

LEARNING ABOUT THE SINS OF ORGANIZATIONAL MEMORY

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ABSTRACT

In line with the overall theme of this year’s OLKC conference, this paper explores the terrain that is opened up when we re-view the concept of organizational memory through some of the recent thinking and research about the nature of individual memory. We argue that many researchers in the field of organizational memory have tended to overlook this fertile source of new ideas. It is our key contention and contribution that there are a range of problems in organizations that can be elucidated using individual memory-related concepts, and that understanding problems with respect to the functioning of individual memory helps us to also understand similar types of problem in an organizational setting. This re-viewing potentially provides fresh insights, new directions for future research, and represents a creative fusion between these two areas of research.

In practice, we argue that it is an important first step is to be aware that organizational memory may be subject to deficiencies that plague individual memory. Future work may provide more detailed insights in how to deal with them.

Keywords: Organizational memory, Memory distortion, Enterprise systems

1 INTRODUCTION

Although organizational memory is not a precise analog of individual memory we argue in this paper that research into individual memory can provide interesting insights into the nature and functioning of organizational memory. In addition, we are particularly interested in the part that information technology (enterprise systems) plays in disrupting and distorting the functioning of organizational memory. This parallels and expands thinking and research concerning the impact of technology in general and information technology in particular on individual memory.

It would seem to be uncontentious that individual memory and organizational memory are brought into a necessary interaction to support the actions of individuals in an organizational context. Both individual and organizational memory rely directly and indirectly on technologies (both biological, electronic and technical). Thus our approach

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shines a light on the interaction between individual, technology and organizations using memories as the focus.

We argue that memory plays a key role in individual and organizational life. Individuals act based on information that they retrieve from memory, and reflexively their actions shape their memories. Further, lack of memory, particularly short-term memory, makes it very difficult for individuals to act in any reasonable manner, or, indeed, in some situations, act at all. In addition memory provides the basic foundation for individual identity and sense making in ordinary life. As many harrowing cases have illustrated individuals lacking an ability to form any long term memories are essentially unable to live anything resembling an ordinary life. In an organizational context, we tend to speak naturally about “organizational memory” as if it were a reasonably precise analog of individual memory. Organizations clearly have a need to ‘remember’ in order for their members to enact such behaviors as organizational routines and practices. There is also a need for organizational memory to provide support for remembering events that represent critical events in the ‘life’ of the organization. These memories are vital for the continued functioning and indeed the very existence and identity of the organization. They provide the ‘backdrop’ for interpreting events in the ‘life’ of the organization.

Discourse with respect to organizational memory and, to a lesser extent, individual memory relies heavily on the information-processing metaphor of memory. This view tends to underestimate the importance of social interaction, the continuous processes by which memories are constructed and (re-) constructed, as well as the intertwining of the different components of organizational memory (Corbett, 2000). We argue that adopting a perspective that places more emphasis on the construction and re-construction of individual memory in a social context can highlight the richness and some essential challenges associated with organizational memory. One of the important aspects of richness is the multitude of different interpretations of memories provided by individuals. These multiple interpretations can lead to challenges with respect to utilizing such memories in an organizational context and require us to have a deeper understanding of the nature and functioning of individual human memory.

In our exploratory analysis, we take Schacter’s (2001) book “The seven sins of memory” as a starting point. He describes seven types of malfunction (or mal-adaptation) or ‘sins’ that an individual’s memory may be subject to, such as transience (forgetting over time) and persistence (being unable to forget). These ‘sins’ of individual can be used to illuminate some of the problems that organizations encounter with their organizational memory. We investigate how we can translate these concepts to an organizational level, making use of examples from enterprise systems as the pervasive technologies that have very significant influences on the way individuals and organizations remember. How they construct and reconstruct memories. Indeed, we argue that the implementation and use of such pervasive enterprise systems may result in extensive re-construction of organizational memory which often goes unrecognized. Further, given that we individually display the various sins of individual memory, we set out to answer the question as to how do the other components of organizational memory either counteract these sins or accentuate them.

This paper is speculative and we adopt an eclectic approach in combining conceptual analysis with illustrative examples drawn from observation of the functioning of organizational memory in the context of the implementation and use of enterprise systems.

We do not propose a theoretical model or perform extensive analysis. We hope that by juxtaposing current thinking about the individual cognitive realm and action in the social realm our work will stimulate readers to explore this complex terrain further.

In closing it is interesting to note that some researchers argue that there are no such things as individual memories located ‘in’ individuals. In their view all memories are social. Unfortunately we do not have sufficient time to consider some of the challenging ontological issues raised by memory. Clearly memory does not simply involve retrieving memories from some store in the same way as we might retrieve objects from a collection. Physical or chemical substrates (technologies) are a necessary to the creation of memories and as a precursor to the re-creation of memories. However, the relationship between the substrates and the memories that are created and re-created is ill understood. As indicate by Schacter (2001) and others future research on memory utilizing fMRI and other similar technologies may well allow us to develop a much clearer picture of the relationship.

2 SCHACTER’S SEVEN SINS: INTRODUCTION

As we have noted about Schacter (2001) basically identifies seven sins of memory as follows:

- Transience: the increasing difficulty in retrieving memories over time.
- Absent-mindedness: the failure to adequately attend leading to the failure to create a memory in the first place.
- Blocking: the temporary inaccessibility of memories.
- Suggestibility: the augmentation of memory with details that did not occur or the wholesale creation of false memories.
- Bias: memory distortions caused by current knowledge and beliefs.
- Persistence: memories having strong valence which cannot be forgotten and intrude into consciousness with disruptive consequences.
- Misattribution: attribution of memories to incorrect sources.[†]

In the following sections we discuss each of these sins in more detail and examine how it can be used to shed light on the nature of organizational memory and the process by which these memories are created and re-created.

3 THE SIN OF TRANSIENCE

An initial observation is that organizational memory is likely to be transient to the extent to which it involves individual memories. We have all experienced situations where we have forgotten how to implement a particular organizational process or a relevant event in the past. In addition, individuals play a central part in interpreting organizational memories.

However, transience has a positive side. Many of our experiences, if they need to be remembered at all, only need to be remembered for a short time. Thus transience prevents us from being overwhelmed by trivial memories. For individuals we have both short term

[†] Adapted from The Seven Sins of Memory by Bridget Murray, APA Online Monitor, October 2003, www.apa.org/monitor/oct03/sins.html

memory and long term memory and process for transferring memories from one to the other. One of the problems of organizational memory is that there may not be the same mechanisms in place or they may not be appropriately coordinated - does the organization have memory mechanisms in place that ensure that the appropriate memories are retained on long term memory and the appropriate memories only retained for short periods.

There is also a need for other aspects of organizational memory to provide support for remembering events or processes that should be remembered because they represent critical events in the ‘life’ of the organization.

In organizational setting, forgetting old knowledge may be considered to be beneficial, as in the case of airlines that ‘forgot’ about the passengers on a particular flight once that flight had safely arrived.[‡] Previous work on organizational forgetting (De Holan et al., 2004) identified a variety of forms of organizational forgetting as shown in Figure 1 below. We may identify memory decay as being related to the individual sin of transience and, as we will see later, failure to capture as being related to the individual sin of absent-mindedness.

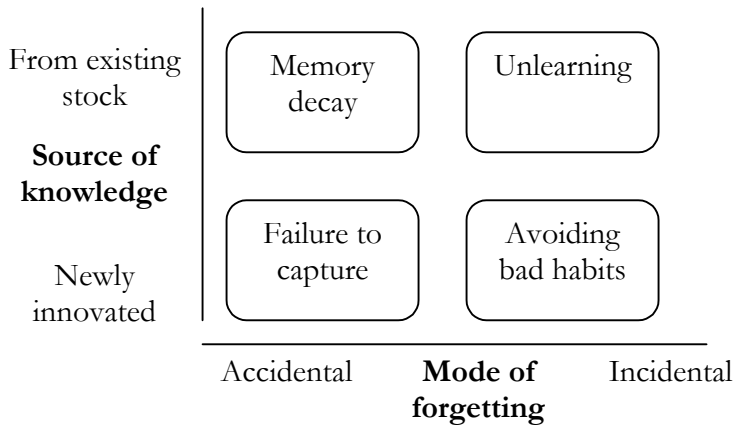


Figure 3. Forms of organizational forgetting (De Holan et al., 2004, p. 47)

We may also consider De Holan’s quadrant labeled ‘avoiding bad habits’ as related to the sins of bias and susceptibility. The final quadrant labeled ‘unlearning’ does not appear to have a matching sin associated with it. Indeed, although individual unlearning may take place it would seem to be less of a sin and more nuanced and dependent on the context within which the unlearning takes place. Unlearning when it relates to brainwashing often has negative connotations whereas unlearning when associated with traumatic experiences may have positive connotations. Clearly the sin of persistence makes unlearning difficult whereas the sin of transience may achieve desired unlearning outcomes though this will rarely occur in a controllable fashion.

4 THE SIN OF ABSENT-MINDEDNESS

We have noted, following Schacter (2001) that absent-mindedness is the result of insufficient time being paid when events occur and are available to be encoded as

[‡] This example was only relevant in a pre-9/11 world!

memories. Obviously in an organizational setting memories may not be encoded by individuals but they may also not be encoded in aspects of organizational memory. How do we ensure that individuals assess the relevance of events and encode them in organizational memory. A related problem occurs when we fail to update the knowledge in an enterprise system to reflect changes in the environment. In this case the organization becomes absent minded because it cannot ‘find’ things that have moved or applies inappropriate rules.

“The basic idea underlying the foregoing analyses of transience and blocking is that as far as memory is concerned, less is sometimes more. That same principle applies equally –if not more strongly- to absent-mindedness. Absent-minded errors occur in part because establishing a rich memory representation that can later be recollected voluntarily requires attentive, elaborate encoding. Events that receive minimal attention and elaboration as they are occurring also stand little chance of being recollected subsequently. But what if all events were registered in elaborate detail, regardless of the level or type of processing to which they were subjected? The result would be a potentially overwhelming clutter of useless details, as happened in the famous case of the mnemonist Shereshevski. Described by the Russian neuropsychologist Alexander Luria, who studied him for years, Shereshevski formed and retained highly detailed memories of virtually everything that happened to him – both the important and the trivial. Yet he was unable to function at an abstract level because he was inundated with unimportant details of his experiences – details that are best denied entry to the system in the first place.” (Schacter, 2001, p. 190)

“But what would be the consequences and costs of retaining the myriad of contextual details that define our numerous daily experiences? Assume, as I’ve argued that memory is adapted to retain information that is most likely to be needed in the environment in which it operates. We seldom need to remember all the precise sensory and contextual details of our every experience. Would an adapted system routinely record all such details as a default option, or would it carefully record such details only when circumstances warn that they may later be needed? Our memories operate on the latter principle, and most of the time we are better off for it.” (Schacter, 2001, p. 191)

When looking at enterprise systems, it may exactly be the problem that there is not a good guiding principle to deal with the extensive information that can be encoded by the system, not a clear way of distinguishing what is needed and what not, and at which time. Some would argue that ‘everything’ should be encoded in case particular items of information, which are not considered to be relevant now may be considered to be relevant at a later date. This is an essentially incoherent notion since it is not possible to encode everything. However much we seek to encode the full richness of experience distinctions have to be made, classifications have to be developed and hence aspects of the experience will inevitably not be encoded. Further, encoding is only part of the process, retrieval requires interpretation and there may insufficient information available to interpret all the information that can potentially be provided by enterprise systems. Clearly, many of these issues touch on central issues related to research on databases and could benefit from reviewing this research. Other issues run counter to some of the traditional of database research in that they force us to consider the social context within which memories are created and re-created.

5 THE SIN OF BLOCKING

The sin of blocking in the individual case involves one memory blocking another or the temporary inaccessibility of memories. One way this can be interpreted in the case of organizations is when one part of the organization is not able to access relevant information in another part of the organization. This would not seem to be a very instructive analogy so we would suggest two other more interesting avenues to explore.

In the first place individuals in organizations are often literally deluged with information and do not know how to assess what is relevant or even credible. In this sense the availability of too much information has the effect of blocking – it prevents them from knowing how to take action. Secondly, the dominance of a particular perspective or approach, which has been adopted by the organization may block access to particular information. Thus, the development of a particular framework for analyzing investment decisions may not allow the decision maker to access or incorporate specific types of information.

An interesting question would be where and how the blocking takes shape in the Organizational Memory/Enterprise system context - this may for instance be a result of the development process through which certain routines or practices are supported and others not; but also some participants or components of the Organizational Memory may have more "power" to block access to certain types of information?

An interesting alternative view of blocking is in situations where, in an organization, two items of information may be in conflict. Blocking takes place when one item of information essentially ‘blocks out’ another. This clearly represents one extreme response to such conflict – there are other ‘coping’ strategies which may be invoked.

Another way in which blocking may occur is through the adoption of a particular approach to rationality will block out other memory contents. The comprehensiveness and pervasiveness of ERP systems means that they have a large array of formal rules, regulations, norms, and knowledge embedded or implied. This formality, as a consequence of the rationality model underlying most ERP systems, brings about a specific rigidity that makes dealing with emergent situations, learning, and creativity a difficult issue.

“The transactional mechanics which ERP packages bring about may thus block exploration of alternative ways of perceiving and acting on reality and by extension organizational development and innovation.” (Kallinikos, 2004, p. 25)

In other words, the formality, rule-based character of enterprise systems may make it difficult for the people in the organization to actually think out of the box, beyond the rationale of the ERP paradigm, and may prevent them to explore alternative ways of doing business.

“The sin of blocking involves a kind of forgetting that differs from absent-mindedness and transience. Unlike absent-minded memory failures, the recalcitrant name or word has been encoded and stored, and sometimes a retrieval cue is available that would ordinarily trigger recall. And unlike memory failures resulting from transience, the information has not faded from memory: it is lurking

somewhere, seemingly poised to spring to mind with more prodding, but just remains out of reach when needed. Blocking is peculiarly vexing because at one and the same time, it seems perfectly clear that you should be able to produce the sought-after information in the face of irrefutable evidence that you cannot.” (Schacter, 2001, p. 62)

In individual memory the Baker/ baker paradox often occurs. It refers to the differences in remembering a proper name versus the functional name. If somebody is called Baker, this brings different associations than if somebody’s occupation is baker. We usually are better capable to come up with the baker element, rather than recalling that somebody is a Baker. There may be a parallel here to the way enterprise systems are organized. The proper names of the processes may be less transparent (also think of the tree structure for instance SAP R/3 exhibits) and more difficult to remember, because there tends to be a conflict (at least partially) between what different people see as the components of a particular process..

6 THE SIN OF PERSISTENCE

In the context of individuals the sin of persistence refers to memories that we simply cannot forget. In itself this may not be considered to be a problem though, if it were true of all memories individuals would potentially face significant problems as was demonstrated by Luria’ study of Shereshevski. A more limited problem occurs since with the nature of memories which are particularly persistent. Since they are often emotionally charged they may break into our consciousness and interfere with our ability to act. They may be very disruptive.

We have already noted that organizational may potentially face its members with the mnemonist’s problem – there is just too much information available and no indication as to what is relevant or not in a given context.

Another interesting problem which relates to the persistence of memories relates to situations where, rather than remembering how to engage in a particular behaviour it become automatic and essentially unconscious. In the case of the individual this relates to habits and more complex automatic behaviour. In the case of organizations it relates to organizational routines which are embedded in the very structure of an organization and its systems. These routines are very difficult to ‘forget’ since it may be very difficult to change them.

Thus in an organizations context issues relating to the development of persistence – how do routines become routines - and how they may be changed or eliminated are important issues to research. Clearly, the more these routines are embedded in complex technology the more difficult it may become to identify them, fully analyze them, and, indeed, change them.

Delving further into the notion of persistence we might ask ourselves what actually persists. Are we referring to memory traces or memories as they are actually interpreted. Earlier in this paper we had ducked this issue and we will partially duck it again. However, it is interesting to note that in an organizational context there is also an issue here about how routines are interpreted (perhaps this matches to how memories are interpreted). In an organizational setting the interpretation of routines often allows some flexibility. This

might lead us to suggest that persistence may be less of a problem for organizations than for individuals because in the former case there is some flexibility of interpretation whereas in the latter memories are likely to be interpreted in the same way..

The persistence of individual memories does not allow change, both in an obvious sense that the memories that are persistent don't change but also because existing memories 'taint' the formation of new ones. –In both these ways we cannot escape from the past because the past is always with us - forgetting allows us to re-interpret and re-configure the present. Perhaps this is somewhat like having new employees - they potentially can reconfigure to a certain extent but this reconfiguration is limited - there are some things they cannot change - they are provided with some interpretative structure - some basic grounding with which to interpret.

To counter some of the negative, maladaptive features of persistence

Persistence may also be exacerbated in an organization as a result of organizational inertia even if it is, in principle, relatively easy to modify a particular enterprise system. Individuals within the organization need to find an intelligent way of dealing with the information and knowledge that is implied in the enterprise system. This is not to say that they are not intelligent! It does mean that learning how to work with enterprise systems in a sensible manner is not a well-defined task, it will require “innovative genius” (Glynn, 1996). Innovative genius or intelligent behavior means being able to make adaptations in routines when necessary, and being able to understand when not to.

“Organizations with a greater capacity for innovation tend to be organic rather than mechanistic in structure, integrative rather than segmentalist, and they have lower formalization, more role ambiguity, multidisciplinary teams, and job rotation.” (Glynn, 1996, p. 1102)

In that light, organizations are primarily understood as ongoing processes rather than as a collection of parts (implying a mechanistic view). Using the image of an organism in constant exchange with the environment invites to take an open and flexible view of organization (Morgan, 1986). Viewing the organization as an open system also implies seeing the organization as a collection of parts or subsystems, which is helpful for integration.

We are also interested in seeing where we can make use of ideas that relate to both the failure to forget (the persistence of memory) and the failure to pay attention. Taussig is well known sociologist who studies the ways in which societies actively accept explanations for an event that they know is false - he particularly refers to the situation in Columbia where the middle classes accepted the argument that assassinations were being conducted by left wing rebels when everyone knew rationally that they were being conducted by right wing death squads - really what he is talking about is deliberate and mindful ignorance.

Persistence is a fairly basic sin for organizational memory - actually it argues for having organizational memory systems where there is a significant human component - flexibility derives primarily from the human component - what is interesting here is how we develop an appropriate structure for organizational memory - how do we structure memory so that it given enough structure but also enough opportunity for the human participants to develop

modified interpretations of the structure to reflect changes in the external environment - or at least changes in the required behavior to respond to the external environment. Individuals do certainly change their view of the world and it would be interesting to investigate the ways in which the study of how conceptual change comes about with individuals relates to change and conceptual change in organizations.

There is also likely to be some relationship here between management knowledge and management fads and persistence - as we implement more and more comprehensive enterprise information systems are we perhaps embedding management theories and accompanying approaches in the structure and content of organizational memory - this may be problematic since having sufficient variety (this time in terms of management theories and perspectives) may well be necessary to the performance and adaptiveness of organizations.

“The idea that mental models can dominate business decisions and that these models are often tacit and even contrary to what people espouse can be very threatening to managers who pride themselves on rationality and judicious decision making (Senge, 1990), pp. 18-19.”

Sturdy (2004) discusses eight perspectives on the adoption of ideas and practices. A summary of his assessment is provided in Table 10.

Table 10. An assessment of theoretical perspectives on the adoption of ideas and practices (Sturdy, 2004, p. 168)

Perspective	Reason	Strength	Weakness
Rational	Effective for organization	Prescriptive	Idealistic
Psychodynamic	Anxiety/ identity	Emotion focus	Essentialism
Dramaturgical	Rhetoric	Integrative	Mono-directional
Political	Interests/ effects	Critical	Functionalist
Cultural	Fits values	Contextual	Apolitical
Institutional	Imposed/ legitimation	Comparative/ integrative	Deterministic
Multi-dimensional	Various	Inclusive	Non-integrative
Contingency	It depends	Flexibility	‘Relativist’

Sturdy does not deal with the fact that ideas and practices themselves may have for instance be inspired by cultural or rational frame. It is interesting to see that dealing with the adoption of proposed rational practices of enterprise systems is in fact not so rational as it seems. Looking from other perspectives attempts to make it clear that “... adoption is not based on a systematic assessment of solutions to organizational problems, but on impulse, persuasion, power, cultural resonance, and legitimation, or is subsumed within them (Sturdy, 2004) p. 169.”

How does this relate to persistence and memory? We would propose that the different perspectives proposed by Sturdy would lead to different approaches to the creation and interpretation of memory. They are also likely to lead to a different ‘balance’ being established between individual memory and organizational memory.

7 THE SIN OF BIAS

Schacter identifies five major types of bias in his analysis. “Consistency and change biases show how our theories about ourselves can lead us to reconstruct the past as overly similar to, or different from, the present. Hindsight biases reveal that recollections of past events are filtered by current knowledge. Egocentric biases illustrate the powerful role of the self in orchestrating perceptions and memories of reality. And stereotypical biases demonstrate how generic memories shape interpretation of the world, even when we are unaware of their existence or influence (Schacter, 2001) p. 139.”

When we implement Enterprise Systems we tend to privilege certain sources of memory and devalue (or ignore) others. There are also issues that relate to the interpretation and re-interpretation of memories. Some types of context may be preserved while others are not.. Contexts that lead to acceptable interpretations may survive while those that lead to unacceptable interpretations may not. In a fairly clear way there are also dominant models of rationality that will tend to devalue some previous memory contents and revalue some other contents. This, in itself, is an interesting perspective - in one sense we would argue that prior to the adoption of enterprise systems there may be a variety of different models of rationality in use by the organization - the implementation of enterprise systems tends to privilege one particular model of rationality. This clearly has an impact on the nature and contents of organizational memory.

A story that talks to some of the dangers of adopting one view of rationality and, with it, one view of the nature and status of memory contents relates to a major police force which was seeking to integrate all the different databases to which it had access - from prison records, criminal records to intelligence files. However such integration, if attempted, would not have been able to take into account the fact that the different databases represented dramatically different perspectives on, for example, the nature of the knowledge, the modes of reasoning and rationality, the credibility of data etc. –For example, one would hope that prison records are fairly certain whereas most intelligence data is very vague, based on hunches and questionable data sources.

8 THE SIN OF MISATTRIBUTION

Interpreting the sin of misattribution, attributing a memory to an incorrect source or giving credence to a ‘false’ memory may have relatively little resonance in the context of organizational memory. One possible type of misattribution might be considered to occur when there are given insufficient information about the process, event or customer, to correctly identify the process, event or customer. - Schacter talks about these sins arising as a result of having insufficient source information or paying insufficient attention to source information. Essentially Enterprise Systems have embedded categorization schemes in a similar way to our own individual categorization schemes that rely to a greater or lesser extent on memory. In a similar way to the problem of surfacing routines that are embedded in Enterprise Systems it may be very challenging to surface the embedded approaches to categorization.

It is also worth considering the fact that the potential impact of memory on categorization differs depending on the theory that one espouses which underlies our ability to develop and apply particular categorizations. In the case of prototype theory it is postulated that we

categorize new items by comparing them to prototypes of different categories. Thus, a comparison is made between current experience and memories representing category prototypes. It is worth noting that one danger inherent in many enterprise systems is that much of the diversity associated with different categories may be eliminated. Once a particular category has been established only a limited number of characteristics relating to that category may be remembered. Rather than remembering a prototype and many other examples which are varying ‘distances’ from the prototype the system may privilege only the prototypes – or, at least, once entered into the system there may be no indication that a particular item deviates from the prototype.

9 THE SIN OF SUGGESTIBILITY

As we have discussed earlier, in an individual context, the sin of suggestibility refers to a situation where individuals are lead to believe something happened in the past when it did not. They are lead to believe in false memories. One interesting example of this relates to the ‘power of data warehousing’. There is an oft repeated story about a supermarket chain that discovered that there was a high correlation between the sales of beer and diapers on Friday nights. As a result they arranged for beer to be displayed close to diapers and experienced a significant increase in sales of both items. This story became almost mythological and was quoted as fact by many individuals. However, to the best that anyone can determine it was a complete fabrication – a story told by a salesperson for a data warehousing company to illustrate what might be possible through the analysis of data contained in a data warehouse. One suspects that many of the stories told about such management fads as Business Process Reengineering are similarly suspect.

Unfortunately we have not have a chance to explore this particular sin in an organizational context but we hope to in future work..

10 IMPLICATIONS FOR FUTURE RESEARCH

In discussing the nature of individual memory we have note that there are significant interactions between individual memory in organizational settings. One research theme that would be interesting to explore is how both individual memories and organizational memory changes both over time and also as a result of changes in enterprise technology. Our principle interest concerns changes that result from the implementation and use of enterprise technologies. However, investigating the impact of other technologies including the impact of particular analytic approaches would be an interesting research avenue to pursue.

We also suggest that further exploration of the applicability of the concepts associated with the sins of memory would be worthwhile. Associate with this would be a further study of the way in which technologies either exacerbate or mitigate the various sins at an individual or organizational level.

As we have noted this is a speculative paper. Further work will need to develop a far more precise model of the relationship between organizational action, individual memory and organizational memory.

11 CONCLUSION

It is our key contention and contribution that there is a specific category of problems in organizations that are related to memory. Given that the memories available to individuals are a combination of organizational memory and individual memory we have argued that understanding problems with respect to the functioning of individual memory helps us to also understand similar problems in an organizational setting. In this paper we have further focused on the ‘sins of individual memory’ in order to see what light they may shed on organizational memory. We have also hinted at some interesting issues about the interaction between memory and the necessary physical or biological substrate for memory. However, as we have noted, our paper is largely speculative and we hope that it will lead to a variety of different research projects.

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