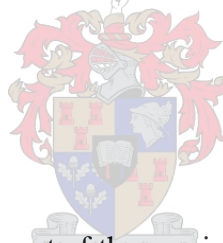


DIVERSITY IN DECISION MAKING FOR COMPETITIVE ADVANTAGE

CONCEPTUALISING THE IMPACT DIVERSITY OF
IDEAS HAS ON DECISION MAKING EFFICIENCY

by

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OPSOMMING

Hierdie tesis ondersoek die moontlikheid om kompeterende voordeel te kan bewerkstellig deur diversiteit. Deur eers die invloed van besluitneming op die kompeterende voordeel te bepaal, en dan die uitwerking van diversiteit op besluitneming te bereken, word die indirekte verband uitgelig.

Mededingendheid word ondersoek deur te bepaal hoe diensleweraars met dieselfde oplossings in dieselfde mark deelneem. Mededingendheid word verstaan in term van die kompleksiteit veroorsaak deur intense kompetisie, die vraag na hoë standaard diens, en die impak hiervan op organisasie kultuur en die verwantskap tussen individue en die organisasies waarvoor hulle werk.

Die besluite van deelnemers oor hoe om te kompeteer in die mark word verder ondersoek. Deur die definisies van kliënte-waarde en kompetisie te verstaan, word dit moontlik om te bepaal wanneer die probleem konteks en deelnemer verhouding 'n invloed op die kompleksiteit van besluitneming het. Kritiese heuristiek lewer verdere insig tot organisatoriese besluitneming.

Die ondersoek van die oorsprong en redes vir besluitneming op die vlakke van kognitiewe en filosofiese vlakke lê die gereedheids potensiaal vir aksies bloot. Die eeu oue filosofiese beginsels van vrye wil en vooraf bepaalde uitkomste word bespreek om verdere insig in besluitneming oortuigings te verkry.

Sosiale konstruksie en leer op die vlakke van persoonlike en organisatoriese leer word ondersoek om die belangrikheid van sosiaal bepaalde realiteite en lesse te bewys. Die vermoë om met ander 'n wisselwerking te kan bou en dan te kan leer uit die wisselwerking word ondersoek om die rol van risiko gedurende die besluitnemings proses uit te lig.

Of dit moontlik is om besluite te kan neem sonder om bewus te wees daarvan word vervolgens ondersoek. Die bydrae van gewaarwording op persoonlike en groeps vlakke tot organisasie besluitneming dinamiek word verder uitgelig. Klasse van kompleksiteit in die organisasie kultuur help om patrone in besluitneming te definieer wat gebruik kan word om besluite te versterk en te versnel.

Elf algemene probleme met gesamentlike besluitneming word vervolgens bekend gestel en ondersoek binne die siening dat gesamentlike besluite gelaai is met problem wat besluitneming oneffektief maak.

Die beginsel van diversiteit word ondersoek op sosiale en abstrakte vlakke omdat dit voordele vir die proses van beide die verstaan van die probleem en die besluitneming inhou. Die menslike faktor in proses van verstaan bied meganismes vir diversiteit en moontlikhede.

Ten slotte word dit aangedui dat dit moontlik is dat die kompeterende voordeel van 'n organisasie beïnvloed kan word deur besluitneming wanneer diversiteit verstaan word en die invloed daarvan korrek aangewend word.

SUMMARY

This thesis poses the premise that diversity influences competitive advantage. Although a direct link may not initially be apparent, by first exploring the impact of decision making on competitive advantage and then establishing the effect of diversity on decision making, it is possible to stimulate a competitive advantage.

Competitiveness is investigated by looking at how service providers with the same solution participate in their market. The understanding of competitiveness is focused on complexity caused by intense competition, highly standardised service requests, organisational culture and the relationships between individuals and their organisation.

The decision of participants on how to compete in the market is explored. By understanding the definition of customer value and competition it is possible to determine when problem context and participant relationships will impact on the complexity of decision making. Critical heuristics provides further insight into organisational decision making.

Examining the origin and reason for decisions at both physical and philosophical levels reveals the readiness potential for action. Philosophically, the age old concepts of free will and pre-determined outcomes are debated in order to provide insight into individual beliefs regarding decision making.

The concept of social construct and learning, both individual and organisational, is explored to show the importance of socially determined reality and learning. The ability to interact and to learn from interactions is investigated to highlight the role of risk during the decision making process.

The notion that it is possible to make a decision without being aware is investigated. Exploring the contribution of sense making at individual and collective levels highlighting organisational decision making dynamics as one of the steps to achieve indirect decision making. Categories of complexity in the organisational culture help define patterns in decision making that may be utilised to accelerate and strengthen decision.

Eleven common issues with collective decision making are subsequently identified and explored within the premise that collective decision making is fraught with problems that may cause the decision making to be ineffective.

The concept of diversity is examined at social and abstract level as these deliver benefits to the processes of both understanding the problem and making the decision. The human factor in the understanding process offers mechanisms for diversity and possibilities.

In conclusion this thesis shows that it is possible to enhance the competitive advantage of an organisation through decision making by understanding the elements and impact of diversity when diversity is understood correctly.

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Introduction

Utilising decision making to compete

This inquiry attempts to determine the possibility of enhancing competitiveness through the manipulation of diversity during decision making.

In understanding how competitiveness can be achieved, elements that provide competitiveness can be enhanced by providing for better decision making through diversity. Diversity in decision making can be achieved through various easily discerned mechanisms that range from variations of options to decide from, views maintained by individuals involved in the decision making on specific options to more than one process for decision making. The question is whether there are other mechanisms that are easily identifiable and easy to utilise in the complex milieu of a fast paced modern organisation?

An attempt is made to determine what is meant when we have competitive advantage and how it is achieved. A first pass at the elements of a competitive advantage is made in order to understand where organisations are looking to improve themselves and what the focus is that is needed when the organisation wants or needs to become more competitive.

The first step is to identify what it is that provides competitive advantage; we need to decide how to compete through decision making as the next step. Utilising the ideal type grouping of problem context described by Flood and Jackson in their book *Creative Problem Solving*¹ provides a usable reference necessary to address the distinction between simple and complex decision making as part of the next step on how to compete. One of the reasons for the distinction in problem context is that it is not effective for individuals or organisations to spend the same amount of resources on all problems. It might also be useful to understand the dynamics of the complex decisions to be made in order to enable more individuals in the organisation to participate in a contributing fashion in the decision making of the organisation.

The context within which a specific decision is made is the reality the individual decision makers and the organisation is facing at that instance. This reality is constructed at individual level as well as collective level. Sense needs to be made of the reality the organisation and

¹ Flood RL, Jackson MC. 1991. *Creative Problem Solving: Total Systems Intervention*. 35

individuals find themselves in in order to determine which actions (if any) are needed to change the current reality to a more competitive reality. A myriad of factors can be selected to indicate the reality and it is central to understand what they are and why they are important, as it will determine the focus of the drive for competitiveness.

Is it then possible to control when decisions are made? If the answer is yes, this will indicate the focus areas to ensure the competitiveness of the organisation. The counter answer poses the question whether it is possible to make decisions without knowing it? The answer to this is equally significant. In understanding cognitive elements in the organisation, it is easier to identify the situations and elements where *hidden* or *unknown* decisions making happen. A basic appreciation of both classes (conscious and hidden/unknown) of decision making is needed in an organisation to enable decisions towards competitiveness. The organisation can with this understanding provide decision makers with the correct supportive information.

Group decision making is prevalent in organisations and it would be beneficial to determine how to utilise group decisions. Collective decision making pose various challenges but also holds unique characteristics that, if understood, could be used to the organisation's advantage in the search of competitiveness.

The meaning of diversity, what types of diversity impacts decision making and how the diversity can benefit decision making. Knowing what additional factors impact diversity and decision making can also add to the planning for beneficial decision making.

This thesis identifies some of the important elements that can impact the competitive advantage of the organisation. The elements identified pose certain challenges to organisations. Once the organisation understands the dynamics surrounded by these elements there are possibilities to influence these elements by providing more options on them during decision making.

In deciding on how to compete, the organisation needs to understand what it is the client will see as value. This requirement needs to balance the use of industry standards or the dominant design that result from the organisation's focus for competitive advantage. This problem necessitates an understanding of problem context as defined by Flood and Jackson.² Their ideal type grouping of problem contexts assist in the understanding of the challenges and impacts of the problems faced in decisions. The complexity of decisions on value and on

² Flood RL, Jackson MC. 1991. *Creative Problem Solving: Total Systems Intervention*. 35

dominant designs is highlighted and as a possible way forward, the ideal type grouping of problem context is discussed.

In order for the organisation and the individuals to enhance decision making for competitive advantage, both need to be able to learn. Two of the many reasons for learning in this context are to enable individuals and the organisation to operate in a fast changing market and to constantly make better decisions in the quest for competitive advantage. The reality of everyday corporate life is also one that is constructed by the social systems of the organisation and is highlighted in this thesis. In further discussing the speed of decision, how individuals process information in organisational context is emphasised.

Cognition within organisations is important in that it is necessary for decisions at both a direct (planned and consciously) and indirect (without knowing) level. It became evident that understanding the construct system and levels of analysis is necessary for building an understanding within an organisation (and between organisations) to facilitate decision making. Decision patterns are used to explain why certain decisions are repeatedly delivering unwanted results.

Very few decisions within organisations (especially strategically) are made on individual level. Decisions are made by multiple stakeholder groups and provide both advantages and challenges. An attempt is made to identify some of the challenges and also to understand what it is that pose the challenge.

The last element to enable competitive advantage in the decision making is that of the diversity. Two levels of diversity are identified in social and abstract levels. Multi-ontology sense making is also positioned as an enabler of diversity in that Snowden shows that it is possible to utilise the difference in understandings and how to do things as learning to built the knowledge where it does not exists for decision making. The difference itself providing diversity.

The hypothesis of this thesis is that when diversity is taken into account during the decision making process, the organisation's competitive advantage will include that the decisions will take into account a much richer composition of possibilities and provide a stronger foundation for success.

The organisational drivers that assist in re-enforcing the competitive advantage through diversity include ethics, culture, products, services and process. The decision making focus

for this study is predominantly on strategic decision making, but can include the whole spectrum of decision making of the organisation from planning to execution.

By determining the impact of decision making on competitiveness of the organisation first, and then the dynamics of diversity on decision making it should be possible to determine the indirect relationship between diversity and the competitive advantage of the organisation.

Chapter One

Competitiveness between rivals with the same solutions/offerings

1 Introduction

In order to achieve a competitive advantage over rivals it is beneficial for organisations to understand the difficulties and challenges that modern organisations face in the current market. Understanding competitive advantage in contemporary conditions will assist service organisations to structure service offerings in such a way that the decision on selection is made more attractive to the client.

Highlighted here is a list of challenges, predominantly internally focused, some externally based, that impact a service organisation's ability to compete with its rivals.

These issues are not unique to any specific organisation, most modern organisations struggle with all or at least a subset of these challenges. This not a complete list of issues, but rather a list of those most encountered by service providers.

The first sets of difficulties of importance are those that assist in understanding the complexities and fierceness of competition. There are many difficulties in this category and many of them also tend to be more specific to certain industries. Three difficulties found to be most relevant in describing service organisations are firstly the difficulty to describe what it is that provides an advantage, secondly the fact that services have become akin to utility services and, finally, challenges surrounding skills.

Standardisation in infrastructure, as an example in the IT industry, used by clients makes for difficulties in designing infrastructure services that differentiate one service provider from the next. This does not mean that the standardisation itself is a problem. To further complicate matters, clients have a relatively small pool of service providers to choose from in localised business environments such as South Africa.

Cohen and Ridder³ show that organisations tend to use outsourcing as a driver to solve the cost savings challenge and this is likely to be connected to business cycles.⁴ The difficulty

³ Cohen L.R. and Ridder F. 2010. Outsourcing Survey Shows We Still Have Lots to Learn. *Gartner Research*. 6. Various other lists on reasons for outsourcing have Cost Savings as the number one reason organizations site for outsourcing including <http://en.wikipedia.org/wiki/Outsourcing#Reasons>.

here is that when all service providers of infrastructure services are focusing on the same clients they are also experiencing the same cost pressures; they are all caught up in the same cycle of business and are required to provide the same results. Organisational culture plays a further role in that when a client organisation is looking for a service provider, they are also looking for a provider who will extend their organisational culture and values. In understanding what it is that influences the organisational culture of clients, service providers may create and manage a competitive advantage for themselves.

Understanding the challenges a client faces in making a decision on which service provider and services to select, allows service providers to structure their products and services in a more competitive way. In addition, an understanding of the dynamics of individuals in organisations and the relationships between individuals and the organisation will provide the service provider with insight into the decision making used in the selection process. To further understand how the individual selects options, it helps to understand cognitive aids and how the scope for decision making is determined when service suppliers attempt to predict which options clients would select. The focus here is on an effort to customise services to satisfy client requirements and needs that determines the service supplier strategy on what to compete with.

2 Complexity in a highly competitive environment

Having cost pressures on organisations' finances and pressures on skills in various new and older technologies, it is not surprising that organisations are outsourcing IT capabilities. In order to secure a future for the organisation in a specific market, the organisation has to be able to fend for itself. This means that there is a requirement from an organisation to face financial challenges, compete with rivals and grow its own business. Support for the organisations' efforts comes in the form of utility services – those services that are in the background and unacknowledged. The appropriate skills are required to ensure the robustness of these services. These are by no means simple services and they are required to be robust enough to provide reliability but flexible enough to change in order to support the business in its competitive operations.

⁴ Dibbern J, Winkler J and Heinzl A. 2008. Explaining Variations in Client Extra Costs Between Software Projects Offshored to India. *MIS Quarterly* 32 (2), 333-366 demonstrates the same issue in the application outsourcing environment.

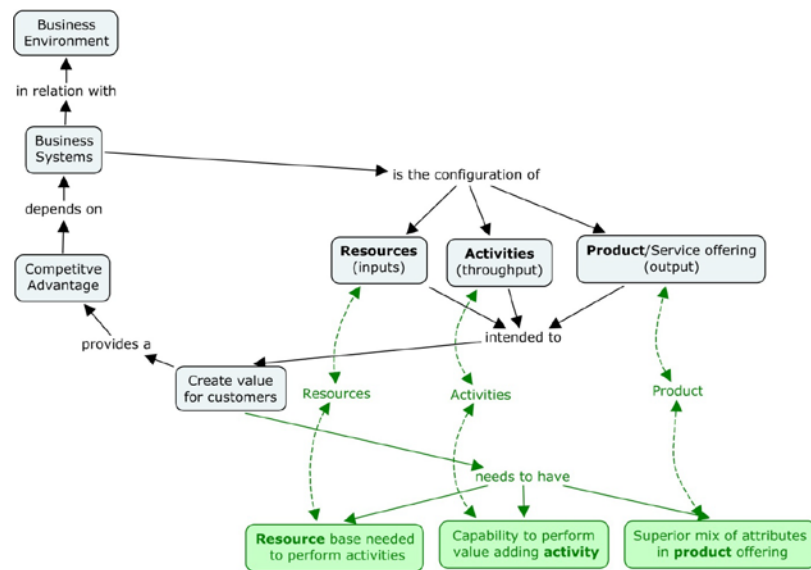
2.1 Competitive advantage

There is no denying the competitive nature of the business environment in which South African organisations have found themselves since 1994. The South African business environment suddenly found itself in the midst of globalisation and to be successful, organisations had to gain a competitive advantage over local and international rivals. This was nothing new or irregular during globalisation. However, South Africa was a late entrant onto the globalisation scene.

De Wit and Meyer⁵ argues that the competitive advantage of an organisation depends on the business system the organisation created to relate itself to its business environment. The business system is the configuration of resources (inputs), activities (throughput) and product/service offerings (output) intended to create value for customers.

In terms of such a definition of competitive advantage, competitive advantage suddenly becomes a cycle that, should the organisation consistently adhere to the minimum expected observance of De Wit and Meyer's intent, should lead to an environment that feeds on its own perpetual success. The business system, developed in order to create a relationship with the business environment (market), is a configuration of product, activities and resources. Product, activities and resources are created with the intent to create value for customers and in addition provide a competitive advantage. The competitive advantage that depends on the business system closes the cycle and the result is in line with the saying *success breed success* – indicating the sustainability created by closing the loop.

⁵ De Wit B and Meyer R. 2005. *Strategy Synthesis, Resolving strategy paradoxes to create competitive advantage*. 101. De Wit and Meyer emphasises that strategic management concern the relating of an organisation to its environment. They also identify three distinct levels of strategy in corporate, business and functional.



The issue of competitive advantage⁶

2.2 Utility services

IT infrastructure services, as an example, have become the utility services of the modern business world. Financial institutions and other sophisticated process based industries that rely on approaches such as *just in time*, are reliant on in-time feedback loops and have become so accustomed to these infrastructure services that they only realise this reliance when the services are not working. This parallels household reliance on water and electricity supply where problems with these utilities are only realised when opening a tap or switching on a light and nothing happens.

Households are not interested in the complexity in getting water or electricity supplied to the light switch or tap. The quality of the utility service surely has an impact, but it is not nearly as important as the consistency of delivery. Price of the utility is only a factor on the basis that it impacts the cost of what is being done with the service.

The same holds for IT infrastructure services. Once the maturity of the organisation allows that the infrastructure is perceived as a commodity, then consistency / stability and price become the important factors regulating the view of infrastructure services.

2.3 Skills

While there is some difficulty in establishing the meaning of the term *skills shortage*, Akoojee, Arends and Roodt⁷ notes that the conventional use of the expression refers to the

⁶ Diagram created with IHMC Cmap tool.

⁷ Akoojee S, Arends F and Roodt J. 2007. *ICT skills at the intermediate level in South Africa: Insights into private provision and labour market demand*. 8.

length of time taken to fill vacancies in a particular labour market sector. A particular skill is deemed to be in short supply if placement has taken more than three months, despite efforts to recruit and appoint people with necessary skills. Shortages also suggest that the skills mix required by employers is not in line with what is available in the labour market.

Various components are contributing to the skills shortage; however, four stand out in research done in the IT industry by Gartner researchers Adams et al.⁸ The first of these is the approaching retirement of large numbers of personnel who started with the development of IT practices. IT infrastructure as a mainstream function leading to a definite career path started in the mid 1960's. Those individuals who chose this path have now had 40 years and more of active service and are nearing the point of retirement.

The second component is a perceived lag in technology education. One of the reasons for this is that students are avoiding technology as a career choice. The negative impressions created by the huge number of job losses during the demise of the *new era* of IT (during the dot-com bubble burst) and consequent renewals and introductions of newer technologies, not only made many individuals employed in the industry think twice about their careers, but it also deterred new entrants. Akoojee, Arends and Roodt indicates that although this seems to be the case in the global markets, South Africa seems to be able to provide a steady supply of up to mid-level IT Skills⁹. The demand for IT skills in South Africa is however still increasing for various reasons including business growth and employment equity.

Thirdly, off-shoring services has demonstrated that it is no longer necessary for many types of IT professional services to be delivered where they are consumed and this has led to globalisation of service consumption and delivery. Consequently, competition for highly skilled, low-cost resources has become a global concern. This is evident from the research of Marriott on the outsourcing of many of these tasks not only to India and China, but also to a vast number of other suitable destinations.¹⁰

Lastly, a typical supply-and-demand imbalance in technology services as a manifestation of a shortage of talent happens. Imbalances are seen as a given whenever new technologies are

⁸ Adams C, Clark LM, Goldman M, et al. 2006. Skill Shortages Are Emerging in the CSI Service Market. *Gartner Research*. 2-5. Consulting and solution implementation is a term used to roughly but describe infrastructure, application and process responsibilities. This article uses examples pertinent to application related skills, but the basis of the research was all three levels of IT services. (The Gartner service is predominantly an industry reporting service and is used to indicate real findings in the global market).

⁹ Akoojee S, Arends F and Roodt J. 2007. *ICT skills at the intermediate level in South Africa: Insights into private provision and labour market demand*. 9.

¹⁰ Marriott I. 2008. Gartner's 30 Leading Locations for Offshore Services. *Gartner Research*. 2.

introduced and not enough individuals are trained when the market starts demanding services for these technologies. The skills that are developed are normally done with more senior members of the work force and this in itself depletes the numbers of other skills, even if it is only at the level of the primary focus of team members. This may be seen as a problem for the skills but the positive side of it is that it enables the IT service market to regularly rejuvenate itself.

3 Standardisation

Organisations tend to outsource their IT in an attempt to reduce the uncertainty and costs involved. The risk in the reduction of uncertainty is that it also impacts the knowledge and information available to the organisation. The uncertainty here stems from various issues such as overlapping functionality of different technologies, determining which platforms, or technologies for implementation, to utilise in which circumstances and lastly determining which technology to utilise when existing investments provide an older, stable platform as opposed to a newer, more agile platform. In this instance information around technology is high in abstraction for the older technology but low for newer technology, it is still un-diffused and un-codified for the newer technology, attaching a high degree of uncertainty to the solutions embracing newer technology. According to Boisot¹¹ this is an area of knowledge that is hard to standardise and has the potential to be risky. It is also the area where variation actually turns out to be not only the source of business value but also a potential hazard, leading to complexity. Organisations are typically motivated to standardise their knowledge in order to reduce risk associated with uncertain outcomes fuelling a tendency to maintain older technology and using dominant designs.

The establishment of technical standards in an organisation's products and services leads to an increase in usage of specific technology according to Boisot.¹² Once the organisation reaches critical mass of usage of specific technology, further buying power may be achieved by outsourcing to a vendor who aggregates the economies of scale from several clients into a larger scale for further improvement of buying power. Resultant economies of scale normally facilitate further standardisation of technologies, services and processes, in turn resulting in even further cost savings.

¹¹ Boisot M H. 1998. *Knowledge Assets - Securing competitive advantage in the Information Economy*. 199.

¹² Boisot M H. 1998. *Knowledge Assets - Securing competitive advantage in the Information Economy*. 161. This reflects the view that standardisation will facilitate concentration.

Boisot further notes that industry is experiencing a transition from a deep, technology-driven phase, to a flatter, more market-driven phase. Significant economies of scale is characterising the outsourced service industry and more specific in the IT industry as it is maturing.

Following the emergence of a *dominant design* at computing infrastructure level that stems from the standardisation and economies of scale, innovation has become incremental.¹³ This illustrates a textbook case of the views of Boisot that through high levels of corresponding investments by industry players, a new product's basic configuration comes to acquire a strong inertia and then resists all attempts at radical restructuring. The question is whether this resistance and natural tendency to avoid risk is used by clients of outsourcing vendors to drive a situation in the IT outsource market where vendors are differentiating on price and less on innovation.

Boisot¹⁴ further notes that the emergence of a dominant design is further fuelled by standardisation in various components of the infrastructure as a result of a requirement of interoperability in the IT industry. An example of this from experience is where Cisco and Nortel network equipment traditionally forced organisations to choose one or the other, however it has now become possible for these technologies to be utilised in a merged environment as interoperability increases due to communication standards. Interoperability was a requirement from clients who were required to consolidate resources thus forcing the two technologies to be interoperable. The variety in products and technologies has reduced resulting in a consolidation in skills required to operate and manage the communications environment. Processes and monitoring tools may suddenly be utilised on both technologies and the markets have suddenly opened up for both manufacturers where either previously dominated.

A further standardisation pressure has come from the availability of specific skills. Organisations tend to opt for technologies where skills are readily available thus reducing risk and cost of skills procurement. These standardisations also lead to a greater number of client organisations utilising the same basic configurations at infrastructure and infrastructure

¹³ Boisot M H. 1998. *Knowledge Assets - Securing competitive advantage in the Information Economy*. 162. This is demonstrated by the "reluctance" of organisations to move on to new technologies once they have standardised on a specific technology.

¹⁴ Boisot M H. 1998. *Knowledge Assets - Securing competitive advantage in the Information Economy*. 163. A textbook example of how the dominant design eliminates product variety and much of the tacit knowledge required to cope with it. See also the next chapter the comments on the dominant design trap.

management level in order to support their business environments. Improvements made possible by standardisation effect gradual savings through the stability and increased automation of the infrastructure environment.

Boisot¹⁵ also notes that organisations have suddenly found themselves caught by a new constraint in that as standardisation leads to performance improvements, the improvements leads to further standardisation. Factor saving happens when standardisation and improvements happens together and in the process reduce complexity. The factor saving leads to increased reliability and easier automation. The product attributes are coevolving to constrain each other mutually, extending the scope for standardisation. The dominant design that emerged from this process makes it increasingly more difficult for radical improvements or further simplification. The result is that structures and standards provided by the dominant designs became so difficult to change that, what had become an easy to manage environment also became difficult to change in order to support new business requirements.

The above indicated how dominant designs make it difficult to change away from standards, how dominant designs may facilitate concentration through standardisation and how dominant design eliminate product variety. These three results of dominant design imply that competitive advantage should be derived from value added services – services built on the basic standardised offerings.

4 Finite set of service providers

The word oligopoly is derived from the Greek for few sellers / competitors. An oligopoly is a market form in which a market or industry is dominated by a small number of sellers also known as oligopolists. March¹⁶ highlights the issue that where there are few participants in a specific market, each member of the oligopoly is aware of the actions of the others. This is due to the fact that decisions of a competitor influences, and are influenced by the decisions of other competitors in the oligopoly. Oligopolists' strategic planning constantly evokes a variety of possible responses of the other market participants.

A nearly perfect competitive situation is created between sellers in an oligopoly and is the result of relatively low prices and high production. The competition in an oligopoly may be greater than when there are more organisations in an industry. The tendency of oligopolistic

¹⁵ Boisot M H. 1998. *Knowledge Assets* - Securing competitive advantage in the Information Economy. 36. Boisot eludes to new constraints.

¹⁶ March J G. 1988. *Decisions and Organisations*. 26.

organisations to change price relatively infrequently in comparison with organisations in more competitive markets has frequently been noted.

5 Organisational culture

It is widely acknowledged that values, beliefs, attitudes and dearly held philosophies affect the way society is organised and supported by the views of Giddens¹⁷, Crozier¹⁸, Smircich¹⁹, Hofstede²⁰ and Jones²¹. Values and beliefs are shaped by many factors including history and tradition, business climate, work people do, organisation size and prosperity of the organisation. Differing atmospheres, different ways of doing things, levels of energy, of individual freedom, of kinds of personalities are all elements that define the corporate culture. Organisations are as different and varied as nations and societies. Sets of values, norms and beliefs reflected in different structures and systems are building blocks of what is deemed a culture. Events of the past and the climate of the present, the technology of the type of work done, goals and the kind of people that work in and with the culture are what shape and form culture.

It is not always clear whether or why this form of variety exists or how this may be utilised in a beneficial manner. After decades of management theory, the mix of type and structure seem to be still large if not growing. There seems to be not one optimum structure of control, one best way of describing jobs, appraising people, controlling people, of budgeting, forecasting and planning. In an era where individuals and organisations boast control of their environment, there is still a plethora of differences and uniqueness.

The cultures of organisation rightly differ, are affected by a variety of factors and are reflected in diverse structures and systems. One may argue that many of the ills of

¹⁷ Giddens A. 1984. *The Constitution of Society*, xxxvii. Giddens argues that even when we try to avoid the Parsons' functionalism, we still maintain a fascination with *value-consensus* or symbolic orders.

¹⁸ Crozier RA. 2011. *The Engagement Manifesto*, 25. Crozier uses the term *It's How Things Are Around Here* to indicate the human culture in organisations. He also notes that national culture trumps organisational culture in his reference to the definition of national culture by Hofstede.

¹⁹ Smircich L. 1983. Concepts of Culture and Organizational Analysis. *Administrative Science Quarterly*, 28(3): 339-358. Smircich proposes themes when we consider culture - comparative management, corporate culture, organizational cognition, organizational symbolism, and unconscious processes and organization. The main metaphor is often one of orderliness where much of the organisational theory is an inquiry into social order.

²⁰ Hofstede G. and Bond M H. 1984. Hofstede's Culture Dimensions: An Independent Validation Using Rokeach's Value Survey. *Journal of Cross-Cultural Psychology* 15(4): 417-433.

²¹ Jones M L. 2007. Hofstede - Culturally questionable? *Oxford Business & Economics Conference*. 1-9. Jones argues that Hofstede's work on culture is the most widely cited with far more scholars agreeing with him than those that are critical of his work. Jones conclude that although the controversy surrounding Hofstede's work is till high, is still remains valuable on culture.

organisations stem from imposing an inappropriate structure on a particular culture, or from expecting a particular culture to thrive in an inappropriate climate – but this is not the aim of this work, rather it is what the effect of this variety has on the decisions being made by the organisation.

In the search for universal formulae or cure-all remedies, Charles Handy notes that earlier management theories did a great disservice in seeking to disseminate a common organisational culture.²² More modern theories of organisation are increasingly persuaded of the wisdom of the appropriate, of the match of people to systems, to task and environment, of inter-relationships between wisdom, people, task and environment, of what is commonly known as the institutional approach to management theory. This phrase is sufficiently vague to cover all manner of specific approaches but it tends to indicate interrelationships, feedback mechanisms, and appropriateness. The institutional approach to describing organisation is not the same as systems theory but it shares with it a concern for linkages and appropriateness.

Handy also observes²³ that there are four varieties of organisation cultures that are each reflected in a structure and a set of systems. The influencing factors on these cultures should be considered and finally, the implications for organisation design on the organisational decision-making should be understood.

5.1 The cultures

In his paper on organisation ideologies, Roger Harrison,²⁴ following many others, indicated that the word *cultures* seem to convey more of the feeling of a pervasive way of life, or set of norms. In organisations there are strong beliefs about the way work should be organised, the way authority should be exercised, people rewarded, people controlled. When analysing these organisations one have to seek answers to questions on: the degrees of formalisation required, the amount of planning and how far ahead it is done, the combination of obedience and initiative that is looked for in subordinates, do week hours matter, or dress, or personal eccentricities, who and when are expense accounts, secretaries, stock options and incentives allowed? Also parts of the culture of an organisation are the answers to whether committees or individuals control, and whether there are rules and procedures or only results. Culture often takes visible form in its building, its offices, its shops or branches. The types of people

²² Handy C. 1993. *Understanding organisations*. 180-181.

²³ Handy C. 1993. *Understanding organisations*. 181.

²⁴ Harrison R. 1972. How to describe your organization, *Harvard Business Review*, Sept – Oct.

it employs, the length and height of their career aspirations, their status in society, degree of mobility, level of education, will all be reflections of the culture of the organisation. For example, the teaching hospital has a culture manifested in a different way from a merchant bank, which is different again from a discreet manufacturing plant. They appear and are experienced differently. They will require different kinds of people and will appeal to different kinds of people and groups. They have different ways of working. They are different cultures.

Within organisations cultures will differ. The Research and Development laboratory in the fields of the countryside will have a different atmosphere to the directors' floor in the central office and to the records department at the regional branch. The invoicing department would not be mistaken for the market research department, or the factory for the sales division.

Bijker et al notes that different meanings can constitute different lines of development²⁵ of the product and knowledge imbedded in the product. They propose that the sociology of technology (SCOT) descriptive model offer an operationalization of the relationship between the wider system of the technology and the actual content of the technology.

The interpretive flexibility of technological artefacts implies that there is flexibility in how individuals think and interpret artefacts – even in how the artefacts are designed. There is no *one* possible or *one* best way to design an artefact.²⁶ SCOT also provides an integrated perspective to social study of science and technology that indicate how the two fields (science and technology) benefit each other. This provides bits of culture that becomes articulated by virtue of the way rest on cultural competence of the users and interpreters that created the meanings.²⁷

A realisation that the customs and traditions of work places are powerful ways of influencing behaviour has led to a growing body of literature on the culture of organisations.

Handy notes that strong omnipresent cultures turn organisations into interconnected tribes with distinct clan-like feelings.²⁸ Private language, catch phrases and tales of past heroes and dramas are the values and traditions of a tribe and are reinforced by it. Rituals of an

²⁵ Bijker WE, Huges TP and Pinch T. 2012. *The Social Construction of Technology Systems: New Directions in the Social and History of Technology*. 40

²⁶ Bijker WE, Huges TP and Pinch T. 2012. *The Social Construction of Technology Systems: New Directions in the Social and History of Technology*. 35

²⁷ Bijker WE, Huges TP and Pinch T. 2012. *The Social Construction of Technology Systems: New Directions in the Social and History of Technology*. 336

²⁸ Handy C. 1993. *Understanding organisations*. 183.

organisation preserves life in such a way that rule books and manuals are almost unnecessary; answers are provided by customs and traditions. Common understanding suggests that a strong culture provides for a strong organisation, but the question is whether it matters what sort of culture is involved?

Not all purposes or people are served or suited by all cultures. Cultures tend to be built over the years by the dominant groups within an organisation. What suits these groups and the organisation at one stage is not necessarily appropriate forever. If these groups then are the main decision makers in organisations, will this *style* of making decisions suit the organisation?

5.2 Influencing factors

It is difficult to define the culture of an organisation precisely as it is something that is perceived or felt. The organisation's age, ownership and history influence its culture. Centralised ownership will lead towards a culture with more control of the resources where as diffused ownership allows diffused influence based on alternative sources of power.

Handy's²⁹ observation that new or younger organisations have to be aggressive and independent or flexible, adaptable and sensitive in order to withstand competition is also supported by writers such as Hickson and Pugh³⁰, Pugh³¹, Payne and Mansfield³², Trist³³ and the team of Cyert and March.³⁴ There is often a combination of the two, leading to explicit repudiation of roles and of systems, procedures and jargons. The roles, systems, procedures and language that the organisation utilises often originate from the inception of organisations in general.

²⁹ Handy C. 1993. *Understanding organisations*. 192.

³⁰ Hickson DJ and Pugh DS. 1995. *Management worldwide: The impact of societal culture on organizations around the globe*.

³¹ Pugh DS et al. 1968. Dimensions of Organization Structure. *Administrative Science Quarterly*, 13 (1). 65-105. This work sought to measure variables including size, technology, dependence, formalisation, centralisation and the interrelationships of the variables on the culture of the organisation.

³² Payne RL and Mansfield R. 1973. Relationships of perceptions of organizational climate to organizational structure, context, and hierarchical position. *Administrative Science Quarterly* 18(4): 515-526. The effects of size and content on the perceived climate of the organization is investigated in this work.

³³ Trist EL et al. 1963. *Organizational Choice*. Eric Trist and colleagues from the Tavistock Institute in London define the sociotechnical system in organizational development that describe the inter-relationships of the technology and the social structure of the organization during their studies of the changes from task to a role based on technology.

³⁴ Cyert RM and March JG. 1963. *A Behavioural Theory of the Firm*. This work regard goals as the outcome of bargaining between members of the team that can be grouped in production, inventory, sales, market and profit types of goals.

Handy³⁵ also notes that organisational size often proves to be the single most important variable in influencing its choice of structure or of culture, with large organisations being more formalised and tending to develop specialised groups requiring systematic co-ordination. Supporting this is Burns and Stalker³⁶ who are describing ways mechanistic organisations try to adapt to changing technology while Galbraith³⁷ tries to explain how it will evolve in a matrix organisation. Leavitt and Whistler³⁸ suggest that future organisation will have a specific structure dependent on the size of the organisation.

Technology of production is a major determinant in the organisation of efficient firms. Tavistock theorists developed the phrase *socio-technical systems* to indicate the kind of influence technology will have on the culture and the structures of an organisation.

Technological considerations however do not always push in the same way. High-cost, rapidly changing technologies may leave the culture undecided between role and task. So may a requirement for swift reaction but high co-ordination. Handy views the tendency towards increasing automation and high investment in technologies to support the doing of work is pushing cultures towards a role orientation.³⁹

Handy⁴⁰ further notes that the objectives of an enterprise are seldom as clear-cut as they seem. It is too simple to claim that a business firm pursues profitability. The question on how hard it pursues it, over what time-span and with what degree of risk will provide more clarity on the objectives. What constraints the organisation is willing to accept in the way of pressures on people, ethics, and levels of debt are further examples of questions to be answered in order to gain a better understanding of the organisation's drive to pursue its objectives. It is sometimes simpler to regard profit as a necessary factor in achieving the other corporate objectives such as survival, rate of growth, market share, reputation, increased share value, standard of excellence, good place to work, source of employment, strategic necessity and national prestige. The level of profit required to pursue any combination of these objectives will vary. As an example the strategic necessity requires less profit generation as opposed to increased share value that requires a higher profit ratio.

³⁵ Handy C. 1993. *Understanding organisations*. 193.

³⁶ Burns T and Stalker GH. 1966. *The Management of Innovation*. Tavistock.

³⁷ Galbraith JR. 1971. Matrix organization design. *Business Horizons*, Feb71, 14(1). 30, 40.

³⁸ Leavitt HT and Whistler TA. 1964. Management in the 1980s. *Readings in Managerial Psychology*, University of Chicago Press.

³⁹ Handy C. 1993. *Understanding organisations*. 194.

⁴⁰ Handy C. 1993. *Understanding organisations*. 197.

Those who work within it often underplay the nature of an environment within which an organisation functions. The environment may be crucially important in determining the culture of the organisation. Different nationalities prefer different organisational cultures. This is no surprise and organisational studies are spelling out these differences in increasingly detail. Changes in the business environment require a culture that is sensitive, adaptable and quick to respond by the organisation. Diversity in the environment requires that the organisation exhibit a diversified structure. Diversity may point towards a task oriented organisational culture as the task culture supports diversified structure. Functional organisations with say one sales department tend to be found in organisations with undiversified markets and products with long life-cycles and will have a role culture.

In the interaction between individuals and the organisation, Handy⁴¹ is adamant that different cultures call for differing psychological contracts and certain types of people will be happy and successful in one culture but not in another. A match between organisation, culture and an individual's psychological contract should lead to a more satisfied individual. Individual satisfaction does not imply higher productivity but may form the basis to work from towards improved productivity.

Interactive planning helps construct strategies that close the gap between what might happen and what is designed to happen and is used by most organisations for stability. Soft systems methodology generates an agenda for improvement through debate, aiming to explore many different mental models to generate innovative ideas that facilitate improvement and conceive ways in which the change proposals might be implemented. Flood⁴² proposes that both the above techniques offer cycles for learning and understanding that might be helpful in the understanding of the environment and culture. There are many issues to take into account when seeking to establish agreement between people and cultural forces being one group of issues to be analysed.

These cultural forces seek to shape people's cognitive processes, that is, they influence mental models that a population or group share and often employ without knowing. Cultural forces in this case are an extremely potent, though invisible, form of control system. Improvement strategies devised are to aid people to make more visible their mental models

⁴¹ Handy C. 1993. *Understanding organisations*. 199.

⁴² Flood R L. 1999. *Rethinking the fifth discipline: Learning within the unknowable*. 114.

and hence challenge the cultural forces. However, this assumes conditions are in place for open, meaningful and non-threatening debate.

New organisations focused on being competitive tend to have important concepts, models and typologies that reveal the richness of corporate conduct. To some extent, these developments have improved the quality of analyses in European antitrust policy. Jacquemin⁴³ considers three illustrations environments that affect the culture namely concerted practices, cooperative R&D and mergers. However, the dimensions to be taken into account when we ponder influences on organizational cultures are very complex and sensitive, and the information at hand is often inadequate to permit a full-blown analysis. Adopting a simpler approach, which combines *science* and pragmatism relying on presumptions and shortcuts, is inevitable.

The complexity in a highly competitive environment is driven partly by the elements used to also define concept of a competitive advantage, namely the resource needed to perform the activities in the organisation, the activities of the organisation and the skills needed to execute the activities and product of the organisation with all the attributed that determine the specific product. On the counter side of the transaction, the client requirements are drive certain levels of standardisation – inside the client as well as expectations from the product or service provided to them, which with a finite set of service providers have the compounded effects that makes it even more difficult to not just differentiate from competitors, but also allow customers to compare like for like services and start selecting based on price (when the client's decision is purely based on the product and its attributes). There is one more differentiation element service providers can leverage and that is their organisational culture as this can play a role in the customer's decision on which supplier to choose. The value system is one element of the culture of the service provider that the clients can either subscribe to because it fit that of the customer organisation or the customer organisation would like to establish in their own organisation.

The culture of the organisation provides insights in what and how the organisation will pursue in the focus on competitive advantage. When the culture conveys the feelings of pervasive ways of organisational life, it exposes the belief of the organisation on how work should be organised. When we understand that this is also reflected in the visible forms of the organisation, the type of people employed, then we can build a holistic view of the

⁴³ Jacquemin A. 2000. *Theories of Industrial Organisation and Competition Policy: What are the Links?* Université catholique de Louvain, Institut de Recherches Economiques et Sociales (IRES).

objectives of the organisation. These cultures are build up by the elements of the organisation, but the culture itself also influence and bind the organisation. The different meanings constructed from the technology also forms part of the culture. This is all part of how the organisation provides clarity on how to achieve competitive advantage.

6 Cognitive dynamics

Of interest to this thesis is how cognitive dynamics help shape the working environment for success in the organisational pursuit for a competitive advantage. The question is how the employees working for the organisation fit into the bigger picture and how they manage their daily tasks to fit the vision of the industry.

The organisation and its environment as classically defined by Lawrence and Lorsch⁴⁴ are then part of the external influences on how the individual operates. This view is supported by the view on the logic of the contingency approach by Tosi⁴⁵. The degree of internal uncertainty is a function of external uncertainty.

The internal influence of how the individual operates includes elements such as the mental action or process of acquiring knowledge and the understanding through thought, experience, and the senses. A result of this cognition process is a perception, sensation, or intuition experienced by individuals in the work force.

De La Ville⁴⁶ comments that Michel de Certeau's analysis of consumption is concerned with the practices of consumers, who are defined as users of goods imposed on them by producers. De Certeau⁴⁷ suggests that agents produce discourses, like goods in a market, and imposed on consumers, thus strongly framing their potential meaning and use. By reflecting consumption and reading, the two sides of consumption are revealed: on the one side, consuming entails a form of acceptance of an imposed offer of goods, while on the other side, consumers are neither passive nor docile, they experience freedom, creativity and pleasure. Assuming this view provides a different way of looking at organisational life because it leads to the view of strategic discourses as a production, as an offer of a *cultural* good, a context

⁴⁴ Lawrence PR and Lorsch JW. 1967. Differentiation and Integration in Complex Organisations. *Administrative Science Quarterly*, 12(1), 1-47. 4-11.

⁴⁵ Tosi H, Aldag R and Storey R. 1973. On the Measurement of the Environment: An Assessment of the Lawrence and Lorsch Environmental Uncertainty Subscale. *Administrative Science Quarterly*, 18(1) 27-36.

⁴⁶ de La Ville V. 2002. Strategy as the art of designing contexts : coupling discourses to narratives. *Res-Systemica, Volume N°2, Special Issue: Proceedings of the fifth European Systems Science Congress*, October 2002, Crete.

⁴⁷ de Certeau M. 1988. *The Practice of Everyday Life*. Translated by Steven Rendall, London: University of California Press.

for sense-making. The question not answered here is whether this is true in the case of the product being a service, and whether the consumer should then be seen as a client. If it is possible, then the view that the product is imposed on the client who consumes the service should provide additional feedback to service providers.

By using feedback from what consumers use, additional information becomes available to the employees of the organisation, providing context for employee resources spent.

Flood⁴⁸ views mental models as conceptual structures in the mind that drive the cognitive process of understanding. They influence people's actions because they mould people's appreciation of what they see. People therefore observe selectively. Mental models, most often invisibly, define relationship between individuals and with the world in which they find themselves.

The issue with mental models is not whether they are right or wrong, but whether they generate routines or not in a person's life, without them even knowing it. In this case, mental models undermine systematic thinking by limiting vision of what may be seen and done. These mental models also hold back learning by restricting possible ways of conceptualising things.

Scientists' and technocrats' preoccupation with reductionism as a way forward continues to have a direct impact on social rules and practices emerging in social behaviour. Language and observation such as "I know that this person/element/code caused that problem" is employed. Reductionist thinking directs people to seek solutions in terms of causal factors rather than through systematic awareness.

Flood⁴⁹ notes that it is to be expected that workers accustomed by a mental model of reductionism and causal thinking will find it difficult simply to switch to a consciousness of systematic awareness. Flood is of the opinion that reductionism and holism are two ways of thinking and are on the opposites of the spectrum. Challenging and changing mental models often involves a lengthy learning period. Cognitive processes do not operate in one way in one moment, and then as a matter of routine, operate in another way in the next moment. A mind-walk from one side of the spectrum to the other may accelerate the learning process.

⁴⁸ Flood R L. 1999. *Rethinking the fifth discipline: Learning within the unknowable*. 22.

⁴⁹ Flood R L. 1999. *Rethinking the fifth discipline: Learning within the unknowable*. 85.

The establishment of causal laws is part of an attempt at reductionism. These laws are deterministic in that they are fixed and have so far survived attempts to refute them. By means of knowledge of set laws, the predictability of the natural and social world behaviour may be assumed. If this is the case, then it should be possible to alter certain variables in order to control other variables. Control of the natural and social world to improve the human condition as with *enlightenment thinking* is an extension of the reductionist way of thinking. Application through technology has achieved progress, however, it has its costs, such as pollution of the environment and dehumanisation of certain work places. These counter intuitive consequences might attribute to the misunderstanding of behaviour in the natural and social world by science.

The premise of Systems Thinking is that behaviour is best understood as a result of loops where variables are interrelated. Two main forms of feedback loops produce a stable equilibrium (negative feedback) and instability (positive feedback). Systems archetypes are described by deterministic feedback resulting from fixed laws that are in place between the variables driving the loops. In certain situations these laws have random terms so a probabilistic feedback system is used to show the resultant behaviour.

Flood's⁵⁰ view is that dynamic behaviour may provide unexpected variety and novelty through unprompted self-organisation. This unstructured new order is the result of a complex of variables that interrelate with multiple feedbacks. What emerges is not predictable. Behaviour alternates between positive and negative feedback and simultaneously produces unstable and stable conduct. Changeable, diverse and unpredictable results from the producing order because the result from the detail of dynamics is inherently unknowable to human kind.

Flood's view is that through individual cognitive processes, people form meaning⁵¹ and so define relationships with others and the world around them. These cognitive processes may be considered as values, norms, ideologies, thoughts and emotions, coherence, and contradictions and the individual's conduct and statements cannot be interpreted without reference to this context.

An individual's values are intrinsic desires and motivators, just as norms underpin what is considered to be normal and acceptable behaviour under specific circumstances. Ideologies

⁵⁰ Flood R L. 1999. *Rethinking the fifth discipline: Learning within the unknowable.* 86.

⁵¹ Flood R L. 1999. *Rethinking the fifth discipline: Learning within the unknowable.* 110.

may be seen as sets of ideas about how things ought to be and thoughts and emotions refer to what an individual thinks and how it is experienced. Ideologies also include the impact that feelings have on what the individual thinks. Coherence and contradiction are qualities of validity in cognitive processes, playing a key role in making an adequate interpretation of what a person says and does.

Cognitive processes represent meaning that is shared in some way between people, yet remains somehow personal to individuals. Systems of meaning used may coexist and adapt in relative harmony and/or degrees of conflict. These systems of meaning may provide cohesion in cultural ways of doing and/or tension arising from disagreement and may lead to coalition building and political interaction. Appreciation of what people mean and the temperament of their coexistence are therefore of main interest when looking for agreement in improvement strategies.

According to Flood, management and organisational literature highlight three types of agreement of importance⁵² – consensus, accommodation and tolerance.

Consensus describes when forming strong agreement on what is required to be done and how to do it. Consensus is the key of traditional planning, decision-making, problem solving and is drawn upon in contemporary management strategies. The notion of consensus is increasingly recognised as improbable and unwanted. Flood's view is that it is undesirable, based on the fact that it serves as an example of how viewpoints get absorbed and, in the worst-case scenario; it may act as a form of oppression. The undesirability stems from a threat to survival by reducing diversity of thought required to fuel creativity and transformation. The result of this is restricting learning organisations when trying to align views – a noteworthy point for group decision making.

It is difficult to comprehend a notion that people's values, norms, ideologies, etc. may be consistent and invariable within a group where strong cultural cohesion exists. Strong and unique individual experiences and interpretation within the group exists. This cannot be combined and the same in order to reach consensus. It is thus safe to state that consensus is unlikely and more a theoretical expression.

If divergence characterises individual experience, interpretation and opinion, then it will be more realistic to seek to establish an *accommodation* between views in a group. Checkland's soft systems approach strives to achieve accommodation. Seeking accommodation may be

⁵² Flood R L. 1999. *Rethinking the fifth discipline: Learning within the unknowable*. 111.

compared to finding common ground whilst maintaining other differences in opinion. Common ground is a higher-level understanding where individuals find agreement. Although not ideal for the individual when measured against their values, norms and ideologies, an accommodation may represent an adequate way of proceeding. Within an organisation, members might accept that it is worth giving up some of their individual views in order to maintain the integrity of the whole and the benefit to them that this might return. When establishing accommodation between views, individual views are not sacrificed forever. The individual views remain in the background and may re-enter the process of negotiation and re-negotiation.

Floods asks the question why not then maintain all differences and harvest the value of what emerges from the tension that is accepted as a norm?⁵³ To reach an accommodation of views, *toleration* of different views will involve transformation of mainstream thinking and would be demanding to achieve and taxing to maintain. This is no reason to dispose of toleration, but awareness is required of the difficulties of toleration as a mechanism of reaching agreement.

In order for service providers to adapt their services to either changing requirements from the client or circumstances because of the competition, the cognitive dynamics provides feedback outside of the technical requirements that can influence the construction of the service.

7 Relationship between the individual and the organisation

A characteristic sign of the present day world is large and complex organisations with large technical systems and global markets.⁵⁴ This does not make small organisations unimportant, it only means that small organisations have been around for a long time and are relatively well understood. Neither does it signify that large organisations are completely new, only that something that is often described as an emerging phenomenon is here to stay. Both smaller and larger organisations employ individuals with their own ambitions and achievements that are only possible through actions.

Czarniawska-Joerges sees an organisation as a system of collective action, undertaken in an effort to influence the world within which it operates.⁵⁵ The contents of the actions are

⁵³ Flood R L. 1999. *Rethinking the fifth discipline: Learning within the unknowable*. 111.

⁵⁴ Czarniawska-Joerges B. 1989. Towards an Anthropology of Complex Organisations. *International Studies of Management and Organisations*. (19) 3. 3.

⁵⁵ Czarniawska-Joerges B. 1989. Towards an Anthropology of Complex Organisations. *International Studies of Management and Organisations*. (19) 3. 4.

meanings and things (artefacts). One system of collective action is distinguishable from the next by the manner of meanings and products socially attributed to a given organisation.

Meanings are not clearly distinct from artefacts and vice versa. Meanings may be regarded as material or concrete and become artefacts, while artefacts may be or may become pure symbols.

It is often *assumed* that collective action requires shared meanings. To a certain extent this is so (to carry a big object as a group all must be of the same opinion on what is up and what is down; what is forward and what is back) and Smircich supports this view.⁵⁶ The definition of what collective action is provides the option that it is possible without shared meaning. This can be demonstrated through whether buying shares are collective action or combined action and is discussed by Surowiecki.⁵⁷ However, it is more important to note that in shared meaning, the plural form in the definition suggests that a collective action is possible in the face of many meanings that are only partly shared. Of a given collective action, it is the experience that is shared more than its meaning.

Czarniawska-Joerges⁵⁸ notes that explanation attempts are mostly for situational use during references to *organisations* and *environments* that blend into each other. The organisation operates in an environment but also creates its own environment in the process.

Due to the fact that any collective action requires a shared element of meaning it may be said that *organisations* are enacted on a daily basis and constructed socially. As in social interaction with artefacts and nature when construct meaning, deconstruction also happens, negotiating and elaborating meaning. It is no surprise that this has an undertone of social constructivism.

Reality, as experienced on a daily basis, is socially constructed. Every structure is socially constructed: consisting of raw materials such as bricks, mortar and steel that are assembled by human labour according to rules laid down by building law, architectural design and aesthetic expression, each of them socially constructed in turn and put together by a socially constructed concept of the structure, whether it is a building or play park.

⁵⁶ Smircich L. 1983. Concepts of Culture and Organizational Analysis. *Administrative Science Quarterly*. 28. 339-358.

⁵⁷ Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few*. Abacus.

⁵⁸ Czarniawska-Joerges B. 1989. Towards an Anthropology of Complex Organisations. *International Studies of Management and Organisations*. (19) 3. 6.

Reality exists independently of human perception and is *within* individuals where perception is a part of the reality also a maker of it and the only tool for cognition. As human perception is the basis for human practice, perception is sufficient in terms of human practice. Perception constantly evolves, technologically and psychologically, helping practice to evolve.

Just as most complex organisations are large, so is most large organisations complex. Sensibility of organisation creation is often challenged, but if the size is related to the complexity, then the question is the size of what of the organisation, and does size equal to complexity? Does an organisation suddenly become large when it is difficult for the individual to sensibly and comprehensibly account for the whole of the organisation?

If a definition of social anthropology is the study of the unity of humankind through the study of its diversity, then it may help with the definition of the culture that describes the complexity of the organisation. The ability of tool making and language seem to differentiate mankind and work organisations seem to be based on both. Complex organisation may be seen as a form of work organisation.

It is also said that rationality and non-rationality is what makes humans unique beings in general. Add language and technology and the three concepts may be seen as the most definite human characteristics. Complex organisations therefore may be seen as the modern way of combining these characteristics in a system of collective action. Thus, complex organisation may be seen as one of the more recent human evolutions.

Complex organisations as a mass occurrence are typical for modern, westernised societies. It does not necessarily hold that these societies are the most advanced and the most civilised. Civilised does also not mean in this context any kind of moral or aesthetic superiority - just the most recent forms of social life.⁵⁹

8 Cognitive Aids

The human ability to construct mental models is the main reason for human factors in organisations. Employees are able to influence and predict future events and reactions through usage of mental models of various aspects of reality. A sense of understanding of the problem or situation is necessary for this. Mental models are considered insightful and lead to actions which are constructive, skilful and productive and which may be seen as

⁵⁹ Czarniawska-Joerges B. 1989. Towards an Anthropology of Complex Organisations. *International Studies of Management and Organisations*. (19) 3. 7.

constructed on the basis of knowledge and experience. Since these models are the result of an individual's total psychological and physiological condition, they are also cognitive models.

The more superior constructed cognitive models have higher chances to ensure success in learning and using technical systems and are a prerequisite for achieving good social relations.⁶⁰

9 Conclusion

Utilising a holistic view should be more beneficial in an organisational context to facilitate competitiveness and help ensure the survival of the organisation. Up to now only some of the elements that are the building blocks were discussed in this thesis.

It is clear that should systems theories be utilised to describe the business environment in a more orderly fashion, the starting point will have to be in the realm of complex to extremely complex types of systems. These systems may be characterised by the large number of sub-systems of which the outcome is not predetermined and are involved in many more loosely structured interactions. These systems adapt and evolve over time as they are affected by their own purposeful parts and by turbulent environments in which they operate – much like the organisations they attempt to describe.

Relationships that exist between those concerned within the problem context refer to the participants. Although the basic interests are compatible (due largely to standardisation), participants do not necessarily share the same values and beliefs. Considerable debate / negotiation and disagreement is present and sometimes leads to conflict. This usually allows all participants to be involved in the decision making, permitting compromises and accommodations to be found and leading to better quality of decisions made.

The managerial world is becoming increasingly complex, turbulent and varied. Managers find themselves frequently confronted by complexities of interacting issues, including the requirement to increase productivity, become more market-centred, improve communications, adopt fairer recruitment and promotion strategies, and motivate a diverse workforce. Managers also find themselves having to prioritise between the demands made on them due to the lack of time and resources.

⁶⁰ Islo H E. 2001. Simulation models of organisational systems, *International Journal of Technology Management*. (21) 3. 27.

Taking the realities described earlier in this chapter of creating a competitive advantage through resources, activities and the product created, the organisation needs to collectively take action on how to produce the competitive advantage. Clients of commodity services will demand consistency and stability at the best price negotiable even if this means standardisation on equipment and techniques used.

The resources and activities embarked on by the IT Service Provider are determined by the skills need to drive the activities. As we saw earlier in this chapter, skills in South Africa are under pressure and the dominant design that result from risk avoidance, technology interoperability and available skills makes it difficult for service users to change away from the standards that everyone is using, should they choose move away. It results in most service competitors providing the same services with the same activities and the same basic set of skills, which results in competition for the same resources to provide it with.

Limited resources have the effect that most competitors end up with similar cultures that provides the clan-like feeling of the industry, as individuals are moving between the various organisations that employ the same skills. The mental models constructed and then used by the various organisations require shared meaning for collective action. In order to facilitate the necessary competitive advantage, decision making in the organisation and the organisational learning necessary to influence the decision making needs to be in place and of higher quality.

Identifying and understanding the elements that can be utilised in building the competitive advantage, allows organisations to plan their actions and reasons for deciding to execute or not on some of the plans. As these plans or strategies filter through the layers and structures of the organisation, individuals needs to customise the plans for specific tasks and environments in the organisations and all of this customisation is done by means of decisions that are to be made, so understanding the cognitive dynamics of the organisation, support can be provided to the decision makers of the organisation in the format of guidelines or other mechanism suitable to the organisation, situation and individual.

Chapter Two

Making the decision on how to compete

1 Introduction

Taking up the competitive challenge, it is important to remember that it is based on the economics of doing business. It is also important that the environment in which the organisation is active is taken into account in any definition of competitive challenge and a description of what customer value is and what it means to the organisation, what the pitfalls are in pursuing it, where the competition is going to come from (or understanding competitive forces and the requirement for advantageous decision making).

Additionally, it is important to understand what to consider when thinking about competitive positioning and advantageous decision making. Evaluation of decision making in a non-traditional manner by moving away from standard methods, may determine the dynamics of not uncommonly used elements of decision making and the team executing the evaluation.

Lastly, the paradigms used to define Critical Heuristics will influence the views on complexity in the organisation and the associated decision making environments that result from the evaluation and it is necessary to understand why as well as what the opportunities are when compiling these views.

2 Customer value

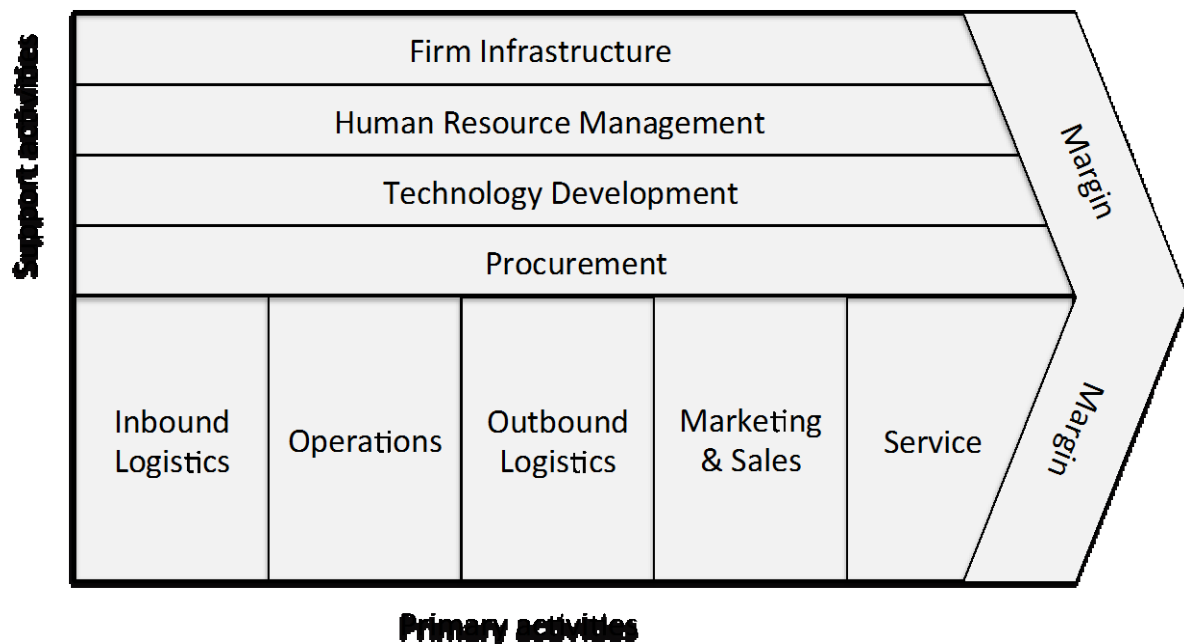
Creating *more* value⁶¹ for buyers (customers) provides a competitive advantage over rival organisations as all providers have value creation as goal according to De Wit and Meyer. Service providers must be able to deliver a service more closely fitting the clients' requirements in order to provide a superior value proposition to the client. Porter⁶² defined the value proposition as to firstly have a better mix of attributes in the product offering and secondly provide the capability to perform the value adding activities. Thirdly, a resource base is required to perform the value added activities.

⁶¹ De Wit B and Meyer R. 2005. *Strategy Synthesis, Resolving strategy paradoxes to create competitive advantage*. 101.

⁶² Porter M E. 1980. *Competitive Strategy: Techniques for analyzing industries and competitors*. 3-27.

De Wit and Meyer⁶³ highlights the issue that service offerings require the organisation to focus and failure to achieve this will result in an organisation that runs the risk of low economies of scale; slow organisational learning; unclear brand image; unclear corporate identity; high organisational complexity and limited flexibility. In order to focus an organisation is to select a limited number of business lines and then focus within each selected business line. This positioning will serve the particular requirements of a targeted group of clients and should distinguish the service provider from rivals.

The most important basis⁶⁴ of competitive advantage on products includes the seven elements of pricing, features, bundling, quality, availability, image and relations listed by De Wit and Meyer. Three more generic advantages for products should be added to this list namely operational excellence, product leadership and customer intimacy.



Generic value chain⁶⁵

Activity level competitive advantage should at least include inbound logistics; operations; outbound logistics; marketing and sales; and most importantly service. Support activities required to carry out these primary activities includes procurement; technology development; human resource management and organisational infrastructure.

⁶³ De Wit B and Meyer R. 2005. *Strategy Synthesis, Resolving strategy paradoxes to create competitive advantage*. 103.

⁶⁴ De Wit B and Meyer R. 2005. *Strategy Synthesis, Resolving strategy paradoxes to create competitive advantage*. 108 – 114.

⁶⁵ Porter ME. 1985. *Competitive Advantage: Creating and Sustaining Superior Performance*, 16.

Competitive advantage requires resources that perform value add activities. Resources are distinguishable as being tangible and intangible and intangible resources are further represented in relational resources and competence. Competence in this instance is defined by knowledge, capacity and attitude.

3 Dominant design challenge

Constraints should be related to the organisational response and also to the task itself. One example of a constraint related to a task could be the existence of a dominant design – limiting the choice of technology. Von Stamm offers an example of constraint related to the organisational response in that it might be the skills or technologies readily available in the organisation.⁶⁶ The mere emergence of a dominant design causes a shift from a focus on solving technical problems to a focus on product features and aesthetics.

Once a dominant design emerges, competition may shift away from design (not from innovation) to that of price. Success at competitive level then shifts to a whole new set of variables. Specialised capital gets deployed as incumbents seek to lower unit costs through exploiting economies of scale. The reduction of uncertainty over design provides opportunity to amortise specialised long-termed investments.

Rugman⁶⁷ notes that with product design stability, there is likely to be a rush of innovation at process level as producers attempt to lower production costs for new products. Innovation is thus not halted once the dominant design emerges, it only occurs lower down in the design hierarchy.

When imitation becomes relatively easy, imitators may enter, modifying the product in important ways, yet relying on the fundamental designs pioneered by the inventor. Once a dominant design emerges, the innovator might well end up positioned with a disadvantage relative to a follower. When imitation is possible and occurs combined with design modification before the emergence of a dominant design, followers have a good chance of having their modified product accepted as the industry standard, often to the great disadvantage of the innovator.

Suppliers to a market place will invest more resources (from capabilities in research and development, skill-sets in employment and machine tooling to business process support including marketing and support) over a period of time into the dominant design. Koski and

⁶⁶ Von Stamm B.2008. *Managing innovation, design and creativity*. 231.

⁶⁷ Rugman AM. 2002. *International Business: Critical Perspectives on Business and Management*. 165.

Kretschmer notes that this will result in core competency becoming more closely aligned to the dominant design, with this core competency serving the organisation well as long as the dominant design continues to dominate.⁶⁸

When a new design emerges that has sufficient improvements over the dominant design, these core competencies becomes the core rigidities that stifle the organisation's abilities. Numerous examples exist where companies were unable (or willing) to adjust to new technologies exploited by other companies with less investment in the dominant design. Research in Motion (RIM) as an example, were not willing to adopt the *bring your own device* trend and relied on the corporate issued BlackBerry model. Losing a large portion of their market to Apple and Android platforms for personal devices on the corporate network.

4 Competition

One key aspect of an organisation's environment is the industry in which it competes according to Porter.⁶⁹ Competition in an industry is rooted in the underlying economic structure and goes beyond the behaviour of the current competitors. This assumes strategic focus on external elements or an outward view, akin to the positioning theory of Trout and Ries.⁷⁰ Competing with the outside-in perspective can place the emphasis on the markets over an emphasis on resources, as also described as a strategy tension by De Wit and Meyer.⁷¹ As the focus is on what is happening in the markets the outside-in perspective is of interest, following the Porter thinking.

4.1 Competitive forces

Michael Porter identified five basic competitive forces⁷² that define the state of competition in an industry. Porter also advise that the goal of any organisation should be to find a position in the industry where it is possible to defend itself against these five competitive forces or influence them to its favour.

Major barriers to entry exist in the Information Technology infrastructure outsourcing industry. Not all these barriers are equal in priority however; economy of scale is as an

⁶⁸ Koski H, Kretschmer T. 2006. *Discussion Papers 1012, The Research Institute of the Finnish Economy: Innovation and dominant design in mobile telephony.* 6.

⁶⁹ Porter M E. 1980. *Competitive Strategy: Techniques for analyzing industries and competitors.* 3-27.

⁷⁰ Trout J and Ries A. 1981. *Positioning: The Battle for Your Mind.* New York. McGraw-Hill.

⁷¹ De Wit B and Meyer R. 2005. *Strategy Synthesis, Resolving strategy paradoxes to create competitive advantage.* 127.

⁷² Porter M E. 1980. *Competitive Strategy: Techniques for analyzing industries and competitors.* 3-27.

example in the IT industry the highest priority one and determines the unit cost of service by the vendor.

Differentiation creates barriers to entry by forcing entrants to invest heavily in order to overcome existing customer loyalties. In order to compete, financial resource requirements create barriers to entry particularly under risky circumstances. The once-off-costs (also known as the switching costs) facing a buyer to move from one vendor to another also creates a barrier to entry.

Intensity of rivalry among existing competitors takes the familiar form of manoeuvring for advantage, with tactics such as price competition and increased customer service or warranties. Contributing to this rivalry includes: equally balanced competitors; slow industry growth; high fixed costs; lack of differentiation (or low switching cost); high strategic stakes (must wins) and high exit barriers.

Buyers compete within the industry by forcing down price, bargaining for higher quantity of service and playing competitors against each other – all at the expense of the industry profitability. A buyer is powerful when it purchases large volumes relative to seller sales; products purchased are standard or un-differentiated; the buyer faces little switching costs and the buyer's profit margins are low.

4.2 The requirement for advantageous decision making

In the environment described above, there exists very little space for differentiation in the solutions provided by rival vendors and time becomes a factor contributing to competitive advantage. It becomes a race for time taken to identify new technologies that will enhance support to the client business requirements; time taken to choose between technologies that will fit client requirements; time taken to implement new technologies in order to provide a differentiated service and time taken to standardise the technology in the services portfolio.

As an example, given that Information Technology infrastructure outsourcing services are provided by a relatively small set of service providers in South Africa, that standardisation is at a high level of maturity and that costs are driven down based on the drive for competitive advantage by the service providers, there is a requirement from rivals in the industry to be better than the rest of the service providers in order to differentiate.

In order to be first with a differentiated service or product, organisations is to ensure the decisions they make are advantageous to their goal in selecting the appropriate technology and services in the shortest time; develop skills in order to provide a competitive advantage

both to themselves and to the client by extracting maximum advantage of the differentiated service.

Fellows describe decision making⁷³ as the process of choosing between options. He further notes that decision making is a fundamental human behaviour that has been studied intensively by disciplines ranging from psychology to economics. Damasio et al. notes further that the competitive version of decision making should be defined as the ability to select an *advantageous* response from among an array of available options.⁷⁴

The question then is that if decision making is to be used to enable a competitive advantage, is it worthwhile to look at ways to enhance competitive advantage by having a holistic view on complex problems in order to compete successfully? Is it effective to use simplicity when dealing with complexity, diversity and change? Is there one solution that is the best way to solve the complex problem of being competitive and solutions is to be holistic and creative?

In order to compete with advantaged decision making, the focus of the organisation must be on the parts of the organisation that function properly in order to serve the requirements of the whole. Systems thinking enable creativity through powerful combinations of approaches.

5 The System of Systems Methodologies

Jackson offers the view that the System of Systems Methodology (SOSM) may be relatively safe as no clear goals are required before resolving the problem.⁷⁵ Mapping the problem onto managerial tasks of considering situations is required, suggesting ways forward and seeking agreement for actions – easily absorbed into organisational processes. Jackson also notes that it is possible to use human activity⁷⁶ to determine what is possible, given the history, culture and politics of the situation, offering ways to explore purposes. Soft systems methodologies articulates a learning system that will challenge existing ways of seeing and doing things and may lead to some surprising shifts, opening up new ways of making it happen. Effective design of support systems, such as information systems, depend on a clear understanding of the purposeful activity that is to be supported in the higher order human activity system.

⁷³ Fellows LK. 2004. The cognitive neuroscience of human decision making: A review and conceptual framework. *Behavioural and cognitive neuroscience reviews*. (3)3. 159.

⁷⁴ Damasio AR, Tranel D and Damasio H. 1991. *Somatic markers and the guidance of behaviour*: Theory and preliminary testing in frontal lobe function and dysfunction. 217.

⁷⁵ Jackson M C. 2005. *Systems Thinking: Creative holism for managers*. 18 – 24. It follows from the identification in the extended version of Jackson and Key's 'ideal type' grid that the problem context is one of Complex – Pluralism.

⁷⁶ Jackson M C. 2005. *Systems Thinking: Creative holism for managers*. 208.

It is possible to categorise problem context⁷⁷ on two dimensions namely the systems used and the participants in the system as indicated by Flood and Jackson. The systems dimension refers to the relative complexity in terms of the system or *systems* that make up the problem situation and within which other difficult pluralistic or coercive issues of concern may be located.

The participants dimension explains in terms of the relationship (of agreement or disagreement) between the individuals or parties who stand to gain (or lose) from a systems intervention. Allowing the building of pluralistic, and coercive expressions of problem situations into any understanding of complexity that is promoted through the systems dimension.

The argument is that these two aspects of problem contexts (systems and participants) seem to have a particularly important way of revealing the nature of the *problems* found within them and, therefore, offer a useful way of characterising problem situations. The overall grouping of problem contexts will then result from combining the two again.

It would be useful to classify or categorise systems on a continuum of systems types with relative simple systems on the one end and highly complex systems on the other end.

Generally, systems with smaller number of elements, fewer interactions between the elements, predetermined attributes, well organised interactions between the elements, well-defined governance, relatively static with regards to evolvment, non pursuant of own goals at sub-system level, unaffected by behavioural influences and predominantly *closed* are seen as simple⁷⁸ systems in the Flood and Jackson grouping of problem contexts.

The opposite scale of complex systems is characterised by a large number of elements, elements with a large number of interactions, attributes of elements that are not predetermined, element interaction that is loosely organised, elements that are probabilistic in their behaviour, a system that evolves over time, sub-systems that generate their own goals and are purposeful, systems that are susceptible to behavioural influences and lastly systems that are predominantly open to their environment.

⁷⁷ Flood R L and Jackson M C. 1991. *Creative Problem Solving: Total Systems Intervention*. 33.

⁷⁸ Flood R L and Jackson M C. 1991. *Creative Problem Solving: Total Systems Intervention*. 33.

Referring to simple problem context requires an awareness of superficial simplicity when representing simple systems that manifest in *easy* problems and the same with complex problem context when referencing complex systems that manifest in *difficult* problems.

In classifying the participants, industrial relations literature terminology is used to consider distinction between unitary, pluralist and coercive relationships. For the purpose of this thesis a unitary relationship will be defined as participants sharing common interests, their values and beliefs are highly compatible, they largely agree upon ends and means, they all participate in decision making and they act in accordance with agreed objectives.

Pluralist participants⁷⁹ as defined by Flood and Jackson, have for the purpose of this thesis a basic compatibility of interest, their values and beliefs diverge to some extent, they do not necessarily agree upon ends and means, but compromise is possible, they all participate in decision making and they act in accordance with agreed objectives.

The coercive participants class for the purpose of this document does not share common interests, their values and beliefs are likely to conflict, they do not agree upon ends and means and *genuine* compromise is not possible, some participants coerce others to accept decisions and no agreement over objectives is possible given present systemic arrangements.

The participant classification of unitary, pluralist and coercive is therefore identified by the problem context. In general, problem contexts become more difficult to handle as they cease to be unitary since issues of *system* and organisation become perplexed by misunderstanding, or even worse, any attempt to promote understanding is confounded by political-coercive forces.

Flood and Jackson refer to a six-celled matrix, achieved by combining the dimensions of systems and participants, as an ideal type grouping of problem contexts.

⁷⁹ Flood R L and Jackson M C. 1991. *Creative Problem Solving: Total Systems Intervention*. 34.

Participant relationships

		Unitary	Pluralist	Coercive
Problem context	Simple	Simple-Unitary	Simple-Pluralist	Simple-Coercive
	Complex	Complex-Unitary	Complex-Pluralist	Complex-Coercive

An ideal type grouping of problem contexts⁸⁰

Flood and Jackson warns that if the matrix is taken too literally⁸¹ it creates artificial barriers between the problem context and participant relationships, whereas the matrix cells should be transcended by systems methodologies in a natural fashion. Not all systems methodologies are explicit and how these models are used is open to interpretation. System dynamics and viable systems diagnostics concentrate primarily on modelling systems in particular ways. Following is a brief summary for the purpose of this thesis on the characteristics of the six matrix cells based on the three problem contexts.

Simple - Unitary refers to methodologies that assume problem contexts are simple and participant relationships are unitary, examples of these include operational research, systems analysis, systems engineering and system dynamics.

Presupposing a simple problem context the methodologies it is easy to establish the objectives in terms of systems in which the problem exists and that there is little or no disagreement on this (unitary situation). A quantitative or structured model that simulates performance under various operational conditions is possible.

Complex - Unitary includes viable system diagnosis, general system theory, socio-technical systems thinking and contingency theory. The problem context contains a higher number of elements and is therefore deemed more complex and the systems of concern are found to exhibit many, if not all, of the features at the complex end of the problem context continuum.

⁸⁰ Flood R L and Jackson M C. 1991. *Creative Problem Solving: Total Systems Intervention*. 35.

⁸¹ Flood R L and Jackson M C. 1991. *Creative Problem Solving: Total Systems Intervention*. 36.

Problem contexts also exhibit probabilistic behaviour that is difficult to predict, are open to the environment and include purposeful parts. A more general agreement about the goals to be pursued (a unitary situation) is assumed. These systems approaches do not include steps that are designed to facilitate debate about overall objectives and purposes. As an example, viable system diagnosis requires determining the purpose to be pursued and the relevant system for achieving this purpose, specify sub-systems and wider systems, detail the environment, operations and management of each subsystem and for the systems in focus study the co-ordination, the control, the development function, the policy-making function and check that all information channels, transducers and control loops are properly designed.

Flood and Jackson notes that the organic and neuro-cybernetic⁸² metaphors underpin the systems approaches here and characterise or constitute the complex – unitary area of the systems methodologies. It is interesting to note here that the idea of teams that is able to work together is implicated here.

Simple - Pluralist methodologies assume difficult issues in the sense that disagreements exist amongst participants on the goals so that the relationships between them are pluralist. Once the conflict on the issues are to be resolved to realise a unitary position, problems become relatively simple to deal with through simple unitary methods. Methodologies here include the social systems design and strategic assumption surfacing and testing. These methodologies presuppose that organisations may be properly understood and dealt with as machines through machine-type approaches once the pluralism is resolved. Strategic assumption surfacing and testing combines attention to pluralism with a machine vision of the organisation but pays little attention to any structural or organisational principles that might underpin successful systems design. There is little attempt to deal with organisational systemic issues such as group formation, assumption surfacing in stakeholder analysis and assumption rating, dialectical debate and synthesis.

The organisation as a culture is an important metaphor that underpins softer systems approaches and tends to work in tandem with coalition setting of the political metaphor and characterises this area of the ideal type grid.

Complex – Pluralist includes interactive planning and soft systems methodologies and is designed to tackle contexts where there is a lack of agreement about goals and objectives among the participants concerned, but where some genuine compromise is achievable (a

⁸² Flood R L and Jackson M C. 1991. *Creative Problem Solving: Total Systems Intervention*. 38.

pluralist situation). These methodologies advise on how to deal with difficulties coming from the perceived complexity of the context. For example, they offer a course of action for the design of whatever systems are brought into existence.

Methodologies in this cell assume organisations be treated like organisms and brains and the task is therefore more difficult. In each case the issues relating to the participants are integrated with a particular vision of the organisation (i.e. as a machine, an organism, or a brain).

Soft systems methodology starts with a problem situation that is unstructured, then work towards the problem situation expressed and name some relevant human activity systems. Formulation of root definitions of relevant human activity systems is the next step as it develops conceptual models of the systems that were named in the root definitions. Comparison of conceptual models with the expression of the problem situation is made before an examination of culturally feasible and systemically desirable changes are done and lastly actions are taken to improve the problem situation.

The organisation as a culture⁸³ is an important metaphor behind soft systems approaches as highlighted by Flood and Jackson. Almost equally significant is the coalition setting of the political metaphor and ideas stemming from the organisation as an organism (organic metaphor) and as a brain (neuro-cybernetic metaphor), but this only reiterates the point that pluralistic issues are seen as integral with particular perspectives on the nature of organisations.

Simple - Coercive systems methodologies reveals the politics of problem contexts, where real differences of interest as well as of values and beliefs may exist, and where different groups seek to use whatever power they have to impose their favoured strategy upon others (the relationship between participants is coercive). One such methodology is critical systems heuristics. It suggests how properly organised debate on resolution of conflicts should be set up and assumes that this task is relatively clear-cut. Critical systems heuristics assumes, therefore, that the sources of power of the different participants will be relatively easy to identify in that it explains why it makes simple- rather than complex-coercive assumptions. Further it advises that power to be considered through questions such as what interests are being served by a proposed system design and how it is possible to organise a genuine debate between those involved in the system and those who have to live with or in the design.

⁸³ Flood R L and Jackson M C. 1991. *Creative Problem Solving: Total Systems Intervention*. 39.

Further analysis is possible by asking who the actual client of the system is, what the actual purpose of the system is (including consequences as well as declared intentions), what the system's inbuilt measure of success is, who the actual decision taker is, what the decision taker controls, what is not controlled by the decision taker, who is actually involved as planner, who is involved as expert, where those involved in planning seek the guarantee that their planning will be successful, who is, or may be affected by the planning but is not involved in it, to what extent are they affected but not involved, being encouraged to take over planning, is the world view underlying the design of the system the world view of (some of) the involved or (some of) the affected.

For this approach the *prison* metaphor from the political perspective is important and characterises or constitutes this area of the system of systems methodologies.

In *Complex - Coercive* contexts, the true sources of power of the various participants are hidden by the complexity characterising the situations of concern. There is no systems methodology currently that bases itself on the assumptions that problem contexts are complex and participant relationship is coercive. The system of systems methodology suggests that the tools do not yet exist to address these in the real world. Any systems methodology that is to address the complex-coercive problem context will be required to address the various origins of power in the organisation, the organisation's culture (and the way this determine feasibility of changes), mobilisation of bias in the organisation, relationship of hierarchies in the organisation to sex, race and status in the wider society. Flood and Jackson notes that the prison metaphor from the political perspective may be important for understanding these problem contexts.⁸⁴

The ideal type grouping of problem context allows for identification of the parts of each methodology and helps to create a framework in which to combine the parts in order to form a comprehensive view for systems based problem solving instead of offering one single methodology that works for all situations.

Caution is required in the utilisation of the ideal type problem context grid to mirror and organise ideas on issues or problems in real world situation. The choice of systems methodology should only be informed by utilisation of the grid and should not be determined by it. Utilising systemic metaphors in the process of Total Systems Intervention is to avoid

⁸⁴ Flood R L and Jackson M C. 1991. *Creative Problem Solving: Total Systems Intervention*. 41.

premature or narrow conclusions about issues or problems and the system of systems methodologies is no short cut.

6 Evaluation

In order to understand the environment within which the organisation needs to compete, understanding the organisation's external and internal environment and workings is necessary. This is done through the evaluation of organisational environment. Four main types of evaluation approaches⁸⁵ may be identified in a systemic evaluation framework as highlighted by Boyd et al. These approaches consist of a focus on goal, systems resource, multi actor and culture. The goal based evaluation approach views the organisation as goal seeking, the systems-resource based approach (or organismic) is where evaluation is undertaken with the survival of the organisation in mind and survival requires adaptation to fluctuating internal and external environments. The multi-actor based evaluation approach holds that organisations are primarily made up by interactions of social actors with their own unique subjective perspectives and the culture based approach proposes that an organisation be distinguished from others by its culture and cultures are produced and reproduced through autopoietic processes.

The characteristics of the group of individuals who will conduct the evaluation (evaluation party) determine the context for choice of an appropriate systems methodology. The most important characteristic is the ability (variety) to undertake complex evaluation and includes the size of the group, knowledge levels about evaluation, priority given to the evaluation activity, resources available to the group, group integrity and external constraints. Objectivity or subjectivity is the second characteristic important to organisations. Objectivist or the focusing on tangible reality (quantitative methods) as opposed to subjectivist or the focusing on people's perceptions (qualitative methods) is used to describe the group's approach to organisation.

⁸⁵ Boyd A, Geerling T, Gregory WJ, Kagan C, Midgley G, Murray P and Walsh MP. 2007. Systemic evaluation: a participative, multi-method approach, *Journal of the Operational Research Society*. 58. 1307.

Approach to organisation

		Objectivist	Subjectivist
Variety	High	Systems-resource based approach	Multi-actor based approach
	Low	Goal-based approach	Culture-based approach

Evaluation Party relationship of approaches to context ⁸⁶

Some methodologies are more resource intensive and some require more specialist knowledge than others. During the evaluation difficulties are often met when a low variety group tries to use a highly specialist or resource intensive methodologies.

7 Paradigms

In evaluating Problem Structure Methods from a theoretical perspective, the exact nature of the new paradigm should be questioned and whether there are other paradigms that could be developed in a similar manner. Concern here should be about sociological paradigms because managers, in trying to improve the operations, services or organisations being managed, have to contend with social systems.

Jackson notes that there are four paradigms⁸⁷ commonly used in social theory being the functionalist, the interpretive, the emancipatory and the postmodern paradigms. The paradigms may be further divided into positivist and structuralist (or realist) variants.

The *functionalist* paradigm is concerned with the fact that everything in the system is functioning well. This paradigm is optimistic that an understanding is to be achieved of how systems work by using scientific methods and techniques, and that this knowledge will increase managers' control of their operations and organisations. In its positivist guise this paradigm seeks the knowledge it requires by discovering surface variable relationships that

⁸⁶ Boyd A, Geerling T, Gregory WJ, Kagan C, Midgley G, Murray P and Walsh MP. 2007. Systemic evaluation: a participative, multi-method approach, *Journal of the Operational Research Society*. 58. 1315.

⁸⁷ Jackson MC. 2006. Beyond problem structuring methods: reinventing the future of OR/MS. *Journal of the Operational Research Society*. 57. 875.

constitute the system of concern. In its structuralist form it attempts to dig deeper to discover the structures (the patterns and regularities) that give rise to and explain surface behaviour.

Classical Operational Research / Management Science rely on functionalism in its positivist form, ensuring the efficient engineering of systems to achieve known goals. Behaviour has to be predicted here and the pursuit of the controllers' objectives regulated. System dynamics, organisational cybernetics and complexity theory tend to prefer the structuralist variant of functionalism. The aim within the functionalist paradigm is to discover the laws underlying system behaviour and formulate these in terms of system archetypes, cybernetic principles and strange attractors.

Armed with these explanatory powers, managers execute on the correct actions in order that their organisations learn, adapt and survive in turbulent environments.

The *interpretive* paradigm takes its name from its belief that social systems, such as organisations, result from the purposes individuals have and that these, in turn, stem from the interpretations they make of the situations in which they find themselves. An attempt is made to understand the different meanings people bring to collaborative activity and to discover where these meanings overlap, in the process creating new, shared purposeful activity. This paradigm views the subjectivist methodologies as providing opportunity. Soft Operational Research and soft systems thinking are interpretive in nature where Soft Systems Methodology acts as an implicit example. Here systems are seen as the mental constructs of observers. Different descriptions of reality, based on different worldviews, are modelled. Debate is required on the implications of these different worldviews as encapsulated in the models. Agreement on action may result if common ground is found.

Common ground is only a reality when all stakeholders are involved in the decision making of the organisation and not only defined by a select group. When one group in the organisation *task* another group, the coercive style leaves the tasked group with a feeling of being oppressed.

The concern to liberate oppressed individuals and groups in organisations and society give the *emancipatory* paradigm its name and provides attention to all forms of discrimination, whether resting on class, status, sex, race, disability, sexual preference, age, etc. and is followed by emancipatory systems thinking. Critical systems heuristics as an example, is concerned with enlightenment of all stakeholders, especially disadvantaged ones, about the

nature of the social systems designs they encounter and to empower them for participation in debate on the validity of such designs.

Theoretical progress along the horizontal axis of the grid of problem context groupings highlights the achievement of Problem Structuring Methods, embracing a new paradigm and privileging different metaphors as compared to classical Operational Research / Management Science.

Problem Structuring Methods treat problems as pluralistic and guide intervention accordingly. Drawing on culture and political systems metaphors, Problem Structuring Methods utilise interpretive paradigms. Combining an understanding of new insights revealed through analytical and modelling strengths related to classical Operational Research / Management Science provides perspectives for exploration by management scientists. This ensures that new perspectives are applied consistently and rigorously in practice.

The same apply to other soft systems thinkers⁸⁸ as indicated by Jackson. The direction charted by Problem Structuring Methods is only one way of enhancing the positivist/functionalist approach of traditional Operational Research / Management Science. Modern system thinking has increased perspectives and insights exposed by the structuralist, paradigms (emancipatory and postmodern), by other metaphors, and by seeing problem contexts in alternative ways. In this respect, systems thinking has charted the route that Operational Research / Management Science is to follow.

Strategic Options Development and Analysis / Cognitive Mapping, Soft Systems Methods and other Problem Structuring Methods provide opportunity for a multitude of useful tools, techniques and approaches to modelling. Most of these were created to serve an interpretive and subjectivist rationale. Making the implications of different views of a problem situation clear is the designed result of Soft Systems Methods steps of root definitions and conceptual models.

By definition, methods are less theoretical methodologies. Problem Structuring Methods may, therefore, be of more use in the service of other paradigms.

⁸⁸ Jackson MC. 2006. Beyond problem structuring methods: reinventing the future of OR/MS. *Journal of the Operational Research Society*. 57. 876.

Reinvigoration⁸⁹ of Operational Research / Management Science provided the ability to use the plurality of theories, methodologies and methods in combination as noted by Jackson. Research into how this may be achieved goes under the name of *critical systems thinking*.

In order to cope with the increasing complexity, change and diversity of the world that managers encounter a combination of multi-methodology and multi-method practices are required. In problem situations it is essential to highlight, radically different views of the world, derived from alternative paradigms.

8 Critical Heuristics

The detailed philosophical argument for the shift from the popular single or *personal* view on systems approach to a more discursive or *grouped* understanding of systems approach is called Critical Heuristics. Critical Heuristics are represented by the two models of empirical-analytic science and critical social theory and are two distinct philosophical origins of discursive rationality in applied science. Addressing the question of how to rationally establish the normative foundation of knowledge and action is the main difference between them in the way they handle the unsolved problem of practical reason.

In the contexts of practical decision-making and action, value judgement⁹⁰ is implied in what is taken to be true and right according to Ulrich. Further questions arise on what it means to be rational when the values of the parties concerned differ and whose rationality is rational? Adequate means for reaching given ends is provided by empirical-analytic science that tends to identify practical reason. Practical reason in this case becomes merely instrumental reason, a form of theoretical reason that may secure action but has nothing to say about the ends it serves.

Ulrich notes that Critical Theory⁹¹ is an instrumental rationality that is uncritical of its own normative implications, and is an apparent rationality. Critical theory also attempts to reduce practical to instrumental reasoning in order to protect against the value implications of claims to truth and rationality (against the critical efforts of practical reason). Critical theory tends then to define practical reason in such an ideal way that it cannot be practised but critical systems heuristics was designed as a way out of this dilemma.

⁸⁹ Jackson MC. 2006. Beyond problem structuring methods: reinventing the future of OR/MS. *Journal of the Operational Research Society*. 57. 877.

⁹⁰ Ulrich W. 2003. Beyond methodology choice: critical systems thinking as critically systemic discourse. *Journal of the Operational Research Society*. 54. 326.

⁹¹ Ulrich W. 2003. Beyond methodology choice: critical systems thinking as critically systemic discourse. *Journal of the Operational Research Society*. 54. 325.

Applied science is driven from the prevailing approach in that it is expert-driven, that it is located in true competence, and to be considered competent to have an opinion, one must be an expert in the matter under discussion. From this it is reasoned that fundamental concepts of expertise and rationality are single or personal viewed (leading to a monologue of experts) rather than a dialog or grouped understanding. This view is based on a theory of knowledge that stems from the model of the empirical sciences and systems theory, especially as in Operational Research / Management Science and other applied disciplines. Expertise is the main driving force here as opposed to the dialogue.

In contrast, a comprehensively discursive approach would be dialogue-driven and would obtain expertise and rationality concepts from knowledge theory embedded in discourse theory and in practical philosophy. Competence here relies on a convincing argument that substantiates concerns and reasons in a way that is plausible to all parties concerned. Discursive approaches also go beyond the predictable problem-solving stance of Operational Research / Management Science and other applied disciplines in that the answers are seldom better than the questions.

Ulrich notes that in most cases it is better to ask the right questions⁹² without having the answers than to have the answers without having asked the right questions. Competence in this case is demonstrated by the questions asked rather than by the answers found. The emphasis in the way methodologies are understood and used by discursive approaches will shift methodologies from problem solving to learning and solution questioning. The quality of discursive approaches is revealed in the openness of the process of questioning that it promotes. Discursive approaches focus on facilitating systematic processes of examining the validity claims that underpin solutions and will not let the problem-solving methodology used limit the questions that are asked about the problem, nor define the problem.

The questions asked are not limited by any prior definition of problem or solution approach, or of the group of those who may ask questions and is the discursive view that Critical Systems Heuristics seeks to associate with systems thinking.

Identification of the origin of critical discourse in a narrow way is a tendency in both everyday and professional settings according to Ulrich.⁹³ Systems thinkers seem to envisage

⁹² Ulrich W. 2003. Beyond methodology choice: critical systems thinking as critically systemic discourse. *Journal of the Operational Research Society*. 54. 329.

⁹³ Ulrich W. 2003. Beyond methodology choice: critical systems thinking as critically systemic discourse. *Journal of the Operational Research Society*. 54. 329.

it, given the situation of problem solving and decision-making, as singular, locally and temporally.

The one type of situation of interest is characterised by problem solving and decision-making processes under conditions of structural inequality, where a group in charge (those who have the say) face another group who are in some way affected or concerned but who lack power. This coercive situation is assumed to be addressed by critical systems practices and is then faced with an emancipatory issue.

The group is supposed to have the same objectives when systems methodologies are used in the unitary context of rational. Jackson notes that cybernetics is also used and the organisation is seen as to operate as a team.⁹⁴ In coercive situations these methodologies strengthen the position and play to the hands of the most powerful participants.

Pluralist systems methodologies (dialectical or soft systems versions) see the organisation as a coalition where groups have different interest and allow greater appreciation of points of view and conflicting values. Systems methodologies here attempt to reconcile by encouraging debate and participation. In coercive situations the process of debate and participation is severely constrained because of unbalanced power and institutionalised domination.

This highlights the dilemma of coercive situations. Serving the most powerful, an existing methodology is used and it is accepted that the existence of coercion will help guarantee success. To enable whole systems improvement, balance of power is to be effected and domination negated.

When critical discourse happens, emancipatory power appears only to be partly adequate because it is not entrenched within a larger system where any particular discourse takes place and of which it is a part. Emancipation happens as a one-off exercise as a singular event that must take place within the given discourse situation. The allegations of this are problematic.

First, systems practitioners have to choose between an uncritical, instrumental application of expertise, which renders the emancipatory claims of Critical Systems Thinking redundant, and emancipatory advocacy threatens to render systems practitioners themselves redundant due to the likely resistance of those in charge. An emancipatory commitment provides no

⁹⁴ Jackson MC. 1985. Systems inquiry competence and organizational analysis. *Proceedings of the 1985 Meeting of the Society for General Systems Research (SGSR)*. 528.

basis for compelling argumentation, as it is a personal act of faith rather than a methodological achievement.

A second problematic implication of the tendency to locate the emancipatory issue in isolated, coercive problem contexts is that this ultimately renders the critical business of Critical Systems Thinking misleading, according to Ulrich.⁹⁵ A coercive context is defined by structural conditions that create uneven situations of discursive chances, illustrated by the distribution of influence and decision power, of access to information and of argumentation skills. In real-world discourses, unfortunately, conditions of structural inequality in organisations are the rule rather than the exception in hierarchical organisations. Extreme caution is to be maintained not to presume non-coercive conditions, as this is very difficult to establish.

The chances for meaningful participation under coercive circumstances are unequally distributed, the same with the power to close the debate. In order to prevent one-sided domination and discourse closure by one of the parties involved structural equality within the discourse situation is required. Structural equality is only possible with an emancipatory approach as suggestions are that emancipatory discourse is not possible when there are coercive conditions.

Current understanding of the locus of emancipatory discourse in Critical Systems Thinking has self-defeating implications in the expectation of instantaneous emancipation when no practicable methodology is expected to be capable of dealing with coercion. Granting that no systems approach has yet been developed that are able to deal critically with normative and coercive aspects of problem situations (excluding Critical Systems Heuristics), systems thinkers find critical heuristics incapable of dealing with situations of coercion.

The notion of disclosure is as could be understood, still under developed. It seems to still ignore the definition of the problem of emancipatory discourse. Critical heuristics defines problems differently. According to Ulrich this does not sound hopeless as the issues lie in the lenient use of language and erroneous belief.⁹⁶

⁹⁵ Ulrich W. 2003. Beyond methodology choice: critical systems thinking as critically systemic discourse. *Journal of the Operational Research Society*. 54. 329.

⁹⁶ Ulrich W. 2003. Beyond methodology choice: critical systems thinking as critically systemic discourse. *Journal of the Operational Research Society*. 54. 329.

Ulrich notes that situations of discourse break down⁹⁷ on the basis of controlling parties closing them or their refusal to contribute meaningfully to improve mutual understanding. These situations are not the only coercive circumstances where emancipatory systems approach addresses it. It is however not sensible to start from a discursive approach.

Coercion was not part of the original language of critical heuristics but it did refer to sources of selectivity that entered systems maps and their possible origin in structural distortion or asymmetry of discourse situations or lack of critical awareness and reflection. The original terminology created less ambiguity in the convergence of discursive situations and single limiting instances.

9 Conclusion

The fact that situations of actual coercion cannot be dealt with by a discursive approach such as Critical Systems Heuristics is a misleading notion. This arises for the reason that the boundaries of the given discourse situation are presumed and are tacitly associated with the boundaries of the participants' discursive chances in general. The emancipatory potential of a discursive critical approach such as Critical Systems Heuristics could be and should be located within the given boundaries of a singular discourse situation.

In understanding what the competitive advantage for the organisation entails, the organisation needs to understand what the client value in a specific service or product. The generic value chain as originally defined by Porter provides the basic elements within the organisation that helps determine the value of the service. The dominant design in the highly standardised solutions used by clients however traps the view of what it is the client values and the result is a focus on price, instead of functionality.

Advantageous decision making needs to focus on the properly functioning parts of the organisation and the service it provides. Systems Thinking may help enabling creativity through combinations of approaches of analysis of the organisation.

The System of Systems Methodologies provides a framework to structure decision making in the organisation that enables the creativity needed to compete from a dominant design requirement. The complex environments such as large organisations dictates problem contexts that are equally complex and results in participant relationships that tend to be

⁹⁷ Ulrich W. 2003. Beyond methodology choice: critical systems thinking as critically systemic discourse. *Journal of the Operational Research Society*. 54. 330.

coercive in nature, determining the styles of decision making. These decisions need to be made in order to affect the value chain within the organisation.

Chapter Three

Learning in a created reality

1 Introduction

Social constructionism is used to introduce reality and constructed reality into the domain of decision making. Interactions of role players provide grounds for reality and allow groups to determine the culture within which business is conducted. The social orders created needs to be maintained and sustained in order to ensure a future for the social group.

Sense making of situations or information needs interaction with others in order to ensure that it is within the social agreement. The learning from the interactions should be guided through a mental process that involve an analysis of the probabilities and costs involved with choosing options.

For the individual to create meaning, interaction with the organisation is necessary and also impact on the organisation. The interaction will contribute to the organisation and possibly act as influence on the individual that learns from the interaction.

The speed in which decisions are made is one element that introduces a competitive advantage and is influenced by how information is processed by individuals, especially during entrepreneurial activities. Once successful decision making is achieved, the dynamics of the process and behaviours may be repeatable and reproduced throughout the organisation.

Processes in the organisation utilises the organisation's information from which individuals develop insights during the innovation process.

2 Social constructionism

The opinion that social or cultural factors cause or control social phenomena rather than natural factors is at the basis of social constructionism.⁹⁸ Constructed worlds are marked by factors that include ideas, knowledge, human nature, facts, concepts, beliefs and theories that are the constructs of a particular group or the *social self*. Construction of various objects received much attention over the last several decades with most of the effort concentrating the construction process, where the construction being the result of interplay between action of the group of individuals and existing systems that are the result of prior patterns.

⁹⁸ Mallon R. 2008. Naturalist Approaches to Social Construction. *Stanford Encyclopedia of Philosophy (Winter 2008 Edition)*, Edward N. Zalta (ed.).

Non-specific groups or *impersonal agents* emphasise the causal role such as cultures, conventions or institutions in constructing phenomena that is determined by what is perceived based on the past. It is noted that perception is so dependent on the background and past that the observational data becomes included as an independent constraint on empirical inquiry.

Mallon further notes that personal social agents⁹⁹ construct through their own choices and emphasise the role of judgements in a variety of roles. Critical constructionists however do not just create the possibility of recognition of some representation but also emphasise the role of agents' interests or power associations in determining the content of accepted representation.

Many different objects according to Mallon are constructed and these may be directed into three different types¹⁰⁰ of entities: *representations* that include ideas, theories, concepts, accounts, taxonomies, etc., *facts* that includes age, size and weight, and lastly *non-representational facts* such as facts about human traits.

Constructionism also describes the position that human traits or kinds are produced by culture rather than by nature. This counter the opinion that human traits should be justified in terms of non-cultural mechanisms, notably internal, biological or natural states.

Mazman notes that in attempting to understand how ideas are connected to social forces,¹⁰¹ construction of society is to be understood. Berger and Luckmann provide insight with their definition of the role of human consciousness in daily life. They propose consciousness as the constructive element of social life.

Scanlon propose that the life-world (constructed) is a segmented world where a range of situated identities is formed through interactions with others in different segments of their life-world.¹⁰² The work-world where interactions with colleagues during the decision making process is one such life-world.

⁹⁹ Mallon R. 2008. Naturalist Approaches to Social Construction. *Stanford Encyclopedia of Philosophy* (Winter 2008 Edition), Edward N. Zalta (ed.).

¹⁰⁰ Mallon R. 2008. Naturalist Approaches to Social Construction. *Stanford Encyclopedia of Philosophy* (Winter 2008 Edition), Edward N. Zalta (ed.).

¹⁰¹ Mazman I. 2008. Knowledge and Religion in Society: A Comparative Perspective. *Ekev Academic Review*; Summer 2008, Vol. 12 Issue 36, 1-14.

¹⁰² Scanlon L. 2009. Identifying supporters and distracters in the segmented world of the adult learner. *Studies in Continuing Education*. 31(1). 32.

Most sociologists, in their scientific study of society, assume borders of the social world as self-evident according to Lindemann.¹⁰³ As sociologists usually refer implicitly to a human world, the borders of the studied life-world are those of the human-world. Authors such as Luckmann developed the idea that social actors may be more than just living humans and include plants, animals and also the deceased.¹⁰⁴ During the process of scientific research it is also possible for technical artefacts to occupy the position of an actor.¹⁰⁵

Lindemann propose that a historically changeable interpretation process is able to conclude who or what may act as a social actor, but there is no specific divide between actors and objects.¹⁰⁶ The status of a social actor is determined by transcendental consciousness as defined by authors such as Husserl, Berger and Luckmann. As an example, studies start with actors – scientists and technicians observing in the field – that have the power to attribute the status of an actor to other entities.

Social theory formally refers to a *dyadic constellation* as the starting point of the concept of social – that is one-on-one interaction. The complex relationship between two or more entities serves as a basis of the development of the order that functions as a mediating structure between the involved. What decides the property of this order is that it cannot be reduced to the actions of a single entity but rather the interaction between parties in such a manner that they are reliant on each other in their experiences and actions. It is not the intention of this thesis to analyse the relationship or interaction between the parties, but it is important to understand the necessary basis for interaction.

Lindemann highlights a third actor¹⁰⁷ (described earlier by Simmel as an observer) to the relationship as an extension that provides a more complete understanding of the social whereas Berger and Luckmann view it as the condition of objectivity of the social forms produced by the actors. It is necessary to understand the emergence of institutions and the

¹⁰³ Lindemann G. 2005. The Analysis of the Borders of the Social World: A Challenge for Sociological Theory. *Journal of the Theory of Social Behaviour*. 35:1, 69.

¹⁰⁴ Luckmann T. 1970. The Boundaries of the Social World. *Phenomenology and Social Reality. Essays in Memory of Alfred Schütz*. The Hague: Nijhoff, pp. 73– 100.

¹⁰⁵ Lindemann G. 2005. The Analysis of the Borders of the Social World: A Challenge for Sociological Theory. *Journal of the Theory of Social Behaviour*. 35:1, 69.

¹⁰⁶ Lindemann G. 2005. The Analysis of the Borders of the Social World: A Challenge for Sociological Theory. *Journal of the Theory of Social Behaviour*. 35:1, 72.

¹⁰⁷ Lindemann G. 2005. The Analysis of the Borders of the Social World: A Challenge for Sociological Theory. *Journal of the Theory of Social Behaviour*. 35:1, 89.

third actor provides the emergence function.¹⁰⁸ Both Berger and Luckmann, and Simmel have the same view in that the dyad is conceived as being constitutive for sociality.

In common-sense construction and groups it is necessary to understand the phenomenological foundation of social constructionism.¹⁰⁹ To understand Husserl's *form to content* principle helps to differentiate types of cultural characteristics and to move from an *egological* to an *inter-subjective* perspective. According to Embree, Husserl emphasizes forms (categorical) as being discernable in propositions¹¹⁰ and forms (states of affairs) that can be themed into formal ontology. Form to content here may be understood as the notion that unless the form is invalidated, the reproduction of the form is possible and the form may be understood in intuition. A basic culture that consists of belief characteristics, values, beliefs and will is one part of cultural characteristics, the second part being composed of conceptual constructs such as thinking, interpreting and concepts.¹¹¹

Embree points out that Schutz tends to also refer to things constituted by individuals and by others, which may be assumed as intersubjective rather than egological phenomenology.¹¹² Schutz's reference is easily extended to groups irrespective of not much mention of groups or membership.¹¹³

Course-of-action patterns that match behaviour may be constructed such that it is coordinated with personal or individual *types* and product *types* while *in-order-to* and *because motives* matching course-of-action patterns are attributed.¹¹⁴

Individuals and groups have many constructs in common sense with which to interpret themselves and others. This may also be taken to various dimensions of the socio-cultural world.¹¹⁵

¹⁰⁸ Berger PL and Luckmann T. 1967. *The Social Construction of Reality*. A Treatise in the Sociology of Knowledge. 58.

¹⁰⁹ Embree L. 2009. Phenomenology and Social Constructionism: Constructs for Political Identity. *Journal of Phenomenological Psychology* 40, 129.

¹¹⁰ Embree L. 2009. Phenomenology and Social Constructionism: Constructs for Political Identity. *Journal of Phenomenological Psychology* 40, 129.

¹¹¹ Embree L. 2009. Phenomenology and Social Constructionism: Constructs for Political Identity. *Journal of Phenomenological Psychology* 40, 130.

¹¹² Embree L. 2009. Phenomenology and Social Constructionism: Constructs for Political Identity. *Journal of Phenomenological Psychology* 40, 131.

¹¹³ Embree L. 2009. Phenomenology and Social Constructionism: Constructs for Political Identity. *Journal of Phenomenological Psychology* 40, 132.

¹¹⁴ Embree L. 2009. Phenomenology and Social Constructionism: Constructs for Political Identity. *Journal of Phenomenological Psychology* 40, 132.

It is recognised that philosophical and religious ideas transfer into common sense based on Schutz's view on the origins of common sense constructs.¹¹⁶ The way words and distinctions come to mind when things are perceived serves as indication of how learning is habitual to think in the construct that makes up common sense. This indicates phenomenological reflection in that the constructs are recognisable through reflection on thinking and things-as-thought-about.

Twinaime highlights that Berger and Luckmann proposed different groups experience¹¹⁷ different understanding of their reality (social constructions). That what is thought as known (our perception) is given meaning (influenced) by those around the individual and is stated (according to Twinaime) by Berger and Luckmann as “the specific shape into which this humanness is moulded is determined by those socio-cultural formations and is relative to their numerous variations.”¹¹⁸ Realities are constructed from the realities created by us and by those realities imposed by others. Within organisations there is a requirement to understand that knowledge is socially constructed with numerous existing views that enhance the capacity to contribute new meaning and new outcomes.

The core element¹¹⁹ from early modern philosophy is carried forward in the idea that the world one lives in, is self-created by thoughts, language or social practices according to Strauss. Berger and Luckmann elaborated the idea that one creates one's own world in their social construction of reality. The uniqueness and individuality of events was emphasised by the irrationalist side of nominalism and lead to the linguistic turns of the 19th century.

Strauss notes that when founded by human reason, traditional conceptions of natural law¹²⁰ believed that there exists a system of laws that has an a priori validity for all times and places. This is the result of the view that typical human endeavours have at stake the status of those

¹¹⁵ Embree L. 2009. Phenomenology and Social Constructionism: Constructs for Political Identity. *Journal of Phenomenological Psychology* 40, 133.

¹¹⁶ Embree L. 2009. Phenomenology and Social Constructionism: Constructs for Political Identity. *Journal of Phenomenological Psychology* 40, 134.

¹¹⁷ Twinaime L. 2008. Could Action Research provide the key to true workplace collaboration? *Journal of Workplace Rights*, 13(2). 159.

¹¹⁸ Twinaime L. 2008. Could Action Research provide the key to true workplace collaboration? *Journal of Workplace Rights*, 13(2). 159.

¹¹⁹ Strauss DFM. 2009. The (social) construction of the world – at the crossroads of Christianity and Humanism. *South African Journal of Philosophy*. 28(2). 222.

¹²⁰ Strauss DFM. 2009. The (social) construction of the world – at the crossroads of Christianity and Humanism. *South African Journal of Philosophy*. 28(2). 231.

universal and constant starting-points for human action, principles that make human acts of shaping, form giving and construction. What is constructed is a response to given principles.

Seidman notes that Berger and Luckmann, in their far-reaching social theory, agreed with Parsons that the culture was central to social analysis.¹²¹ The anti-humanistic social theory of the Enlightenment thinkers (Marxism and functionalism) prompted Berger and Luckmann to bring living, acting individuals back to the centre of social thinking. The sociology of knowledge was their aim to understand the way that everyday realities are socially constructed. Society became a cultural or symbolic construction, that is not a system, a mechanism or an organic form, but mindfully composed of ideas, meanings and language.

Berger and Luckmann firstly aimed to describe life as a flow of perilously negotiated achievements of individuals in interaction.¹²² They used as foundation phenomenological philosophy and introduced concepts such as intentional consciousness, multiple realities, practical attitude and inter-subjectivity. Secondly they wanted to show that individuals in interaction create social worlds through the language used and symbolic activity for the reason of providing coherence and purpose to an essentially open-ended, unformed human existence. Their aim was a general theory of the social origins and maintenance of social institutions. From their work flows the argument that social institutions are based on individual interaction and humans per definition require interaction. Recurring social interactions or exchanges give rise to patterns of expectations and social norms and social institutions are merely recurring patterns of interaction based on understandings and expectations. Berger and Luckmann observed that social institutions function as a realm where requirements are fixed and where behaviour may be orderly and predictable while giving coherence and purpose to human life.

Socially created worlds naturally and inevitably take on an object-like character referred to by Berger and Luckmann as a process of objectivation and the social world is experienced as an objectively coherent order. The alienation (reification – Berger and Luckmann) happens when the social institution is assumed to have taken on a life of its own, independent of human intentions and requirements of the individuals that make up the institution. Here the society is separated from its creators and is perceived to be controlling human behaviour.¹²³

¹²¹ Seidman S. 1994. *Contested knowledge: social theory today*. 82.

¹²² Seidman S. 1994. *Contested knowledge: social theory today*. 82.

¹²³ Seidman S. 1994. *Contested knowledge: social theory today*. 83.

Seidman propose that when the next generation of individuals¹²⁴ are socialised into the existing social institution the pre-existing and taken-for-granted social order is experienced as natural, so reification seems an unavoidable result of generational dynamics. The process of making the objective world of social institutions into a subjective reality describes socialisation when the socially institutional world is internalised by the individual as an objective and natural order. Newer members of institutions will challenge the legitimacy and necessity of the existing order, as they will have different experiences, values and hopes.

In order to maintain the social order the environment is legitimised through coercive means that include symbolic systems.¹²⁵ The purpose of symbolic systems is to re-assert the objectivity of the social institution. Everyday perceptions of the social world is to be re-established as an objective order that is grounding the subjective experience as orderly, coherent and purposeful.

3 Learning

Kukla notes that reality is constructed by the individual's own activities and that people, as members of society, invent the properties of the world.¹²⁶ Individuals create sense through interaction with others and the environment they live in, which leads to knowledge being a product of humans and being constructed socially and culturally as seen by Ernest¹²⁷ and Prawat.¹²⁸ McMahaon¹²⁹ agrees that the social processes of learning does not only take place inside our minds, but it is not a passive development of behaviours that is shaped externally.

Vygotsky's¹³⁰ earlier work on higher mental processes influenced the notion that knowledge is constructed in social context and then appropriated by individuals.¹³¹ In the process of individual perspectives being shared (collaborative elaboration termed by Van Meter and

¹²⁴ Seidman S. 1994. *Contested knowledge: social theory today*. 83.

¹²⁵ Seidman S. 1994. *Contested knowledge: social theory today*. 84.

¹²⁶ Kukla A. 2000. *Social constructivism and the philosophy of science*. London: Routledge.

¹²⁷ Ernest P. 1991. *The Philosophy of Mathematics Education*. London: Falmer.

¹²⁸ Prawat RS, Floden RE. 1994. Philosophical Perspectives on Constructivist Views of Learning. *Educational Psychology*. 29(1). 37-48.

¹²⁹ McMahan M. 1997. *Social Constructivism and the World Wide Web - A Paradigm for Learning*. Paper presented at the ASCILITE conference. Perth, Australia. Accessed December 2010. <http://www.ascilite.org.au/conferences/perth97/papers/Mcmahan/Mcmahan.html> .

¹³⁰ Vygotskii LS. 1978. *Mind in society: The development of higher mental processes*. Cambridge, MA: Harvard University Press.

¹³¹ Bruning RH, Schraw GJ & Ronning RR. 1999. *Cognitive psychology and instruction* (3d ed.). Englewood Cliffs, NJ: Prentice Hall.

Stevens)¹³², result in construction of understanding that would not be possible on individual level.¹³³ Learning is seen as the active process to discover principles, concepts and facts by social constructivists. Ackerman also notes that it is important to encourage intuitive thinking when learning.¹³⁴

3.1 Risk

McRoberts et al. notes that social sciences contribute in the analysis of underlying factors that individuals and groups utilise during the construction of perceptions.¹³⁵ These perceptions include the uncertainty and impact portions of risk perceptions. How perceptions of risk are formed cannot be determined through simplistic views and using single theories on their own. But risk perceptions can be analysed as functions of probabilities and costs in formal decision- and information-theoretic calculations. The factors involved in the risk perception is facilitated by the social context and will therefore contain environmental components, providing for the view that actual risk perceptions are the result of individual-context interactions.

The probability of an undesirable event is used as a short definition for risk by McRoberts et al.¹³⁶ Risk could also be seen as the product of the probability of an event and its potential impact, especially in the context of natural- and physical sciences. This probability-weighted cost view of a risk is also related to expected utility / regret in decision theory.

Expected utility theory¹³⁷ does not make any assumptions about the psychological origins or experience of utilities. Rather, its goal is purely descriptive. It seeks to summarize individuals' preferences for outcomes, to check for inconsistencies, and to predict future choices. As long as people's choices are consistent, a utility function can be derived that can

¹³² Van Meter P and Stevens RJ. 2000. The role of theory in the study of peer collaboration. *Journal of Experimental Education*. 69. P 113-129.

¹³³ Greeno JG, Collins AM & Resnick LB. 1996. Cognition and learning. In Berliner D, Calfee R (Eds.), *Handbook of Educational Psychology*. 14.

¹³⁴ Ackermann E. 1996. Perspective-taking and object construction: Two keys to learning. In *Constructionism in Practice: Designing, Thinking, and learning in a Digital World* (J. Kafai, & M. Resnick, Eds.). Mahwah, NJ: Lawrence Erlbaum, Publishers, pp. 25-37.

¹³⁵ McRoberts N, Hall C, Madden LV and Hughes C. 2009. Perceptions of Disease Risk: From Social Construction of Subjective Judgments to Rational Decision Making. *The American Phytopathological Society: Phytopathology Symposium 2009*. 658.

¹³⁶ McRoberts N, Hall C, Madden LV and Hughes C. 2009. Perceptions of Disease Risk: From Social Construction of Subjective Judgments to Rational Decision Making. *The American Phytopathological Society: Phytopathology Symposium 2009*. 656.

¹³⁷ Larrick RP. 1993. Motivational Factors in Decision Theories: The Role of Self-Protection. *Psychological Bulletin*. 113(3) 443.

capture any type of risk preference: risk averse, risk seeking, risk neutral, or any combination of these.

Brewer notes that perception of risk and levels of risk avoidance impact on decision making.¹³⁸ The risk perception is defined by the variables capturing the impact and uncertainty components of the risk.

Why then do people often prefer a certain outcome to a risky outcome? Larrick is of the opinion that decision theorists assume the preferences for safety or risk¹³⁹ is dependent on two factors: the value ascribed to the outcomes of different courses of action and the probability of the outcomes will occur. Characterisation of the decision process focuses on two questions: *How to place a value on the outcomes of a decision?* and *How to assess uncertainty and risk?*

Bell notes that learning from relevant outcomes that an alternative decision would have been preferable, may impart a sense of loss or regret.¹⁴⁰ When the decision maker is willing to trade-off returns (normally financial) in order to avoid regret might exhibit some behavioural paradoxes of decision theory.

McRoberts¹⁴¹ et al. observes that decision makers' motivations are informed by standard economic assumptions and how decision makers react to uncertainty among the possible outcomes from their decisions. Decision makers are assumed to seek to maximized result and that explains the choices they make. Decision makers are assumed to conform to the theory of rational expectations as a response to the uncertainty they are dealing with. A further assumption is that decision makers use all of the available evidence to form expectations, which are consistent with the long-term statistical outcome of repeatedly making the same decision. This allows for incorrect decisions in individual instances, but leads to long-term optimization. These approaches that exist in decision theory and economic theory are effective in designing decision tools.

¹³⁸ Brewer JD. 2005. *Risk Perception & Strategic Decision Making: General Insights, a New Framework, and Specific Application to Electricity Generation Using Nuclear Energy*. 8.

¹³⁹ Larrick RP. 1993. Motivational Factors in Decision Theories: The Role of Self-Protection. *Psychological Bulletin*. 113(3) 440.

¹⁴⁰ Bell DE. 1982. Regret in Decision Making under Uncertainty. *Operations Research – A Journal of the Institute for Operations Research and the Management Sciences*. 30(5) 961.

¹⁴¹ McRoberts N, Hall C, Madden LV and Hughes C. 2009. Perceptions of Disease Risk: From Social Construction of Subjective Judgments to Rational Decision Making. *The American Phytopathological Society: Phytopathology Symposium 2009*. 654.

Brewer¹⁴² notes that decision makers ought to cultivate the ability to separate usable resources (including proper data sources and helpful human heuristics) from unusable resources (including unhelpful biases that interfere with interpretation of data). Strategic decisions require an understanding of the elements that influence the risk perception of the decision maker. The course of action provided by the opportunity to decide provides a continuum of consequences on which the decision scenario can be placed. The individual's activities created the reality and the process also creates sense through interaction with others. The understanding created is in essence learning.

3.2 Decision Making

Stemplewska-Zakowicz et al. notes that the cognitive system's discursive organisation¹⁴³ is informed by works from Vygotsky and Bakhtin, as well as by Berger and Luckmann's work on social constructionism. These leads to the view that a number of autonomic, holistic modules (subsystems of the minds' informational system) of representation exist in our minds, every one of these linked to a specific social context, which is present in the individual's socialisation history. These modules contain specific cognitive-affective resources, influenced by different ways of giving meaning to personal experience. The relationships with other individuals or important groups help form patterns of naming and weighting experiences.

Stemplewska-Zakowicz et al. sees one of the cornerstones of the social-cognitive approach as the social origin of the individual's knowledge to personality and the social cognition approach. It is arguable then to consider the impact of the phenomena and processes more so as they are inter-subjective in their nature. These phenomena include culture, subjective patterns of self-constructing, relational self, private audience or shared reality. These all allow for a coherent vision of the individual human as someone who is shaped by relationships with others and is being consistently engaged in the social process of meaning creating.

Harré and Gillet are of the opinion that presenting the *self* in sense making processes, positions within the discursive practices as described by the concept of self-identity.¹⁴⁴

¹⁴² Brewer JD. 2005. *Risk Perception & Strategic Decision Making: General Insights, a New Framework, and Specific Application to Electricity Generation Using Nuclear Energy*. 8.

¹⁴³ Stemplewska-Żakowicz et al. 2012. Explorations in the Discursive Mind: Theoretical Model. *International Journal for Dialogical Science*. 4(1). 82.

¹⁴⁴ Harré R and Gillett G. 1994. *The Discursive Mind*. 98.

Coopey et al. sees the concern of self-identity¹⁴⁵ as with being an *individual to and for oneself*, and how that individuality is presented in the sense-making process through which individuals position themselves within discursive practices. If identity serves as an organising principle in understanding, then self-identity should be a key concept in the interpretation of the context (such as innovation and decision making).

A sense of spatial location that yields a *point of view*¹⁴⁶ (existing at a moment in time) and being responsible within a network of mutual obligations and commitments is necessary in order to have and to present a *uniqueness of self*.

The sense of self¹⁴⁷ (in the individual as well as within the organisation) attributes to having mutual effects during initiatives that are innovative. Two different events provide this result. Firstly, when the individual attempts to forge his or her work-based identity, the individual influences the organisation by contributing to the re-shaping and secondly, the individual's self-identity is shaped through adhering to the organisation's routines. An adherence to organisational routines ensures organisational continuity and also shapes and confirms the individual's self-identity. When both the organisation and the agent's sense of self are manifesting, the initiatives are reciprocal and innovative.

Innovation¹⁴⁸ is also developed through understanding and knowledge built on experiences as well as identity. The depth of and fluency is also known as discursive penetration and contributes to the optimistic views of individuals' *efficacy to exercise influence over events that affect their lives*.

4 Decision speed

Returning to the speed in which decisions are made, it is important to understand that the operation of time is essential to the understanding of entrepreneurship.¹⁴⁹ It is important to the entrepreneur to identify situations where the market is out of equilibrium and to act in

¹⁴⁵ Coopey J, Keegan O and Emler N. 1998. Managers' innovations and the structuration of organisations. *Journal of Management Studies*. 35:3. 272.

¹⁴⁶ Coopey J, Keegan O and Emler N. 1998. Managers' innovations and the structuration of organisations. *Journal of Management Studies*. 35:3. 272.

¹⁴⁷ Coopey J, Keegan O and Emler N. 1998. Managers' innovations and the structuration of organisations. *Journal of Management Studies*. 35:3. 273.

¹⁴⁸ Coopey J, Keegan O and Emler N. 1998. Managers' innovations and the structuration of organisations. *Journal of Management Studies*. 35:3. 274.

¹⁴⁹ Capelleras JL and Greene FJ. 2008. The determinants and growth implications of venture creation speed. *Entrepreneurship & Regional Development*, July 2008. 317.

order to bring it back into equilibrium. Most entrepreneurial opportunities are time sensitive, the faster the decision is made the more attractive and the more time to exploit opportunities.

Schumpeter argued that entrepreneurship was the disturbance of the steady-state equilibrium by creative destruction.¹⁵⁰ A social constructionist perspective on entrepreneurial characteristics and its influence on the venture creation speed suggest that it is important to consider how resources are utilised and how the environment influences entrepreneurship particularly in the spatial context. Time is a scarce resource but one that is socially constructed by individual actors. The recipes entrepreneurs use (learned from experience, education or institutionally) may not necessarily shorten the decision making process.

Not much is known on what it is that influences the speed of venture creation.¹⁵¹ There is however a link between decision speed and venture performance, but is not within the scope of this thesis and suffice to note that understanding of entrepreneurship revolves around time.

Spotting disequilibria and subsequently returning the market to a steady state also have time as central to its ability as opportunities are time-sensitive.¹⁵² Quicker decisions enable entrepreneurs to exploit opportunities before they disappear or become considerable less attractive.¹⁵³ Gathering and processing information more efficiently based on existing applicable knowledge enables entrepreneurs to make quicker decisions. Future entrepreneurial behaviour and decision speed in new ventures are positively related to prior experience as an entrepreneur.

Highly educated individuals tend to hesitate in the decision to setup their own business due to the disconnection of the decision process from the action and time spend for non-decisional purposes.¹⁵⁴

Alignment to support is likely to have a positive influence on the decision speed in the process.¹⁵⁵ Better resource management and identifying timely actions are the recipes to mimic activities of larger and more established ventures through faster decision making.¹⁵⁶

¹⁵⁰ Capelleras JL and Greene FJ. 2008. The determinants and growth implications of venture creation speed. *Entrepreneurship & Regional Development*, July 2008. 320.

¹⁵¹ Capelleras JL and Greene FJ. 2008. The determinants and growth implications of venture creation speed. *Entrepreneurship & Regional Development*, July 2008. 317.

¹⁵² Capelleras JL and Greene FJ. 2008. The determinants and growth implications of venture creation speed. *Entrepreneurship & Regional Development*, July 2008. 320.

¹⁵³ Capelleras JL and Greene FJ. 2008. The determinants and growth implications of venture creation speed. *Entrepreneurship & Regional Development*, July 2008. 318.

¹⁵⁴ Capelleras JL and Greene FJ. 2008. The determinants and growth implications of venture creation speed. *Entrepreneurship & Regional Development*, July 2008. 323.

The relationship between venture creation speed and venture growth is still not known to its full potential, but the impact faster decision making speed at larger and established ventures has is known.¹⁵⁷ Capelleras notes that it seems that decision making has more to do with less intensive searching than higher efficiency for information when an *irrational* basis is experienced.¹⁵⁸

4.1 How individuals in organisations process information

Alfred Chandler proposed the organisation as ultimately an information processing system that transforms data into usable information in order to meet market requirements, among others. Being one of various views of the organisation, it allows for the further view by Vaghely et al.¹⁵⁹ that positive outcomes rely on the organisation members' capacity to obtain and process information in order to determine or create new opportunities. Capturing and processing signals, knowledge creation, information based decision making and innovation span the landscape from which to obtain information from within the organisation.

Processes such as decision making, sense making and innovation utilise the organisation's rich information.¹⁶⁰ The organisation also amplifies and disseminates the information that individuals will use and transform into knowledge. A shared and complete representation where there is no doubt about the correspondence of these representations to reality means that the cognitivists see this as tacit information. The counter view of the social constructionists is that every individual possesses unique information of which most is tacit. The above cognitivist and constructionist perspectives provide a basis on information at individual level within the organisation. Individuals justify their information in order to share it. In constructing organisational reality, sense making re-describes the justification process of information in a manner that changes the simplistic input-output framework of the

¹⁵⁵ Capelleras JL and Greene FJ. 2008. The determinants and growth implications of venture creation speed. *Entrepreneurship & Regional Development*, July 2008. 323.

¹⁵⁶ Capelleras JL and Greene FJ. 2008. The determinants and growth implications of venture creation speed. *Entrepreneurship & Regional Development*, July 2008. 325.

¹⁵⁷ Capelleras JL and Greene FJ. 2008. The determinants and growth implications of venture creation speed. *Entrepreneurship & Regional Development*, July 2008. 325.

¹⁵⁸ Capelleras JL and Greene FJ. 2008. The determinants and growth implications of venture creation speed. *Entrepreneurship & Regional Development*, July 2008. 337.

¹⁵⁹ Vaghely IP, Julien PA and Cyr A. 2007. Information transformation: Some missing links. *Human Systems Management*. 26. 157.

¹⁶⁰ Vaghely IP, Julien PA and Cyr A. 2007. Information transformation: Some missing links. *Human Systems Management*. 26. 158.

original information-processing model of Shannon and Weaver as often applied in management science.

Decision making, innovation and knowledge creation activities as outcomes of human information processing require social interaction¹⁶¹ – both cognitive and constructionist opinions agree on this. Cognitive psychologists' perspective on the above multi stage models as the individual's ability to allow relevant information to interact with other information domains at a subconscious level and to synthesise such information. Constructionists define the creation through socialisation, combination and externalisation.

Modelling will always remain a constructed representation of the reality.¹⁶² It will allow for making sense of reality and to act on it, but it remains an abstract representation that may vary between individuals.

As most of the authors used in this thesis point out, a vital activity in organisations is making sense of information. Competitive strategy results from the sense making capacity and provides the context for subject matter experts. The information catalysts in the organisation have the ability to acquire, synthesise, transform, interpret and transmit information more effectively than most subject matter experts, which renders them high-performance employees. These individuals play a major role in reducing uncertainty in the fragmentation of weak signal information that leads to innovative initiatives.

Vaghley et al. notes that when an individual is exposed to new information leading to new viewpoints on known problems or phenomena it leads to grasping the essential features and an insight occurs.¹⁶³ Insights are part of an extended mental process that is based in conscious preparation and requires an incubation period during which information processing happens in parallel at a subconscious level. A period of conscious evaluation and elaboration follows the information processing. High-value knowledge is readily applied to decision making and action, making it possible to harvest by merging information with experience, context, interpretation and reflection. Knowledge and information both require human input to increase value. Knowledge is defined in various formats including as rich information in an action-oriented context and as purposeful coordination of actions, in other words a

¹⁶¹ Vaghely IP, Julien PA and Cyr A. 2007. Information transformation: Some missing links. *Human Systems Management*. 26. 158.

¹⁶² Vaghely IP, Julien PA and Cyr A. 2007. Information transformation: Some missing links. *Human Systems Management*. 26. 159.

¹⁶³ Vaghely IP, Julien PA and Cyr A. 2007. Information transformation: Some missing links. *Human Systems Management*. 26. 160.

process. In both instances it is reliant on experience to provide expertise and sense making in the interpretation.

5 Archetypes

The emergence of patterns in organisational behaviour is described by Systems Archetypes.¹⁶⁴ Time is made an explicit variable in decision making when archetypes are used as fundamental solutions. Diagnostically archetypes assist in the identification of patterns of behaviour already present in the organisation and provide insight into structures from which the archetypal behaviour emerges. This helps with answering the question as to why the same problem recurs over time.

Archetypes are naturally very generic and tend to fail to provide real important variables from system structure of specific organisations.¹⁶⁵ During future planning archetypes are however useful in testing the implications of policy and structure changes. It is also important to consider that archetypes may interact with each other.¹⁶⁶

The concept of behaviour over time provides a compelling reason to think beyond the first set of causal connections and to consider the feedback implications of the behaviour of the system over time.¹⁶⁷ The balancing and reinforcing loops present in organisational systems are the systemic processes that either dampen or accelerate organisational processes. Reinforcing loops (positive feedback loops) continue to accelerate processes of change by reinforcing behaviour but this cannot continue forever and balancing (negative feedback) systems are necessary to establish organisational stability. In balancing the system, variation is taken out of the system in order to bring the system back into equilibrium.

6 Conclusion

The question on whether we are learning in a *real* reality lead to the answer that while constructing social reality, knowledge is created through the interactions in the life-world. Basic cultures and constructs such as thinking, becomes the intuition of the organisation. The society becomes the culture that is mindfully composed of meanings. Maintenance of this social order happens when new entrants are socialised into the existing order.

¹⁶⁴ Braun W. 2001. The Systems Archetypes. *The Systems Modelling Workbook*. 1-3.

¹⁶⁵ Goodman, M. & Kleiner, A. 1993. Using the Archetype Family Tree as a Diagnostic Tool, *The Systems Thinker*. 4(10):5-6 .

¹⁶⁶ Senge P et al. 1994. *The Fifth Discipline Fieldbook*, Strategies and Tools for Building A Learning Organization. 149-150.

¹⁶⁷ Bardoel EA. 2003. Success to the successful: The use of systems thinking tools in teaching. *Organizational Behavior*. 3.

Learning is partly enabled through the analysis of what informs our perception of risk where the risk is defined as a function of probabilities and costs involved in the interactions. As shown in this chapter, individuals tend to prefer certainty to risk based on the value and probability of the outcome, which aid in the characterisation of the decision process. When creating meaning for the decision process in social context, the social-cognitive approach serves as basis for the knowledge and personality of individuals.

Decision makers utilise the information in and of the organisation and learn through the process what and where the valuable information is for certain applications. When decision makers exhibits the same patterns under time constraints, Braun¹⁶⁸ show that archetypal behaviour emerge and interact with each other. Senge and Bardoel view organisational learning through the necessary feedback loops as an option to change these patterns.

As seen, the social self constructs the ideas, knowledge, concepts and beliefs. The interactions between individuals and existing systems are used to learn from and make sense. There is even a third actor (extension) to provide a more complete understanding (objective) of the situation. Different groups form different experiences. These experiences provide a form of diversity (that will be explored later) in views on the reality within which decisions are being made.

¹⁶⁸ Braun W. 2001. The Systems Archetypes. *The Systems Modelling Workbook*. 1-3.

Chapter Four

Indirect decision making

1 Introduction

Is it possible to make a decision without consciously making a decision? Do we need to prepare the individual and the organisation for making decisions? Would be useful to know either when the individual is actually making a decision or when the individual is going to make a decision?

In order to identify situations where decisions are being made, it is beneficial to be aware of the sense making that goes with it. When making decisions in groups such as within organisations, it is important to understand that two sense making dynamics are interacting – that of individual and that of a collective. The collective sense making have the additional challenge in that it is often assumed that the group can operate or function in a non-coercive manner (because they have the same goals) that allows for decision making and sense making from a collective view point.

Elements providing the context and content for sense making in groups includes how to analyse, how detailed the analysis is required, what structures and processes are used, what the results and what mechanisms are in order to make sense for the individuals and the organisations. It is also beneficial to understand what the reality is within which organisations are required make sense of its information under circumstances that are dictated by ethicality, relationships, culture, knowledge and the consensus.

The counter also necessitates understanding that is when is it difficult or even impossible to make sense in the organisation. The next step in the understanding is to understand if it is possible to determine if a decision was a good decision.

The identity of both the organisation and the individual will impact the decision in the sense that in both instances the identity will play a role; we need to be clear when which identity will take precedence. The role of the culture of the organisation may impact on the knowledge created and used to make the decision.

Ultimately the question to also answer is whether it is possible for the individual, working for the organisation to make any autonomous decisions for the organisation – knowingly or not.

2 Cognition within and between organisations

As seen in the previous chapters, both individual and collective dynamics are found simultaneously in the organisation that provides some issues to be addressed. The first issue is that of a *construct system* to describe cognition by managers and organisations. It is evident that it is difficult to describe the *sense* that results from the process of learning and communication. The second issue is that of the level of analysis within cognitive research and the appropriateness or value thereof in the specific context. The micro-to-macro and macro-to-micro views addressing the operationalisation of individual analysis is defined by collective thought patterns, as opposed to the possibility that thought moves to and from individual and collective minds. Cognitive structure and process seem to be two mutually exclusive domains. The third issue to be addressed is whether to combine these in one opinion. The last issues are that of addressing the link between managerial cognition and organisational outcomes and the role of cognitive aids.

The managerial and organisational cognitive agenda¹⁶⁹ acts as a road map to better understanding but also a more structured and user friendly set of tools for conscious planning of decision making. The agenda needs to as a minimum include actions toward the narrowing down of the conceptual arena in order to focus on the most promising concepts and methodologies. Development of possible temporal concepts, such as interpretive dominance, as an option to escape from problems related to the level-of-analysis is. The linking of cognition, behaviour and organisational outcomes should inform the last step of the agenda. This is the role of information systems in managerial cognition. Meindl et al. uses the concept of the agenda not to get involved in a debate on what should be the next focus, but rather to speculate on how future research work will evolve in the field of managerial and organisational cognition. They also propose five areas that highlight the current status of managerial and organisational sense making.¹⁷⁰

2.1 The appropriate construct system

There is no apparent consensus on which frameworks are most useful for particular types of descriptions of mapping and operationalisations. *Interpretations, frames, schemas* and *assumptions* appear to be all part of the sense making process. Meindl et al. notes that

¹⁶⁹ Meindl JR, Stubbart C and Porac JF. 1994. Cognition within and between organisations: Five key questions. *Organisation Science* 5(3). 293.

¹⁷⁰ Meindl JR, Stubbart C and Porac JF. 1994. Cognition within and between organisations: Five key questions. *Organisation Science* 5(3). 289.

concepts¹⁷¹ such as *schemas* and *beliefs* are used to describe the knowledge structures inherent in organisational cognition by modern cognitive science. There is an assumption in this view that cognitive theory has evolved sufficiently to provide a basis for consistent theoretical models and research methods.

The diversity in analysis methods all has their own strengths and weaknesses according to Meindl et al. These methods includes cognitive structures as *networks of nodes and links* that may be precisely operationalised and mapped, operationalisation of thought that is expressed through *flexible interpretive methods* with less emphasis on developing a precise measurement system and more emphasis on showing how broadly conceived thought patterns become intertwined with the social circumstances of organizational activities, measuring cognitive structures by *coding the verbalisations* of organisational actors into broad themes relevant to research questions, and measuring thought by *assessing managerial responses* to a questionnaire.

The diversity in analysis raises questions about the progress of the cognitivist agenda when the operational definitions of similar constructs are so different.¹⁷² The levels at which the analysis is aimed provides a supportive dimension to determining the constructs as it would identify constructs that either is pertinent to only certain levels or those that transcend the levels.

2.2 The appropriate level of analysis

The main question regarding the level of analysis of issues in cognitive research is one regarding whether it is at individual, group, organisation or industry level.¹⁷³ Aggregated forms of cognition derived from cognitive processes at the level of individuals are not always appropriate and the question also arises on whether cognition on a personal level is not a reflection and articulation of collective level processes. In order to map cognitive structures of individual managers it is possible to take the micro-to-macro view, but note is to be taken of the detailed individual measures for their precision and operational validity. When addressing collective cognition, care must be taken when operationalising cognitions such as say belief, in order to obtain agreement level (belief-agreements) between individuals. Such

¹⁷¹ Meindl JR, Stubbart C and Porac JF. 1994. Cognition within and between organisations: Five key questions. *Organisation Science* 5(3). 289.

¹⁷² Meindl JR, Stubbart C and Porac JF. 1994. Cognition within and between organisations: Five key questions. *Organisation Science* 5(3). 289.

¹⁷³ Meindl JR, Stubbart C and Porac JF. 1994. Cognition within and between organisations: Five key questions. *Organisation Science* 5(3). 290.

consensuality might be a sufficient condition for collective cognition, but is hardly a necessary condition and a requirement to be conscious of not being over reductionistic in the analysis is important.

Organisational scholars in the cognitive and cultural factors of inter-organisational communities are addressing macro-to-micro view.¹⁷⁴ However there are difficulties in starting from the collective level of analysis. The method of ethnography allows for probing different levels of meaning at collective layers and to question basic assumptions which seem to control activities in the collectives, but there is a danger that such questioning may lack exact operationalisations and that the linkage between collective level assumptions and individual and organisational level perceptions and attitudes will not be well specified. Operationalisation allows for beginning at individual level of analysis and defines collective thought patterns empirically and precisely.

Relationships between individual and collective beliefs seem to be an inflexible philosophical problem rather than an empirical question. It is possible to assume that thought moves to and fro between individual and collective minds.

Levels of analysis questions may also be seen as issues of temporal dynamics involving interplay of individual and group level cognitive processes through time. Over time, decision making groups evolve their agreements and disagreements on issues. The temporal dynamic linking consensus with diversity shapes the collective decision environment rather than a simple consensus versus diversity style of decision making.¹⁷⁵ There is also the enactment of a belief system over time where the strength of specific beliefs becomes stronger and weaker when interests groups compete for interpretive dominance instead of just a simple agreement or disagreement in the decision making group.

These concepts of temporal dynamics and interpretive dominance provide different ways of looking at the inflexible aspects of the level of analysis problem and provide a human side of belief systems due to their recognition that beliefs are developed, manipulated and diffused by humans. This means that instead that belief systems have a hold over groups and organisations, it is interpretive dominance that provides the view that a belief system as being active where interest groups at various levels of aggregation compete to impose their

¹⁷⁴ Meindl JR, Stubbart C and Porac JF. 1994. Cognition within and between organisations: Five key questions. *Organisation Science* 5(3). 291.

¹⁷⁵ Meindl JR, Stubbart C and Porac JF. 1994. Cognition within and between organisations: Five key questions. *Organisation Science* 5(3). 291.

preferred psychological order onto non-believers. This view makes the level of aggregation less important than who believes what and how much power believers have in order to impose their views on others. Understanding where judgements come from can be highlighted by identifying patterns throughout the levels discovered.

2.3 Cognitive structure or process

Processes of thought (both individual and collective) and structures of thought (knowledge representations) have traditionally been explored in studies on cognition within organisations.¹⁷⁶ How information and beliefs are combined and utilised to form judgements and make decisions are the process domains whereas the description of knowledge and its intrinsic organisation are the structure domain. Meindl et al. venture into a description of both with a productive result, the two domains seeming to be mutually exclusive, resulting in a situation where theoretical frameworks for linking structure and process together in a meaningful way are limited.

The content of managerial thought could feasibly be emphasised through the mapping of specific belief systems and their social effects.

Different patterns of information utilisation are lead by functionally based expertise and are shown by studies of the effects of functional expertise on information usage. Corporate development executives were found to place less weight on financial considerations than chief financial officers during the evaluation of acquisition targets. When combining a process-tracing method with information on the functional background, the cognition process and structure may be integrated in a study on decision making at individual level. Process-structure integration may be demonstrated by showing the group belief evolution over time within a process of strategic problem identification and resolution. The integration of content and process is highlighted as an important element for future research.

2.4 Managerial cognition and organisational outcomes

Profitability, innovation and adaptability to change are important organisational outcomes that should be linked to organisational cognition.¹⁷⁷ The rationale behind forging such a link is that cognitive constructs are only useful when they have measurable effects on organisational performance. Irrespective of agreement with this view, there is a motivation to

¹⁷⁶ Meindl JR, Stubbart C and Porac JF. 1994. Cognition within and between organisations: Five key questions. *Organisation Science* 5(3). 291.

¹⁷⁷ Meindl JR, Stubbart C and Porac JF. 1994. Cognition within and between organisations: Five key questions. *Organisation Science* 5(3). 292.

seek outcome related effects. Finding these links will assist in legitimising the study of managerial and organisational cognition.

Cognitive constructs appear difficult to measure and the entangled environment with organisational variables of which cognition is only a part makes it even more difficult to unravel the causal impacts on outcomes and behaviour. The influence of cognition on organisational outcomes is also induced by organisational structures and environmental jolts outside the control of the organisation.

Utilising the demographic characteristics of managers and teams as alternatives for specific cognitive constructs is one strategy to assess the specific impact of cognitive variables on behaviour and outcomes. Supposing executive management cognitive heterogeneity plays an important part when responding to uncertainty, the heterogeneity may also be used as an indicator of cognitive differences and serves as an illustration of how to utilise demographic characteristics. There is more value in being able to measure cognitive structures and processes themselves and to be able to relate these to the organisational outcome variables – providing diversity early in the process that will lead to decision making.

It is also possible to measure the organisation's performance by constantly judging the outcomes. The delta between outcomes over periods would act as an indicator of negative or positive movement in the capability.

3 Decision patterns

The withdrawal of support for organisations is the result of the social construct of organisational incompetence.¹⁷⁸ Organisational incompetence cannot be explained by assigning blame on individuals, as the chance of an incompetent individual rising to the executive is slim and yet, when the going is good for the organisation, individuals are hailed as the best for their organisations. The question then is how to explain organisational incompetence or less desired outcomes for the organisation.

According to Welles¹⁷⁹ there is a requirement to separate the *stupidity* of individuals from organisational incompetence in order to derive answers or explanations on less desirable organisational outcomes. Under normal circumstances the best and brightest individuals are

¹⁷⁸ Ott JS and Shafritz JM. 1994. Toward a Definition of Organizational Incompetence: A Neglected Variable in Organization Theory. *Public Administration Review*. 54 (4). 371.

¹⁷⁹ Welles JF. 1986. *Understanding Stupidity: An Analysis of the Unnatural Selection of Beliefs and Behavior in Institutions and Organization*.

selected to lead organisations and their individual failures cannot be contributed to organisational incompetence.

Inability or unwillingness to learn from the environment or failures is an objective reality for organisations.¹⁸⁰ This pattern of organisational incompetence is observed over. The perception is in minds and emotions, as all that may be seen is the evidence or indicators of incompetence such as patterns of mistakes, errors and bad decisions from which to conclude incompetence as the cause for behaviour.

The decision regarding action when incompetence was identified, and the decision that a specific action was stupid, is two decisions that involve the perceived reality of incompetence. Organisations affect, directly or indirectly, the individuals, groups and cultures that make up the stakeholders forming the perceptions (distinctive forms and patterns) during social construction. The interpretations of circumstances, expectations, personal values reference groups and social norms will influence judgements of actions or decisions as to the presence of incompetence. Observers vary on the definition of organisational incompetence and the organisation's competence or incompetence must be assessed dependent on the expectations of the numerous representations. Expectations will also vary among types of organisations, different environments, cultural settings and stakeholder groups and at any given point of time.

The quality of the actual organisational performance or decisions is not the only input into the reality of incompetence. The level of receptivity to characterisations made by stakeholders also plays a major part in extending organisational incompetence as a social construct. The receptivity to the characterisations is influenced by limited understandings. Not accomplishing goals and mistakes are erroneously attributed to lack of effort, instead of lack of performance.

Judgements made without standards or without rules of evidence typically question the existence of organisational incompetence. Judgements of incompetence are easily rendered and reality tests are seldom required in socially constructed realities as these evolve from frustration, contempt and alienation feelings.

¹⁸⁰ Ott JS and Shafritz JM. 1994. Toward a Definition of Organizational Incompetence: A Neglected Variable in Organization Theory. *Public Administration Review*. 54 (4). 371.

3.1 Elements of incompetence

Organisational effectiveness is not a list of things that happens or does not happen, it manifests in different forms in the minds of individuals, groups and cultures that are directly affected by the organisation. Groups that are included in this view are customers, shareholders, employees, suppliers, directors and dealers. It is important to distinguish between the objective reality and the perceived reality of the organisational incompetence and needs to be addressed separately. In defining organisational incompetence Ott and Shafritz identified seven elements that may be defined in the *knowing* that relates to objective reality.¹⁸¹ The first element is that of a state of unworthiness, meaning that there is more than just a failure to accomplish goals or the mission. The second element is the emotion associated with the usage of the term incompetence that signals frustration turned into anger. The third element revolves around the meaning of competence as the word means having suitable skills, experience and knowledge. Both competence and incompetence are also variables (not just states) in that they vary in degree and pervasiveness that provides the fourth element. The fifth element is the consistent patterns of inability or unwillingness to learn from failures or from the environment even when such information was easily accessible or easy to utilise. The organisational culture allows for patterns of apparently irrational behaviour and becomes the issue, not the intelligence of the individuals in the organisation, so organisational culture is the sixth element. The seventh element is the question of whether competence and incompetence are opposites on the continuum. Eliminating incompetence does not lead to competence.

Studying interconnections among elements tends to be complex as the interconnections are dynamic and often difficult to find. As discussed before, utilising the living organism metaphor in systems theory is possible when studying organisations as they too are living, open systems.

Ruscoe et al. propose that it is possible to use subsystems pathology to break down problems in the system in order to analyse and treat the system as systems at all levels of complexity share the same critical subsystem functions.¹⁸² Ott and Shafritz however acknowledge that there is no guarantee that organisational competence and incompetence are the opposites.

¹⁸¹ Ott JS and Shafritz JM. 1994. Toward a Definition of Organizational Incompetence: A Neglected Variable in Organization Theory. *Public Administration Review*. 54 (4). 372.

¹⁸² Ruscoe GC et al. 1985. The Application of Living Systems Theory to U.S. Army Battalions. *Behavioural Science*. 30. 10.

Organisations may end up suffering from systemic decay that is an inevitable stage of decay in its life-cycle.¹⁸³ If this is not identified and the organisation consciously takes step to reverse the systemic decay, it may lead to terminal consequences. This state is characterised by loss of organisational energy, enthusiasm and sense of purpose and the organisation becomes holistically inefficient and ineffective and in all, incompetent. The question then is whether the elimination of incompetence will lead to competence or just to no incompetence.

The competence (or incompetence) of the organisation is in essence a social constructed assessment of the ability of the organisation and its employees. These assessments are used to create perceptions on the success or failures of the organisation.

4 Social constructivism and sense making

Cognitive psychology helps explain the creation of human consciousness¹⁸⁴ of time and identity through a narrative structure. The narrative is subconsciously compiled by putting parts and wholes together during an iterative process of remembering episodes or parts in plots or wholes in order to create meaning and coherence of events. Sense making and identity is constructed through fitting parts and wholes together.

Berger and Luckmann note that: “Institutionalisation occurs whenever there is a reciprocal typification of habitualised actions by types of actors.”¹⁸⁵ Their view that roles within communicative networks are enacted through a reflection of reality suggests that both individual and collective identity is simultaneously produced in organisations. Social construction provides a sense of reality as a product of interactions constituting of identities and institutions or organisations.

Downing also notes that *stories*¹⁸⁶ may be used in sense making and uses the Weick notion that stories not only assist with describing the causality in retrospective sense making but also in prospective enactment. He then offers a framework focused on the collective, interactional process aspects of stories to analyse the stories for building an identity. The framework contains the *dramatic view*, *longitudinal process view*, *crystalline social ontology* construct,

¹⁸³ Ott JS and Shafritz JM. 1994. Toward a Definition of Organizational Incompetence: A Neglected Variable in Organization Theory. *Public Administration Review*. 54 (4). 373.

¹⁸⁴ Downing S. 2005. The Social Construction of Entrepreneurship: Narrative and Dramatic Processes in the Coproduction of Organizations and Identities. *Entrepreneurship Theory and Practice*. 191.

¹⁸⁵ Downing S. 2005. The Social Construction of Entrepreneurship: Narrative and Dramatic Processes in the Coproduction of Organizations and Identities. *Entrepreneurship Theory and Practice*. 192.

¹⁸⁶ Downing S. 2005. The Social Construction of Entrepreneurship: Narrative and Dramatic Processes in the Coproduction of Organizations and Identities. *Entrepreneurship Theory and Practice*. 199.

emotional and evaluative view, possible integration of individual and collective and lastly the transformation of generic into local, contextualised narratives. This framework aims to provide new insights into processes of cultural reproduction and creativity. It locates these dynamics by positioning individual and collective identities and the expression of emotions.¹⁸⁷ The framework aims to present an understanding of regular patterns of interactions that produce identities and organisations.

Sense making is much more than just interpreting.¹⁸⁸ The source for sense making is not just *out there* but more in the ability to maintain a consistent, positive sense of self. Weick noted that sense making is defined by who I (the individual) become while dealing with sense making or what and whom I represent.

Personal identity¹⁸⁹ is the sense individuals have of the unique person he/she becomes and is not static and defined in isolation. Experience in historical, political, cultural and interpersonal contexts dynamically shapes identity and concerns of the individual and how individuality is presented in the sense making process. In order to maintain or change this personal identity in interactions with others, a minimal set of skills is necessary to manage the relevant discourses.

Sense of disruptive change¹⁹⁰ is made by retrospectively drawing on memory to shape a revised landscape of meanings and accounts of causality that are just plausible to serve as basis for joint action. It is not just *own* experiences that are used when answering the question of how life should be lived at an individual level; other domains are also looked at. Alien values are introduced, so are rules and resources by utilising a wider social and moral positioning made possible by membership of intersecting organisations and other collectives.

Weick points out that events are remembered when they have similar emotional tones as current feelings in other words, prior events which precipitate a specific feeling might suggest meanings to current events.¹⁹¹

¹⁸⁷ Downing S. 2005. The Social Construction of Entrepreneurship: Narrative and Dramatic Processes in the Coproduction of Organizations and Identities. *Entrepreneurship Theory and Practice*. 197.

¹⁸⁸ Weick KE. 1995. *Sensemaking in Organizations*. 24.

¹⁸⁹ Coopey J, Keegan O and Emler N. 1997. Managers' Innovations as 'Sense-Making'. *British Journal of Management*, 8. 304.

¹⁹⁰ Coopey J, Keegan O and Emler N. 1997. Managers' Innovations as 'Sense-Making'. *British Journal of Management*, 8. 306.

¹⁹¹ Weick KE. 1995. *Sensemaking in Organizations*. 49.

Where experiences are allowed to relate between different tasks and products, the memory enables relation between options that presented under different circumstances previously. Simonton calls this “the capacity for remote associations that connect disparate ideas.”¹⁹² This ability allows for employing cues from confusing matters (events, environments and substance) from which a plausible landscape may emerge. It is suggested that experience be treated as theory by changing it retrospectively when attempting to shape new meanings to explain current phenomena.

Faced with events that disrupt expectations and threaten the consistency and continuity of self-perceptions, stories are created¹⁹³ – always formed with an audience in mind and then shared with others. Several accounts subsequently form raw material for an argumentative creation of a landscape that is a possible environment to be brought to life through actions to which the agreed story commits. These new meanings created inter-subjectively are translated into action. Inter-subjective meanings are synthesised into generic meanings, which are the substance of innovation that both facilitates and constrains future action when the process reaches its conclusion.

4.1 Power relationships

The question is whether power relationships do not constrain individual scope to make choices.¹⁹⁴ Weick does not elaborate on the question of power more than acknowledging that the agnostic nature of social processes and the possibility that politics of power struggles enhance sense making as each faction challenges information from the other.

Power may be seen as a property of relations¹⁹⁵ arising from the hierarchical ordering of positions and access to resources and command over others. Supporting this are disciplinary practices such as supervision, routinisation and formalisation that induce obedience in those commanded. The exercise of power over others may be moderated by knowledge and skills that different parties deploy during interactions as well as perceptions of the balance of mutual dependencies.

¹⁹² Simonton DK. 1988. Creativity, Leadership and Change. *The Nature of Creativity*. 339.

¹⁹³ Coopey J, Keegan O and Emler N. 1997. Managers' Innovations as 'Sense-Making'. *British Journal of Management*, 8. 307.

¹⁹⁴ Weick KE. 1995. *Sensemaking in Organizations*. 136.

¹⁹⁵ Coopey J, Keegan O and Emler N. 1997. Managers' Innovations as 'Sense-Making'. *British Journal of Management*, 8. 311.

Weick suggests seven properties of sense making.¹⁹⁶ The discovery of who I am and what I think is an iterative process helping the individual making sense through *identity construction*. Weick¹⁹⁷ references the work done by Follett¹⁹⁸ when he states that analysing meaningful lived experience leads to *retrospective* sense making and that responses resultant from own activity and from responses to individuals describes a process of creating environments and environments creating individuals – confirming sense making as *enactive of sensible environments*. Sensemaking is a *social process*¹⁹⁹ that is *on-going* in that the longer the search, the more intense the stimulation and stronger the emotion. A more informal and involuntary beginning to the sense making process is noticing, where noticing, scanning and searching is effected by context. These *extracted cues* focus socialisation. Weick states that a good story is necessary for sense making in that accuracy is less important than *plausibility* to enable socialisation.

When a dissatisfaction threshold is reached with circumstances, shock is experienced and action initiated to resolve the dissatisfaction, in turn leading to various occasions for sense making constructed and becoming the platform for further constructions.²⁰⁰

Issues for environmental uncertainty include information load, complexity and turbulence where as ambiguity and uncertainty are components of sense making occasions and attention is distracted away from sense making by interruptions.

Weick further notes that frames provide content to sense making in that they summarise past experiences in the cues that contain specifics of present experience and in the ways occurrences are connected.²⁰¹

Perceptual filtering also influences the sense making process and rationally ordered events are more easily overlooked than current or future events because retrospective sense making overrides many causal sequences which might complicate the present and future.²⁰² Irrelevant information recedes and relevant information gets highlighted when perceptual filtering amplifies the relevant information. Two filtering processes are identified in sense

¹⁹⁶ Weick KE. 1995. *Sensemaking in Organizations*. 49.

¹⁹⁷ Weick KE. 1995. *Sensemaking in Organizations*. 32.

¹⁹⁸ Follett MP. 1924. *Creative experiences*. NewYork: Longmans, Green.

¹⁹⁹ Weick KE. 1995. *Sensemaking in Organizations*. 51.

²⁰⁰ Weick KE. 1995. *Sensemaking in Organizations*. 85.

²⁰¹ Weick KE. 1995. *Sensemaking in Organizations*. 111.

²⁰² Walker K and Carr-Stewart S. 2006. Beginning Principals: Experiences and Images of Success. Teachers and Principals: Leadership and Discourse. *International Studies in Educational Administration*. 34 (3). 19.

making and noticing. Inter-dependencies and subtleties are covered by sense making and stimuli classification as noise or signals and thereby enable individuals to identify the familiar. Sense is made of events when noticed and when events are not noticed these events are not available for sense making.

Collective or individual socialisation contexts determine tactics²⁰³ that is the first of four themes during the socialisation process. The second is identifying the three stages defined by the encounter – anticipation – confrontation stage, the adjustment – accommodation – clarity stage, and lastly the stabilisation – role – location stage. There is a tendency to increase interactions with those similar to ourselves and disassociate ourselves with those perceived to be dissimilar, in order to create the context of succession for personal social structure or theme. The outcomes or effects determine the fourth theme as the cumulative effect of experiences during socialisation.

Utilising both behavioural and constructivist perspectives in social cognitive theory, the learning of individuals may be defined from the consequences of own or others' behaviour in a social environment.²⁰⁴ When behaviour leads to favourable results it is typically remembered for later re-use and when it is less successful the tendency is to discard the behaviours. The processes of self-reflection, forethought and self-regulation teach evaluation of the desirability of specific consequences and assist in accomplishing desirable outcomes. The sense of self-efficacy stems from evaluation of self-judgement about thought- and action-abilities.

When learning from observation and modelling of others' behaviour, the mutually interactive relationship of the sources of learning are personal, behaviour and environmental factors.²⁰⁵ Personal factors include beliefs, values, expectations, physical traits and social skills. Behavioural factors include outward actions and environmental factors including physical and social surroundings.

When using a theoretical orientation that supports the Giddens *structuration*²⁰⁶ idea it is possible to recognise both change and continuity through the constructivist conceptualisation

²⁰³ Walker K and Carr-Stewart S. 2006. Beginning Principals: Experiences and Images of Success. Teachers and Principals: Leadership and Discourse. *International Studies in Educational Administration*. 34 (3). 19.

²⁰⁴ Walker K and Carr-Stewart S. 2006. Beginning Principals: Experiences and Images of Success. Teachers and Principals: Leadership and Discourse. *International Studies in Educational Administration*. 34 (3). 21.

²⁰⁵ Walker K and Carr-Stewart S. 2006. Beginning Principals: Experiences and Images of Success. Teachers and Principals: Leadership and Discourse. *International Studies in Educational Administration*. 34 (3). 21.

²⁰⁶ Giddens A. 1984. *The Constitution of Society*. 376.

of structure and agency. The hierarchy and interlocking or interweaving of purposes as Giddens describes, represents the culture of the organisation that provides the structure and the agents that are the individuals that make-up the organisations' employees. Berger and Luckmann noted before Giddens that social constructions of reality are founded in inter-subjective experiences, as the theoretical formations of reality – scientific, philosophical or even mythological – do not fully describe all that is real to us. A limited number of participants are involved in the theory of ideas but everyone participants in society's knowledge. The sense of social reality is guided by language through framing, filtering and creation in order to transform the subjective into a more tangible reality. The perceptions held are built from inferences from experiences and memories in order to construct own realities. As social agents, individuals build perception from the inferences and guesses based on previous experience and memories that turn into actively constructed personal realities. This makes reality not just the sum of sensory data but also the product of active perceptual construction as noted by Nicholson.²⁰⁷

The constructionism paradigm²⁰⁸ is defined by shift from the *facts* (empirical object of representation) to *representation* (language, mental models and communication). When the cultural, political and economic influences (affecting both author and reader) are considered, it becomes a community social constructionist matter. The linguistic processes that facilitate community construction also utilise the psychological processes of mental modelling and mythmaking. This leads to the belief that the building blocks of constructionism include culture, communication theory, myth and metaphor.

4.2 Communicating culture

Hofstede defines the reflection of group processes and the fact that this is itself a construct as the *culture*. This may be inferred from verbal statements but is not directly observable.²⁰⁹ Culture may also be seen as the systems communicating, reproducing and experiencing the social order.²¹⁰ This view closely resembles the notion of enterprise culture. Theoretical

²⁰⁷ Nicholson L and Anderson AR. 2005. News and Nuances of the Entrepreneurial Myth and Metaphor: Linguistic Games in Entrepreneurial Sense-Making and Sense-Giving. *Entrepreneurship Theory and Practice*. March 2005, 155.

²⁰⁸ Nicholson L and Anderson AR. 2005. News and Nuances of the Entrepreneurial Myth and Metaphor: Linguistic Games in Entrepreneurial Sense-Making and Sense-Giving. *Entrepreneurship Theory and Practice*. March 2005, 155.

²⁰⁹ Hofstede G. 1993. Cultural constraints in management theories. *Academy of Management Executive*. 7(1): 81-94.

²¹⁰ Williams, R. 1981. *Culture*. London: Fontana.

developments in cultural studies lead to the understanding of cultures as being not naturally bounded entities and not understandable as a shared underlying meaning system. Culture is even seen as a manipulator of media, propaganda and repression by Strinati.²¹¹ Culture is produced and consumed and it is unlikely that human beings are only products of the environment. As social beings there are a number of ways culture is experience (seeing and acting upon) that indicates the element of social construction on culture.

Why then do organisations become cultural icons in order to explain and legitimate contemporary structures? The suggestion is that culture acts as the promotion of individualistic modes of thought and behaviour,²¹² almost as a culture of entrepreneurialism with the end of universalism and standardization. The enterprise culture may be seen as the manifestation of values and social priorities, almost as a new configuration of social norms to incorporate and reassert individualism in the context of social and economic flux. It appears to demoralise the world of individual social action, becoming a self-sealing discourse.

It appears that in the social constructionism of entrepreneurship, the role of culture is that of the basis foundation. In summary culture requires to be holistic, social and collective. The origin of the culture is to have been created by the group and emanates from the group signifying that culture is learnt and not inherited.

4.3 Analysing shared social knowledge

When using the premise that the content of cognition originates in social life, interaction and communication used falls within the domain of social cognition theory as described by Augoustinos and Walker.²¹³ Information Systems research has a history of utilising socio-cognitive approaches in order to understand sense making within information technology environments and the implications of interpretations thereof. Further examples include the examination of how systems requirements are socially constructed through interactions of participants in Information Systems development²¹⁴ through socio-cognitive processes; the development of technology frames of references which define organisational assumptions, expectations and knowledge used to understand technology utilised in the organisation; and

²¹¹ Strinati D. 1998. *An introduction to theories of popular culture*. 5.

²¹² Nicholson L and Anderson AR. 2005. News and Nuances of the Entrepreneurial Myth and Metaphor: Linguistic Games in Entrepreneurial Sense-Making and Sense-Giving. *Entrepreneurship Theory and Practice*. March 2005, 156.

²¹³ Augoustinos M and I Walker. 1995. *Social Cognition: An Integrated Introduction*. London, Sage Publications.

²¹⁴ Pinch T and Bijker WE. 1987. "The Social Construction of Facts and Artifacts," in Bijker, W. E., Hughes, T. P. and T. J. Pinch (eds.) *The Social Construction of Technological Systems*. 17-50.

the highlighting aspects and outcomes of sense making processes as social construction of technology by utilising social cognition frameworks. The last example sets out to explain how societies shape the nature of technology and is based on work by Pinch and Bijker.

Organising visions are also an important element of social cognition within an institutional view.²¹⁵ The focal community idea for application of information technology in organisations provides shared understandings that are established, maintained and transformed through discourse in the community of interest for innovation. Interpretation, legitimisation and mobilisation provide function for IT innovations and are facilitated by organising visions.

In order to reference interpretations of reality a framework such as social representation is required, this becomes the basis of common knowledge and information shared between people in the form of common-sense theories about the social world.²¹⁶ Collective sense making is one of the focus points of social representation theory and is a relatively new development. The common-sense knowledge on general topics that focus everyday conversation is also known as social representations. It links social discourse with individual social behaviour, cognition, affect and symbolic understanding.

Central core and peripheral elements provide structure to social representation theory. Generating function through which other elements acquire meaning and value is the main purpose of the attitudinal component around which social representation is built. This central core suggests that a stable and non-negotiable core exists that is not affected by variations in context. The peripheral elements are organised as a defence system or shock absorber around the central core, the function of this peripheral is to adapt based on new information or transformation of the environment. The peripheral elements are malleable and integrate inter-individual variations such as personal experiences into the presentation. Comparing core elements of social representations of different social collectives (say at different levels of the organisation, e.g. executive, senior and middle management) will identify commonalities and differences. Analysing the content and structure of social representations

²¹⁵ Jung Y, Pawlowski SD and Wiley-Patton S. 2009. Conducting Social Cognition Research in IS: A Methodology for Eliciting and Analyzing Social Representations. *Communications of the Association for Information Systems(CAIS)*. Vol 24 (35), 598.

²¹⁶ Jung Y, Pawlowski SD and Wiley-Patton S. 2009. Conducting Social Cognition Research in IS: A Methodology for Eliciting and Analyzing Social Representations. *Communications of the Association for Information Systems(CAIS)*. Vol 24 (35), 599.

over time and identifying changes in responses to significant events provides insight into emergent trends.

Yung et al. note that a key process in generating social representations is that of *anchoring*.²¹⁷ When unfamiliar objects are classified and named by comparing them with familiar categories it is known as the anchoring process. Social representation occurs through the group effort to cope symbolically with unfamiliar ideas and practices. Comparison with prototypes or models in order to classify is done and it is decided either that it is familiar (generalisation of certain salient features to the unfamiliar stimulus) or it is decided that it is different (particularisation and differentiation between the object and prototype).

Representing new information in a way that is compatible with a group's consensual universe²¹⁸ and anchoring supporting, and conflicting information makes the anchoring process prescriptive in nature. Anchoring places new information into a network of significance by moulding it in a way that is consistent with existing ideas.

Berger and Luckmann's social constructionist paradigm²¹⁹ provides the social constructed reality on which social representations are built. Social representations include the interpretive epistemology, but also use additional data collection and analysis approached in order to capture social representations from raw materials that includes individual opinions, attitudes and prejudices. Data collection includes both quantitative and empirical approaches.

The idea that the perception of the success of the organisation is based on assessments and that the assessments are anchored leads to the questionable notion that there are elements that can pre-determine the constructed reality of the organisation.

5 Social constructivism and determinism

The autonomy, power and influence exhibited by corporate organisations since the 1970's make it necessary to consider technological construction of society – a form of technological

²¹⁷ Jung Y, Pawlowski SD and Wiley-Patton S. 2009. Conducting Social Cognition Research in IS: A Methodology for Eliciting and Analyzing Social Representations. *Communications of the Association for Information Systems(CAIS)*. Vol 24 (35), 599.

²¹⁸ Jung Y, Pawlowski SD and Wiley-Patton S. 2009. Conducting Social Cognition Research in IS: A Methodology for Eliciting and Analyzing Social Representations. *Communications of the Association for Information Systems(CAIS)*. Vol 24 (35), 600.

²¹⁹ Jung Y, Pawlowski SD and Wiley-Patton S. 2009. Conducting Social Cognition Research in IS: A Methodology for Eliciting and Analyzing Social Representations. *Communications of the Association for Information Systems(CAIS)*. Vol 24 (35), 601.

construction of society that is in essence technological determinism which attends to the role of large, professionally managed business corporations.²²⁰

The problem of timely action is addressed by *expressive causality*.²²¹ Mediation between new technology and society is taken into account and the process is less direct and mechanical in that expressive causality is only one aspect or expression of a social unity. The term *meta-technological* is used to describe modern business corporation's actions in developing, shaping and disseminating most of the current technologies. These technologies are designed with a single abstract goal – to maximise the value of assets they controls.

In designing the modern business corporation to reflect the collective individuals' interventions in the market (through the business corporation), lawyers, legislators and entrepreneurs create an entity that operates on machine principles.²²² Designed as an autonomous, cybernetic instrument – one that responds automatically to information feedback – the business corporation is being credited with economic progress. The purpose of this business corporation is to further the operations of the market economy by representing human attributes such as self-interest and perseverance that classical economists identified as required in order to facilitate economic progress. Human economic agents are burdened by psychological and moral limitations in their materialism where the business has the advantage of not having this limitation, the corporate business' self interest appearing to have no bounds. The business corporation acts as a cybernetic machine in order to maximise the value of assets it controls. The *modern* business corporation evolved away from the original purpose in that the robot-like drive to serve the market it operates in causes it to have an objectionable disposition to take over the entire host mechanism, subverting it to service of the corporate instead of the human or national requirements.

The face of the business corporation had to change and the seventeenth and eighteenth century view that the corporate is an *artificial* person in the law was changed to that of a *natural* person – providing it with the same rights and obligations as the individual human.

The tendency of the modern business corporations to abnormally large sizes is counter to the classical economy theory assumption of a market of many small corporations competing with

²²⁰ Rowland W. 2005. Recognizing the Role of the Modern Business Corporation in the “Social Construction” of Technology. *Social Epistemology*. 19(2-3). 287.

²²¹ Rowland W. 2005. Recognizing the Role of the Modern Business Corporation in the “Social Construction” of Technology. *Social Epistemology*. 19(2-3). 291.

²²² Rowland W. 2005. Recognizing the Role of the Modern Business Corporation in the “Social Construction” of Technology. *Social Epistemology*. 19(2-3). 294.

each other in order to optimise value for money.²²³ The modern business corporation is not interested in public welfare, they have their own interest at heart and from this point of view, a monopoly (even oligopoly) is obviously the best possible outcome.

Several distinct features define the modern business corporate alluded to above. Firstly it is typically large in revenue and number of employees, secondly, owned by large numbers of shareholders – individual and/or institutional and thirdly, is run by a team of professional highly trained managers. Not from its own doing, the organisation achieved personhood legal status that allows it to claim protection from the government in several countries under human rights codes and lastly, it has a single purpose – to make money.²²⁴ The organisation strives to make profit and has the capability to clear the market of disruptively irrational motivations when managing investments. For the purpose of this thesis the definition just given of a modern business corporation is used. Note that it is a generalisation that does not hold true for all corporations.

Rowland proposes the view that modern business organisation are now a market system which is cleared of human values - good and bad – and sees the nature of the product as secondary, a situation which is facilitated by a managerial style that disregards the product, work force and community when moving resources where they earn the biggest return. This increase in focus on short-term rate of return leads to corporate decision making that is frequently in conflict with human welfare. The question from this background then is why if organisations are human institutions, do corporations act in ways opposing to human interest? Two views start to describe this phenomenon.²²⁵ Firstly, the corporation is expected to obey laws, opposed to human behaviours that are also regulated by custom and convention. Secondly, although it is humans who act as managers in the corporation, the view is that it is the corporate that manages the human managers. The premise that human managers are not really in charge, accounts for many unjust acts corporates get involved with which the managers would never consider doing in their private capacity. From the corporate view, as long as it improves shareholder value and does not pose risk of legal penalty, the act is valid.

²²³ Rowland W. 2005. Recognizing the Role of the Modern Business Corporation in the “Social Construction” of Technology. *Social Epistemology*. 19(2-3). 298.

²²⁴ Rowland W. 2005. Recognizing the Role of the Modern Business Corporation in the “Social Construction” of Technology. *Social Epistemology*. 19(2-3). 299.

²²⁵ Rowland W. 2005. Recognizing the Role of the Modern Business Corporation in the “Social Construction” of Technology. *Social Epistemology*. 19(2-3). 301.

There is an expectation that intelligent, healthy humans will experience ethical reservations long before the threshold is reached.²²⁶ When employed by the corporation, the individual is submitted to contracts that limit their actions to parameters that serve the corporate interest. These limits are in the form of law, regulation or policy and coerce the individual into corporate behaviour. Corporate ethical systems are imposed / learned as it is inhuman in that it is unnatural in human context.

Being employed in the corporate environment, the individual does not act as an individual decision maker,²²⁷ but rather as an agent of others and in the process avoids the feelings of personal responsibility according to Coleman.

The individual then makes the decision on behalf of the organisation, while the organisation prescribes the rules and results of the decision.

5.1 Consensus reality

In human consensus reality it is understood that reality is either what exists or what may be agreed on by consensus to seem to exist.²²⁸ The process of achieving consensus reality is also loosely described as the notion that if enough people agree that it is real, then it is. The implication is that what a group then chooses to believe to exist, does, and that it might bear little or no relationship to any *true reality* and may actually challenge the notion.

It is not possible to be sure, beyond doubt, about the nature of reality;²²⁹ however, it is possible to obtain some form of consensus, with others, of what is real.

Putnam argues that existing descriptions of objectivist epistemology are conflicting and that there is no objectively correct description of reality.²³⁰ This does not negate objective reality, it merely highlights that one has no privileged access to it from an external viewpoint.

6 Conclusion

Collective and individual dynamics are found simultaneously in organisations. The cognitive structure and process is highlighted in this chapter as the departure point for understanding decision making. No apparent construct for cognition in the organisation can be favoured for

²²⁶ Rowland W. 2005. Recognizing the Role of the Modern Business Corporation in the “Social Construction” of Technology. *Social Epistemology*. 19(2-3). 302.

²²⁷ Coleman JS. 1982. *The asymmetric society*. 162.

²²⁸ Lakoff G. 1987. *Women, Fire, and Dangerous Things: What Categories Reveal About the Mind*. 259.

²²⁹ Stork DG. 1998. *Hal's Legacy: 2001's Computer as Dream and Reality*. 201. Read chapter 9 – From 2001 to 2001: Common Sense and the Mind of HAL.

²³⁰ Putnam H. 1981. *Reason, Truth, and History*. 110.

the various analysis methods used. The level of the analysis addresses the size of aggregation (ranging from the individual through to industry level) of the cognition. The view that beliefs are developed, manipulated and diffused by humans, provides that the interpretation holds over all the aggregation levels, making *who* beliefs more important than *what*.

Group belief evolution over time, within a process, demonstrates process-structure integration. By utilising methods (from management information systems to decision support) ensuring the beliefs of a group are closer aligned, will aid the competitive advantage of the organisation.

Organisational incompetence is not attributable to individuals. Not learning from the business environment and patterns of successes / failures may become the reality of the organisation. The success or failure of the organisation is not a list of things that happened or not in the organisation.

The possibility of making decisions without making decision also reveal the question that if reality is reliant on the interpersonal interactions, whether ethical decisions are as in the open under the constructivism as they are during the interactions. The context of the interaction makes it difficult to determine whether the decision was good or bad.

Sensemaking is determined by the identity (individual or organisation) while making sense or determining who or what is represented – with the emphasis on the representation. No specific precedence is set on the priority between organisational and individual identities is evident in making sense from the material used.

The culture of the organisation provides contemporary structures, explanations and authentic existence. These structures can then in turn shape the format of knowledge used in the organisation. Much of the sense made through interactions in the organisation is shaped by the organisation (culture) and makes autonomous decisions unlikely.

Chapter Five

Multiple participant decision making

1 Introduction

Does the concept of organisational decision making have at its core the organisation and not the collective way of making decisions? Collective decisions are notoriously difficult but is it fair to observe that a group either gets it right or very wrong? Building a perspective on what it means to make a collective decision and what it takes to ensure that the decision is made, with a positive outcome, should allow for a view on what to do and what to avoid.

Determining what it means to make decisions in groups takes a few steps further down the path of success as opposed to the view that group decision making is an act of computing the average / median / middle of the individuals' decisions in the group. There is also the question of why groups with members unknown to each other seem more successful than groups that are working together.

Decentralisation of control brings with it the addition of tacit knowledge into the decision making process and additional scope and diversity. However, the loss of central control is not the only negative side and understanding the dynamics may be beneficial. It is pointless not taking the rest of the groups' views into consideration, but some groups are capable of making better decision than most intelligent member. Collectiveness in whatever format seems to be a pro-social behaviour but it is important to understand how to cooperate in order to maintain the reasons to act and make decisions as a group. Scientists seem to be able to learn and work independently and together in a way that works in achieving the goal to grow the common body of knowledge.

Group thinking and working seem to be pervasive in modern society and organisations. Inside the group there is a constant cross influencing, sometimes providing good decision making opportunities and sometimes detracting from it. The smaller version also act as inspiration to achieve better without any coerciveness.

2 Collective decision making

Surowiecki notes that the best collective decisions are the product of disagreement and contest, not consensus or compromise.²³¹ The disagreement and contest provides the necessary diversity and independence for decision making. When confronted with cognition problems, intelligent groups do not ask members to modify their positions. The intelligent group finds mechanisms to aggregate and produce collective judgements that represent what the whole group thinks. For the group to be intelligent is for each individual to act as independently as possible.

Four conditions are highlighted that is required to exist in order to ensure wise decisions by groups.²³² Diversity of opinion means that each individual is expected to have some private information not available to the rest of the group. Secondly, independence of individuals determines that their opinion is not dictated by the opinion of others. Thirdly, decentralisation here means that individuals are able to specialise and draw on local knowledge. Lastly, aggregation here means that a mechanism exists that allow private judgements to be turned into a collective decision.

Surowiecki further note that with most disciplines averages leads to mediocrity, but with decision making it sometimes leads to excellence.²³³ Decision making mechanisms is required to be good under conditions of uncertainty and is expected to represent a picture of the world, as it will be in order to be truly successful.

3 Independence

Freedom from influence of others in the group does not mean individuals act in isolation but rather form independent positions.²³⁴ Preventing mistakes that individuals are making from becoming correlated and having different or new information from the rest of the group are two reasons why it is important for intelligent decision making to have independence of individuals in groups. When there is correlation between information elements or the mistakes being made, influence is exerted on the direction and outcome and a systematic bias is introduced. Being able to stay independent in a diverse decision making group will influence the success of the decision group. Being biased and irrational should not influence the success of the group, as long as the individual acts independent. Independence does however not imply rationality or impartiality.

²³¹ Surowiecki J. 2007. *The Wisdom of the Crowds*. Why the Many Are Smarter Than the Few. XIX.

²³² Surowiecki J. 2007. *The Wisdom of the Crowds*. Why the Many Are Smarter Than the Few. 10.

²³³ Surowiecki J. 2007. *The Wisdom of the Crowds*. Why the Many Are Smarter Than the Few. 11.

²³⁴ Surowiecki J. 2007. *The Wisdom of the Crowds*. Why the Many Are Smarter Than the Few. 41.

List et al. notes that *Condorcet's jury theorem* holds since the 18th century that when members of a group have partially reliable and noisy information on what is best for the group as a whole, democratic decision outperform dictatorial ones. Majority voting has the ability to extract the information while filtering out noise.²³⁵

The question then is if it is possible to make collectively intelligent decisions when in constant interactions with each other? The more contact a group of individuals have with each other, the more influence the members of the group will have with each other and the less the independence in the group. Pooling the independent information held by various individuals provides benefits but the moment the individuals communicate in order to supplement the vote, there are complications. The complication brought on by the communication is the study area of the theory of deliberative democracy and it highlights the amplification of errors that leads to information cascades, discussed later in this thesis.²³⁶

Surowiecki propose that the tendency to assume that when more people are doing something,²³⁷ believing something, there must be a good reason for it is also called *social proof*. There is a natural tendency to believe that if there is a group that are doing or believing in something, they are right. The influence of the group becomes stronger as the size of the group becomes bigger and to follow the group becomes a sensible strategy. The catch is however that if everyone adopts the same strategy, it is not sensible anymore.

There is a remarkable reliability in decision making built into the interplay between independence and interdependence.²³⁸ In the case of bees looking for a new nest site, each bee is operating independent in assessing the quality of the site found, but interdependent in giving more attention to sites more strongly proposed.

When everyone follows the same strategy, it becomes more difficult to follow a different strategy especially if there is more risk involved according to Surowiecki.²³⁹ *Herding* here

²³⁵ List C, Elsholtz C and Seeley TD. 2009. Independence and interdependence in collective decision making: an agent-based model of nest-site choice by honey bee swarms. *Philosophical Transactions of the Royal Society B* 364. 752.

²³⁶ List C, Elsholtz C and Seeley TD. 2009. Independence and interdependence in collective decision making: an agent-based model of nest-site choice by honey bee swarms. *Philosophical Transactions of the Royal Society B* 364. 752.

²³⁷ Surowiecki J. 2007. *The Wisdom of the Crowds*. Why the Many Are Smarter Than the Few. 43

²³⁸ List C, Elsholtz C and Seeley TD. 2009. Independence and interdependence in collective decision making: an agent-based model of nest-site choice by honey bee swarms. *Philosophical Transactions of the Royal Society B* 364. 765.

²³⁹ Surowiecki J. 2007. *The Wisdom of the Crowds*. Why the Many Are Smarter Than the Few. 49.

means that there is less risk involved in following the same strategy as the rest. Becoming innovative means the risk of failing is big.

It is safer to follow the same strategy than the rest, if it seems rational.²⁴⁰ In the decision making group of executive management in the organisation, individuals mimic each other in order to protect their jobs and in the process destroy the differentiating information and independence of the group when they rely on the information of others while they mimic behaviour. The range of possibilities shrinks and so does the group intelligence necessary for competitive decision making. The herders might feel that they are making the right decision to follow, but it is only at best a safe decision. Lemieux notes that herding is therefore interesting when it is contrary to the established evidence.²⁴¹

False cascades do not last long and are often fragile.²⁴² Reputational concerns will however provide resilience and may tip the social concern into apathy or revolution. False or wrong cascades are possibly corrected through old ideas such as free speech, individual liberty and power dispersion (diversified individual actions creates more information than centralized decision).

A second example of the interaction between independence and interdependency combined is that of a restaurant choice.²⁴³ When picking the restaurant with the most patrons without knowing anything about the quality, it is easy to pick the worst restaurant if it was assumed that the others picked it for its quality and they assumed the same. The result of this *informational cascade* is purely accidental if it was not the worst outcome. It is only avoidable if enough patrons made their choices based on independently gathered information and interdependence without independence has a greater possibility of worst outcomes. The opposite of the spectrum is also suboptimal. People only gathering information about restaurants they see, missing out on those located badly – not knowing what you don't know would represent Independence without interdependence.

4 Information cascades

²⁴⁰ Surowiecki J. 2007. *The Wisdom of the Crowds*. Why the Many Are Smarter Than the Few. 50.

²⁴¹ Lemieux P. 2003. Following the Herd. *Regulation* - Winter 2003 - 2004. 16.

²⁴² Lemieux P. 2003. Following the Herd. *Regulation* - Winter 2003 - 2004. 21.

²⁴³ List C, Elsholtz C and Seeley TD. 2009. Independence and interdependence in collective decision making: an agent-based model of nest-site choice by honey bee swarms. *Philosophical Transactions of the Royal Society B* 364. 766.

Bikhchandani et al. notes that how learning happens determines whether it is good for decision making.²⁴⁴ A problem arise when the group of decision makers do not arrive at the decision making point in the process at the same time, but rather in some random sequence. This happens when information is received at various stages and the information is not imperfect and sometimes even wrong. Individuals will start supplementing their own information by learning from each other – *cascading information*. The occurrence of informational cascades is explained when it is optimal to follow others without regard for own information. Localised conformity of behaviour and the fragility of mass behaviours could possibly be explained by using this concept of informational cascades.

Consequent decision makers will start following the early decision makers and if the initial decision makers used wrong information, so everyone will end up making the wrong decision according to Surowiecki.²⁴⁵ This problem is not to be confused with mindless trend following, conformity or peer pressure but rather stems from the problem that everyone believe that they are learning something important from the example of others.

Decisions become uninformative to others once the decision maker ignores his own private data and only acts on the results from previous decision makers.²⁴⁶ Information cascades have a fundamental problem in that there is rational belief that own information is worth less than external information at a certain point and that the better information is followed.²⁴⁷ The truth is that one makes decisions based on the thought that decision makers before knew and not based on what is known to the self. This highlights the importance of independence of the individuals in the collective decision making process. It is also important to realise that information cascades drive decisions on technologies and social norms. In order to arrive at diverse opinions, independent conclusions are necessary and are synthesised from private information of independent individuals in the group.

²⁴⁴ Bikhchandani S, Hirshleifer D, Welch I.1992. A Theory of Fads, Fashion, Custom, and Cultural Change as Informational Cascades. *The Journal of Political Economy*. Oct 1992, 100 (5). 992.

²⁴⁵ Surowiecki J. 2007. *The Wisdom of the Crowds*. Why the Many Are Smarter Than the Few. 53.

²⁴⁶ Bikhchandani S, Hirshleifer D, Welch I.1992. A Theory of Fads, Fashion, Custom, and Cultural Change as Informational Cascades. *The Journal of Political Economy*. Oct 1992, 100 (5). 994.

²⁴⁷ Surowiecki J. 2007. *The Wisdom of the Crowds*. Why the Many Are Smarter Than the Few. 57.

Informational cascades has the possibility to be positive in that all individuals adopt / embrace the information or the cascade could be negative in that everyone reject the information.²⁴⁸

5 Imitation

In order to overcome the limitations of own cognitive capability there is a tendency to *piggyback* on the wisdom of others.²⁴⁹ As individuals it is not possible to know everything and by imitation from those that do know more, own knowledge is supplemented.

Even if no value is placed on conformity, a reasoning process taking into account previous decisions presents as being rational – the outcome may or may not be desirable.²⁵⁰ Surowiecki notes that groups do better deciding between possible solutions²⁵¹; groups do not do solutions generation very well. The realm of invention or generating solutions seems to be an individual endeavour.

When it is possible for a group to consider an initially wide array of options and the group possesses the willingness that parts of the group is able to put the group's judgement above their own even when it is not sensible to do so, it would be able for the group to *intelligently imitate*.²⁵²

Observational learning comes from two scenarios that both starts with some private information in possession of each individual, and each individual obtains some information from predecessors, and then decides on a particular action. The first scenario have individuals observe only *actions* from their predecessors and the second scenario have individuals observe both actions and *signals* from their predecessors.

Individuals often intently follow the same wrong (lower yielding) action in the first scenario of observable actions. In the second scenario of observable signals, the information signal becomes public information. Information keeps accumulating so that individuals, all of whom have the same payoffs from taking the same action, settle on the correct choice and behave alike because all past signals are publicly observed. When noise enters the

²⁴⁸ Bikhchandani S, Hirshleifer D, Welch I.1992. A Theory of Fads, Fashion, Custom, and Cultural Change as Informational Cascades. *The Journal of Political Economy*. Oct 1992, 100 (5). 994.

²⁴⁹ Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few*. 58.

²⁵⁰ Bikhchandani S, Hirshleifer D, Welch I.1992. A Theory of Fads, Fashion, Custom, and Cultural Change as Informational Cascades. *The Journal of Political Economy*. Oct 1992, 100 (5). 995.

²⁵¹ Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few*. 59.

²⁵² Bikhchandani S, Hirshleifer D, Welch I.1998. Learning from the Behavior of Others: Conformity, Fads, and Informational Cascades. *Journal of Economic Perspectives*, Summer 1998, 12(3). 156.

observation system information accumulates slower but it still draws individuals toward the same more acceptable action.²⁵³ The fundamental reason for the difference in the scenarios is that once a cascade starts, public information stops accumulating.

Humans are generally overconfident in the ability to make decisions and about the level of knowledge.²⁵⁴ This is not necessarily negative because overconfident people do not get swept into the negative information cascade easily and under circumstances are even able to break the cascade. Information cascades are kept going by people that value their own information less than that of the others in the group. Overconfident individuals rather go with their own gut feel.

Information cascades are less likely when the decision to be made is more important so it seems that the more important decisions are better in a *collective style*.

Information cascades possibly presents as a style of information aggregation with voting systems and market systems.²⁵⁵ The best way however to ensure success in the group decision making process is to ensure simultaneous decision making as opposed to a serial succession of decisions being made.

It is key to group decision making that individuals pay more attention to their own information to ensure *autonomy* during the process.²⁵⁶

6 Authority

Surowiecki notes that decentralisation is an idea that is seizing the imagination of business, academia, scientists and technologists.²⁵⁷ In business theories self managed teams responsible for solving their own problems are the rage while corporations and management hierarchies are being termed old or out of fashion. Gaubert et al. notes that scientists in physics and biology are focusing on self-organising, decentralised systems that have no centre and proof to be robust and adaptable, such as ant colonies and beehives.²⁵⁸ Social networks with no one in charge seem to keep social scientists occupied as it allows people to connect and coordinate with each other without having anyone in charge. The authority for

²⁵³ Bikhchandani S, Hirshleifer D, Welch I. 1998. Learning from the Behavior of Others: Conformity, Fads, and Informational Cascades. *Journal of Economic Perspectives*, Summer 1998, 12(3). 154.

²⁵⁴ Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few*. 61.

²⁵⁵ Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few*. 63.

²⁵⁶ Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few*. 65.

²⁵⁷ Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few*. 70.

²⁵⁸ Gaubert L, Redou P, Harrouet F and Tisseau J. 2007. A first mathematical model of brood sorting by ants: Functional self-organization without swarm-intelligence. *Ecological Complexity*, 4. 234.

decision making is distributed throughout a larger group. The Internet seems to be the facilitator and most visible decentralised system.

Decentralisation as represented by delegation of authority has as benefit a better utilisation of information scattered throughout the lower levels of the organisation's hierarchy but conversely it entails a loss of control for upper-level managers.²⁵⁹ Decentralisation fosters and in turn feeds off specialisations including labour, interests and attention which in turn make individuals more productive and efficient as shown by Adam Smith.²⁶⁰ Decentralisation also enhances the diversity and scope of information and opinions. Tacit knowledge is reliant on decentralisation according to Friedrich Hayek as it is the knowledge specific to particular job or experience.²⁶¹

There seem to be an assumption at the centre of decentralisation a notion that the closer to the problem, the closer or more likely it is to have the workable solution.²⁶² Promoting independence and specialisation while allowing individuals to coordinate their actions and solve complex problems is the strength of decentralisation. The weakness of decentralisation is however that there is no guarantee that information uncovered will be distributed throughout the system.

Decentralisation only provides intelligent results if there is a workable means of information aggregation throughout the system, providing a balance between local and system wide information.²⁶³ There is a further discussion on decentralisation later on in this chapter.

In the case of many autonomous individuals attempting to solve a problem without any means of combining judgements, the best result would be that of the best solution from an individual and it is possible that that it would only be the most plausible solution, meaning that the best solution might not be the most sensible. Should the same group be able to *aggregate* their solutions, the collective solution possibly smarter than the best individuals' solution.

²⁵⁹ Zábajník J. 2002. Centralized and Decentralized Decision Making in Organizations. *Journal of Labor Economics* 20 (1). 2.

²⁶⁰ Smith A. 1776. *An Inquiry into the Nature and causes of the Wealth of Nations*. Book II, Of the Nature, Accumulation, and Employment of Stock, Chapter 3. The work of Smith reflected on the economics of the Industrial Revolution and argues that the free market economy is more productive and beneficial. See also en.wikipedia.org/wiki/The_Wealth_of_Nations and Landes DS. 1998. *The Wealth and Poverty of Nations: Why Some Are So Rich and Some So Poor*. New York: W.W. Norton. ISBN 0-393-04017-8

²⁶¹ Hayek F. 1945. The Use of Knowledge in Society. *American Economic Review* 35(4). 519-530.

²⁶² Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few*. 71.

²⁶³ Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few*. 74.

Aggregation in this context is a form of centralisation and has the ability to be paradoxically important to the success of decentralisation.²⁶⁴ Care should be taken not to confuse centralisation with central planning. Collective decision making performed by decentralised agents is still desirable and aggregation is capable to be the mechanism to achieve collectiveness. The success factor in aggregation is the speed in which it takes place, as there is the possibility of losing the competitive advantage in the time it takes to aggregate the information and solutions. Aggregation of information requires being able to compete against top-down decision making strategies.

In order to better the occurrence of success, the goal should be aggregation instead of centralisation in decision making.²⁶⁵ The kind of decentralisation determines the success and large groups will outperform a small group on cognition levels based on the diversity and volumes of options. There is a further cost associated with centralised decision making in that inducing a worker to work on someone else's idea is possibly more costly than allowing him to work on his own idea as it leaves the worker pessimistic about the possible success of the work.²⁶⁶

7 Coordination

Individuals in a sea of pedestrian activity in large cities seem to be able to anticipate each other's behaviour.²⁶⁷ There is no coordinator or centralised coordination that controls the subtle adjustments required in pace, stride and direction that allow for smooth and efficient flow on the sidewalks. Coordination problems as ubiquitous as they are, also include when to do something, where to go, how to do things. In order to solve coordination problems, agreement is called for on what to believe as the right answer, but also to keep in mind what others think the right answer is. The reason for this is that what each individual in the group does affect and depends on what everyone else does and vice versa.

Top-down authority or coercion is also an example of coordination.²⁶⁸ It is facilitated through command and control. Laws and formal rules play a strong part in the achievement thereof. It does not have a desired effect in a liberal society such as predominantly displayed

²⁶⁴ Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few.* 75.

²⁶⁵ Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few.* 78.

²⁶⁶ Zábajník J. 2002. Centralized and Decentralized Decision Making in Organizations. *Journal of Labor Economics* 20 (1). 2.

²⁶⁷ Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few.* 85.

²⁶⁸ Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few.* 90.

in the West where coordination problems require bottoms-up instead of a top-down approach. The issue is to get people to voluntarily make their efforts work together efficiently and orderly, without anyone specifically telling them what to do.

Decision making that does not take into account the opinion of others is seen as independent decision making. Not taking others' opinion into account is pointless in addressing the coordination problem and there is no guarantee that a group will come up with a smart solution.

Coordination problems are very difficult to solve. A self-reflexive spiral with no outside reference point is created when what is necessary is depending on what everyone else wants to do and every decision affects every other decision. What is called for is to evaluate a reality that own decisions are helping to construct, as opposed to evaluating a reality that exist outside the decision making group.

When the next action is not known, the best thing to do is what everyone else is doing, when everyone else is investing best thing to do is to invest.²⁶⁹ The problem however is that when the rest are making decisions individually, it is difficult to determine what their decisions are and a chicken and egg situation develops because of the presence of network externalities.

Schelling points are known as the phenomenon that in certain situations there are salient landmarks or focal points on which people's expectations converge.²⁷⁰ Sometimes it is possible to find ones way to collective beneficial results without centralised direction and without communicating with others on it. Individuals' experience of the world is surprisingly similar and makes successful coordination easier. The world experienced by the individual is of course cultural based. Thomas Schelling showed through a series of social experiments that independent groups have the ability to largely have the same answers to a variety of unrelated questions.²⁷¹

Coordination is also enabled by culture.²⁷² This happens when norms and conventions regulate behaviour. Most of these norms are tried and tested – long-standing, but if necessary to solve problems, the ability to create new ones is always there. Conventions are there to maintain order and stability but also have the effect that it reduces the amount of cognitive

²⁶⁹ Mak V and Zwick R. 2010. Investment decisions and coordination problems in a market with network externalities: An experimental study. *Journal of Economic Behavior & Organization* 76(3). 760.

²⁷⁰ Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few.* 92.

²⁷¹ Schelling TS. 1960. *The Strategy of Conflict.* 54-67.

²⁷² Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few.* 93.

work required on a daily basis. Having convention in place, groups of disparate and unconnected individuals manage to organise or coordinate themselves without conflict and with relative ease. An example of a general convention used, the arrangement of first-come, first-served used in parking and seating arrangements. Successful norms are internalised in behaviour but this does not mean that it sometimes also necessitate external sanctions. Externalised conventions or sanctions have the ability to even be legalised, such as traffic laws.

Milgram noted that some of the conventions depend on everyone's willingness to respect the order the convention intend to maintain.²⁷³ In the case of queuing in a line to be served, it is sometimes necessary to reinforce the convention and that generally be achieved by the participants in the convention, or it might be worth it to overlook deviations if it would maintain the order.

There seem to be some wisdom embedded in the way that large groups coordinate their behaviour without coercion and without too much thought and labour when certain conventions are in place.²⁷⁴

Under economic circumstances, organisations that should maximise their profits, should have their strategies rationally determined and not dictated by history or unwritten cultural conventions. However, the way of doing business and economic life is effected directly by convention, how else to explain that organisations rarely cut wages during recessions but rather retrench people in order to maintain workers' expectations?

In nature, flocks and schools of fish are good examples of bottom-up coordination to solve problems without apparent leaders or complex rules or algorithms.²⁷⁵ There appears to be spontaneous order and no pre-planning in the way they move and overcome threats. Surowiecki notes that value chains such as in retail seem to have the same ability to coordinate by utilising local knowledge and by looking out for themselves instead of doing what's good for everyone. In striving to get resources to the right place at the right cost, the free market is a mechanism designed to solve the coordination of economic activities.

Complete information is not always available and information is often private and limited. Information is at best accurate and valuable, or possibly false and useless, in either case it is

²⁷³ Milgrim S. 1992. *The individual in a Social World*. Introduction, xix-xxxiii.

²⁷⁴ Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few*. 97.

²⁷⁵ Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few*. 102.

always partial. Human rationality is not always possible and for the most self-interest is to be maximised and yet, under the right condition it is possible to produce near-perfect results. As decision making agents, naivety and un-sophistication in the order of the day, but it is possible to have the ability to coordinate in order to achieve complex and mutually beneficial results even when what the end result should be or where to start is not known. On ones' own it might not be known what to do, but as part of a group the ability is suddenly there to get to the solution and fast as well.

8 Society

In identifying cooperation problems, Surowiecki also notes that cooperation and coordination problems look similar as in both cases the solution require groups of individuals to take what the rest of the group does into consideration.²⁷⁶ In the case of coordination, individuals are single-mindedly pursuing their own interest, but to solve the cooperation problem, members of the group is required to do more than pursuing own interests. Self-interest includes that when faced with options, what benefit the individual will be chosen most and the choice will not depend on what others choose.

Societies and organisations seem to be based on cooperation that in turn seems to be the mystical pro-social behaviour called for. Cooperation tends to leave the group better off but it is rarely rational for the individual to cooperate as it makes more sense to look after your own interests.

Cooperation involves the repeated interaction with the same people, and Axelrod notes that the foundation for cooperation is the durability of the relationship and not necessarily trust.²⁷⁷ There is a requirement to be willing to cooperate but also to punish non-cooperation when it happens in order for it to work.²⁷⁸

The more trust, the easier it is to be exploited but the social benefits of trust and cooperation is not difficult to understand.²⁷⁹ Mechanisms were developed over time to counter the opposite and damaging effects of corruption. Some of these mechanisms include auditors and audits, rating agencies and third-party analysts. The failure to resolve cooperation

²⁷⁶ Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few.* 111.

²⁷⁷ Axelrod R. 1984. *The Evolution of Cooperation.* 13 – 18.

²⁷⁸ Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few.* 117.

²⁷⁹ Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few.* 135.

problems often result in the opposite. Individual irrational behaviour collectively produces rational results and a successful solution to cooperation problems.

Using paying tax as an example of collective problem, Surowiecki note that the goal of taxpaying is if everyone pays their fair share, everyone will pay less.²⁸⁰ The question of what the definition of fair is however, not answered. It is noted that successful taxpaying breeds successful taxpaying. This is used as proof that the positive feedback loop created indicates a successful cooperation endeavour. Healthy societies are permeated with acts of cooperation and it is possible to analyse them to understand why they happen, but more important is that co-operations distinguish between a society and just a group of people living together.

Diversity is essential for good decision making.²⁸¹ Looking at traffic and highway difficulties with coordination, the difficulty is diversity of the drivers. Diversity tends to make solving the coordination problems more difficult. Resnick notes that as long as the agents or objects are evenly spaced and travel in at equal speeds, traffic moves smoothly. The moment speed becomes variable; objects react to each other by slowing down, stopping or accelerating, traffic jams start. Randomness in queues is a recipe for chaos in the cooperation.

The question then is whether driver homogeneity will be the solution, seeing that driver diversity is the problem. As this not the topic of this thesis, this question will not be answered here.

9 Science

Eleven laboratories from all over the world were involved in the search for the SARS virus. The success of the laboratories that collaborated in the identifying the cause of SARS was that no one was in charge.²⁸² Any one of the laboratories would have taken years to isolate the Corona virus. The World Health Organisation orchestrated the network of laboratories, but no one dictated any actions. All the laboratories agreed to share all relevant data and to participate in the regular, daily discussions. No top-down direction was given and the laboratories organised themselves, each playing to their own strengths. The important aspect was that they did reap the benefits of sharing each other's data and analysis in real time.

²⁸⁰ Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few.* 142.

²⁸¹ Resnick M. 1997. *Turtles, Termites, and Traffic Jams: Explorations in Massively Parallel Microworlds (Complex Adaptive Systems).* 49. MIT Press, Cambridge.

²⁸² Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few.* 161.

Science has become so specialised that it is difficult for a single individual to know everything and thus have forced collaboration through the division of cognitive labour.

Collaboration facilitates work on interdisciplinary problems, but small groups face challenges with resource usage in the process of dividing labour, and debating results and conclusions. In the case with scientists, these costs are outweighed by the benefits.

Diversity of perspectives is also guaranteed by the act of collaboration.²⁸³ For collaboration to be successful, each scientist is required to be more productive. In the case of the laboratories collaborating on the search for the SARS virus, the different laboratories had different initial ideas on the possible origin of the virus that meant that a wider range of possibilities was considered. Different laboratories doing parallel work on the same samples also produced rich results in the form of unique data but the danger here is that there is a risk of producing too much duplicated effort.

Shared implies two parties having something in common, leaving information, values, preferences etc., outside the limited area of sharing. *Collaborate* implies on the contrary that there is always possibility for more. Supplementing and enhancement of decision making is made possible through the exploration for and of information – looking for the *more*.

Intriguingly, the better known and more productive the scientist, the more they get to work with others and the easier it is to collaborate.²⁸⁴ One would expect them to start working on their own based on their reputation and the fact that they have nothing to gain and yet, it was found that they were more committed to work with others – testifying to the centrality of cooperative efforts of modern science.

In Newton's words "standing in the shoulders of giants" there is the suggestion of cumulative effect of scientific work as there is a dependency on the work of those before.²⁸⁵ Knowledge however is more than just cumulative in that it is collective as there is also a dependency on contemporaries. One scientist becoming smarter makes the whole scientific community smarter – with no one in charge.

²⁸³ O'Grady L, Jadad A. 2010. Shifting from Shared to Collaborative Decision Making: A Change in Thinking and Doing. *Journal of Participatory Medicine*, 2: e13.

²⁸⁴ Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few*. 162.

²⁸⁵ Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few*. 165.

Surowiecki notes that for the most part of it, scientists work independent on their own interests and produce results they deem important.²⁸⁶ This does not mean that their choices are *innocent*. Problems are chosen for the interest of the community, the possibility to resolve and where there is an understanding of which problems are interesting. In competing for recognition and attention, scientists are afforded the recognition by those they are competing with. The scientific ethos that demands open access to information seems to be responsible for the blend of collaboration and competition in the scientific field.

The view that scientific knowledge not being absolute but optimal, it is intended that the knowledge contains the optimum of truth attainable in a given period.²⁸⁷ Scientific truth is not believed by one and disbelieved by the rest of the scientific community, truth is only established when the majority of scientists accepts it without question and providing a scientific contribution as an offering that is (sometimes provisionally) accepted into the common pool of knowledge.

The scientific process is different from that of a democracy or how markets work. Scientist trusts that the ideas that survive are the ones that deserve to, with no votes or price tags. Scientists trust the collective wisdom of fellow scientists to accept the new ideas, they are required to trust each other even when they compete and they depend on the common knowledge that is constantly growing. There is an implicit believe in the wisdom of the community to discern between the trustworthy and those that are not in evaluating hypotheses.

10 Small groups

Surowiecki²⁸⁸ uses the investigation of the mission management team for the Columbia Space Shuttle in 2003²⁸⁹ to show how the team leader influence the sense making process for the rest of the team. He notes that during many occasions the team members were urged to collect as much information as possible in order to make reasonable estimations of the damage to the shuttle. During the start of the investigation, the project manager decided for the group not to investigate the foam that came off one of the left bipod area of the external

²⁸⁶ Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few.* 166.

²⁸⁷ Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few.* 170.

²⁸⁸ Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few.* 176.

²⁸⁹ Ferraris C and Carveth R. 2003. NASA and the Columbia Disaster: Decision-making by Groupthink? Proceedings of the 2003 Association for Business Communication Annual Convention. 2. Also refers to the work done by Janis on group thinking.

fuel tank and in that instance decided for the group that the information was inconsequential.²⁹⁰

Small groups are ubiquitous in society with more consequential decisions made by them than is realised.²⁹¹ These groups are as much reality as they are statistically and they assume an identity of their own, consciously or subconsciously. Inside this identity, they also influence each other and each other's judgement inescapably. Influence in a small group tends to be more immediate and direct, making judgements more volatile and extreme – a recipe for bad decisions. The opposite is also true, small groups have the potential and opportunity to be more than the sum of the parts as the face-to-face interaction has the ability to facilitate collective intelligence. Being interactive allow that everyone in the group strive for success, making each one work harder, think smarter and ensure better conclusions than what they would have done on their own.

Having said that small groups work better together, few organisations manage to make groups work consistently well.²⁹² It seems unusual for small groups to be more than just the sum of their parts. Problems experienced with small groups includes the lack of starting with an open minded approach to problem solving, working in the wrong direction of problem solving – moving from evidence to conclusions and lastly, falling in the confirmation bias trap – unconsciously looking only for information to support underlying intuitions. Juries commonly use two approaches. These are evidence based (when the jury first sift through the evidence and contemplating alternatives before voting) and verdict based (voting before discussions and debate, getting each other to agree with their views) approaches.

The usage of mediated communications (predominantly computer mediated) present consequences not always understood.²⁹³ Technology might provide the means of communications for groups improving interdependent processes but may prove to be expensive with regard to decision time, decision accuracy, and member satisfaction. Groups working together utilising computer mediated communications where members are known to each other may take less time to reach group consensus and are more satisfied

²⁹⁰ Gehman HW et al. 2003. *Columbia Accident Investigation Board*, Report Volume 1. 140 - 174. The report list 8 missed opportunities in a detailed chronological report of events in search of an answer to how much damage the shuttle sustained during take-off. Missed opportunities range from un-answered request for inspection to an instruction that information be gathered on a *not-to-interfere* basis.

²⁹¹ Fisher, BA. 1970. Decision emergence: Phases in group decision making. *Speech Monographs*, 37, 53-66.

²⁹² Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few*. 178.

²⁹³ Adams SJ, Roch SG and Ayman R. 2005. Communication Medium and Member Familiarity: The Effects on Decision Time, Accuracy, and Satisfaction. *Small Group Research* 2005 36: 322.

working together, but may be prone to poor decision accuracy within their intellectual tasks - solving problems that have a correct answer.

A further danger small groups face in their decision making is what is known as consensus over dissent.²⁹⁴ This happens when members of a small group becomes so identified with the group that it seems unthinkable to disagree with the rest of the group. Small groups exacerbate the tendency to prefer the illusion of certainty to the reality of doubt. Warning signs of this are the absence of debate and minority opinions. Diversity of opinion in smaller groups helps ensure benefits in the face-to-face discussions, making the decision making progress more rigorous. Confrontation with a dissenting view forces the majority to relook their position more seriously, a single different opinion has the ability to make a group decision wiser.

Myers and Lamm defines group polarisation²⁹⁵ as phenomenon where there is a tendency for groups to make decisions that are more extreme than the initial inclination of its members, as an example, a group of individuals that are generally risk adverse would become more risk adverse during discussions and a group of risk takers would become even riskier in their decisions on options during a discussion.

Surowiecki notes that one reason for this is social comparison.²⁹⁶ This means that there is constant comparing to everyone else with the idea to maintain relative position to the group. If the group then move to the right, the inclination is to shift position to the right – in order to maintain relative position. Social comparison becomes a self-fulfilling prophecy in that what's assumed to be real, eventually becomes real.

Polarisation is also the result when best is done to figure out what the right answer is. When an idea have a strong proponent in the group, arguments in favour of the idea will be more forth coming, and strengthen decision towards the idea. Balanced groups (when actively depolarised) become more accurate when tested on matters of fact and hopefully make better decisions.

²⁹⁴ Surowiecki J. 2007. *The Wisdom of the Crowds*. Why the Many Are Smarter Than the Few. 184.

²⁹⁵ Myers DG and Lamm H. 1975. The Polarizing Effect of Group Discussion. *American Scientist*, 63 (3). 297-303.

²⁹⁶ Surowiecki J. 2007. *The Wisdom of the Crowds*. Why the Many Are Smarter Than the Few. 188.

11 Consensus

Utilising non-market instruments such as plans, commands and controls in order to achieve its goals, organisations are competing in marketplaces – creating a fundamental paradox in using non-market instruments to compete in the market. Within organisations groupings of *conscious power* is found in an environment of unconscious cooperation.²⁹⁷ The cooperation by participants of the organisation leads to consensual decision making by means of integrated sanction by all participants.

Consensus is non-coercive in that it evades imposing anyone's view on others.²⁹⁸ Small groups naturally use it without calling it what it is. Larger groups however should pay special attention in order to use it successfully.

A spirit of respect and mutual accommodation is used during discussions when those with interests in a topic are encouraged to share their viewpoints. Viewpoints are typically synthesized until a solution emerges that carries general approval.

Contrasting mechanical voting, consensus seems more organic and is often different from original ideas. Advantages to consensus include better decisions due to a more rounded view of issues stemming from the consideration of all viewpoints. Consensus also avoids resentment, division and efforts to undermine it.

Dess and Origer notes that complete agreement²⁹⁹ is not necessary for consensus, only willing acceptance of a decision. Refusing to set aside specific views when the rest of the group accommodates a different view has the ability to paralyse the decision group during consensus seeking. Consensus is also described as the agreement of all parties to a group decision when consensus is viewed as the process of building consensus. A second view of consensus as the outcome of the decision making process also exists but is not traditional view of what consensus is. It also happens that not all in the group will have equal say, as some will know more and care more than others in the group.

Consensus is often mistaken for collective decision making.³⁰⁰ Consensus strives to find the common denominator solution that will offend no one. Consensus is also not required to

²⁹⁷ Surowiecki J. 2007. *The Wisdom of the Crowds*. Why the Many Are Smarter Than the Few. 195.

²⁹⁸ González-Benito J et al. 2010. Coming to Consensus on Strategic Consensus: A Mediated Moderation Model of Consensus and Performance. *Journal of Management*. 4.

²⁹⁹ Dess GG and Origer N. 1987. Environment, Structure, and Consensus in Strategy Formulation: A Conceptual Integration. *Academy of Management Review*, 12(2). 313-330.

³⁰⁰ Surowiecki J. 2007. *The Wisdom of the Crowds*. Why the Many Are Smarter Than the Few. 203.

access the wisdom of a group. Consensus driven groups have the tendency to trade in the familiar and avoid the provocative debate, hiding the real opinions of the group.

12 Decentralisation

Layers in management have the additional issue that when managers simply sign off on the advice submitted by subordinates to pass information higher up in the hierarchy and subordinates know that their managers have ultimate responsibility they assume their manager will fix a less than desired solution, the quality of the decision suffer. The illusion of power that is delegated in this case leave subordinates little incentive to own up to the decision.

Malone notes that changes to location or level of decision making result in greater decentralisation in organisations.³⁰¹ The decreasing cost of Information Technology enables the change. Bottom-up empowerment, top-down control and the balance between the two is the issue to be addressed by organisations.

Decision making structures and lower communication costs have three stages in the relationship between it. Independent and decentralised decision making are prevalent when communication costs are high. The next stage have decision making more centralised as costs are lowering and in the last stage, with even lower communication costs, more connected decentralised decision makers combine best information from anywhere in the structure or organisation with own local knowledge, energy and creativity.

Three types of decision makers operate in these stages. Independent and decentralised decisions have low communication requirements where centralised, almost military commander like decisions call for communications and lastly decision makers that are connected and decentralised necessitate large amounts of information to be communicated.

Decision making autonomy in organisations are determined by three Information Technology related issues in *decision information* that stems from organisations that get information to those decision makers with the capability, experience and knowledge; *trust* that stems from more effective decision makers that are controlled and socialised remotely; and lastly *motivation* that stems from individuals that are allowed to decide how to do their work.

³⁰¹ Malone TW.1997. Is 'Empowerment' Just a Fad? Control, Decision-Making, and Information Technology. *Sloan Management Review* 38(2) (1997).

Decision making and overriding decisions will become crucial issues when power rise from the bottom of the decentralised organisation (instead of being seated at the top). More important roles will belong to empowered decision makers in a knowledge-based economy.

The free flow of information in the organisation is held back by the hierarchical structure and each manager becomes a potential hindrance according to Surowiecki.³⁰² Managers appear to forget that the main reason for using organisations is to be more productive and intelligent than the individual. In order to achieve this, individuals have to receive and act on the best quality information. In order to make the right decisions, individuals want to know the truth – real information. For decentralisation of authority to work, information is a must at the point of decision making in an efficient and cost effective way.

Hostility of managers to the opposition from subordinates is the real cost of top-down approach to decision making.³⁰³ It encourages everyone to *play along*. People in the organisation already have an inclination to avoid conflict and potential trouble.

In organisations the tendency to pay individuals not just for what they do (as it should) but also tend to pay them based on whether they do what they were expected to do. In this instance, organisations incentivise their employees to hide information. This is evident in managers making sure their targets are easy to reach and when it is set, they will use any trick or gimmickry to boost this year's results (as already described in chapter 4 - Decision making archetypes) – at the expense of future results.

Active and personal involvement in knowing is known as tacit knowledge and means that based on experience and skilful coping is being at ease with something. Margitay³⁰⁴ quotes Polanyi: *we know more than we tell* when he said *tacit knowing is the fundamental power of the mind, which creates explicit knowledge, lends meaning to it and controls its use*. Hayek argues further that dispersed knowledge³⁰⁵ is crucial in unbalanced situations; dissemination of knowledge is central to economic phenomena where economics is viewed more than choice logic. Different individuals pose access to different knowledge implicitly, which is what is meant with dispersed knowledge here.

³⁰² Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few*. 205.

³⁰³ Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few*. 208.

³⁰⁴ Margitay T. 1969. *Knowing and Being: Perspectives on the Philosophy of Michael Polanyi*. 1.

³⁰⁵ Hayek FA. 1948. *Economics and Knowledge. Individualism and Economic Order*. 51.

Oğuz notes that market process theory³⁰⁶ has as one of its central views the existence of dispersed knowledge and the impossibility of transferring it to a central planner function. He also indicates that Friedrich Hayek sees this knowledge that emerges only from experience as crucial to the efficiency of the market. This is in line with the notion that the individuals closest to the problem should make decisions about local problems as much as possible. Wider distribution of decision making power would then allow for individuals with local knowledge to come up with the best workable and efficient solution – outweighing managerial expertise.³⁰⁷

The benefits of decentralisation are that individuals take more responsibility for their own environment and they are more engaged in the process. Decentralisation also makes coordination easier. When individuals are trusted with finding new, efficient ways of doing things, they also require less supervision. The one critique of decentralisation in organisations is that even with individuals given more power over their immediate environment, the real power is still with top management.³⁰⁸ Decentralised markets work well because those participating have constant feedback from customers.

Surowiecki noted that corporate strategy and tactics define cognition problems that organisations face on a regular basis.³⁰⁹ These include decisions on new products, new factories, demand forecasting, price determination and mergers. Using bottom-up decision making in this regard seem to elude organisations, even when they acknowledge the benefits of decentralisation. CEOs and other top management are still treated as super heroes when the organisation views decentralisation and bottoms-up mechanisms as pertinent.

13 Conclusion

Strategic decisions made by organisations are complex and no success is guaranteed by any decision making system used. Placing power centrally and within an individual in the face of complexity and uncertainty is also not likely to guarantee a better decision. Organisations are called to think past hierarchies in solving cognition problems. Information flows should not follow the organisational hierarchy. Utilising market mechanisms for internal decisions will unlock the aggregation of collective wisdom in the organisation.

³⁰⁶ Oğuz F. 2010. Hayek on tacit knowledge. *Journal of Institutional Economics* 6(2), 145–165.

³⁰⁷ Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few.* 212.

³⁰⁸ Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few.* 213.

³⁰⁹ Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few.* 216.

Another downside to decentralisation is that it is easy for separation in views between central and decentralised functions to build up. Rivalries within the organisation defeat the purpose of the organisation by diminishing economies of scale and by increasing the costs of monitoring individuals' behaviour.

We have seen that agreement and consensus are not ideal situations for collective decision making. It is also noted that averages for collective decision making might be the key to success for competitive advantage if used under the correct situations. The information individuals possess determines the success of independent positions in collective decision making.

The danger of information cascades is started with the first decision maker that follows what he thinks another decision maker knows. Imitation is similar in the fact that one decision maker follows another; the difference is that the second decision maker does not interpret the information but rather follow the example of the first decision maker.

Various forms of coordination is determined by organisational structures / governance styles and preferences of decision makers and for this to work in decision making the participants needs to voluntary make an effort for it to work. Cooperation is similar to coordination in that what the rest of the group's action is considered. Building on the work of other before is also a form of coordination.

Group polarisation happens when social comparison is evident for the sake of fitting in with the group. Consensus has the effect that individuals in the decision making group trade their view for the sake of a result.

The dynamics of collective decision making have the promise to provide multiple views on the options presented during the decision making process. The benefits need not be contained to this single benefit. Understanding what comprise diversity, collective decision making might directly contribute by introducing additional areas of diversification in the act or process of decision making, sense making and collective or organisational learning – all contributing to a more holistic environment for decision making to enable competitive advantage.

Chapter Six

Diversity

1 Introduction

In order to understand the value that diversity provides in the decision making process, an understanding of what it means and provides at the three levels of social diversity, abstract diversity and multi ontological sense making is needed.

The role that imagination plays in the interactions between cultures are of importance as the values of specific cultures are changed during the process. These changes are easier and more visible when the interaction is more persistent during closer contact and easier communication. Is it then possible for changes between cultures to enable individuals to also change between roles and responsibilities during the process of decision making, adding to the diversity in the process? In examining multi-culturalism (multiple cultures in a community), social-culturalism (the social aspect of culture), differentiation and value dimensions, an understanding of narrow and broad perspectives and a better understanding of observable and non-observable categories evolve. Critical assumptions are made in order to achieve diversity in certain circumstances; awareness to these assumptions acts as a tool to plan for better diversity.

Abstract diversity consists of conceptual and cognitive diversity and represents the non-tangible spectrum of issues to be addressed when planning for successful or advantageous decision making. In ensuring success in decision making, humans have to capacity to consider multiple instances or opinions of sense making regarding multiple relations between actions and situations. It is imperative to consider human interpretations of the social construct each live with as it determines and is determined by their actions.

2 Social diversity

Appadurai notes that the global cultural economy we find ourselves in needs to be viewed as a complex, overlapping, disjunctive order.³¹⁰ Increased multiculturalism and diverging values in generations are only two of many factors that lead to changing socio-cultural diversity.³¹¹ Ethno-religious, regional, and class divides traditionally provided

³¹⁰ Appadurai A. 1990. Disjuncture and Difference in the Global Cultural Economy. *Public Culture*, 2(2). 6.

³¹¹ Kanji M, Doyle N. 2009. Value Diversity and Support for Political Authorities in Canada. *American Review of Canadian Studies* 39(3). 193.

differentiation. Shifting immigration patterns, increasing ethnic diversity, differing formative experiences, changing socialization patterns and increasing levels of education along with greater participation in paid workforce, particularly on the part of women is are structural lifestyle changes that are transforming the socio-cultural mix of populations.³¹²

Value dimensions that includes religious and moral values, values toward economic and technological progress, values toward work, family values, and postmodern values provides for a more diverse and extensive range of value discrepancies in the socio-political construct.³¹³

2.1 Perspectives – narrow and broad

Multiple meanings are attributed to diversity within a range of organisational contexts as a complex socio-political construct.³¹⁴ It is possible to conceptualise the social dimensions of diversity as a driver for organisational development. It is further possible to conceptualise diversity for its instrumental value in the modern work place through a business case for diversity.

Perspectives of diversity are identified where narrow perspectives tend to provide a monolithic view of diversity where specific forms of human heterogeneity are emphasised (such as race, sex and disability). Broad perspectives of diversity seek to bring together a wide range of aspects denoting human heterogeneity, based on organisational activity that includes management and leadership.

The challenge of the range of differences in perspectives that organisations must consider is an enormous task. Commonly indicated dimensions of diversity included in broad definitions start with age, religion, education, lifestyle, beliefs, physical appearance, social class and economic status. Leaders who see diversity from a broad perspective are required to develop an integrated approach in their roles and management. It is imperative for the approach to acknowledge and celebrate human heterogeneity, embedding difference positively as an overarching philosophy into the working of decision making groups and teams.

³¹² Kanji M, Doyle N. 2009. Value Diversity and Support for Political Authorities in Canada. *American Review of Canadian Studies* 39(3). 212.

³¹³ Kanji M, Doyle N. 2009. Value Diversity and Support for Political Authorities in Canada. *American Review of Canadian Studies* 39(3). 213.

³¹⁴ Maringe F, Lumby J, Morrison M, Bhopal K and Dyke M. 2007. Leadership, diversity and decision making, *Centre for Excellence in Leadership – Research Report*. 3.

2.2 Categories – observable and non-observable

Categorising human heterogeneity as either observable or non-observable provides a different view on the concept of diversity.³¹⁵ Race, ethnicity, gender and disability are understood to be visible categories of diversity while experience, expertise and educational background are less observable categories. Using a biological metaphor, such categorisation could be compared with the distinction between continuous and discontinuous variables.

Observable categories of diversity could be seen to represent the discontinuous dimension, where a specific individual either is disabled or not disabled, Black African or White English, male or female, but not both, and is assumed not to exist on a continuum between the variables.

Non observable dimensions of diversity could be equated with the notion of continuous variables, for which the human characteristic under focus does not exist in neat categories but on a continuum, for example more or less experienced in a leadership role. However, because diversity is not just about how people appear, but also how they feel about how they appear, and how others feel about them, even the observable features could exist in a wide-ranging continuum, which may never be stable over time.

2.3 Critical assumptions

In understanding the concept of diversity, a useful framework is one of tracing the various forces that led to the emergence as a key organisational concepts. To this degree, critical assumptions about society and organisations that are driving diversity have been identified.³¹⁶

As the first critical assumption, the growing multicultural nature of society is identified. Wars, economic differentials between nations, natural disasters, political persecution and globalisation have increased the rate of human movement across national boundaries in the last decades. The net movement has largely been from underdeveloped third world countries to the richer nations of the west. These phenomena are creating new societies and communities that are increasingly diverse, multi-ethnic, multilingual and multicultural. The growing multicultural nature of societies is driving human demographic changes and workforce dynamics at organisational levels and is becoming a force for a new leadership and management culture in contemporary organisations.

³¹⁵ Maringe F, Lumby J, Morrison M, Bhopal K and Dyke M. 2007. Leadership, diversity and decision making, *Centre for Excellence in Leadership – Research Report*. 4.

³¹⁶ Maringe F, Lumby J, Morrison M, Bhopal K and Dyke M. 2007. Leadership, diversity and decision making, *Centre for Excellence in Leadership – Research Report*. 6.

The growing focus on inclusion and widening participation in post compulsory education is the next critical assumption to identify. Political, economic, equity and social justice, social capital and lifelong learning rationales, inclusion and widening participation agendas acknowledge the increasing diversity of societies and require facilitation on broad based participation. The social presentation of post school learning environments has changed as a result and new leadership imperatives are emerging as a consequence.

Growing accountability culture follows as the next critical assumption. Legislation to uphold societal rights to unfair practices based on race, age, disability and gender among others, has guided a new era of accountability. Legislative imperatives hold organisations to account, not only for their failure to tackle discrimination but also for failure to promote positive action to assist disadvantaged groups.

The last critical assumption to identify is the diversity ethical argument and its power. The same status as democracy in broader society is given to working for and with diversity in organisations. Being perceived as good it has robust personal, social, economic, moral and ethical rationales that are difficult to disprove.

The importance moved from earlier legislative assertion that all should be treated the same and this imperative for examining leadership decision making. Differentiated opportunities are now the goal for individuals to improve their organisational contribution and life chances in ways that they value.³¹⁷ Human difference is to be celebrated. Working with human heterogeneity in ways that improve peoples' lives and also improving the performance of the organisation to which they belong.

Only when all members of the group shares in high quality task and social interactions are the benefits of diversity realised. Inclusive decision making has a key advantage improved decisions. Incorporate in decisions are market knowledge in the process, community / local knowledge and differing life experience.

Diverse teams are advantageous to organisations when performing decision making tasks and have been recognised by various authors. Based on opinions that diverse decision making group members provide different experiences, values, perspectives, expertise and orientations to decision making processes that are becoming more complex. Diversity in group-

³¹⁷ Maringe F, Lumby J, Morrison M, Bhopal K and Dyke M. 2007. Leadership, diversity and decision making, *Centre for Excellence in Leadership – Research Report*. 10.

composition leads the identification and critical examination of diverse decision alternatives in order to create performance gains.

Evidence exists however that there are more negative aspects of diversity in group decision making.³¹⁸ Fragmented organisations that are difficult to manage are more often the result of organisational heterogeneity. Group decision making outcomes are compromised as a result of dysfunctional group processes such as conflict and miscommunication

A minimum of six elements exists in an integrated decision making model.³¹⁹ The objective of the first element, a *decision frame*, is to create the conditions with the decision to build common representations on the issue. The frame sets boundaries and rules for decision makers - working and exploring alternatives. Identifying and articulating the problem in an unambiguous way, assessing the business situation, determining the success criteria, identifying uncertainties and generating alternatives are some key activities associated with decision framing.

Deciding on the people to be involved in the decision making is the next element. Ensuring representative participation or involvement of all individuals and groups, is the underlying principle. Involved individuals and groups are those interested in or impacted upon by the decision. Organisational decisions may impact beyond the boundaries of the organisation and knowledge, experience, expertise and interest are important considerations in people decisions.

Working out the decision processes is the next element and this involves mobilising, developing or utilising available organisational structures for decision making. Creating teams for various tasks, deciding on timing, resources and patterns of working is included.

Generating and evaluating alternatives is the fourth element. Decisions are always the result of choices. Potential solutions to the problem are to be carefully analysed and evaluated against identified criteria that could include costs, risks, and assessment of impacts, time and resources required.

The second last element is values integration. The underlying values of the decision should be determined, decided and agreed before the decision is made. The last element is the

³¹⁸ Maringe F, Lumby J, Morrison M, Bhopal K and Dyke M. 2007. Leadership, diversity and decision making, *Centre for Excellence in Leadership – Research Report*. 13.

³¹⁹ Maringe F, Lumby J, Morrison M, Bhopal K and Dyke M. 2007. Leadership, diversity and decision making, *Centre for Excellence in Leadership – Research Report*. 14.

decision aftermath and comprises the development of systems for communicating, implementing, and evaluating and adjusting the decision.

3 Abstract diversity

Decision theory and research have predominantly focused on choice - the selection of the best option from a choice set containing two or more options.³²⁰ Largely overlooked is the question of how those particular options got there in the first place - why them and not others? Image theory describes how pre-choice screening of options governs the contents of the set from which a choice is made. It is suggested that screening plays a far more important role in decision making than is generally appreciated and that the view of decision making must be broadened accordingly.

Diversity in the conceptual and cognitive sense (as opposed to in a sociological sense) becomes important when it encourages speculative ideas even when they have slim possibilities to success. If more options are generated to choose from during the decision process, the better the chance of success becomes. Ensure meaningful differences among ideas instead of minor variances of the same concept, diversity is required among the idea generators. Diversity among the sponsors for implementation of the ideas is also required.

Decentralising the means to implement will diffuse decision making power throughout the system. If all the decision makers think alike, the diversity becomes meaningless the moment the decision makers start imitating each other. The more diverse the decision makers are, the greater the change that someone will be willing to take the risk on a radical or unlikely idea.

The success of a system lies in its ability to recognise unsuccessful initiatives as quickly as possible and to terminate them. A different view on this is to generate as many unsuccessful initiatives as possible and to recognise them as such in order to terminate them quickly. The more chaotic the approach to finding the one outlier, the wiser the approach seems to be.

It is however not enough to just generate a diverse set of possible options. Members of the group tasked with making the decision are also required to be able to distinguish between good and bad solutions. The question is if the group care about diversity. Once a diverse set of solutions are available, does it make a difference to have a diverse set of decision makers?

³²⁰ Surowiecki J. 2007. *The Wisdom of the Crowds. Why the Many Are Smarter Than the Few.* 28.

There are various weaknesses in group decision making but diversity in decision makers adds perspectives normally absent.³²¹ Diversity in smaller groups and formal organisations have a larger and more important role to play than in the larger collectives such as markets and electorates in that the larger groups have diversity almost guaranteed. Markets tend to be made up of people with different attitudes towards risk, investment styles, information, and investment periods and joined on their own without being selected through admittance criteria.

Diversity should actively be selected in smaller groups or teams for cognitive reasons, as it is easier for individuals with a specific bias to skew the group's collective decision.³²² Groupings of individuals that are (or think) too much alike not only find it more difficult to learn because each member brings less information and additional skills to the group, but also tend find themselves less intelligent as a group because there are less guarantee for different perspectives on the problem. Diversity is more valuable than intelligence when the range of skills drives it and also improves the group's performance. More homogeneous groups are great at what they are doing well but become less able to investigate alternatives

Surowiecki notes that cognitive diversity also does not help in group decision making unless the individuals in the group possess varying degree of knowledge and insight.³²³ He also notes that one cannot become an expert in something as broad as decision making, policy or strategy. If cognitive diversity is essential for good decision making, individual judgement cannot be consistent and accurate enough. Diversity is to expand a group's possibilities regarding solutions and provide more novel ways for conceptualisation.

Diversity provides different perspectives to the group.³²⁴ Diversity also provides the individuals in the group with the opportunity to say what they think as the experiments of Asch pointed out. If it is possible for the individuals in the group to have different perspectives, does this mean that more than one understanding or experience of the reality they are working with is possible? Will it be possible to harness the different *sense* that is made by the different individuals in the group?

³²¹ Surowiecki J. 2007. *The Wisdom of the Crowds*. Why the Many Are Smarter Than the Few. 29.

³²² Surowiecki J. 2007. *The Wisdom of the Crowds*. Why the Many Are Smarter Than the Few. 31.

³²³ Surowiecki J. 2007. *The Wisdom of the Crowds*. Why the Many Are Smarter Than the Few. 36.

³²⁴ Asch S. 1963. Effects of Group Pressure upon the Modification and Distortion of Judgments. *Organizational influence processes*, edited by Porter LW, Angle HL and Allen RW, 2003. 295-303.

4 Multi-ontology sense making

Sensemaking as the way in which humans choose between multiple possible explanations of sensory and other input as they seek to conform the phenomenological with the real in order to act in such a way as to determine or respond to the world around them.³²⁵ Multi-ontology sense making is thus a means to achieve a requisite level of diversity in both the way individuals interpret the world and the way individuals act in it. Requisite diversity means ensuring the acceptance of a sufficient number of divergent perspectives to enable the sensing of weak signals and avoidance of the all-too-common patterns of past success, while maintaining a sufficient focus to enable decisive and appropriate action. Above all, it is about ensuring cognitive effectiveness in information processing and thus gaining cognitive edge, or advantage.

The ideas and concepts may be novel and even threatening to a generation of managers, civil servants and academics who have been trained in what is defined as single-ontology sense making. The dominant philosophy of management inherits from Taylor an opinion of the organisation based on the necessity and the integrity of order. In this Taylorist world, states of affairs and outcomes are believed to be known or knowable through proper investigation and relationships between cause and effect, once discovered, repeated. It is the world of the mechanical metaphors of Taylor and most management theorists who came afterwards; it is the Newtonian universe of predictable relationships between cause and effect which is calculated; the world of the five-year plan and the explicit performance target; of hypothesis and empirical proof through observation and explanation of events in retrospect.

Different approaches are legitimate in multi-ontology sense making, but within boundaries.³²⁶ Methods and tools that work in one ontology do not necessarily work in another. Management is responsible to know in which ontological domain they are operating and what transitions between domains they wish to achieve.

The Ontology-epistemology matrix compares the *nature of systems* (ontology) with the *nature of the way we know things* (epistemology) and hence the way action takes place. Knowledge and action are intimately intertwined.

³²⁵ Snowden D J. 2005. Multi-ontology sense making: a new simplicity in decision making. *Informatics in Primary Care*. (13). 46.

³²⁶ Snowden D J. 2005. Multi-ontology sense making: a new simplicity in decision making. *Informatics in Primary Care*. (13). 47.

Strategic advantage for other continents or economic powers lies in utilising its multiculturalism as a competitive advantage through exploitation of social complexity in which it currently has an intellectual lead as opposed to imitating the USA.

The vertical dimension of the matrix contrasts two types of systems, namely order and un-order.³²⁷ The approach of objectives, planning and best practice, all ordered systems with clearly identified (or identifiable) relationships between cause and effect. Once relationships are *discovered*, it will enable control of the future. Order in the sense of structured on the basis of a desired outcome with structured stages between *now* and *then*.

Un-ordered is where relationships between cause and effect do not repeat, except by accident and in which the number of agents interacting with other agents is too great to permit predictable outcome-based models. Starting conditions and monitor for emergence are controllable in un-ordered domains.

Ordered systems are those in which a desired output is determined in advance. The designed end state is achievable through the application of planning, based on a foundation of good data capture and analysis. In un-ordered systems no output or outcome is determined in advance. It is possible to manage the starting conditions and may achieve unexpected. More desirable goals than could have imagined in advance are possible, or could just be more successful in avoiding failure.

Efficiency and stability are the focus of ordered systems management. In nature, stability and resilience are opposed and un-ordered systems tend to be more resilient to context shifts. Approaches based on efficiency, in practice, destroy effectiveness as they reduce adaptive capacity.

The vertical dimension represents two distinct states (ordered versus un-ordered), the horizontal dimension is more a continuum between the low ambiguity of rules that are explicit and the more ambiguous use of heuristics (rules of thumb), which provide guiding principles but have high levels of ambiguity.

³²⁷ Snowden D J. 2005. Multi-ontology sense making: a new simplicity in decision making. *Informatics in Primary Care*. (13). 47.

Ontology	Un-ordered	Computational complexity	Social complexity
		Un-ordered ontology, rule based epistemology	Un-ordered ontology heuristic based epistemology
	Ordered	Process engineering	Systems dynamics
		Ordered ontology, rule based epistemology	Ordered ontology, heuristic based epistemology
		Rules	Heuristics
Epistemology			

Ontology-epistemology matrix³²⁸

This difference in epistemology is illustrated by comparing a complex manual on procurement with a mission or value statement for an organisation stating broad principles to set expectations. Principles are required to be quickly understandable and memorable, making it possible to apply them without reference to the rules.

Boisot makes the valid point that organisations that invest heavily in knowledge creation tend to assume that the same knowledge will require similar costs for their competitors and thus focus a massive effort on protection through patents, etc. He calls these N-learning organisations (neoclassical learning³²⁹), in contrast with S-learning (Schumpeterian learning³³⁰) cultures, which see value arising from the exploitation of knowledge, not its possession, and thus tend to share and collaborate even with competitors to create industry standards and diffuse information across organisational boundaries. The open source movement is a good illustration of the latter.³³¹

Different schools of thought identify different distinguishing features of human systems. The context of creating explainable and comprehensible reasons for management audiences

³²⁸ Snowden D J. 2005. Multi-ontology sense making: a new simplicity in decision making. *Informatics in Primary Care*. (13). 47.

³²⁹ Boisot M H.1998. *Knowledge assets - Securing competitive advantage in the Information Economy*. 96.

³³⁰ Boisot M H.1998. *Knowledge assets - Securing competitive advantage in the Information Economy*. 99 - 104.

³³¹ Snowden D J. 2005. Multi-ontology sense making: a new simplicity in decision making. *Informatics in Primary Care*. (13). 48.

engaged in the early stages of applying thinking from social complexity were developed from various sources over the years.

4.1 Humans make decisions based on patterns

Naturalistic decision theory provides the basis of the opinion that human decision is a first-fit pattern-matching with past experience or extrapolated possible experience as input.³³²

Utilising personal or narrative experience is used to connect observations made by humans at various instances or points-in-life. Rationalising these connections are done in a way that is considered acceptable to society in place and time. Snowden use two examples to illustrate the extent of acceptability in *a tree spirit spoke to me* and *I made a rational decision having considered all the available facts* to indicate the same relationship to reality.

No rules to model here as it consists predominantly of a set of constraints that function as control.

4.2 Humans create and maintain multiple identities

Roles, clans or context provides distinction to individuals, creating and maintaining multiple identities (often parallel), moving between them when required.³³³

It is possible for an individual to be child, sibling and parent and move between roles and identities when required. Working as part of a team necessitates a specific identity while executing the function in specific environment. The context provides for this specific identity and the identity cannot transfer outside the context. An example of this is the fire fighter is only one while fighting fire.

No clear agents to model in this instance while a constrained set of circumstances provide the control.

4.3 Humans ascribe intentionality and cause where none necessarily exist

Intentionality of behaviours in others is naturally ascribed to, whereas an assumption is made that the others appreciate accidental action on the part of the follower.³³⁴ In seeking causality for current events the individual will also in the case of good results ascribe his/her intentional behaviour to own commendable action.

³³² Snowden D J. 2005. Multi-ontology sense making: a new simplicity in decision making. *Informatics in Primary Care*. (13). 51.

³³³ Snowden D J. 2005. Multi-ontology sense making: a new simplicity in decision making. *Informatics in Primary Care*. (13). 51.

³³⁴ Snowden D J. 2005. Multi-ontology sense making: a new simplicity in decision making. *Informatics in Primary Care*. (13). 51.

A key insight of social complexity is that multiple interactions over time provide the view that some things just *are* and that blame, single explanation or even credit only leads to false security about actions.

4.4 Humans have learnt how to structure their social interactions to create order

Focusing on the ability through social structures (and less tangible things such as myth, ritual and taboo) humans to create stability and predictability in systems surrounding them.³³⁵ The human capacity to store knowledge in the external environment, or *scaffolding* is linked to the ability to create stability and predictability. Humans learnt how to move between order and un-order. The example used by Snowden is that of a flock of birds that all try to fly in the centre in order to avoid collision and to match their speed.³³⁶ Humans use rules similar to Reynolds' simulation that dictate that you either drive on the right or left hand side of the road. This is to create a predictable form of order that not only provides stability in day-to-day lives, but also allows planning for road design, etc.

The ability to operate in all four quadrants of the model in Ontology-epistemology matrix and the ability to move between them as a result of both accidental and deliberate action serves as proof that humans has contextual complexity capability. There are substantial and major differences between human and non-human un-order. Snowden derives the term *contextual complexity* in contrast to *participative complexity*.

The requirement to adopt different diagnostic techniques, intervention devices and forms of measurement dictated by state of being is reflected by multi-ontology sense making. The opposite is a single-ontology instance of sense making represented by order, complexity or chaos. Degeneration into *disorder*, *un-manageability* and *fatalism*, which is a tendency when individuals start to understand complexity based thinking, is prevented.

5 Conclusion

Complex thinking is a fundamental necessity in modern management. If properly understood, it is a new and exciting way of thinking about the world. It does not mean the

³³⁵ Snowden D J. 2005. Multi-ontology sense making: a new simplicity in decision making. *Informatics in Primary Care*. (13). 51.

³³⁶ Reynolds CW. 1987. Flocks, Herds and Schools: A Distributed Behavioral Model. *Computer Graphics*, 21(4). 25-34. Reynolds built a computer model of coordinated animal motion which can represent bird flocks and fish schools. The animation was based on three-dimensional computational geometry normally used in computer animation or computer aided design. He called the generic simulated flocking creatures Boids.

abandonment of any existing ways of management. Applicability is rather tested and understood to determine the boundaries of the simplistic management decision making.

This chapter provided evidence of how social diversity is increasing – partly due to the mobility of individuals but also due to the constant *refinement* of value systems. The categories of human heterogeneity provide two groups of observable and non-observable dimensions. It was pointed out that care needs to be taken with diversity in group decision making.

Conceptual and cognitive diversity provides speculative ideas, providing a larger set of choices during the decision making process. In the group decision making process, diversity increases the perspective generated by the group.

From the multi-ontology sense making, different approaches are derived that influence the decision making process in different ways.

Diversity in the various influencing components of decision making such as the organisation culture, structures, processes, etc. can provide for a wider spectrum of perspectives and insights. Understanding the dynamics of collective decision making and the additional benefits of the various components that also provide diversity, organisations can enable more competitive advantage.

Chapter Seven

Competitive Advantage from Diversity

Clarifying the impact if diversity in decision making for competitive advantage starts with the examination of the purpose of the business organisation. The competitive advantage of the organisation determines the livelihood of both the organisation and the individuals working in it. The strategy for survival (the how) dictates the focus of the organisation.

The reality of business in a complex and highly competitive environment hinge on the understanding organisations have of costs, skills and technologies required. Understanding is not limited to detail within each of these areas, but includes the relationships and interdependencies that exist and the mechanisms used to provide a balanced opportunity for clients to either procure components or total a solution of services from suppliers. This will lead to a very good understanding of the reasons clients would buy products and services from a specific supplier.

The competitive advantage is to be achieved against the backdrop of globalisation and all the challenges that brings to a market through the realisation of a very specific strategy. The strategy is required to focus on resources, activities and product. Viewing specific services such as IT infrastructure services as a utility helps the supplier to understand the interplay of quality and costs, highlighting the challenge in delivery of innovation.

Standardisation is used by organisations to reduce complexity in their business support areas. Using economies of scale to muster buying power is a spinoff for both client and supplier organisations and also play a large role in the reduction of costs. Combining standardisation and economies of scale creates a challenge in that it can lead to a situation where it is difficult to change or innovate.

The finite set of service providers in a business environment such as South Africa is the appearance of oligopoly that results from the higher production and lower prices.

Values and beliefs are at the basis of the organisational culture. Suppliers can utilise their organisational culture as a competitive advantage with prospective clients. Understanding what in the organisational culture the important elements are, it should be possible to manipulate the decision making process in the organisation for competitive advantage.

Influencing factors that include age, size, ownership and history are some of the most important influences on the organisational culture.

Understanding how to create better customer value includes an understanding of the value proposition, organisation focus and resources that can provide value added activities. The competence to achieve this is defined by knowledge, capacity and attitude. Rivalry between competitors is realised by manoeuvring for advantages through tactics that are to the advantage of the client. When little differentiation is possible in the tactics focusing on the product / service that is essentially the same for all competitors, the ability to add value separate from the definition of the product / service. One area to contemplate is a competitive advantage through the decision making in the supplier organisation.

Understanding decision making within the organisation is the next step in clarifying the impact of diversity in decision making for competitive advantage. The questions that need to be answered in the quest of this thesis are what in the definition of the competitive advantage influence decision making and what in decision making can provide competitive advantage.

Understanding the culture of the organisation provides insights into the cognition dynamics of the organisation and more so into that of the individuals that will be making the decisions regarding services. Cognitive processes provide insights into how individuals in the organisation will come to agreement.

Relationship between the individual and the organisation is the basis for understanding that the organisation is a system of collective action. The dynamics of collective actions is a reality lived on a daily basis in the organisation.

Individual humans that collectively act as the organisation use mental models to facilitate action. Cognitive models are required to create a basis for social relations in order to allow decision making within the organisation. The decision making acts as one of the factors in determining the competitiveness of the organisation.

In order to obtain a holistic answer from an unstructured problem, System of Systems Methodologies is proposed in order to provide a framework for problem definition. The framework addresses both problem context and participant relationship issues in ideal type groupings. In the proposal for an evaluation team that should conduct the systemic evaluation of the problem context it is clear that variety is requested in participants, approach and characteristics.

The systemic evaluation places emphasis on stakeholder participation in order to avoid coercive situations or monopolisation of decisions to be made

The third step in exploring the impact of diversity in decision making for competitive advantage is an understanding of diversity. What in decision making impacts on diversity and what diversity can provide the decision making process.

No material that linked competitive advantage and diversity explicitly was encountered and is a possible area for further research.

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