet. They are slowly getting there – in science fiction Earth is one big thing and the internet is actually driving us there, but right now the internet is so crazy that every country has different laws and they actually don't work together. (Database Manager)

There are not only requirements from the different states, but also standards set by companies.

> For example even in the data-centre, it's a physical separation of these machines, so there is a separate room and this is the requirement of the credit-card companies, if you exceed a certain amount of transactions, and in production we have millions of credit card numbers on file and we don't want to be the company that gets blamed if they get out. Just do the maths quickly, usually with credit cards you can deduct 1000 euro without a problem but we have a million on file and that's one billion and that's a lot if you lose the data and someone gets it. (Engineering Manager)

The previous examples illustrate the development of the regulatory requirements that the products and technical systems must fulfil in different countries and how difficult it is for Entertain Corp. to comply with all these requirements. When Entertain Corp. started with its business of online gaming, the market seemed to be booming and unregulated, with extraordinary growth potential and hardly any restrictions. Later on, when the market became increasingly regulated by individual countries, Entertain Corp. had to deal with a growing body of requirements, a process which slowed down the company's capacities. In 2006, for example,

Entertain Corp. left the US market in order to avoid problems with the law, because the US government enacted a law prohibiting credit-card companies from transferring money to online gaming companies.

> In 2006, because of the Online Gaming Prohibition Act that was set up by the US Government, we had to pull out of the US market. This was a very big investment; it was blown away in a single day. (PR Manager)

The example shows the immense influence of external factors in general and laws in particular on the business model of Entertain Corp. Moreover, it illustrates how fast and flexible the organization has to be in order to deal with these kinds of changes successfully. Until this unforeseen environmental change, which caused a loss of several millions of euro, Entertain Corp. had been investing in markets that had been classified as relatively risky, because in each of these countries the legislation on online gaming had been vague and not particularly developed. After this great loss, Entertain Corp. changed its strategy and decided to invest only in regulated markets. Since then, Entertain Corp. has been following a first-mover strategy in order to be the first or one of the first companies to invest in a regulated market. As a consequence of this policy Entertain Corp. developed lots of guidelines, like the venture process, in order to deal with the different regulatory requirements.

> We have a lot of external guidelines again, because the industry strives to become regulated. So we develop many, many self-regulated guidelines to prove and to show we are not pirates, we stick to rules. So there are many again external rules we have to stick on, we get audited on those rules. This is similar to banks, I would say, from payment processes, responsible gaming, rules, data security rules, many external rules and regulations, and then I would say more and more internal as well. (CSR Manager)

All important and major product developments and projects that are intended to 'go live', as the IT developers call it, have to fulfil the regulatory requirements of the country in which they are to be launched. In order to make sure that the products comply with all local laws and requirements, new developments or product enhancements must follow the 'Venture Process' mentioned earlier, which coordinates and controls the development of new products and other business innovations.

> Product adaptation for original markets are following new entry processes as well the so called venture process, which is driven from a separate project management team, and in that are really, on a very detailed level, described the rules, the steps, the decision criteria, the organizational structure within that project etc. I think I would say this is one of the main programmes driven within the company. (CSR Manager)

Although the environmentally driven first-mover strategy illustrates on the one hand the need for strict processes in order to cope with all regula-

tory requirements of individual states, on the other hand it demands that the organization is kept relatively flexible and able to adopt new regulatory requirements quickly in order to be the first on the market to offer a certain service or product.

> Yes, it's changing drastically and quickly, and you are really driven by these external factors, and I'm sure this is also the case in a lot of other companies but the external factors are the laws that we have to apply to and laws that we have to fulfil, so actually if there is a different law, for example in Germany you have to apply the law or you are just out of business. (Customer Platform Manager)

This highly regulated environment makes it extremely difficult for the organization to deal with rapid environmental changes. Nevertheless, Entertain Corp. – the leading company in their business sector – managed to be one of the most flexible and fastest-growing organizations by adapting to new regulatory requirements and thus managing to follow a first-mover strategy in most countries. Some employees described this organizational strength as one of the most important qualities in the online gaming market, even more important than the product itself.

> So the markets have always been more important than products, at least up to now, which means that we always try to secure the markets, to enter new markets before working on the product – this was always more important. (Customer Platform Manager)

The previous descriptions illustrate the dilemma Entertain Corp. faces in aligning all activities with regulatory requirements by strictly structuring its development and production, while and at the same time staying flexible and responsive to environmental changes, such as new market regulations. At the same time the response to the regulatory environment illustrates the historical development of internal processes like the venture process, which were necessary even at the start, but played an increasingly important role once the organization began to grow at a very fast pace and also had to deal with environmental changes.

4.4.1.2   A closer look at the venture process

The previous subsections illustrate the important role of processes at Entertain Corp. and show how they became so important. The main reasons were organizational growth and the complex and uncertain environment of the organization. Below, I would like to introduce the venture process in more detail to show how it works and how it deals with the challenges the organization has had to face.

Drawing on archived, material as well as interviews and observations, I intend to illustrate how the venture process structures and controls daily business at Entertain Corp. As already described, the main coordination and communication tool is the so-called venture process. It is defined as follows:

> A venture is the new development or major enhancement of a product or product support facility (all activities in all departments), involves an overall effort of more than 30 person days, follows our defined chain of stages and [GATES] (=venture process). (Corporate Venture Guide 2008)

Any 'activity' that leads to a totally new product or is a major enhancement of an existing product and at the same time involves more than '30 person days' must follow the venture guidelines and thus also the official venture process, which 'consists of 5 stages separated by 4 [GATES]' (Corporate Venture Guide 2008). The venture process is defined as follows:

Figure 13: The venture process at Entertain Corp.

Each stage has its own purpose and predefined main activities, which guide the venture:

Idea Screening. The purpose of this stage is to 'Capture and develop [the] venture idea' (Corporate Venture Guide 2008). To achieve this, the following main activities have to be fulfilled and documented:

> Describe and capture idea
>
> Check if venture fits into product strategy/roadmap
>
> Describe current situation with problem statements and business goals for the idea
>
> Develop action plan for the stage 'Preliminary Investigation'
>
> If Preliminary Investigation fulfils criteria for projects → initiate project. (Corporate Venture Guide 2008)

Preliminary Investigation. The purpose of this stage is a 'rough specification of the venture in order to create a total picture of the benefits and costs of potentially different scenarios' (Corporate Venture Guide 2008). The main activities are:

Define venture in a preliminary manner by means of a venture description, risk statements, assumptions with initial cost/benefit estimation and market assessment (unique selling proposition, competitor analysis)

Define action plan by means of a resource estimation for the stage 'Detailed Investigation'

If Detailed Investigation fulfils criteria for projects → initiate project. (Corporate Venture Guide 2008)

Detailed Investigation. The purpose of this stage is to develop a 'detailed specification of the venture and careful evaluation of the benefits and costs in order to identify all possible problem issues that are liable to have an impact on the business case' (Corporate Venture Guide 2008). The main activities in this stage are:

Describe the venture in a detailed manner, e.g. functional specification incl. technical and legal assessment

Prepare a business case

Prepare corresponding activities, e.g. marketing plan and product communication

Define action plan with resource estimation for the stage 'production'

If production fulfils criteria for projects → initiate project. (Corporate Venture Guide 2008)

Production. The purpose of this stage is to 'develop and implement the venture (all activities in all departments that are necessary for the launch)' (Corporate Venture Guide 2008). The main activities are:

Update resource estimation and align allocation with timeline

Monitor technical product development

Prepare product communication internally and externally

Initiate customer service training

Setup reporting

Prepare technical launch. (Corporate Venture Guide 2008)

Launch & Review. The purpose of this stage is to 'validate and launch the venture' (Corporate Venture Guide 2008). The main activities are:

Verify and validate the product, e.g. at certain labels

Technical activation for customers

Launch product communication, e.g. promotions activities. (Corporate Venture Guide 2008)

All activities are summarized in templates or documents that try to capture all necessary information in order to fulfil the purpose of each stage. The following figure gives an overview of all the obligatory documents.
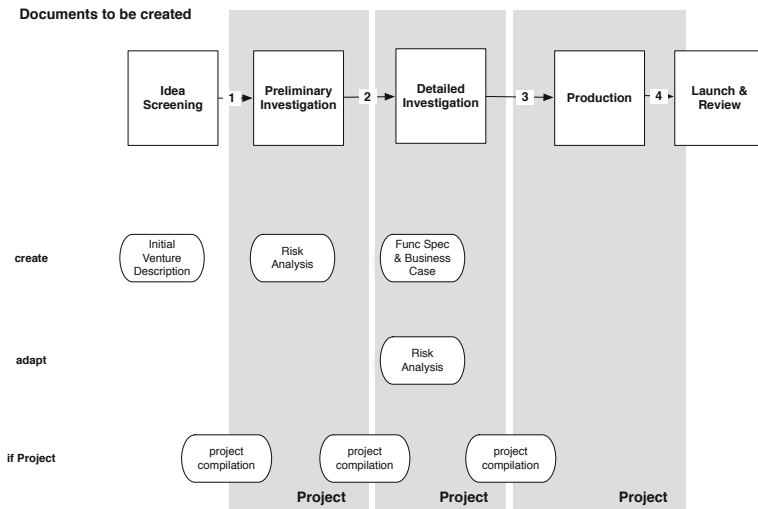
Figure 14: Documents used during the venture process

In between these stages there are the so-called 'gates', which end by leading to 'gate decisions'. Every gate decision consists of (1) 'the pass/kill decision, where the business owner decides if the venture is worth investigating further' and (2) 'the go/hold decision, where the business owner decides – considering the fair share/roadmap planning/availability of requested resources – whether to set the venture 'on hold' or to carry on'

(Corporate Venture Guide 2008: 6). In order to inform all stakeholders, they have to be 'involved and agree to the facts', which are documented (Corporate Venture Guide 2008).
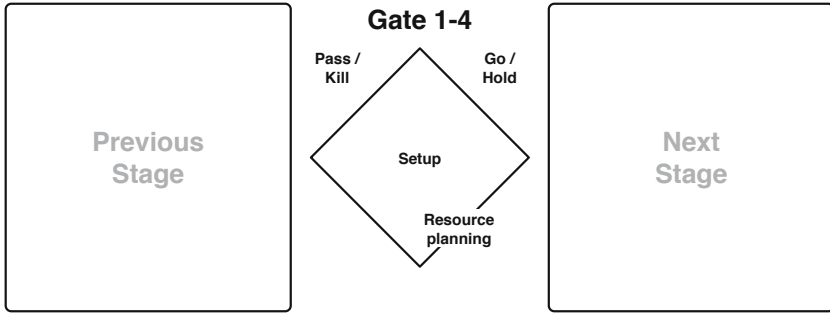
Figure 15: Gates between the different stages of the venture process (Corporate Venture Guide 2008)

As already shown in *Figure 14* the different tasks are also to be organized with the help of projects. This applies to cases where the tasks refer to a high 'organisational complexity' (Corporate Venture Guide 2008). This involves more than 30 person days and at the same time 'involves more than 5 PDs of another business area' (Corporate Venture Guide 2008). Another reason for applying this organizing step would be a relatively resource-consuming task 'exceeding 50 PDs' effort in total' (Corporate Venture Guide 2008) or also 'tasks with a high impact on other departments/requiring special management attention' (Corporate Venture Guide 2008).

This rough description aims to give an idea about how processes, and especially the venture processes, are predefined at Entertain Corp. and drive the whole process and communication of new products or product enhancements. It connects the different stages of a product development and at the same time enables, or rather predefines communication throughout the organization. As already stated, in the venture guide all departments must abide by these guidelines.

> So everything that is new, so if a new mobile poker comes out, a new mobile sports, okay they will all go through this process, there is no exception. I know the R&D department is a little bit out of control sometimes, but we will get them as eventually. (Planning and Organization Manager)

As this quote indicates, the venture process seems to be the general tool for controlling and predefining new ventures and other development

106

intentions. Nevertheless, some departments, like the R&D department, found it difficult to deal with these processes. Now I would like to examine the departments that do not fully comply with the venture process. The R&D department seems to be a good example, given that it appears to be the most important department when it comes to product development and enhancements.

4.4.2 The R&D department

The R&D department was set up in 2007, shortly after one of the co-founders of Entertain Corp. asked an established IT expert to give up his job as a media designer and art professor in order to work for the company. At that time, this IT expert was a well-known media designer and IT developer, who had been responsible for the design of the websites of several big media companies. He had originally studied economics, but then started teaching himself how to develop homepages and software programmes. When he was asked to put together an interdisciplinary team consisting of media artists, computer scientists and business developers in order to develop totally new ideas and products, he was amazed by this unique opportunity. The idea was to establish an almost independent team reporting only to the CEO, as it is shown in *Figure 16*, and which would have full freedom to be creative. In 2007 the R&D department, consisting of two and later seven employees, was set up as a functional unit and reported directly to the co-CEOs. It was thus an altogether privileged department, with a fairly high level of autonomy and a relatively large budget for developing new ideas and products.
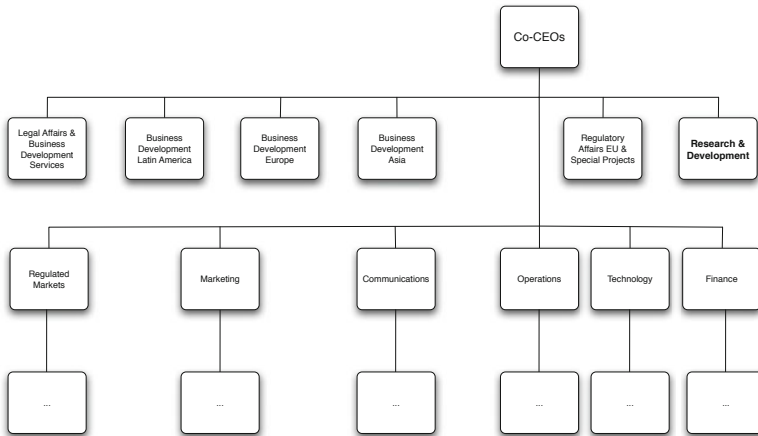
Figure 16: Organization chart, June 2010

The department was relatively unstructured with a low structures and processes level. For example, the department head mostly decided together with the team whether they would start a new development or not. Overall, there were just two hierarchical levels: the department head and the team. This informal communication method had also been common within their product development work. Fixed process steps have never been established within the department

> [...] because processes had been quite different, if you could speak about processes in our department at all. [...] There haven't been any open innovation attempts; there was no market research or any kind of business plans. There was only a decision that we would do this or that from now on. And then we started with the development. (R&D Developer A)

The department defined itself as the 'creative cell' of the company and refused to implement generally accepted processes, like the venture process. This thinking and the dismissal of the official internal processes has caused serious problems for the R&D department and their products:

> We had been the creative cell within Entertain Corp. There were no big innovation processes during our development projects. There were no constant process structures. Some of us used *Scrum*, which is development software, in order to structure our work a little bit, but this was because of us – because we needed some structure. (R&D Developer A)

Since 2007 the department developed around 30 products, such as search engines, TV applications, interfaces, messenger devices, iOS or Android applications and it also redesigned existing products. Only around ten were developed to a 'market-ready' stage and only three were introduced to the market, or went 'live', as the developers term it. The major problem of the department was a lack of communication with the other departments, which had enough power to reject the proposals of the R&D department whenever the R&D department did not apply the venture process properly. The R&D staff were neither trained nor used to the venture process and guidelines, and as a result they faced significant problems whenever they tried to interact with the rest of the organization.

> There have been some cases in which there was the ambition to go live with our products. Within this intention we encountered some venture processes and we tried to develop our own ventures, but it didn't work out. (R&D Developer A)

> This was our problem, because we were not able to transfer our projects into the venture process structures. All the R&D members have been recruited from the outside. There was more or less nobody, who was used to the internal structures of the company. (R&D Developer A)

Most of the time, whenever the R&D department tried to promote its newly developed products the response was a lack of interest or rejection. The department was not able to communicate its projects and products with the help of the official venture guide, because they always refused these strict process structures and therefore never learned how to deal with the to some extent complex requirements of this venture tool. Other departments that complied with the venture process refused to work on projects that were not in conformity with the venture process. Another reason for a lack of legitimacy was the status of the R&D department within the organization. On the one hand, the department reported directly to the CEO; on the other hand, it did not have the power to push its own projects forwards, because it always depended on other departments in order to implement its developments into the technical system of Entertain Corp. This negative effect was amplified by the fact that the R&D department was located at another office building and was therefore separated from the other departments and developers.

> I think the main problem was a lack of communication. We did not really know about the real needs of the other developers and departments. At the same time, they had no idea about what we were doing and therefore we had just a few collaborations. In addition, the more we separated us the more political issues arose to block our projects. They have been quite resistant to our products. (R&D Developer A)

This lack of legitimacy within the organization led to frustration within the R&D team, as a lot of their products were rejected by the other departments. Only very important projects that the R&D department initiated together with one of the CEOs, such as the iOS and Android applications, were successful.

4.4.3   Going mobile: The iPhone and Android applications

In order to illustrate the limited connectivity of the R&D department and its consequences on product development, which has been already described, I would like to draw on the development of a successful, but at the same time problematic product that took place during my field research.

4.4.3.1   'Just go ahead and do it'

The following example refers to the development of an Entertain Corp. product that was initiated and accomplished by the R&D department. The R&D department started developing an iPhone application in mid 2010. Since the release of the iPhone in 2007, the market for such applications (i.e. software), which run mostly on so-called 'smartphones' or tablet computers, has expanded significantly and these applications have become a unique selling point for all companies that produce smartphones. Three years after the release of the first iPhone, which became the first really successful smartphone on the mobile market, none of the gaming and betting companies had developed a successful mobile application that would deliver to customers the same services as on those companies' website. Although there were already some other applications from their competitors none of them had been really successful, because most of them had been user-unfriendly and simply linked the application with an ordinary website.

> There were several other apps with which you could place a bet. But those were only applications where someone took a website and released a native app. The user experience is very bad in this case. Our focus was on easier, quicker navigation, and more exciting. Our app should be fun to use, so we had long been the only ones who had something on the market. (Developer B)

The development of a fully native application would have to fulfil many security requirements and to be integrated into the complex operating IT system of Entertain Corp., which deals daily with around 760,000 visitors and around 770,000 bets. Although after the introduction of the iPhone iOS and Android phones became a mass product, none of the apparently

relevant departments, like the 'Mobile Department', which is responsible for all mobile devices, or the 'Sports Department', which is in charge of all sport-related betting, had realistic ambitions to develop a fully working mobile application. That seems surprising at the first sight; however, the mobile department still dealt with mobile solutions from the pre-iPhone era.

> Well before the current trend came in 2007 with the iPhone and then Android, there were already 800 different devices and each device had its own infrastructure. Since these feature phones had their own technology, they were incompatible with each other. The Mobile Division was feverishly busy in this mobile world to provide customers with all kinds of sports betting opportunities. [...] There was just too much to do and they were fully in these processes and had not recognized this new trend correctly [...]. There was certainly the idea to do something like that. There are always people who know what to do; the problem is that it is difficult to come to the decision 'we simply do that now, put it on a roadmap and at some point have a meeting and the outcome of the meeting is a follow-up meeting then'. (Developer B)

The decision to develop an application of this kind was initiated by the head of the R&D department and his team in the second half of 2010, but was not widely communicated to other departments to start with. This was not unusual, because most of the time the R&D department was working on products and product enhancements without a clear internal communication strategy and preferred to present its developments later, when it was possible to present the first successful results. The main reason for this had always been the refusal to take up the strict processes in general and the venture process in particular.

> It has been communicated that we started this project, but would we have established a collaboration with the mobile department, which hadn't been working on this for the last three years, we would have just done what I think is the reason that it takes so long, we would have integrated into corporate processes and would then have to talk to different people who are responsible, for example, for mobile, someone who feels responsible for sports betting, [...] and each one in turn would create his own idea, instead of the project one has actually thought of and has such a huge discussion that leads to nothing at the end. (Developer B)

Another reason for this communication strategy, as I discovered during my research and as the previous quote indicates, was that most departments were very busy with their own projects and with the effort to fulfil the venture process requirements. The mobile or sports departments thus consistently denied the need for iOS and Android applications, due to the fact that they would not have free capacities to develop them.

> It was so that Entertain Corp. indeed had its own mobile division, which had also originally intended to deal with the issue, but they were just caught in their processes and dealt with technologies that were completely out of date by that time. In our view, a

mobile app for sports betting was not really a 'look-ahead' R&D project, but something the company urgently needed. No one does it, so we just do it. (Developer B)

For that reason, and although the development of iOS and Android applications had not been a typical R&D project, the team decided to 'just go ahead and do it' (developer B), because they were convinced that it was about time to take this step before other companies developed similar applications.

After the decision had been taken to develop a mobile application, at one of the weekly meetings of the R&D department in June 2010, one of the senior product developers, started to discuss how to develop mobile applications, because until then none of the developers had had any real experience in mobile applications.

We started to build this application relatively undisciplined. Mark built the first version. He had no experience in mobile applications, but he familiarized himself with the development and had kind of a research and study phase at the beginning. He then developed a first version, which did not look good really, but with which you could very well place bets. (Developer A)

The development of the first version took about three months. In October 2010 the senior product developer finished his version and another developer took over in order to enhance the current version. At the same time, the R&D department also decided to develop an Android version of the application, because more and more smartphones were running Google's Android mobile operating system. Although the department did not organize its work with the help of venture processes or project structures, R&D staff thought that Christmas and the end of 2010 would be the right time for the application to go live. However, by the beginning of December 2010, the R&D department realized that there were still important issues to be clarified that had not been addressed yet. On the one hand they had been neglecting internal guidelines, such as security issues, and on the other hand they had been surprised by the strict external guidelines they had to deal with, like the requirements for Apple's and Google's app store.

What concerns Entertain Corp. it's mainly all about security, but also legal affairs like information imprints etc. Then, the differences for the different countries. [...] The problem with Apple was that although we had often released, but Apple did not know whether they want to allow it or not, because they have been concerned about gambling. So we had to wait for weeks until we got an answer. This has continued throughout the whole development of the iPhone app. With Android, it was like we just had the app in the Google Play Store, which was then called Android Market. Shortly thereafter, however, Google released new rules, which was said no gambling with real money. Whereupon our app was kicked out a short time later from the store and we had to sell the app directly from our website. It will remain so as long as in the U.S. gambling is illegal because the Play Store is purely under California law. This is different from Apple,

because Apple has for each country its own store. You have to submit it in each country separately. (Developer B)

The development and distribution of mobile applications must fulfil several internal as well as external requirements. The internal requirements refer mostly to security issues, such as the safe use of credit cards. The external requirements, for example in the case of Apple's app store, refer to the law that applies in the different countries where the application is downloaded and used. In the case of Google's app store, the same rules apply in every country and the requirements for participating in their distribution system are subject to the law of California, where online gaming with real money is forbidden. Due to these internal as well as external requirements the R&D team faced difficulties that they could not solve alone, so they were obliged to work together with the legal department or with the mobile department, which already had experience of similar issues.

4.4.3.2   Political issues

At that point, the R&D department was in need of additional funds and external expertise in order to develop the application further to a market-ready level. At the same time, the department became aware of the fact that their product would cause political problems between R&D and other departments, because the product would be a technical breakthrough, but at the same time it would compete with the existing main product. First, the R&D department sat together with the marketing department to adjust the design of the application so that it conformed strictly with the corporate design and brand requirements. During that meeting both departments agreed that the application had to be highly usable and that they would have to stick strictly to the corporate design. Nevertheless, during the process of development, the R&D department started to question certain aspects of the guidelines and the issue of adapting them according to the requirements of a more user-friendly mobile application.

> At the time, Entertain Corp.'s corporate design guidelines were hopelessly outdated and designed for the web. That was actually the design for the web from 2002. On mobile apps you can bring in a lot of your corporate identity but generally how you navigate and what the app elements generally look like actually depends a lot on the platform. Our approach was to make them most natively. We used native typical of iOS and Android interface metaphors and then used the colour space of Entertain Corp's corporate identity. (Developer B)

The developers designed the application according to most of the corporate identity guidelines in order to correctly communicate the Entertain Corp. brand. Nevertheless, they adjusted the 'outdated' guidelines from time to time in order to enhance the usability of the application.

> However, what we also did was to question things such as the colour, because if you use a device in daylight, then you won't necessarily use a black background, but a bright background in order to see better. (Developer B)

Moreover, the team decided to look for an experienced 'interactive designer', who would be able to design the application according to the corporate identity guidelines of Entertain Corp., but at the same time would adapt these guidelines to the operating system of the mobile application and combine them with high usability. One week later, the head of R&D flew to the Netherlands in order to meet with a leading designer of mobile applications.

The other departments – for example, the mobile department, the product management department and the technology department – were informed in order to discuss the technical requirements and capacities that would be necessary for the application to go live as soon as possible so that the company would be the first on the gaming market with a proper mobile application.

> Then iIt was then about to go live and into production, and most of the stress was then from the cooperation with other departments as we then had to inform customer support or the marketing department. This was the greatest adventure. It was then at this point that Martin [product manager] joined the R&D department to take over the project management in order to get the app into the different processes [...], but without starting a whole new venture process. (Developer A)

Within In the course of the following weeks and months, the new product manager joined the team occasionally for important team meetings or product presentations. He was familiarized with the applications, as well the upcoming challenges, such as the technical integration of the applications within the system of Entertain Corp., in order to go live at one point. Thus, the department was in need of technical support, as well as the technical facilities of other departments. The job of the new product manager was to convince the other departments of the necessity of this new application and to reduce prejudice, because these departments had been critical of the new mobile application that the R&D department had developed. During various meetings, it began to appear that the new product manager was perceived as a kind of a spy.

> I have no idea what he has been doing. He certainly hasn't managed much; we only informed him about what we did from time to time. [...] He spent a lot of time on com-

114

municating the applications within the company. He managed the process a little bit, which we obviously circumvented. (Developer B)

The R&D staff were aware that they would need the product manager to communicate their new developed application to the other departments in order to gain legitimacy for their development within the organization. Therefore the product manager tried to set up parts of the official venture process.

Nevertheless, at that time, the first political fights began within the organization. On the one hand, there was the R&D department, which needed the help of the other departments in order to deal with the main requirements of the venture process for the mobile application to go live; on the other hand, there were other departments, like the mobile sports-betting department, which claimed that the development of such an important product was their duty and demanded that they should take over the application. In the face of this the R&D department stated that it would be the only department capable of developing such an application fast enough to be first on the market. Although there were questions as to which department was responsible for the application, the R&D department decided to go ahead with its development although it was not clear who would be responsible for the application later on. Furthermore, one of the former heads of R&D supported this department in its efforts.

> It has to be said that we probably wouldn't have had a chance if things had been different. The big advantage we had was that our former head of R&D had been promoted and now had a very high position and had been able to push us for that matter. This was, of course, a huge bonus because he supported us and just stated that we need these apps as soon as possible. (Developer B)

Moreover, the head of R&D used his informal network within the organization in order to sway the opinion of the main decision-makers. As he knew one of the CEOs pretty well it was easy for him to talk to him. He tried to convince that CEO that it was crucial for the mobile application to go live as soon as possible, because other companies were close to launching something similar. Thus, he convinced the CEO that it was necessary to go on with the development in order to be first on the market.

Another reason why the department was able to continue the development of the mobile application was that it did not depend entirely on other departments, because they had developed a search engine for online betting before and could use parts of it at the 'back-end' of their application. Normally, this would have been the task of another department.

> One of the projects that we had worked on before was a mobile search interface on the whole live betting and this was really great for the back-end use for our apps. This meant that we had the front-end apps, but also the back-end in our own hands at the time

when we went live. We were four people and had the front-end and back-end fully in our hands. And that was a huge bonus. We would not have been able to release [the app] and would have had to initiate a whole process with the architecture department, they then would have provided for us the services. In that case, it probably wouldn't have been possible. (Developer B)

Overall, the development and especially the launch of the application did not follow the formal procedures, which are specified by the corporate venture guide, but were rather the result of an undefined process within the R&D department.

Initially, we worked very freely, but as the application was meant to go live we tried to familiarize ourselves with the processes with Martin's help. We would not have been able to do that if the product had not been so important. Because of that, we did not have to deal with all necessary requirements. (Developer A)

Although the development of the mobile application did not officially follow the five predefined stages of the venture process, the application had to fulfil the obligatory security and system requirements of Entertain Corp., as well as the strict requirements of Apple's 'iTunes' and 'Google Play'. Moreover, important and experienced customers of Entertain Corp.'s main product were invited to test the mobile application in order to satisfy all user needs.

Four weeks before the official release of the application, the R&D department moved from their former office to the so called 'engine room'. The 'engine room' is a huge office building where most of the developers have their offices. Compared to the beautiful, but old former office, this is much more modern although lacking elegance. During my time at Entertain Corp., I noticed that there was a kind of an antipathy or rivalry between the employees who worked in these two buildings. Those who worked in the 'engine room' claimed to be the real 'workers' who did the important hands-on work, whereas the employees who worked in the beautiful old office claimed to be the people 'who give the orders and spend the money' that they had been working so hard to earn. This had always been a problem for the R&D department because they had consistently been regarded as a privileged department spending relatively large sums of money. Moreover, the R&D department was physically located away from the developers of the other departments, so staff hardly had a chance to communicate directly with their colleagues – for example, by the coffee machine or in the elevator, for example.

Generally, there was already some cooperation. We then moved geographically closer. After the New Year we moved and were then officially no more R&D, but were renamed in mobile, touch, TV - mtv. And mobile touch TV officially consisted partly of us and the old mobile team, nevertheless the division of labour was, as before. They

116

took care especially of the old website and applications for the older mobile phones, while we had the smartphones. (Developer B)

After the R&D department moved to the so called 'engine room', the department was renamed, as stated above, and was joined by some new team members from the old mobile department. During that time the whole organization faced the prospect of reorganization, in view of a big merger with another company. As a consequence, the R&D department no longer reported directly to the CEOs, but to the head of 'Gaming & Customer Platform', who reported to the CCO, who in turn reported to the two CEOs.
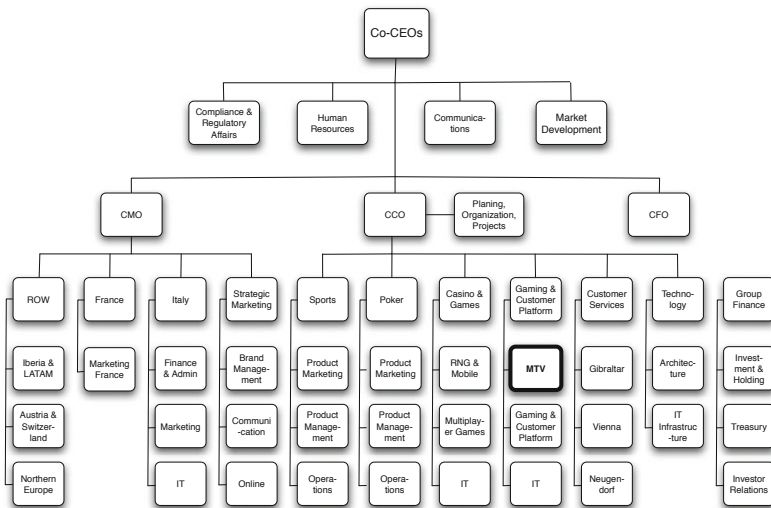
Figure 17: Organization chart, January 2011

This was an enormous change for the R&D department and was often discussed within the team after the restructuring. The R&D department as well as others at Entertain Corp. interpreted this downgrading as a consequence of the low output level of the R&D department, which had been struggling with most product developments, as already described. Moreover most of the team members thought it would only be a matter of time before their department was completely abolished.

Finally, in mid-January 2011, the iOS, as well as the Android application, 'went live'. Both were a great success and were downloaded about 10,000 times during the first week. In the following three months, the R&D, or rather the new MTV, department developed the application

further, although the team was not really happy about this task, because they more in favour of looking for new challenging projects.

> Yes, we continued to take care of the development, which we didn't like that much because we did not want to continue with these apps forever; we were actually an R&D department. We wanted to hand over the service, and we managed it later on. The company then bought another company, which employed developers who took over maintenance. Mark took over the coordination of this team. (Developer)

During this period the head of the MTV department, was promoted to the newly created position of Art Director. In this job he is now responsible for all issues related to artwork, design and corporate identity. The rest of the team gradually left the company during 2011. Only Mark, the product developer, who had been responsible for the development of the first iOS application, is still at Entertain Corp. and now the head of the mobile applications department.

5 The organizational memory function at Entertain Corp.

Having outlined the theoretical framework and conceptualization of organizational memory from a social systems-theoretical perspective (which highlights the functional capacities of social memory in the context of organizations), I will now draw selectively on the field study, which forms the basis of this thesis, in order to illustrate and re-examine the concept of organizational memory. First, I would like to illustrate empirically the role that decisions and decision premises play in the context of organizational memory as a function. Second, I would like to analyse how the case organization dealt with the contingency of decision premises.

5.1 Decisions and the organizational memory function

In this subsection, the role of decisions, which are largely taken for granted, is illustrated in the context of the organizational memory function. The focus is not on why these decisions have been made, but rather on how they have been made, because 'the organizational memory does not remember *why* something has been decided, but rather how it has been decided' (Luhmann, 2006: 154; own translation; emphasis by the author). The illustration is mainly based on *Subsection 4.4.3.1*, where the decisions of the mobile and the R&D departments were presented and contrasted. Whereas the mobile department was not able to decide whether it should develop a new mobile application or not, the R&D department decided to develop new mobile applications, even though the R&D staff had no experience in developing iOS or Android applications. As *Subsection 3.2* shows, decisions form the core of the memory function, not only because they are the elementary operations of organizations, but also because of their role in the temporal context of organizations. Decisions derive the 'historical state' of a system; i.e. the starting point for every subsequent operation, and thereby define the current reality of the system. Moreover, present operations frame the future possibilities of ensuing operations and thereby link the past with the present and future states of the organization.

The vignette presented in *Paragraph 4.4.3.1* demonstrates the role of communicated decisions in the context of time and the decision's fundamental role in the organizational memory function. The surprise at the fact that the formal mobile department had not been in charge of developing a mobile application for iOS or Android illustrates how past decisions affect present decision-making in the organization in general and the mobile department in particular. The following citation shows that the department had been aware of the need to develop such applications, but did not act on it.

> There was certainly the idea to do something like that. There are always people who know what to do; the problem is that it is difficult to come to the decision 'we simply do that now, put it on a roadmap'. (Developer B)

The department did not act on the decision to develop new mobile applications and instead stuck to the former decision to develop and improve mobile applications for other, already obsolete operating systems predating iPhone and Android. This shows how a former decision, in this case the decision to develop and maintain mobile applications for a certain type of mobiles, guides subsequent decisions and complicates other possible decisions. The previous decision demands the capacities of the department, such as maintaining the old mobile applications and neglects on the basis of this the actualization of an alternative, such issues as the development of new mobile applications. As it is always the marked alternative of a decision that informs and is used as the basis for every subsequent decision, the department is also informed how the organization or department was operating in the past. On the basis of the marked alternative, the former decision predefines possible distinctions that guide subsequent decision-making and thus raises the possibility of certain alternatives while rejecting others. In the case of Entertain Corp., the development of new mobile applications for new and highly promising operating systems is juxtaposed to the marked alternative of maintaining the old applications and is due to capacity reasons neglected. Of course, it would be possible to choose another alternative, but marking another alternative would call for complex subsequent decisions, as the development of new applications is not at all easy. By sticking to the previous marked alternative, the department rejects the possible alternative of developing an iOS or Android mobile application and thereby reduces the complexity of decision-making as well as the risk of failing (Luhmann, 2006; March & Olsen, 1975). Simultaneously, the decision marks a certain set of distinctions that have led to the marked alternative, rather than another such set, and informs subsequent decision-making. In order to reduce the complexity of decision-making, in most cases these underlying distinctions are taken into consideration in subsequent deci-

sions and therewith foster the consistency of subsequent decisions (Luhmann, 2008).

The vignette illustrates how the mobile and the R&D department constructs different realities and as a consequence decides differently on the development of new mobile applications. At the same time, given that a determined future would not call for a decision, since indeterminacy is the factor that calls for a decision, every decision refers to a previous decision, which marks out a specific alternative and not another one. In the case of the mobile department, the decision to develop certain mobile devices influenced all subsequent decisions.

> Well before the current trend of iPhones and then Android started in 2007, there were already 800 different devices and each device had its own infrastructure. Since these feature phones had their own technology, they were incompatible with each other. The Mobile Division was feverishly busy in this mobile world to provide customers with all kinds of sports-betting opportunities. (Developer B)

Every one of these different technical infrastructures is the result of an explicit decision. This example illustrates how the mobile department marked certain alternatives in the form of 'infrastructures' and ignored others in order to release capacities that would enable it to focus on the chosen alternative. Moreover, each selected infrastructure marked the starting point of every subsequent decision and therewith defined the historic state in the moment the decision was made. By referring to previous decisions, as for example that of developing devices for older mobile phones, the department was confronted with its former conditions, reasons, or rather distinctions, which had led to these decisions and not to other ones. The decision defined by the marked alternative in the difference to its unmarked or neglected alternatives confronts the current decision-making of the mobile department on the one hand with past and on the other hand with possible future alternatives, like for example to develop applications for the new smartphones running Android or iOS. This enables the department to observe its current situation, or rather reality, on the basis of the differentiation between its former, current and possible future conditions. In the case of the mobile department, this means that the department is confronted with past alternatives, such as the various old technical infrastructures, but also with possible future alternatives, such as the development of applications for Apple's iOS. Due to this confrontation the department is able to realize its actual world or reality in differentiation to its past and possible future. Thereby the department identifies itself in the difference between its former as well as its possible future alternatives and realizes that there is certainly a need for a new mobile application, but is at the same time it is captured within its own reality, which is concerned with the maintenance of existing but outdated mobile features. In our example, it is striking that in

contrast to the mobile department, the R&D department seems to use different distinctions for observing, judging and selecting alternatives and therewith constructs a different reality. The department appears to have recognized a pressing need for a new mobile application and decided to develop some in response. How can such differences in decision-making be explained? In contrast to the mobile department, the R&D department bases its decision-making on different expectations, because it was founded in order to develop new products and to intentionally take the risk of failure. This willingness to take risk, for example, leads to a different judgement of alternatives and is finally part of the decision that initially led to the foundation of the R&D department.

> Initially, the department was founded to develop totally independently and without any external pressure entirely new products. In the first few years, we were quite free and have made quite a broad spectrum. The degree of freedom has always been further reduced. (Developer A)

This indicates that the actual world is observed on the basis of different distinctions – for example, innovativeness (R&D department) vs maintenance (mobile department) or willingness to take risk (R&D department) vs. risk-averseness (mobile department) – which are derived from past and possible future decisions. Of course, these two departments observe and construct their realities on the basis of many other distinctions, but it is not possible to list them all. Nevertheless, this circumstance questions the idea of a holistic organizational memory and leads us to the question of whether there are multiple memory functions within a single organization and of how these functions are integrated. Other concepts of organizational memory focus mostly on the organizational level of memory and ignore other levels of memory in the organization (e.g. Moorman & Miner, 1997, 1998; Ozorhon et al., 2005; Rowlinson et al., 2010; Spender, 1996; Stein, 1995; Walsh & Ungson, 1991). I would like to come back to this observation in more detail later.

On the level of decisions it can also be illustrated how the organizational memory function is dealing with remembering and forgetting. As already described in *Subsection 3.2*, the memory function discriminates between remembering and forgetting. The fact that the mobile department decided not to develop new mobile applications based on iOS or Android fixed the contingency of possible alternatives on the one hand and opened up the contingency of all other possible alternatives on the other. By choosing certain alternatives (in the case of the mobile department, the different technical 'infrastructures' and not other ones), the department fixed the contingency and marked certain alternatives. Based on this decision, the department engaged in the maintenance of these infrastructures and rejected all other infrastructures for the moment. By

maintaining these infrastructures it actualized them and neglected others. Thereby it released certain capacities that were necessary for realizing this decision, because the department would not have been able to actualize, or rather deal with, all possible technical infrastructures. In this sense, the department remembers the actualized and forgets the rejected infrastructures for the moment in which it deals with them (Luhmann, 1997: 365). The decision thereby mediates between remembering and forgetting in order to free up certain capacities, as described above. That doesn't mean that the other alternatives are forgotten in the sense that they are lost and can never be actualized. They are always on the other side of the marked line of the decision. Nevertheless, they could be remembered or marked at a later point in time, whenever the department decides to develop such new applications, or not (Luhmann, 1997: 365).

In contrast to the mobile department, the R&D department decided to develop new mobile applications for iOS and Android, although they were not responsible for mobile devices and had no experience in developing such applications. When the head of the R&D department decided to 'just go ahead and do it' (Developer B), he marked a difficult and uncertain alternative from the totality of possible alternatives. Thereby he temporarily fixed the contingency of alternatives. Convinced that there was a need for these new applications, but at the same time inexperienced in developing them, this decision marked the present state of the department and provided new distinctions for upcoming decisions. It is this marked side of the possible alternatives that is actualized or remembered and guides ensuing operations and thereby interrelates past with present and future operations. In this case, one alternative from among all possible alternatives is remembered and all the others are in a sense forgotten, or at least ignored for the moment. The unmarked alternatives do not play a role within the following operational process in order to enable a successful execution of the decision. If other alternatives play still a crucial role a decision has not been made or it might be an apparent decision. In other words, the decision from the former example mediated between remembering and forgetting by the actualizing of some specific alternatives and freeing up capacities that were required to deal with the marked alternative, or rather the development of new mobile applications. It is interesting to observe how decisions – in this case the decision to develop new mobile applications – contribute to the understanding of itself as an R&D department by marking the difference between the mobile department, which had not actualized the alternative of developing such applications, and the R&D department, which decided to do it, although there have been other and may be even more fruitful alternatives. Moreover, that decision created temporary structures that enabled the R&D department to select consistent ensuing decisions on the issue of developing a new application and at the same time limited the connecti-

vity of their subsequent operations, as not all possible alternative operations would be consistent with the decision made and would therefore be refused by the department (Luhmann, 2012: 18). These structures guided, in turn, the current observations and were therefore responsible for the actual construction of the department's reality.

The previous paragraph illustrates that decisions lie at, or form, the core of the organizational memory function. Decisions define the historical state from which the organization starts anew at every moment. Both the mobile department and the R&D department rely on former decisions within the present state and refer to the pre-given distinctions, which are indicated by the former decisions. With the help of the indicated distinctions, each department is able to observe itself and thereby construct its own reality. The mobile department observed itself and thereby its environment and constructed a reality in which the need for new mobile applications is given, but which did not seem to be consistent with the department's previous decisions to develop and maintain other mobile applications. In contrast, the R&D department constructed a reality based on former decisions indicating their innovativeness as well as the willingness to take risks. For the R&D department the risk of developing new mobile applications seems to be crucial for the success of Entertain Corp., whereas the mobile department rejects this option due to the high risk and efforts involved. The examples show that decisions and their indicated distinctions guarantee that subsequent decisions are consistent with the previous decisions. At the same time, decisions mediate between what is remembered and what is forgotten in order to guarantee free capacities for processing other subsequent decisions. The mobile department, for example, neglects the option of developing new mobile applications on the one hand, due to the inconsistency of this alternative to their former decisions, and on the other hand to set capacities free in order deal with the development and maintenance of other applications.

5.2 Decision premises and the organizational memory function

As *Subsection 5.1* indicated, every decision serves as a premise for a subsequent decision. Nevertheless, the organization develops certain decision premises over time that become institutionalized. These decision premises could be the result of active decision-making (e.g. decisions on formal rules and hierarchical structures) or might evolve over time (e.g. shared values or basic assumptions that are not the result of active decision-making). All decision premises define the decision situation 'by creating a particular decision situation and not a different one' (Seidl & Becker, 2005: 42). In this respect, decision premises constitute the internal structures or the 'self-organization' (Luhmann, 2012: 50) of the organiza-

tion and therefore seem to play an important role in the organizational memory function: 'memory, then, is just another word for 'enhanced inner organisation', which enables a system to draw inductive conclusions from past events on future events' (Baecker, 1987: 520; own translation). Building on this theoretical setting I would like to reinforce empirically that decision premises play an important role in the context of the organizational memory function. In the following I intend to illustrate the role of premises for the organizational memory function with the help of the vignettes presented in *Subsection 4.4*, with respect to each of the decision premises that Luhmann defined: (1) programmes, (2) communication channels, (3) personnel, (4) organizational culture and (5) cognitive routines (Luhmann, 2006: 222).

Programmes. The most common decision premises are programmes. Numerous programmes exist at Entertain Corp., defining certain goals for a specific project or product, for example.

> "Our goal is to develop a growth potential of 10-20 % with the help of this application." (Developer A)

Numerous other programmes exist at Entertain Corp., defining the terms and conditions under which decision-making, and therewith communication, takes place:

> If it is an investment of more than 20,000 Euros the CFO has to decide, but, before, that I can decide within my budget. (Affiliate Manager)

Or:

> The venture process, [...] had five stages and [...] if you want to pass from one stage to the next one, there is actually something like a gate and with this gate you have to deliver certain kind of things. (Marketing Manager)

These examples illustrate a typical conditional programme: if this happens, we do that. Entertain Corp. (see *Subsection 4.4.1.2*) regulates its investments in new ventures on the basis of the so-called 'venture process'. These formal process structures set clear requirements within each stage of the process for realizing the final objects of the individual investment. Programmes of this type enable the organization to reduce the uncertainty of decision-making in a general and preferred way by introducing fixed distinctions under which a decision is going to be made or rejected. In the example of the venture process, the requirements for a venture are fixed distinctions, which allow a passing of the five venture stages. For example, to set up a venture process requires an 'effort of more than 30 person days' (Corporate Venture Guide 2008). Or fulfils all requirements of the first 'Idea Screening' stage of the venture, such as 'Check if venture

fits into product strategy / roadmap', or not? If yes, this specific venture can move to the next step. If not, the venture is neglected or has to improve and rework the relevant requirements.

The venture process illustrated in *Subsection 4.4.1.2* exemplifies the role of programmes in the context of the organizational memory function. The venture process was implemented due to the enhanced environmental and internal complexity of Entertain Corp. and is finally the result of previous decision-making. It has been designed to reduce the complexity of the fast growing organization and to focus on the important as well as promising product developments.

> "The venture process, which we implemented during our years of growth, has been the best tool to focus, to focus and to get rid of all disturbing noise, which hindered us to get things done effectively." (Operations Manager)

Each decision communicates the chosen alternative as well as the rejected alternatives and thereby mediates between remembering and forgetting. The chosen alternative fosters remembering of a certain 'idea' or 'investigation' for example, and favours forgetting other 'ideas', which have been 'killed' or dismissed by the stakeholders of the venture process. The so called venture stage 'Preliminary Investigation', for example, and its predefined requirements provides the necessary information, like a description of the idea in general, a fit for the internal 'strategy / roadmap', the 'business goals' of this 'idea' as well as an 'action plan' for the following stage, in order to decide and communicate further decisions. In consequence, every 'killed' development idea releases capacities that the organization needs in order to focus on the chosen or remembered alternative, as the organization would not be able to handle all possible alternatives. All other alternatives are marked as forgotten, although it can be that these alternatives are remembered in a later point in time. Nevertheless, to realize the chosen alternative all the other possible alternatives are excluded for the moment and marked as forgotten.

In addition, the venture process and the four 'gates' ensure the consistency of the communication process. Each decision to 'pass' or 'kill' an alternative is based on the criteria that are defined by the venture process and each of its stages. In order to pass from the 'Detailed Investigation' stage to the 'Production' stage, for example, it is necessary to make a 'careful evaluation of the benefits and costs in order to identify all possible problem issues that are liable to have an impact on the business case' (Corporate Venture Guide 2008). As a consequence a new venture must thus fulfil predefined requirements like 'Define action plan with resource estimation for the next stage 'production' (Corporate Venture Guide 2008). Thereby Entertain Corp. predefines how and on what basis decisions are made. This guarantees the consistency of ensuing decisions with

decisions already made. In this sense, the organization remembers its previous decisions as and criteria for decision-making. Of course, there are circumstances in which predefined programmes are neglected – for example, the new mobile applications were produced without fulfilling the requirements of the official venture process. In such cases, the organization questions the predefined decision premise. The example shows that this is not possible for every venture, considering that it was difficult for the R&D department to develop new mobile applications without setting up a venture process. In that case, the R&D department worked on forgetting the predefined requirements and challenged the organization to deal with this exceptional situation.

Programmes do not merely mediate between remembering and forgetting or control the consistency of possible decisions, or rather possible alternatives. They also influence the construction of the organization's reality. Entertain Corp.'s 'Corporate Venture Guide' clearly illustrates this. The venture guide defines exactly which projects at Entertain Corp. should follow the venture guide and which should not:

> A ventures is the new development or major enhancement of a product or product support facility (all activities in all departments), involves an overall effort of more than 30 person days, follows our defined chain of stages and [GATES] (=venture process). (Corporate Venture Guide 2008)

Only developments leading to major improvements and requiring 'more than 30 person days' (Corporate Venture Guide 2008) are regarded as ventures and must follow the official venture process. The organization predefines its own decision-making by this means and provides distinctions on the basis of which the organization observes itself, its alternatives and ultimately its environment. With the help of these predefined distinctions, the organization observes and therefore experiences its reality in the context of new projects and developments. If a project can be defined as a venture, it is prioritized over other projects that are not designated as ventures. In the context of the development of the new mobile applications, this meant that, with the exception of the R&D department, the rest of the organization regarded this project as unimportant, because the R&D department avoided the setting up of an official venture. The other departments involved (i.e. the mobile and the sports department) had a different perspective on the relevance of the venture. They avoided dealing with the reasons for which the R&D department had refused to apply the venture process and classified the R&D project as irrelevant (see *Subsection 4.4.3.2*). This example illustrates on the one hand the differences in the experience of reality and on the other hand emphasizes how predefined distinctions, in the form of programmes in

general and of the venture process in particular, influence this experience of reality.

Personnel. Another type of decision premises that seem to be significant for the organizational memory function are decisions on organizational membership and staff. I would like to illustrate this decision premise primarily with the vignette on the R&D department and their decision to develop new mobile applications (see *Subsections 4.4.2* and *4.4.3.1*). Membership selection is regarded as critical for dealing with future challenges and realizing strategic goals in organizations (e.g. Barber, 1998; Bolander & Sandberg, 2013; Sears, 2003). Decisions that concern an organization's personnel anticipate the future decision-making abilities of the organization's employees in respect of future challenges that the organization will have to meet. For that reason, human resource managers refer to certain skills or requirements an employee must fulfil in order to deal with the requirements that a certain position entails and future challenges might demand. At Entertain Corp., these skills were mostly summarized as 'entrepreneurial'.

> What they also did very well was their selection of people, because what they did was that theyto focused very much on entrepreneurial people, which not only followed what the CEOs directed, but also had comprised their own directional pushing into directions. (Marketing Manager)

Whenever Entertain Corp. hired or promoted employees, human resource management was driven by several premises. One of the underlying demands that drove most of the job talks or promotion processes was that applicants should have an entrepreneurial spirit. In their understanding of the term, this means that employees should be active, confident, well-educated, problem-oriented and driven by the performance of Entertain Corp. In addition, there were other important characteristics and skills an employee had to possess:

> Entertain Corp. is very young because it is so much defined by technological factors and imperatives which are driving the company and human resources always took very young and ambitious people coming from the universities and having the right skill set. [...] I would say that the average Entertain Corp. employee is highly educated and most probably has an academic degree. In most cases, she or he is interested in technology or has studied something to do with economics and technology or IT'. (R&D Manager)

At Entertain Corp., two-thirds of the employees have an IT background, as technology is central to the company and must be maintained or further developed. Most of the remaining employees have a business or finance background. The average age is around 35 years. The employees divide themselves into two camps: 'the IT guys' and 'the businessmen'. This differentiation came to light whenever there was a conflict between

these two camps – for example in the project on the development of new mobile applications. In that case, the marketing department questioned the value of the new mobile applications and refused to advertise the new applications properly due to budget restrictions. During the internal meetings of the R&D team, this refusal has been explained by stating 'the business people don't get it' (Developer B) and do not understand the relevance of the new applications. Whereas departments like the marketing department, the finance department and the legal department prefer business and legal related arguments, other departments, like the mobile and the security departments, prefer a technological approach.

The example described above illustrates the importance of staff decisions, which have a tremendous impact on the company's success and ability to deal with future changes. Furthermore the example illustrates how an organization mediates between remembering and forgetting. Starting from the fact that employees make a difference to the organization and define its abilities and characteristics, one can conclude that organizations or departments with employees from different backgrounds decide differently on the same or similar issues, as in the described example (Barber, 1998; Sears, 2003). The marketing department and the R&D department have different opinions on the impact of new mobile applications. Opinions are influenced by issues of power and responsibility as well as by the different backgrounds of a team's members. The marketing department puts forward business and market-related arguments, because most of this department's staff studied business or related subjects, whereas the mobile department refers to the technical aspects of the same problem, because most of the staff has a computer-science background. In the case of the R&D department, whose members have diverse backgrounds, in IT, business development or in the arts, the arguments put forward are as diverse as those backgrounds. Similarly, the members of the legal department would argue in a completely different way, focusing their arguments more on the legal issues and requirements that concern new mobile applications. This shows how past decisions on employees influence present and future decision-making in organizations and how the same issues are interpreted differently by different people. Decisions on employees influence the future characteristics and abilities of organizations. Staff decisions influence what kind of distinctions or arguments are important in an organization. In the previous example past decisions on personnel mediate today between actualizing or remembering the technical aspects of the new applications and the forgetting of business aspects. The technical departments release capacities in order to focus more on the technical aspects of their work, whereas the business-driven departments release capacities in order to focus on the business aspects of their work.

This shows that decisions on personnel have a significant impact on the consistency of operations within organizations. Which operations constitute an organization or not is highly influenced by the organizational members and their characters, individual motives, as well professional experience and education (Delaney & Huselid, 1996; Luhmann, 2006). A successful human resources department is the key to the organizational memory function and the organization's ability to check the consistency of its own operations, as it tries to anticipate the future decision-making of the potential future organizational members as well as the future challenges these members will have to deal with. For example, the mobile department decided not to develop a new mobile application because they focused mainly on the technical aspects of such projects and considered that project as too time-consuming, considering their daily business of maintaining conventional mobile applications. Their decision-making could be described as pragmatic. In contrast, the diverse R&D department, which consisted of media artists, computer scientists and business developers, had a completely different perspective on the development of a new mobile application. Whereas the mobile department regarded those decisions to be consistent, which would not interrupt their current operations, the R&D department focused first of all on the technical relevance of a new mobile application. Both departments preferred alternatives, which were consistent with their own characteristics and previous decisions. The previous example illustrates the role of personnel in the consistency of operations within organizations. Like decisions on programmes individuals regulate the organization and its potential operations.

Similar to the role of personnel in the context of the consistence of operations, the organization's reality is greatly influenced by its members and their backgrounds. The different perceptions of the same issue, such as the development of new mobile applications, illustrate that different members have a distinct worldview and construct individual realities.

> As a technical person, I find that our website is built horribly; I don't like any of it and I think that the iPhone application, for example, is not really what we need. It is only a matter of time – we will have to develop, or fairly further develop, a browser-based mobile version of our main page. (Engineering Manager)

According to our example, on the one hand, there are the mobile and technology departments that refuse to develop a new mobile application due to their technical backgrounds and of course due to other reasons, such as lack of time, different priorities or political issues. On the other hand, the diverse R&D department also deals with similar concerns, but prioritizes the relevance of and the need for a new iPhone and Android application completely differently.

> Even though we all had very different views about the application, we finally decided to develop it. Initially, opinions differed greatly. Peter was convinced that the market was waiting for this app, while Mark still hesitated. For him it was more a design challenge and just wanted to develop this app for fun or because of the challenge. (Developer B)

This different perspective is not necessarily predetermined due to their status of being the R&D department with a more flexible scope of duties, but arises due to their diverse backgrounds, education and skills of the people, which allowed the R&D department to realize the tremendous need for new smartphone mobile applications on the one hand, and to accept the challenge of developing the world's first online betting application on the other. Different realities are constructed based on their different priorities and capabilities in observing the world and finally lead to different perspectives on the same issue.

Communication channels. These decision premises are related to how organizations are organized, so to speak, and define how decisions are legitimated and accepted within organizations (Luhmann, 2006: 302). In this sense, communication channels are synonymous with the general idea of the hierarchical coordination of decisions.

> Basically, it depends on your position, but let's pretend you are the product manager who wants to push the product. First of all you make an evaluation. Then you go to your manager – in this case, for instance, you probably go to Mike and tell him, that's the product I want to push, and you ask him whether he could help you. If he likes your idea and agrees, the product manager is given the task of integrating his product. (Marketing Manager)

The quote shows that communication channels connect and coordinate decisions with decisions and therefore enable the communicative process of decision-making. By facilitating communication channels an organization is able to allow certain communications and deny others. Not everybody is able or allowed to talk to everybody else due to different hierarchical levels, for example. This can help to handle the complexity of an organization. In order to handle its own complexity, the design of communication channels of an organization addresses questions like: who is in a position to decide and to give instructions? Who is able to present alternatives to whom? What kind of decision criteria must be considered? Marking communication channels enables organizations to observe and to handle their own complexity. Decisions about positions, hierarchies, competencies, processes, responsibilities or division of labour are just a few examples of communication channels. Nevertheless, the communication channels do not enable the organization to control its own complexity, but rather help it observe and describe itself on an operational level and therewith to handle and realize its own complexity (Luhmann, 2006: 306).

In the context of Entertain Corp. and the organizational memory function, communication channels play an important role in the mediation between remembering and forgetting. Organization charts typically capture the official paths of communication. Of course, there are unofficial ways of communicating decisions with the help of informal networks, but I would like to leave these out for a moment to focus on the formal and official ways of communicating decisions within an organization. The official ways of communicating decisions say a lot about the organization. For example, a divisional organization that is differentiated by products a, b and c is designed to focus on its different products and their markets and subordinates all the required tasks in order to produce these products. In this case the focus is obviously on the different products and not on marketing, for example. A contrasting example would be that of a functional organization that is differentiated according to its functions – for example, buying, production and marketing. These kinds of organizations often produce only one product or relatively homogenous products and focus more on specializing individual functions, such as production and marketing. These are the classic ways of differentiating tasks within organizations, which must then be integrated by hierarchies or programmes, for example. In each case, the decisions on how to differentiate and integrate the organization mediate between what is remembered and what is marked to forget. For example, Entertain Corp. was characterized by various functions: 'regulated markets', 'marketing', 'communications', 'operations', 'technology' and 'finance'. In addition, the organization had several units: 'Legal Affairs and Business Development', 'Business Development Latin America' 'Business Development Europe', 'Business Development Asia', 'Regulatory Affair EU and Special Projects' and 'Research and Development' (see *Figure 16*). This organization chart reflects the challenges the company faced at the time. On the one hand, the organization focused its efforts on the different functions in order, for example to maintain the operative business with the help of operations, communications or finance. On the other hand, the large number of staff units also reflects the different challenges and changes that the business model of Entertain Corp. faced in terms of regulations. In response, the co-CEOs installed several staff units that would deal with the various challenges in different markets, like Asia or the European Union. In order to focus these challenges the organization neglected a divisional differentiation directing the different products, such as online sports bets, online poker or online games, and focused on these challenges rather with the help of their functional organization. With regard to this, the communication channels actively mediated between actualizing and remembering the daily operations, like operations and finance, and the different market challenges and at the same time disregarding or forgetting the different types of products and their special needs in order to free up capacities for

the former. Who communicates with whom and which decisions are legitimated according to the communication channels influences the organization's ability to remember certain aspects and to forget others?

As already mentioned in the previous paragraph, apart from the official communication channels there are also so-called 'hidden networks' within organizations (Cross & Parker, 2004). Hidden networks describe communication pathways that are not marked on the organization chart and are therefore hidden behind official communication channels. Often these networks consist of a group of organizational members and have great impact on the decision-making process. At Entertain Corp. the strongest such 'hidden' network I observed had grown around the two co-CEOs. Most of its members had been with the company from the beginning or were at least part of a kind of inner circle that had exerted a strong influence on the company's success in the first to the fifth years of Entertain Corp.

> Yes, these people talk to each other slightly differently than to other employees, who joined the group later on, but it's not a political clique. It turned out that in problematic situations, when we had a crisis, that group, together with some people who joined the company before 2004, I would say have created a backbone to steer the group and provide crisis management; so this group is always good to rely on. (Treasury Manager)

In contrast to what this interview excerpt describes, during my fieldwork as well as during informal talks with R&D staff, I observed that this network played an important role whenever it came to conflicts within the company. One example I would like to focus on in this section is the development of the mobile application. One of the members of this 'hidden' network, the head of the R&D department, who had a good relationship with one of the CEOs, was able to talk directly to the CEO whenever he and his team were struggling with the internal processes, specifically the venture process, in order to have new developments legitimised. This did not always help them and the head of the R&D department did not take advantage of this relationship if he was not fully convinced that the new product should be developed, but in the case of the iPhone and Android applications he tried to convince the CEO, as well as others, to support him and his team to launch the application. The head of the R&D department met several times with one of the CEOs to present to him the latest improvements in order to convince the CEO about the new mobile applications. This happened at a time when the R&D department was facing political struggles within the company and had difficulties legitimating the development of new products because they did not follow the official venture guide (see *Subsection 4.4.3.2*). With the help of the CEO and another former R&D manager, who had recently been promoted, the head of the R&D department and his team had been able to compensate for the missing venture process with their powerful position within the

organization. Both the CEO and the former R&D manager pushed the R&D department's development project and convinced the departments opposing it that the development of the new mobile application would have to be completed by the R&D department. In this case, the CEO in particular enabled the forgetting of the official processes of the organization. Probably no-one else within the company would have been able to promote the development of new products so easily without referring to the official venture guide. It was thanks to his power that he legitimated projects and informed the organization that at this point there would be no need for applying the official method of implementing and communicating projects. The departments affected could thus concentrate on developing their products and ignore the official processes for the sake of speed and efficiency.

Furthermore the channels of communication define whether decisions are consistent with previous decisions or not. The communication channels connect one decision with another one and thereby legitimate later decisions, insofar as they are consistent with way they have been communicated. Decisions, which are not communicated within the official communication channels, lack legitimacy and are neglected for most of the time. The most obvious practical example of this would be the case of a decision that is communicated by a middle manager to a top manager. The top manager would ignore the decision, because he or she only complies with decisions from higher hierarchical levels. Communication channels remember which decision can be addressed to whom and who must respond or not respond to a decision. By establishing specific positions, an organization enables itself and its members to communicate the right decision to the people in the right position, who are responsible for a certain task. The Entertain Corp. organizational chart clearly defines who is responsible for what. For example, the 'finance' department is responsible for all financial issues. Its responsibilities are then further divided between 'corporate accounting', 'corporate controlling' and 'corporate procurement' and inform the organization to whom they could address their individual issues. Decisions that are not consistent with the official communication channels are normally neither processed nor followed. For example, this is what happened with the iPhone application at the beginning, when it had not been communicated via the venture process. The R&D department at Entertain Corp. has no direct influence on the other departments, such as the technology department, which would be in charge of integrating the new mobile application within the technical system of Entertain Corp. This is why the 'Venture Guide' has been established: to legitimate decisions that are not directly legitimated via communication channels. From the perspective of the R&D department this appears to be frustrating, because they refuse to follow the time-consuming venture process and therefore have no direct influence

on the other departments that are involved in launching the R&D's mobile applications. From the perspective of the other departments, these predefined communication channels are necessary in order to mark communicated decisions as consistent, or rather as legitimate, and others as irrelevant. Otherwise the individual departments or positions would face an overload of communication and that would lead to a communication breakdown and thus possibly to the breakdown of the autopoiesis of communicated decisions.

As we have seen, the coordination of communication, or what Luhmann (Luhmann, 2006) calls the 'communication channels', enables the organization to mediate between remembering and forgetting and to control its own complexity by marking decisions as consistent or inconsistent within the ongoing process of decision-making. In the case of Entertain Corp. the official communication channels help the departments control the complexity of possible communications. At the same time, communication channels enhance the ability of making sense of the organization's own decisions and communication processes by marking possible decisions, which have been communicated via formal communication pathways, and impossible ones, which have been communicated differently; for example via informal networks. Plausible decisions are marked on the basis of how they are communicated and through this enhance the possibility of making sense of the organization's own elements, the decisions. In the case of Entertain Corp., the organization chart informs the R&D department to whom they must talk in order to get help with the implementation of their new mobile applications. The head of the R&D department knows that he has to address the 'operations' and 'technology' departments for technical issues and the 'communications' and 'marketing' departments for advertising issues and not the legal department for his issues. At the same time, he knows that he needs the support of his informal network in order to deal with political issues successfully, as the R&D department is not in a position to decide whether the 'operations' or 'technology' departments have to help him, especially if he has neglected the official guidelines, such as the venture process for example. An organization is able to observe itself and its possible communication facilities through its communication channels. The individual departments and positions are able to make sense of previous decisions, as only relevant decisions have to be addressed and others can be ignored.

Organizational culture. In contrast to the previous decision premises – communication channels, personnel or programmes – the organization does not directly manage the organizational culture. Luhmann defines organizational culture as the 'complex of the undecidable decision premises' (Luhmann, 2006: 241; own translation), which refers to the indeterminacy of organizational cultures. Whereas decidable premises are the

answer to problems that could be actively solved by decisions, organizational culture is the answer to problems that cannot be addressed directly by the decision-makers of the organization (Luhmann, 2006: 241). Organizational cultures are regarded as the informal answer to the 'postmodern' developments of organizations such as for example 'enhanced structural flexibility', 'loss of control' or 'loose couplings' within organizations (Luhmann, 2006: 240). Furthermore, Luhmann denies the 'unity and consistence' of organizational culture and rather regards culture as a plurality of undecidable decision premises constituting the organizational cultures of an organization (Luhmann, 2006: 242). Finally, organizational cultures are represented by values, which are themselves based on the historical background of the organization (Luhmann, 2006: 244). These values link the past with the present, because they are the result of past decision-making and have great impact on the decision-making of the present. Organizational values are constituted anew every moment and with every new decision, which is itself based on the organization's history and values. At Entertain Corp., I investigated two prominent cultures, which could best be described respectively as a culture of entrepreneurial spirit and a culture of failure. The two of these cultures were not on an equally developed footing in all the Entertain Corp. departments while I conducted my fieldwork in the organization, but play an important role in the history of the company. During this period I observed (e.g. in meetings or during informal talks with organizational members) that failure was not something that staff were blamed for; rather positive connotations instead, which in turn was a connotation for taking the risk of failure in order to be successful.

> I know a lot people who fucked up hard not only once, but a couple of times and they are still with us, which is fine at one level, because it's a culture of failure that is important for making a learning organization. (Marketing Manager)

The quote illustrates the general attitude at Entertain Corp. towards failure in respect to the positive effects of learning. Failure is accepted as long as there are convincing reasons for failing and when people learn from it. Moreover, it is always regarded as a consequence of taking a risk that has been approved in order to improve a product, a business model or the organizational structure. This is where the 'entrepreneurial spirit' comes in: it prompts people to take calculated risks at the right time in order to increase the company's revenues and help the company be a first mover in the market.

> If you are improving the product, if you are investing in something else, it's always difficult to judge what triggered the improvement, would it have changed anyway. So this is about calculating the return on investing in a project. This is something very difficult and that's where also some kind of entrepreneurial thinking is needed – to say, okay,

we have to take the risk and to try it and hopefully it will pay off. (Customer Platform Manager)

The entrepreneurial culture and the culture of failure are strongly interrelated at Entertain Corp. Both are regarded as the core of the success story of Entertain Corp., which began as a small start-up and became one of the world's biggest online gaming companies. The success of the company goes back to the two founders of the company, who still embody the success story as well as the entrepreneurial risk-taking attitude of Entertain Corp.

> I think in the beginning there were many entrepreneurs, there was a clear vision from the founders. Also, the founders were here at the office and shared their vision. Not even shared but the vision was embedded in these two founders and they found some very straightforward technicians and marketing guys who drove the product actually with a very small and limited group sitting together in one room probably or in two or three rooms, that was the core idea. That's how the company thinks even now and this is the kind of the DNA. (IT Gaming Manager)

On the basis of the culture of failure and the interrelated culture of entrepreneurial spirit at Entertain Corp., I would like to illustrate the attributes of organizational cultures discussed. The organizational culture is – like everything else in organizations – the result of decisions that have been made in the past, but is itself undecidable. This means that past decisions lead both to the culture of failure and to the culture of entrepreneurial spirit, but the decisions were not actively made with the aim of implementing these cultures. Thus, organizational culture is the historical result of past decisions, the distillate of decision-making. The history of Entertain Corp., which was founded in the late 1990s and rose to become one of the most successful online gaming companies in the world, is ascribed to its entrepreneurial spirit, which was in turn credited to the two founders of Entertain Corp. This entrepreneurial spirit comes along with a risk-taking mentality to achieve, if possible, the maximum output. An example of this attitude would be the enormously expensive sponsorships for some of the most successful and famous sports clubs in the world as well as the obsession with market leadership. That risk-taking mentality did not always work out: for example, Entertain Corp. lost several millions of dollars when the company had to close down its US division due to new market regulations. Failures like this have led to the culture of failure and to the idea that in principle it is acceptable to fail if you want to be successful and a first mover. This culture is still driving the daily operations, or rather decisions, of the organization today and describes certain aspects of the organizational culture of Entertain Corp. At the same time, the organizational culture of Entertain Corp. has also been questioned. During my fieldwork, I explored the risk-

taking, entrepreneurial culture of failure that still existed at the time, but I experienced also a cultural change in the context of the further professionalization of the whole organization as well as a forthcoming merger with another company.

> In my opinion, there was a big shift in culture because the entrepreneurial spirit that possibly was there, now it's shifted into a much more business-like setting, which is very important for organizations which are big and growing. (Developer C)

At the end of my field stay at Entertain Corp. the organization was changing significantly due to the merger mentioned earlier, which caused major changes within the whole organization; such as for example a reorganization and a major change in personnel. I was already experiencing the first changes during my field stay, but in the following I would like to focus on the time before the merger had appeared over the horizon.

In the context of the organizational memory function, organizational culture plays an important role in most, if not in all, decisions. Organizational culture defines what is remembered over time and what is forgotten and thereby mediates between remembering and forgetting. Organizational culture and its derived values are the distillate of past decision-making. These values are used by the organization in its present state to check which alternatives are in line with previous decisions of the organization and which are not. These values inform the present organization how a decision would have looked in the past and thereby guide the decision-making process. Choosing an alternative that goes against the organizational values is still possible, but time-consuming and costly, because it is necessary to develop arguments that justify such alternatives. Interestingly organizational culture and therewith organizational values occasionally mark decisions as possible although the official organization with its pre-given communication channels, hierarchies, programmes and personnel would argue that the decision is not consistent with the organization. An example of this would be the decision of the R&D department to develop new mobile applications without having set up a venture process, although they knew they would face difficulties with the rest of the organization by doing so. The R&D department's culture is more driven by risk-taking and an entrepreneurial spirit than the culture of other departments, which have already established further routines and processes and thereby forgotten the risk-taking culture of Entertain Corp. In contrast, the R&D department has been driven by the risk-taking and entrepreneurial spirit and thereby forgotten about the official procedures and guidelines. The department freed up capacities that enabled it to forget the standardized procedures and to develop the new mobile applications without these procedures. The fact that this led

to difficulties with the other departments highlights the role of organizational culture and values in the decision-making process and their mediating role between remembering and forgetting past decisions.

The previous example not only illustrates how organizational culture mediates between remembering and forgetting but also informs the organization whether possible alternatives are consistent with the previous decisions or not. Organizational culture, as the present distillate of past decision-making, guides the present process of choosing one alternative out of many alternatives in order to decide on a certain issue. The organizational culture questions the innovativeness of new developments and interrelates the risk with the probable outcome according to previous decisions, but at the same time supports risky decisions, because normally failure does not carry blame. In the case of the mobile applications, the R&D department decided to develop new iPhone and Android applications because the organizational culture allowed them to take the risk, given that the outcome promised to be innovative and profitable for the organization. Later on, when one of the CEOs pushed the project, this risk-taking entrepreneurial culture was affirmed and thereby strengthened within the whole organization. This example shows that organizational culture evaluates whether present alternatives are consistent or not with the values of the organization and thus with past decisions.

Furthermore, organizational culture plays an important role in the construction of an organization's reality. The organizational culture and the accumulated values are at the core of every decision. The organizational culture provides the organization with distinctions, such as risky vs. not risky or profitable vs. not profitable, on which basis the organization judges possible alternatives and finally chooses one alternative out of many. In this sense, the organizational culture informs the organization about past decision-making and influences the present construction of reality on the basis of past and remembered distinctions, which have been aggregated on the basis of past decisions. The R&D department's reality was constructed on the basis of the culture of failure and the entrepreneurial spirit. As described in *Subsection 4.4.2*, the R&D department has developed numerous unsuccessful products since it was founded. There were several reasons for this, these included the venture process itself, but is also the own demands to develop extraordinary and innovative products, which sometimes led to products that could not be aligned with the business model of Entertain Corp. This poor fit between the innovative R&D department and the rest of the organization shows that there are different distinctions guiding the observations of the different departments, which thereby lead to misunderstandings. Whereas the R&D assessed alternatives on the basis of the 'entrepreneurial spirit' culture, which allowed them to risk failure, the rest of the organization evaluated the R&D department's projects from a business-oriented perspec-

tive and on the basis of security standards and legal requirements. Finally, these different perspectives led to political conflicts about the development of the new mobile applications.

> This is really for older non-maintenance work, so everything that is new, so if a new mobile poker comes out, a new mobile sports, okay they will all go through this process, there is no exception. I know the R&D department is a little bit out of control sometimes but we will get them eventually. (Planning and Organization Manager)

This paragraph has illustrated how organizational culture influences the observation of the same issue and thereby has shown how reality is constructed differently within the same organization on the basis of different underlying distinctions for observing the world. Organizational culture is at the core of the organizational memory function, because it permanently provides the organization with distinctions from past decision-making. Organizational culture contributes to the organizational memory function by delivering certain distinctions and defines the basics on which the ongoing communication process takes place. Furthermore organizational culture illustrates how the organization is able to make sense of their present situation.

Cognitive routines. The last decision premise I would like to examine relates to cognitive routines. In contrast to the premises discussed earlier, cognitive routines are 'constructed from another-referential perspective' and 'refer to the way in which the environment is conceptualized by the organization' (Luhmann, 2006: 250; own translation). Examples of cognitive routines are the names of suppliers, delivery times or the way to contact suppliers or customers. At Entertain Corp. many cognitive routines go back to the regulatory environment.

> Another important thing is that whatever is decided is worth nothing the moment the revelation of the regulatory environment on the market changes and this happens sometimes from one day to the next almost in hours, and then all the decisions are worth a penny or nothing and then the whole company has to change the way it achieves its goals. (R&D Manager)

What this could look like is illustrated by the following citation:

> The regulatory requirements weren't there six years ago, so basically there was no law governing any kind of online gaming. It was, okay, do whatever you want. Now each country has its nice little what you have to do and this is a lot of effort, so this probably slows us down a lot, and you need a lot of people because you need an expert for the French market on how you have to encrypt data there, and it's completely different from every other country, and another country, Spain, they need everything in a printable way, nobody ever prints it but the law says you must be able to print your stuff. So you need these experts and this slows the whole thing down, so it's much slower than before. (Engineering Manager)

The business model of Entertain Corp. is strongly driven by regulations that refer to the laws of specific countries and have to be taken into account in every decision. These regulations generate, but may also restrict the decision situation 'by creating a particular decision situation and not a different one' (Seidl, 2005a: 405).

> Yes, we are driven by the regulatory environment. We are currently facing what I would describe as a regulatory tsunami. But it's something we have to cope with and there are a lot of questions that we have to deal with. (Compliance Manager)

Entertain Corp.'s decisions are greatly influenced by its environmental circumstances, which may include regulatory or technical issues. All decisions must take into account the applicable law, technical facilities and requirements of credit card companies for each country in which the company operates. Environmental circumstances influence processes and daily routines – one example are the requirements to encrypt data in a certain manner. Entertain Corp. is informed from its environment how this has to happen. To cope with these iterative requirements the organization develops certain routines in order to reduce its complexity.

Like the undecidable premise of organizational culture, cognitive routines are taken for granted. Cognitive routines are the result of daily decision-making and 'are forgotten, whenever they are no longer required' (Luhmann, 2006: 250; own translation). They define the expectations of the organization from its environment and thus frame the own scope for decision-making. According to the memory function, cognitive routines mirror the externalities of the organization within the organization and mark what has to be actualized, or rather remembered, from its environment and what can be forgotten. Cognitive routines enable decisions that would not have been possible without them and thereby mark the difference between remembering and forgetting. At Entertain Corp. there are many cognitive routines in the different departments. Several of these stem from the technical environmental conditions and the legal requirements of the different countries, which inform the organization about what is technically and legally possible and what not. The R&D department at Entertain Corp., for example, had to take for granted the operating systems of the iPhone and the Android mobiles. All decisions of the department on the development of the iPhone or Android application have been framed by the possibilities of the operating systems of the respective smartphone providers. Whenever the operating systems are enhanced and further developed, the old differentiation of possible and impossible changes and enhances the possible alternatives for the department and the development of the applications. At the same time, other alternatives vanish and are forgotten by the organization. As long as the operating system stays the same, the developers rely on the given

circumstances and develop their applications accordingly. Framing what is possible and what is not emphasizes some alternatives and neglects others and thereby defines what is to be remembered and what is forgotten.

By defining what is remembered and what is forgotten cognitive routines simultaneously inform the organization about what is consistent with previous decision-making. Although cognitive routines are 'constructed from another-referential perspective' (Luhmann, 2006: 250; own translation), they are part of the organization and thereby express how the individual organization abstracts its environment. The individual companies for example, experience the technical qualities of operating systems and the customer's characteristics differently. Young customers are addressed in a different manner than older ones; average customers are addressed in a different way than professional customers, and so forth. Due to this kind of environmental circumstances, the organization develops different strategies to address the individual customer. In this case, the organization constructs cognitive routines in order to develop decision situations coping with the individual customer characteristics and thereby define what is consistent with the organization and what is not consistent with the organizational decision-making. For example, the R&D department was informed by the operating system (OS) how developers adapt a native design to the features of the operating system. What was possible and what was not were defined by the operating system. The OS opens up the space for technical decisions and at the same time limits the possibilities according its own technical specifications. Only alternatives that have been consistent with the given possibilities of the operating system can be taken into consideration, as others have been utterly impossible. The constructed cognitive routines define the distinctions for observing itself and its environment and thereby enable to check whether decisions, or rather possible alternatives, are consistent with the past perception of the organizational environment in general and the operating system in particular.

Moreover, cognitive routines could be regarded as the aggregated observation of the organization's environment. Cognitive routines mirror the environment and provide constant distinctions with which the organization can make sense of its environmental circumstances. The organization establishes distinctions according to the organizational environment within decision-making, which are used not once only, but are also retained for use at a later in time in order to make sense of the environmental circumstances. Although cognitive routines are the 'result of uncertainty absorption, (..) the system treats them not as self-constructed artefacts, but rather regards them as reality' (Luhmann, 2006: 251; own translation). All decidable and self-referential premises are 'embedded in the context of cognitive routines. No situation or causal attribution would

be possible without this.' (Luhmann, 2006: 251; own translation). At Entertain Corp. the different customers have been classified in order to decide on their individual requirements. These classifications help the organization to deal with the complexity of its possible customers and enable it to decide between different alternatives to address them. There are professional customers and private customers, for example, and each has different characteristics attributed to them, which must all be addressed differently. Whereas professional bidders need to handle large numbers of bets, hobby bidders normally bet once or twice a week on selected football matches, for example. These different expectations provide different distinctions in order to address the needs of these bidders. The organization uses these distinctions in order to make sense of and decide which possible alternatives fit most people in order to address them. With the help of cognitive routines, Entertain Corp. deals with the different customers by categorizing them according to their betting habits. These habits inform the organization with distinctions on whose basis the organization is enabled to make sense of their environment and to choose one alternative out of many possible alternatives.

The above examples of decision premises indicate how these premises work, how they are actually involved in the decision-making process and how they fulfil the three memory functions that enable an organization to construct certain pasts. Premises serve as 'assumptions' that do not have to be proved – an example would be the company values mentioned or the 'venture process'. Each premise is used in an unlimited number of subsequent decisions, acting as a reference point for decision-making. Like for example, every present decision that refers to a venture process relies on the previously made decisions, which themselves derive and define the present venture process with the help of already derived distinctions, which are explicated in the requirements of the single stages, like 'functional specification incl. technical and legal assessment' (Corporate Venture Guide 2008). This means that options are observed and judged on the basis of technical and legal criteria, which are predefined within the venture guidelines or are conveyed by the previously made decision. Decision premises thus absorb uncertainty by this means, since present decisions can rely on decisions that have already been made or distinctions implied, or rather marked, by a certain decision and check the consistency of current alternatives. In addition, decision premises generate the decision situation, but may also restrict the decision situation 'by creating a particular decision situation and not a different one' (Luhmann, 2006: 222-225), as in the case of the cognitive routines, which accumulate the regulatory environment of which the organization is a part. In this manner, decision premises are used to construct the current state of the organization by preselecting distinctions the organization uses for observing its current state of decision-making in order to choose

one alternative out of the totality of possible alternatives. The number of alternatives, as well as the final decision, is thus contextualized by the distinctions provided, which are incorporated in the decision premises. The examples in this subsection illustrate that decision premises are the result of an 'enhanced inner organisation, which enables a system to draw inductive conclusions from past events about future events within its environment' (Baecker, 1987: 520; own translation) and thereby contribute to the organizational memory function. They enable the organization to make sense of its current state, reduce uncertainty, operationalize time by differentiating between past and present, and they mediate between remembering and forgetting by generating certain decision situations and restricting others. In this respect, like decisions, decision premises contribute to and define the memory function of organizations on its three levels of mediating between remembering and forgetting, constructing reality and checking the consistency of the constituting elements of an organization.

6 The contingency of possible pasts and futures at Entertain Corp.

In this chapter I would like to explore in more detail the interplay between past and future in general and their selective actualization in particular. In the previous chapter the focus was mainly on the past, which is actualized and represented by past decisions and decision premises. As illustrated in *Chapter 5*, Entertain Corp. developed an organizational memory function to construct possible pasts on which its observation was based. In other words, decisions and decision premises are most of the time used successfully to inform the organization on the basis of the past how to overcome the contingency of possible alternatives in order to make a decision by marking one alternative out of the amount of possible alternatives. Nevertheless as we saw in *Subsection 4.4.3*, decision premises are often used for example in different ways to what they have been planned and meant to be used for, or are neglected altogether. As there is always more than one decision premise that could be referred to, a contingency also occurs on the level of the decision premises, which an organization must overcome if it is to locate its decisions successfully. This means that an organization is not predetermined or fully structured by decision premises, but that it develops flexible mechanisms in order to actualize a certain past or rather a certain premise instead of another premise. As already discussed an organization acts always in the present state, which is derived by a permanent oscillation between past and future (Luhmann, 2006). Thus a temporal perspective is needed in order to understand the selective construction of past perspectives and also to understand the reciprocal construction of specific pasts.

From a temporal perspective, one might suggest that an organization confronts and informs itself with its possible future scenarios to reflexively choose, mark or adapt one premise in respect of a possible future. This oscillation between past and future informs the organization about its possible past as well as its future to construct a present state in which the organization is enabled to overcome the contingency by choosing one premise out of the sum total of possible premises. The oscillation enables the organization to confront itself with possible futures on the one hand by oscillating on the basis of its past to possible futures and at the same time enables reflecting its future into its past in order to construct a present state in which an organization is able to overcome the contin-

gency of its decision premises and through this finally enabling it to overcome the contingency of its possible operations in the form of the alternatives of a decision. Thus the recursion 'refers to the past (to tried and tested, known meaning)' on the one hand, and on the other hand to the future, which could be described as 'an infinite number of possibilities for observation' (Luhmann, 2012: 20). But as the past and future is not determined and remains open, as there could always be another past or future constructed, it is still unclear how an organization deals with the contingency of possible pasts and futures. The question is then, when is an organization referring to which past and which future, as past can be 'selectively remembered' and future expectations vary from moment to moment. So there are always possible alternatives of pasts and futures that could be actualized.

Referring to the contingency of possible pasts and futures as previously described and conceptualizing organizations as communicatively constituted, the concept of meaning seems to play a key role in solving this problematic. Communication addressing the past and especially an unknown future is only possible and successful on the basis of a social understanding of realities, which is enabled by the underlying meaning. According to Luhmann 'the meaning concept [is] a medium for distinction-dependent observation' that allows 'the exchange of distinctions with which we observe the same' (Luhmann, 2012: 26) or, in other words, meaning is used as a medium for achieving a common understanding and distinguishing information from potential information. Thus meaning captures the reference of the actual to all other possibilities and as all these other possibilities have to be either related to the past or to the possible future, meaning would appear to play an important role for dealing with the contingency of possible pasts and futures. To better understand this and to enhance the understanding of the singular recursive orientation the dimensions of meaning need to be introduced in brief.

There are three dimensions of meaning: the temporal, social, and factual dimension (Luhmann, 2013: 173). Each individual dimension is 'constituted through a distinction and thereby is itself distinguished from the other dimensions' (Luhmann, 2013: 174). So, for example, the temporal dimension is defined 'by the difference between the future and the past' (Luhmann, 2013: 174). When one of these two time dimensions is addressed within communication, the temporal dimension of meaning could be identified. As already described in the previous paragraph the temporal dimension plays a dominant role in that it handles the contingency as previously described. In addition, there is the social dimension, which is marked 'when one refrains from taking oneself as the only observer and instead takes others into consideration as observers of the observing' (Luhmann, 2013: 175), as well as the factual dimension, which is defined by drawing the distinction between inside and outside in gene-

ral, which implies that 'everything which one identifies has an inner and an outer horizon' (Luhmann, 2013: 174). This means that whenever something is identified or classified, communication refers to the factual or objective dimension of meaning. How these dimensions of meaning are engaged within the selective process of possible pasts and futures is illustrated and derived in this chapter.

The following *Subsection 6.1* begins by illustrating the oscillation between past and future. Based on Luhmann (2006), this subsection will attempt to illustrate how actuality is constituted by the confrontation of past and future dimensions. Following that, *Subsection 6.2* works out which role the other dimensions of meaning play within the oscillation between past and future temporal orientations.

6.1 The memory function and the oscillation into the future

This subsection focuses mainly on the illustration of the temporal meaning dimension and on the oscillation between the temporal distinction of past and future. With the help of two empirical vignettes it is illustrated how selectively the oscillation between the different temporal orientations takes place.

As already illustrated in *Chapter 4*, the R&D staff faced considerable power struggles with respect to the department's role in general and the mobile application in particular. Especially at the end of the development process it was no longer possible for the R&D department to work autonomously on the new mobile applications, because they relied on the help of other departments in order to develop these applications into market-ready products that met all the security and design requirements of the company as well as of third parties, analogously to Apple's iTunes (see also *Subsection 4.4.1.1*). That was when political issues between R&D and other departments arose, because other departments, such as the mobile department, felt that the R&D department affected their field of responsibility negatively (see also *Subsection 4.4.3.2*). The following citation from one of the first meetings (29 November 2010) between the marketing, mobile and R&D departments captures this tense situation:

> Marketing Manager: Several departments are involved in the development of [...] a complex product, but who will be responsible in the future for the development and are there any problems in the coordination right now?

> Mobile Developer: Well, we have the venture and as we are the mobile department it would be on us. To be honest I think we should have been the ones who developed it anyhow.

The venture process was developed to eliminate these struggles, which would only hinder the development of new products, by defining clearly who is responsible for what under which circumstances. In order to fulfil at least some of the strict requirements, the R&D department was joined by a product manager, who was meant to provide it with help and to communicate with other departments, such as the mobile and the sports departments. During a meeting the following conversation was recorded:

> Developer: How should we deal with the venture process? Do we have to fulfil all the requirements stated in this document?
>
> Product Manager: I guess that, because development has already progressed so far – I mean, you guys are nearly done with the development – we should reduce the process and the effort a little bit. To go through all five stages doesn't make sense at all.
>
> R&D Manager: That sounds great.
>
> Product Manager: Of course, first of all I need all the basic information about the app and then I will figure out what really needs to be done in order to convince the others. We should – or maybe I will try to talk to A [mobile department], as well as B [sports department], in order to make sure that this is fine with them. After all, we need them and we should not have any problems with that.
>
> R&D Manager: No problem. Come on over and we will show you what we have here.

In this excerpt from the meeting, the product manager refuses to go through all stages and at the same time suggests that this procedure should be discussed with other departments that have been involved in the process. In this particular exchange, the venture process and by implication the past is mentioned and actualized several times. The developer actualizes it but at the same time questions it. By mentioning it the first time ('How should we deal with the venture process?') he actualizes the venture process, but at the same time questions the legitimacy of the venture process. Furthermore, a possible future is suggested in which the process is adapted to the circumstances ('Do we have to fulfil all the requirements stated in this document?'). The developer reflects on the basis of the past – the venture-process is a typical decision premise and has been constituted over time – about a future in which the venture guideline might be adapted. At the same time, this implies that all possible (unmarked) decision premises might be forgotten for the moment, as only the venture process is marked in this particular discussion. As we know, the venture process has several 'gates' that need to be passed through in order to go to the next level (see also *Subsection 4.4.1*). The actualization of the venture process opens up the possibility of an oscillation between the marked and the actualized state, which is described by

the venture process – developed in the past – and the unmarked possibility of not referring to the process and rather doing something new, like adapting it to the current situation.

The product manager argues that the 'development has already progressed so far' and neglects to fully implement the venture process. He suggests weakening the decision premises in the form of the venture process in a plausible way: 'we should reduce the process and the effort a little bit'. His communication marks the remembrance of the venture process by mentioning and thus actualizing it again and at the same time opening up the space for a future-orientation referring to the venture process, as well as reducing the venture process, as a possible future for the developing process of the application. His suggestion that they need not 'go through all five stages' is followed by the R&D manager's assent: 'That sounds great'. This, in turn, leads the product manager to clarify exactly how he intends to proceed: 'first of all I need all the basic information about the app and then I will figure out what really needs to be done in order to convince the others'. On the basis of the actualized past, he then starts to work out a way in which the development process could be adjusted in the future. He refers to 'the others', pointing at the department heads of the mobile and sports departments. He addresses the possible future of the already developed application. From the product manager's perspective, shortening the venture process seems possible only if the other department heads agree to this option ('then I will figure out what really needs to be done in order to convince the others'). On the basis of the actualized relevance of the hierarchy ('to convince the others') the developer refers to the past, but points to a possible future of how to continue. He emphasizes the relevance of the hierarchy again, when he says that he 'will try to talk to A, as well as B,' in order to enable a possible future for the application with a shortened development process ('We should not have any problems with that'). The R&D manager accepts his suggestion and in his turn proposes to introduce him to the application and provide him with relevant details ('No problem. Come on over and we will show you what we have here'). The result of this communication is a decision that rules out all other possible alternatives, such as applying strictly the venture process, and thus removes the contingency for the moment the decision is made.

Source	Data	Temporal orientation
Developer	'How should we deal with the venture process?'	future & past
	'Do we have to fulfil all the requirements stated in this document?'	future & past
Product Manager	'I guess that, because development has already progressed so far – I mean, you guys are nearly done with the development – [...]'	past
	'[...] we should reduce the process and the effort a little bit. To go through all five stages doesn't make sense at all.'	future
R&D Manager	'That sounds great.'	
Product Manager	'Of course, first of all I need all the basic information about the app [...].'	past
	'[...] and then I will figure out what really needs to be done in order to convince the others. We should – or maybe I will try to talk to A, as well as B, in order to make sure that this is fine with them.'	future
	'After all, we need them and we should not have any problems with that.'	future
R&D Manager	'No problem. Come on over and we will show you what we have here.'	past

Table 4: Temporal orientation and social dimension I

The previous paragraphs, and especially *Table 4*, illustrate how communication between the participating organizational members selectively actualizes certain pasts, like the venture process or already developed applications, as well as different possible futures, on which basis it becomes possible to reflect communicatively back on how to use or adapt the venture guideline, for example. The example shows clearly how the time-reference changes more or less constantly from an orientation to the past to an orientation to the future and vice versa. At one point, the past is actualized ('How should we deal with the venture process?') and in the next moment a possible future is suggested ('Do we have to fulfil all the requirements stated in this document?'). Starting from the future scenario that the developer proposes, which questions the fulfilment of the ven-

ture process, the product manager reflects in his communication on how to adapt the venture process, which underlies the venture guidelines.

Another example of the interplay between the memory of the past and the oscillation of possible futures at Entertain Corp. is the development and the usage of the so called 'style guide' for new developments in general and mobile devices in particular. During the same meeting (29 November 2010), in which the further procedure of the new mobile applications was discussed, the development of the style guide for mobile applications was discussed as well:

> R&D Manager: Please inform us as soon as possible so that we can improve the style guide in time and could work as fast as possible.

> Developer: We would establish the guidelines and the product manager would be responsible to refer to these.

> R&D Manager: But I am not sure whether you are fast enough for us. I think we will establish something [a new application] you could build on your guidelines and not the other way round.

> Mobile Manager: No I don't think so, because we have to coordinate all the different products at one point otherwise it would get more complex as it should be.

> Mobile Developer: When it comes to the interface we have to be aligned to the style guide we are developing right now. There have been many problems in the past. For example, the poker application had a lot wrong design not fitting the demands of our style guide. At the end we had to change a lot.

> R&D Manager: We would need a compressed guide so that we could work still on a very fast level as we did during the last months.

> Marketing Manager: Could we three meet now to have a look at the design we have right now?

> R&D Manager: Yes, sure.

In this discussion on how to proceed with the changes of the existing style guide, the R&D manager opens the discussion on the basis of the temporal dimension ('Please inform us as soon as possible') and develops a future in which time plays an important role ('work as fast as possible'). At the same time, he refers to the former style guide and emphasizes its importance by actualizing it in order to move on to the development of the new mobile applications, which are then driving the scenario of how to proceed. The Developer refers to the R&D manager's future scenario and suggests that the style guide for mobile applications should be developed under the product manager's supervision. His utterance actualizes

and 're-impregnates' on the one hand the role his own mobile depart-
ment and on the other hand the role that the product manager is playing
within the organization. Similar to the R&D manager he develops a fu-
ture scenario. In response, the R&D Manager states that he is 'not sure if
you [the mobile department] are fast enough for us' and shifts the tempo-
ral orientation to the past, on the basis of his experience with the mobile
department, which in his opinion is too slow. Reflecting on his past expe-
rience, he foresees a future in which the mobile department is not fast
enough. As a result, he suggests that the R&D department should first
develop the new application on the basis of which the mobile department
could develop a new style guide ('I think we will establish something
[new application] you could build on your guidelines and not the other
way round'). His future scenario is represented by the new application.
Nevertheless, the mobile manager resists and signifies the complexity to
manage all the different products accordingly and thus questions again
the importance of the temporal dimension. He rather indicates the de-
partment's duty, which is to manage simultaneously all mobile products.
The mobile developer further specifies this argument and develops a
future scenario and at the same time remembers the problems that had
arisen with other mobile applications in the past. On the basis of those
past problems, he develops a possible future, which guides him how to
proceed with the decision premise of the style guide. The R&D manager
addresses a possible future with an adapted style guide. He suggests that
the style guide should be actualized in a 'compressed' form, which
would allow them to 'work still on a very fast level'. Again, the past ('as
we did during the last months') is used to develop a future ('We would
need a compressed guide so that we could work still on a very fast le-
vel'), by confronting or reflecting on the past in order to derive a plausib-
le present at the end. Finally the R&D manager starts showing the others
the current design of the application.

Source	Data	Temporal orientation
R&D Manager	'Please inform us as soon as possible so that we could improve the style guide in time and could work as fast as possible.'	past & future
Developer	'We would establish the guidelines and the product manager would be responsible to refer to these.'	future
R&D Manager	'But I am not sure if you are fast enough for us'.	past
	'I think we will establish something [new application] you could build on your guidelines and not the other way round.'	future
Mobile Manager	'No I don't think so, because we have to coordinate all the different products at one point otherwise it would get more complex as it should be.'	future
Mobile Developer	'When it comes to the interface we have to be aligned to the style guide, we are developing right now [...].'	future
	'There have been many problems made in the past. For example, the poker application had a lot of wrong design not fitting the demands of our style guide. At the end we had to change a lot.'	past
R&D Manager	'We would need a compressed guide so that we could work still on a very fast level as we did during the last months.'	future & past
Marketing Manager	'Could we three meet now to have a look at the design we have right now?'	future
R&D Manager	'Yes sure.'	

Table 5: Temporal orientation and social dimension II

Table 5 summarizes the oscillation between the different temporal orientations. It also illustrates how different members of Entertain Corp. discriminate between the different time dimensions of past and future by marking a certain past or a certain possible future in their utterances. The two vignettes illustrate the oscillation between the different temporal dimensions reflecting on each other to bring about a self-confrontation with certain futures as well as pasts. Nevertheless, it still does not seem clear on what basis a certain future or past is chosen in the present state so that a selective oscillation takes place. Based on this, as well as the

theoretical implications at the beginning of this chapter the following subsection addresses this problematic and introduces the other two dimensions of meaning to shed light on the communicative construction of the present state, which is based on an a selection of possible pasts and futures. So, how is the factual and social dimension used to support the actualization of certain futures and pasts as opposed to other possible scenarios.

6.2 Reflexive structures

This subsection aims to further illustrate on the one hand the selective oscillation between past and future as already shown in the previous subsection, and on the other hand illustrates more in detail the role of the factual and social dimensions of meaning within this process.

After the meeting, the R&D department presented its design to the other two departments. The people stood around the R&D developer, who held his iPhone in his hand, going through various functions of the new application. This was accompanied by a discussion on the new design and especially on the brand identity.

> Marketing Manager: We definitely need the brand in there. In my opinion, there is no possibility to adapt [the style guide] to a large extent. Entertain Corp. is a strong brand that we have built up over the last few years.

> R&D Manager: There is no doubt about that, but we are now in the mobile world. Things are changing here. What about the black colour?

> Marketing Manager: What do you mean?

> R&D Manager: Black does not really work in a mobile app. Look how it reflects the light. If we could use a dark grey, for example, this would already solve this problem a little bit.

> Marketing Manager: Well, I think this should work with black as well. We should not neglect our brand identity, in which we have invested so much effort. I think we should stick to the current style guides in order not to lose our brand.

> R&D Manager: We should not stick to an old and outdated style guide, but rather use the opportunity to do something really new. What about hiring an experienced interactive designer?

> Marketing Manager: Well, do you know somebody?

> R&D Manager: We have some people in mind. Let's talk about it the next few days.

After the discussion on how the style guide for mobile devices and applications could be modified, the R&D manager showed the other participants of the meeting the actual design of the mobile application. Whereas the members of the mobile department no longer seemed to be particularly interested and appeared to be resigned, the marketing manager opened the discussion by actualizing the brand as such ('We definitely need the brand in there') and concluded that the style guide could only be adapted marginally ('In my opinion, there is no possibility to adopt [the style guide] to a large extent').

In this example, he derives this possible future communicatively on the basis of an actualized past ('Entertain Corp. is a strong brand that we have built up over the few last years') and embeds his scenario about the future in the factual (brand) dimension. While the style guide is actualized, other guidelines, like the venture guideline, are disregarded for the moment and thus forgotten. The R&D manager agrees on its importance ('there is no doubt about that') and 're-impregnates' the existence and relevance of the style guide. At the same time, he opens up the options for possible future enhancements by stating that times have changed ('but we are now in the mobile world'). Subsequently, he tries to shift the dimension of meaning again to the factual dimension by questioning the basic colour of the new mobile application, which is in line with the style guide ('what about the black colour?'). With this comment he seems to move away from the relevance of the past (style guide) to a possible future with a revised style guide. The marketing manager, not understanding what exactly the R&D manager is trying to say ('What about the black colour?') asks for a clarification ('what do you mean?'). The R&D manager starts to explain that black is especially difficult for mobile applications, as black reflects things more than other colours. He seems to foster the factual dimension of the application by explicitly showing the marketing manager 'how it reflects the light' and subsequently he proposes a possible future solution, i.e. the option of using a similar colour ('dark grey'), which on the one hand would address the social dimension (style guide) and on the other hand would address the factual dimension, i.e. that black reflects the light while dark grey does not. Despite the efforts of the R&D manager to expose the problems of using a black background, the marketing manager insists on a future application with a black background ('well, I think this should work with black as well') and again builds this future scenario on past efforts to develop a strong brand ('we should not neglect our brand identity, in which we have invested so much effort'). She also addresses the factual dimension of meaning by actualizing the brand identity and at the same time marks again the importance of the style guide and of the effort that the organizational members and the marketing department have made (social dimension). On this basis, she constructs a future in which everybody who is invol-

155

ved in the process has to 'stick to the current style guides in order not to lose our brand'. Then, on the basis of the actualized past and the relevance of the brand, she develops a possible future design of the application and envisages how the team should deal with the style guide. This is immediately questioned by the R&D manager ('We should not stick to an old and outdated style guide'), who is willing to ignore the past and prefers to 'use the opportunity to do something really new' (future orientation). In view of the difficult situation, he proposes to bring in an external 'interactive designer', who might solve their problem. The marketing manager seems to like the idea and asks if the R&D manager knows anybody. The latter replies that he has 'some people in mind' and suggests that they should 'talk about it the next few days'.

Source	Data	Temporal orientation	Meaning dimension
Marketing Manager	'We definitely need the brand in there. In my opinion, there is no possibility to adapt [the style guide] to a large extent.'	future	factual & social
	'Entertain Corp. is a strong brand that we have built up over the last few years.'	past	factual
R&D Manager	'There is no doubt about that, but we are now in the mobile world. Things are changing here. What about the black colour?'	future	factual
Marketing Manager	'What do you mean?'		
R&D Manager	'Black does not really work in a mobile app. Look how it reflects the light.'	past	factual
	'If we could use a dark grey, for example, this would already solve this problem a little bit.'	future	factual
Marketing Manager	'Well, I think this should work with black as well. We should not neglect our brand identity, in which we have invested so much effort.'	future & past	factual & social
	'I think we should stick to the current style guides in order not to lose our brand .'	future	factual

R&D Manager	'We should not stick to an old and outdated style guide, but rather use the opportunity to do something really new.'	past & future	factual
	'What about hiring an experienced interactive designer?'	future	social
Marketing Manager	'Well, do you know somebody?'		
R&D Manager	'We have some people in mind. Let's talk about it the next few days.'	future	

Table 6: Temporal orientation and social dimension III

Table 6 summarizes the changes in the temporal dimension and in the dimensions of meaning. In this vignette, the marketing manager and the R&D manager discuss the relevance of the existing brand and style guide at Entertain Corp. Whereas the marketing manager actualizes the past ('Entertain Corp. is a strong brand that we have built up over the last few years') in order to argue how important the brand and existing style guide are, and thus to legitimize them, the R&D manager suggests, in contrast, that the style guide needs to be updated according to the new mobile devices. He does this by actualizing the past ('we should not stick to an old and outdated style guide') and on this basis sketches what this future might look like ('If we could use a dark grey, for example'). Both the marketing manager and the R&D manager mainly address the factual dimension of meaning ('look how it reflects the light' or 'Entertain Corp. is a strong brand that we have built up over the last few years') to emphasize their future scenarios, which will influence how their departments will deal with the decision premise of the style guide. Only at the end of the discussion does the R&D manager refer also to the social dimension, when he suggests that they should hire 'an experienced interactive designer' who would be able to bring in his or her expertise and therewith an outsider's perspective to the problem of how to deal with the style guide.

In this context, another example of the interplay between memory and future is the relationship between the R&D manager and one of the two CEOs at that time. As already described in *Subsection 4.2*, the R&D department was founded on the basis of the CEO's decision as well as the R&D manager's suggestion to establish a research department at Entertain Corp. Since then the R&D department had been reporting directly to the two CEOs and was not reorganized until much later, at the end of my fieldwork (see also *Subsection 4.4.2*). The relationship between one of the

CEOs and the R&D manager supported partly unpopular decisions, such as the decision to further develop the iPhone application without a proper venture process or to ignore the style guideline. The R&D manager talked several times with one of the CEOs in order to gain his support in developing the new mobile applications. The R&D manager gained power thanks to his proximity to the CEO, especially at the end of the development process, when political issues had already arisen between the departments. He communicated this closeness indirectly during several internal meetings of the R&D department and especially during discussions with other departments in order to convey the CEO's will to the others. The following conversation, which took place during a meeting (11 November 2010) with the marketing department, is such an example:

R&D manager: How are our products in the future? We have to redevelop the brand for the new user experience.

Marketing manager: Not the brand as a whole. What are we? We are a service supplier. We need something for the entertainment of our customers. The touch experience is a new complexity and we have to reduce this complexity. Easy, slick, bold and straightforward; that's what Entertain Corp. could be described as.

R&D manager: Yes, that sounds great and I like it. I just recently talked to T [one of the CEOs] and he really likes the new application and wants it to be published as soon as possible. His thoughts on the brand are similar to yours; nevertheless, he thinks we should go one step further and take this change to mobile seriously.

This relatively short excerpt illustrates again the interplay between the past and the future, in order to communicatively construct the present state of an organization. The R&D manager starts by asking what a possible future might look like ('How are our products in the future?') and continues by saying the brand will also need to be redeveloped according to this the style guide for the brand and according to the 'new user experience', which comes along with the mobile usage of the company's products. He questions the future relevance of the brand and the style guide, addressing the factual dimension, which he expresses by the 'new user experience' of the application. The marketing manager counters this argumentation with the question, 'What are we?' and goes on to answer the question by developing an idea of what Entertain Corp. as a brand stands for and what the users expect ('We are a service supplier. We need something for the entertainment of our customers'). Although she explains her standpoint by actualizing the new mobile applications and its 'new complexity', she immediately refers to the brand and what the brand has been identified with in the past as well as in the future. She describes this with the words 'ease, slick, bold and straightforward'. The R&D manager

agrees and underlines his closeness to the CEO, who 'really likes the new application and wants it to be published as soon as possible'. He then shifts back to the social dimension and further develops the future orientation of the present discussion by referring to the ways of communication in general and his closeness to the CEO in particular. He signals the legitimacy of developing the style guide further on the basis of his closeness to the CEO and confronts the marketing manager with a possible future by reflecting on the talk with the CEO (social dimension).

Source	Data	Temporal orientation	Meaning dimension
R&D Manager	'How are our products in the future? We have to redevelop the brand for the new user experience.'	future	factual
Marketing Manager	'Not the brand as a whole. What are we? We are a service supplier.'	past	factual
	'We need something for the entertainment of our customers.'	future	social
	'The touch experience is a new complexity and we have to reduce this complexity.'	future	factual
	'Easy, slick, bold and straightforward; that's what Entertain Corp. could be described as.'	past	
R&D Manager	'Yes, that sounds great and I like it. I just recently talked to T [...]'	past	social
	'[...] and he really likes the new application and wants it to be published as soon as possible.'	future	factual
	'His thoughts on the brand are similar to yours;'	past	social
	'nevertheless, he thinks we should go one step further and take this change to mobile seriously.'	future	factual

Table 7: Temporal orientation and social dimension IV

Table 7 presents the different temporal dimensions and the dimensions of meaning, as well as their reflexive usage. Once again, the previous excerpt from that meeting illustrates how differently the participants address the imaginary time dimensions of past and future. Whereas the R&D manager focuses on the future ('how are our products in the future?') the marketing manager refers more often to the past ('Not the

brand as a whole. What are we?'). It is remarkable how the R&D manager brings into the discussion a third and absent person by referring to the CEO and tries to push his argument on the basis of the latter's position in the organization. Starting with his argumentation on the factual meaning dimension, he then tries to address the social dimension in order to end the discussion on the basis of the factual dimension again. This shows how he tries to respond to the objections of the marketing manager.

In nearly all the empirical illustrations presented above, the discussion during ordinary meetings is defined by conflicting opinions. The participants actualize decision premises in order to find a solution to these conflicts, but there are always different solutions or decision premises, pasts and futures that can be, but may not be, actualized. There is neither a single premise nor a single future that could be used for all communicative situations. For example, at one point, the R&D manager wants to change the style guide according to the new mobile devices while the marketing manager prefers to stick to the brand and the existing guidelines, which had been very successful in the past. Each actualizes a different time dimension. By recursively referring to a past or oscillating into a future both aim to contextualize themselves, as well as the organization, in order to constitute an actual present that actualizes a certain decision premise. How this interrelation between the past and the future respectively takes place could only be answered in the present and is itself always an answer to the improbability of communication in general and decisions in particular.

A decision becomes a decision when a chosen alternative is used as the basis for a subsequent decision. The probability of this happening increases when certain pasts or futures, rather than others, are actualized, which are known by the other in order to enhance the legitimacy of an alternative and is therefore accepted rather than neglected. Thus for example, if the R&D manager argued that the style guide should change, because he has seen a certain application while on vacation. This actualized temporal as well as factual dimension would not be easily accessible to the marketing manager, who would consequently question the argument. This is exactly where the 'social' in social memory comes in. In most cases an organization and its members refer to decision premises for a common understanding since it can be generally assumed that organizational members are able to make sense of decision premises, like for example hierarchical structures (communication channels) or guidelines (programmes) most of the time. Whenever participants aim to construct a possible future, this becomes much more difficult as the common ground is becoming perforated. This is why communication about the future is often vague and hard to both understand or to express and relies on the medium of meaning even more than the social construction of a past does, which is addressed on the basis of the past. When the R&D Mana-

ger, for example, constructs a scenario about a possible future ('If we could use a dark grey, for example, this would already solve this problem a little bit'), he bases his oscillation into the future on a common past, as well as in this case the factual dimension, known by the other ('Black does not really work in a mobile app. Look how it reflects the light'). On the one hand, this enables an oscillation of the past into the future and on the other hand it increases the possibility that the marketing manager will understand the argument and follow his argumentation. It is thus memory that enables an organization to reflect on itself and construct a possible future on the basis of its past, which has been actualized at the moment. This happens in a selective oscillation mode: once you remember this or that, you know that something else is not remembered. If you expect this, you know that you do not expect something else. In the next moment, the other side of the oscillation is actualized. Both the memory function and the oscillation function enable the organization to reflect its current situation against the background of what is not actualized right now and thereby give meaning to the actualized and marked state.

As the previous examples demonstrate, when the participants in the meeting are discussing conflicting opinions, such as whether the style guide and brand have to be changed or not, the R&D manager and marketing manager address the same dimensions of meaning according to different time dimensions. The R&D manager actualizes the factual dimension of the future ('There is no doubt about that, but we are now in the mobile world. Things are changing here. What about the black colour?'), while the marketing manager stresses the factual dimension of the past, which is represented by the brand and the respective guidelines ('We definitely need the brand in there. In my opinion, there is no possibility to adapt [the style guide] to a large extent. Entertain Corp. is a strong brand that we have built up over the last few years), for example. There are other examples in which the dimensions of meaning do not match each other fully. In these cases, the conflicting parties seem to find it difficult to understand and legitimize the opponent's argument or decision. For example, when the R&D manager and the mobile manager discuss the relevance and obligation to develop a new style guide, whereas the R&D manager refers to the future as well as the factual dimension ('I think we will establish something [new application] you could build on your guidelines and not the other way round'), the mobile manager argues first of all on the social dimension actualizing the guidelines of Entertain Corp. ('When it comes to the interface we have to be aligned to the style guide, we are developing right now'), and then connects his argument to the factual dimension, on the basis of his past experience in order to express his concerns ('There have been many problems made in the past. For example, the poker application had a lot wrong design not fitting the demands of our style guide. At the end we had to change a lot').

Both distinguish and indicate at the same time their individual reference point for their argument and thereby express why past (guidelines) or rather possible future (change) is actualized and not another one. The dimensions of meaning guide the memory function in order to selectively actualize certain pasts and not others and at the same time make it possible to develop an unknown future and not another one. As the excerpts presented earlier have shown, the individual dimensions of meaning guide the common understanding as a medium in which communication takes place. The dimensions of meaning are the underlying framework marking the actuality in contrast to its possible past and futures and therewith enable a common understanding of social reality. The enduring actualization of communicatively accessible meaning defines the reproduction of organizational memory, as well as oscillation into the future. In that sense the addressed social meaning dimension points to the observation of others and specifies the actual social setting. In the discussion of the previous vignettes the social setting has been defined and actualized by the customers, other departments or certain authorities, for example, which intend to give meaning to the discussion in general and the individual arguments in specific. The factual meaning dimension points to objects, for example, which might be relevant within the actual communicative process. In the case of the previous examples the factual meaning dimension has been addressed with the iPhone or the software application, for example. Both are known by the involved conversational partners and therefore give meaning to the communicative act. Based on this a social understanding of reality is constructed on which basis certain pasts or futures seem to be more relevant and plausible than others and are therefore selectively addressed and actualized, whereas others are neglected.

6.3 The form of the organizational memory function

In the previous sections, I examined how an organization selectively draws on certain pasts or futures in order to constitute an organizational memory function as well as oscillation function on the basis of Niklas Luhmann's theory of social systems. The form of *Figure 18* summarizes the discussion on how decisions, decision premises and the dimensions of meaning help constitute these functions, which role they play in the organizational memory function and in the oscillation function and how they relate to each other. I propose that the organizational memory function can be conceptualized as a three-level form: (1) decisions, which produce over time (2) decision premises and are finally embedded in (3) the three dimensions of meaning.

organization $=$ memory

| marked alternative | unmarked possible alternatives | personnel | programmes | communication channels | cognitive routines | culture | temporal dimension | factual dimension | social dimension |

indeterminancy

past

future

I
- "short-term" or "working memory"
- origin of self-produced indeterminacy and contingency
- constituting element of the organization as well as the nucleus of the organizational memory function

II
- "long-term memory"
- product of previous decisions
- describe decision-situation
- "increase inner-organization"
- enables access to the past horizon
- available for organizational members
- functional answer to contingency as well as indeterminacy
- produces contingency

III
- enables communicative access to future
- available not only for organizational members
- factual and social dimension moderate the temporal access to past or future
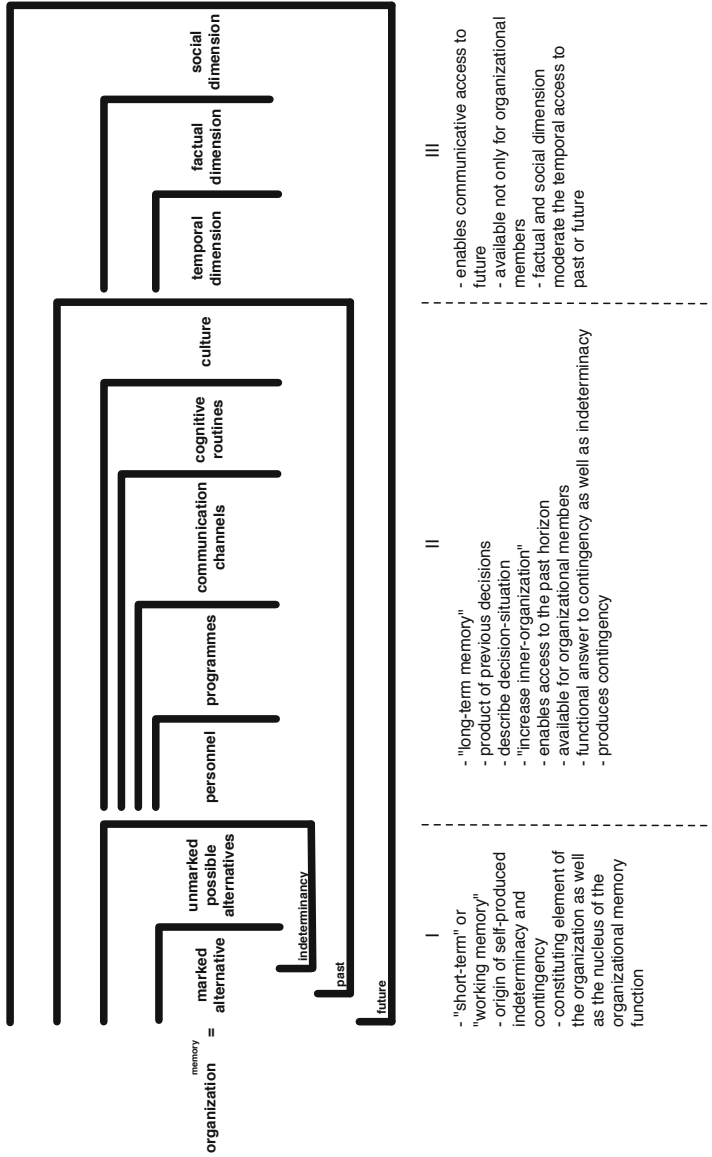
Figure 18: The form of the organizational memory function

At the first level, an organization is constituted by decisions, which are expressed here as the unity of the difference between the marked or chosen alternative and all the other unmarked possible alternatives. Decisions are defined as the core of the organizational memory function predefining possible distinctions for the subsequent decision and therewith pre-select possible distinctions for observing and choosing possible alternatives. Decisions not only selectively inform the present about past expectations but also inform the present, based on the employed distinctions about what a consistent decision will be like. Based on this, the actualizing of some specific alternatives is more likely than others from out of the totality of all possible alternatives. This again simplifies the selection, frees up capacities and justifies the non-actualization or forgetting of possible alternatives in every moment a decision is made or an alternative is marked. Finally, the actualized distinctions guide the construction of a reality that is derived from differentiating the actual with its former condition, which is only possible on the basis of available distinctions. At the same time, decisions constitute a kind of short-term operating memory for follow-up decisions and lead to self-produced indeterminacy and as with every decision, the condition of the organization changes and as a result makes it impossible to predetermine an organization. This indeterminacy leads to uncertainty, because it cannot be taken for granted how an organization develops in the future and at the same time opens up the future for further constituting decisions, which are only possible as long as an organization is not determined. To deal with this indeterminacy, an organization introduces time to locate and orient itself within the past, present and future (Luhmann, 1997). It follows from this that it constructs the imaginary time dimensions of past and future, which extend beyond the immediately accessible operations. So how is an organization able to actualize a specific past within the present and not another one?

An organization refers to its decision premises, which develop over time on the basis of already taken decisions in order to actualize a past. Decision premises are generally the product of previous decisions and are constituted over time. All decision premises mark certain distinctions that have led to specific decisions in the past and could therefore be used to construct a past perspective in the current decision-making process. These institutionalized premises enhance the 'inner organization' on the basis of available distinctions, which go beyond the immediate decision and rather make past decisions and the distinctions that accompany them available in the present. On the basis of these additional distinctions, decision premises define a specific decision-situation instead of others and therewith enrich the present ability of choosing one alternative out of the totality of possible alternatives. The decision situation is based on the past and ensures that subsequent decisions are consistent with the previ-

ous decisions, whereas all other possible alternatives are ignored, or rather forgotten. According to Luhmann (2006) there are decidable decision premises, i.e. premises that are developed on the basis of active decision-making. These are: personnel, communication channels and programmes. In addition, there are also undecidable decision premises, which can be regarded as a by-product of decision-making such as organizational culture, or are out of the actual sphere of influence, like cognitive routines. Drawing on my empirical data, I demonstrated that there is always more than one decision premise that defines a certain instance of decision-making or, as is often the case, the decision premises are modified or actively ignored. At the same time, one can hardly imagine a situation where there will not be several premises that have an influence on the process of choosing one alternative out of the sum of possible alternatives. The empirical examples have shown that there are considerable differences between the different departments of the case company. Whereas in the R&D department decision premises such as the venture process are ignored, other departments, such as the mobile department, emphasize by contrast the importance of the venture process. The same goes for all other decision premises, such as organizational culture or communication channels, which vary from department to department. In one department the hierarchy may be well developed, whereas in another department the hierarchy may be relatively flat and not play any significant role in directing decisions. Nevertheless, the functional usage of decision premises is not predefined and there are always several premises, or rather pasts, to which decision-making could refer. This raised the question of how organizations selectively draw on certain pasts and not on other pasts. To explore this problem further, the time dimension needs to be expanded to the future horizon as another resource to reflect on the present decision-making and construct a certain situation and not another one.

According to Luhmann (1997) the future horizon is accessible through an oscillation function. This means that on the basis of the past and the distinctions it provides, an organization oscillates into an unknown future informing the past about its possible future and its future about its possible past in order to finally construct a present in the form of a decision that is taken. The oscillation function enables the organization to construct a possible future to reflect from a future into its past and vice versa in order to construct a potential present. At the same time, the future is a further resource to reflect on and go back to the past again, the future is an unknown horizon, which is difficult to access, especially from a communicative or social perspective. Although communication could address the temporal dimension of meaning by differentiating between past and future, it is still difficult to socially access an unknown future, as possible futures are unknown. In contrast to the past, the future horizon

is more difficult to access socially, since its appearance is based more than everything else on assumptions and the individual viewpoint. The future remains open and could always turn out to be different from expectations, although it is based on a past and its inherent distinctions. With respect to Luhmann's notion of meaning, which captures the reference of the actual to all other possibilities either in the past or in the future (Luhmann, 2012), the discussion of the empirical data has shown that the factual and social dimensions of meaning enable the organization to access social realities communicatively and thus moderate which possible futures can be addressed and which cannot by the communicative process.

Furthermore, the case study has shown that in order to understand how certain futures are actualized instead of others, the addressed dimensions of meaning play a mediating role within the communicative construction of future horizons. The dimensions of meaning have been addressed to create a common ground on about what a possible future might be like. Scenarios of a possible future that are not based on an accessible past and, or address conflicting dimensions of meaning cannot be easily actualized in the final decision-making process. One example is the suggestion to adapt the background colour of the mobile application (see also *Table 6*). For example, whereas the R&D department suggested that the background should be black, addressing the factual dimension, the marketing department suggested that they should stick to the guidelines, addressing the social dimension. Another example is the discussion on how to proceed with the development of a new style guide for mobile devices. On the one hand, the R&D manager addressed the factual dimension by emphasizing the role of the application and the need to develop it as fast as possible, while, on the other hand, the mobile developer and manager addressed the social dimension by emphasizing that it would be necessary to first develop a new style guide for mobile applications. In these two cases, as well as in other cases examined earlier, the different addressed dimension of meaning hindered a successful communicative oscillation between possible pasts and futures and subsequently hindered the decision-making. The discussions rather led to further discussions on the same issues and to the postponing of decisions. In contrast to this, identical dimensions of meaning make certain communicatively addressed futures or pasts more accessible than others within the communicative process. One example of this is the discussion between the developer and the product manager on how to deal with the venture process in which both emphasized the social dimension (see also *Table 4*). In these examples, the dimensions of meaning play an essential role in the communicative oscillation between possible pasts and futures: they brace the selective construction of possible pasts and futures and therewith play a major role in the memory function.

7 Concluding reflections and contributions

In this chapter I reconsider the research question and theoretical framework to locate concluding reflections and initiate a discussion of the findings and contributions to the study. Moreover, I consider the limitations of this research and the practical implications for future research.

7.1 Recapitulation of the theoretical framework

The point of departure of this research project was a general research interest in the temporal perspectives of organizations and the initial question of how organizations orient themselves in time on the basis of their past. My research has unfolded the relevance of developing a new notion of organizational memory. In view of current criticism of Organizational Memory Studies (OMS) and the dominant concept of organizational memory as a 'storage bin' (Walsh & Ungson, 1991), in *Chapter 1* I presented the intention to develop a new notion of organizational memory on the basis of Niklas Luhmann's concept of social memory as a function. On the one hand, critics have called for a 'constructionist approach', as well as a 'sociological re-orientation', arguing that the current literature is largely based on an outdated notion of memory (Rowlinson et al., 2010). In this respect especially Walsh and Ungson's article (1991) introducing the image of organizational memory as a repository is criticized. Furthermore, critics have argued that the usage of metaphors such as that of memory must be based systematically on the original domain of interest, namely psychology or neurology, in this case, in order to realize its full potential (Boxenbaum & Rouleau, 2011; Cornelissen, 2006; Tsoukas, 1991). In view of these concerns, I have argued that Luhmann's notion of memory would appear to be especially promising in this context, because Luhmann did follow a constructionist approach and derived systematically an interdisciplinary notion of memory.

In order to grasp the abstract notion of social memory, in Chapter 1 I also introduced the contingency of time dimensions as the driving problem of this research on the basis of an empirical vignette. The vignette has shown that, although there seem to be predefined pasts, such as formal guidelines, the reference to and usage of these pasts differ in respect of present circumstances, which are based on possible future orientations.

There seems to be a magnitude of possible pasts, which are selectively remembered in the present. How this selection takes place and how an organization is embedded within its possible pasts and futures caught my attention and finally led to the following research question: *How does an organization locate itself in time on the basis of its memory in general and in the three time dimensions of past, present and future in particular?*

In *Chapter 2*, I extensively reviewed the literature on social memory and on organizational memory in particular. The review of social memory studies in general contextualizes organizational memory studies within the origins of memory studies from ancient times to the 'memory boom' starting from the late 1970s (Olick et al., 2011: 3). The review brings to the fore the fact that researching how past and later temporalities as such are utilized for making sense is at the core of interdisciplinary memory research. To explain how this is done depends on the individual field in general and the theoretical foundations in particular. Furthermore, in that chapter I presented Maurice Halbwach's concept (1925) of collective memory, as well as Jan Assmann's notion (1988) of cultural memory as the most prominent concepts of memory in the social sciences. Halbwachs builds his notion of collective memory on the basis of Durkheim's concept of 'collective consciousness' (Durkheim, 1893/1997). Halbwach's concept is about the context of remembering and defines social frameworks, such 'traditional beliefs', 'cults' or 'religion', as well as verbal conventions, as the locus of social remembering. Aleida Assmann and Jan Assmann introduced their concept of 'cultural memory' drawing on the idea of 'social frameworks' (Assmann & Assmann, 1994; Assmann, 1988, 1999b). They define memory mainly as a cultural phenomenon and argue that it is responsible for storing and transferring knowledge over time 'through innovations in the manner of recording it (writing), of circulating it (printing, radio, TV), or of transmitting it (canonization, decanonization)' (Assmann, 2011: 140). Whereas both stress the social influence on remembrance, it is still the individual who remembers. In contrast to this, in Chapter 2 I introduced Niklas Luhmann's general notion of social memory (Luhmann, 1996, 1998, 2006), which focuses on the function of memory. On the basis of Heinz von Foerster's notion of memory and time (von Foerster, 1948, 1965, 1993b), Luhmann's concept of social memory takes as the theoretical point of departure a 'radical constructivist' conceptualization of memory (Watzlawick, 1984), which implies that the central aspect of social memory is not storing knowledge or information, but rather how social systems selectively draw on certain pasts, but not on others, in order to position themselves in time and overcome their 'self-produced indeterminacy' (Luhmann, 1997). The underlying theoretical assumptions of Luhmann's theory of social systems imply a processual understanding of reality and stresses that memory is a continuous process embedded in the communicative constitution of a

social system. On the basis of Luhmann's notion of memory, one can derive three interrelated functions: (1) The permanent examination of consistency (2) 'discriminating' between forgetting and remembering and (3) constructing reality. In the rest of Chapter 2, I further reviewed the most important concepts of organizational memory according to their epistemological foundations, as well as relevant key findings and implications. This review brought the reassurance that most of the concepts take a positivist research position as the theoretical point of departure and still refer to the outdated idea of memory as a storage device (de Holan, 2011a, 2011b; de Holan & Phillips, 2004; de Holan et al., 2004; Levitt & March, 1988; Olivera, 2000; Walsh & Ungson, 1991). Only Feldman and Feldman's notion of 'organizational remembering' (citation) (Feldman & Feldman, 2006) and Schatzki's concept of 'organizational practice' (citation) (Schatzki, 2006) take a constructivist approach and develop an alternative to the dominant repository image of organizational memory. Although both articles develop a temporal position and shed light on the embeddedness of the organization in time, both miss out on the issue of explaining how certain pasts or futures are selectively constructed.

In *Chapter 3*, I developed Luhmann's notion of social memory as a function further into a concept of organizational memory as a function. First, I introduced the basic assumptions of Luhmann's theory of social systems in general and his notion of organization in particular. The point of departure is the assumption that every autopoietic system constitutes itself on the basis of self-referential operations. Within organizations these self-referential operations are communicated decisions ('systems of decisions') (Luhmann, 2006; Schoeneborn, 2011). Furthermore, I argued that an organization falls into a state of 'self-produced indeterminacy', due to the organization's self-referential operations, which constitute the organization anew at every moment in time leading to a spillover of possible operations and as a result of this finally to a state of self-produced indeterminacy. On account of this an organization needs to develop a memory function to 'recover a closed world' (Spencer-Brown, 1969: 56 & 69), which at least seems to be predictable on the basis of its past. This memory function enables the organization to locate itself in time constructing a possible past and, based on this, a possible future in order to construct a present state in which the organization is able to choose one alternative out of the totality of possible alternatives or, in other words, to make a decision. In addition, I suggest that decisions not only constitute the organization as such, but also could be defined as the core of the organizational memory function. In this respect 'future decisions are only rendered possible by the existence of past decisions' (Luhmann, 2005b: 95), which means that every decision provides certain distinctions for every subsequent decision and therefore selectively influences the

observation of the present on the basis of the past. At the same time, decisions are made in respect to a possible future and therefore link the three temporal dimensions of past, present and future. Following on from this I argued that from a long-term perspective, decision premises, such as programmes, personnel or organizational culture, are used as a reference point in the actual decision-making process and are at the core of the organizational memory function. Decision premises as such are constituted over time on the basis of decisions taken and retain the organization's selectivity by providing deployed distinctions for observation. The selection of distinctions limits the number of realizable alternatives for every subsequent decision on the basis of the past. Thus decision premises provide distinctions for the organization's self-observation and at the same time frame the expectations of a possible future and as a result enable the construction of a present on the basis of selective pasts and futures. Finally, I assumed that decisions, as well as decision premises, fulfil the three functions of organizational memory function: (1) The permanent examination of consistency (2) 'discriminating' between forgetting and remembering and (3) constructing reality. In order to further explore and develop these theoretical thoughts the chapter ends here and suggests deriving an empirical perspective on organizational memory.

In *Chapter 4*, I presented the methodology I applied and provided an extensive report and thick description of the collected data. According to Luhmann's 'operative constructivism', which postulates that reality could not be found outside of the observing system, but is rather constructed within the individual system (e.g. organization, science, psychic system) on the basis of its self-referential operations and available distinctions, empirical research is in principle concerned with exploiting knowledge about the impossibility of objective observation and enhancing the theoretical perspective on the basis of theory-based empiric observations. This means that the theoretical foundation of organizational memory as a function is regarded as 'metadata', which makes it possible to organize the gathered data and recombine it in way that allows the discovery of new descriptions (Baecker, 2012). The theoretical concept provides us with distinctions, which on the one hand increase the possibility of a shared understanding and at the same time open up the space for the recombination and revision of these distinctions with the help of irritating the theoretical concept with the empirically derived data.

In the remainder of that chapter, I also presented an extensive report with a thick description of my six-month field study at Entertain Corp. in two parts. The first part illustrated the extremely fast growth of Entertain Corp. and its consequences for the operative life of the organization, as well as the introduction of new guidelines for dealing with the growing complexity of the organization. The second part focused on the temporal divergence several years after the period of extreme growth and on how

the organization dealt at that point with the introduced provisions within their daily operations.

Two distinct illustrations were unfolded in *Chapter 5*. Each illustration refers to the thick description of Chapter 4. In the first instance, the thick description developed was used to illustrate which role decisions and decision premises play in the context of the organizational memory function.

In the first section of that chapter I showed that decisions can be defined as the core of the memory function. Decisions define the historical state of an organization, which is utilized as the starting point of every subsequent decision. The illustrated case has shown that both the R&D department and the mobile department base actual decisions on former decisions and check possible future alternatives on the basis of the distinctions that a former decision implies. Based on this vignette, it is argued that decisions and the information that is inherent in them, or rather distinctions, are utilized to check whether possible alternatives are consistent with the previous decision or not and therewith also mediate between what is remembered and what is forgotten, since only consistent alternatives are taken into consideration as candidates for becoming a possible future decision. Furthermore, the vignette shows that the R&D department and the mobile department develop their own realities. The different realities that were observed on the basis of the different opinions according to the development of the mobile application as well as on the basis of the individual history of decision-making, show that decisions and the distinctions that are inherent define the manner of observing the actual situation on the basis of these distinctions. Overall, the empirical examples have shown that decisions play a key role in the three memory functions that were derived in Chapter 3.

Nevertheless, there are other relevant distinctions, which are not communicated directly via the previous decision, but have nonetheless considerable impact on the actual decision-making process. These distinctions are communicated via decision premises, which are the result of active decision-making or evolve over time. Decision premises create 'a particular decision situation and not a different one' (Seidl & Becker, 2005: 42). Overall, Luhmann (2006: 222) differentiates between five different premises: (1) programmes, (2) communication channels, (3) personnel, (4) organizational culture and (5) cognitive routines. These premises serve as 'assumptions', which are taken for granted, such as guidelines like the 'venture process'. In the second part of this chapter I showed how every single decision premise contributes to and constitutes the three organizational memory functions by providing only certain distinctions for the observation and selection of possible future alternatives and decisions.

In *Chapter 6* I analysed how an organization deals with the contingency of possible pasts and futures. This chapter goes beyond the illustration of the organizational memory function as well as Luhmann's work on memory and time within an organization. Whereas the actualization of the past on the basis of decisions and decision premises seems to be clear, it remains unclear how an organization actualizes a specific past or future and not another one. According to Luhmann (1997), the present state is realized via an oscillation between past and future, which are constituted by referring to each other. How exactly this takes place and how an organization deals with the contingency of possible pasts and futures, as there are always different pasts and futures an organization could refer to, remains unclear.

So how does the organization deal with this overload of possible temporal references? The *Subsection 6.1* and *6.2* illustrated how the present is constituted by the interplay of pasts and futures. Furthermore, the temporal analysis is enhanced by exploring the addressed social as well as the factual dimensions of meaning in order to gain insights into how certain pasts and futures, but not others, are constructed. It is shown that the two dimensions of meaning are utilized to enable the successful actualization of specific futures and not of other possible scenarios. It shows that the dimensions of meaning are used as a medium to increase common understandings about the addressed imaginary temporal dimensions of past and future. Especially in intra-organizational conflicts, analysing dimensions of meaning provides insights into how and why only certain pasts or certain possible futures are actualized in order to provide comprehensible arguments for certain conflicting positions. Meaning captures the reference of the actual to all other possibilities, which must be either in the past or in the future. The empirical analysis has shown that the factual dimension and the dimension of social meaning enable to communicatively access social realities and as a consequence moderate which pasts and possible futures could be addressed and which not by the communicative process.

7.2 Contributions

This research contributes to three streams of literature: (1) Organizational Memory Studies (OMS), (2) the Communication Constitutes Organization perspective (CCO); and (3) Theory of Social Systems.

7.2.1 *Contribution to organizational memory studies*

According to Organizational Memory Studies (OMS), the constructivist and communication-based perspective on organizational memory expands and changes our knowledge on organizational memory in at least two ways. With the help of Heinz von Foerster's (1948, 1965, 1993b) and Luhmann's (1996, 1998, 2006) constructivist conceptualization of memory, the notion of organizational memory as a function developed here confronts the main critics of existing notions of organizational memory. These critics question the way in which the concept of organizational memory is contextualized (Cornelissen, 2006). They claim that although metaphors such as those of organizational learning, organizational knowledge or organizational memory allow scholars to extend the field of organization studies by using the terminology of another domain of interest (Boxenbaum & Rouleau, 2011; Tsoukas, 1991), its usage should follow a systematic approach to utilize the theoretical value of these metaphors (Cornelissen, 2006). Whereas most of the recently published works on organizational memory either ignore current research on memory or refer to outdated concepts of memory, such as the storage bin model, Luhmann (1996, 1997, 2012) consequently developed his notion of social memory with regard to contemporary assumptions of memory research. His perspective on memory is based on a still accepted perspective claiming that experiences are recreated or reconstructed, rather than stored and retrieved through memory (Schacter, 2001: 9). On the basis of these assumptions the developed conceptualization is systematically embedded within von Foerster's and Luhmann's conceptualization of memory and is contextualized within contemporary psychological and neurological thinking that experiences are reconstructed, rather than retrieved through memory.

The suggested framework is also an answer to the critics of the actual status of organizational memory studies (OMS), which have been examined in *Chapters 1* and *2*. Over the last decade, social scientists have been taking an increasing interest in concepts of social memory in general and organizational memory in particular. Although the idea of organizational memory has been discussed in various publications (Ackerman, 1998; Ackerman & Halverson, 2000; Adorisio, 2014; Anand et al., 1998; Casey, 1997; Casey & Olivera, 2011; de Holan, 2011b; Decker, 2014;

Feldman & Feldman, 2006; Fiedler & Welpe, 2010; Olivera, 2000; Rowlinson, Casey, Hansen, & Mills, 2014; Schatzki, 2006; Schultz & Hernes, 2013; Walsh & Ungson, 1991), the various definitions and conceptualizations of the phenomenon are still contested (Rowlinson et al., 2010; Rowlinson, Hassard, & Decker, 2014). In particular, the most cited existing models of organizational memory, which define memory as a storage device, have been criticized for being too 'mechanical' (Levitt & March, 1988; Olivera, 2000; Walsh & Ungson, 1991). However, organizational memory can scarcely be described adequately by the dominant 'mechanical model', in which 'memories are stored as in computer files' (Rose, 2008: 65-66). Memory is neither a route nor gate through which one returns to past conditions, nor a storage device in which information is stored over time and retrieved later. In fact, organizations develop a 'memory function' (Luhmann, 1998: 45) that identifies the system in the differentiations to former conditions. In contrast to these widespread concepts of memory in organization studies, the framework that this thesis puts forward provides a processual understanding of memory.

According to Luhmann's theory of social systems, which is epistemologically positioned in 'radical constructivism' (Luhmann, 2005c; Watzlawick, 1984), memory as a storage device should be neglected and is rather to be understood as a construction for the temporary use to sustain selectivity and limit connectivity. The imaginary time dimensions of the past and the future are only constructed for momentary usage in order to locate an organization within time to deal with self-produced indeterminacy. Although some notions of memory address these critics, like Schatzki's (2006) conceptualization of practice memory or the framework of 'organizational remembering' that Feldman and Feldman (2006) developed, both are criticized for being fragmented (Rowlinson et al., 2010). The concept of organizational memory function also provides an answer to these critics: it integrates the different time dimensions of past and future and combines the micro-level, which is represented by the decisions that constitute the organization, with the macro-level, which is embodied by decision premises and dimensions of meaning. This holistic and integrative perspective on how past and future are actualized and refer to each other makes it possible to observe how these different levels are interrelated (see also *Subsection 6.3*). Above all the findings problematize the current dominating notion of organizational memory as a "storage device" (Walsh & Ungson, 1991) and answer the call for the constructivist and sociological reorientation of organizational studies on memory (Rowlinson et al., 2010). Future research might seek to examine the far reaching consequences of this turn for knowledge management, organizational identity or organizational design, for example.

7.2.2 *Contribution to the communication constitutes organizations perspective*

The framework suggests that organizational memory should be researched on the fundamental level of organizations, which is defined from a Luhmannian (2006) perspective by the communicative network of decisions (Baecker, 2003; Seidl & Becker, 2005). This focus on communicative events is increasingly addressed across disciplines by organization scholars under the umbrella of the so-called communication constitutes organization perspective (CCO), which emphasizes that organizations are the product of communication 'processes and mechanisms' that constitute 'organizing and organizations' (Cooren, Kuhn, Cornelissen, & Clark, 2011: 1149). The suggestion that organizations should be studied from the CCO perspective has been fruitful over the past few decades (Ashcraft, Kuhn, & Cooren, 2009; Cooren et al., 2011; Cooren, Taylor, & Van Every, 2006; Putnam & Nicotera, 2009; e.g. Robichaud, Giroux, & Taylor, 2004). Three distinct schools of thought represent this theoretical approach: the Montreal school of organizational communication (Cooren et al., 2006; Taylor & Van Every, 2000); the 'four flows' model (McPhee & Zaug, 2000), and Luhmann's theory of social systems (Luhmann, 1995b, 2006, 2012). The CCO perspective provides new insights into a number of concepts related to organizations, such as membership (McPhee & Zaug, 2000), strategy (Spee & Jarzabkowski, 2011), identity (Seidl, 2005b), power (Kuhn, 2008), leadership (Fairhurst, 2008), entrepreneurship (Cornelissen & Clarke, 2010) and networks (Blaschke, Schoeneborn, & Seidl, 2012). These new approaches provide new insights into the underlying mechanisms that are responsible for these concepts of organization. Surprisingly, the concept of organizational memory has not been conceptualized on the basis of the CCO perspective, although communication seems to be fruitful for conceptualizing memory, as 'communication is a central component of sensemaking' (Weick, Sutcliffe, & Obstfeld, 2005: 413) and sense-making, in turn, is strongly related to memory (Cornelissen & Clarke, 2010). The concept of memory as a function of the organization contributes to the idea that communication constitutes organization. The function of memory is an answer to the problem that communication is not necessarily an ongoing process, but rather unpredictable and fragile. The connectivity of communication could not be taken for granted as it could be that (1) ego does not understand what alter means (2) 'reaching the addressee' could fail or (3) the communication is not 'accepted and followed' (Luhmann, 1995b: 157). However, given that organizations constitute themselves by communication, how do they ensure their constant reproduction? This 'problem of connectivity' is addressed by the functions of memory and oscillation, i.e. by how an organization selectively draws on past and future horizons as resources to construct a constant social reality in which communication is

able to overcome its own improbability. Memory is a functional solution to the problem of sustaining the constitutive network of communications that all organizations face. The memory function provides schemes of meaning or distinctions communication could refer to, which have been established in the past and reflect into a future to be used in the present communication process. Furthermore, this perspective helps shed light on the micro-level of memory and on how organizations selectively construct and make use of the temporal dimensions of the past and the future. The communicative perspective takes into consideration the fact that organizations always constitute themselves and 'act' in the present. Organizations are not able to access the past or future, but must selectively construct these time dimensions in order to use them as a resource or as a way of dealing with their own and self-produced indeterminacy. The framework developed in this thesis suggests that it is necessary to analyse the present organization in order to gain insights into its pasts and possible futures. Above all, the present study makes it possible to recover the full potential of the notion of memory and liberates it from the bonds of a strictly positivistic managerial perception.

7.2.3   *Contribution to Social Systems Theory*

This study also contributes to Luhmann's social systems theory in two ways. First, it enriches the theory of social systems with the concept of organizational memory as a function. Second, it provides a rare empirical insight into Luhmann's theory of social systems and especially into his notion of organization as well as his notion of memory as a function.

Although memory plays an important role in Luhmann's work, he never introduced the concept properly in his writings about organizations. According to Luhmann a social system is in need of a memory in order to realize 'historical causes' to define itself in difference to its former condition (Luhmann, 2012: 349). Luhmann also refers to memory in his major monograph on organizations, *Organisation und Entscheidung* (Luhmann, 2006, Trans. Organization and Decision), as a function that enables an organization to observe itself in difference to its pasts and possible futures and describes it as 'the blind spot within the distinction of past and future' (Luhmann, 2006: 156; own translation). Furthermore, and as already mentioned, memory is the answer to the organization's self-produced indeterminacy, ensuring its permanent communicative constitution over time (Luhmann, 1997). Nevertheless, Luhmann did not specify the characteristics of the memory function nor how it works. According to this, the study has shown on a theoretical (see also *Chapter 3*) as well as on an empirical basis (see also *Chapter 5* and *6*) how an organization 're-impregnates' itself and through this constitutes memory on the

basis of its own elements, i.e. decisions. Moreover, it showed how decision premises locate an organization within its past and enable the oscillation into the future to finally realize its present state in reference to the other temporal dimensions. This part of the research led to the development of a theoretical framework (see also *Subsection 6.3*) for describing organizational memory and its function, which locates an organization between its possible pasts and futures.

Despite the rising interest in Luhmann's theory of social systems in general and in his writings about organizations in particular within the field of organization studies (Schoeneborn, 2011; Seidl, 2005a; Seidl & Becker, 2006), this theory still finds only limited acceptance because of its complexity and of a lack of empirical studies to support it (Besio & Pronzini, 2010). The complexity of Luhmann's theory appears to make it difficult to operationalize research questions. Furthermore most researchers who draw on Luhmann's theory of social systems are primarily theorists and thus often not trained in conducting empirical research. However, scholars have argued that empirical research on the basis of social systems theory is necessary in order to develop Luhmann's ideas further, shed light on current questions, promote his work internationally and fully exploit the theory of social systems. In order to do so an empirical opening is demanded (Nassehi, 2008; Schoeneborn, 2011; Seidl & Becker, 2007). Taking these calls into account, the present study developed an epistemological understanding of Luhmann's theory of social systems (see also *Subsection 4.1*), which led to the conclusion that it is not about distinguishing between theory and an independent empirical access to the world. Empirical research from a Luhmannian perspective is more about enriching the theory on the basis of theoretically derived data, which is again guided by the provided theoretical distinctions. This research has shown that Luhmann's theory of social systems, as well his writings on organizations, are applicable to empirical illustrations (see also *Subsections 5.1* and *5.2*), as well as, to empirical analysis (see also *Chapter 6*). The empirical research of this study is likely to have significant strengths, such as consistency within theoretically derived distinctions, and at the same time ensures that concepts are confronted with empirical data in order to gain further new insights or modifications. Moreover, it overcomes the erroneous belief in objectivity, which, from a constructivist approach is misleading and not achievable. The Luhmann inspired empirical research concentrates on observing how it constructs its own reality and is thus able to deliver consistent research results.

7.3 Limitations and future research

Despite this study's contributions, the concept of organizational memory as a function is limited in two ways in particular: first, by the 'hermetic terminology' (Seidl & Becker, 2006: 10) of social systems theory and second, by the strict focus on communicated decisions as the core of organizational memory. Luhmann stated that his aim was to develop a 'theory of society' (Luhmann, 2012: xi), which he developed on the basis of the assumptions underlying systems theory. Thus, his theory became a closed system with its own hermetic terminology in which all terms are related to each other and underlie the principle of self-reference. His aim was to develop a theory which eludes itself from everyday language in order to develop perspectives that differ from everyday observations; in other words, in order to observe the society's own blind spot (Nicolai, 2004). Thus becoming familiar with Luhmann's theory of social systems is not an easy task and gaining access to his theoretical perspectives requires time and patience. The self-referential element of systems theory is a fruitful way of developing new perspectives, at the same time, however, it is a 'major weakness that limits greatly its compatibility with other, even similar, theoretical approaches' (Schoeneborn, 2011: 681). Nevertheless, within the interdisciplinary field of organization studies, Luhmann's theory of social systems has attracted great interest in the last decade. Luhmann has been acknowledged as one of the most important scholars, especially by the emerging communication constitutes organization (CCO) school of thought, (Schoeneborn, 2011; Schoeneborn et al., 2014). Hence, future research is necessary to address the differences as well as similarities in order to take further advantage of Luhmann's fruitful work.

Another limitation of the concept of organizational memory as a function is the strict focus on communicated decisions. Due to this, other forms of communication as well as memory resources like artefacts or materiality are widely disregarded. Especially the role of materiality is more or less missed out within this study. Luhmann's works on organizations have been criticized 'for having overestimated the role of decisions and having underestimated the role of materiality in the self-reproduction of organizational practices' (Schoeneborn, 2011: 681). According to Luhmann artefacts or machines, for example, do not process meaning and are therefore unable to actively contribute to communication (Luhmann, 2012: 37). For this reason, like Luhmann's theory of social systems, this study does not adequately discuss materiality and its relation to memory. Because this study focuses on the communicative constitution of memory, it has not examined sufficiently the role of materiality, integrating it only on the basis of the dimension of factual meaning, as in the discussion on the iPhone application and its background colours, for

example. In order to close this significant gap future research should examine the role of materiality in the organizational memory function.

Another limitation is based on the methodology of this study. This research project has been designed as a six-month longitudinal field study at an entertainment and technology company. As already introduced in *Chapter 4* data collection consisted of (1) participant observation, (2) semi-structured interviews and (3) archival data. Owing to the researched phenomenon of social memory in general and organizational memory in particular, time plays a significant role for researching the phenomenon of temporal embeddedness. Although the collected and analysed data is rich and significant for the purpose of this study a long-term study of about 5-10 years would have been of great value in further extending the data basis and enhancing the exploration of the memory function at Entertain Corp. For example, it would have been an excellent idea to have carried out another field study of this kind after the merger of Entertain Corp. with another large organization (see also *Subsection 4.4.3.2*) in order to collect additional data on how the organizational memory function changed over time, or which aspects of the memory function remained stable. Furthermore the study relies to a large extend on retrospective data, which has been generated on the basis of interviews or archival data. In this sense part of the collected data are itself selectively reconstructed and have not been collected in real-time. This appears justified as these circumstances are taken into account. Nevertheless real-time data, such as participant observation and real-time interviews, would help to develop a more undistorted observation. Future research on organizational memory in general and the organizational memory function in particular might take this into consideration and research memory with the help of longer periods of data collection.

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186

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