

Stockholm School of Economics

Managing Play

A Master Thesis in Entrepreneurship

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EXECUTIVE SUMMARY

- ❑ This thesis is written for the Stockholm School of Entrepreneurship. It is a contribution to the study of entrepreneurial learning and behaviour in complex organisations. Our study pursues the Schumpeterian notion of “creative responses” and proposes a model of learning that incorporates and encourages the displacement of conventional business paradigms in favour of unconventional, innovative, chaotic and entrepreneurial behaviour and management.
- ❑ The authors have used an inductive approach to their thesis. This thesis is therefore an attempt at speculative, imaginative and entrepreneurial model creation. The findings are not empirically tested but are concepts and ideas that the authors speculatively posit as a method of entrepreneurial learning in organisations.
- ❑ The central theme of this thesis is that learning through play and tiered experimentation and collaboration facilitates, idea generation, testing and action in organisations competing in uncertain and changing environments. This is the Playful Learning Model. Central to the description of this model is that it builds on the traditional learning model while incorporating the notion of play and playing with idea generation, experimentation and collaboration as a means of reinforcing the need for new and generative learning and action in contemporary organisations.
- ❑ The authors outline a method of ‘Playing on the edge’ as the optimal managing technique for the Playful Learning Model. This proposed theory invokes complexity theory and the concept of ‘edge of chaos’ management in its description of managing a playful organisation in today’s dynamic environment. This chapter is concluded with a list of specific managing guidelines for ‘playing on the edge’.
- ❑ The authors look to various anecdotes and previously documented cases to corroborate the thesis put forward in this dissertation. The abstract and complex nature of the issues explored in this paper is often difficult to describe and understand without such examples. In addition the scope of this Masters thesis and the inherent complexity of the subject did not allow empirical research to be carried out to back up our speculations.
- ❑ This thesis attempts to specify how the concepts of playful learning can be structured while still maintaining a sufficient level of order that preserves coherence. Therefore the authors while describing some inherently complex theories and ideas have attempted to make their topic both understandable and practical by evoking descriptive anecdotes and issuing practical guidelines.
- ❑ Some key words are: Play, Learning, Surprise, Collaboration, Experimentation, Ideation, Inertia, Change, Political Culture, ‘on the edge’...

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CHAPTER 1: INTRODUCTION

The new world of business puts less emphasis on playing by predefined rules and more on understanding and adapting while the rules of the game – as well as the game itself – keep changing. The fast pace and turbulent nature of today's business environment has brought the study of organisational structures and processes into a new era – an era of discontinuity where chaos is cherished rather than abhorred. This vista of the present and the near future is the stuff of nightmares to the extant Taylorian and the true coming of age for the Schumpetarian opportunist.

It was discussion on this new, portentous economy, and our interest in the topic of corporate intelligence that launched our theorising (did we say agonising?) on the extant literature surrounding the New Economy and the role of learning and innovation in organisations. This thesis represents the culmination of our preoccupation with how organisations can overcome a paradox that confronts the business world and, hopefully, offers practical insight into how it may be overcome.

1.1 THE GAME

What we have attempted to do is harness our ideas and those ideas that have inspired us into, a model that captures nuggets of contemporary thinking together with our interpretations and fancy! We began this journey with a number of contradictory notions and theories that interested both of us. We began looking at firms in the Stockholm area – considering the ideas of *knowledge creation* and *idea generation*. No, you are not reading the wrong document (!). Suddenly we were experiencing problems in figuring out the relevance of our findings and how they might fit together. We lacked direction. Essentially we could not make sense of our research and its complexity confounded us! Perhaps the situation could be compared to the edge of chaos concept- one could say that we fell over.

Nevermind. From there we looked over our research, which at that stage was extensive and straddled a plethora of disciplines and theories. **We began to play.**

“every act of imagination is the discovery of likeness between two things which were thought unlike. One makes such discoveries only by picking things up and seeing how they fit together.”
Jakob Bronowsky,
mathematician and
historian
(Schrage, 2000)

The result is this document. We began in the realm of Corporate Intelligence, and with the questions: how can firms become intelligent and how can they exploit their inherent intelligence to compete successfully? Basically, it seemed to come down to perspectives, idea creation and action or as in Hamrefors (2000) prescription for intelligence creation posits; Foresight, Action Change. Organisational learning theory and Schrages (2000) impactful notion of ‘play’ inspired our discourse on experimentation as a valid method of jump-starting pro-activity. Traditional organisation theory and the much newer complexity theory led us to consider the conditions needed to nurture experimentation and also resulted in the consideration of the ‘edge of chaos’ as the organisational perspective most likely to embrace or facilitate playfulness. It took us by surprise when we recognised that together these ideas could represent a powerful and valid model for turning the perspective-making processes inherent in Intelligence Theory into pro-active action. We realised that this was one piece that did not fit into our picture or understanding of the literature as we had read it. How can new perspectives be *generated* and then *translated* into ACTION, or more importantly *successful* action?

This is our own model – it reflects our research, the anecdotes that have inspired our thinking and the feedback we have received –it is not conclusive; it is speculative. Perhaps it could be likened to a probe, one of our experiments – if you feel like playing with our ideas then it has been a success....!

1.2 THESIS OUTLINE

Chapter 1: Introduction

Chapter 2: The Playful Organisation

This chapter delivers the core concepts at the foundation of our proposed model. It serves as an introduction to the main ideas and concepts of this thesis. These ideas consist of Recognising opportunity and generating ideas. This is accomplished through play, intrapreneurship and scanning. The next concept is that of Learning. This incorporates traditional organisation and learning theory and posits that the notion of generative learning is central to organisation success in the wicked environment. Thirdly, is the concept of play itself. Testing ideas and also facilitating new idea generation is achieved through playing. Playing embraces creative intelligence creation and discourse in a context that is free from the constraints of organisational politics and situational

inhibitors. Play allows an appreciation of the past and the future, which lends itself to insightful strategy, today. Lastly, is the idea of experimentation itself. We centre our thoughts on the idea that tiered or graduated experimentation can be used by organisations as a means to continuous learning and growth. Graduating experimentation allows simplification, imagination and different levels of unique experimenting environments which confer a set of safe guards against 'bad' or potentially unsuccessful ideas while also facilitating the improvement and enhancement of ideas as they transmute into market viable realities.

Chapter 3: Play and the Study of Entrepreneurship

This chapter is concerned with the relevance of our model to the study of entrepreneurship. We examine the value of entrepreneurial behaviour as a means to regeneration in organisation. From a short overview of theoretical thought on entrepreneurial behaviour we chose to focus on the Schumpeterian notion of adaptive vs. creative response. This thesis is about creative response which is the source of 'real entrepreneurship'. Creative response echoes the concept of generative learning which is of central importance as it mandates the role of learning as not only improving on existing capabilities but bringing the organisation into a different paradigm where new things are done in new ways. This chapter concludes with a description of the destructive pattern organisations can fall into if they ignore the importance of entrepreneurial learning –and focus on adaptation of existing practices and beliefs - inertia.

Chapter 4: Playful Learning: A Model of Entrepreneurial Learning

This chapter sets out our model, which resides on three basic levels. Firstly, we build on Kolb (1984) and de Geus's (1997) model of the traditional learning process in human beings. We take the elements of *Perceiving, Embedding, Concluding and Acting* and translate them into our idea of how to exploit learning to an entrepreneurial end. The second level is that of Play. Through play the elements of learning can be exploited to generate new and novel ideas, and also to test ideas in unique ways. The process we recommend involves the three elements of; **Idea Generation (Ideation), Experimentation and Collaboration.**

A number of factors are involved in the working of this model, these will be described in detail. They are as follows: accelerated learning, how to learn to play and play to learn, the usefulness of playing with prototypes and simulations, how and why to build 'shared space' and finally why organisations should play in networked space.

Chapter 5: Managing Playful Learning: Playing on the Edge

This chapter outlines our recommendations for facilitating and managing the model. We use this chapter to describe a number of problems that organisations may face in implementing our model of playful learning. These problems find potential solutions in our subscribed strategy of ‘playing on the edge’. This concept is explored in detail and we have developed a set of organisation rules to follow. Finally we use our research and knowledge of 3M as a test case for our recommendations.

Chapter 6: Reflection

Chapter six is our summary chapter. We recapitulate the Playful Learning Model and the Playing on the Edge concept. A third section is also dedicated to describing the playfulness we encountered in our journey to imagine the model we have presented.

CHAPTER 2: THE PLAYFUL ORGANISATION

The major ideas on which we build our model have to do with:

2.1 RECOGNISING

Ideas must be generated, perspectives created and renewed. We explore how this occurs through the medium of **play** and **intrapreneurship** and environmental scanning. We examine how this can be facilitated. We also explain how ideation can occur at each of the stages in our model since playful learning is concerned with new ideas born out of new and multiple view points.

2.2 LEARNING

Organisation learning is a fascinating field of research and embraces a huge number of concepts, theories and academic rumination. We explored how the learning process as it occurs in the human being is reflected in the organisation as a thinking entity (greater than the sum of its thinking parts..) This notion is borrowed from de Geus (1997), who's book *The Living Company*, highlights some important aspects of what it actually means to have an organisation learn.

We explore the different aspects of learning and in particular the notion of **generative learning** which is central to the thematic of this thesis. Generative learning which involves generating alternative mindsets through which new ideas can be both created and learned, is inherently entrepreneurial and demands a particular organisation environment which is both flexible, chaotic but also ordered and structured.

2.3 PLAYING

The idea of 'play' is a very new one to management science and is central to this thesis. We explore Michael Schrage's (2000) concept of **serious play** and offer it as a way in which organisations might open their doors to new ideas. Playing offers a way of **testing** ideas without committing large amounts of resources, or more importantly one's reputation, to the potential outcome of 'unacceptable' ideas. What happens to unsuccessful innovations? They are not only relegated to the waste bin but unsuccessful innovators can be ridiculed and discouraged to try again. Play allows **innovative behaviour** without the stigma that is often tied to failure.

2.4 EXPERIMENTING

However, what if an idea is a bad one - an innovation born out of a 'game', set in a playground, removed in most senses from reality? It was from this challenge that we conceived the notion of **tiered experimentation**. The key to resolving the dilemma of making a commitment to a future and providing flexibility for that future is experimentation. In our model, one tier of experimentation relies on relatively small and cheap experiments to create more complex and better **strategies for future** action than any amount of planning or reacting could provide. Experimentation allows **insight** to be gained into the future without a loss of flexibility to react to the future that does unfold. Another tier of our model of experimentation involves the further **testing** of ideas, which have been played with numerous times by numerous hands, in unique experimenting environments; **Temporary networks** of consumers, suppliers even competitors or communities of practice can be encouraged to facilitate the joint testing of innovative ideas allowing risks to be shared, diverse experience and expertise to be exploited and the appropriate test ground for paradigm-breaking novelties to be created.

Staggered experimentation allows room for mistakes. Such **flexibility** is rarely provided for in the world of management decision-making. Our model illustrates a method of idea testing, which allows for the inevitable miscalculations that will occur when leaps of faith have to be made by organisations in order to keep abreast of change. Splitting testing into tiers builds-in safeguards that protect the organisation from blindly following outdated ideas that will provoke inertia and certain organisational death. It also safeguards it from being locked into a narrow vision of a *specific* future that cannot possibly be predicted.

2.5 PLAYING ON THE EDGE

Tiered experimentation is our suggestion for the management of chaos and surprise that is manifest in today's business environment. However, in order to experiment in the way we envisage a particular type of organisation is needed. There are a number of structural and cultural issues that play a fundamentally important facilitative role. The organisation strategy we propose is derived from complexity theory and more specifically the notion of 'edge of chaos' management. The idea is that to deal with paradox we must continuously play a complex and difficult balancing act. This forms the basis of the notion of structuring chaos and echoes one of the central themes of our thesis: that **continuous learning in the form of playfulness, translated into action through tiers of experimentation, must contain some structure in order for it to be exploited successfully.**

CHAPTER 3: PLAY AND THE STUDY OF ENTREPRENEURSHIP

We believe that entrepreneurial thought forms a crucial element of contemporary organisation and also that it is linked clearly to theories on learning and innovation. Our study pursues the notion of “creative responses” and attempts to construct a model that will guide managers in discovery and implementing such responses. In so far as we are successful – we contribute to this most perplexing aspect of entrepreneurial behaviour.

3.1 THEORETICAL BACKGROUND

Hérbert and Link (1982, p.74) state that Schumpeter was the first scholar to develop an elaborated theory of innovation. The significant idea in Schumpeter’s approach is that entrepreneurs have the function of carrying out **new combinations of old ideas**. By exploiting an invention the entrepreneur revolutionises the traditional patterns of production and distribution. For Schumpeter (1949:p151) entrepreneurship consists of **doing new things that are not already being done and doing them in a new way**.

Schumpeter (1947:p150) distinguishes between adaptive and creative responses. With ‘adaptive responses’ he is referring to adjustment and adaptation according: more people, quantity, and expansion through the extension of existing practices. With ‘creative responses’ he refers to the economy or the firm doing something **outside the range of existing practices** leading to a new social and economic situation.

Kirzner (1973), following the Austrian School maintains that entrepreneurship is about the ability to **“perceive new opportunities which others have not yet noticed”** and a capacity to see where new products have become unexpectedly valuable to consumers (Kirzner, 1973:p81). The Austrian school emphasises knowledge and learning as a fundamental process in the economy.

Schumpeter (1949) asserts that entrepreneurship should not be interpreted as being the equivalent of a single person but as a **function**, and moreover a function that could be enacted co-operatively (Mölleryd, 1999). This corroborates our standpoint that corporate entrepreneurship can be facilitated and improved upon.

Contemplating Schumpeter's adaptive and creative responses we began considering types of learning that facilitate such responses.

3.2 GENERATIVE LEARNING: LEARNING TO DO NEW THINGS IN NEW WAYS

Pre-New Economy organisations were predominantly based on adaptive learning. Open systems theory allows for the impact of environmental factors and instils the valid belief that organisations must at all times be open to their own unique set of environmental contingencies. However, as Senge (1990) notes, increasing adaptiveness is only a first stage of development as generative learning or double-loop learning (Argyris, 1977) has now surpassed the former in terms of strategic and organisational focus. *“Generative learning emphasises continuous experimentation and feedback in an ongoing examination of the very way organisations go about defining and solving problems.* Such learning requires creativity and necessitates “systematic thinking”, “shared vision”, “personal mastery”, “team learning” and “creative tension” between the vision and the reality (Senge, 1990). Generative learning requires new ways of looking at the world and looking at our own levels of cognition.

It is this prescription for learning that we seek to embody in our model, as a way of ensuring organisational endurance and sustainability. We argue that creative thinking is not enough to sustain change and defend an organisation from the surprising and fluctuating New Economy environment. Creative thinking must be supported by structures which allow the seemingly bizarre or unimaginable to be tested, but which will not allow the institutionalisation of status quo or group think. Senge (1990) defines the learning organisation as one “in which you cannot **not** learn because learning is so insinuated into the fabric of life”. This entails both single and double loop learning but it is double-loop, or generative, learning which will ultimately inculcate an organisation with an ingrained philosophy of anticipating, reacting and responding to change, complexity and uncertainty. It is such character that lends the concept of the learning organisation its importance in today's uncertain environment. There is a widely perceived need for fast-paced flexibility and pro-activity (rather than responsiveness) within today's firms as they deal with an increasingly demanding and ‘surprising’ environment. Senge

(1990) remarks that “*the rate at which organisations learn may become the only sustainable source of competitive advantage [in the future]*”.

3.3 INERTIA AND LEARNING

The purpose of this section is to deal with the pitfalls of adaptive learning and organisational inertia, and to illustrate the link between the two. Reliance on adaptive learning, we argue, results in organisational inertia. The antidote to this is generative learning that we have described in the previous sections. The importance of generative learning is pivotal to this thesis. We began researching its impact while reflecting on what it meant exactly for organisations *to adapt to changing environments* - this ‘wicked’ turbulent, discontinuous environment exhorted in every business paperback. How does generative learning embrace such turmoil?

The inability to adopt new technologies and strategies does not necessarily indicate stagnation. In many cases, industries and firms have undergone significant changes

involving the *adaptation* of their existing technologies and organisational arrangements that, over time, led to significant growth in productivity. (Langlois and Robertson, 1995).

Inertia (-sha or -shya) *n.* 1. Property of matter by which it continues in its existing state of rest or uniform motion in straight line, unless that state is changed by external force

Inertia is often a product of successful *adaptation* to earlier innovations. Through its success the firm is unable to see the advantage of pursuing further change. What is highly efficient in one context may be entirely inappropriate in meeting the challenges posed by significant new innovations. When inertia retards the learning process necessary to deal with a subsequent important innovation, capable firms may be so slow in coming to terms with change and industry dominance will shift to new entrants. These entrants are unencumbered by prior developments, learn new adaptive procedures more quickly, and therefore often appropriate the market by the time the established firms have learned to cope with the innovation. The term “lockout” is used to describe this phenomenon. In fact, inertia has not always been such an unenviable state. A condition that allows firms to capitalise on what they know best and facilitates the consistent improvement and mastery of competitive advantage was the hallmark of successful organisations of the industrial and pre New Economy ages (and also in stable industry domains that arise in the New Economy itself). Inertia is ‘ a profoundly functional organisational characteristic in stable and predictable environments’ (Tushman and Romanelli, 1985), however, it is ultimately destructive

when it impedes learning at times of significant change. Inert organisations will not survive today's wicked environment.¹

Learning is the antidote to inertia because it allows organisations to switch paths or to add new ones. Organisations that learn quickly, cheaply, and accurately have a degree of flexibility that is denied to organisations that can only learn slowly or at great expense, or that cannot learn at all.

Display 1: Disk Drive Case

Disk Drive Case (Christensen, 1997)

Fundamental changes in technology, market structure, global scope and scale and distributive integration have become immensely more pervasive, rapid and unrelenting. Christensen (1997) introduces the concepts of sustained and disruptive technologies to explain the different effect technology change and industry continuity has on different firms. The former *sustains* the industry's rate of improvement in product performance and in this case the industry's dominant firms tend to lead in developing and adopting these technologies. In contrast, the latter type of technology, disrupts or "redefines performance trajectories" – and tends to result in the failure of the industry's leading firms.

The results of Christensen's (1997) disk-drive case analysis revealed three primary findings. Firstly disruptive innovations that toppled leading incumbents were actually technologically straightforward but packaged known technologies in a unique architecture and enabled the use of these products in new ways. The second pattern that emerged was that the purpose of technology development in the disk drive industry was always to sustain established trajectories of performance improvement – such technologies are new but not disruptive. The third pattern showed that it was new entrants rather than industry leaders who developed and adopted disruptive technologies. The central thesis of Christensen's research was: why should established firms who are aggressive, innovative and customer-sensitive in their approach to innovation still fail? The answer he unearthed through his case study of the disk drive industry revealed that "established firms seem unable to confront 'downward vision' and mobility within a single trajectory successfully. Finding new applications and markets for new products seemed to be a capability that each firm exhibits once, upon entry, and then apparently loses.

¹ Inertia is the result of institutionalisation of beliefs, values, strategies and out dated successes. While learning may be its antidote it also has elementary structural implications which will be dealt with later in this thesis and will be reiterated in our discourse on the bureaucratic trap in Complexity Theory.

Stiglitz (1987) notes the importance of the learning process when linked with the notion of experiential learning, “experience in learning may increase one’s productivity in learning. One learns to learn, at least partly in the process of learning itself...”. It is this capability that leads Stiglitz to comment that learning in organisations is often localised. In other words learning about one field of study may not yield significant increases in an organisations’ ability to learn about other fields. The resulting impediment to learning is that specific knowledge about a technology in any given industry is likely to be of little value in dealing with a particular innovation in the same industry that has different characteristics.

Herein is a cautionary note about misinterpreting the purpose of learning in an evolving organisation. Learning does not mean improving past best practices, or learning to perfect what a firm already knows – this just reinforces the linear thinking inherent in inert organisations. This is a chasm into which many firms have fallen. Take for example the current obsession with that nebulous concept: knowledge management. One fundamental flaw of the information processing view that is evident in most knowledge management definitions is that organisational memory of the past is a reliable predictor of the dynamically and intermittently changing business environment. The notion that firms change incrementally in an inherently stable market and that executives can foresee change by examining historical data and trends is redundant to say the least. Classroom learning is next to useless for the intelligent organisation – our thesis posits that experimental learning (through improvisation and play) provides the key to evolutionary learning in organisations.

Adaptive learning is irrelevant to our model. It is generative learning that is the critical element and exists, we propose, at the centre of understanding entrepreneurship and innovative behaviour in organisations.

CHAPTER 4: PLAYFUL LEARNING: A MODEL OF ENTREPRENEURIAL LEARNING

4.1 THE MODEL

We have explored some of the ideas that provoked our model and believe it is time now to examine the model of cognitive learning that forms the pivot of our own model.

The elements of learning, and in de Geus's (1997) opinion, the decision making process can be described in cybernetic terms. Learning Cycle Theory incorporates four elements – perceiving, embedding, concluding and acting.

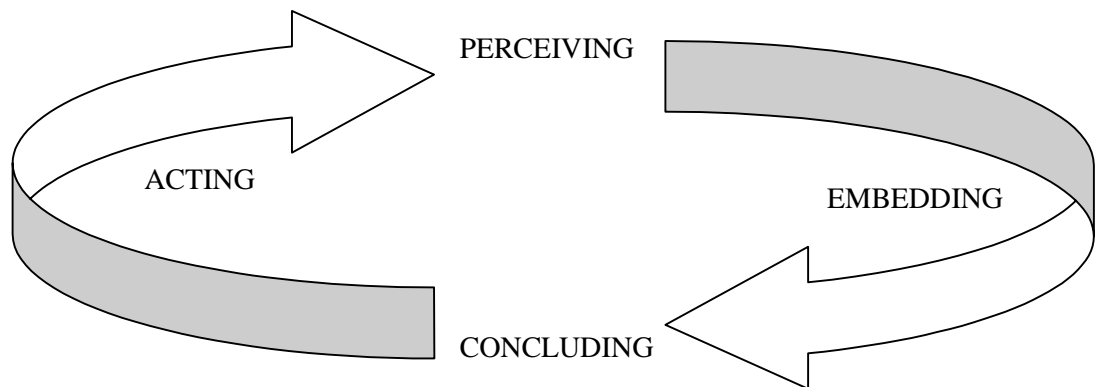


Figure 1: Four defining elements of learning and decision-making

Source: Arie de Geus, 'The Living Company' 1997

Display 2: Four Defining Elements of Learning and Decision Making

In this systematic illustration of the learning process the terms donate the following definitions:

Perceiving:

An event or phenomenon or opportunity outside the normal business routine is recognised. Upon recognition the first cognitive stages of developing an internal mental model to explain and deal with this occurrence has begun.

Embedding:

The occurrence or problem is embedded within our previous understanding. That is we try to understand its relationship to our known reality. With diversity of opinion we can build a multifaceted picture of the situation. During this stage we are externalising and calibrating our mental models in order to reach a coherent joint decision.

Concluding:

Once a coherent shared understanding has been reached plans begin to be made for action. This concluding stage most often takes the form of simulation of different situations insofar as imaginary iterations of the decision are examined in order to reach a final plan of action.

Acting:

Just as in natural science the plan of action is tested in order to perceive the effects of such action. This act of doing brings the cycle back to the beginning.

De Geus, 1997

This thesis argues for a process of tiered experimentation embodying the learning cycle we have just described. The four primary elements of our learning model consist of:

1.Idea Generation through PLAY:

or perspective building. This is the same as *Perceiving* but we explore the exigencies that are necessary to facilitate **serendipitous idea recognition**. This will improve the likelihood of “out of box” perception, innovative ideas and the kind of creativity

Challenge assumptions through simulations. Counterintuition drives innovation not confirmation of biased intuition.
(Schrage.2000)

associated with bringing a firm forward in an environment characterised by continuous surprise.

2.Experimenting through PLAY:

This is the first tier of experimentation. The notion of Play will be explored in detail in the next section: however for now suffice that the term donates creative, carefree, unbounded, irrational, inefficient experimentation whose playfulness takes on a

childlike character. Playing allows an organisation to test unconventional ideas without commitment, or loss of face and with the potential for innovative discovery. Play facilitates the discarding of assumptions, traditional thinking and allows seemingly erratic but ultimately creative behaviour to thrive.

Playing reflects the *Embedding* stage of learning. Playing in teams, seeking response to models, simulations and ideas facilitates the search for newness born from diversity and discussion. If a model provokes constructive discussion on possible improvements or alternative uses, this is the moment when valuable insight is born.

Playing also facilitates the *Concluding* stage. This is what lends proactive value to our model. The playground represents a halfway house – a method of looking for the future without committing to any one vision of it. It is a way of exploring unconventional ideas without immediately threatening existing strategies and values. Playing facilitates the ‘weeding out’ of weak ideas, because playing involves creating and deliberately destroying, in the search for novel but also attractive concepts.

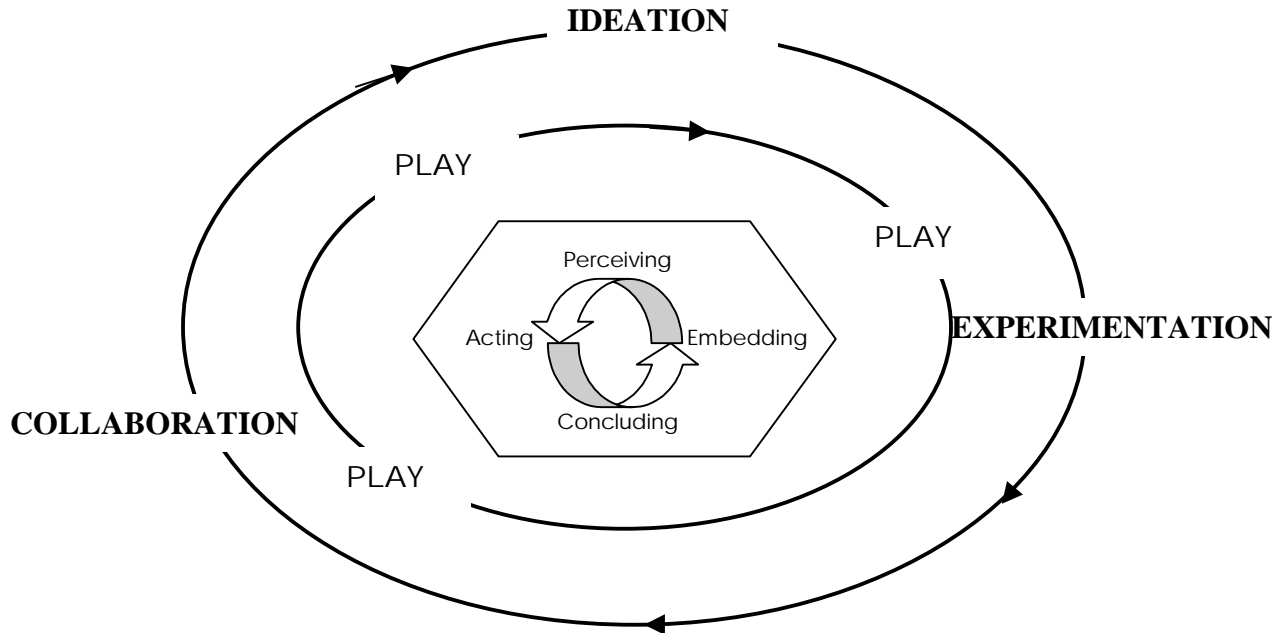
3.Collaboration (2nd tier Experimentation):

The second tier of experimentation involves testing played-with concepts in ‘edge of chaos’ or temporary networks. The second tier is added to lend a further level of contestability and innovation and lessening commitment by sharing risks. The contemporary business arena is often built on dense networks of inter-related players. Network theory abounds with examples of risk-sharing and of processes which are redefining firms relationships with those around them. This second tier is a built-in safe guard against over-commitment to a misguided prediction or conception.

“The best innovators turn their customers and managers into collaborators by presenting them with an idea they can improve upon, so they feel they have a stake in its success”
(Schrage, 2000)

Together these ideas are aimed at managing firms in a surprising environment embraces the necessity of learning in contemporary organisations. But it also allows for a measure of checks and safe guards to protect the firm from blindly following every exotic idea in order to beat the competition to the top of the proverbial mountain.

Figure 2: THE PLAYFUL LEARNING MODEL



The following diagram simplifies the conceptual model that we will describe in the rest of this thesis. The three process cycles illustrated describe the following:

1. The Learning Cycle as it is outlined in de Geus (1997). The most authoritative source on comparative learning cycle theory is David Kolb (1984). It is also given consideration in Senge's seminal book 'The Fifth Discipline (1994). This cycle serves as the basis from which, through the medium of play, we derive the final, Idea Generation, Experimentation and Collaboration cycle.
2. We propose that a continuous cycle of 'play' will confer a profound and generative character to learning. We have placed this cycle in the centre of the diagram as it effects not only the testing of ideas generated in the Learning Cycle, but also facilitates further idea generation and learning going forward to the third, outer layer of our model.
3. The third cycle and outermost in our diagram consists of the processes we propose in this model for learning in the playful organisation. It consists of Idea Generation, Experimentation and Collaboration.

The following sections are dedicated to illustrating how and why the 'Playful Learning Model' works.

4.2 ACCELERATED LEARNING

We have already discussed the importance of generative learning for organisations. De Geus (1997) in his book the “Learning Organisation”, emphasised the danger of relying on conventional learning behaviours. He differentiates between conventional learning which is associated with everyday decision making and accelerated learning which he argues is essential to the survival of firms in the New Economy.

The four primary inadequacies of conventional learning processes in organisations are as follows:

They are too slow: De Geus (1997) argues that consensus processes and communication barriers, resulting from hierarchical divides or overworked employees, retard the speed of decision-making and organisational learning. Being slow is particularly risky in a world of frequent oscillations.

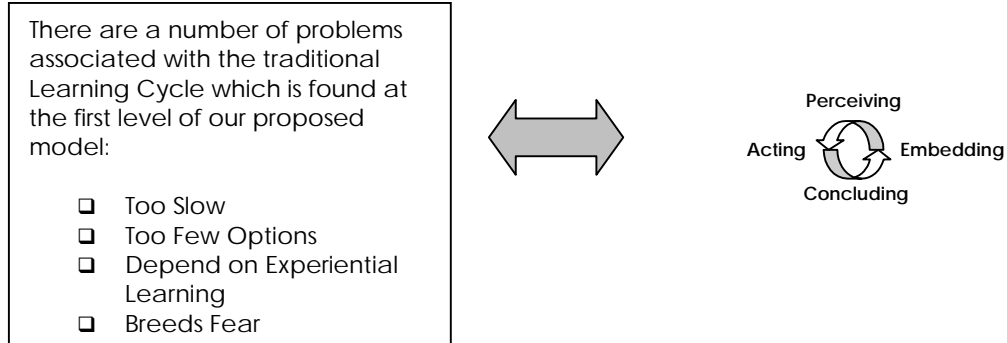
They close options: Because large firms often make decisions depending on consensus and agreement – negotiation is often a prevalent component in the decision-making process. In this way a single plan of action is devised and other options are never explored.

They depend on Learning by Experience, instead of by Simulation: Learning by experience limits action to one of a very few options and also takes considerable time. Conversely, multiple trial and error is readily permitted in the realm of playful management.

They breed fear: While entrepreneurial fortitude is the thing which pushes companies forward into unknown, unexplored and potentially profitable territory, the entrepreneur is still an illusive individual while most people flounder with human insecurity and risk-averse behaviour. In short, fears of the risks associated with important decision impede our imagination, creativity and willingness to acknowledge differences and the need for change. This fear, which often leads to resistance to change and the repetition of the same mistakes over and over again. Fear also creates a preference for the repetition of previous success formulas, which can often mean failure in a rapidly changing environment. de Geus concludes that the natural learning process tends to limit the number of options and the speed, openness, inventiveness, and courage of an organisations’ learning efforts.

This must be improved for an organisation to survive. Accelerated Learning involving Play and simulation address these limitations and invokes generative learning.

Figure 3: Accelerated Learning



4.3 LEARNING TO PLAY AND PLAYING TO LEARN

From his research of children's psychology de Geus approaches the learning organisation from the viewpoint of helping adult organisation members to appreciate and test their reality through playing. Through play, firms can avoid testing unsound decisions in

"the essence of learning is discovery through play"
(de Geus, 1997)

reality. When children play, their toy is a representation of the real world with which they can experiment without having to fear the consequences. The purpose of this is to better understand the world in which we live in.

Such play is not the exclusive terrain of children but can also be seen in operation in a number of industries where scale models are built to represent larger buildings or constructions or other products. The military is also famous for "war games" a necessity in face of the fact that their 'business' involves life and death. It is unfortunate, De Geus notes, that instead of playing with constructed realities or simulations – decisions makers often still look to "learning from experience", essentially a single and expensive experiment with reality itself.

The best (but some may feel worn out) anecdotal image of 'play' reflecting work or organisation conjured up by the average person reading this paper will have something to do with building blocks or even that magically resilient plaything of recent generations.... LEGO. In fact, this image was probably kick-started by our thesis supervisor, who during one thesis meeting became utterly mesmerised by the notion of small kids building towers, sky-scrapers, grandiose constructions only to knock them

down if not purely for the pleasure of the ‘crash, bang, wollop’ then to use one of the bricks at the bottom for another equally time consuming masterpiece which would shortly follow the same fate! Unfortunately, I don’t have any personal anecdotes on the fegaries of child’s play but I did find an interesting story by Johan Roos about his son:

Display 3: Playing with LEGO

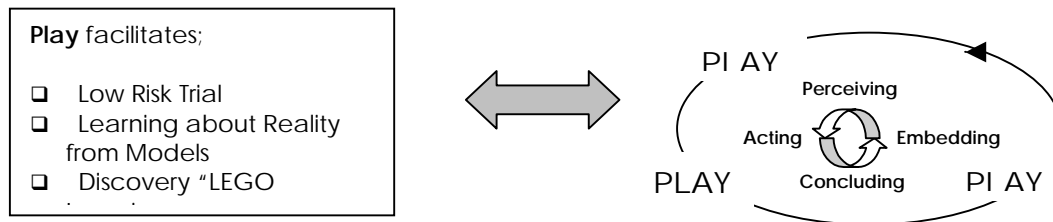
forget assumptions, deliberately destroy, PLAY LEGO!!

When August Roos jumps up each morning, energised by a night’s sleep, he runs out to his LEGO “workshop” and starts building new models or taking apart an existing one. Often, he does this while passionately explaining to his parents how he dreamt about another way to make the race car go even faster, or how another kind of building would make more sense to him. The workshop corner is scattered with LEGO pieces, partly deconstructed old models, half-made new models, and what he feels are really good models “that deserve to be kept” (at least for a few days). August has no hesitation in taking apart an existing LEGO-designed model and adding his own bricks that did not come with that particular set.

Lately August’s exuberance for LEGO has been reinforced by the LEGO Creator CD-ROM. Here, children can create and play in their own imaginary world of LEGO people, animals, buildings and machines. His adventures in the imagined world of LEGO Creator on his PC often gets interrupted by his need for a more tactile experience of what he just imagined in the virtual world. Running to his 10,000 plus supply of LEGO bricks, he often grabs a bunch and starts to combine them in front of the PC. The tactile field makes up for the frustration which ensues from the unfortunate fact of life that five-year-old hands are nowhere near as fast as a five-year old mind.

(Lissack & Roos, 1999)

Figure 4: Play



4.4 BUILDING SHARED SPACE

The essence of Play according to Schrage is that when devising models and prototypes innovators should use them as the basis for discussion not as the finished article. The most effective innovators, it is argued, produce many prototypes and discuss them with everyone who is likely to be affected before they are even close to a finishing stage.

Schrage proposes that the key to nurturing creativity lies in nurturing clever interactions between people. Moreover, the key to successful collaboration is the creation and management of 'shared space'. That is, shared space may be built inside the organisation but also between organisations through networks.

Display 4: Sharing Space

“You know you have a really good idea when the reaction to a demo goes further than “Wow!” or “Cool!” and people start suggesting ways to make the idea better.”
 (Schrage, 2000)

SHARED SPACE

According to Schrage we frequently rely on a simple transactional model of communication, which looks like this:

Sender/Receiver ----- Conversation ----- Receiver/Sender

The collaborative model on the other hand, incorporates the concept of “shared space”. Shared space allows for a different type of communication, which is build around interactions. These interactions are often motivated by the physical stimulus of a prototype or simulation. However, the importance of playing with appropriate models also highlighted the importance of WHO played. Iterating with key customers, who could also play led Schrage to his realization that oftentimes, instead of innovative teams creating innovative prototypes, innovative prototypes were creating innovative teams.

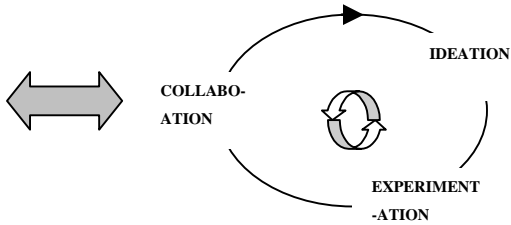
Shared Space

Sender/Receiver ----- Sender/Receiver

Source: Schrage, 2000

Figure 5: Building Shared Space

□ Play builds “shared space” and conversation for idea generation, experimentation and collaboration.



4.5 PLAYING WITH PROTOTYPES AND SIMULATIONS

The concept and use of play is explored in Michael Schrage (2000) book “Serious Play”. He explores the role of prototyping and simulation as a method of encouraging innovation. He argues that prototypes are the key platforms and models - the core media for managing risk and creating value. This is because they allow for cost-effective creativity, encourage profitable improvisation and inspire organisations to collaborate in unexpected ways. Schrage examines the notion of innovation in reverse and posits that rather than innovative teams generating innovative prototypes, innovative prototypes generate innovative teams by provoking intelligent discussion. How innovators play with their models and simulations invariably matters more than what they actually plan.

Creatively prolific organisations like 3M tend to generate lots of creative prototypes. Quickly and continuously converting new product ideas into crude mock-ups and working models turns traditional perceptions of the innovation cycle inside out: instead of using the innovation process to come up with finished prototypes, the prototypes themselves drive the innovation process”

Michael Schrage, 2000

Serious play may sound like an oxymoron but what Schrage’s concept illustrates is a method of innovation which requires improvisation. It is a concept which reflects the paradoxes of New Economy organisation by emphasising that innovation is not about rigorously following the rules of a game but about rigorously challenging and revising them. The essence of playing is confronting uncertainty by treating it as an ally. Playing allows you to improvise with the unanticipated in ways that create new value.

A good example of turning models into innovative ideas is in buyer/seller relationships. Take for example a software seller. Software development firms often spend weeks in a sincere effort to be responsive, conduct requirements analyses in order to determine precisely what their clients need. Users are interviewed, strategists consulted and final systems requirements approved. Then the hard work of building the system commences and

finishes up with a prototype that it as near completion as the developers can possible go (so as to lend realism to the model) only to hear the client complain that while their work is exactly what they asked for – it isn’t, after all what they need. If this pathology had been caught much earlier on in the development process it would mean less work for the developers and an excellent way for the client to examine what they are really looking for and perhaps gain insight into that particular business area or system. Within a short time frame an initial crude prototype can be drawn up which represents the ideas inherent in the proposed system but without the sophistication that comes from months of hard work.

This type of prototyping can turn clients into partners, by facilitating interaction. Clients are able to interact with what they want instead of painfully and often fruitlessly trying to describe it.

Display 5: Modeling the Business

Modelling the Business: Mexican Ladders

A leading Mexican manufacturer decided to reengineer how it built aluminium ladders. According to its sales and accounting model, the company had been making an operating profit of \$4.50 per ladder. The reengineering initiative nearly doubled profits to \$8.20 per ladder. Unfortunately, those profit figures proved meaningless. The reengineering had completely ignored the most crucial cost issues because the company's business model – and its accounting mechanisms – were flawed.

When the company switched to activity-based accounting to evaluate overhead, its managers were horrified to discover that the company's legal expenses were higher for ladders than for any other product they manufactured. People who fell off ladders tended to sue the manufacturer. Those costs were crippling. When the total litigation and settlement costs were tallied, the company discovered that it was losing almost \$10 on every ladder that it made. And even after the reengineering initiative had slashed manufacturing costs by one third, it was losing more than \$6 on every ladder.

Did this company abandon the ladder-building business? No – its new cost model represented an opportunity to redesign its model. With creative financial modelling and legal finesse, the firm began offering free accident insurance at a cost of just under \$2 per ladder. At the same time, the company outsourced all the legal processes associated with compliance, litigation and claims solution for a fixed annual fee. Those actions swiftly transformed the manufacturer's large net losses on ladders to satisfactory net profits.

In this case, prototyping ladders and simulating the manufacturing process were precisely the wrong approaches to take. Instead, the company needed to build a model for the business of building and selling ladders. By doing so, the company realised that risk-management services offered an innovative opportunity for both cost management and profit. A better model of the business enabled the company to build a business model that profitably married service to product.

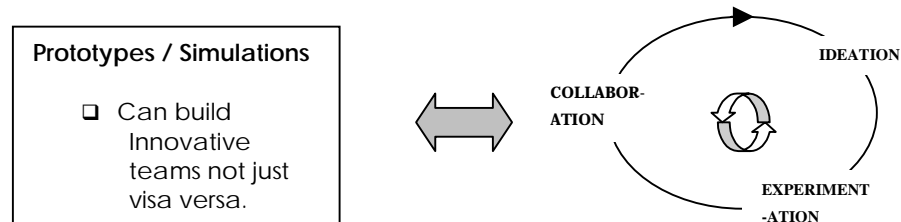
In sum, by making it possible to better identify and define the real risks and opportunities of the business, modelling the business can prove far more valuable than modelling its products and services. The premise is simple and compelling: the ways that organisations model themselves, their products, their services, and their markets decisively mould their ability to manage risk and create value.

*SOURCE: Peter Keen, **The Process Edge** (in Michael Schrage "Serious Play")*

Playing is certainly not limited to new product developers but can also be transmuted to business modelling itself. For example, look at New Economy trends of bundling and reinterpreting business offerings. Product companies such as Proctor & Gamble are increasingly wrapping services around their goods and service firms such as Accenture and AT&T bundle tangible products into their service offerings. From this evolution new genres of prototypes are emerging. Entrepreneurs now grow entire companies from paradigm breaking prototypes.

Playing with prototypes can do more than answer questions: it can also raise questions that have never been asked before. Models can stimulate innovative questions as surely as they can suggest innovative answers. The best and most powerful models are provocative and the unexpected questions that a model raises are sometimes far more important than the explicit questions that it was designed to answer. (Schrage, 2000)

Figure 6: Playing with Prototypes and Simulations



4.6 EXPERIMENTING IN NETWORKS: PROVOKING PLAY LEADS TO CREATIVE COLLABORATION

Collaboration in innovation is not a miraculous insight with the authors of this thesis were suddenly struck. The notion of conferring and partnering with customers and suppliers in order to understand the motivation of innovation occurs all the time. In the software industry for example, not one piece of PC software has been successfully launched without input from potential customers about different version prototypes. Kelly (2000) urges us to 'give it away'. By giving initial products away for free on the marketplace – manufacturers can leave the innovating to the consumer. Let them play with it and come up with suggestions for improvement while capturing the market at the same time. Some paradigm breaking products can now be seen as platforms for generations of services and products which can be bundled with it in the future: it is in these bundles that future profits lie.

In the new economy, strategy based on conventional competition and co-operation will give way to strategy based on co-evolution, as companies adapt in concert. In traditional business thinking that is based on head-to-head competition, the bottom line is win-lose: I win, my competitor loses. But in the more complex environment, the bottom line can be thought of as win-win. Co-operation and the building of mutually beneficial networks is becoming a core of management science today. The important challenge, it is argued, is to seek opportunities in a complex network of other companies, each of which might sometimes be collaborators, sometimes competitors and sometimes both!

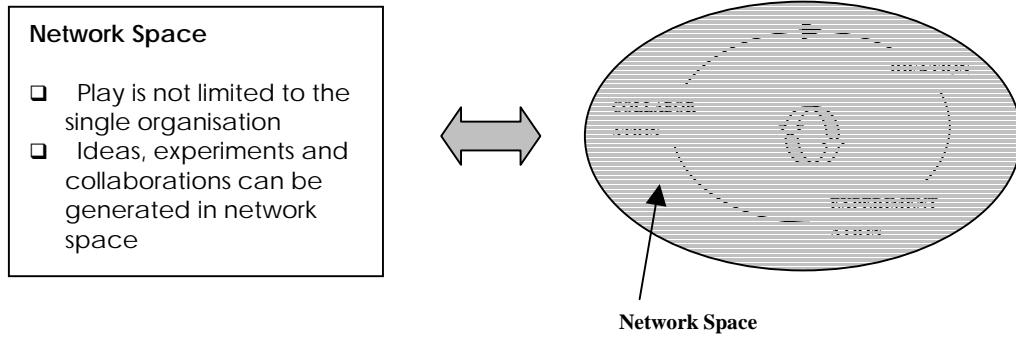
Therefore, the network of collaboration can consist of any number of possible relationships with suppliers, distributors, customers, competitors. Porter (1990) famously explores the competitive advantage of specialised clusters: this model reflects the relevance of sharing information and exploring potential innovation in networks. Communities of practice is another network concept that examines the benefits of networking as a source of information sharing and learning. These types of informal networks are extremely dynamic and furthermore self-organising; they cannot be organised but must be facilitated as much as possible.

The example of LINUX is probably the most famous Communities anecdote. LINUX was created as a result of an internet community set up by a young Finnish computer science student, Linus Torvalds. By posting questions and code concerning UNIX, he encouraged other like-minded people to help him perfect his code. What resulted was a snowball effect of new members all willing to share their knowledge and expertise on the Web to create the LINUX system that was closer to perfect than Microsoft had ever hoped to come.

Strategic alliances or joint ventures are another popular way of combining expertise – even with competing firms.

Network theory suggests that networks of interdependent relationships emerge from the turmoil wrought by uncertainty and change. They spread risk, increase flexibility and reduce complexity for participants. Furthermore, building networks also increases the likelihood of a porous organisation in which opportunity recognition occurs faster and better. By creating shared space, network collaboration is facilitated and the potential for creativity and testing expanded.

Figure 7: Experimenting in Networks



CHAPTER 5: MANAGING PLAYFUL LEARNING – PLAYING ON THE EDGE

This chapter examines how the model of playful learning can be implemented, given the reality of organisational life. The ideas we examine are facets of organisational life which impact on our model. Subsequently we will try and describe how each one can be managed. From our discussion of organisational exigencies and how they impact on our model, a number of ‘rules’ for managing emerge. We have called our recommendations or rules for managing our model, ‘Playing on the Edge’.

We will explore the ideas of creating multiple visions of the future rather than trying to forecast what will happen. Since the one thing that is certain about the future is that we cannot know it before the event or try to predict it, so playing serves as a method to explore different potential futures and navigate facilitates serendipitous discoveries which may create a favourable future. We also investigate culture and taboos as inhibitors to playful behaviour and overall innovative capability. We briefly look at some intelligence theory to examine how topics like organisational scanning and perceptions can encounter barriers as a result of cognitive patterns such as compliance and convergence. We inspect how similar to playing for the future, our model facilitates preparation for surprise, in uncertain environments.

Complexity theory is invoked to examine notions of playing ‘on the edge’ of chaos, seeing organisations as Complex Adaptive Systems and the value of creative foresight. From our exploration of complexity science emerges the notion of Playing on the Edge management which is modelled on the edge of chaos theory.

Finally we bring all the facets of our model together and our rules for managing as playing on the edge, to test its relevance or workability on the test case of 3M. This also serves as a summary of chapter five and the ‘Playing on the Edge’ concept.

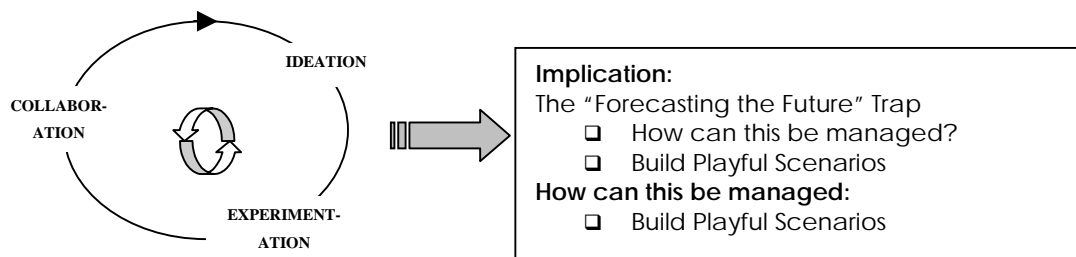
5.1 MANAGING FUTURES

In “The Living Company” de Geus (1997) gives us his personal experience of learning as playing at Royal Dutch Shell. Instead of looking towards long term predictions and decision making based on consensus and ‘experimentation with reality’, de Geus

facilitated a strategic planning process at Shell in which finding a common ground was not paramount to the planning process but the emphasis was placed on understanding the differences in perspectives of the different managers. What subsequently emerged was an appreciation of multiple world views of the future. This process of ‘creative abrasion’ enables a faster cycle of knowledge creation and application through detection and correction of any discrepancy between theory and the dynamically changing reality (Malhotra, 1998).

What also became apparent at Shell was that management could in fact go far by deciding the ways in which they could manage their prototypes. Senior executives were urged to come up with three scenarios whenever they considered a strategic course of action. Each scenario was typically a small jewel of foresight and analysis. However, “The problem was we always chose the middle one”, “So now we put forward only two.” (Shell Executive, in de Geus, 1997) The deliberate decision not to model a middle path may yield greater insight into Royal Dutch/ Shell’s business culture than the scenarios themselves. The debate it was argued was likely to be sharper without the option of a compromise choice. Shell management clearly thought that cutting the number of scenarios would hone the edge of its strategic conversations.

Figure 8: Managing Futures



5.2 CULTURE AND TABOOS

What you choose to model makes a difference, and what you choose to model can reflect an organisations cultural pathologies and what it accepts as ‘fitting’ and what it rejects as taboo. By asking the questions – what does an organisation refuse to model?, what core assumptions are not permitted to play a part in a prototype design or simulation experience?, you can learn much about an organisation and its culture.

Taboo: *taboo, tabu'* (-oo), *n.a.*, 1. (Among Polynesians) system or act of setting apart person or thing as accursed or sacred 2. Prohibited, consecrated, avoided or prohibited by social custom (Oxford English Dictionary)

Display 6: War Game

War Gaming

In its war games in the 1980's, the US Navy would not allow aircraft carriers – its biggest, most expensive and perhaps most controversial weapons platform – to be sunk hypothetically. This taboo persisted even after the Argentines successfully sank a British carrier during the Falkland's War. It held fast even when the navy's own submariners argued that carriers were particularly vulnerable to undersea attack. For a variety of budgetary, political, interservice-rivalry, and national security reasons, the navy was permitted to run extensive war games and simulations in which its biggest and most vulnerable carriers were given a pass. The taboo was tacitly respected in virtually all formal reviews. External efforts to simulate conflicts in which carriers were destroyed were met with threats of security classification. One result was that the navy acquired a reputation for cheating that undermined the credibility of navy proposals and exacerbated inter-service rivalries. This particular taboo was deeply ironic because simulations and war games had largely been responsible for encouraging the navy to adopt aircraft carriers in the first place.

(Schrage, 2000)

5.3 INTELLIGENCE AND INFORMATION PROCESSING

This is probably a good place to recap on some intelligence theory as we are beginning to explore the reasons behind much of the anti-play, inertia building pathology that exists in many organisations.

The theories of corporate intelligence and more importantly business intelligence, deal not only with how people gather, structure, store and disseminate information but also with how people and organisations perceive their environment. These perceptions are concerned with very basic mental functions as well as the personal or organisational memory, the experience of previous situations and actions in them.

The term intelligence is used to denote an organised activity and an interpretation of environmental events, rather than possession of sheer information. Another important characteristic of intelligence is that it is future orientated. By using organised intelligence

activities one tries to forecast how relevant parts of the environment will develop in the future.

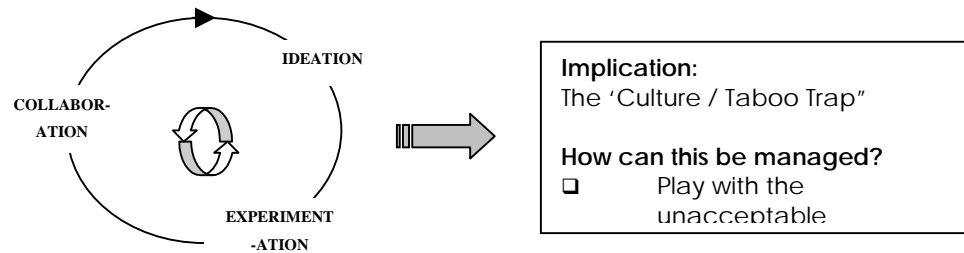


Figure 9: Culture and Taboos

5.3.1 Environmental Perception And Environmental Scanning

According to Hamrefors (1999), one of the biggest problems with environmental scanning is that people and organisations tend to look for information in areas in which they already excel (often outdated successes). Environmental scanning also works better if it has a structured process and is a part of the overall strategy. One major problem with scanning is that managers view it as efficient when it supports their already existing views. Paradoxically this is when scanning is sub-optimal – it should provide management with NEW information and knowledge, not reinforce what they know already (Hamrefors 1999). The organisation can very well excel in the normal, static, environment but might and

Scanning: is the behavior of attending to the events and phenomena in the environment. Hamrefors, 1999

probably will fail tremendously in a situation of rapid change. The intelligence function might face difficulties if it adheres to objectivity and subsequently challenges the internal myths of the organisation reality. In this case it may be either ignored or vetoed (Hamrefors 1999).

Environment: could be anything material or social in the surroundings, close or distant to the individual. (It is the experienced elements of the environment that are of importance, rather than the factual elements). Hamrefors, 1999

The need for rationality will result in convergent thinking where new signals or ideas from the environment will be disseminated with the old mental structures, myths and prejudgements. The convergence mechanism could even bring the organisation to a stage where they do not recognise new ideas or information at all.

5.3.2 Compliance – Convergence

The theory of compliance and convergence deals with people's behaviour in groups and how group members are influenced (Moscovici 1980; Hamrefors 1999). As group members interact with the majority view, there is usually a direct compliance effect. On the other hand, if interaction occurs with a minority view, the convergence process may be somewhat delayed. Compliance with the majority may lead the individual to resist change by reinterpreting information and minimising the dissonance to the position of the group (Allen & Wilder, 1980; Hamrefors 1999). Groupthink might appear during extreme circumstances or under a more authoritarian leadership (Janis 1982; Hamrefors 1999). This may create an illusion of invulnerability and undermine the members' ability to process information (McCauley, 1989; Hutchins 1991). Conversion to a minority position might have a cognitive impact and influence attention, memory and thinking (Nemeth 1986; Nemeth & Kwan, 1987; Nemeth et al 1990; Hamrefors 1999). Changes to the group's position usually has its background in new information (Deutsch & Gerard 1955; Hamrefors 1999).

5.3.3 Enactment

Enactment deals with how a person's perception of their environment can actually influence that very same environment. The process of enactment can have a strong impact on the people in an organisation as well as the organisation itself, and may lead to the establishment of cognitive organisation structures (Hamrefors 1999; Markus and Zajonc, 1985).

Consequentially, the individual develops a very good understanding of the environment as long as it is compatible with her enacted environment. Single individuals tend to be very good at scanning the enacted environment and also be very sensitive to the signals they come across in it. They are also very willing to act on these signals, even if they are weak. Over-reaction might appear more often than otherwise. This is the biggest danger with faulty perspectives in the enacted environment and this may lead to inappropriate action.

The environment just outside the enacted environment forms an area that the person will perceive as a frame to their individual world, the person is sensitive to signals that appear out of this broader area but the person is not a very good scanner here. The outer area,

outside the frame, is unbroken land to the individual and she will probably not notice things that happen there, whether the signal is strong or weak. The chance of a signal becoming obvious to an individual decreases with the distance from that persons enacted environment, (Hamrefors 1999).

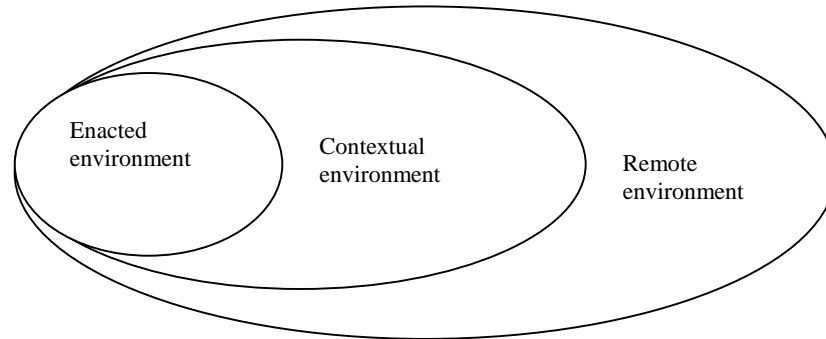


Figure 10: Enactment

According to Hamrefors (1999) the most important factor for learning is interaction in the situations that one comes across and more significantly action without conspicuous thought.

5.3.4 Structuration

Structuration is basically about how arenas for communication and information exchange influence the organisation's perception of itself and leads to structures of ideas and procedures. This in turn leads to the appearance of dominating ideas that are hard to change or get rid of (Norman 1975, Hamrefors 1999).

Structuration creates a need for a parallel universe for the company in which new ideas and thoughts can flow freely (Hamrefors 1999). Structuration leads to increased specialisation among managers, particularly in cases where the organisation nurtures hierarchy, stability and status quo (Thorsund 1999; Hamrefors 1999). A large part is played by epistemological beliefs in so far as managers become trapped in their own specialised mindset.

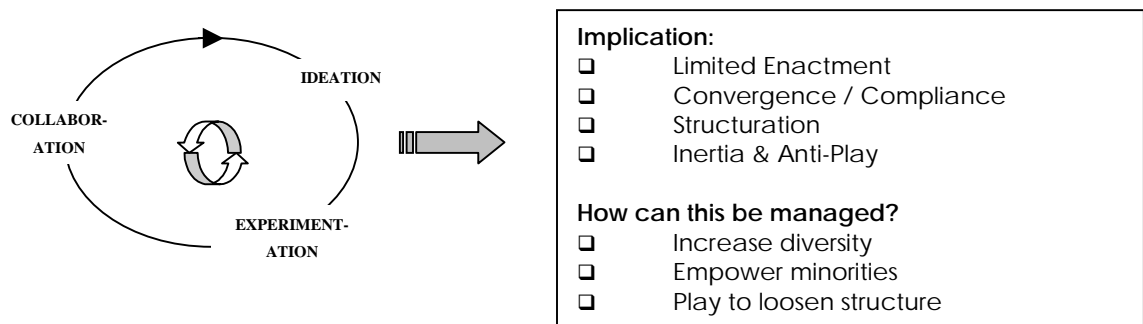
As people try to understand and act within their perceived reality, they will simultaneously impact others and their actions will in turn influence the way they and other people form perspectives. Giddens (1988) explains the conceptual structure that

people create as a result of their actions and joint actions with others. Structuration has an impact on action, physical processes and even ways of thinking and perceiving. With strong structuration, information flowing into the company will be treated in compliance with the rules of perception formed by the majority in the company. These rule-sets makes it easier to make decisions since everybody already thinks the same about the new information that has come into the organisation and thus consensus is much more likely when the organisation is confronted with a decision. For this reason it appears to be on the surface an efficient way of organising things.

But the problems start to arise if the individuals within the organisation are not acting securely in their enacted environments. Then the structuration effect combined with compliance might cause groupthink. Groupthink is a situation in which the group forms strong myths or collective suspicions. A “state of group mind” almost squared in strength when compared with a suspicion that one single person could develop.

With a smaller amount of structuration a piece of information can gain a foothold in an organisation, at least amongst a minority, and then it is the strength of the information that has a greater impact than what perspective emerges. The outcome of this process, called convergence, is that the organisation will have to deal with a tougher decision making process that is unfamiliar and the minority has to take the lead. If there is no minority willing to adopt leadership the collective is likely to resist change. If the minority is successful with its intentions and is not vetoed, there is always a risk that the majority places the dangerous new information or process in a place where it can do least harm.

Figure 11: Intelligence and Information Processing



5.4 PROTECTING CAREERS, DESIGNING STRUCTURES

Echoing our discussion on generative learning, a 1997 study by INSEAD found that radical initiatives produced far quicker growth in revenues and profits than extensions of existing products. Why can't companies produce more innovative ideas? Structural forces, it is argued in this thesis, are often hostile to innovation, particularly when the organisation is overly bureaucratic or conservative and also when new ideas threaten existing product lines. We present the idea that firms should experiment in order to capitalise on their employees' ideas.

The need for safeguarding mechanisms in any model of entrepreneurial idea generation and implementation is paramount. Firstly, being innovative can damage your career. Richard Leifer (2000) examines twelve innovation projects in his book "Radical Innovation" – among these, four project leaders resigned from their companies, two threatened to resign and two were dismissed. Several innovators felt they would be poorly rewarded if they succeeded and pilloried if they failed. (Financial Times, Jan 16, 2001) Oftentimes innovators can be technically minded and find it difficult to explain their ideas in business terms. Many do not even see the business benefits of their ideas until they are pointed out to them. Most companies say they welcome new ideas but most often they do not have the systems to support them. Companies ignore innovations because they do not fit into any of their existing business units. Some companies have set up separately funded units to foster innovation, in the style of skunkworks, for example. However, anecdotal evidence may forewarn against removing centres for innovation from the hub of the parent organisation where variety in skill and resources often prove invaluable to innovators.

A relatively small number of firms such as 3M which we will discuss later are renowned for their receptiveness to new ideas. Equally renowned are companies such as Xerox, famous for the breadth of innovative ideas but their apparent complete failure to turn these ideas into successful businesses. We argue that tiered experimentation provides a viable way to turn bright ideas into performing, profitable ACTION. However this is with the caveat that without the appropriate structures generative learning aimed at breaking paradigms cannot occur.

Display 7: Learnings Inside, earnings outside - Xerox

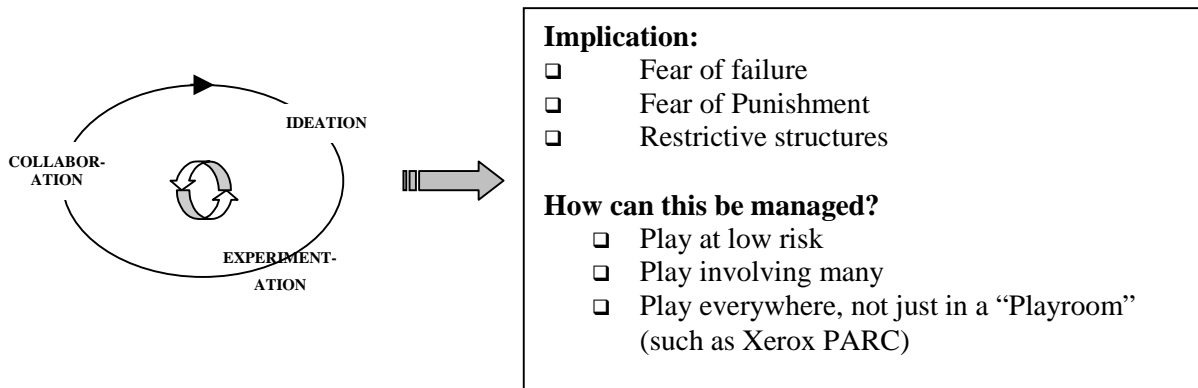
XEROX – Guide to Fumbling the Future

At Xerox PARC in the 1970's, pioneering scientists developed the elements of the personal computer. They produced not only much of the technology that sits under the desk but also the stuff on the screen "desktop" that makes up the "graphical user interface". This includes the digital documents, files, folders, and menus through which people manoeuvre by pointing, clicking and scrolling. These are now standard components of Macintosh, Windows and the World Wide Web – components that propelled information technology from the preserve of experts to the realm of ordinary users.

Yet most of the extraordinary knowledge generated at PARC never crossed the boundary between scientists in Palo Alto and the development engineers in Dallas or the management in Stanford. The engineers found the scientists arrogant and almost unintelligible. Management found them naïve and unrealistic. The scientists for their part, regarded almost everyone in the corporation outside their own community as "toner-heads" – unable to think of the world beyond photocopiers.

The story and the knowledge, as everyone knows, did not end here. For the essence of what had been invented by Xerox in Palo Alto ended up being put into production by Apple. In 1979, Xerox managers invited Steve Jobs, one of Apples founders, to PARC. Once inside Jobs was able to see what Xerox management could not, the potential of what PARC had generated. So Apple licensed what it could and replicated what it could not. The race for Macintosh began. (Of course the innovative Macintosh was also a significant act of creative foresight on Apple's part – a "computer for every man, woman and child" in a time when the idea of having a computer of one's own at home was laughable.)
(Brown & Duguid, 2000)

Figure 12: Protecting Careers, Designing Structures



5.5 MANAGE SURPRISE

The real value of play may in fact stem from its power to generate useful surprise.

Serendipity is the art of making discoveries of things that were not being sought. Horace Walpole, 1754 It combines a fortunate accident and sagacity

Sagacity: derived from the Latin noun sagicitas (“keenness of perception”) and means: “gifted with acuteness of mental discernment; having special aptitude for discovery of truth; judicious in the devising of means for the accomplishment of ends. Oxford English Dictionary

Models could be used as media to create and capture surprise and serendipity. However, experience reveals that surprises are more often than not unwelcome. Modelling and hypothesis testing is often designed to eliminate surprises not create them. The method of managing surprise therefore, we reiterate, is crucial in harnessing and exploiting the benefits of serendipitous surprise. Models that merely confirm results are redundant to say the least – while models whose results are surprising but inexplicable provoke creative speculation outside of a specific context. Importantly the most sophisticated designs and models rarely prove capable of provoking surprise as they cannot be played with. The simplest of models on the other hand often generate reams of counter-intuitive insights. Therefore playing serves organisations best when it challenges subconscious assumptions.

5.5.1 Typology of Surprise

Here, it is probably appropriate to examine the notion of surprise in more detail. We looked to Schneider (1999), who offers the personal anecdote of his experiences in discussion at the Aspen Global Change Institute last year. He describes how a diverse group of experts ranging across physical, biological and social scientific disciplines were asked what kind of surprises did they have in mind regarding future climate change. The responses were all highly speculative, formidably non-linear and extremely interdisciplinary. However all responses were viewed as possible potential surprises. This led Schneider and his colleagues to create a typology with the aim of making the different elements of surprise easier to identify. The subsequent typology offers the following definitions:

Risk The condition in which the event, process, or outcomes where the probability that each will occur is unknown. The concern to be considered once this definition is brought into focus is that in reality, complete knowledge of probabilities and range of potential outcomes or consequences is not usually known and is oftentimes unknowable.

Uncertainty The condition in which the event, process, or outcome is known (factually or hypothetically), but the probabilities that it will actually occur is not known. The issue

here is that the probabilities assigned are subjective and the ways in which one can establish reliability for different subjective probability estimates is contentious.

Three scientists on the adequacy of mathematical models for explaining natural physical phenomena: "We must admit that a model may confirm our biases and support incorrect intuitions. Therefore, models are most useful when they are used to challenge existing formulations rather than validate or verify them."

Science, 1994

Surprise The condition in which the event, process, or outcome is not known or expected. As a consequence to our consideration of surprise arises the issue of how we can anticipate the unknown, improve the chances of anticipating, and therefore, improve the chances of reducing societal or organisational vulnerability?

Surprise is a condition in which perceived reality departs qualitatively from expectations.

(Schneider1999)

5.5.2 The Logic of Anticipating Surprise

1. It is possible to anticipate a subset of surprises.
2. Complex systems, chaos and other such theories provide a conceptual and analytical basis for understanding that surprises will occur, and a variety of methods (e.g. simulations) and assessments that facilitate seeking and finding surprises.
3. Coupled with experience, this understanding permits the identification of potential arenas in which surprises may take place.
4. The probability that suspected "surprises" will take place within a specified arena are generated on a subjective basis (or by objective methods or models that rest on subjective assumptions), and vary significantly by individual, community and culture.

5.5.3 Who is Surprised and Why?

1. Surprise is dependent on expectation, and thus it is necessary to examine how expectations are formed by individuals and groups.
2. The degree of surprise depends on the extent to which reality departs from expectations and on the salience of the problem.
3. The fact that epistemological expectations reside not only with the individual but also with groups and cultures – ideas are often generated from group dynamics.
4. Surprise, therefore lies in the managerial mindset.

5. A variety of factors contribute to the subcategory of surprise including: differences of opinions among expert communities, 'fit' with broader policy agendas and vested interests to maintain the status quo.

(Schneider, 1999)

Ignorance is the mainstay of the AGCI typology and is described in two varied perspectives. The first type, closed ignorance is the "unwillingness or inability to consider or recognise that some outcomes are unknown but are perhaps possible. The second type, open ignorance is the opposite and can prove to be extremely tenuous. This type of ignorance is more complex and less tractable. Part of this difficult ignorance stems from epistemology – the rules that we think govern how the world works and the language and symbols we use to describe what we think and observe. The term 'paradigm' is used to describe these characteristics. In addition, some phenomena may simply be unpredictable. Notably, systems characterised by chaos are thought to be thoroughly unpredictable – for example, detailed weather forecasts six months in advance are not possible, no matter how accurate the initial stage of the weather condition is known because of chaotic dynamics in the atmosphere (Schneider, 1999).

From examination of a number of 'phenomenological ignorance cases' (Schneider, 1999) the seminar produced a number of suggested 'sources of surprise':

- Narrowness of paradigm
- Organisational goals and structure of organisational decision making that is not consistent with the problem
- Organisational goals in conflict with the outcome
- Purposeful obfuscation and blocking
- Rigid common frameworks / mindsets

Examination of these sources points to several ways of improving the anticipation of the arenas of surprise.

1. Encourage and integrate the role of synthesis and synthesisers and search for connections across problem domains, disciplines and perspectives.
2. Focus on a larger fraction of research effort on the "outlier outcomes", that is, apply methods to sample the opinions of a broad range of knowledgeable experts.
3. Support work at the edges and across the edges of conceptual and problem areas.

4. Promote process as well as product – orientated research and encourage multiple disciplines and communities to communicate and integrate their knowledge.
5. Insure the airing and professional evaluation of unconventional views and a multiplicity and constructive duplication of research domains among approaches.
6. Work backwards from posited future states (scenario building) to identify events or processes that might happen along the way. Examine what ‘might have happened’.
7. Encourage the “strategic paradigm” as well as the “efficiency paradigm” to build resilience into social and environmental systems.

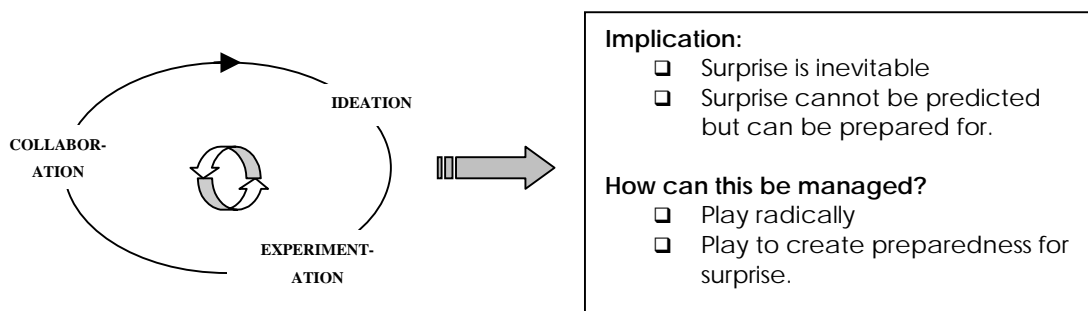
(Schneider, 1999)

The anticipation of surprise therefore is far from impossible. However, it is patently clear that many hazardous arenas are intrinsically subject to surprise due to system complexity, lack of experience, or poor theoretical understanding. The scientific and managerial community should expect and prepare for the certainty that whatever anticipatory measures are undertaken, some surprises will inevitably occur. Neither are managers helpless to these surprises simply because specific events and outcomes cannot be anticipated. What can be done is to increase the resilience and adaptability of those that are at risk, thereby decreasing the sensitivity to the impacts of the unexpected or

uncertain. This can be done through various measures. For example, the provision of robust safety nets to respond to unforeseen events in a critical part of resilience. Organisational theory as we have seen suggests that different management systems and organisational structures have different capacities for dealing with surprise. Those that perform better are characterised by openness, participation of all parties and flexibility, while those faring less well are characterised by hierarchical command and control systems. Organisational memory and social learning that is the ability to learn from previous surprises should improve the overall resilience to vulnerability to surprise.

“ We have to take advantage of change and not let it take advantage of us. We have to be ahead of the game”
Michael Dell, Dell Computer Corporation
(Brown & Eisenhardt, 1998)

Figure 13: Manage Surprise



5.6 PLAY “ON THE EDGE”

The business world is experiencing accelerating, revolutionary change, driven by rapid technological innovation, the globalisation of business, and, not least the arrival of the Internet and the new domain of Internet commerce. The change toward what might be called the connected economy rivals the onset of the Industrial Revolution in its impact on society and the way commerce is transacted. Managers are finding that many of their long established business models are inadequate to help them understand what is going on and how to deal with it. Where managers once operated with a mechanistic model of their world, which was predicted on linear thinking, control and predictability, they now find themselves struggling with something more organic and non-linear, where limited control and a restricted ability to predict are the norm.

5.6.1 Complexity Science

Complexity Theory is a new perspective on organisational change. It began with an interest in how order springs from chaos. According to complexity theory, adaptation is most effective in systems that are only partially connected. The argument is that too much structure creates gridlock, while too little structure creates chaos. A good example would be traffic lights in a city. If there are no lights, traffic is chaotic.

Display 8: Evolutionary Theory

Evolutionary theory belongs to the Darwinian view of how living things grow, adapt and change. Systems evolve through natural selection, acting on inherited, genetic variation through successive generations over time. Variation is enhanced, making evolution more effective, by some randomness and inefficiency in the process. Moreover, systems evolve most effectively by gradually shedding what was useful in the past and adopting what will be useful in the future.

Of there are too many lights, traffic stops. A moderate number of lights creates structure, but still allows drivers to adapt their routes in surprising ways in response to changing traffic conditions. Consequently the key to effective change is to stay poised on this *edge of chaos*

complexity theory focused on managerial thinking on the interrelationships among different parts of an organisation and on the trade-off of less control for greater adaptation.

Shona Brown and Kathleen Eisenhardt a McKinsey consultant and a professor with Stanford University have written a seminal work on the organisational implications on the edge of chaos concept. In their book “Competing on the Edge”, they combine complexity theory with evolutionary theory to put forward some interesting structural guidelines for organisations in the management of creativity and innovation in the chaotic

environment that is the New Economy. This part of our thesis will deal with these guidelines which we believe lend themselves to the management of playful organisations.

Competing on the edge builds on an eclectic tradition of academic research on complex adaptive behaviour, evolutionary change and the elements that effect speed, resilience and efficacy of change. The assumption reflects what contemporary thinking says about today's 'wicked' environment – that static equilibrium no longer applies (as in the mechanistic model of organisation), that markets emerge, shrink, split and grow and that today's collaborators are tomorrow's competitors... or maybe even both. Complex adaptive systems (organisations in complexity parlance) are complex – because the behaviour that emerges from them is complicated, innovative and self-organised. The goal of any such system is not efficiency per se but flexibility – that is, adaptation to current change and evolution over time, resilience in the face of setbacks and the ability to locate constantly changing sources of advantage. Ultimately, it means continual reinvention and such reinvention needs constant experimentation.

5.6.2 Complex Adaptive Systems

Complexity theories recognise that the world is non-linear and organic, characterised by uncertainty and unpredictability. There is little room in the scope of this thesis to conduct a meaningful discussion of complexity science. However, current research in the area makes some fascinating conclusions that we consider relevant to the working of our model. Complex Adaptive Systems, consist of a number of diverse agents, all interacting, all mutually interdependent and continuously reshaping their collective future. (Brown & Eisenhardt, 1998) Accepting that businesses, belong to CAS systems requires a mindset different from that associated with other long established models. Complexity science concludes that managers and executives cannot control their organisations to the degree that mechanistic perspectives imply, but they can influence where their company is going, and how it evolves.

Complexity science demands that managers give up control – or more importantly the illusion of control – when they are trying to lead their organisation. What is imperative is that an organisational environment facilitating creativity emerges. While giving up control managers should not simply relinquish their business to chaotic forces and wait for the right solutions to just emerge. Too little control is as misguided as too much – hence the necessity for a balancing act. Some structure is certainly required to prevent a

company from embracing chaotic management to the extent that no decisions can be made and no coherent goals can exist let alone be accomplished. Complexity science argues that the managerial utopia exists between the static and chaotic, in the “zone of creativity” that is the ‘edge of chaos’. (Lewin & Regine, 1999).

5.6.3 Self-Organisation: and the role of diversity

Order emerges at the edge of chaos, where emergent responses are most creative – this order reflects the phenomenon of self-organisation. It is not imposed but is a result of patterned interaction between members of a system. Moreover, complexity models show that the emergent order will be richer, more creative and adaptable if there is a diversity of agents in the system, agents with different characteristics and different behaviours.

Hence the managerial lesson goes something like this: embrace diversity in order to achieve creativity and adaptability and subsequently nurture distributed control which will result in people self-organising around problems that need to be solved. (Lewin & Regine, 1999).

Display 9: Complexity Theory

‘How To’ in Complexity Theory

Complexity scientists have identified a few simple rules by which complex adaptive systems operate. Those rules are presented here;

The source of emergence is the interaction among agents who mutually affect each other.
Managers should attend to relationships characterised by mutuality among people, among teams, and among companies, in order for novelty to emerge.

Small changes can lead to large effects.

Seek to change through many small experiments, which search the landscape of possibilities.

Emergence is certain, but there is no certainty as to what it will be.

Create conditions for constructive emergence rather than trying to plan a strategic goal in detail. Evolve solutions but don’t design them.

Greater diversity of agents in a system leads to richer emergent patterns.

Seek a diversity of people, their cultures, their expertise, their ages, their personalities, their gender, so that when people interact in teams, for example, creativity has the potential of being enhanced.

Source: Lewin & Regine, 1999

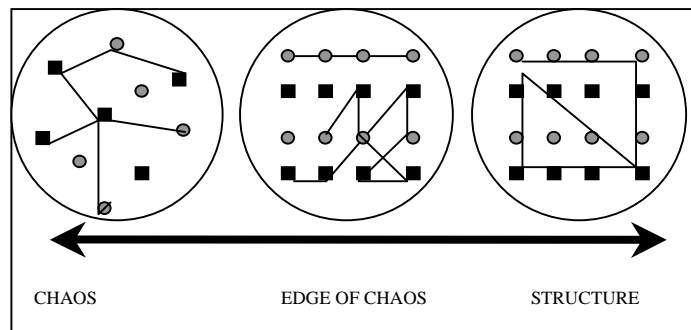
These guidelines can be understood easily using the favourite complexity metaphor of flocks of birds or boids... (technically simulated birdlike agents (!!)). Anyway, these computer generated boids act exactly like flocks of birds who on first sight appear to be following a leader, in a clearly discernible pattern, However while the pattern is consistent, its make-up is not. The birds and the boids do not follow pre-specified roles nor do they follow a leader but are in fact governed by a set of very simple rules which results in coherent self-organisation.

5.6.4 Organising on the Edge

The intuition behind the edge of chaos is that change occurs when strategies and organisations are sufficiently fixed so that change can be organised to happen but not so rigid that it cannot occur.

“On the one hand, too much chaos makes it difficult to co-ordinate change. There is no coherence. Confusion sets in. Competitive moves become random. Organisations fly apart. On the other hand, too much structure makes it hard for a firm to move. Strategies become brittle and prone to unexpected collapse.” (Brown & Eisenhardt, 2000)

The edge of chaos captures the complicated, uncontrolled, unpredictable but yet adaptive or self organised behaviour that occurs when there is some structure but not very much



Source: Brown & Eisenhardt, 1998.

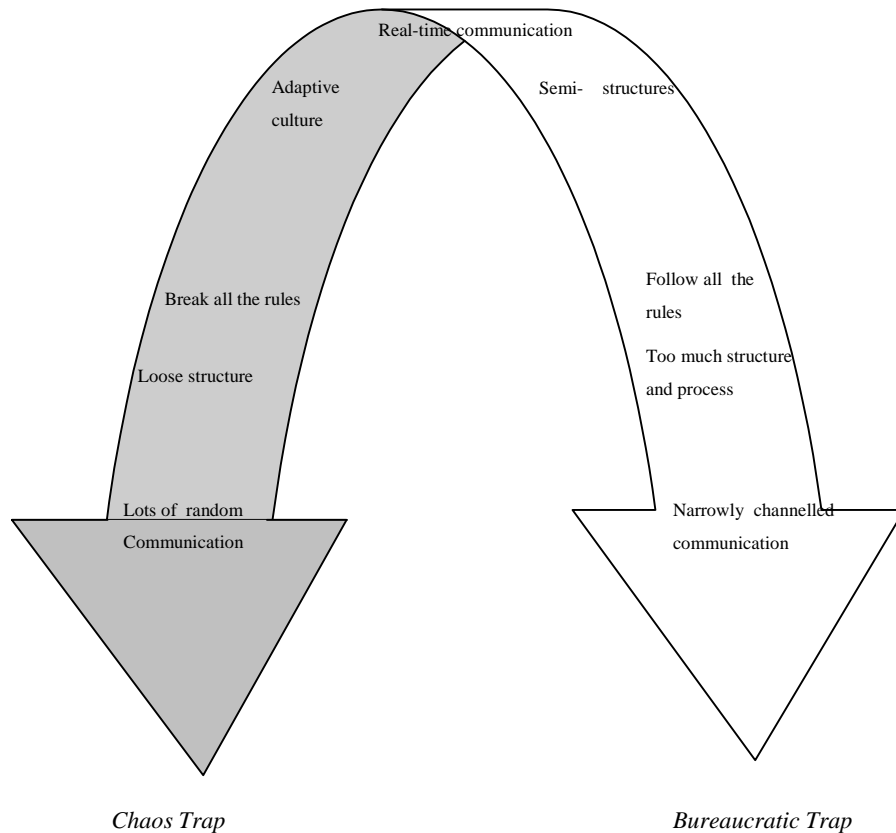
Figure 14: How to balance on the edge of chaos

5.6.5 Improvisational Edge– How to play inside the playground

One of the primary dilemmas with our notion of the playful organisation is how do you organise play? Common sense tells us that structuring such an evolving dynamic creativity could surely strangle any innovative ideas that do not ‘fit’ with an organisations or a society’s strongly held assumptions or beliefs.

“Our theories determine what we measure” *Einstein* –this quote aptly sums up the main concern of this section. Our examination of intelligence theory recalls the questions of how to deal with structuration, compliance and convergence effects. What we are recommending in our playful organisation model requires organisations to ignore past strategies, successful competencies and core beliefs in order to follow whims and dreams. Creative ideas may also seem bizarre and unfathomable when viewed from the wrong stand point. This is why generative learning is at the core of our thesis. Business paradigms must shift in order for new ideas to be accepted – we argue that **playing on the edge** will facilitate this.

The balancing act is between under structuring the “shared space” or creativity zone (leading to chaos) and over structuring it (what Brown and Eisenhardt name the bureaucratic trap).



Source: Brown & Eisenhardt (1998)

“Dilemma: Adaptively innovate and consistently execute”

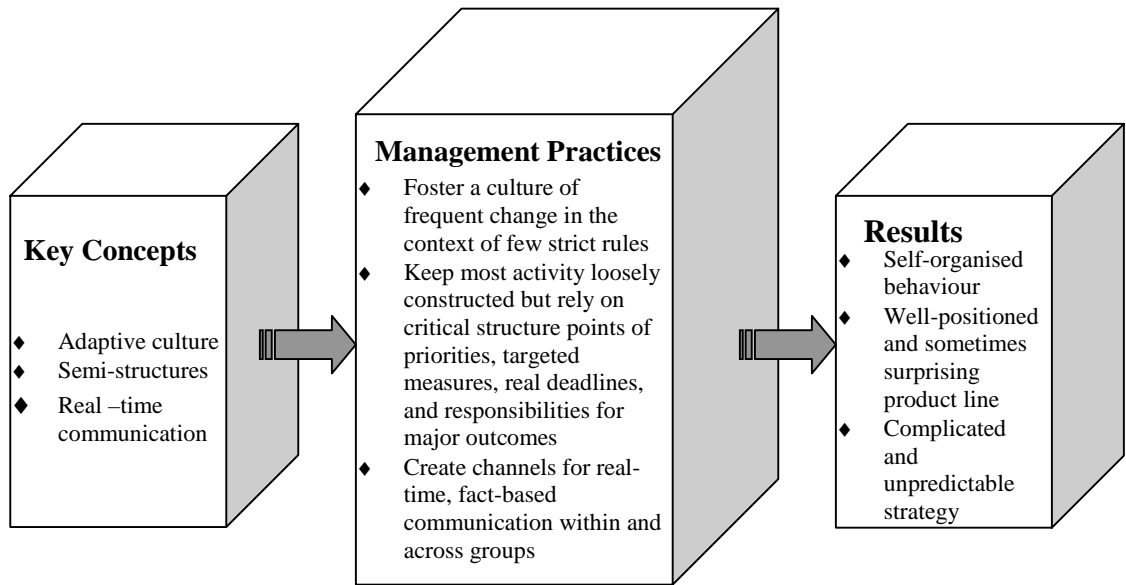
Figure 15: The Dilemma

Extremely creative or playful organisations – characterised by non traditional, non hierarchical, unformalised forms of organisation – tend to be truly creative environments with a plethora of resourceful ideas and inspiring innovations. However, without structure they are unlikely to make their imaginative strategies actually happen. In a company with little or no structure, ideas can easily get lost amid the chaos of everyday work in an environment with no rules, no assigned responsibility, no tangible or coherent goals or ambiguous priorities. Abundant communication though, important in facilitating surprise encounters and creative interactions, can go too far when nobody knows what is really happening anymore. In such an environment confusion is rampant, no deadlines exist so innovations may be late or never manage to happen leading to disastrous loss of market position.

Of course the other end of the spectrum is just as dangerous and probably more easy to identify in plenty of contemporary organisations still clinging to the comfort of the mechanistic age of organisation: this is when a firm is too structured. The misfit between bureaucracy and today's environment is well documented. Focus on adapting existing successful strategy usually results in a number of bureaucrats patting themselves on the back for keeping up the good work – while market share steadily slips away to the newest, vibrant start up in the industry. This organisation is characterised by hierarchy and procedures that outweigh change in terms of priority, a rigid structure that stymies any truly profound innovation by creating organisational barriers to creativity.

Communication is also impeded by channelling through tiers upon tiers of command chains. This is the company that falls prey to inertia. Efficiency and control dominate adaptation and these firms often boast dated, predictable strategies that meet yesterday's customer. Unconventional ideas – if they manage to emerge will most often be judged harshly through conventional lenses.

Improvisation allows organisations to avoid both of these pitfalls. Too much structure leads to rigidity and too little leads to confusion. Limited structure combined with constant interaction creates the flexibility needed for playful behaviour that embraces surprise, idea generation and pro-active action while favouring delivery. Strategies can be varied and organisations on the edge can shift tactics quickly and continue playing even on a different playing field.



Source: Brown & Eisenhardt, 1998

Figure 16: Navigating the Edge of Chaos

Display 10: Learning the opposite

BA: The Deviant Airline Titan

BA is renowned within the airline industry for its superior and innovative services, particularly those aimed at business class travellers. The airline achieves this kind of service excellence by thoroughly schooling its employees in an intensive training program, in which they learn the nuts and bolts of BA's approach of pampering demanding travellers. But the intense training is not the surprise. Rather, the surprise is that the BA training regimen also includes practice in when employees should deviate from standard BA procedures. Employees learn how to recognise occasions when it makes sense to side-step standard procedures, and they also practice how to do it. BA executives not only encourage improvisation among their employees, but they also know how to do it. The result is a service strategy that is both consistent and personalised.

(Brown & Eisenhardt, 1998)

5.6.6 Creative Foresight

The challenges of sustaining consistently superior performance in unpredictable and fast-paced markets are immense. Staying on top means remaining poised on the edges of chaos. This requires constant attention, adaptation and struggle to stay afloat. It is all too easy to slip into reminiscing on past success or to be lured into a seductive but potentially flawed vision of the future. Nothing remains still, even for the shortest of periods and the latest mantra that ‘today’s winner can easily become tomorrow’s loser’ is all too relevant. Herein lies the concept of “dissipative equilibrium” – there are a number of illustrations given for this concept in complexity literature. Our personal favourite is from Brown and Eisenhardt (1999):

“...imagine a marble in a cup. In a static world, the marble remains at the bottom of the cup. Jiggle the cup and the marble will move, but eventually it returns to the bottom. Now imagine turning that cup over and putting the marble on top of it. Jiggle the cup and the marble will fall off unless you pay attention and adjust the cup. That is dissipative equilibrium. Now, try to run holding the coffee cup upside down with the marble on top. That is a dynamic equilibrium. Keeping the marble on the cup just became much more difficult...Finally, suppose people are chasing you, trying to steal the marble. Sustaining superior performance in unpredictable, high velocity markets is like running with an upside down cup, with a marble on top and with many fast and skilled competitors trying to steal your marble.” (Brown and Eisenhardt, 1999:221)

It appears everybody is on the verge of losing their metaphorical marbles.....!

On the flip-side of inert organisations unable to imagine a future that could possibly deviate from their perception of what their industry or environment is about is the

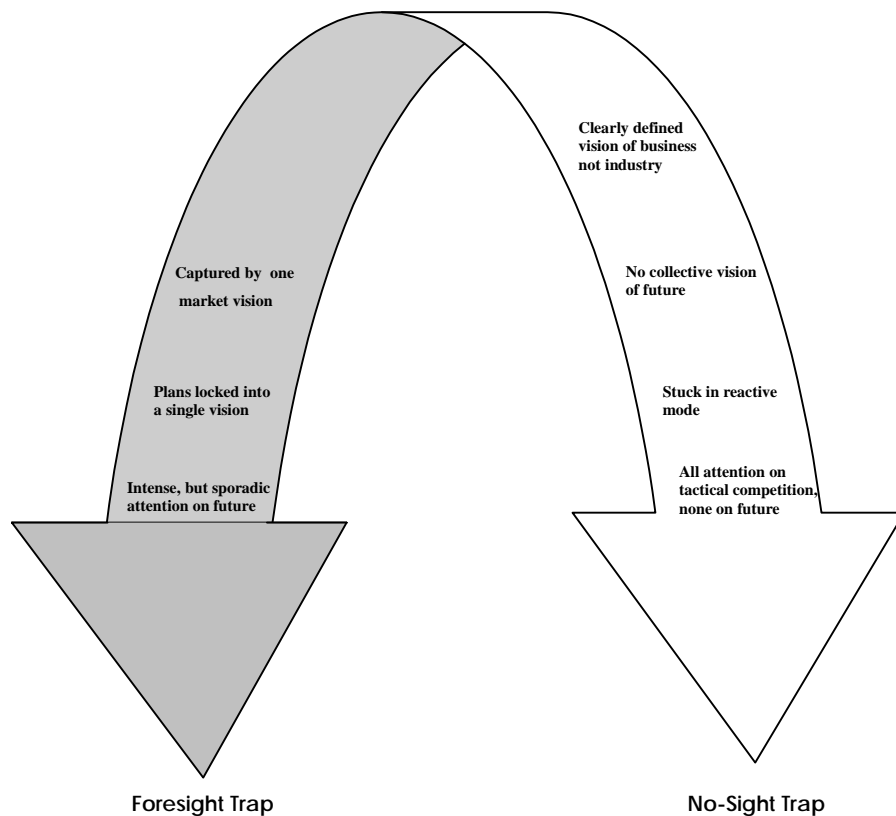
“The best way to predict the future is to invent it”
Xerox PARC, Palo Alto, CA. (from Schrage, 2000)

organisation that fervently believes in a future even though it always will be uncertain and surprising. The inherent uncertainty of the future means that planning is not an effective approach. Flexibility is crucial. On the other hand, reacting is also a poor strategy in an intensively competitive and fast-changing environment.

How is it that, when facing the same set of environmental trends and conditions, some companies seem capable of weaving together a view of the future that is imaginative compelling and foresightful and other companies seem merely confused? Scenario

building and the like often begin with what is and presents a limited number of views of what might be in the future. Actual industry foresight often begins with what could be, and then works back to what must happen for this future to come about. Such futuristic views must be informed by deep insight into trends in lifestyle, technology, demographics and geopolitics, but foresight rests as much on imagination as on prediction. To create the future a company must first be capable of imagining it. To use the word coined by the prince of imagination Walt Disney, such futuristic foresight is the product of ‘imagineering’. The scenario-planning work pioneered by de Geus involved the rejection at Shell of planning as prediction in favour of planning as learning. The result was an organisational culture that is able to play with the manifold possible profiles of alternate tomorrows. Shells’ scenarios deliberately sacrifice false certainty for flexibility. The future is invisible to myopic firms convinced of orthodox concepts and perfected but most certainly outdated processes.

So how does our playful organisation commit to a future and allow flexibility for the future which will come?



Source: Brown & Eisenhardt, 1998

Figure 17: “commitment to a future and flexibility for the future”

The key to this quandary, we believe lies in the notion of play. If managers focus their attention on the present, they end up inextricably reacting to competitors. If they concentrate too much on the future they end up locked in that future – digging their own grave, so to speak. Experimenting allows small, often fast and mostly cheap probes to create a more complex and dynamic map of the future. It allows insight to be gained into the many futures that may unfold without losing the flexibility to react to the future that does. The corporate perspective is also simultaneously changed to one not of planning or reacting but to gaining insight about the future in a variety of ways. In the options mindset, a project may fail commercially but still be a success if it adds to the stock of insight about the future within the firm.

Display 11: Faster, Smaller & Cheaper

Space Travel

Less than a decade after John Kennedy pledged to put men on the moon, the US space program was about to do just that. After several years of flirtation with the earth's nearest neighbor, the United States launched a series of Apollo missions to the moon. Beginning with Neil Armstrong's small but historic step for mankind onto the moon, five more manned Apollo missions followed. Of course, it was expensive to get to the moon and even harder to get back..... Ask those on Apollo 13. But at the time, it seemed as though a lunar colony was just around the corner.....

This clearly never materialized. Apollo 17 marked the last visit o the moon in the manned US space program. US voters lost interest in space and satellite broadcast of hit television soap Dallas was, it appeared more essential than space exploration.

But in the 1990's , The US and Russia joined forces to launch a series of probes, a surface station and a land rover to Mars. For the moon NASA rolled out a new probe the Lunar Prospector. However this foray into space looks nothing like the "big science" space programs of the 1960's. Thirty years later such an approach was no longer viable. The last straw was the debacle of the Mars Observer. This billion-dollar mission to Mars mysteriously went off course and failed to function.

NASA has begun to explore the unknown in a whole new way that some have dubbed 'smaller, faster, cheaper". The Mars Sojourner for example a Martian rover that is the first vehicle to roam the surface of another planet, is the size of a child's riding toy. It weighs 23 pounds and at top speed can reach an unimpressive sixteen inches a minute! The Lunar Prospector is equally unsophisticated and was designed and built in seventeen months on a \$60 million budget compared with the \$266 million for the Apollo launch. Yet it can scan the moon and accomplish in one relatively cheap mission more than all six Apollo landings combined.

Brown & Eisenhardt, 1998

Like NASA scientists, engaging in a wide variety of simple probes or playful activities provides insight about the future while maintaining strategic flexibility. The result is quicker reaction to market shifts, better anticipation of surprise and the future and more opportunities for reinvention and growth. How can a company do this.....exactly?

Brown and Eisenhardt offer a few guidelines:

Businesses that experiment effectively tend to have a simple and clearly defined vision of the business in the future. Rather than predict any particular future of the industry, they try to define their business' identity within whatever future comes. For example, Nokia's "telecom, global, focus" identity. Then, as the future unfolds, these managers adjust their tactics in the context of their business vision. These managers also rely on a variety of **low cost probes** of the future. They invest in an ongoing basis in probes such as strategic alliances, future-focused meetings and experimental products that create insight into how their market place is evolving. They neither plan extensively or react chaotically, but use such forms of playfulness and experimentation to incrementally shape strategic direction.

The example of Nokia is fitting for our description of managing play. Their 'telecom, global. Focus" identity has helped this previously obscure Finnish conglomerate (previously known only for its skill at making things such as toilet paper and rubber boots in a country where the top tax rate is a distinctly unentrepreneurial 60%) to beat the world in one of the most competitive, hi-tech areas.

Until the mid-eighties mobile technology was a peripheral division of the Nokia empire however, this changed with the collapse of the Soviet Union (and subsequently a chunk on the Finnish economy) and the appointment of Jorma Ollila as president. Today, phones account for virtually all its net sales of 13.3 billion Euros and Nokia is now in 140 markets – about the same number as McDonalds'. Maintaining a distinct corporate strategy in face of an endlessly shifting hi-tech industry has helped Nokia perform so well. Regarding innovation and idea generation as a collaborative activity has also done much to boost Nokia's sales and keep the company and its products on the edge of consumer trends. Nokia's roots in a country where 63% of the population have mobile phones – the highest percentage in the world – help it to keep on the cutting edge of fashion. However, it is also constantly looking for input from elsewhere. Nokia espouses a culture of transparency and humility. Visitors to the firm's modernist headquarters are

reminded constantly that “there are no dark corridors in Nokia”. To prove the point, the building is transparent to the sky and nearby water and covered with twenty-six thousand panes of glass!

The company actively recruits a culturally diverse workforce, and mandates that half its R&D be conducted outside Finland. The company also makes a point of consulting knowledgeable outsiders about the future direction of markets. The R&D division has a system of “internal start-ups” in which people with good ideas are expected to produce a business model and then move from the laboratory to a business unit to try and turn it into reality. Notably this predisposal and emphasis to dealing with networked partners to further collaborative creation is likely to serve Nokia well as the wireless and computer industries continue to converge. (Micklethwait & Wooldridge, 2000)

5.6.7 Summary

Before we continue with this chapter, we shall quickly recapitulate the previous section on Playing on the Edge which forms a critical part in understanding our proposed Playful Learning Model.

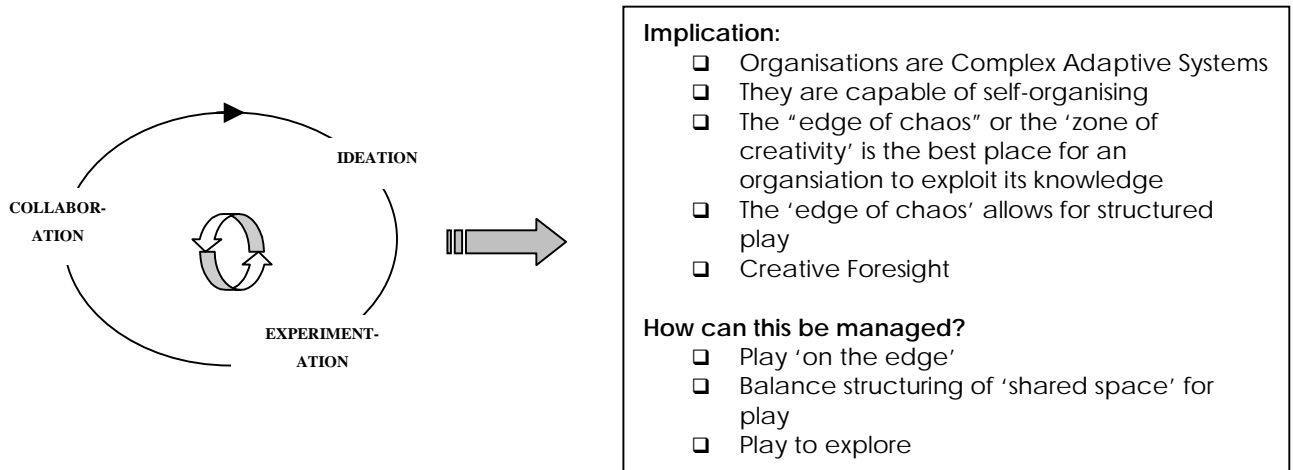
A critical question in the Playful Learning Model is how can we possibly ‘organise’ play without ridding it of its dynamic, spontaneous and creative qualities? We have turned to complexity theory to help us navigate how to ‘organise’ play so that it can remain creative but also be productive. The Playing on the Edge concept offers a way to exploit the creative and adaptive possibilities of play while allowing some structures or semi-structures will facilitate the appropriate exploitation and strategic direction for emerging innovations.

The concept of Complex Adaptive Systems validates a different managerial mindset which focuses on facilitation and nurturing rather than control and structure. Complexity theory also advises that diversity will lend richness, creativity and adaptability to the order that emerges from self-organisation.

Playing on the edge of chaos responds to the problems of over-structuring play, ‘The Bureaucratic trap’ and under-structuring it “the Chaotic Trap”. Balancing the edge of these two traps involves real time communication, an adaptive culture and semi-structures. The role of improvisation imbues the ability to shift tactics quickly in face of

change and unfolding events. Finally, Playing on the Edge also recaps on our exploration of the redundancy of planning for the future. On the edge playing necessitates imagining and playing with multiple views of the future, by mandating the sacrifice of false certainty for flexibility. It also re-visits the notion that re-inventing the future consistently over time needs constant experimentation.

Figure 18: Play'on the Edge"



5.7 PATHOLOGICAL SCIENCE

Nobel laureate Irving Langmuir described the concept of “pathological science” in which “*the dishonesties and flaws of human behaviour consistently distort the promise of the observations*” (Schrage, 2000). We have described in some detail the problems that afflict companies trying to innovate creatively. It is pertinent to return and examine some of these potential pitfalls once more.

The key lesson from Schrages depiction of play is as follows: Models don't solve problems, any more than mathematical equations. How models are used determines whether and how problems are solved. And questions of use are always – without exception – matters of corporate culture, individual behaviour and the political economy of the firm, rather than of rational analysis or technical expertise. The novelist George Eliot beautifully captures the human challenge of managing complexity in the context of simulation in *Felix Holt*:

“Fancy what a game at chess would be if all the chessmen had passions and intellects, more or less small and cunning: if you were not only uncertain about your adversary's men but a little uncertain about your own.... If our

pawns, hating your guts because they are pawns, could make away from their appointed posts that you might get a checkmate on a sudden. You might be...beaten by your own pawns. You would be especially likely to be beaten if you depended arrogantly on your mathematical imagination and regarded your passionate pieces with contempt.” (Elliot, 1886)

To continue the metaphor, while nobody doubts the intellectual challenge that chess as a game is – particularly when played at the highest ‘championship’ level, few would assume that chess grand masters would necessarily make great military generals or for that matter superior business executives. Strategic brilliance in chess does not assure strategic brilliance in business or war. Nor do brilliant models assure brilliant management. A model cannot be separated from the passions and politics rampant in human organisation. (Schrage,2000)

But take comfort, dealing with cultural pathologies is not easy, changing a corporate culture is notoriously difficult. However, we argue that by approaching issues of culture in the same way as we have recommended innovation and entrepreneurial behaviour be approached, in ground-breaking transformations, could result. Take this example from Schrage;

Display 12: Prototyping

The Zucchini of Questionable Freshness...!

Microsoft is reputed for its strong prototyping culture. But former Microsoft manager Julie Bick tells a story – which the company independently confirms – About how the world’s most profitable software company made its prototyping culture even stronger and more inclusive. One of the duller low level tasks in creating software is managing the “daily build”, which is in practice a daily prototype of the product in process. The person performing the daily build collects all the code from the programmers on the product team and puts it on a single computer to see if it all works together. For years, this task was performed by grunts and regarded as mind-numbingly boring.

One manager changed all that in a way that made the process more efficient and effective. This manager gave the day-build responsibilities to the people writing the code. Each day the programmers would give their code to one “buildmeister”, who put it all together. If the code wasn’t compatible, the person whose software “broke the build” became buildmeister as a punishment until someone else’s code broke the build. In the summer of 1969, the buildmeister was also given an enormous zucchini – the “zucchini of questionable freshness” – oftentimes with Groucho Marx glasses and a false nose, to keep until the next buildmeister was named!!

Delegating the task of the buildmeister to the team changed Microsoft’s daily prototyping process for the better. More developers got to see how their work fit together or didn’t. No one wanted to be buildmeister, so an extra incentive to hand in quality code was created. What is more, the unpleasant task of build management was equitably shared by everyone in the group.

PS. Further repercussions of this culture change saw the best high-level software developers who hated being buildmeister wrote tools to automate the task of buildmeister.

(Schrage, 2000)

This story shows how unconventional thinking allowed an entrenched culture to be transformed with efficiency and increased effectiveness as a by-product! Such a strategy of changing people’s roles can be an excellent way to change the culture of a firm.

Display 13: 3M: Playing On the Edge

3M

Reflective guardrails. Sandpaper. Masking tape. Thinsulate. Post-its.... This array of products seems a little dull – yet they are in the portfolio of a firm that has competed on the edge probably longer than any other major company. Launched in 1902 as Minnesota Mining and Manufacturing in freezing Two Harbours Minnesota, 3M has constantly reinvented itself. In the early days, 3M managers switched from mining corundum to manufacturing sandpaper. Later it was Scotch Tape and then Post-its. In a business world in which stagnant firms have been the norm, 3M managers have continuously reinvented the corporation to remain the mainstay of the US Fortune 500. These managers rarely make huge moves and rarely place risky bets: instead, they relentlessly change the company year after year.

Managers at 3M achieve superior financial performance through a strategy of competing on the edge. They organise the company on the edges of chaos and time. Allow a semi-coherent strategy to emerge and achieve a continuous flow of competitive advantages.

Throughout its history, 3M has always been a bit bipolar, driven and orderly on the one hand and yet at the same time somewhat erratic. A Fortune describes, “The central secret of 3M: beneath its orderly, AAA – rated Midwestern exterior, the place is dotted.” CEO Dosi De Simone called it “innovation and stability”. It also reflects edge of chaos management to a tee.

(Brown & Eisenhardt, 1998)

How do 3M do it? Well, firstly they are **chaotic** – In business units, (often grouped together in ways that seemingly defy logic) scientists are free to spend 15% of their time on whatever they like. Businesses run with lots of freedom and loose planning so that they can pursue unexpected opportunities. Part of the culture is to circumvent the boss to pursue projects. Thinsulate apparently was turned down five times by senior management but kept reappearing. One manager is quoted as saying “we’re managing chaos, and that is the right way to do it”.

Simultaneously 3M incorporates sophisticated financial **controls** and information systems. “You never see the productivity issue off the screen”. Executives are held tightly responsible for financial performance. Each division is expected to hit specific quarterly profit, growth and innovation targets. CEO DeSimone says, “Just as important

as our belief in flexible organisation is our conviction that 3M's growth and profitability should come not from a few of our product lines, but from each and every 3M profit centre around the world.”.

3M has built a strong coherent culture around its historical prowess and an appreciation of its entire system of business units. An early President, William McKnight, is still revered throughout the corporation, and his wisdom about balancing freedom and structure is an integral part of the corporate culture. Scientists at 3M also routinely recombine **past** technologies. For example, its very successful micro-replication business was built by linking several existing businesses to create a new one that has taken the firm into expanding markets.

3M is built on accepted support for leading edge projects and research. Company executives aggressively look to the **future**. They accelerate R&D projects across their thirty-five businesses by asking a simple question: Does the project have the potential to change the basis of competition for 3M? If the answer is “yes”, the project gets accelerated funding. The idea is to ensure that every 3M business can reinvent itself periodically. Change is triggered automatically by a sacrosanct corporate edict that 25% of sales must come from products less than four years old. This relentless push for new ideas forces **change** at regular intervals. In the late 90's, CEO DeSimone realised a need to accelerate the pace to meet faster changing markets by hiking up the pace of new product development from 25% to 30%.

Strategy at 3M is based on constantly finding new products and new markets is for the most of us – unfathomable. **Strategy is a loosely coherent direction** focused on coating technologies and innovation that has emerged from the organisation's emphasis on change and futuristic imagination. In 1996 3M marked its thirty-eighth consecutive year of dividend increases. The firm continuously reinvents itself, is perennially among the most-admired US firms, and continuously performs.

5.8 APPLIED CASE STUDY

For the purpose of testing the validity of our speculations we will take a quick look at 3M as a case in hand. This will help readers recap on this chapter and also serve as a type of model or simulation through which we can depict the applicability of our ‘playing on the

edge' theory. To test its efficacy we ask the question: Does the case of 3M conform with our emerging rules for 'playing on the edge'?

Rule 1: From our discussion of managing futures in the playful organisation our discussion implied that the future should be managed not with prediction but by creating multiple world views or '**playful scenarios**'.

3M: There is no evidence from our knowledge of 3M that they build playful scenarios per se. However, our knowledge of the 3M culture points to a willingness and awareness of the importance of preparing for the future(s). They aggressively look to the future for potential opportunities and play with the notion of different possible futures and their organisational ability to create or at least influence the future by examining R&D projects in light of their potential impact on the future.

Result: Positive

Rule 2: All organisations are wreaked with pathologies, politics and taboos. This is the 'human factor' of any organisation. Playing on the edge necessitates the question: what is the organisation refusing to model or play with? What an organisations prejudice refuses to accept or acknowledge reveals its blind spot. The antidote is to '**play with the unacceptable**'.

3M: 3M culture is imbued with a sense that anything is possible. It is hard to fathom from our knowledge of the company what kind of innovative idea would be ignored on the basis of bias assumption. However, no company or individual is free from prejudice of one type or another. What 3M has succeeded in doing however is to allow their employees to innovate at will and approach whomever they choose to 'sell' their idea. Part of their culture is to circumvent the boss, therefore no ceilings are put on the quest for creativity.

Result: Positive

Rule 3: Intelligence theory counsels that people are inclined to search for information in areas where they excel or areas which corroborate established views. Convergence and compliance results in the resistance of new ideas as a result of the collective prejudice of a majority. **Increasing diversity**, erodes the impact of a much smaller majority and also imbues discussion and interaction with a profusion of unconventional ideas. This also has

the effect of **empowering minorities** to carry through their creative behaviour into real innovation.

3M: There is no direct evidence of pursuing diversity in 3M (from our knowledge of the company). However, 3M structure inhibits structuration effects from taking hold by creating an organisation so flexible that ideas from any source are allowed a window for entrepreneurial behaviour. For this reason minority or unconventional views are given the opportunity to be explored, studied and potentially turned into business ideas.

Result: Positive

Rule 4: Organisations' structures often reflect internal prejudices and conventional methods and serves to jail members in enacted mental prisons – this notion is called the structuration effect. Looser structuring will allow multi-directional communication flows and additional and enhanced interaction leading to opportunity for serendipitous discovery, idea recognition and learning. Play can facilitate the loosening of structures by accommodate the meeting of diverse individual players from many areas of the organisational structure – **Play to loosen structures.**

3M: Again, 3M is the quintessential flexible, responsive organisation. By allocating a percentage of free time to all scientists, conferring freedom and loose planning and scoring hierarchical structures in favour of autonomous business units. 3M can free employees from mental prisons by exposing them to constant innovative thinking and playing.

Result: Positive

Rule 5: Taboos and organisational prejudice can result in innovative players being punished for producing ideas which challenge the established system. Play facilitates learning, innovation and suggestion without the stigma usually attached to would-be innovators. **Play at low risk.**

3M: The organisation encourages entrepreneurship by taking away the barriers of punishment and taboo. It does this by facilitating creative behaviour at every level and allowing individuals to explore and play with ideas in freedom. Employees are given the time and freedom to experiment at will, and are not accountable to one boss, whose individual assumptions may prejudice an unconventional idea.

Result: Positive

Rule 6: One way of approaching the cultural barriers that face entrepreneurial behaviour in organisations is to ask the question: who does this idea affect? By doing this entrepreneurial players can consult and ‘play with’ those who may potentially feel threatened or just simply cannot see the value of an idea. In doing so this further playing will lead to even more creative input and enhance the learning process even more; therefore **play with many.**

3M: Again, loose structures is what allows 3M players to play with whomever they choose. And such freedom it appears is successful in pushing valuable ideas through the corporate mill. The example of Thinsulate is perfect for illustrating how playing with many different people at different levels succeeded in convincing people of the value of the innovation.

Result: Positive

Rule 7: As we can see, how an organisation is structured to facilitate playful behaviour is paramount to its potential for success. Central to the structuring of playful organisations are the notions of free-flow of ideas and communication through the facilitation of relationships and interactions and flexibility that will leave room for chance happenings meetings and collaborative play. For this reason we recommend that organisations do not suppress play to a number of playrooms but view the entire organisation as a playground. Xerox made a mistake we believe when it distanced its innovative arm (Xerox PARC) from the rest of the organisation. In doing so they not only distanced it geographically but also mentally from those in the main stream organisation. **Play everywhere, not just in the playroom.**

3M: This rule is perfectly illustrated in the Xerox example. However 3M's strategy of groups of ‘chaotic’ business units used to nurture specific business innovation points to the organisational culture of keeping innovation close to ‘where it all happens’. 3M holds innovation up as the pivot of 3M's purpose and success and every facet of organisation is imbued with innovative spirit some extent or another.

Result: Positive

Rule 8: Surprise is another significant theme in this thesis, as is the idea that models that simply confirm beliefs are redundant. Models should induce creative speculation not reinforce stale, conventional ideas. Therefore, **play radically.**

3M: 3Ms structure is explicitly organised so that businesses have the freedom to “pursue unexpected opportunities”.

Result: Positive

Rule 9: Our definition of surprise sums up its uncertain, inconsistent and untenable nature. However surprise, if a firm is prepared for it can prove an immeasurable source of advantage. Similarly surprise can offer chance discovery of novel ideas. Just as in Rule one; the future cannot be predicted but it can be played with; playful organisations should **play to encounter surprise.**

3M: Similarly all business units are forced in their R&D to address the importance of re-inventing themselves periodically. This search for reinvention embraces the likelihood of surprise in the future

Result: Positive

Rule 10: According to complexity theory, organisations in complex environments need to be adaptive, creative and continuously re-inventing themselves. Continuous re-invention requires constant experimentation. Experimentation serves as a method of exploration; a search for the unexpected, unknown or uncertain. Therefore organisations should play to explore.

3M: Looking to the future and emphasising re-invention both illustrate that 3M play to explore or experiment for the future.

Result: Positive

Rule 11: we have also turned to complexity theory for an explanation of how to ‘organise play’ to serve productive purposes without constricting its creative output. From our discussion we concluded that both too much and too little structure nullified the value of play and therefore organisations need to find a careful balance between the two sides. Similarly shared space must contain a balance of the two ends of the spectrum and should combine flexibility for open exchange with accountability for results and action.

Organisations should neither over or under structure play.

3M: The crux of playing on the edge is centred on how to structure play enough to facilitate creativity – which 3M very clearly does – and how to structure play to the extent that it reflects, organisational direction and purpose in a way that lends productivity? We have now seen in technicolour that 3ms loose structure facilitates

creativity from all corners of its organisation. Simultaneously its dependence on financial controls and profit, growth and innovation targets allows play to be coherent, productive and most importantly profitable.

Result: Positive

Rule 12: Organisations should **Play on the Edge**.

3M: 3M will be one hundred years old next year, it enjoys dividend increases year after year after year, is a mainstay of Fortune 500 and without a doubt is one of the most-admired firms in the globe. It also, we believe, Plays on the Edge.

CHAPTER 6: REFLECTIONS

This is our final chapter, it serves as a summary of this thesis and in particular the Playful Learning Model, how we envisage this model should be managed (by Playing on the Edge) and finally we take a brief look at the process we took to deduce these concepts from our research, reading and personal conviction.

We began this thesis with a treatise of contemporary business environment issues. We introduced this ‘wicked environment’ as one which necessitates a particular kind of organisation. Literature abounds on this subject and we had plenty of resources on which to focus our attention. What we have done is choose the concepts that have intrigued us the most and combine them into our own proposition for organising successful business and introduced our exposition of the concept of ‘PLAY’ and the Playful Organisation.

6.1 THE PLAYFUL LEARNING MODEL

Our playful learning model consists of three distinct processes which woven together offer a method of learning facilitation which allows organisations to succeed competitively, evolve and sustain productivity in complex environments. This model of learning results in our conception of the ‘Playful Organisation’. The Playful Learning Cycle embraces the need for pro-activity and generative learning in today’s organisational environments. It offers a means of overcoming traditional barriers to learning while also adding insight into newer elements of learning which are necessitated by the organisational paradigmatic change that have resulted from the New Economy revolution. Learning theories and assumptions which were highly relevant for the industrial, mechanical era of organisation and for some particularly stable and static industries which have survived into the 2000’s, cannot be applied to New Economy organisations that face an entirely different set of environmental contingencies.

The Playful Learning Model processes are; the traditional Learning Cycle, the concept of ‘Play’ and the three elements, Ideation, Experimentation and Collaboration. While we have separated these into three components, they are intricately bound to one another and therefore our descriptions of each one will overlap significantly.

The Learning Cycle: This process has been iterated in much organisational learning literature since its inception in the early eighties. It still, we believe proves highly relevant to the core cognitive processes that occur during learning. It does however have a number of drawbacks which make it ill-equipped to address today's contingencies on its own. Specifically, it is too slow a process to respond to New Economy demands and does

little to assist pro-active behaviour. It necessitates compromise and limits the ideas or decisions an organisation can experiment with. Finally, the learning cycle does not address the 'human factor' inherent in any human process; that is any number of taboos, social pathologies or individual insecurities can inhibit learning from exploring anything but exhaustingly mundane and well-trod knowledge.

Generative Learning:
Organisation behaviour directed at changing existing valued states or goals. As opposed to adaptive learning which is concerned with fine-tuning what an organisation currently does. (Argyris & Schon, 1978)

PLAY: The notion of Play is a very new one. We have used some excellent academic sources to explore the different definition of and forms play can take. We scaled the literature to find the common threads, to describe the concept of play and our interpretation of its value in facilitating and enhancing the learning process.

De Geus propounds that "essence of learning is Play" and in our model the essence of Play is in creative, carefree, unbounded, irrational, clumsy, energetic, resourceful and passionate behaviour. Such behaviour, we posit, paves the way for innovation, generative learning, serendipitous discovery and intelligence creation. For the reader who has skipped to the conclusion to see what this thesis is about – this proposition is likely to sound preposterously exaggerated. However, for those that have reached here via the preceding chapters, it will hopefully be more than obvious that the concept of play as we have described it pertains to offer today's organisation a script for constant renewal and sustainable evolution.

Initially we look at Play in its capacity to allow testing of ideas without commitment. Through play firms can avoid testing unsound ideas in reality, therefore avoiding unnecessary cost and loss of face.

The kind of Play we describe also involves prototypes and simulation as a media for discussion. The lesson is that building a state-of-the-art model which impresses our peers aesthetically but confounds their imagination is useless. Good

models should provoke interference and suggestion and have the ability to actually generate innovative teams. This often denotes the use of a crude or simple model for it is in recognising the simple, core values of the idea that others can join in the Play.

Our own concept of 'LEGO Playing' sums up the capacity Play has for allowing the player to experiment freely with ideas away from the bounds of convention, and rule following. Such character lends this concept to the emergence of new combinations and paradigm-breaking innovations. In this capacity, Play also performs a very important role in creating innovation.

LEGO Playing involves the abandonment of traditional constrictions on experimentation and learning by experience. It also encourages the destruction of ideas and models on the basis that the overall purpose of play is to learn not to admire a successful idea indefinitely.

Collaboration: The notion of collaboration is so intricately associated with that of play that it is difficult to separate them. Essentially this element of collaboration could perhaps be better named 'Collaboration through Play' as the latter is imbued in our interpretation of the benefits of collaborative learning.

As we were discussing, Play displays an important predilection to the actual creation of innovation and the generation of novelties. By supplying an arena or a 'shared space' for individuals to play with each other and with models and simulations – play results in the generation of rich new ideas resulting from diverse opinion and viewpoints and the arena in which these can interact.

Collaboration can entail sharing space and Playing with colleagues within the organisation but can also involve the harnessing of collaborative benefit from network partners, such as suppliers, customers even competitors. We espouse the notion of the porous organisation, in which idea sharing and collaboration through Play can occur at any time and is explicitly supported by an organisations management. This way collaboration can be organised as informal meetings, or formalised joint ventures and alliances or take on a self-organising pattern such as the Community of Practice. Such

forms of Collaboration confer a further level of contestability to our experimentation or playfulness and as such act as a further safeguarding filter against unsound ideas.

Herein lies the basis of our arguments for the adoption of the Playful Learning Model.

6.2 MANAGING PLAYFUL LEARNING: "PLAYING ON THE EDGE"

There are a number of structural and process related issues that we associate with managing our model of Playful Learning. We found relevant guidelines and concepts during the course of our research among, Schrage's (2000) theory of Play and simulation as a means to innovation, again in de Geus's "The Learning Organisation and finally in the area of Complexity Science, for which we sought reference in a selection of books and articles. This research led us to a number of core "Rules" for managing a system or model such as our Playful Learning Model. Here is a short recap on these core concepts and a summary of our proposed rules of thumb.

Organisations must look to the future in order to survive in today's fast paced environment. It is no longer relevant to dwell on past success but successful strategies require consideration of potential future outcomes and the use of creative foresight. By encouraging the creation of multiple views of the future a firm can explore different possibilities: this is called scenario building. Building Playful scenarios involves, playing with possible futures that may appear unimaginable or incredible and reconsidering these scenarios again and again. Political culture will often inhibit this type of scenario creation and playfulness. Organisations and players often resist examining aspects that do not fit into an already explored context or area of understanding; these aspects are viewed as 'unacceptable'. Explicitly searching for the things that organisations resist modelling or playing with – will highlight areas of potential development and generative learning.

Such anti-play implications of organisation can also be explained from

Intelligence theories on compliance, convergence and structuration.

*"Whoever discovered
water, you can be
sure it wasn't the fish"*

*Howard Gossage
(Leifer, 2000)*

Ultimately, what serves to nullify convergence effects is the interplay of diversity that staves off prejudice and superstition on a collective scale at any rate. Empowering minorities also facilitates the avoidance of compliance issues. Both these as well as other political and human related

inhibitors rely on structural facilitators. We conclude that loosening structures of traditional hierarchies and chain of command type communication flows facilitates enhanced idea exchange, interaction between diverse groups, and maintains structures to ensure minority views do not escape without consideration. However, organisational pathologies and cultures are notoriously difficult to deal with: and while this thesis deals with cultural deviations, a strong organisational culture is fundamental to socialisation of employees and gathering momentum and coherent action behind shared goals and norms. Again a balance must be sought. To combat cultural inhibitors to Play, organisations can ensure that Playing entails no risk of punishment for unorthodox ideas. Similarly, spreading play through collaboration ensures that many people get to play with an idea or model, helping the collective to learn and the unacceptable to be accepted eventually. To implement any of these recommendations successfully, innovation and creativity must be central to every day work. A truly Playful Organisation must be built so the benefits of Play are extolled and the successes of previous playful lessons described. Play must be allowed and be seen everywhere. We have chosen Xerox to exemplify the mistake of distancing innovation and experimentation from the mainstream work environment and restricting it to 'Playrooms'.

Another common organisational dysfunction is the general dislike and fear of surprise and the unexpected. Surprise we argue is something that is completely

unavoidable, particularly in today's economy. By focusing on experimenting with radical ideas with a view to discovering and provoking surprise, organisations can prepare themselves for the inevitable. Playing invokes the search for creative speculation – rehashing used ideas is not sufficient to compete in the New Economy. Organisation by preparing for surprise and aggressively searching for new sources of surprise can keep

*The edge of chaos is "a
natural state between
order and chaos, a grand
compromise between
structure and surprise".*

(Stuart Kauffman, 1995)

one step ahead of the rest and maintain the capability to change strategic tactics in the blink of an eye.

Finally the essential structural issue in managing the Playful Learning Model incorporates all the paradoxes and challenges set out above in the single question; how is it possible to organise Play? The quandary lies in the wonderfully creative and dynamic but wholly unpredictable nature of Play. To design how an individual should play is to rid it of all innovative-creating value but to allow an organisation of single-minded individuals to play at will without any guiding philosophy or sense of accountability is to court confusion and chaos. Our model purports a method of learning, which delivers huge potential for successful business development – however without the structures to facilitate such development, such learning is likely to go to waste. Therefore we contribute the ‘Playing on the Edge’ concept. Building sufficient semi-structures such as financial accountability, innovation goals and growth targets lessens the likelihood of incoherent play with no conceivable goals. These structures are encased in an overall organisation that is characterised by flexibility, loose communication channels and improvisation. The result is organisation that is neither over-structured nor stifling or chaotic and unproductive.

6.3 RULES FOR ‘PLAYING ON THE EDGE’

- **Build Multiple World Views or Scenarios of the Future**
- **Play with the Unacceptable**
- **Build Diversity and Empower Minorities**
- **Play to Loosen Structure**
- **Play at Low Risk**
- **Play involving Many**
- **Play Everywhere, not just in the Playroom**
- **Play Radically**
- **Play to Encounter Surprise**
- **Play to Explore**
- **Neither under- or over-structure Play**
- ***Play on the Edge***

6.4 PLAYING WITH IDEAS: THIS THESIS AS A CASE IN POINT

Writing this thesis has been less like a labour of love and more like suffering a terrible disease...! We truthfully believe we have been beset by nearly every impediment to the learning curve that we have ended up describing in our model. So the journey to this concluding paragraph has been an arduous one, we've got that cleared up! However arduous, it has also been an extremely productive one. As we stated at the beginning of this dissertation, we began writing in Fall 2000 about a topic which for all intents and purposes is quite removed from the finished product you have just read. Ultimately, what we had in October last year was a vague idea, a crude prototype of the topics that interested us and how they may be applied to a real situation. We played with these ideas for a while, talked them through over coffee and if the truth be told for a long time all we did was agree on our mutual interests. At least we had a place to start!

Eventually we decided to test concepts of knowledge creation, learning and intelligence by studying a number of business cases in Stockholm. We considered and reconsidered what elements of learning and knowledge might be relevant to an organisation in today's economy. As we proceeded our ideas and interpretation of the value of learning and how it may be conducted began taking seed and blooming. Our search for evidence in the real world did not. What we were searching for were not static, obvious features that we could possibly extract in a few hour-long meetings with harassed executives. In any case, we still did not have a coherent view of what we were Playing with.

At this stage we had collated and intensively researched a number of shared interests, played with a crude notion of what we were looking for and how it might be accomplished, began experimenting and sending out probes for ways in which our ideas might materialise. Until we set about understanding the fundamentals of the ideas we had discovered along our journey, from discussion or from research, we could go no further. Much effort was spent in SSES, drawing and redrawing pictures on the white board of how our ideas might fit together.

Eventually, a pattern began to emerge and we decided to change track. We felt what we had stumbled across was the basis for our own model of learning. From this point on we continued to Play, that white board looked different every single day. The model took

some time to assemble. Neither of us had attempted to do something like this before. We both entered this project with distinct mindsets and neither of us were wholly prepared to submit to the murky waters of academic modelling. Individual pathologies obstructed our journey, not to mention a few culture clashes...For example...

“I am Irish and Anders is Swedish. For those who don't know me or more importantly don't know the Irish (yes, I am quite happy to lay the blame on my culture rather than myself) – I tend to talk a lot. In fact, I like to talk all the time and the only time I shut up is when I am interrupted. Far be it from me to make any sweeping comment on the nature of Swedish behaviour, but if I may make one observation – Swedes don't interrupt. The result of this cultural mishap was that I could happily prattle for twenty-five minutes about my insight into learning and intelligence creation to Anders who would equally happily sit in silence and at the end resist telling me that nothing I said made any sense because, well, that would be rude. Incidentally I continue to interrupt Anders all the time and he doesn't seem to mind?!”
(Sinéad Murray: thesis author, 2001)

“As we started our mental thesis journey I thought that we pretty much had agreed on a study of the four Stockholm based telecom operators and how they managed organisational learning. Eventually Sinéad did not really appreciate our data since she had a very strong theoretical focus and believed that we could not draw any specific conclusions from any of the material we had gathered. This caused a mental block since we obviously worked with two different mindsets on this and neither one of us had communicated our view very well prior to starting the process. As we handed our first draft in Sven was kind enough to enlighten us of this by concluding that our piece was not very good at all, it did not make any sense with respect to theory in terms of what theory we should use as well as theory that we had used without understanding it and finally we had headed off in, two, totally senseless directions.

We tried to refocus without success and by Christmas we were hit by failure yet again. At this point we had started to communicate better though and Sinéad and I shared some kind of common vision even though we were not able to communicate that vision to a third party, yet. The fact that we actually can present the thesis at all is a fact that I am most proud of and despite the initial difficulties I happily admit that I would never have been able to do this on my own.”

(Anders Östlund, thesis author, 2001)

So in a number of ways this thesis is a result of our Play with ideas and reflects much of the Playful Learning Model and Playing on the Edge concepts. Initially we had too much structure and were unable to see past a one-dimensional opinion of the form this project would take. Later on, when we had decided to go for broke and try and build our ideas into our own model we slipped off the precipice and floundered in chaos for a while. Eventually we found our edge.... The result is to be played with, to provoke interest and further discussion and hopefully will interest a reader or two to further study the captivating topic of entrepreneurial learning in organisations.

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