Lifting the Cloud on the Chief Information Officer's Decision-Making Processes

Sense making aiding the decision-making process

by

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Declaration:

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Date: December 2017

Opsomming

Hierdie tesis ondersoek hoe Hoofinligtingsbemaptes (HIB's) besluite neem en, in die besonder watter besluitnemingsmodelle op watter wyse(s) aangewend word om besluite te neem. Die tesis begin met 'n literatuuroorsig oor besluitnemingsmodelle soos voorgestel deur kenners oor die ondwerwerp besluitneming, en vandaar word gekyk na hoe basiese besluitnemingsmodelle tot stand gebring word. 'n Verdere literatuuroorsig fokus dan op die eienskappe van die singewingteorie, met inbegrip dat bewys is daar is 'n direkte verband, sowel as 'n fusie (versmeliting), tussen singewingteorie, en reeds gevestigde besluitnemingsmodelle. Besluitnemingsmodelle met geïntegreerde singewingeienskappe word daarna uitgebeeld as moontlike modelle wat deur HIB's aangewend word in hul besluitnemingsprosesse.

Deur van 'n gevallestudie gebruik te maak, kom die tesis tot die gevolgtrekking dat HIB's inderdaad die singewingsgeïntegreerde besluitnemingsmodelle soos uitgebeeld gebruik, en ook dat daar bydraende faktore is wat hierdie modelle verbeter. Die hoë gehalte van die modelle word dan onthul deur hierdie bydraende faktore te identifiseer, ten einde die geheelbeeld van die modelle op holistiese wyse te vertoon.

Summary

This thesis investigates how Chief Information Officers (CIOs) make decisions; in particular, which decision-making models they use and how it is applied in order to make their decisions. The thesis commences with a literature study on decision-making models as portrayed by the masters on the subject of decision making, and from there it takes a closer look at how basic decision-making models are established. A further literature study then focuses on the properties of the theory of sense making, which has proven to be directly connected to and infused in the decision-making models already established. Decision-making models infused with sense-making properties are then portrayed as possible models used by CIOs in their decision-making processes.

By using a case study, this thesis concludes that CIOs indeed use the previously portrayed sense making-infused decision-making models, and also shows that there are contributing factors that enhance these models. The high quality of the models is then revealed by identifying these contributing factors, which concludes the holistic picture of the models.

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Christa, without your love and support I would never have been able to walk this path – thank you, thank you, thank you!

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Mozart, without your Horn Concertos and classical masterpieces, I would have given up years ago.

My Father God, I have given you my life and this thesis – You carried me through. I am so blessed and grateful, Amen.

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List of Abbreviations

APO	-	Align, Plan and Organise
APC	-	ASAUDIT Procurement Committee
ASAUDIT	-	Association of South African University Directors of Information Technology
BAI	-	Build, Acquire and Implement
BCS	-	Battered Child Syndrome
BSC	-	Balanced Scorecard
CIO	-	Chief Information Officer
CEO	-	Chief Executive Officer
COBIT	-	Control Objectives for Information and Related Technology
CTO	-	Chief Technology Officer
DSS	-	Deliver, Service and Support
EDM	-	Evaluate, Direct and Monitor
HSE	-	Health, Safety and Environment
ICT	-	Information and Communications Technology
ICTS	-	Information and Communication Technology Services
IoDSA	-	The Institute of Directors in Southern Africa
ISACA	-	Information Systems Audit and Control Association
ISMS	-	Information Security Management System
ISO	-	International Organisation for Standardisation[1]
IT	-	Information Technology
ITaaS	-	IT as a Service
ITIL	-	Information Technology Infrastructure Library
ITSM	-	Information Technology Service Management

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[1] http://www.iso.org/iso/home/about.htm

MEA	-	Monitor, Evaluate and Assess
NWU	-	North-West University
OEM	-	Original Equipment Manufacturer
OMEM	-	Old Mutual Emerging Markets
PBRM	-	Plan, Build, Run and Monitor
PURCO SA	-	Purchasing Consortium Southern Africa
RFP	-	Request for Proposal
ROI	-	Return on Investment
SLA	-	Service Level Agreement
SLI	-	Student Laptop Initiative
SIG	-	Special Interest Group
SOP	-	Standard Operating Procedures
STP	-	Student Technology Programme
TUT	-	Tshwane University of Technology
UCT	-	University of Cape Town
UFS	-	University of the Free State
UJ	-	University of Johannesburg
UP	-	University of Pretoria
US	-	University of Stellenbosch
WITS	-	University of the Witwatersrand

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CHAPTER 1

Introduction

"Not to decide questions that are not pertinent at the time is uncommon good sense, though to raise them may be uncommon perspicacity."[2] ~ Chester I. Barnard

1.1   Background

Chief Information Officers (CIOs)[3] are constantly confronted with choices of which the outcome of their decisions may have an immeasurable impact on the functioning and success of their organisations.[4] With growing technology, the integral part of any organisation's infrastructure depends on the decisions CIOs make which are becoming more imperative.[5] Preston *et al.* confirm this by stating, "*IT capability has become both strategically and operationally essential to contemporary firms*."[6] They further strengthen their argument by saying that "*there is consensus among researchers that IT strategy is cross-functional as it encompasses product, process, and human resources and is intertwined with corporate strategy*."[6] When confronted with a decision, the CIO needs to collect all available alternatives (i.e., rational decision making) in order to make informed decisions.[7] This collection has the tendency to be a considerable amount of information and the manager soon finds himself/herself in an information-overloaded state. With the constant change in technology, decisions are made swiftly and implementation time has reduced rapidly.

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[2] Barnard, C.I. 1938, 194. The Functions of the Executive.

[3] For the purpose of this thesis, when using the term CIO, it includes all Senior IT Executives.

[4] Byrd, T.A. & Turner, D.E. 2001, 21. An Exploratory Analysis of the Value of the Skills of IT Personnel.; Mitcell, J.R., Shepherd, D.A. & Sharfman, M.P. 2011, 695. Erratic Strategic Decisions.; Preston, D.S., Chen, D. & Leidner, D.E. 2008, 605 – 606, 609. Examining the Antecedents and Consequences of CIO Strategic Decision-Making Authority.

[5] Preston, D.S., Chen, D. & Leidner, D.E. 2008, 605 - 606. Examining the Antecedents and Consequences of CIO Strategic Decision-Making Authority.

[6] Preston, D.S., Chen, D. & Leidner, D.E. 2008, 606. Examining the Antecedents and Consequences of CIO Strategic Decision-Making Authority.

[7] Preston, D.S., Chen, D. & Leidner, D.E. 2008, 609. Examining the Antecedents and Consequences of CIO Strategic Decision-Making Authority.

This thesis investigates the classic decision-making models as portrayed by Barnard, Simon, and March, and show that these models are infused with Weick's sense-making properties when CIOs make decisions.

With the above mentioned in mind, it would be appropriate to review the classical decision-making models and identify where sense making takes place within these models. Further arguments will be made on the quality of these models and how IT governance frameworks and CIOs' expertise and experience, enhance the quality of the models.

Simon in his Nobel Memorial Lecture, delivered on 8 December 1987, briefly describes the classical model:

Start with the "knowledge of all the alternatives that are open to choice"[8], proceed with having the "complete knowledge of, or ability to compute, the consequences that will follow on each of the alternatives."[8] At this stage, the model requests "certainty in the decision maker's present and future evaluation of these consequences."[8] The decision maker now has to have the "ability to compare consequences, no matter how diverse and heterogeneous, in terms of some consistent measure of utility."[8]
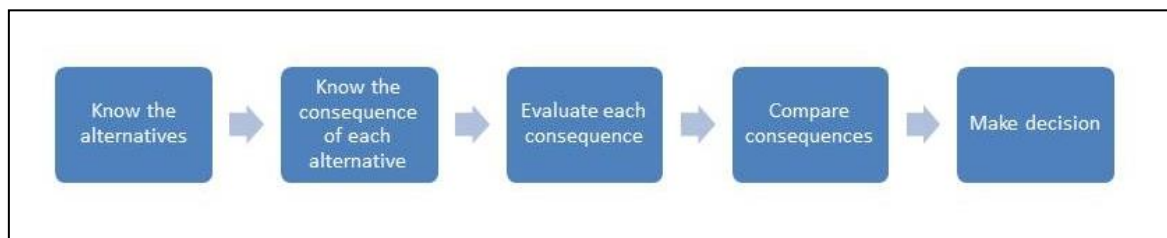
Figure 1 – Simon's classical decision-making model[8]

Within these decision-making models, portrayed by the experts in decision making (Bernard, Simon, and March) there are certain constraints such as, time and the overload of information that is held within sense-making theory.

The decision-making process is now taken one step further by altering the classical models in order to portray that vital point in the decision-making process when there is a circumstance

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[8] Simon, H.A. 1979, 500. Rational Decision Making in Business Organizations. (Figure 1 © Ilse de Kock, 17 November 2017)

where sense making takes place. The rationale for this alteration is to reveal how CIOs actually make decisions by incorporating the sense-making variables.

The theory of sense making, as offered by Weick, is briefly described as follows: "Once people begin to act (*enactment*), they generate tangible outcomes (*cues*) in some context (*social*), and this helps them discover (*retrospect*) what is occurring (*ongoing*), what needs to be explained (*plausibility*), and what should be done next (*identity enhancement*)."[9]

These sense-making properties should be incorporated into the most popular classical decision-making models in order to create new models from which CIOs can pair off[10] their decision-making processes.

Variables that may influence a CIO's decision-making processes, such as experience and governance frameworks, are incorporated as external influences and provide the substance of the quality and value of these models.

1.2   Research motivation

1.2.1 Research objective

This Master's thesis will propose a model of how CIOs make decisions. This model will be derived from the literature on classical decision-making models. The model is then evolved (I use the word "infuse") to portray the involvement of some sense-making principles in combination with the CIO's expertise and experience as well as the influence of some IT governance frameworks. The thesis will then provide arguments on the quality and value of these models aided by the role of sense-making properties combined with IT governance frameworks and the expertise and skills of CIOs.

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[9] Weick, K.E. 1995, 55. Sensemaking in Organizations. (italics to emphasise)

[10] Set Theory. http://www.britannica.com/EBchecked/topic/536159/set-theory/24031/Equivalent-sets. (visited 13 April 2014). "To capture this idea in set-theoretic terms, the set A is defined as equivalent to the set B (symbolized by A ≡ B) if and only if there exists a third set the members of which are ordered *pairs* such that: (1) the first member of each *pair* is an element of A and the second is an element of B, and (2) each member of A occurs as a first member and each member of B occurs as a second member of exactly one *pair*. Thus, if A and B are finite and A ≡ B, then the third set that establishes this fact provides a *pairing*, or matching, of the elements of A with those of B. Conversely, if it is possible to match the elements of A with those of B, then A ≡ B, because a set of *pairs* meeting requirements (1) and (2) can be formed—i.e., if a ∈ A is matched with b ∈ B, then the ordered *pair* (a, b) is one member of the set." (italics to emphasise)

1.2.2 Research design

This thesis will provide the background on decision-making theory in order to contextualise the traditional decision-making models that CIOs use to make decisions. This theory will be aided by sense-making theory that will show that the traditional decision-making models are infused and aided by sense-making properties. The quality of these models will then be argued by the aid of IT governance frameworks as well as CIOs' expertise.

Three traditional masters of decision-making theory were chosen in order to provide the basic models on decision making. Although there are alternatives, these three specific models were chosen because they were mentors of each other, and there was a connection between them in the sense of support for each other's theories. Only one master of sense-making theory was chosen since it proved the ideal theory that made direct connections to the masters chosen for decision-making theory. The theories on CIOs could not provide definite conclusions on how CIOs make decisions.

1.3   Research questions

1.3.1 Primary research question

What decision-making models do CIOs use to make decisions?

1.3.2 Secondary research question

What is the quality and value of the models and processes that CIOs use to make decisions?

1.4   Research methodology

This research is a combination of a few research types and the approach is qualitative, for the "research is concerned with subjective assessment of attitudes, opinions and behaviour."[11] An analytical literature study was undertaken for the theories on decision making as well as sense making. This method was chosen because it provided a thorough portrayal of the decision-making and sense-making processes used for making decisions, therefore the facts and information that was already available, was analysed and a critical evaluation of the material was made.[12] This approach is a fundamental research type approach for it is "mainly

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[11] Kothari, C.R. 2004, 5. Research Methodology: Methods and Techniques.
[12] Kothari, C.R. 2004, 3. Research Methodology: Methods and Techniques.

concerned with generalisations and with the formulation of a theory. Gathering knowledge for knowledge's sake is termed 'pure' or 'basic' research."[12] Further methods that were used included case studies for the decision-making models as well as the expertise of the CIOs. Here, limitations of using case studies showed that it could not provide conclusive evidence on how CIOs actually make decisions, as well as how their expertise actually relate to their decision-making skills. A literature study was subsequently done on the IT governance frameworks and the relationship and influence into making decisions. A survey and comprehensive study on how CIOs actually make decisions would have provided that insight, but such surveys are time-consuming (when trying to collect 23 CIOs' CVs, I waited 6 months and received only 2), deep-rooted research, was beyond the scope of this thesis. It definitely will provide an opportunity to further research and an in-depth approach will answer more questions and would provide more insight.

1.5   Thesis structure

Chapter 1 – Introduction

Chapter 1 provides the background of the study, the research design, and objective as well as an overview of the structure of the thesis.

Chapter 2 – Decision-making models

This chapter provides the background (literature review) on the three models of decision-making theory. It provides a literature overview on the three models as well as typical approaches on which decisions are made in organisations. It also provides insight into how CIOs make decisions.

Chapter 3 – Sense making inducing decision making

This chapter provides a brief background (literature review) on the sense-making theory of Weick, and as the model evolves points back to the decision-making models in chapter two and establishes new models in this chapter.

Chapter 4 – The act of decision making—aided by sense making

A case study on the decision-making processes and a pair off of the elements onto the Hawick article as portrayed by Weick will be presented in this chapter. The discussion in this chapter

will analyse the models established in Chapter 3 to provide insight into the decision-making process.

Chapter 5 – Contributing factors to decision making—the quality of the models

This chapter provides an overview of three relevant governance frameworks and provides insight into how these frameworks enhance the quality of the models established in Chapter 3. In this chapter, there is also an overview of the expertise of CIOs and how this builds onto the quality of the models in Chapter 3.

Chapter 6 – Conclusion

The final chapter provides a brief conclusion of the thesis and discusses the value of the research and the value for the practice.

CHAPTER 2

Decision-making models

"Life is the sum of all your choices" ~ Albert Camus

2.1   Background on decision-making models

Decision making is a daily exercise that involves individuals, families, communities, small businesses, and large organisations; it can be a rather intricate art with a vast theoretical base or the most rudimentary intuitive task at hand.

This chapter briefly provides the background on decision making of a small number of the most influential theorists. It summarises and forms the basis of the decision-making models of three theorists, Chester Barnard, Herbert Simon, and James March. These three decision-making theorists were chosen for their role they played and links they provided, and connections made in each other's theories, as well as how they provided the essential concepts and fundamental building blocks of the decision-making models to be used in Chapter 3 and Chapter 4.

2.1.1 Chester Irving Barnard (1886 – 1961)—Organisational theory

For the first of three classical decision-making models, Chester Barnard is the first theorist. Chester Irving Barnard, born in Massachusetts, USA, was both a successful corporate executive and a powerful theorist on the nature of corporate organisations.[13] As stated by Mahoney, Barnard was well read in philosophy for it was a life-long hobby and he was a member of the American Philosophical Society.[14] Hence with Barnard's interest in philosophy and his role as president of New Jersey Bell Telephone for 21 years, he wrote his landmark book, *"The Functions of the Executive"*, in 1938, which will be the main source of the decision-making model described in this section.

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[13] Barnard, Chester I. http://www.encyclopedia.com/doc/1G2-3045000085.html (visited 11 February 2012)
[14] Mahoney, J.T. 2002, 161. The relevance of Chester I. Barnard's teachings to contemporary management education.

There are a few key reasons why Barnard was chosen. One reason for using Barnard's theory was his objectiveness as a non-academic in his field. Kenneth Andrews, in his introduction to the 30th anniversary edition of the book, stated, *"The Functions of the Executive* remains today, as it has been since its publication, the most thought-provoking book on organizations and management ever written by a practicing executive."[15] Another interesting fact is that Barnard is not an academic, but he wrote this book and put together his theories totally based on his experience in organisations, which for decades made him a unique theorist in the realm of management theory and a philosopher to keep in mind while browsing the theories of decision-making models.[16]

The next reason was the link between Barnard and Simon. Here, Mahoney raises three distinct trends from Barnard's remarkable book: One was the institutional theory as represented by Phillip Selznick; another was the decision-making school as represented by Herbert Simon, and the third was the human relations school.[17]

All these reasons converge by largely focusing on the decision-making school of Barnard where it is emphasised that he had separated decisions into "personal" and "organisational" since he believed that there is significance for each type of decision, depending on the level within the organisation.[18]

Barnard's decision-making model is complex and therefore all the elements needed to be highlighted in the following few sections. To start developing Barnard's decision-making model, we start with the first item in the model, namely *Responsibility.* The following discussion portrays the reason for this element in the model and why it was used (see Figure 3).

Mahoney described two of Barnard's warnings to personnel; (1) the tendency to avoid *responsibility* due to a fear of criticism, and (2) that an executive must distribute *responsibility*,

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[15] Mahoney, J.T. 2002, 160. The relevance of Chester I. Barnard's teachings to contemporary management education.
[16] Chandran, J.P. 2010, 2, http://tolstenko.net/blog/dados/Unicamp/2010.2/ce839/02_barnard%20by%20Chandra%20Northwood.pdf (visited 11 February 2012)
[17] Mahoney, J.T. 2002, 162. The relevance of Chester I. Barnard's teachings to contemporary management education.
[18] Chandran, J.P. 2010, 7, http://tolstenko.net/blog/dados/Unicamp/2010.2/ce839/02_barnard%20by%20Chandra%20Northwood.pdf (visited 11 February 2012)

or otherwise run the risk of being overwhelmed with the burdens of decisions.[19] Barnard writes "The fine art of executive decision consists in:"[20]

- "Not deciding questions that are not pertinent"
- "Not deciding prematurely"
- "Not making decisions that cannot be made effective"
- "Not making decisions that others should make."[21]

From this, Barnard identified a number of warnings while making a decision, but he also had a few *moral conditions* on decision making, which Novicevic *et al*. provided in his insight that leadership programs should provide executives with the knowledge base required for ethical decision making.[22]

Novicevic *et al*. underlines that Barnard's central leadership concept is *responsibility*, which is an "emotional condition that gives an individual a sense of acute dissatisfaction because of failure to do what he feels morally bound to do or because of doing what he thinks is morally bound not to do, in particular, concrete situation."[23]

In Barnard's own words, "an executive may make many important decisions without reference to any sense of personal interest or of morality. But where creative morality is concerned, the sense of personal *responsibility* (see Figure 2[24])—of sincerity and honesty, in other words—is acutely emphasised."[25]

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[19] Mahoney, J.T. 2002, 165. The relevance of Chester I. Barnard's teachings to contemporary management education. (italics to emphasise)
[20] Barnard, C.I. 1938, 194. The Functions of the Executive.
[21] Barnard, C.I. 1938, 194. The Functions of the Executive: Will get back to this later in the model when talking about conditions for decision making.

[22] Novicevic et al. 2005, 1396. Barnard on conflicts of responsibility. (italics to emphasise)
[23] Novicevic et al. 2005, 1398. Barnard on conflicts of responsibility, as quoted from Barnard, C.I. 1938, 95. The Functions of the Executive.
[24] Novicevic et al. 2005, 1397. Barnard on conflicts of responsibility. "The capacity for awareness, determination, and dependability to remain true to oneself and aligned with the organization's genuine mission, while passionately enacting organizational vision, can be conceptualized broadly as authentic leadership."
[25] Barnard, C.I. 1938, 281. The Functions of the Executive. (italics to emphasise)

Figure 2 – Failure/success matrix of authentic leadership[26]

In the last article that Barnard wrote, he discussed two leading ideas of moralities within organisations: "The first is that every formal organization is a social system, something much broader than a bare economic or political instrumentality or the fictional legal entity implicit in corporation law."[27] "The second idea is that to a large extent management decisions are concerned with moral issues."[27] He then proceeds to explain that instead of using the term moral or morality he will further use the term "*responsibility*", because of the fact that it is "loaded with moral implications."[28]

Barnard's original insight in the concept of *responsibility* came from his popular book, *The Functions of the Executive,* where he noted that "responsibility for an organization decision is not personal responsibility until assigned."[29] He proceeded by saying that the assignment must be positive and definite because the "aptness of decision depends upon knowledge of facts and of organization purpose"[29], and therefore connected to "organization communication."[29] He further states that "central organization decisions are best made at

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[26] Novicevic et al. 2005, 1398. Barnard on conflicts of responsibility.
[27] Barnard, C.I. 1958, 2. Elementary Conditions of Business Morals.
[28] Barnard, C.I. 1958, 5. Elementary Conditions of Business Morals.
[29] Barnard, C.I. 1938, 189. The Functions of the Executive. (spelling as in source)

centers of the communications system of the organization, so such decisions must be assigned to those located at these central positions; these persons are known as executives."[29] Therefore the "necessities of communication as an essential element in organization imposes the assignment of responsibility for some kinds of organization decision executives."[29]

2.1.1.1   Classes of responsibility

For clarity on Barnard's portrayal of responsibility, he presented "several classes of responsibility readily distinguishable in any large organization and only somewhat less easily recognized in other organizations, even though small."[30]

2.1.1.1.1   *Personal responsibility*

The character of an individual plays a role in his/her decision-making process in the sense of the "avoidance of criminal acts, gross public immoralities and in particular stealing and lying."[30]

2.1.1.1.2   *Representative responsibility*

There is a "wide gap between the ethics of personal behaviour and those of representative behaviour. This seems to be well recognized only with respect to the decisions of trustees and of directors of corporations, and of other agents either of individuals or of firms or of corporations. In these technical functions it is well understood that a trustee may not do things which an individual may do, and must do things which an individual is not required to do."[31]

2.1.1.1.3   *Personnel responsibility/loyalties*

This involves individuals making decisions as "acting in their official capacities."[31] These loyalties include the relationship "between superiors and subordinates"[31] as well as between fellow peers.

2.1.1.1.4   *Corporate responsibility*

"The moral decisions they (trustees, officers, and employees) must make, however, are not of the order of personal morality, nor of official organizational morality, but of a fictitious

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[30] Barnard, C.I. 1958, 5. Elementary Conditions of Business Morals.
[31] Barnard, C.I. 1958, 6. Elementary Conditions of Business Morals.

entity where responsibility and obligations are in many respects outside the possibility of relevance either to individual or to organizational morality."[32]

2.1.1.1.5   Organisational responsibility/loyalties

"Many individuals feel an obligation to what they conceive to be an entity—an organization—that transcends personal interest or advantage. In extreme cases this loyalty has involved great personal sacrifices *'for the good of the organization'* that become matters of public knowledge; but for the most part this kind of loyalty is not publicly recognizable."[33]

2.1.1.1.6   Economic responsibility

"Economic morality has many forms, from the simple conviction that one should discharge obligations with respect to debts, to a moral horror of waste or of inefficiency."[33]

2.1.1.1.7   Technical and technological responsibility

This responsibility mainly evolves when decisions are "made to reduce standards, e.g. for economic reasons."[34] "The acceptance of lower standards was morally repugnant."[34]

2.1.1.1.8   Legal responsibility

This is "more than a propensity to conform to statutes, court decisions, and regulatory rules."[34] It also includes the "rules of internal and private character that are important aspects of the operations of formal organizations"[34] when making decisions.

The second element introduced into Barnard's decision-making model is *conflicts* (see Figure 3)*.* He states that when there are "different sets of moralities, then it is likely that there will be ethical conflict or dilemmas of loyalties and responsibilities."[34] Barnard then mentions that he certainly can find these kind of decisions in "the world of affairs"[35], but he finds that it is concealed by "*personality conflicts*, *conflicts of interests* (economic, political or prestige) as well as the *privacy* with which the struggles for the discharge of conflicting responsibilities are veiled."[35] He then makes the statement that "men seem unwilling or unable to reveal moral struggles, and often seem forced to concoct rationalizations of their decisions instead of *the real reasons*."[35]

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[32] Barnard, C.I. 1958, 7. Elementary Conditions of Business Morals.
[33] Barnard, C.I. 1958, 8. Elementary Conditions of Business Morals.
[34] Barnard, C.I. 1958, 9. Elementary Conditions of Business Morals.
[35] Barnard, C.I. 1958, 10. Elementary Conditions of Business Morals.

2.1.1.2   Moral conflicts

In Barnard's model on the responsibilities regarding decision making, he noted two types of moral *conflicts*, which is expanded into the decision-making model. The first he termed "objective conflicts or contradictions";[35] and the second, "subjective conflicts or dilemmas."[35]

2.1.1.2.1   Objective conflicts or contradictions

Barnard explains that "this kind of objective conflict is commonly observed in the conduct of individuals of high moral or religious convictions,"[35] and that it is not involved in "insincerity or hypocrisy,"[35] but that this kind of "conflict can lead to personal recrimination and lawsuits, but not to personal frustrations and anxieties."[35]

2.1.1.2.2   Subjective conflicts or dilemmas

Barnard further states that subjective conflicts of responsibility are the reason for nearly "every moral issue, although in business they are most frequently not recognized—or at least not expressed as such."[35] He explains the concept by referring to illustrations, which all explain the moral dilemma within a situation where people or organisations have to make a decision where they are directly confronted with a moral issue.[36]

2.1.1.3   How to resolve conflicts of responsibilities

Introducing the third element in Barnard's decision making model, namely *resolve* (see Figure 3), he proposes three methods on how to *resolve* these conflicts of responsibilities. He mentions that these kinds of conflicts can "become unbearable and disruptive, leading to severe political types of controversy and opposition."[37]

2.1.1.3.1   The judicial method

This is the "narrowing and delimiting of the areas of responsibility, thus restricting the incidence of conflict."[38]

2.1.1.3.2   The method of reconciliation

This is to "demonstrate that alleged conflicts of responsibility are pseudo-conflicts based on false assumptions or ignorance of the facts."[38]

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[36] Barnard, C.I. 1958, 10 - 11. Elementary Conditions of Business Morals.
[37] Barnard, C.I. 1958, 11. Elementary Conditions of Business Morals.
[38] Barnard, C.I. 1958, 12. Elementary Conditions of Business Morals.

2.1.1.3.3   *The method of the invention of concrete solutions*

This method entails where "one standpoint appears to involve consequences that are seriously deleterious in some respects. A possible solution then may be to construct or *invent* another proposal which will effectively accomplish the ends initially desired without involving the deleterious effects to be avoided."[38]

2.1.1.4   **Circumstances that surround decisions**

The fourth element, *circumstances* (see Figure 3), are introduced as part of Barnard's model on decision making and is necessary to align the model with the "circumstances surrounding the making of concrete decisions."[39] He focuses on three general conditions:

2.1.1.4.1   *The occasions of decision*

The occasions for decision originate in three distinct fields:

- From authoritative communications from superiors, where decisions originate from the "interpretation, application and distribution of instructions."[40]

- From cases referred for decision by subordinates may be called "appellate cases that arise from incapacity of subordinates, uncertainty of instructions, novelty of conditions, conflict of jurisdiction or conflicts of orders, or failure of subjective authority."[41]

- From cases originating in the initiative of the executive concerned "which depends upon his ability and initiative as well as the communication system of the organization, whether something needs to be done or corrected."[41] When the occasions for decision originates from above or below the executive, it is other people who provided him with the authority to make the decision, but when an executive makes a decision on his own initiative, the decision is nearly always questioned.[41]

2.1.1.4.2   *The evidences of decision*

Barnard underlines the fact that it is confusing that most of the executive decisions produce no direct evidence, but that knowledge of it can only be accumulated from indirect

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[39] Barnard, C.I. 1938, 189. The Functions of the Executive. (Reasons for this is made clear in section 3.1.1.3.3) (spelling and grammar as in source)
[40] Barnard, C.I. 1938, 190. The Functions of the Executive.
[41] Barnard, C.I. 1938, 191. The Functions of the Executive.

evidence.[42] He further clarifies that there are three paths the decision-making process can take:

- Firstly, the "emission of authoritative communications, that is, orders."[42] In this case, the decision is clear and it is something that needs to be done or not. In other cases the "basic decision is not evident;" it needs a long string of communications to people who seem to know the outcome, but may not reveal the "controlling general decision."[42]

- Secondly, that a "firm decision may be taken that does not result in any communication whatever for the time being."[42] The reason for that is that the "action involved must wait anticipated developments or because it cannot be authoritative without educational or persuasive preparation."[42]

- A final route includes that the "decision may be to not decide."[43] According to Barnard, this route is the most frequent and the most important. He states that the executive raises the following questions in his mind to try and determine the answer to the question:[42]

    o "Is the question pertinent?"[42]

    o "Is the question pertinent now?"[42]

    o "If the question is now pertinent, is there enough data to base a final decision on?"[42]

    o "If the question is now pertinent, on whose initiative should or must the answer be?"[42]

    o "If the question is pertinent and can be decided, it must be decided by him, but is he competent to make the decision?"[42]

Barnard concludes by dividing decisions into two major classes; "*positive decisions*—to do something, to direct action, to cease action, to prevent action; and *negative decisions*, which are decisions to not decide."[44]

2.1.1.4.3   The environment of decision

The environment of decision is relevant because of decisions being made constantly. Barnard had to observe the nature of the environment of decisions as "the materials with which they

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[42] Barnard, C.I. 1938, 193. The Functions of the Executive.

[43] Barnard, C.I. 1938, 193. The Functions of the Executive: Revisiting the "do not's" of Barnard from the beginning of the model.

[44] Barnard, C.I. 1938, 194. The Functions of the Executive: The negative decisions are often largely unconscious, relatively non-logical, "instinctive", "good sense".

deal, the field to which they relate."[45] In this context, the environment consists of mainly two parts:

- Purpose: Barnard argues that purpose is viable because "at the moment of a new decision, an existing purpose, (the result of a previous decision under previous conditions) is an objective fact, and therefore a factor in the new decision."[46] The same is said for an organisation when the "purpose which concerns an organization decision may have been given as a fact to, and accepted as such by the person who is responsible for making a new decision."[46]

  He then further argues that purpose in itself "has no meaning, however, except in an environment, and can only be defined in terms of an environment."[47]

- The physical world, the social world, the external things and forces, and circumstances of the moment: The physical world consists of "atoms and molecules, agglomerations of things in motion, alive; of men and emotions; of physical laws and social laws; social ideas, norms of action, of forces and resistances." These items have infinite numbers; are always present and are always changing.[48]

Barnard divides the world into two parts; "the facts that are immaterial, irrelevant, mere background; and the part that contains the facts that apparently aid to prevent the accomplishment of purpose."[48] He notes that when this division takes place, "decision is in bud."[48]

With the above mentioned 4 elements, the following model (see Figure 3) emerged and with this model, Barnard wanted to show that decisions by executives in organisations are different from those made by individuals. He explains that the decision-making process in organisations is indeed a social process, where the individual's decision-making process is psychologically centred.[49] He ends off by saying that the decisive process within an organisation "actually takes place from the organizational viewpoint rather than from that of either psychology or system of logic."[49] This will be discussed in section 2.2.

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[45] Barnard, C.I. 1938, 194. The Functions of the Executive.
[46] Barnard, C.I. 1938, 195. The Functions of the Executive.
[47] Barnard, C.I. 1938, 196. The Functions of the Executive: Barnard defines the environment as physical and social, for the physical aspects are constant and the social aspects are pertinent.
[48] Barnard, C.I. 1938, 197. The Functions of the Executive.
[49] Barnard, C.I. 1938, 199. The Functions of the Executive.

A visual representation of Barnard's decision-making model can be seen in Figure 3.
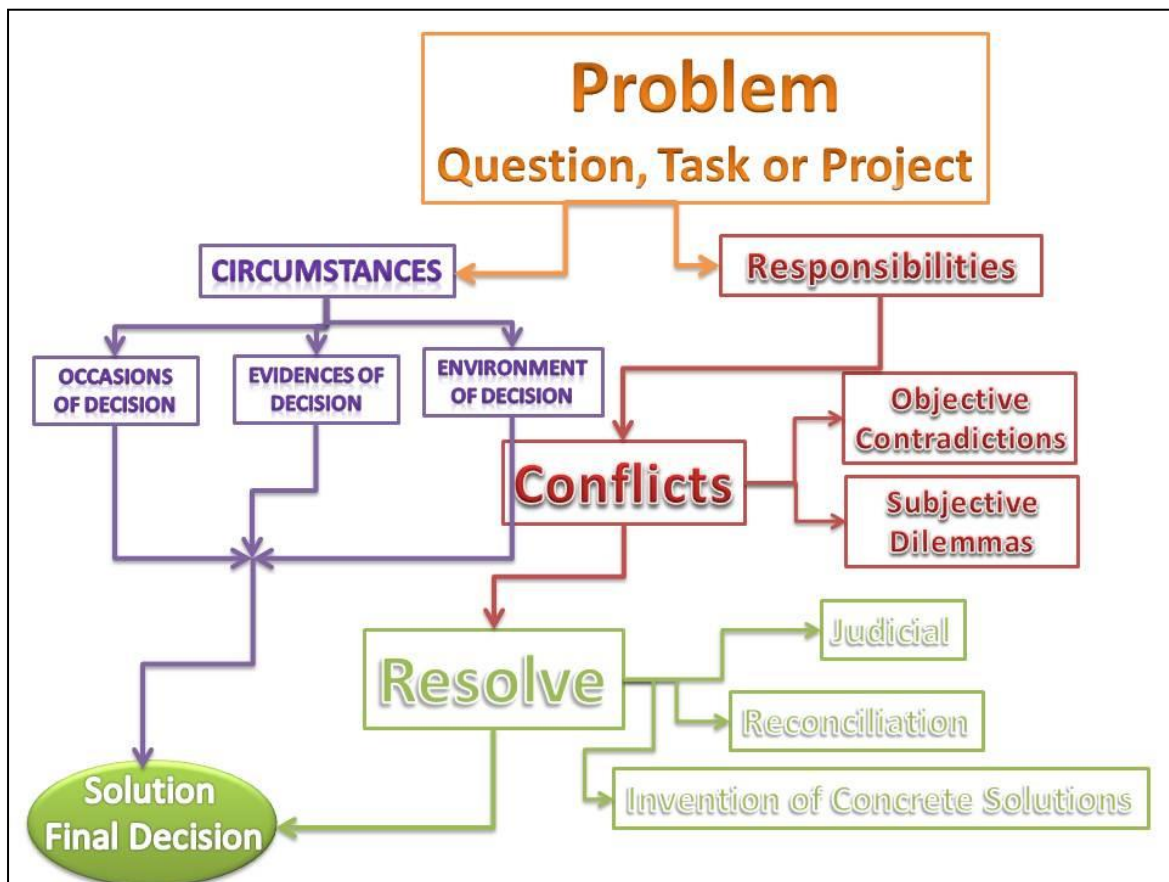
Figure 3 – Barnard's decision-making model[50]

2.1.2   Herbert Alexander Simon (1916 – 2001)—Bounded rationality

For the second classical decision-making concepts, Herbert Simon is the theorist. He did not provide this thesis with an essential model, but he provided fundamental concepts that assisted on explaining and building the models used in Chapter 3 and Chapter 4. Herbert A Simon was born in Milwaukee, Wisconsin in 1916 after his parents moved to the USA in 1903.[51] His life could have turned out so different[52] had it not been for relocating to the US. He graduated with a PhD in political science (1943), at the University of Chicago, and that thesis formed the basis of his most influential book *Administrative Behavior (1947).* Simon was a leader in his field of decision making and problem solving, and was considered a master

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[50] Figure 3 © Ilse de Kock, 17 November 2017
[51] Simon, Herbert Alexander. http://www.encyclopedia.com/topic/Herbert_Alexander_Simon.aspx#1 (visited 26 February 2012)
[52] Spare a thought for what could have happened, had the Jewish Simon-family stayed on in Germany.

in his field for over 50 years. He spent most of his time at the Carnegie Mellon University where he was a prolific scholar and later received the Nobel Prize in economics (1978).[53]

Chester I Barnard wrote in his foreword in Simon's book, *Administrative Behavior*, that Simon's main interest was the field of public administration. In order to achieve "his purpose adequately, he has taken into account experience in other kinds of formal organizations such as military, commercial and industrial and private non-profit organizations."[54] Therefore, Simon's work is relevant, applicable and "useful for describing administrative behaviour in all types of organizations,"[54] and made it perfect to add to this thesis' decision-making classical models. Barnard enlightens us that the principal value of Simon's book "lies in the clarity, comprehensiveness, and generality of his description of organization, the administrative process, the nature of decision, and the elements of value and fact entering into decisions."[54] Barnard also conveys that he found Simon's structure of organised action in his book, *Administrative Behavior,* consonant with his experience as an executive[54], which is a very important factor to this thesis.

In his first chapter of his book, Simon stated that not much attention has been paid to "the choice which prefaces all action—to the determining of what is to be done rather than to the actual doing."[55] He made it very clear that *deciding* and *doing* are integrally tied up with one another and spread throughout the entire administrative organisation.[56]

Simon provides us with at a few concepts within decision making and the following sections spend time on setting these concepts into visual models as well as positioning these concepts as part of the fundamental decision-making models used in this thesis.

2.1.2.1 Concepts of value and fact decisions

Simon introduces the term *purposiveness* (see Figure 4), which portrays the elements in the hierarchy of decisions that need to be done—the goals that are selected.[57] He narrows it down by saying that every decision involves the selection of a goal with behaviour relevant to

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[53] Herbert A. Simon. http://www.britannica.com/EBchecked/topic/545185/Herbert-A-Simon (visited 26 February 2012)
[54] Simon, H.A. 1949, ix. Administrative Behavior.
[55] Simon, H.A. 1949, 1. Administrative Behavior.
[56] Simon, H.A. 1949, 1. Administrative Behavior. (italics to emphasise)
[57] Simon, H.A. 1949, 4, 5. Administrative Behavior.

it.[58] The decision process then leads to selecting a final goal and then implementing the final decision.[59]

Next Simon introduces the term *compromise* (see Figure 4), emphasising the fact that the final selected alternative is never a perfect accomplishment of the goals, but "is merely the best solution that is available under the circumstances."[60] The environment inescapable limits the available alternatives, hence, it sets a maximum to the level of achievement of purpose that is possible.[60]
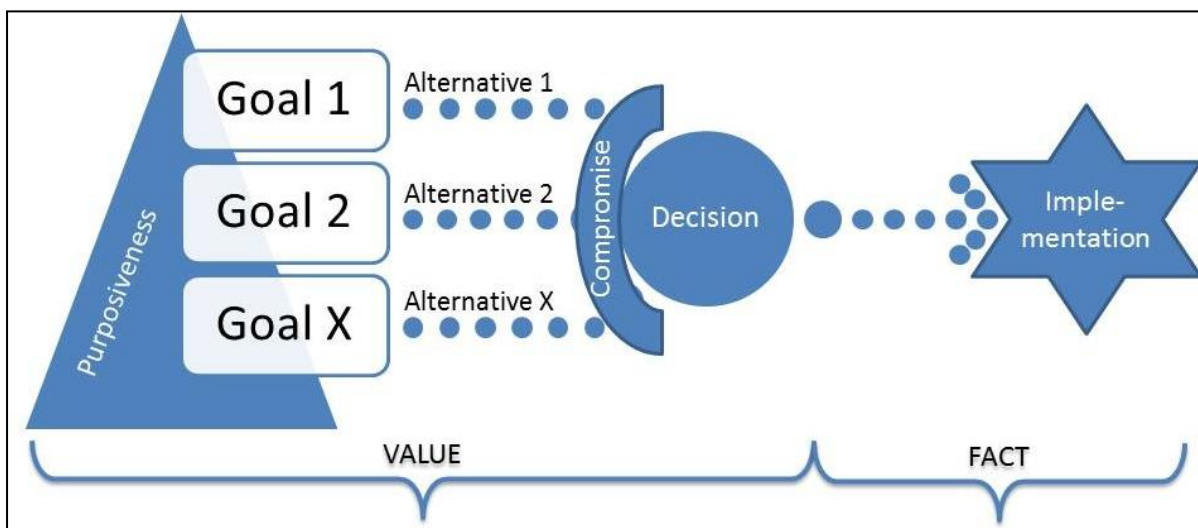
Figure 4 – Simon's value and fact in decision making[60]

Simon progresses by formulating two questions: (i) "What is meant by a *correct* … decision?"[61]and, (ii) "What is the distinction … between policy questions and questions of administration?"[62]

In order to answer the first question, Simon first provides a distinction between factual and ethical propositions. He states that "factual propositions are statements about the observable world and the way in which it operates … it can be tested to determine whether they are *true* or *false*."[63] He then clarifies that "decisions are something more than factual propositions,

[58] Simon, H.A. 1949, 4. Administrative Behavior.
[59] Simon, H.A. 1949, 4. Administrative Behavior: Simon calls the selection of final goals, *value judgements* and the implementation of such goals, *factual judgements*. He uses the word *value* as a term for decisions that ought to be made and he uses the word *factual* for decisions that actually was implemented.
[60] Simon, H.A. 1949, 6. Administrative Behavior. (Figure 4 © Ilse de Kock, 17 November 2017)
[61] Simon, H.A. 1949, 45. Administrative Behavior. (italics as in source)
[62] Simon, H.A. 1949, 45. Administrative Behavior.
[63] Simon, H.A. 1949, 45 - 46. Administrative Behavior. (italics as in source)

[because] they are descriptive of future state of affairs … [and] they select one future state of affairs in preference to another and direct behaviour toward the chosen alternative. [Therefore] decisions have an *ethical* as well as a factual content."[64] Because of this conclusion, Simon states that "to determine whether a proposition is correct, it must be compared directly with experience – with the facts … but factual propositions cannot be derived from ethical ones … nor can ethical propositions be compared … with the facts."[65] With this statement, Simon concludes that "there is no way in which the correctness of ethical propositions can be empirically or rationally tested."[66]

Simon uses the abovementioned point of view to answer his first question, that when a decision has an underlying ethical composition, the decision cannot be described as either correct or incorrect.[67]

Simon continues to shed light on this answer by asking two more questions:

In the first question, he asks that if there are factual and ethical components within a decision-making process, is there any space left for judgement in the process?[68] As a result, those factual decisions can be evaluated as true or false when there are certain outcomes, it is not possible to determine the truth or falsity before the outcome is known. Simon foresees that it is here that judgement plays a role.[69]

In the second question, he asks, what is the difference between an ethical component within a decision and a judgement component? He explains this by saying that the "greater the ethical element, the more doubtful are the steps in the chain, and the greater is the element of judgement."[70]

He, therefore, concludes on his first question that within a decision-making process there are factual and ethical components, but to not lose sight of the role that judgement plays within this process. Simon summarises his answer by saying that to determine the correctness of a

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[64] Simon, H.A. 1949, 46. Administrative Behavior. (italics as in source)
[65] Simon, H.A. 1949, 46. Administrative Behavior: Since they (ethical propositions) assert "*oughts*" *[something that ought to be]* rather than facts
[66] Simon, H.A. 1949, 46. Administrative Behavior.
[67] Simon, H.A. 1949, 46, 50, 53. Administrative Behavior.
[68] Simon, H.A. 1949, 50. Administrative Behavior.
[69] Simon, H.A. 1949, 50 - 51. Administrative Behavior.
[70] Simon, H.A. 1949, 51. Administrative Behavior.

decision is a "relative matter—it is correct if it selects appropriate means to reach designated ends."[71]

In order to answer his initial second question on the difference between policy and administration questions, Simon starts by saying that ethical and factual elements in judgements does not stretch far, and also that the values involved in administration decisions are rarely the final values, but are determined by the "means-end relationship" of the objectives of the process.[72] Therefore, "by a process of anticipation, the value inhering in the desired end is transferred to the means."[73]

In order to support his answer on the second question, Simon now introduces a term he describes as *intermediate values* (see Figure 5, to have a visual presentation on the relationship between the elements in Simon's decision-making process). These are values that contain ethical as well as factual elements, and values that one finds before the "more final goals" within the decision-making process.[74]

OR
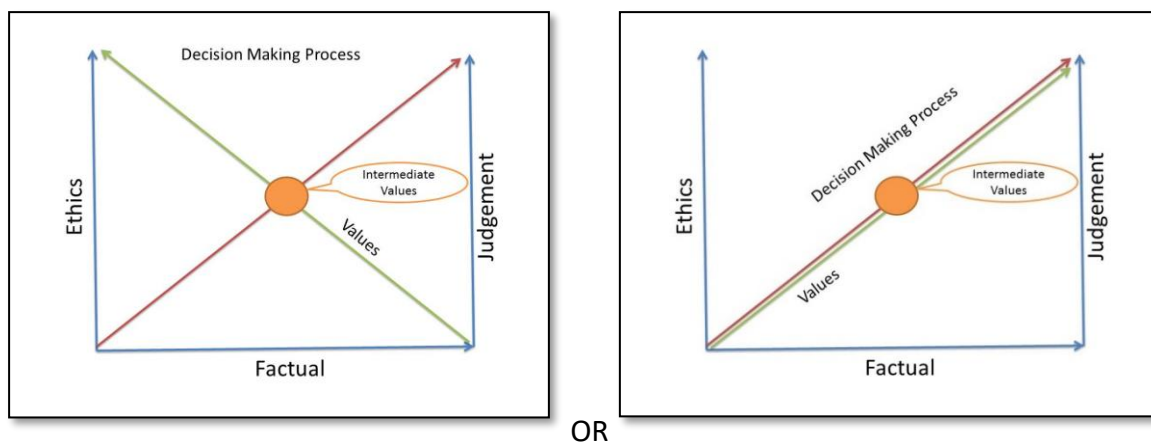
Figure 5 – Visual presentation on the relationship between all the elements in Simon's decision-making process[74]

Simon now divides the decision-making process into two main sections as seen in Figure 6. The first section would entail the development of a system of intermediate values, as well as an assessment of their relative importance and "would involve both ethical and factual

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[71] Simon, H.A. 1949, 61. Administrative Behavior.

[72] Simon, H.A. 1949, 52. Administrative Behavior.

[73] Simon, H.A. 1949, 52 - 53. Administrative Behavior: Simon uses the example of "the activities of a fire department … [that] are valued ultimately for their contribution to human and social life, and they retain their value only so long as they serve those more final ends."

[74] Simon, H.A. 1949, 53. Administrative Behavior. (Figure 5 and Figure 6 © Ilse de Kock, 17 November 2017)

considerations."[74] The second section would consist of the possible actions in terms of the value system and [are] … "restricted to factual problems."[74]
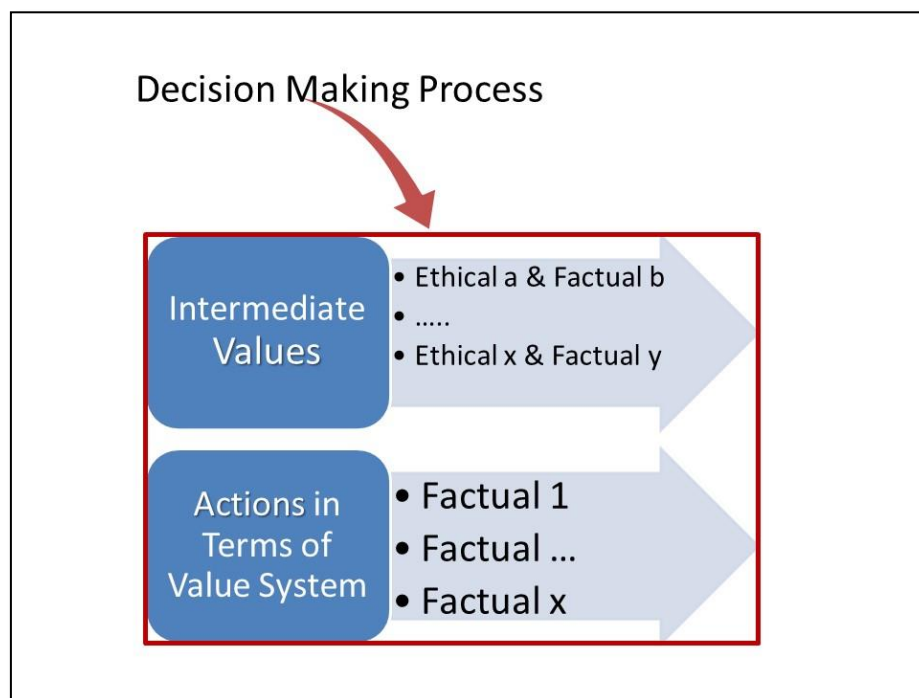
Figure 6 – Simon's decision-making process (Fact and Value)[74]

Simon attempts to discuss the difference between policy and administrative questions, but he very soon concludes that there is no "clear-cut criteria or marks of identification [that has] been suggested that would enable one to recognize" the difference between the questions.[75] Simon further states that Goodnow[76] comes dangerously close to identifying that *policy questions* points to *deciding* and *administrative questions* to *doing*.[77]

Simon then uses the theories of Goodnow, Freund and Dickenson to define that Goodnow's conclusion is that "certain decisional elements are included in the administrative function", [and that] "Freund relies upon the legislature to restrict discretion by the exercise of its function of policy determination", [while] "Dickenson thinks that administrative discretion

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[75] Simon, H.A. 1949, 54. Administrative Behavior.

[76] Simon references Frank J. Goodnow, *Politics and Administration,* as one whom also could not determine clear-cut criteria between the two questions.

[77] Simon, H.A. 1949, 54. Administrative Behavior: He focuses this statement on politics and administration in government (italics to emphasise).

can gradually be replaced by general rules to be formulated by the courts, as principles gradually emerge to view from a given set of problems."[78]

Simon concludes the answers on his two questions by stating that, "the process of validating a factual proposition is quite distinct from the process of validating a value judgement. The former is validated by its agreement with the facts, the latter by human fiat."[79]

2.1.2.2 Concepts of means and ends decision

From Simon's concepts of fact and value now flows a new concept that he describes as *means* and *ends*. He explains that in the decision-making process when all the alternatives are gathered, the alternatives that are chosen are those that provide "appropriate means for reaching desired ends [and that these] alternatives differ with respect to the consequences that flow from them."[80] He continues by stating that the ends itself play a key role in obtaining final objects, and he finds that in the end there is a hierarchy of ends and that *"rationality* has to do with the construction of means-ends chains of this kind."[81]

According to Simon it is possible to arrange the means to a goal (or end) in a hierarchy, because the ends in a higher level are the means for the following levels—see Figure 7 for a visual representation of Simon's description—"each level [is] to be considered as an end relative to the levels below it and as a means relative to the levels above it."[82] Simon explains further that through the hierarchy, behaviour attains the integration and the consistency, for, within the behaviour groups, there are alternatives that are weighed in terms of values—"the *ultimate* ends."[82] As seen in Figure 7, the connections between the elements become increasingly weaker the higher the levels progress—"the more final ends are reached."[82] This hierarchy of means and ends are characteristic of both organisations and individuals.[82]

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[78] Simon, H.A. 1949, 55 - 56. Administrative Behavior.
[79] Simon, H.A. 1949, 56. Administrative Behavior.
[80] Simon, H.A. 1949, 61 - 62. Administrative Behavior.
[81] Simon, H.A. 1949, 62. Administrative Behavior. (italics to emphasise)
[82] Simon, H.A. 1949, 63. Administrative Behavior. (Figure 7 © Ilse de Kock, 17 November 2017)
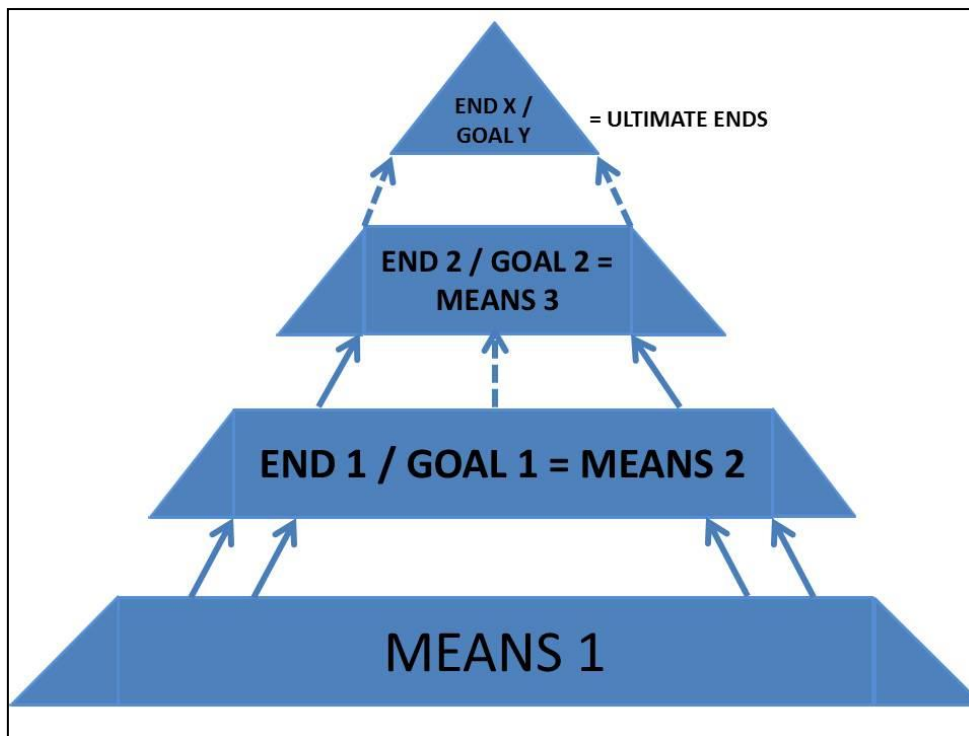
Figure 7 – Simon's means and ends model[82]

Simon identifies three limitations in the hierarchy of means-ends, which can lead to inaccurate conclusions. First, it may be possible that by deciding not to select or even consider a certain behaviour alternative that the attained ends are often incomplete or incorrect.[83] Second, in concrete situations, it is usually impossible to separate means from ends, because "the alternative means are not usually valuationally neutral."[84] Simon specifically points out that if a certain mean were sought out to obtain a certain end, it would be necessary to provide a proper weight to the ends of the means that have not been considered. Third, the means-end concept has the tendency to obscure the major role the time element plays in decision making.[85] Simon poses two questions in this regard: If a particular end is realised at a given time, (1) what alternative ends must be abandoned for that time? and, (2) how does this limit the ends that may be realised at other times?

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[83] Simon, H.A. 1949, 65. Administrative Behavior: "Rational decision-making always requires the comparison of alternative means in terms of the respective ends to which they will lead … this means that *efficiency*—the attainment of maximum values with limited means—must be a guiding criterion in administrative decision."
[84] Simon, H.A. 1949, 65. Administrative Behavior "It is from this difficulty that so many futile arguments arise as to whether *the ends justify the means*."
[85] Simon, H.A. 1949, 65. Administrative Behavior: "If an end is some condition or state to be realized, then only one state may be realized at one time but many states over a period of time, and choice is influenced not only by particular ends but also by expectations of what ends may be realized at different times."

2.1.2.3 Concepts of alternatives and consequences in decisions—Step 1

Flowing from Simon's means-end concept, he suggests that in order to substantiate the concept he imports the terminologies of *alternatives* and *consequences*. The above mentioned three limitations are met with Simon's "theory of decisions in terms of alternative behaviour possibilities and their consequences."[86] Simon now defines (See Figure 8) a decision (or choice) as "the process by which … one alternative for each moment's behaviour is selected to be carried out."[87] He proceeds to define a *strategy* as a series of these decisions that determines behaviour over a period of time.
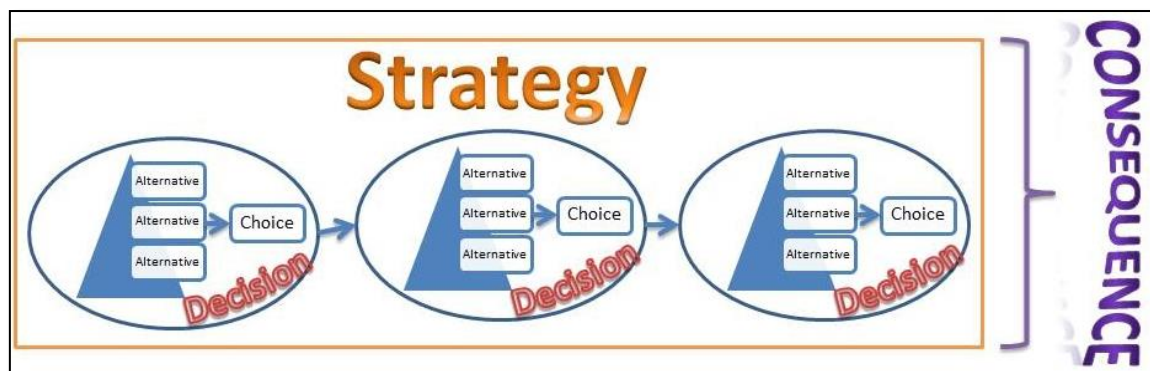
Figure 8 – Simon's decision and strategy model[87]

Out of these concepts, Simon set forth and provides one of his most important statements as well as his decision-making model: "The task of rational decision is to select that one of the strategies which is followed by the preferred set of consequences."[87] According to Simon the decision-making task involves three steps (See Figure 9):

Step 1:   "The listing of all the *alternative* strategies"[88]

Step 2:   "The determination of all the *consequences* that follow upon each of these strategies"[89]

Step 3:   "The *comparative evaluation* of these sets of consequences."[87]

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[86] Simon, H.A. 1949, 66. Administrative Behavior.
[87] Simon, H.A. 1949, 67. Administrative Behavior. (Figure 8 © Ilse de Kock, 17 November 2017)
[88] Simon, H.A. 1949, 67. Administrative Behavior. "The word "all" is used advisedly. It is obviously impossible for the individual to know *all* his alternatives or *all* their consequences." (italics as in source)
[89] Simon, H.A. 1949, 67. Administrative Behavior. "The word "all" is used advisedly. It is obviously impossible for the individual to know *all* his alternatives or *all* their consequences." (italics as in source)

Simon emphasises that the impossibility of listing *all* the alternatives and *all* consequences is a very important divergence of the "actual behaviour from the model of objective rationality."[87]

Simon places a strong emphasis on the role that time plays in the decision-making process, for it "makes possible at least a modicum[90] of rationality in behaviour, where, without it, this [decision making] would be inconceivable."[91]

2.1.2.4 Concepts of knowledge and behaviour—Step 2

According to Simon, the function of knowledge plays an eminent role in the decision-making process to determine which consequences are associated to which alternative strategies and that the main task of knowledge is to select, from the entire set of consequences, a subset, or more ideally, a single set of consequences that correlates with each strategy.[91] Simon describes further that the person making the decision cannot know what the consequences of his/her behaviour would be—if so, that would be a "sort of reverse causality".[92]

2.1.2.5 Concepts of value and possibility—Step 3

The third step in Simon's decision-making model is to determine the "preferences among [the] consequences."[93] Simon introduces the term, *valuation,* where "to each strategy corresponds a unique set of consequences."[93] He now makes one of his most profound statements, which are that "*rational behaviour* involves a listing of the consequences in their order of preference, and the choice of that strategy which corresponds to the alternative highest on the list."[94]

Simon now makes a connection between the "means-end" relation set and the "value-fact" relation set. He concludes that the "means-end chain is a series of anticipations that connect a value with the situations realizing it."[95] The situations, in turn, are connected to "the

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[90] The Free Dictionary. http://www.thefreedictionary.com/modicum (visited 16 June 2012): A small or moderate or token amount.

[91] Simon, H.A. 1949, 68. Administrative Behavior.

[92] Simon, H.A. 1949, 68. Administrative Behavior. "Future consequences would be determinants of present behaviour."

[93] Simon, H.A. 1949, 73. Administrative Behavior.

[94] Simon, H.A. 1949, 73. Administrative Behavior. (italics to emphasise)

[95] Simon, H.A. 1949, 74. Administrative Behavior.

behaviours that produce them."[96] The means element of the chain will "predominate if the element is toward the behaviour end of the chain; the end [element] will predominate if the element is descriptive of the consequences of behaviour."[95]

Simon mentions that the psychology behind the valuation of alternatives consists in measuring the alternatives in terms of certain values.

2.1.2.6 Definitions of rationality

The climax of Simon's prolonged background on his decision-making model has concluded in this one definition of "rationality". This is a key and fundamental concept in decision making and significant to assist in a portrayal of the global picture on decision making as a theory. He briefly describes it that "rationality is concerned with the selections of preferred behaviour alternatives in terms of some system of values whereby the consequences of behaviour can be evaluated."[97]

Simon concludes by explaining rationality in conjunction with certain adverbs to minimise the complexity thereof. A decision can be:

- "Objectively rational … the correct behaviour for maximizing given values in a given situation."[98]

- "Subjectively rational [when the decision] maximizes attainment relative to the actual knowledge of the subject."[98]

- "Consciously rational … the adjustment of means to ends is a conscious process."[98]

- "Deliberately rational … [when] the adjustment of means to ends has been deliberately brought about."[98]

- "Organizationally rational if it is oriented to the goals of the organization."[98]

- "Personally rational if it is oriented to the goals of the individual."[98]

Figure 9 provides a visual presentation of Simon's decision-making model:

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[96] Simon, H.A. 1949, 74. Administrative Behavior. "Any element in this chain may be either "means" or "end" depending on whether its connection with the value end of the chain, or its connection with the behaviour end of the chain, is in question."
[97] Simon, H.A. 1949, 75. Administrative Behavior.
[98] Simon, H.A. 1949, 76. Administrative Behavior.
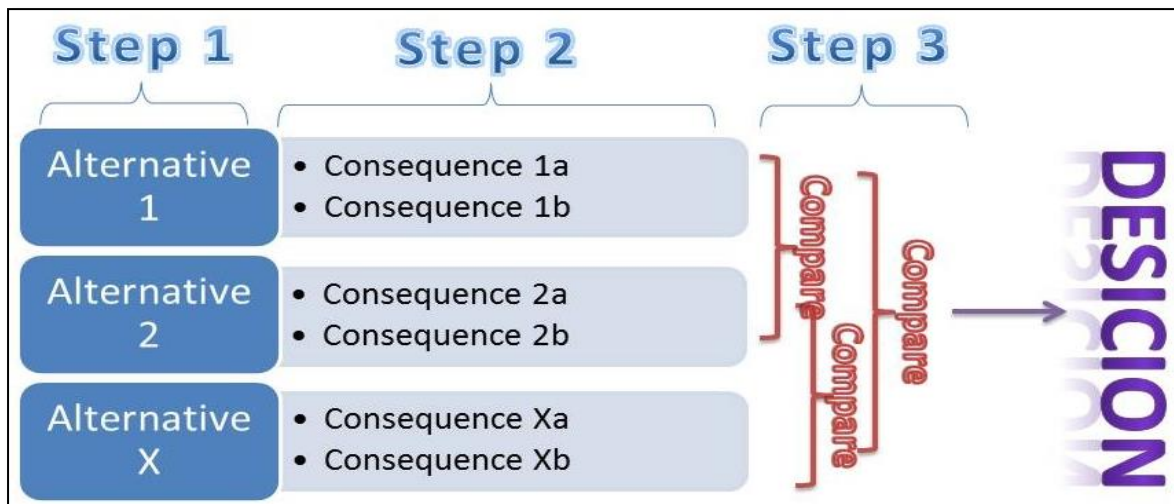
Figure 9 – Simon's three-step decision-making model[99]

2.1.3   James G March (1928 –)—Limited rationality

For the third and last decision-making model, the theorist is James March. He is one of the most proclaimed theorists on organisational behaviour and decision making, and even though his work is extant, he still qualifies as a classic theorist and his work proves to be fundamental to this study. James G March was born in 1928 in Cleveland, Ohio[100], and spent most of his adult life at Stanford University.[101] "An unostentatious academic who spent most of his life on the faculty of Stanford University, described by Harvard Business Review as "a polymath whose career has encompassed numerous disciplines … he has taught courses on subjects as diverse as organisational psychology, behavioural economics, leadership, rules for killing people, friendship, decision-making, models in social science, revolutions, computer simulation, and statistics. A polymath indeed."[101]

"He is best known for his work on the behavioural theory of organisations, working at one time with Herbert Simon, the definer of the idea of satisficing, with whom he wrote a classic book, 'Organisations'. Hence the reason for using his decision-making theories in this thesis. In this, and in the book he wrote with Richard Cyert (A Behavioral Theory of the Firm), he developed a theory about the 'boundedness' of managers' behaviour. Just as consumers go

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[99] Figure 9 © Ilse de Kock, 17 November 2017
[100] Augier, M. 2004, 1258. March'ing towards "a behavioral theory of the firm".
[101] The Economist. http://www.economist.com/node/14099644 (visited 9 September 2012): Guru James March.

for the satisfactory rather than the 'best' decision when purchasing, managers alike go for the less-than-rational decision when on the job, because they are necessarily restricted by human and organisational limitations."[102]

2.1.3.1 Leadership and contextual knowledge

March, being very talented, also wrote seven books of poetry and made a film entitled "Passion and Discipline: Don Quixote' Lessons for Leadership."[103] It would be of real value to focus on a few aspects within this film since it brings together the fact of knowing who you are in parallel on being a good leader and therefore potentially making good decisions.[104] In the film, March focuses on leadership, passion, and discipline, about knowing who you are and about the human spirit of Don Quixote. He discussed three vital issues of leadership in the film, *Imagination (Vision), Commitment (Persistence),* and *Joy (Pleasures of life).*

Figure 10 – Picasso's interpretation of Don Quixote[105]

Why Don Quixote? What lessons can be learned from this fictional character whose retired career was to travel around the Spanish countryside tilting at windmills and challenging sheep

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[102] The Economist. http://www.economist.com/node/14099644 (visited 9 September 2012): Guru James March.
[103] Stanford Graduate School of Business.
http://www.gsb.stanford.edu/news/bmag/sbsm0305/leadership.shtml (visited 13 September 2012): Passion and Discipline: Don Quixote's Lessons of Leadership.
[104] Within this discussion, there would be touching on aspects of being yourself and knowing who you are. There will be more on the connection between the questions Weick asked such as "Who is out there?","What is in here?" and, "Who must we be?" and the questions March ask such as "What kind of person am I?", "What kind of situation am I in?" and, "What does a person such as I do in a situation such as this?" in CHAPTER 3.
[105] https://en.wikipedia.org/wiki/Don_Quixote_(Picasso) (visited 17 November 2017)

to battle? Indeed, as March says in the film: "We live in a world that emphasises realistic expectations and clear successes. Quixote had neither. But, through failure after failure, he persists in his vision and his commitment. He persists because he knows who he is."[106]

In the film, March quoted, "Quixote lived his life with passion and discipline, much as a flamenco dancer performs with seeming abandon, yet acts within the strictures of the art." Leaders can learn from Quixote, whose entire life was dedicated to imagination, commitment, and joy. March ends-off by saying: "The critical concerns of leadership are not technical questions of management or power; they are fundamental issues of life."[106]

March prefaced his book, *Primer on Decision Making* by stating that he will focus on "how decisions actually happen rather than how they ought to happen."[107] He continues by stating that in order to understand a specific decision in a specific situation, there needs to be a "great deal of concrete contextual[108] knowledge—details about the historical, social, political and economic worlds surrounding the decision and about the individuals, organizations, and institutions involved."[109] That being said, March decided not to focus on the rich detail of a particular decision, but to portray decisions as it actually takes place, and to focus on "ideas that can be used to understand decisions generally."[110] March proposed four issues that he used in his book, but he explicitly noted that they were not resolved:[111]

- Are decisions "to be viewed as choice-based or rule-based?"[112]
- Is "decision making typified more by clarity and consistency or by ambiguity and inconsistency?"[113]

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[106] Stanford Graduate School of Business.
http://www.gsb.stanford.edu/news/bmag/sbsm0305/leadership.shtml (visited 13 September 2012): Passion and Discipline: Don Quixote's Lessons of Leadership.
[107] March, J.G. 1994, vii. A Primer on Decision Making.
[108] More on this in CHAPTER 3 when focusing on Weick's theory of context and frames on making decisions.
[109] March, J.G. 1994, vii. A Primer on Decision Making.
[110] March, J.G. 1994, viii. A Primer on Decision Making.
[111] March, J.G. 1994, viii - ix. A Primer on Decision Making.
[112] March, J.G. 1994, viii. A Primer on Decision Making. "Do decision makers pursue a logic of consequence, making choices among alternatives by evaluating their consequences in terms of prior preferences? Or do they pursue a logic appropriateness, fulfilling identities or roles by recognizing situations and following rules that match appropriate behaviour to the situations they encounter?"
[113] March, J.G. 1994, viii. A Primer on Decision Making. "Are decisions occasions in which individuals and institutions achieve coherence and reduce equivocality? Or are they occasions in which inconsistency and ambiguity are exhibited, exploited, and expanded?"

- Is decision making "an instrumental activity or an interpretive activity?"[114]

- Are outcomes of decision processes "seen as primarily attributable to the actions of autonomous actors or to the systemic properties of an interacting ecology?"[115]

2.1.3.2 Rational choice

March suitably notes that rational[116] choice is as old as thoughts on human behaviour and that it is consistent with human aspirations, however, in order to strengthen this fact he added limited rationality (discussed in the next section, 3.1.1.1.1) to make this statement more robust. This is the fundamental building block of his rational decision-making model that will be developed throughout the next few sections.

According to March, rational theories of choice consist of "decision processes that are consequential and preference-based."[117] The processes are consequential because of the fact that the action of choice depends on the consequences or effects that are expected in making a specific choice or taking a certain action. "The alternatives [within a certain decision] are interpreted in terms of their expected consequences."[117] The processes are also preference-based because consequences or different effects are evaluated within the boundaries of personal preferences.[118] The alternatives are compared with reference to their expected consequences keeping in mind what the preference of the decision maker is.

To portray March's decision-making model, a rational procedure (See Figure 11)[119] pursues a logic of consequences and according to March, choice is made according to four questions:[119]

- *Alternatives*: "What actions are possible?"[120]

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[114] March, J.G. 1994, ix. A Primer on Decision Making. "Are decisions to be understood primarily in terms of the way the fit into a problem solving, adaptive calculus? Or are they to be understood primarily in terms of the way they fit into efforts to establish individual and social meaning?"

[115] March, J.G. 1994, ix. A Primer on Decision Making. "Is it possible to describe decisions as resulting from the intentions, identities, and interests of independent actors? Or is it necessary to emphasise the ways in which individual actors, organizations, and societies fit together?"

[116] March, J.G. 1994, 2. A Primer on Decision Making. In this book, March defines rationality "as a particular and very familiar class of procedures for making choices."

[117] March, J.G. 1994, 2. A Primer on Decision Making.

[118] March, J.G. 1994, 2. A Primer on Decision Making. More on this within Weick's theory on framing decisions in CHAPTER 3.

[119] YouTube. http://www.youtube.com/watch?v=bztgYMoTEjM (visited 5 July 2012): James G. March, Emeritus Professor at Stanford. (Figure 11 © Ilse de Kock, 17 November 2017)

[120] March, J.G. 1994, 3. A Primer on Decision Making. "What determine which alternatives are considered?"

- *Expectations*: "What future consequences might follow from each alternative, and how likely is that consequence when a certain alternative is chosen?"[121]

- *Preference*: "How valuable (to the decision maker) are the consequences associated with each of the alternatives?"[122]

- *Decision rule*: "How is a choice to be made among the alternatives in terms of the values of their consequences?"[123]
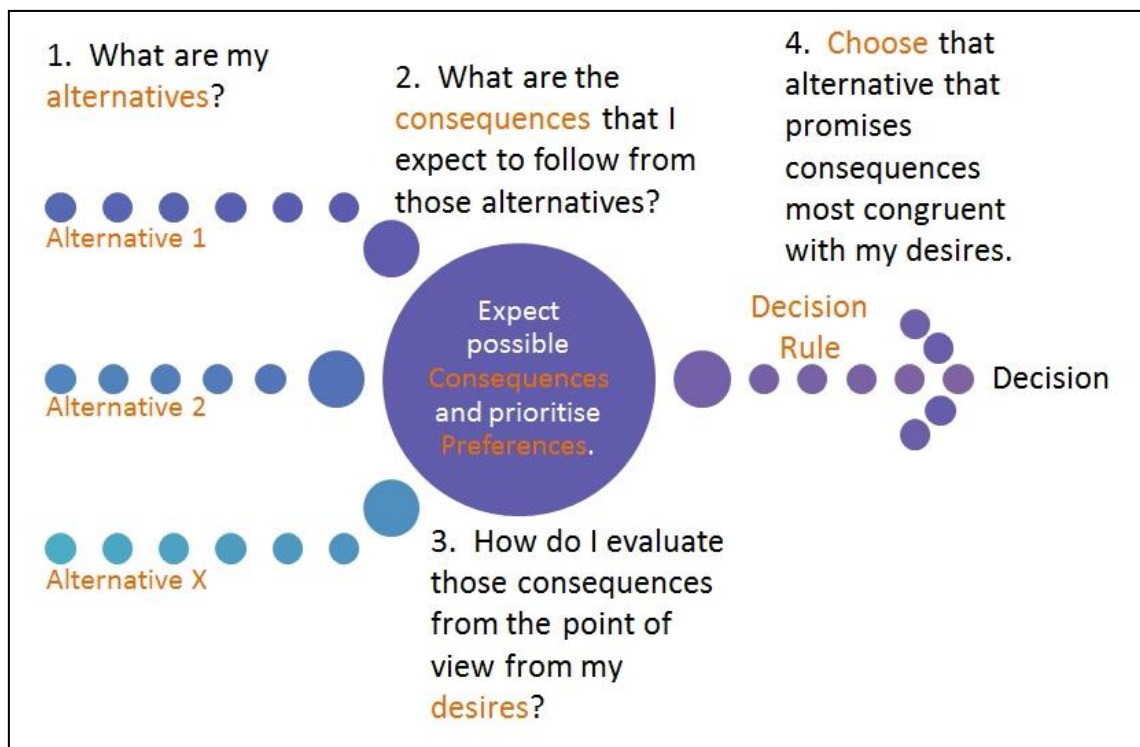
Figure 11 – March's decision-making model: The logic of consequence: A modern portrayal[119]

Figure 11 portrays the basic framework of a behavioural decision-making process or model as reflected upon by March in his explanation of rationality. He explains that this model is used in many environments across platforms such as human behaviour, micro-economic models, resource allocation, political and statistical theories, and many other models throughout the social sciences.

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[121] March, J.G. 1994, 3. A Primer on Decision Making. "What determines the expectations about consequences?"
[122] March, J.G. 1994, 3. A Primer on Decision Making. "How are decision maker preferences created and evoked?" (See CHAPTER 3 for a portrayal of Weick's theory on this question of March.)
[123] March, J.G. 1994, 3. A Primer on Decision Making. "What is the decision rule that is used?"

He further clarifies that this model of rational processes uniquely depends on which alternative is chosen and this choice depends on two estimates about the future:

- What would the future state of the world be, according to the choice made?[124]

- How would the decision maker feel about that specific world when he experiences it after the choice has been made?[125]

In March's lecture at Stanford University, he disclosed that this rational way of making decisions are not new, what is distinctly modern is the extent to which a consequentialist justification of action has been taken for granted. He said that in modern management these ways of making decisions have been sanctified and they are taught as sacred dogma. He recognised that rational decision making is the foundation of decision making and taking action, but he warns that there are limitations to this model.[119] March now introduces four elements that are part of, or influence the model on rational choice.

3.1.1.1.1   *Limited (or bounded) rationality*

During his lecture, he highlighted the above mentioned limitations and noted that they were shown in many studies on decision making — and so March expands his model with the term, and first element, limited or bounded rationality. These limitations include the following:

- Not all alternatives are known:[126] "Alternatives are not given, but have to be discovered or created."[119]

- Not all consequences are considered:[127] "Expectations are not known routinely but have to be developed and, that development introduces uncertainties and errors."[119]

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[124] March, J.G. 1994, 3. A Primer on Decision Making.

[125] March, J.G. 1994, 6 - 7. A Primer on Decision Making: March states that the best theories of rational decision making are when the theory takes into consideration the future consequences of present actions—and also recognises the *uncertainty* it brings. The most common decision making situations are those done under "risk", where the exact consequences are uncertain, but their probabilities (on average) are known. (More on how the decision maker feels in a specific situation according to Weick in CHAPTER 3, section 3.1.1.3.2.) (italics to emphasise)

[126] March, J.G. 1994, 8. A Primer on Decision Making: Instead of considering all alternatives, decision makers typically appear to consider only a few and to look at them sequentially rather than simultaneously.

[127] March, J.G. 1994, 9. A Primer on Decision Making: Decision makers do not consider all consequences of their alternatives. They focus on some and ignore others. Relevant information about consequences is not sought, and available information is often not used.

- Not all preferences are evoked at the same time:[128] "Desires are neither clear nor unified nor stable[129] nor exogenous[130] to the processes of choice."[119]

March makes the statement that instead of decision makers following the decision rules of real decision theories, they deviate from the decision rules and instead of considering "expected values" or "risk", they invent different criteria. Instead of choosing the "best possible" action, they search for an action that is only "good enough".[131] With this March concludes that the pure theory of rational choice is limited. He also notes that the core of limited rationality theory is indeed that "individuals are intendedly rational. Decision makers intend to be rational, but they are constrained by limited cognitive capabilities and incomplete information, and thus their actions may be less than completely rational in spite of their best intentions and efforts."[132]

March further expands on his model on bounded rationality by focusing on some aspects spread out from within this model. He highlights that limited (bounded) rationality is widely used in conventional theories on decision making, however, there are certain information constraints associated with this model:

- Problems of attention. "Not everything can be attended to at once."[133]
- Problems of memory. "Memories are faulty. Records are not kept."[133] Therefore, the knowledge that is gained in one part of an organisation is not easily shared with the rest of the organisation.
- Problems of comprehension. "Decision makers have limited capacities for comprehension."[133] It happens that decision makers have the relevant information but are not able to see that the information is valuable.
- Problems of communication. "There are limited capacities for communication information, for sharing complex and specialized information."[133] It is difficult to

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[128] March, J.G. 1994, 9. A Primer on Decision Making: Instead of having a complete, consistent set of preferences, decision makers seem to have incomplete and inconsistent goals, not all of which are considered at the same time.

[129] March, J.G. 1994, 17 – 18. The Pursuit of Organizational Intelligence.

[130] March, J.G. 1994, 3, 17 – 18. The Pursuit of Organizational Intelligence.

[131] March, J.G. 1994, 9. A Primer on Decision Making.

[132] March, J.G. 1994, 9. A Primer on Decision Making. (More on this in Weick's theory of constraints and limited cognitive capabilities in CHAPTER 3, section 3.1.1.3.5) (spelling as in source)

[133] March, J.G. 1994, 10. A Primer on Decision Making.

communicate across cultures, generations or certain specialities. "Different groups of people use different frameworks for simplifying the world."[134]

March confirm that the core of the theory on limited rationality lies in the way decision makers develop certain procedures to cope with the above mentioned limitations in order to maintain the basic framework of rational choice.

He touches on a few mechanisms (which are contemplated in research), which is used to cope with the information constraints in his portrayal on the limited rationality model:

- *Editing*: Decision makers tend to simplify their complex problems by using a small amount of cues[135]. They discard some information or reduce the amount of processing done on it.[136]

- *Decomposition*: Decision makers tend to decompose problems in order to reduce it into the smaller parts it exists of. They presume that when the decomposed parts of a problem are dealt with separately, it would supply them with a suitable solution for the global problem.[136]

- *Heuristics*: Decision makers tend to recognise similarities in problems and their solutions and generally try to solve similar problems with solutions that closely fit the current situation. This is described as "rules-of-thumb for … solving certain kinds of problems."[137]

- *Framing*: Decision makers tend to adopt certain paradigms in which they box the situation into a perspective on how they would deal with the problem. Framed decisions influence the solution in different ways depending on the perspective of the decision maker.[138]

March concludes his mechanisms to cope with limited (bounded) rationality by saying that there is a substantial market for frames available and that decision makers use these frames that are adopted from colleagues, friends, consultants, and organisations for example. He ends off by saying that "prescriptive theories of decision making seek to legitimize a

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[134] March, J.G. 1994, 10. A Primer on Decision Making. (More on this in Weick's theory of frameworks and limited rationality in CHAPTER 3, section 3.1.1.1 and 3.1.1.2)

[135] March, J.G. 1994, 12. A Primer on Decision Making. (More on this in CHAPTER 3, section 3.1.1.3.6, where Weick focuses on cues and frames.)

[136] March, J.G. 1994, 12. A Primer on Decision Making.

[137] March, J.G. 1994, 13. A Primer on Decision Making.

[138] March, J.G. 1994, 14. A Primer on Decision Making. (More on this in CHAPTER 3 where Weick focuses on frames and cues in section 3.1.1.3.6)

consequential frame for considering decisions."[139] See Figure 12 representing March's decision-making model that consists of a consequential frames process.

Figure 12 – March's consequential frame for decision making[139]

3.1.1.1.2   *Satisficing and maximising*

As seen above, March explained that decision makers are supposed to choose among the alternatives by considering their consequences and selecting the alternative that delivers the best outcome. Alternatively, March emphasises another aspect of limited (bounded) rationality by introducing the terms, and second elements, *satisficing*[140] and *maximising*[141]. He says that "maximizing involves choosing the best alternative, [while] satisficing involves choosing an alternative that exceeds some criterion or target."[142] It is difficult to differentiate between maximising and satisficing says March, when looking at decision outcomes it can be interpreted in either way, so he find it necessary to search for situations in which the two options produce uniquely different outcomes. Maximisation emphasises the relative position of alternatives to each other, is sensitive to non-homogeneous shifts in alternatives, and is sensitive to changes in expected return and costs.[143] On the other hand, satisficing emphasises the position of alternatives relative to a target and the procedure is sensitive to change in the value of the current choice and to "homogeneous downward shifts in alternatives if they include the chosen one."[144] Satisficing is sensitive to changes in the current position relative to the target. Therefore, maximising is when the chosen alternative would

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[139] March, J.G. 1994, 15. A Primer on Decision Making. (Figure 12 © Ilse de Kock, 17 November 2017)

[140] March, J.G. 1994, 19. A Primer on Decision Making. Satisficing requires only a comparison of alternatives with a target until one that is good enough is found. Satisficing specifies a target for each dimension and treats the targets as independent constraints. Under satisficing, a bundle that is better on each criterion will not be chosen over another bundle that is good enough on each criterion of the latter bundle is considered first. Satisficing also makes it possible that no bundle will satisfy all criteria, in which case a decision will not be made. (italics as in source)

[141] March, J.G. 1994, 18. A Primer on Decision Making. Maximising requires that all possible alternatives are compared and the best one chosen. Maximising requires that preferences among alternatives meet strong consistency requirements, essentially requiring that all dimensions of preferences be radicle to a single scale — although that scale need not exist in conscious form. (italics as in source)

[142] March, J.G. 1994, 18. A Primer on Decision Making. (italics as in source)

[143] March, J.G. 1994, 20. A Primer on Decision Making.

[144] March, J.G. 1994, 21. A Primer on Decision Making.

change relative to the other alternatives and satisficing is when the chosen alternative would change relative to the target.

3.1.1.1.3   *Theories of attention and search*

March introduces another aspect, and the third element within bounded rationality termed attention. He emphasises that attention is a scarce resource within the theory of bounded rationality. He again states that:

- "Not all alternatives are known, they must be sought"[145]
- "Not all consequences are known, they must be investigated"[145]
- "Not all preferences are known, they must be explored and evoked"[145]

In addition, to this process:

- "The allocation of attention affects the information available, and thus the decision." [146]

Hence, March's consequential frame of decision making in Figure 12 can be altered to render the role of attention as follows:
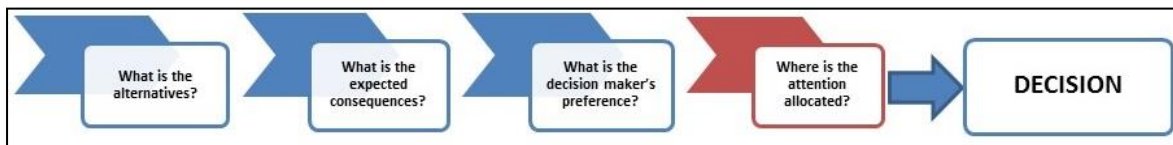
Figure 13 – March's altered consequential frame for decision making[146]

He highlights that attention is found throughout the social and behavioural sciences as well as economics, where the main theory of search is a central point of the study of decision making. There are a few aspects that in association with attention can influence the decision-making process and probably outcome as well. These aspects are time and information overload (or information management)[147], for there are more things to be done than there is time to do it in, and that places more pressure on attention than can be met. Attention is, as a result, part of three elements, including time and information management, which are critical to research on decision making. March concludes by saying that: "Decisions happen

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[145] March, J.G. 1994, 23. A Primer on Decision Making.
[146] March, J.G. 1994, 23. A Primer on Decision Making. (Figure 13 © Ilse de Kock, 17 November 2017)
[147] March, J.G. 1994, 24. A Primer on Decision Making.

the way they do, in large part, because of the way attention is allocated, and 'timing' and 'mobilization' are important issues."[148]

3.1.1.1.4   Risk and risk taking

March introduces his fourth element within the model on his theory of rational choice, termed risk and risk taking. He labels it as a "serious concern of rational theories of choice" … [and state that it can also be] … "used as a label for the residual variance in a theory of rational choice."[149] March divides the factors that affect risk taking into three sets:[150]

- Set 1 – Risk estimation.

Decision makers estimate the risk involved which impact the risk actually taken. Underestimated risks will result in decisions portraying greater risk taking than was intended, while overestimated risks will reflect less risk taking than intended.

March divides estimation into two groups—technical (those that reflect the true situation), and social (those that are shared by others, are stable and are believed with confidence) validity, which is neither assured nor distinct.[151]

- Set 2 – Risk-taking propensity

Some decision makers have different tendencies to take a risk and have been described as a certain preference for risk—that only partly indicate a conscious choice. Thus, the level of risk taking is affected by the propensity of a risk taker.

March provides four different understandings of risk-taking propensity to consider: Risk-taking propensity as a (n): (1) personality trait, (2) reaction to targets, (3) reasoned choice, and (4) artefact of reliability.[152]

March briefly describes the four understandings. Firstly, risk-taking propensity as a trait consists of some people having a risk-aversion and others a more risk-taking propensity. He points out that different professions, and therefore different organisations, will have a certain distribution of risk-takers, depending on the organisation. He proposes that in order to attract

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[148] March, J.G. 1994, 24. A Primer on Decision Making. Something may be overlooked because something else is being attended to.
[149] March, J.G. 1994, 35. A Primer on Decision Making.
[150] March, J.G. 1994, 35. A Primer on Decision Making. (italics as in source)
[151] March, J.G. 1994, 36. A Primer on Decision Making.
[152] March, J.G. 1994, 40. A Primer on Decision Making.

the right kind of risk-takers for an organisation, the organisation itself have to attract the right kind of people with a certain "risk propensity".[153] Secondly, risk-taking propensity as target-orientated consists of an individual that are not seen with a stable trait, but fluctuating with the situation. This is when the individual's position according to a target varies, and therefore also between contexts of failure and success. He proposes that when individuals are far above their target, they tend to take greater risks—for they presume that they have a little chance of failing, while with risk takers that are below target, they either take more risks to achieve their target, or they repeat previous actions and avoid risks.[154] Thirdly, risk-taking propensity as a choice, risky behaviour consists of reasoned choice. He proposes that individuals rationally calculate what level of risk would work the best for them, either in a competitive situation, or for expecting a certain value, or calculating the expected consequences or fulfilling the demands of an identity.[155] Fourthly, risk-taking propensity as an artefact of reliability consists of risks being taken because of unreliability. March proposes that "risk-taking behaviour is influenced by the changes in knowledge of a decision maker"[156], and that this effect originates from the relationship between knowledge and reliability. The increase in knowledge increases the average performance that is expected in a decision-making situation and increases the reliability of the outcome. March concludes that "as decision makers become more knowledgeable, they improve their average performance and reduce their risk taking."[156]

- Set 3 – Structural factors

The context in which risk estimation and risk-taking occur affects the decision-making process. March stated that organisations often provide the context in which risk estimations and risk-taking tendencies are turned into risks. The structure of the organisation determines the shape and levels of the risk.

He also points out that the estimation of risks by decision makers are biased by the experiences they have in organisations and that takes place in two ways: (1) Decision makers are successful in their past performance in the organisation, which produces a success-

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[153] March, J.G. 1994, 41. A Primer on Decision Making. (italics as in source)
[154] March, J.G. 1994, 42. A Primer on Decision Making.
[155] March, J.G. 1994, 44. A Primer on Decision Making.
[156] March, J.G. 1994, 45. A Primer on Decision Making.

induced bias, and (2) they hardly experience rare events which produce biases in estimating extreme probabilities.[157]

March proceeds by stating that risk-taking propensity is a distinguishing feature of a person's character and that the main way an organisation's risk-taking can be affected is when it affects the "entrance, exit and promotion of individuals with particular risk-taking propensities."[158] The answers on who enters and who leaves are results of deliberate consequential choice and this only happens if it acceptable for the individual as well as the organisation and as long as neither have a better option or alternative. March now asks the question; how do organisations and individuals select each other? He comes to two conclusions: (1) If the organisation can monitor risk-taking propensity then it is more likely for an organisation to prefer a reliable individual and rather avoid risk-takers—specifically in large organisations where big employment mistakes are more visible, and (2) when an organisation cannot monitor the risk-taking propensity, they monitor other things like competency which "selects individuals by traits of risk-avoidance"[159] and therefore selects risk-avoiders. On the question of who moves up in an organisation, the answer can prefer risk-seeking or risk-avoiding managers, depending on which individual have the right trait. According to March, "surprisingly enough … the average risk-taking propensity of higher-level managers appears to be somewhat higher than that of lower-level managers."[160]

In the former section (2.1) the basic background on the fundamental decision-making theories was provided. The theory was presented and from those notions and principles, the decision-making models and concepts were delivered. This paved the way to determine how decisions are made in organisations, which will, in turn, present the way CIOs make decisions (that made evident in section 2.3).

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[157] March, J.G. 1994, 46 - 47. A Primer on Decision Making.
[158] March, J.G. 1994, 49. A Primer on Decision Making.
[159] March, J.G. 1994, 50. A Primer on Decision Making.
[160] March, J.G. 1994, 51. A Primer on Decision Making.

2.2   Decision making in organisations

With the aim to see how specifically CIOs make their decisions, it is essential to narrow down the pool of decision makers to people within organisations, before we get to the actual CIO in the organisation.

The leaders on decision-making theory have introduced the basic models of decision making, and we now dive deeper into how decisions are made within organisations, and more specifically by CIOs, as will be discussed in section 2.3. The aim here is to establish whether the decision-making processes in organisations portray/mirror these previously mentioned models, or do they purely design their own models, influenced by external factors, or variables, such as their particular organisation or environment.

The following sections will now represent the views of the three theorists used in the former section (2.1).

2.2.1 Decision making in organisations according to Barnard

As early as a decade ago, Gehani asked the question if the decision-making model by Chester Barnard is still viable in the "emerging knowledge-based dynamic theory of the firm?"[161] He stated that Barnard based most of his statements "on his hands-on leadership style to describe the functioning of a business organization"[161], but established that most of his "founding principles and constructs … still retain their validity decades later for the *technology-intensive* global enterprises."[162] This is also the question of this section: Is Barnard's model viable for today, and is the behaviour of individual decision making the same as the behaviour of making decisions in organisations?

Barnard himself states in his business classic *The Functions of the Executive*[163] that individuals – and a considerable portion of organisations – purely respond to *conditions of the environment* (see Figure 3) with no involvement of decision-making processes, as had been described by Barnard in section 2.1.1. However, Barnard continues, the acts that are preceded by decisions, differs in the sense that "consciously recognized purposes, ends, or objectives

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[161] Gehani, R.R. 2002, 980. Chester Barnard's "executive" and the knowledge-based firm.
[162] Gehani, R.R. 2002, 980. Chester Barnard's "executive" and the knowledge-based firm. (italics to emphasise technology connection)
[163] Barnard, C.I. 1938, 200. The Functions of the Executive.

are present as the basis for action in sufficient strength to result in effort."[163] With "individuals these ends may arise from physiological requirements, from ideas or states of mind … [which is] a consequence of the social history or conditioning of the individual"[163], while with organisations *all ends arise by social processes*.

In some instances, organisation ends are considered as a combination "of ideas uniformly held by the individual participants"[163] in other instances the ends of the organisation "are the unique results of the *action* of the organization itself."[164] Barnard continues by explaining that these ends are partially limited "by the ideas of the individuals participating."[163] However, the ends are not determined by these limits but the individuals' participation is affected by the objectives of the organisation. Barnard states that on the contrary decisions are made within organisations on the "basis of the 'good' of the organization."[165] He describes that the moral element of decision making in organisations, "refers to the future, and implies foresight in terms of some standard or norm of desirability."[166] He also labels the other component of decision making in organisations the opportunistic element. This element refers to intuitive (or unconscious) decision making which refers to actions taking place in the present, and "under conditions and with the means presently available."[166]

Consequently, we learn from Barnard that decisions made in organisations are influenced by the moral and opportunistic elements of individuals as well as certain standards within the organisation. This brings us back to the model in Figure 3, concluding that decisions made in organisations are influenced by circumstances (social and psychological), and responsibilities, such as the objectives of the organisation.

Therefore, the model as portrayed in Figure 3 remains as is, for organisations and individuals.

2.2.2 Decision making in organisations according to Simon

In 1979, Herbert Simon wrote in his article on *Rational Decision Making in Business Organization* that at that time there were no "empirical studies of the process of decision making in organizational context."[167] He explains that the studies done on individual decision

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[164] Barnard, C.I. 1938, 200. The Functions of the Executive. (italics as in source)
[165] Barnard, C.I. 1938, 200 – 201. The Functions of the Executive. "Good" may have reference primarily either to the internal equilibrium of the organisation as affecting its relations with participants, or to external equilibrium as affecting its relations with the general (including the social) environment.
[166] Barnard, C.I. 1938, 201. The Functions of the Executive.
[167] Simon, H.A. 1979, 507. Rational Decision Making in Business Organizations.

making did not cover the social-psychological factors that would influence the decision-making process in organisations.[167] He claimed that to his knowledge there was no good summary of the investigations and case studies done on decision making in organizations, but only "represented the natural history stage of scientific inquiry."[168] Even at that stage, Simon did not know what to do with his observations, but he knew that "specific decision making procedures used by organizations differ from one organization to another, and within each organization, even from one situation to another."[168]

Already in 1949, Simon wrote in his classic book *Administrative Behavior: A Study of Decision-Making Processes in Administrative Organization*, that an administrative process is a process where a group of people is involved when a task had grown to a point where a single person can no longer execute the plan on his own, but a group of people is necessary, and a process needs to be implemented. Simon highlights that this "administrative processes are a decisional process:"[169] this consists of separating the decisions necessary to be made by the individuals, and those need to be made as an organisation. In an organisation, the decision-making process is initially started out by decisions made by individuals, however, when a process reaches a certain level then some of the individual's decision-making autonomy is taken away and are substituted by the organisation's decision-making process.[169]

According to Simon "the decisions which the organization makes for the individual ordinarily is to:"[169]

- "Specify his function, that is, the general scope and nature of his duties"[169]
- "Allocate authority, that is, determine who in the organization is to have power to make further decisions for the individual"[169]
- "Set such other limits to his choice as are needed to coordinate the activities of several individuals in the organization."[169]

Simon explains further that an "administrative organization are characterized by specialization—particular tasks are delegated to particular parts of the organization."[170] This "vertical" division of labour forms a pyramid or hierarchy of authority, where the decision-making authority may be greater or less, depending on where in the hierarchy the members

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[168] Simon, H.A. 1979, 508. Rational Decision Making in Business Organizations.
[169] Simon, H.A. 1949, 8. Administrative Behavior.
[170] Simon, H.A. 1949, 9. Administrative Behavior.

are.[171] Simon clarifies that "horizontal" specialisation is the division of work[172], where "vertical" specialisation is the division of decision making between operative and supervisory personnel.[170]

Simon provides three reasons for vertical specialisation in organisations:

- "If there is a horizontal specialization within an organization, then the vertical specialization is essential to achieve *coordination* among the operational employees."[170] This coordination can be either procedural, which is the relationship between the members and the established lines of authority, or substantive, which is the content of the actual work.

- "The same as horizontal specialization achieves greater skills and *expertise* developing among operative employees, so does the vertical specialization permits greater expertise in the making of decisions."[170] In order to gain the advantages of expertise in decision making, the responsibility for decisions must be allocated that all decisions requiring a certain skill can be made by persons that have that skill. It is possible for decisions to be subdivided, a complicated situation, but when combining the skills and knowledge of different members within an organisation would improve the quality of the decision.

- "Vertical specialization permits the operative personnel to be held *accountable* for their decisions—to the board of directors."[170]

With this in mind, Simon states that decisions at the top ranks of the organisations hierarchy will have no effect on the work of the operational employees unless it is properly communicated downwards.[173] With this being said, it is necessary to find a way to influence the operational employees to incorporate the decisions made either by them or for them. These influences fall into two categories:[174]

- Establish an attitude, habit or a state of mind within the mind of the operational employee to make decisions that are advantageous to the organisation. For this, to work, the organisation needs to infuse loyalty and efficiency in the employee as well as training them.

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[171] Simon, H.A. 1949, 9. Administrative Behavior. (quotes as in source)
[172] Simon, H.A. 1949, 9. Administrative Behavior. Simon quote Gulick, "Work division is the foundation of organization; indeed, the reason for organization."
[173] Simon, H.A. 1949, 11. Administrative Behavior.
[174] Simon, H.A. 1949, 11 – 16. Administrative Behavior.

- Organisational *loyalty* is a predominant characteristic that most members within an organised group tend to identify with. For them, it is customary to evaluate alternative courses of action when they are listing the consequences of their actions while making decisions.

- On the other hand, the criterion of "*efficiency* simply means to take the shortest path, the cheapest means, toward the attainment of the desired goals."[175]

- Finally, *training* prepares the member to reach satisfactory decisions himself, without the need of authority or advice (as will be discussed in the next point). In this sense, training is an efficient alternative to the exercise of authority and advice and aids as an "in-service or pre-service"[176] of assuring correct decisions in their work. Training is also very handy in the decision-making process when the same elements are involved in a large number of decisions. It can also supply the member with a *frame of reference* in his thinking and dealings with decisions and teach him "approved" solutions and may indoctrinate him with the terms of which his decisions are to be made.[177]

- Bluntly impose decisions on the operational employees that are reached elsewhere in the organisation. This primarily depends upon authority[178], advisory and informational services.

- Therefore, a "subordinate is said to accept *authority* whenever he permits his behaviour to be guided by the decision of a superior, without independently examining the merits of that decision."[179] A very important function of authority is to ensure that a decision is made and carried out; therefore, it is necessary for an agreement to be reached in order for a decision to be executed. Simon describes a "zone of acceptance"[180] that needs to be reached with a subordinate in order to make sure that the decision is executed. There is also "lines of authority"[180] within an organizational chart with a significance, but according

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[175] Simon, H.A. 1949, 14, 102-103. Administrative Behavior.

[176] Simon, H.A. 1949, 15. Administrative Behavior.

[177] Simon, H.A. 1949, 16. Administrative Behavior. (more on this in CHAPTER 3, Section 3.1.1.1)

[178] Barnard, C.I. 1938, 163. The Functions of the Executive. "Definition of authority: Authority is the character of a communication (order) in a formal organization by virtue of which it is accepted by a contributor to or "member" of the organization as governing the action he contributes; that is, as governing or determining what he does or is not to do so far as the organization is concerned."

[179] Simon, H.A. 1949, 11. Administrative Behavior.

[180] Simon, H.A. 1949, 12. Administrative Behavior.

to Simon they are mostly used to terminate a debate or settle a dispute when a decision-making process cannot reach a consensus.[180]

- *Advice,* on the other hand, is not guaranteed to have an influence on the decision making within an organisation unless it is adequately communicated through all the channels within the organisation and are persuasive enough to have an effect on the decision.

- In relation to advice, *information* also flows in all directions within an organisation and many of the facts that are relevant to a decision has the habit of rapidly changing nature and does only come to light when a decision needs to be made, and according to Simon, only by operative employees.

With all the above-mentioned influences on the decision-making process within an organisation there is another element that Simon clearly pointed out on being a complication in the process; group behaviour.[181] The reason for this element being of fundamental importance in the decision-making process is that "each individual, in order to determine uniquely the consequences of his actions, must know what will be the actions of the others (see Figure 14)."[182]
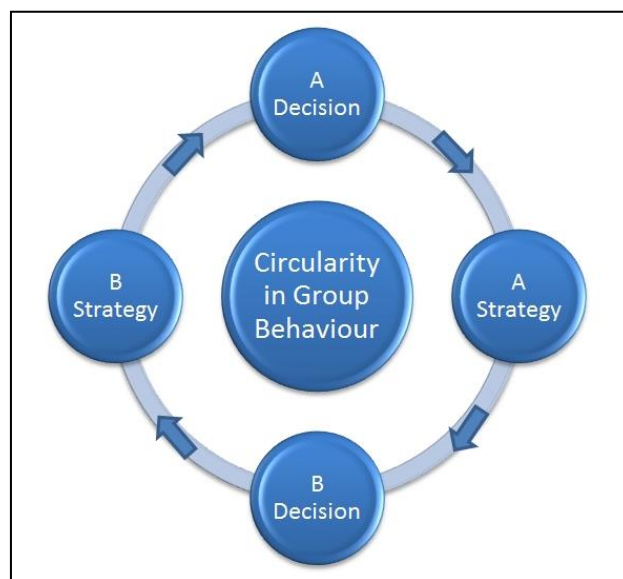
Figure 14 – Simon: The circularity involved in decision making in organisations[182]

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[181] Simon, H.A. 1949, 70. Administrative Behavior.
[182] Simon, H.A. 1949, 71. Administrative Behavior. (Figure 14 © Ilse de Kock, 17 November 2017)

Simon describes this circularity as serious and explains the figure as follows:

"Before A can rationally choose his strategy, he must know which strategy B has chosen; and before B can choose his strategy, he must know A's."[182] The result of this behavioural system is that "the instability of each of the behaviour choices [will lead] to the instability of the other."[182]

Simon explains that the opposite of this kind of competitive form of decision making is when the two or more participants (can be groups) have a common goal ("cooperation"[183]) and also have sufficient information ("coordination"[184]) on what the other group is going to do, in order to make an informed and correct decisions. Simon calls this "teamwork"[182] and that cooperation will be ineffective if there is no coordination.

Simon concludes his explanation (see Figure 15 below) on group behaviour by stating that organisations are systems of cooperative behaviour where members of the organisation are expected to have respect for the common goals of the organisation. That being said, it is also of great significance that the members' behaviour needs to be coordinated, by providing each member with the knowledge of the behaviours of others upon which he can base his decisions.[185]
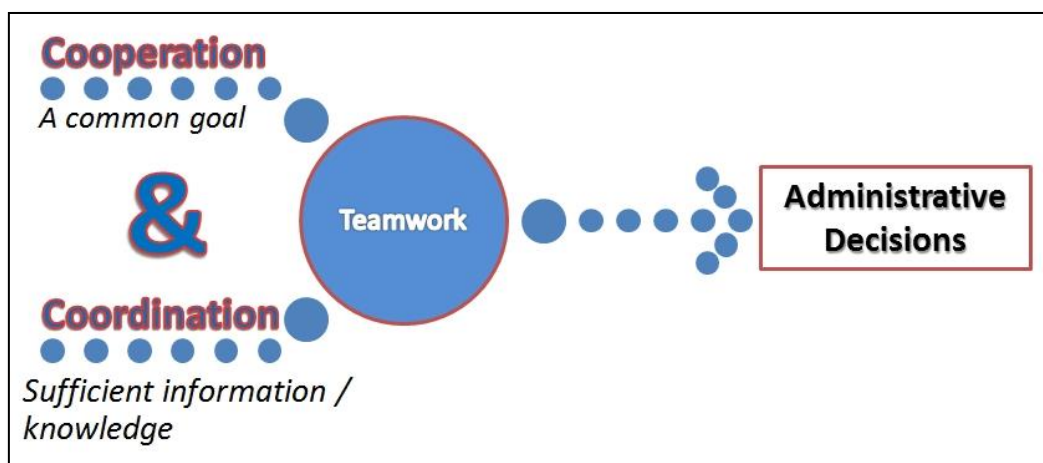
Figure 15 – Simon: The administrative decision-making process[185]

Simon attained a point in his research where he explains the role of the organisation in establishing the psychological environment of choice on how the organisation selects the

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[183] Simon, H.A. 1949, 72. Administrative Behavior.
[184] Simon, H.A. 1949, 72, 103. Administrative Behavior.
[185] Simon, H.A. 1949, 73. Administrative Behavior. (Figure 15 © Ilse de Kock, 17 November 2017)

individual's ends[186], how the individual is trained and how he is provided with information in order to make decisions that are advantageous to the organisation. Therefore how the organisation integrates the behaviour of the individual in its day-to-day decision-making processes, by influencing the decisions of the individual. Within an organisation, it is very important that the rational individual is organised and institutionalised, which means that the individual—when making decisions—must be subject to the influence of the organisation, as has been discussed above. Simon says that the individual's "decisions must not only be the product of his own mental processes but also reflect the broader considerations of which it is the function of the organized group to give effect."[187]

Therefore, as we have seen from Barnard, Simon is also convinced that decisions made by individuals within an organisation are consequently influenced by the organisation, regarding social behaviour, loyalty, and authority. Simon's decision-making model stays the same as in Figure 9, only his portrayal of external influences differ from Barnard's representation.

2.2.3 Decision making in organisations according to March

In 1963 Cyert & March wrote that the neoclassical theory of decision making is awkward and can be seen as only a partial model of decision making in organisations.[188] He outlines the theory as follows:

- "Organizational decisions depend on information, estimates, and expectations that as a rule differ from reality."[189] These perceptions are influenced by organisational procedures, which in turn provide concrete estimates.

- "Organizations consider only a limited number of decision alternatives."[189] The collection of alternatives that are considered depends on the organizational structure and locus of search responsibility. This dependence is particularly conspicuous when budgets and price-output are involved.

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[186] Simon use the word "end" in order to describe choice or decisions made.
[187] Simon, H.A. 1949, 102. Administrative Behavior.
[188] Cyert, R.M & March, J.G. 1963, 99, 102. A behavioral theory of the firm. Cyert & March describe this model as partial because of their "discouragingly small" knowledge of how organizationisations actually make decisions. They describe this model as partial because and should be viewed as tentative (as well as partial) approximations.
[189] Cyert, R.M & March, J.G. 1963, 99. A behavioral theory of the firm.

- "Organizations vary with regards to the amount of resources they devote to organizational goals on the one hand and sub-organizational and individual goals on the other."[189]

2.2.3.1   Cyert & March's partial model of organisational choice

These earlier considerations of the neo-classical decision-making theory lead Cyert & March to a partial model of organisational choice. This partial model consists of the following nine steps (see Figure 16):[190]

2.2.3.1.1   Forecast competitors' behaviour

Therefore, organisations gain information on the reaction of their rivals as well as analysing their behaviour. The organisation uses computational formulas to calculate the conjectural variation term for a certain period of time as a function of the actual reactions observed in the past.[191]

2.2.3.1.2   Forecast demand

Therefore, the organisation makes assumptions about the process by which the demand curve is estimated. The organisation keeps the slope of the demand curve constant (Therefore linear) but passes it through the last realised point in the market.[191]

2.2.3.1.3   Estimate costs

The model does not assume that the organisation has an optimum amount of resources or has reached the lowest cost per unit, but estimates its average cost. Therefore, the model determines the cost curve for the current period is the same as for the previous period. The model executes that if the profit goal has been achieved two successive times, then the average unit costs increase.[191]

2.2.3.1.4   Specify objectives

Objectives serve two distinct functions. First, the objectives consist of goals the organisation wishes to achieve and use it to determine if the organisation has at least one feasible plan. Second, the objectives may be used as the decision criteria in order to select an alternative in the last step. In this model, Cyert & March decided to limit the objectives to the one major

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[190] Cyert, R.M & March, J.G. 1963, 100 - 102. A behavioral theory of the firm. (italics as in source)
[191] Cyert, R.M & March, J.G. 1963, 104. A behavioral theory of the firm. (Figure 16 © Ilse de Kock, 17 November 2017)

objective, namely profit.[192] Therefore, the model will choose the alternative that provides a profit that is satisfactory or if such an alternative exists, choose the alternative that provides the maximum amount of profit. The model would calculate the "profit goal as a function of the actual profits achieved over past periods."[191]

2.2.3.1.5   Evaluate plan

The alternatives are evaluated within the estimated space.[191] Based on the first three steps, the alternatives are examined to see whether there is at least one alternative, which is defined by step four. If there is an alternative, the model proceeds directly to the last step or if there is no alternative, the model proceeds to the next step.

2.2.3.1.6   Re-examine costs

This step allows organisations to discover cost savings, which would not have been possible otherwise. Therefore, "the re-examination of cost is a search method for accomplishing objectives at lower cost."[193] When costs are revised, step five occurs again, and if possible precedes to the last step, otherwise, proceed to the next step.

2.2.3.1.7   Re-examine demand

Demand is reviewed to see whether a more favourable demand cannot be obtained. Step five occurs again with the revised demand estimates. The result of this step is to increase demand when some new alternative is selected.[194]

2.2.3.1.8   Re-examine objectives

Objectives are revised when plans are unfavourable. In this case, the profit would be reduced to a level consistent with the best alternative as determined by the outcome of the modification of the cost and demand in the previous steps.[195] The model proceeds to step five with the revised objective.

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[192] Cyert, R.M & March, J.G. 1963, 107. A behavioral theory of the firm.

[193] Cyert, R.M & March, J.G. 1963, 108 - 109. A behavioral theory of the firm. "We believe this ability to revise estimates when forced to do so is characteristic of organizational decision making." "It is assumed that the re-examination of costs under the pressure of trying to meet objectives enables each of the organizations to move in the directions of the 'real' minimum cost point."

[194] Cyert, R.M & March, J.G. 1963, 109. A behavioral theory of the firm.

[195] Cyert, R.M & March, J.G. 1963, 104,109. A behavioral theory of the firm. "The procedure can be interpreted as adjusting aspirations to the "best possible under the circumstances.""

2.2.3.1.9   Select alternative

The selection of an alternative can take place either by using the original estimates and reaching the original goal, or by using the modified estimates to meet the original goal, or by using the modified estimates to reach the modified goal.[196]
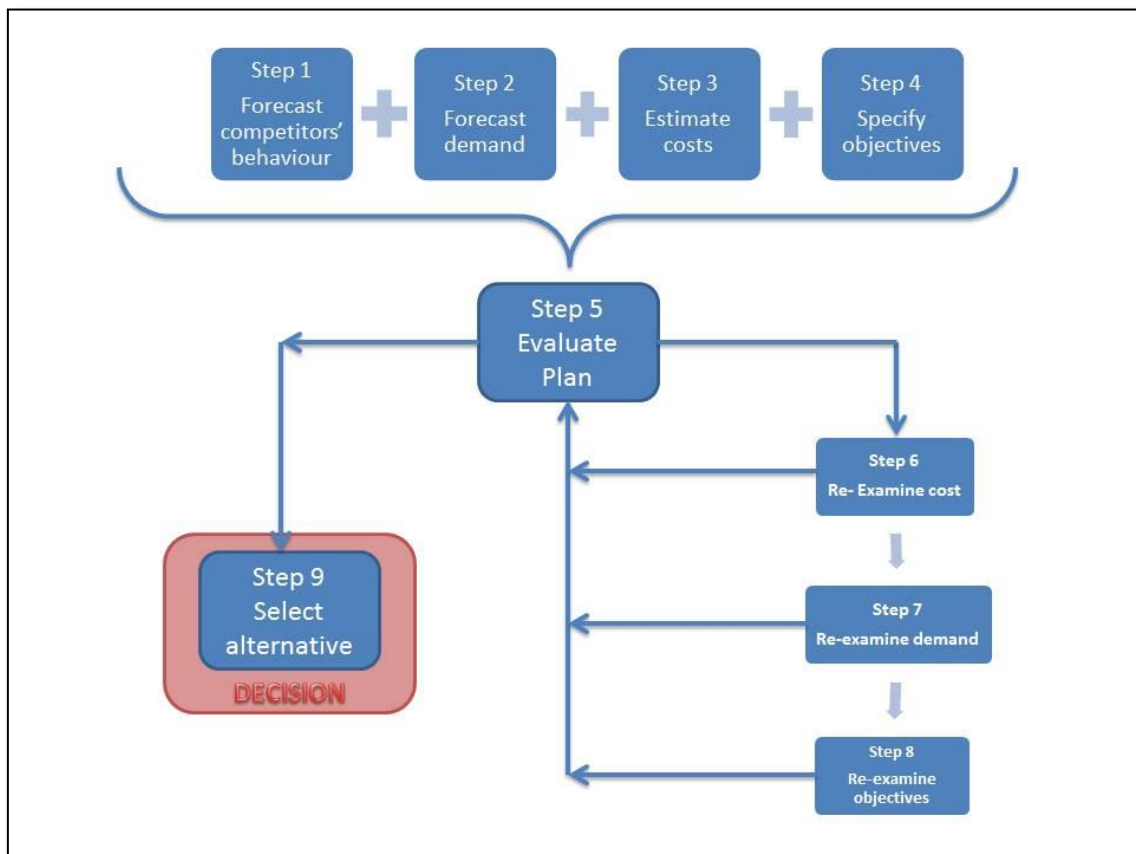
Figure 16 – Cyert & March: A partial model of organisational Choice: The decision process[191]

In this partial model, it is clear that organisations need ways to generate alternatives and ways to choose from those alternatives generated. According to Cyert & March, the methods by which these alternatives are generated are very important, because "it affects the order in which they are evaluated."[197] When alternatives are generated sequentially, it is quite simple to make a decision: "Choose the first alternative that satisfies the objectives."[197] This is the essence of the partial decision-making model which Cyert & March portrayed as an "executive program for organizational decisions."[197]

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[196] Cyert, R.M & March, J.G. 1963, 104. A behavioral theory of the firm.
[197] Cyert, R.M & March, J.G. 1963, 102. A behavioral theory of the firm.

2.2.3.2   Cyert & March's theory on standard operating procedures

Cyert & March introduce the entity of standard operating procedures (SOPs) as the memory of an organisation and which change over time at varying rates. According to Cyert & March, "standard operating procedures should be one of the major objects for study by students of organizational decision making."[198] The SOPs not only add to stability to an organisation but also influence the decisions made in the organisation.[199]

Cyert & March define a general decision procedure in terms of SOPs used by organisations. They summarised this general decision procedure in terms of three basic principles:[200]

- *Avoid uncertainty*. Therefore, the organisation uses procedures that minimise the need for predicting uncertain future events.

- *Maintain the rules*. Therefore, the organisation keeps to their decided set of rules (or procedures) and would only abandon the rules under pure threat.

- *Use simple rules*. Therefore, the organisation keeps the rules simple and there is a list that specifies conditions under which the procedures might be modified.

Cyert & March briefly describes four major types of procedures in organisations:[201]

- *Task performance rules*. These rules consist of specifications of methods for individuals (or groups) to accomplish a task they were assigned. These rules also allow prior learning to be transferred internally as well as providing the organisation with solutions to tasks being performed in the organisation.

- *Continuing records and reports*. Organisations keep permanent records of certain aspects of its operation. These records are usually kept of procedures of the organisation that forms an important part of the effective operations of the business. Cyert & March highlights here that the kind of records and reports an organisation keeps over time is an important characteristic of the firm's decision-making system for the records and reports portray a firm's perception of its own internal structure. The main purpose of these records and reports are that of control and prediction because they trigger some action mainly as a result of merely being kept.

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[198] Cyert, R.M & March, J.G. 1963, 119. A behavioral theory of the firm.
[199] Cyert, R.M & March, J.G. 1963, 122. A behavioral theory of the firm.
[200] Cyert, R.M & March, J.G. 1963, 121. A behavioral theory of the firm. (italics as in source)
[201] Cyert, R.M & March, J.G. 1963, 122 – 133. A behavioral theory of the firm. (italics as in source)

- *Information-handling rules*. Transmitting information in any organisation is a major activity and in order to provide certain information at a certain point in time, a functional communication system is required that adhere to the operating code of the organisation. According to Cyert & March, an organisation is defined as a communication system in terms of four things: (1) the characteristics of the information taken into the firm—the firm consist of the sum of all these information bits. (2) The rules for distributing and condensing input information—what do members of the organisation do with the information they bring into the organisation? (3) The rules for distributing and condensing internally generated information—how are the information produced within, moved through the organisation? (4) The characteristics of the information leaving the firm—the way the organisation communicates with its environment.

- *Plans*. Plans for organisational behaviour represent one of the major outputs in the organisation. The form of these plans is mainly to allocate resources to the activities within the firm and ranges from short-run to long-run plans. Cyert & March make four observations on plans within organisations: (1) A plan is a goal—not all predictions are correct, but an organisation (under certain circumstances and within limits) can induce behaviour in order to confirm its prediction (goal). (2) A plan is a schedule—specifying intermediate steps in order to reach a predicted outcome. (3) A plan is a theory—executives prefer to use plan-orientated criteria rather than difficult financial statements. (4) A plan is a precedent—decisions of one year are defined and a *prima facie* case[202] is made for continuing existing decisions.

2.2.3.3   Cyert & March's skeleton on basic theory of organisational choice

As a result of Cyert & March's partial model on organisational choice as well as the role of behavioural rules—standard operating procedures, it is now possible for them to portray a skeleton on their basic theory on how decisions are made in organisations:

- "Multiple, changing, acceptable-level goals. The criterion of choice is that the alternative selected meet all of the demands (goals) of the coalition."[203]

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[202] The Free Dictionary. http://www.thefreedictionary.com/prima+facie+case (visited 16 March 2013): A case in which the evidence presented is sufficient for a judgment to be made unless the evidence is contested.
[203] Cyert, R.M & March, J.G. 1963, 134. A behavioral theory of the firm.

- "An approximate sequential consideration of alternatives. The first satisfactory alternative evoked is accepted. Where an existing policy satisfies the goals, there is little search for the alternatives. When failure occurs, search is intensified."[203]
- "The organization seeks to avoid uncertainty by following regular procedures and a policy of reacting to feedback rather than forecasting the environment."[203]
- "The organization uses standard operating procedures and rules of thumb to make and implement choices. In the short run, these procedures dominate the decisions made."[203]

2.2.3.4   March's portrayal on consequential choice

In March's book, *A Primer on Decision Making* he states that "when individuals and organizations fulfil identities, they follow rules or procedures that they see as appropriate to the situation in which they find themselves. Neither preferences as they are normally conceived nor expectations of future consequences enter directly into the calculus."[204]

In a lecture given by James March at Stanford University on 16 September 2007, he continues his depiction on consequential choice and starts his class with the following statement: "Modern portrayals of choice in management and business are overwhelmingly in a calculative and consequentialist tradition. In that tradition, choice is seen as driven by expectations, incentives, and desires. The litany of choices is first; what are my alternatives?; second, what are the consequences that I expect to follow from those alternatives?; third, how do I evaluate those consequences from a point of few of my desires?; and fourth, choose that alternative that promises consequences most congruent with my desires (see Figure 13 in Section 3.1.1.1.3).

This conception of human behaviour is by no means new, what is distinctly modern, however, is the extent to which a consequentialist justification reaction has become taken for granted. In particular, the entire apparatus of modern business management is built on such a conception. In the western world, and most conspicuously in western business schools, consequentialist justifications and explanations of actions have been sanctified. They are accepted as morally and pragmatically obvious, they are taught as sacred dogma."[205]

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[204] March, J.G. 1994, 57. A Primer on Decision Making. (spelling as in source)
[205] YouTube. http://www.youtube.com/watch?v=bztgYMoTEjM (visited 5 July 2012): James G. March, Emeritus Professor at Stanford.

"These rules of *consequential choice* (as mentioned, in section 3.1.1.1.1[206]) are limited and it depends on unrealistic hopes. Management requires great commitment; great commitments require great hopes, to motivate their commitments, managers tell themselves and are told by others—anything is possible. In general, this is not true. Experience encourages scepticism about human and organizational capabilities although individuals and organizations sometimes achieve what they hope to achieve, they often do not. The failure of grand hopes encourages delusions and provokes cynicism. A consequential logic demands heroic expectations that, when revealed is unattainable, result in self-delusion, cutting corners, cheating, lying and a sacrifice of decency. Disappointment, despair and retreat are common [causes] of consequential choice."[205]

With these statements March has made, it is clear that there is a substantial chasm between decisions made by following rules and those made in terms of consequences.[207] March's take on this issue is two-fold:[207] (1) *Reason and reasoning.* March states that reason is equivalent to "a logic of consequence"[207] and that "reasoning decision makers will consider alternatives in terms of their consequences for preferences."[208] Therefore, if you deviate from logic of consequences then you deviate from reason. March claims on the other hand that "rule following is portrayed as unthinking and automatic."[208] Therefore, balancing on either side of the scale is *choice*—linking to independence and thought, and *rules*—linking to dependence and thoughtlessness. It is described as a balancing scale because March does not judge between the two sides; he says that "both logics are logics of reason."[208] He explains that similarly, a "logic of consequence encourages thought, discussion, and personal judgement about preferences and expectations, a logic of appropriateness encourages thought, discussion, and personal judgement about situations, identities, and rules."[208] Both sides have an "interaction between personal commitment and social justification."[208] The distinction between the two sides are made by the demands it makes on the abilities of the organisation. On the one side, demands are made on the ability of the organisation to anticipate the future

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[206] YouTube. http://www.youtube.com/watch?v=bztgYMoTEjM (visited 5 July 2012): James G. March, Emeritus Professor at Stanford. Not all alternatives are known: Alternatives are not given but have to be discovered or created. Not all consequences are considered: Expectations are not known routine but have to be developed and that development introduces uncertainties and errors. Not all preferences are evoked at the same time: Desires are neither clear nor unified nor stable nor exogenous to the processes of choice.

[207] March, J.G. 1994, 100. A Primer on Decision Making.

[208] March, J.G. 1994, 101. A Primer on Decision Making.

in order to form useful preferences. On the other side, demands are made on the ability of the organisation to learn from the past in order to form useful identities. March concludes by saying that "both processes picture … [organisations] as having a relatively high order of reasoning skill."[208] "Both are plausible processes for reasoning, reasonable decision makers."[208] (2) *Mutual sub-sumesmanship.*[209] March states clearly that he is aware of the indifference between theorists of consequential choice and theorists of rule following, but that he made empirical observations and that neither can claim exclusive rights to the truth. He further explains that on the side of the consequentialists (e.g. economics, psychology and political science), "ordinary good sense probably calls for reminders of logics of appropriateness, identities, and rules."[210] He continues that on the other side where rules are dominant (e.g. sociology and anthropology), "ordinary good sense probably calls for reminders of logics of consequences, preferences, and calculation."[210]

With this discussion, it is clear that March, therefore, expands his model on decision making in section 3.1.1.1.3, Figure 13 with Cyert's partial model of organisation choice. And ends with Figure 16 in order to conclude that the role the organisation plays in the decision-making process is pertinent and cannot be taken out of the consequential model and process.

2.3 Decision making by CIOs

Now that the decision-making process within the organisation has been set forth, it is important to dive in even further and portray the process on decision making specific to the CIO within the organisation.

To position the CIO within the IT function is important, and according to King III, "IT has become an integral part of the business and is fundamental to support, sustain and grow the business. Not only is IT an operational enabler for a company, it is an important strategic asset to create opportunities and to gain competitive advantage."[211] The IT function is that part of the organisation that explicitly facilitates the flow of information, and as in most organisations, the CIO is the head of that division and therefore makes the decisions concerned with information technology.

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[209] The Free Dictionary. http://www.thefreedictionary.com/subsume (visited 17 March 2013): To classify, include, or incorporate in a more comprehensive category or under a general principle.
[210] March, J.G. 1994, 102. A Primer on Decision Making.
[211] King III Report, 12, http://www.library.up.ac.za/law/docs/king111report.pdf (visited 21 March 2013).

2.3.1 A view on decision making in the IT environment by Simon

Simon speaks about how individuals in organisations make decisions, which can be directly applied to CIOs. He expresses that rational decision making implies that there is "a complete, and unattainable, knowledge of the exact consequences of each choice."[212] He further continues by stating that in reality, "the human being never has more than a fragmentary knowledge of the conditions surrounding his action, nor more than a slight insight into the regularities and laws that would permit him to induce future consequences from a knowledge of present circumstances."[212] Therefore, it is possible to conclude that in an organisation, it is impossible for CIOs to envisage what all the consequences of their actions (decisions) will be, because of the fact that they only have fragmented knowledge of the conditions that surround their decision environment. They can also only have a slight insight to stimulate future consequences because of their current knowledge of the present circumstances they need to deal with. In section 3.1.1.1.1 March refers to this as limited (bounded) rationality, and therefore the actual behaviour of CIOs implies that:

- They do not have a complete knowledge of all the alternatives—they use only a few.
- Since all the consequences lay in the future, their experience has to assist them in this process.
- They tend to prefer one choice to another as a result of either experience or environmental influence.

Simon illustrated that in order to provide a service, such as IT, it is a very different situation from providing tangible goods within an organisation. He provides this illustration in order to explain why services such as IT is necessary for an organisational design.[213] Even then, at the mere start of computers and information technology, Simon said that "whatever problems are present in measuring the quality of goods are magnifies greatly in measuring the quality of service."[213] Thus, he emphasises, that IT as such already infer complicated decisions.[214] Even if it is a few years ago Simon still has a valid point when he says that the most important consideration within an organisation is how to organise the organisation in order to make

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[212] Simon, H.A. 1949, 81. Administrative Behavior.

[213] Simon, H.A. 1973, 269. Applying Information Technology to Organization Design.

[214] Simon, H.A. 1973, 269. Applying Information Technology to Organization Design. "—organizational decision making in the organizations of the post-industrial world shows every sign of becoming a great deal more complex than the decision making of the past."

decisions—"that is, to process information."[215] Therefore, growing into an environment where CIOs have to make decisions, not only using IT but also about IT, while processing vast amounts of information. According to Simon these vast amounts of information "typically originates outside the organization"[216], and therefore provides, even more, difficulty to cope with because of the quantities that are beyond the control of the decision maker and the organisation. Simon recommends that in order for decision makers to cope with these out-of-control amounts of information, an organisation "must have an 'interface' for ingesting such information selectively, and for translating it into formats that are compatible with its internal information flows and systems."[216]

Prior to our current information era, where decision makers could channel all their attention to a certain decision-making situation, and when information was a scarce resource, we find ourselves in an era where the volumes of information are readily available and can grow to be vast quantities—the attention that is needed towards the decision, is a scarce resource.[216] Simon explains the latter concept from an era which he called the "post-industrial society"[217] and which can easily be fitting to the situation today, but with even more information available and less attention from the CIO towards the actual decision. Simon also touches on the idea, that when decision makers (and by analogy, we can include CIOs) gather vast amounts of information, in order to make their decisions, it is sometimes impossible to work through all the information. Exactly like CIOs today. However, Simon says that it is not always necessary to work or even read all the information, for decision makers "is quite justified in collecting more [information] than [they] can read if [they] cannot predict in advance what particular information [they] will need in the future."[218]

Simon said in an interview with Ijiri and Sunder[219] that "modern communications … [has] changed the balance between the number of messages that can be produced and that can be received."[220] Simon says further that decision makers tend to think that gathering a lot of information is a great thing but seldom thinks of what happens after all the information is

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[215] Simon, H.A. 1973, 270. Applying Information Technology to Organization Design. "The anatomy of an organization viewed as a decision-making and information-processing system may look very different from the anatomy of the same organization viewed as a collection of people."
[216] Simon, H.A. 1973, 271. Applying Information Technology to Organization Design.
[217] Simon, H.A. 1973, 269. Applying Information Technology to Organization Design.
[218] Simon, H.A. 1973, 273. Applying Information Technology to Organization Design.
[219] Simon, H.A, 1990, 658. Information Technologies and Organizations.
[220] Simon, H.A, 1990, 659. Information Technologies and Organizations.

received. Especially now in the age where gathering information is at our fingertips and decision makers, and by analogy, CIOs included, "take in information just because it is there."[220] Simon agrees that communication technology has certainly increased the amount of information explosively, but that this is not the main obstacle. The main obstacle here is the "limited ability of people to absorb information; the scarce resource is human *attention*—[as also mentioned earlier in section 3.1.1.1.3, see Figure 13]."[220] From this, it would be possible to conclude, that this would be the exact same obstacle, which CIOs have to deal with when making decisions. They also have to gather vast amounts of information in order to conclude in decision-making situations and as a result of limited time and attention to these amounts of information, it is clear that they also must decide not to read all the information and make decisions even if all is not read.

2.3.2 A view on decision making in the IT environment by March

March continues from Simon's theory on attention and states that "in theories of limited rationality, attention is a scarce resource"[221], and therefore the "allocation of attention affects the information available, and hence the decision."[221] Thus, from section 3.1.1.1.1 portraying limited rationality, it can be concluded that CIOs would also focus their attention on portions of the information gathered, and that would in return affect the decisions made.

March continues by describing the modern world as "stimulus-rich and opportunity-filled."[222] Meaning that there are more things to do than there is time to do it in, and that there are more claims on attention that can meet the demand. Decision makers (and by analogy, CIOs included) has continued complaints about time management and concerns about "information overload".[223] These concerns have evidently not been improved by information technology, contrary "time pressure is further dramatized and probably accentuated"[222] by modern telecommunication technology. "Computers seem to have done more to increase information load than to reduce it."[222]

March comes to the same conclusion as Simon, that "decisions [are] affected by the way decision makers attend (or fail to attend) to particular preferences, alternatives, and consequences."[222] Therefore, with the information overload that CIOs are faced with, it is

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[221] March, J.G. 1994, 23. A Primer on Decision Making.
[222] March, J.G. 1994, 24. A Primer on Decision Making.
[223] March, J.G. 1994, 24. A Primer on Decision Making. (quotes as in source)

possible that "decisions happen the way they do, in large part, because of the way attention is allocated."[224] March continues by saying that "no rational decision maker will obtain all possible information"[225] and therefore reach the same point as Simon had made earlier in section 2.3.1, which is that "there are times when information has no decision value."[226] Thus, times when decision makers find themselves in a situation of information overload, they will be able to control their attention towards the information needed for making the decision, rather than wasting time attending on information that would either way not influence the decision.

In his book *"The Pursuit of Organizational Intelligence"*, March describes that human choice (and by analogy, CIOs) have certain limitations when looking from the side of decisions as rational choice. Firstly, the uncertainty lays in the consequences of the decision maker's action. March says that "even if estimates of the consequences of alternative action are formed and action is *intendedly* rational, there are informational and computational limits on human choice."[227] He explains that the reason for this is the manner in which humans process information that they are not able to interpret clearly the decision situations they find themselves in. He says that "they simplify complex situations, *using heuristics and frames to cope* with information."[228] Not only are there limits on the number of alternatives that are considered, but there are also limits on the accuracy of the information. March says that these "limits of individual human beings [and by analogy, also CIOs] are modified by the organizations in which they function."[229] He also states that in "some ways, organizations are able to overcome [the limitations on processing information and are] capable of parallel processing, of inventorying knowledge, and mobilising expertise.[229] These statements confirm March's theory on decision making, that as a result of these limitations, that nearly "all [and by analogy, includes choices made by CIOs] modern theories of rational choice are theories of limited (or bounded) rationality."[229]

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[224] March, J.G. 1994, 24. A Primer on Decision Making. "Interested participants may not be present at a given decision because they are somewhere else. Something may be overlooked because something else is being attended to."

[225] March, J.G. 1994, 25. A Primer on Decision Making.

[226] March, J.G. 1994, 25. A Primer on Decision Making. "In particular, from the point of view of decision making, if a piece of information will not affect choice, then it is worth acquiring or attending to."

[227] March, J.G. 1999, 16. The Pursuit of Organizational Intelligence. (italics as in source) (spelling as in source)

[228] March, J.G. 1999, 16. The Pursuit of Organizational Intelligence. (italics to emphasis)

[229] March, J.G. 1999, 16. The Pursuit of Organizational Intelligence.

Secondly, the ambiguity lies in the preferences of the consequences of the actions taken by the decision makers. As also mentioned in section 3.1.1.1.1 these preferences are, according to March, are neither stable, nor consistent, nor exogenous, unlike the manner in which it is portrayed by standard theories of choice. As a result, humans (and by analogy, CIOs) seem to experience this inconsistency as normal and a way that preferences developed. "They sometimes do something for no better reason that they must, or that someone else is doing it, or that they 'feel' like doing it."[230]

Thirdly, March focuses on the concept of risk preference with the behavioural side opposite the formal theorists in saying that sometimes, risky choices are made or avoided. March states that "sometimes decision makers take greater risks than they do at other times, but ideas of risk, risk taking, and risk preference are all, to some extent, inventions of students of Decision Making."[231] Therefore, the risk is sometimes unintentional and sometimes worth avoiding in full. March identifies three categories that would affect decision makers (and by analogy, CIOs) in taking risks:

- "Decision makers form estimates of the risk involved in a decision—these estimates are subject to the usual human biases and affect the risk actually taken."[231]
- "Decision makers tend to have different propensities to take risks under different conditions. Thus, the leaning towards taking risks is affected by the context in which either success or failure occurs."[231]
- "Decision makers are affected (unconsciously) by the reliability of the organization's actions. Thus when the organization is unreliable, decision makers tend to take risks."[231]

March focuses further on the estimation of risks and states that risk estimation is systematically based on the experiences that decision makers (and by analogy, CIOs) have in organisations.

It can be concluded that CIOs has been promoted to their current status, with decision-making authority, as a result of past successes. These successes have made them "confident about their ability to handle future events, leading them to believe strongly in their wisdom and insight."[231] Therefore, they have much "difficulty in recognizing the role of luck in their

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[230] March, J.G. 1994, 18. The Pursuit of Organizational Intelligence. (quotes as in source)
[231] March, J.G. 1994, 19. The Pursuit of Organizational Intelligence.

achievements."[231] As a result of this confidence, decision makers (and by analogy, CIOs) "tend to underestimate the risk they have experienced as well as the risk they currently face, and intentionally risk-averse decision makers may actually be risk seeking in behavior."[231]

Contrary to March's theory on rational decision making, he explains that it is not always self-evident that this is the way individuals make their decisions within the context of an organisation. He reveals that "much of the decision-making behavior we observe reflects the routine way in which people seek to fulfil their identities."[232] Thus, the ways in which individuals (and by analogy, CIOs) behave in organisations is by following SOPs, professional standards, cultural norms, and institutional structures, for individuals tend to find appropriate rules to follow within the organisation.[232] For that reason, rather than evaluating the alternatives as in rational decision making theories, individuals (and therefore CIOs) tend to match their situations with their identities. This includes the following factors:

- *Situation*: Decision makers classify situations into distinct categories that are associated with identities or rules.[233]
- *Identity*: Decision makers have a conception of their personal, professional, and official identities and evoke particular identities in particular situations.[233]
- *Matching*: Decision makers do what they see as appropriate to their identity in the situation in which they find themselves.[233]

March states that decision makers (and by analogy, CIOs) often discard looking at preferences and making consequential choices. Their decisions rather reflect proper human behaviour, such as, "traditions, hunches, cultural norms, and the advice or action of others,"[234] and therefore acting based on "rules, routines, procedures, practices, identities, and roles."[234]

2.4 Theory on decision making—Conclusion

This chapter provided an analytical literature study of the master theorists of decision making, namely Chester I Barnard, Herbert A Simon and James G March, and revealed visual models of their decision-making theories, and concepts. The study was then expanded further to demonstrate the use of decision-making theories within organisations, and then extended

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[232] March, J.G. 1994, 21. The Pursuit of Organizational Intelligence.
[233] March, J.G. 1994, 21-22. The Pursuit of Organizational Intelligence. (italics as in source)
[234] March, J.G. 1994, 22. The Pursuit of Organizational Intelligence.

further by focusing on the ways CIOs would make decisions within the IT environment, as an analogy to decision makers in management positions.

Decision-making models have been set forth to be transferred over to Chapter 3 for further investigation into the "How" CIOs make decisions within the IT environment.

CHAPTER 3

Sense making inducing decision making

"All things make sense; you just have to fathom how they make sense."

~ Piers Anthony

3.1 Background on sense-making models with reference to decision-making models

Weick ends his first chapter with this sentence: "Sensemaking is what it says it is, namely, making something sensible."[235] It is a concept that in itself does not make sense at first glance, but laying down some fundamental concepts about sense making will make sense when looking back.

In the previous chapter conventional decision making was portrayed as mostly linear processes that in the end will lead to a decision. This chapter will elucidate the role of sense making within the decision-making process: when and where it takes place. This will then propose a new decision-making model that will provide insight on how CIOs make decisions by combining the decision-making models in Chapter 2 with the sense-making models, theory and/or principles in Chapter 3.

3.1.1 Karl E Weick—Sense making in organisations

To clarify why certain concepts of sense making are used in the decision-making models of Chapter 2, it is important to explain the fundamental principles of sense making. This is done by using one of the renowned theorists in the field, Karl Weick.

Karl E Weick was born in Warsaw, Indiana on 31 October 1936. He is a "Rensis Likert Distinguished University Professor Emeritus of Organizational Behavior and Psychology."[236] "Dr. Weick's research includes collective sensemaking under pressure, medical errors,

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[235] Weick, K.E. 1995, 16. Sensemaking in Organizations.
[236] Karl E. Weick. http://michiganross.umich.edu/faculty-research/faculty/karl-weick (visited 29 November 2015): Michigan Ross School of Business.

handoffs in extreme events, high-reliability performance, improvisation and continuous change."[237]

Weick starts in his book on *Sensemaking in Organizations* by declaring that the essence of sense making is put to the extreme when people encounter an event, which is so implausible that they do not report it as a fear of not being believed.[238] In such a situation people think that "it can't be, therefore, it isn't."[239] Weick compared this way of thinking to the battered child syndrome (BCS)[240], which was made aware in the paediatric field in 1961.

To explain a few ideas within sense making, we ask: Why is this, an instance of sense making?

- Something is identified: "Someone notices something that does not fit—a discrepant set of cues."[241]

- "The act of looking is retrospective: Someone looks back over an elapsed experience."[241]

- There are plausible speculations: Reasonable assumptions are offered to explain the rarity of the cues.

- Notice an object that was not "out there" to begin with: The person doing the speculations publishes something tangible, e.g. publishing something in a medical journal about BCS.

- Speculations are not widespread: Attention on the speculations was not noticed right away because of the contacts not constructing the perceptions of the problem.

- "Issues of identity and reputation were involved:" There are barriers to reporting the events, and are called, "the fallacy of centrality"—because I do not know about this event, it must not be going on.[241]

Therefore, BCS is an illustration of sense making because it involves the seven key, and fundamental, elements of sense making:[242]

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[237] Karl E. Weick. http://michiganross.umich.edu/faculty-research/faculty/karl-weick (visited 29 November 2015): Michigan Ross School of Business.

[238] Weick, K.E. 1995, 1. Sensemaking in Organizations.

[239] Weick, K.E. 1995, 1. Sensemaking in Organizations.

[240] Weick, K.E. 1995, 1. Sensemaking in Organizations. "The battered child syndrome consists of a pattern of injuries (usually to the head, arms, legs, and ribs) to a child, often a very young one, which the medical 'history' offered by the parents is inadequate to explain. The pattern of injuries is the result of assaults by parents who then either do not report the injuries as having occurred, or pretend that they are the result of an accident. The injuries often can be seen only in X rays, which explains, in part, why it took so long for this syndrome to be recognized by the medical community."

[241] Weick, K.E. 1995, 2. Sensemaking in Organizations.

[242] Weick, K.E. 1995, 3. Sensemaking in Organizations.

1. Identity

2. Retrospect

3. Enactment

4. Social contact

5. Ongoing events

6. Cues

7. Plausibility

The seven key elements will be discussed in detail later in this section. Meanwhile, the main question remains: What makes these events organisational sense making?[242]

One of the main reasons for the instance of sense making as portrayed earlier is that an organisation can be "heavily networked";[242] therefore, this density in the organisation can result in the fallacy of centrality[242]. It is possible that information or "news might be discounted if people hear it late and conclude that it is not credible because, if it were, they would have heard it sooner."[242] Weick specifically warns against how the "*perceptions* of information technology might undermine the ability of that technology to facilitate sensemaking."[243] He explains further that "the more advanced the technology is thought to be, the more likely are people to discredit anything that does not come through it."[242]

Another process within the organisation that would have an influence on sense making, is reporting. Weick states that "organizations stay tied together by means of controls in the form of incentives and measures."[242] He continues by expressing that "incentives for reporting anomalies, or penalties for nonreporting, should affect sensemaking."[244] He concludes by saying that, "as anomalies become shared, sensibleness should become stronger."[242]

The last point Weick wants to make on his introduction into sense making in organisations is that "organizations also have their own language and symbols that have important effects on sensemaking."[242] With this Weick suggests, "that organizations with access to more varied images will engage in sensemaking that is more adaptive than will organizations with more limited vocabularies."[242]

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[243] Weick, K.E. 1995, 3. Sensemaking in Organizations. (italics as in source)
[244] Weick, K.E. 1995, 3. Sensemaking in Organizations. (spelling as in source)

In section 3.2 a fuller description of sense making in organisations will be discussed. The afore mentioned was a few concepts to lay the foundation of Weick's basic principles and concepts of sense making in general.

3.1.1.1   The concept of sense making

Weick cites a few sense making concepts from different sources and is underlined in the following section.

Sense making, literally means the making of sense,[245] but investigators who study sense making, like Starbuck and Milliken, says, "that sensemaking involves placing stimuli into some kind of framework."[246] Weick continues by saying that according to Starbuck and Milliken, "when people put <u>stimuli into frameworks</u>, this enables them to comprehend, understand, explain, attribute, extrapolate and predict."[247]

Another investigator, Meryl Louis, "views sensemaking as a thinking process that uses <u>retrospective</u> accounts to explain surprises."[248] She also says that "sense making can be viewed as a recurring cycle (see Figure 17) comprised of a sequence of events occurring over time."[249]

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[245] Weick, K.E. 1995, 4. Sensemaking in Organizations.

[246] Weick, K.E. 1995, 4. Sensemaking in Organizations. "The well-known phrase "frame of reference" has traditionally meant a generalized point of view that directs interpretations." (Starbuck, W.H., & Milliken, F.J. (1988). Executives' perceptual filters: What they notice and how they make sense. In D.C. Hambrick (Ed.), *The executive effect" Concepts and methods for studying top managers* (pp.35 – 65). Greenwich, CT: JAI.)

[247] Weick, K.E. 1995, 4. Sensemaking in Organizations. (underline to emphasise)

[248] Weick, K.E. 1995, 4. Sensemaking in Organizations. (Louis, M. (1980). Surprise and sensemaking: What newcomers experience in entering unfamiliar organizational settings. *Administrative Science Quarterly,* 25, 226 – 251.) (underline to emphasise)

[249] Weick, K.E. 1995, 4. Sensemaking in Organizations. (the word sense making is spelled here with two words as in the source) (Figure 17 © Ilse de Kock, 17 November 2017)
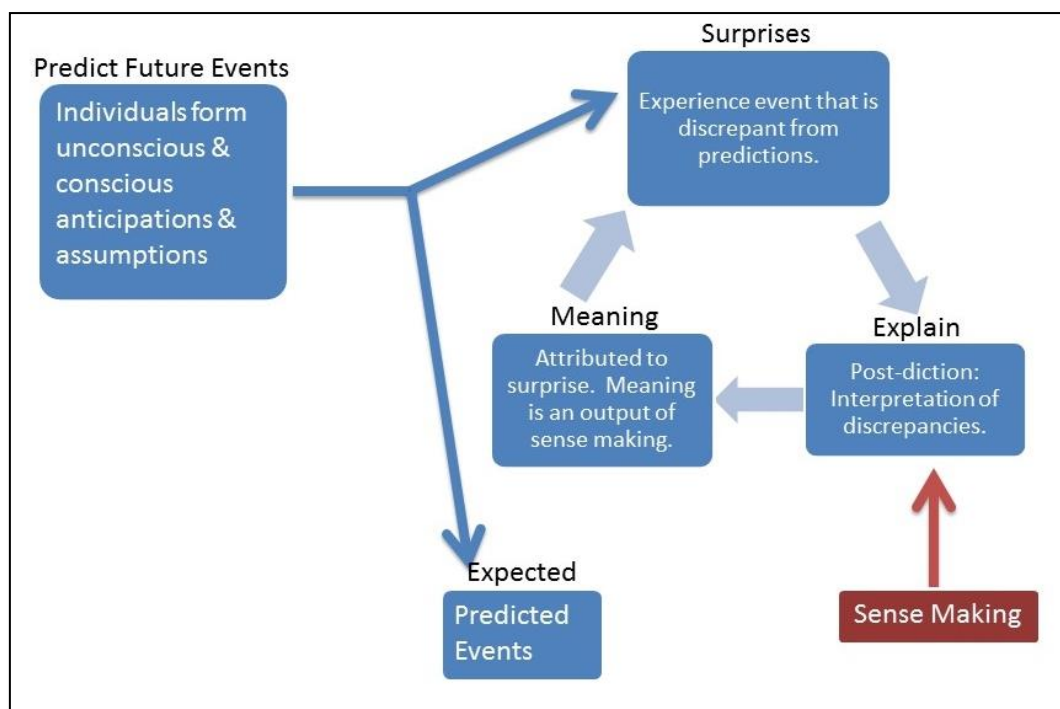
Figure 17 – Louis: Sense making as a recurring cycle[249]

Louis continues that by the "placing [of] stimuli into frameworks is most visible when predictions break down [and this] suggests that sensemaking is partially under the control of expectations."[250] Therefore, "whenever an expectation is disconfirmed, some kind of ongoing activity is interrupted."[250] Louis further explains that in order to understand sensemaking, it is necessary to understand how people cope with interruptions.[250]

Weick states that the influence of interruptions and expectations, as a combination within sense making, can be either more or less of an issue in organisations. He uses an example of an organisation that expects change, which can be confused when change does not happen.

Apart from Starbuck, Milliken, and Louis, who focus on the placement of stimuli into a framework, Weick also refers to Thomas, Clark and Gioia. They describe sense making as "the reciprocal interaction of information seeking, meaning ascription, and action"[251], and according to Weick, this means that "environmental scanning, interpretation and 'associated responses' are all included."[252]

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[250] Weick, K.E. 1995, 5. Sensemaking in Organizations. (emphasis added by underline)
[251] Weick, K.E. 1995, 5. Sensemaking in Organizations. (Thomas, J.B., Clark, S.M., & Gioia, D.A. (1993). Strategic sensemaking and organizational performance: Linkages among scanning, interpretation, action, and outcomes. *Academy of Management Journal,* 36, 239 – 270.)
[252] Weick, K.E. 1995, 5. Sensemaking in Organizations. (quotes as in source)

Weick points out that, both Thomas and Sackman mention "'<u>action</u>' in conjunction with, however, Feldman insists that sensemaking often does not result in action."[253]

Weick also mentions that Ring and Rands define sense making as "a process in which individuals develop <u>cognitive maps</u> of their environment."[254] Both Ring and Rands "use the term *<u>understanding</u>* to refer to mutual activity."[255] They explain this by stating when certain materials enhance their perspective on a subject or responses, only then are these actions indicative of a sense-making process. They continue further by saying that, when this activity reflects reciprocity, they classify it as understanding. They conclude by pointing out that this grey area reflects that at one given time the same activity may reveal sense-making and understanding processes.[256]

Weick summarises the concept of sense making by saying that this is "grounded in both <u>individual and social activity</u>, whether the two are even separable … has been a durable tension in the human condition."[256]

Weick concludes with the following statement: "Sense may be in the eye of the beholder, but the beholders vote and the majority rules."[256]

3.1.1.2   The uniqueness of sense making

After introducing the sense-making concepts in the previous section, it is essential to shed some light on why sense making, is sense making, and how it is integrated into the decision-making process. This section will render the definition of sense making, the fusion with decision making and clarify the confusion between sense making and interpretation.

3.1.1.2.1   *The fusion of sense making and decision making*

Weick argues that sense making is all about the "placement of items into frameworks, comprehending, redressing surprise, constructing meaning, interacting in pursuit of mutual understanding, and patterning."[256]

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[253] Weick, K.E. 1995, 5. Sensemaking in Organizations. "It may result in an understanding that action should not be taken or that a better understanding of the event or situation is needed. It may simply result in members of the organization having more and different information about the ambiguous issue." (underline to emphasise)
[254] Weick, K.E. 1995, 5. Sensemaking in Organizations. (Ring, P.S., & Rands, G.P. (1989). Sensemaking, understanding, and committing: Emergent interpersonal transaction processes in the evolution of 3M's microgravity research program. In A.H. Van de Ven, A.L. Angle, & M.S. Poole (Eds.), *Research on the management of innovation: The Minnesota studies* (pp. 337 – 366). New York: Ballinger.) (underline to emphasise)
[255] Weick, K.E. 1995, 5. Sensemaking in Organizations. (italics as in source) (underline to emphasise)
[256] Weick, K.E. 1995, 6. Sensemaking in Organizations. (underline to emphasise)

Weick states that "a crucial property of sensemaking is that human situations are progressively clarified, but this clarification often works in reverse."[257] In order to strengthen Weick's theory, he introduces the theory of "cognitive dissonance."[257]

- Cognitive dissonance

This theory by Festinger emphasises the fact that "outcomes develop prior definitions of the situation"[257] and "focuses on post-decisional efforts to revise the meaning of decisions that have negative consequences."[258] Festinger explains his theory by defining it "in terms of a person's expectations."[259] He said that during the "course of our lives we have accumulated a large number of expectations about what things go together and what things do not. When such an expectation is not fulfilled, dissonance occurs."[260] Festinger explains his theory of cognitive dissonance by showing its application to a specific situation, by the effects of making a decision. He begins his discussion by considering the consequences of making a decision. For example, "if a person who has carefully weighed two reasonably attractive alternatives (in line with Simon's decision making model in Figure 9 of Section 2.1.2.3) and then chosen one of them—a decision that, for [the purpose of this discussion], can be regarded as irrevocable."[261]

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[257] Weick, K.E. 1995, 11. Sensemaking in Organizations.
[258] Weick, K.E. 1995, 11. Sensemaking in Organizations. (italics as in source)
[259] Festinger, L. 1962, 94. Cognitive Dissonance.
[260] Festinger, L. 1962, 94. Cognitive Dissonance. "For example, a person standing unprotected in the rain would expect to get wet. If he found himself in the rain and he was not getting wet, there would exist dissonance between these two pieces of information."
[261] Festinger, L. 1962, 95. Cognitive Dissonance.
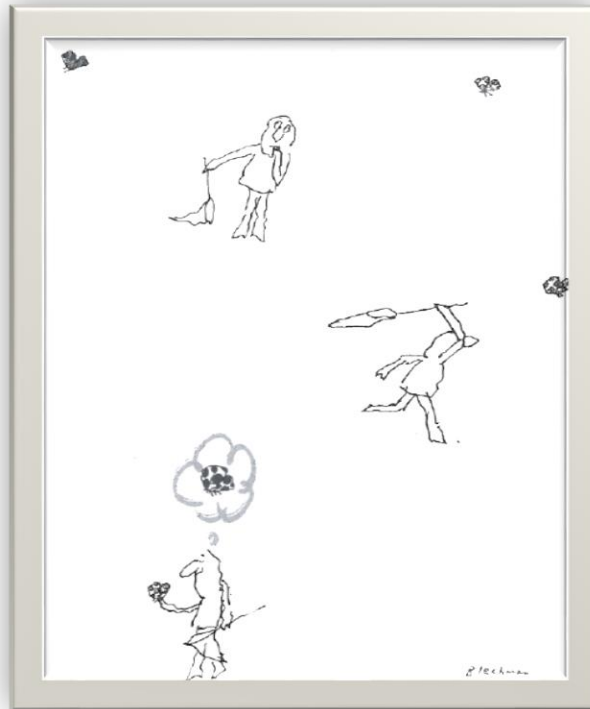
Figure 18 – Festinger's model on making a decision between two reasonable attractive alternatives[259]

After the choice has been made, Festinger and Weick continue to portray the same model on what follows. Festinger go on with his discussion (see Figure 18) by saying that all the information the decision maker has—consisting of the "attractive features of the rejected alternative and the unattractive features of the chosen alternative"[261]—"are now inconsistent, or dissonant, with the knowledge that he has made the given choice."[262] The bottom line is, that "some dissonance exists and after the decision [has been made], the individual will try to reduce the dissonance."[261] Festinger makes it clear that after doing a few experiments, he can profoundly say that "it is evident that dissonance reduction does not occur during the process of making a decision but only after the decision is made and the outcome is clear."[263] Festinger has done numerous experiments on this subject in order to

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[262] Festinger, L. 1962, 95. Cognitive Dissonance. "It is true that the person also knows many things that are consistent or consonant with the choice he has made, which is to say all the attractive features of the chosen alternative and unattractive features of the rejected one."

[263] Festinger, L. 1962, 96. Cognitive Dissonance.

prove his theory, but the details of these experiments are beyond the scope of this thesis.[264][265]

Festinger conclude by explaining how cognitive dissonance explains the term "sour grapes" when dealing with the consequences of resisting temptation.

- Sour grapes

There are two features; first, when "a person … persuades himself that he really does not want what he cannot have"[266], and second, "the behaviour of the person who longs for what he cannot have."[266] To explain this based on dissonance theory Festinger says that "one major way to reduce dissonance is to change one's opinions and evaluations in order to bring them closer in line with one's actual behavior."[267] Therefore, Festinger says that when dissonance is produced by resisting temptation, it can be reduced by "devaluing the activity toward which one was tempted."[266] This explains the sour grapes attitude by using Aesop's fable about the hungry fox (see Figure 19) that tried to reach a cluster of grapes hanging from a vine above his head. The fox leapt high to grasp the grapes, but all in vain, for it was too high to reach. Eventually, the fox gave up and said: "These grapes are sour, and if I had some, I would not eat them."[268]

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[264] Festinger, L. 1962, 96 – 97. Cognitive Dissonance. (for more detail on the experiments)
[265] YouTube. http://www.youtube.com/watch?v=korGK0yGIDo (visited 20 July 2013): A Lesson in Cognitive Dissonance. (for a live video on the experiments)
[266] Festinger, L. 1962, 98. Cognitive Dissonance.
[267] Festinger, L. 1962, 98. Cognitive Dissonance. (spelling as in source)
[268] Skillen, A. 1992, 172. Aesop's Lessons in Literary Realism.

Figure 19 – Aesop's fable on how the fox changed his attitude to fit his behaviour[269]

Festinger uses Aesop's fable as an illustration in a way to "reduce dissonance is to change one's opinions and evaluations in order to bring them closer in line with one's actual behaviour."[266] The fox changes his attitude in order to fit his behaviour, therefore when "dissonance is produced by resisting temptation, it can be reduced by derogating or devaluing the activity toward which one was tempted."[270] This clearly explains the sour grapes attitude when defining cognitive dissonance theory.

Weick's model on the other hand also portrays the post-decisional process as seen in Figure 20, the same as Festinger. The latter discussion clearly renders the connection between decision making and sense making, for this model is aligned with Simon's model in Figure 9 of Section 2.1.2.3.

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[269] https://en.wikipedia.org/wiki/The_Fox_and_the_Grapes (visited 17 November 2017)
[270] Festinger, L. 1962, 100. Cognitive Dissonance.
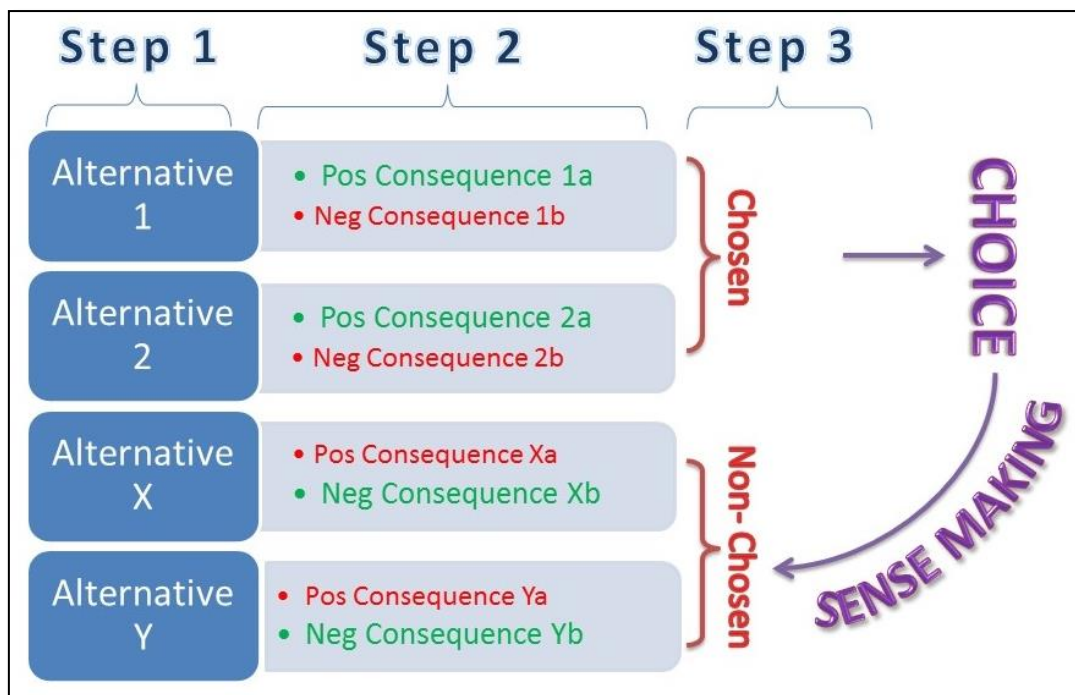
Figure 20 – Weick's model on sense making based on cognitive dissonance[271]

When people have to make a choice between alternatives (which are not overlapping—see Figure 20, step 1) they gain the negative consequences of the chosen alternatives and forgo the positive consequences (attractions) of the alternatives that have not been chosen (both marked in red in Figure 20, step 2). "After making such a choice, people may feel anxious and agitated (dissonance), [and in order] to reduce dissonance, people 'spread' the alternatives by enhancing the positive features of the chosen alternative and the negative features of the unchosen alternatives (both marked in green in Figure 20, step 2)."[272] "These operations retrospectively alter the meaning of the decision (Figure 20, step 3)"[273], which is the second element of the seven properties of sense making, upcoming in the next section.[274]

- Six strands of dissonance theory

Weick says that there are "hints of these strands in ethnomethodological accounts of decision making in everyday life"[275] as well, but the most important fact is that "all six are important in any account of sensemaking."[275]

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[271] Figure 20 © Ilse de Kock, 17 November 2017
[272] Weick, K.E. 1995, 11. Sensemaking in Organizations. (quote as in source)
[273] Weick, K.E. 1995, 11. Sensemaking in Organizations.
[274] Retrospective sense making will be addressed in the next section of this chapter.
[275] Weick, K.E. 1995, 12. Sensemaking in Organizations.

Weick expand these six strands by citing Graham Wallas: "The little girl had the making of a poet in her who, being told to be sure of her meaning before she spoke, said: 'How can I know what I think till I see what I say?'"[276] The six strands are as follow:

1. "Sensemaking by *justification:*"[275] By increasing the number of cognitive elements that are consistent with the decision. Thoughts justify earlier words.

2. "*Choice*: The event that focuses sensemaking and justification—this retains an emphasis on postdecision behavior."[275] Choose which words to focus on and which thought will explain them.

3. "Sensemaking by *retrospect:*" Retain the emphasis that of dissonance theory, that "postdecision outcomes are used to reconstruct predecisional histories."[275] Look back to what was said earlier from a later point in time when the talking has stopped.

4. "*Discrepancy* as the occasion for sensemaking:"[275] This is the starting point for dissonance theory, "namely, action that follows from the obverse of cognitions held by the actor."[275] A need to see what is said when something does not make sense.

5. "Social *construction of justification:*"[275] Reduction of dissonance by means of social support and persuading. Invoke the thoughts that have been socialised and labelled as acceptable.

6. "*Action* shapes cognition:"[275] A composite concept of items 2, 3 and 4 above. The act of speaking starts the sense-making process.

Weick concludes that sense making is influenced by a well-articulated dissonance theory, as well as induced by "specific cases of struggles to reduce ambiguity."[277]

3.1.1.2.2   *Sense making is not interpretation but fused into decision making*

Weick states that sense making is not *interpretation* (however it is often used as a synonym for sense making), but that *interpretation* is a component of sense making.[278]

Weick makes a pertinent connection between sense making and decisions when he refers to March's work in his book, "*How we talk and how we act: Administrative theory and administrative life*". Here March argues that "organizational life is as much about

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[276] Weick, K.E. 1995, 12. Sensemaking in Organizations. (Wallas, G. (1926). *The art of thought.* New York: Harcourt Brace.)

[277] Weick, K.E. 1995, 13. Sensemaking in Organizations.

[278] Weick, K.E. 1995, 7. Sensemaking in Organizations.

interpretation, intellect, metaphors of theory, and fitting our history into an understanding of life as it is about decisions and coping with the environment."[279] This is considered a very important statement by March as well as Weick referring to it by stating that interpretation is a component of sense making. From March's statement, it confirms that in organisations it is as much a case about sense making as it is about making decisions within a certain environment. The connection between the two concepts started when Weick incorporated March's statement early in his book (*Sensemaking in Organizations*) when he conceptualise sense making and create the uniqueness of it within organisations.

Weick states that a sense-making perspective is unique in the sense that "the process of sensemaking is intended to include the construction and bracketing of textlike cues that are interpreted, as well as the revision of those interpretations based on action and its consequences."[280] He continues by saying that "sensemaking is about authoring, interpretation, creation as well as discovery."[280]

Weick supplements his earlier statement that interpretation is a component of sense making, by portraying Garfinkel's study of decision making in juries.[281] It is an intriguing fact "that jurors did not seem to first decide the harm and its extent and then allocate blame, and then finally choose a remedy. Instead, they first decided a remedy and then decided the 'facts', from among alternative claims, that justifies the remedy."[282] "If the interpretation makes good sense, then that's what happened."[283] In this example of making sense during a decision-making process, the jurors made sense of their choices retrospectively in order to support their decisions. The facts were made sensible after the verdict has been delivered.

This retrospective concept of sense making brings Garfinkel to say that: "the outcome comes before the decision"[284], and therefore only after the outcome was known "they went back to find the 'why', the things that led up to the outcome."[285] Garfinkel hereby put forth how people make decisions in daily life,[284] when he says that this "critical feature, *the decision*

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[279] Weick, K.E. 1995, 8. Sensemaking in Organizations. (March, J.G. (1984). How we talk and how we act: Administrative theory and administrative life. In T.J. Sergiovanni & J.E. Corbolly (Eds.), *Leadership and organization culture* (p.18 – 35). Urbana: University of Illinois Press.)

[280] Weick, K.E. 1995, 8. Sensemaking in Organizations.

[281] Garfinkel, H. 1967, 104. Studies in Ethnomethodology.

[282] Weick, K.E. 1995, 10. Sensemaking in Organizations.

[283] Garfinkel, H. 1967, 106. Studies in Ethnomethodology.

[284] Garfinkel, H. 1967, 114 - 115. Studies in Ethnomethodology.

[285] Garfinkel, H. 1967, 114 - 115. Studies in Ethnomethodology. (quotes as in source)

maker's task of justifying a course of action … may be much more preoccupied with the problem of assigning outcomes their legitimate history than with questions of deciding before the actual occasion of choice the conditions under which one, among a set of alternative possible courses of action (See Section 2.1.2.3 on Simon's model of decision making), will be elected."[286]

Weick also makes it clear that sense making is distinctly different from interpretation, with the "key distinction is that sensemaking is about the ways people generate what they interpret (See Table 1)."[287] The "concept of sensemaking is valuable because it highlights the invention that precedes interpretation."[288]

Table 1 – Distinct difference between sense making and interpretation[289]

	Sense making	Interpretation
1	An activity or a process.	Can be a process or a product.
2	Make sense of something—the activity is in the foreground.	Make "an interpretation"—the outcome is in the foreground.
3	Induces a mindset to focus on process.	Focus on the outcome.
4	Implies invention—to construct, filter, frame, create facticity, and render the subjective into something more tangible.	Implies that something is there—waiting to be discovered or approximated.
5	Implies a higher level of engagement by the actor.	Implies an activity that is more detached and passive.
6	Replacing one's sense of the world with another.	Can be added and dropped with less effect on one's self-perceptions.
7	Loss of sense is deeply troubling.	Loss of interpretation is more like a nuisance.
8	Address incipient puzzles at an early, tentative stage.	Addresses at a later more permanent stage.
9	Sense making begin with the basic question: Is it still possible to take things for granted? If the answer is no, then ask: Why is this so? And what next?	Usually, assume that an interpretation is necessary and that the object to be interpreted is evident.

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[286] Garfinkel, H. 1967, 114 - 115. Studies in Ethnomethodology. (italics as in source)
[287] Weick, K.E. 1995, 13. Sensemaking in Organizations. (grammar as in source)
[288] Weick, K.E. 1995, 14. Sensemaking in Organizations.
[289] Weick, K.E. 1995, 13 – 14. Sensemaking in Organizations.

10	Invention	Discovery

Row 9 in Table 1 display several questions that "arise and have to be dealt with before interpretation even comes into play. The way these earlier questions of sensemaking are resolved determines which interpretations are possible and plausible."[290]

Weick states that because sense making "address incipient puzzles"[291], "early emerges",[292] and is "an act of invention",[292] it is why it is set apart from decision making. He cites Drucker[292] that says when people in the West and people in the East mean different things when making decisions:[292]

Table 2 – The difference between Western and Eastern people when making a decision.

West	**East**
Emphasis is on the *answer*.	Importance is in *defining the question*.
Systematic approaches to give an answer.	Whether there is a need for a decision and what the decision is about.
Focus on what the decision should be.	Focus on finding out what the decision is really about.

From Table 2, it is possible to conclude that sense making can be the origin, in other words the source, of the decision-making process. Because of sense making being the invention process, that decision making can complement the interpretation-discovery process in being the *answer* to a sense making-invention process in being the part that is *defining the question.*[293]

Weick concludes his description of the uniqueness of sense making by stating that sense making is *not* a metaphor.[294] He quotes Morgan by saying that there are people that say that sense making is one of three metaphors, which the other two is language games and text.[295]

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[290] Weick, K.E. 1995, 14. Sensemaking in Organizations.
[291] Weick, K.E. 1995, 14. Sensemaking in Organizations. (see row 8 in Table 1) (grammar as in source)
[292] Weick, K.E. 1995, 15. Sensemaking in Organizations.
[293] More on this in section 3.1.1 (italics not in source)
[294] Weick, K.E. 1995, 15. Sensemaking in Organizations. (italics as in source)
[295] Weick, K.E. 1995, 16. Sensemaking in Organizations. (Morgan, G. (1980). Paradigms, metaphors, and puzzle solving in organization theory. *Administrative Science Quarterly*, 25, 605 – 622.)

Weick believes that although language games and text are metaphors for interpretation, that sense making, on the other hand, is not. He discloses that "sensemaking is to be understood literally, not metaphorically."[296] To reiterate, "[s]ensemaking is what it says it is, namely, making something sensible."[296]

3.1.1.3   The seven properties of sense making

The following section reveals the essence of sense making and provides properties that aid the decision-making models in the previous sections.

Weick explains that sense making has at least seven distinct characteristics, which he portrays crudely as a sequence:

3.1.1.3.1   Grounded in identity construction

"How can I know what I think until I see what I say?"[297] This statement determines that sense making starts with a sense maker, but Weick makes it very clear that a *sense maker* cannot be singular, and that "no individual ever acts like a single sensemaker."[297] "The sensemaker [therefore] is [in] him or herself an ongoing puzzle undergoing [continued] redefinition, [coinciding] with presenting some self to others and trying to decide which self is appropriate."[298] Thus, "identities are constituted out of the process of interaction."[298]

Weick continues by saying that "depending on who I am, my definition of what is 'out there' will also change."[299] "Whenever I define self, I define 'it', but to define 'it' is also to define self. Once I know who I am, then I know what is out there."[298]

Weick notes the following points:

- "Controlled, intentional sensemaking is triggered by failure to confirm one's self."[300]
- "Sensemaking occurs in the service of maintaining a consistent, positive self-conception."[300]Similar to dissonance theory, Weick cites Steele and says that when a self-concept is reaffirmed, discomfort is reduced when discrepancies are felt.
- "People learn about their identities by projecting them into an environment and observing the consequences."[300] Here, Weick cites Chatman *et al*., by saying that "when we look at

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[296] Weick, K.E. 1995, 16. Sensemaking in Organizations.
[297] Weick, K.E. 1995, 18. Sensemaking in Organizations.
[298] Weick, K.E. 1995, 20. Sensemaking in Organizations.
[299] Weick, K.E. 1995, 20. Sensemaking in Organizations. (quotes as in source)
[300] Weick, K.E. 1995, 23. Sensemaking in Organizations.

individual behaviour in organizations, we are actually seeing two entities: the individual as himself, and the individual as representative of his collectivity."[301]

- "People simultaneously try to shape and react to the environments they face."[300] These people take their cue for their identity from the conduct of others, but they make an active effort to influence this conduct, to begin with.

- "The idea that sensemaking is self-referential suggests that self, rather than the environment, may be the text in need of the interpretation."[300] "How can I know who I am until I see what they do?"[302] This means that the situation is "defined by who I become while dealing with it or what and who I represent."[303]

To take this discussion on identity construction back to how decisions are made, it is necessary to take a step back to section 2.1.3, where March compares the image of a decision maker to that of Don Quixote. He (March) also states the importance of knowing yourself in order to be a good leader and therefore potentially making good decisions. March uses the character of a fictional character such as Don Quixote to describe the importance of knowing who you are in order to see what choices you make.

So therefore during the process of decision making, according to March, it is also necessary to know yourself in order to be able to persist in the decision-making process. Connecting this theory of March with Weick's theory it can be concluded that during the decision-making process, there is a connection to sense making when the sense maker are able to define himself/herself, is when it can be concluded, what is out there, i.e. what the sense is.

3.1.1.3.2   *Retrospective*

According to Weick, "the most distinguishing characteristic of the present conceptualization of sensemaking is the focus on retrospect."[303] However, it is not only an element of sense making, but plays an important role in the larger issue of organisational structures.

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[301] Weick, K.E. 1995, 23. Sensemaking in Organizations. "Thus, the individual not only acts on behalf of the organization in the usual agency sense, but he also acts, more subtly, "as the organization" when he embodies the values, beliefs, and goals of the collectivity." (Chatman, J.A., Bell, N.E. & Straw, B.M. (1986). The manged thought: The role of self-justification and impression management in organizational settings. In H.P. Sims, Jr. & D.A. Gioia (Eds.), *The thinking organization* (pp. 191 – 214). San Francisco: Jossey-Bass.)

[302] Weick, K.E. 1995, 23. Sensemaking in Organizations. "I make sense of whatever happens around me by asking, what implications do these events have for who I will be?"

[303] Weick, K.E. 1995, 24. Sensemaking in Organizations.

The main idea of retrospective sense making, according to Weick, derived from Schutz that analysed the "meaningful lived experience."[304] From this Weick derives that "people can know what they are doing only after they have done it."[303] Weick further cites Pirsig who says that "any intellectually conceived object is always in the past and therefore unreal. Reality is always the moment of vision before intellectualization takes place. There is no other reality."[305] Weick cites Hartshorne, who states that "man has discovered that his perceived world is, in reality, a past world … any object outside the body, however close, is at least minutely past by the time we perceive it."[306] Weick summarises by saying that Schutz, Pirsig, and Hartshorne all states that time exists in two distinct forms, "a pure duration ("a stream of experience"[307] i.e. experiencing), and as discrete segments ("or distinct events"[308] i.e. experiences)."[308]

Weick highlights a few concepts on experiencing and experiences:

- "The creation of meaning is an attentional process, but it is attention to that which has already occurred."[309]
- "Because the attention is directed backward from a specific point in time (a specific here and now), whatever is occurring at the moment will influence what is discovered when people glance backward."[309]
- 'Because the text to be interpreted has elapsed, and is only a memory, anything that affects remembering will affect the sense that is made of those memories."[309]
- "An action can become an object of attention only after it has occurred. At the time it is noticed, several possible antecedents can be posited."[309]

Weick continues by stating that "whatever is now, at the present moment, under way will determine the meaning of whatever has just occurred."[310] Weick also cites Mead that is in agreement with Schutz: "We are conscious always of what we have done, never of doing

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[304] Weick, K.E. 1995, 24. Sensemaking in Organizations. (Schutz, A. (1967). *The phenomenology of the social world.* Evanston, IL: Northwestern University Press.)

[305] Weick, K.E. 1995, 24. Sensemaking in Organizations. (Pirsig not referenced.)

[306] Weick, K.E. 1995, 24. Sensemaking in Organizations. (Hartshorne, C. (1962). Mind as memory and creative love. In J.M. Scher (Ed.), *Theories of the mind* (pp. 440 – 463). New York: Free Press.)

[307] Weick, K.E. 1995, 25. Sensemaking in Organizations. (Weick cites William James) "Pure duration is a "coming-to-be and passing-away that has no contours, no boundaries, and no differentiation."

[308] Weick, K.E. 1995, 25. Sensemaking in Organizations.

[309] Weick, K.E. 1995, 25, 26. Sensemaking in Organizations.

[310] Weick, K.E. 1995, 27. Sensemaking in Organizations.

it."[311] Weick cites Schwartz in order to explain how meaning arises retrospectively (see Figure 21).
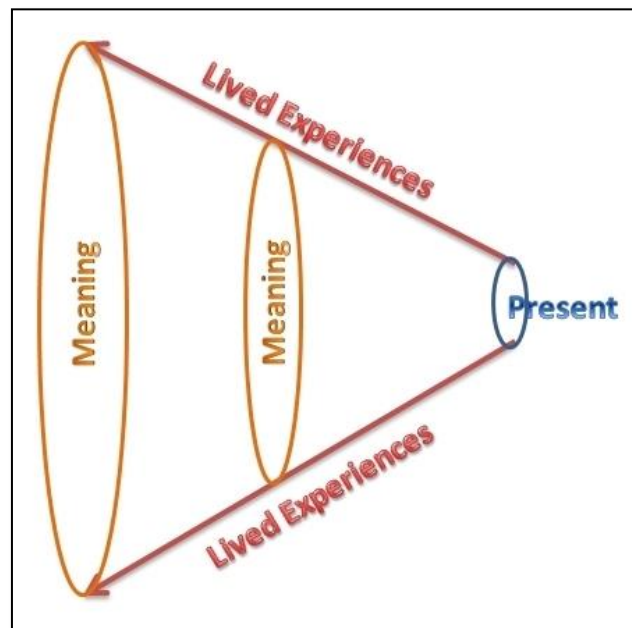
Figure 21 – Schwartz: Meanings arise retrospectively[312]

He (Weick) says the fact that meanings arise retrospectively can be compared to "reflection as a cone of light that spreads backwards from a particular present. This cone of light will give definition to portions of lived experiences."[312] The reflection starts in the present and cones out backwards and therefore, projects and feelings that are still under way will affect the backward glance as well as what is seen. Hence, according to Schutz, "the meaning of a lived experience undergoes modifications depending on the particular kind of attention the Ego gives to that lived experience."[311] Weick says that meaning is not attached to the experience, but the meaning is directed to the experience[311], and meanings change as projects and goals change.

Weick makes a very important point when he says that "retrospective sensemaking is an activity in which many possible meanings may need to be synthesized, because many different projects are under way at the time reflection takes place."[310] The problem here is that there are too many meanings for the sense maker and that he is not uncertain or

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[311] Weick, K.E. 1995, 26. Sensemaking in Organizations.
[312] Weick, K.E. 1995, 26. Sensemaking in Organizations. (Schwartz, B. (1991). Social change and collective memory: The democratization of George Washington. *American Sociological Review,* 56, 211 – 236. (Figure 21 © Ilse de Kock, 17 November 2017)

ignorant, but instead, he finds himself in a state of equivocality and confusion.[310] In order for the sense maker to *create sense* in a certain situation he does not need information to get rid of the equivocality, instead he needs "values, *priorities*, and clarity about *preferences* to help [him/her] be clear about which projects matter."[313]

At this point, a connection is made to March's decision-making theory in section 2.1.3.2, where March refers to rational decision-making processes that are "consequential and *preference-based*, [because of the fact that] consequences … are evaluated within the boundaries of personal *preferences*."[314] Within the decision-making process, alternatives are compared and the decision is made according to the *preference and priorities* of the decision maker.

It can, therefore, be concluded that, within March's decision-making process, when a rational choice needs to be made, sense making takes place when the decision maker has clarity about the *preferences and priorities* within certain situations. Within March's decision-making process, preference is one of four questions (see Figure 11) that assist in making a choice. It determines how valuable the consequences are that are associated with certain alternatives.

When combining March's process on decision making in Figure 11 and Weick's definition on retrospective sense making[313] a model as shown in Figure 22 arise.

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[313] Weick, K.E. 1995, 27. Sensemaking in Organizations. (italics to emphasise)
[314] March, J.G. 1994, 2. A Primer on Decision Making. See section 2.1.3.2 on Rational choice. (italics to emphasise)
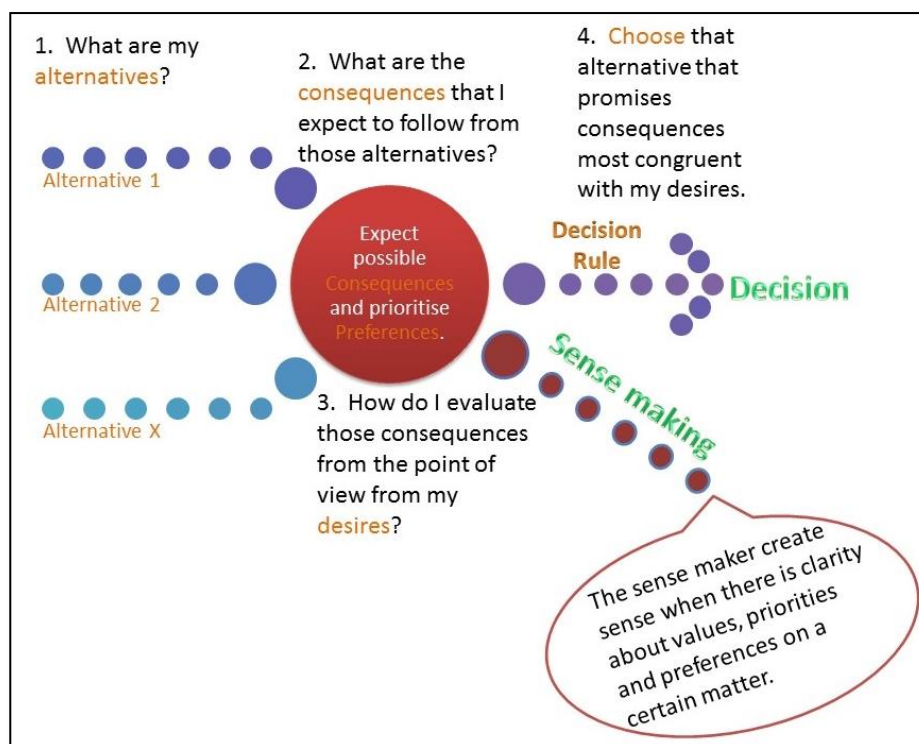
Figure 22 – Combination of March and Weick: Sense making takes place within decision making[315]

It can, therefore, be concluded that during the decision-making process as March describes it, sense making takes place when the decision maker or sense maker has clarity on the *priorities and preferences* of the consequences of his or her decision.

Weick imports a modern take on retrospective sense making when he discusses the influence of hindsight bias and what this "backward glance leaves out and the problems [it] can create."[316] Weick focuses on the positive perspectives of hindsight bias within the next three points:

1. "Retrospective sensemaking in everyday life involves relatively short time spans between act and reflection."[317]

2. "Retrospection only makes the past clearer than the present or future; it cannot make the past transparent."[317]

3. "The *feeling* of order, clarity, and rationality is an important goal of sensemaking, which means that once this feeling is achieved, further retrospective processing stops."[317]

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[315] Figure 22 © Ilse de Kock, 17 November 2017
[316] Weick, K.E. 1995, 28. Sensemaking in Organizations.
[317] Weick, K.E. 1995, 29. Sensemaking in Organizations.

Weick cites Boland's[318] experiment on future perfect thinking, when Boland asked a group of people to imagine that it was three years in the future and then discuss a certain topic. This attempt from Boland was to explore the fact that it is "easier to make sense of events when they are placed in the past, even if the events have not yet occurred."[317] Weick concludes from this that "sensemaking can be extended beyond the present"[317] and that "present decisions can be made meaningful in a larger context than they usually are and more of the past and future can be brought to bear to inform them."[317]

When connecting the discussion on hindsight bias of Weick to March's statement (see section 2.1.3.2, and footnote 124 & 125) on rational choice depending on two guesses about the future, it concludes that the consideration of future consequences of current actions might have a feeling of order when retrospective sense making (hindsight bias) is involved.

Weick consequently believes that present decisions can be made meaningful, while a decision maker is uncertain about future consequences when sense making takes place retrospectively.

3.1.1.3.3   *Enactive of sensible environments*

The previous two points were about the "sensing" of sense making, while this point focuses on the "activity of 'making' that which is sensed."[319] Weick confirms here that sense making is a construction of action (making) and cognition (sensing).[320] Weick touched on this earlier (see Section 3.1.1.3.1) when he said that in order to know what I think (sensing), I need to see what I say (making), "when the action of saying makes it possible for people to then see what they think."[320] With this statement Weick introduces the concept of *enactment*[321], "to preserve the fact that, in organizational life, people often produce [or create] part of the environment they face"[320], and "these environments then [constraint] their actions."[322] He cites Follett[323] to explain the concept further by stating that action is crucial for sense making

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[318] Weick, K.E. 1995, 29. Sensemaking in Organizations. (Boland, R.J., Jr (1984) Sense-making of accounting data as a technique of organizational diagnosis. Management Science, 30, 868-882.)

[319] Weick, K.E. 1995, 30. Sensemaking in Organizations. (quotes as in source)

[320] Weick, K.E. 1995, 30. Sensemaking in Organizations.

[321] Weick, K.E. 1995, 30, 32. Sensemaking in Organizations.

[322] Weick, K.E. 1995, 31. Sensemaking in Organizations.

[323] Weick, K.E. 1995, 32. Sensemaking in Organizations. (Follett, M.P. (1924). Creative experience. New York: Longmans, Green.)

and that the focus of enactment is that "people receive stimuli as a result of their own activity (see Figure 23)."[324]
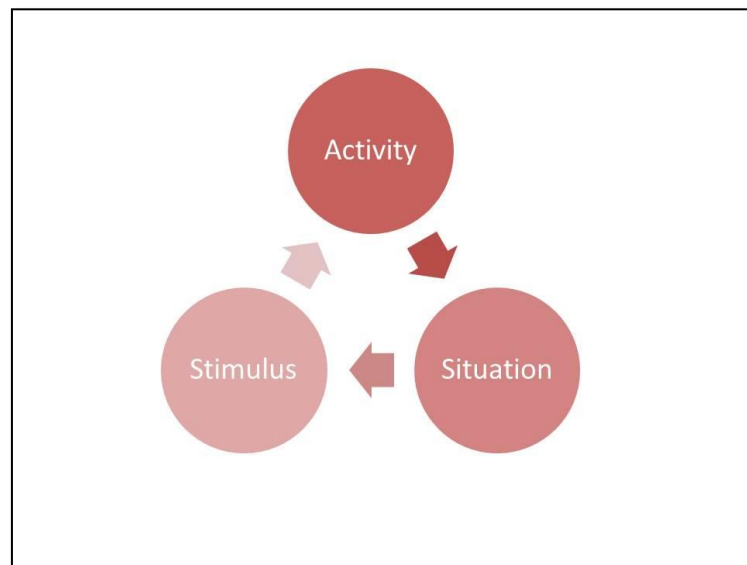
Figure 23 – Enactment: When people receive stimuli as a result of their own activity[324]

Therefore, Follett states that "the activity of the individual is only in a certain sense caused by the stimulus of the situation because that activity is itself helping to produce the situation which causes the activity of the individual (as in Figure 23)."[324] This process can be portrayed as a cycle, for Follett also states that there is no end result of the process, but that it is ongoing and that the activity (response) is only a moment in the process.[325]

Follett further elaborates that people influence each other in the sense that *a person influences me because I influenced him/her*. Therefore, I and you influence you and me[325] and from this, he concludes that people influence and create their own environments, just like those environments create them.[326]

When looking at the concept of enactment, Weick explains two cautions that accompany it:

1. "Creating is not the only thing that can be done with action."[327] Action can also inhibit, abandon, check, redirect and express, and all of these are ways that action can affect meaning. The caution here is to be careful not to equate action with a simple response to

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[324] Weick, K.E. 1995, 32. Sensemaking in Organizations. (Figure 23 © Ilse de Kock, 17 November 2017)
[325] Weick, K.E. 1995, 33. Sensemaking in Organizations.
[326] Weick, K.E. 1995, 34. Sensemaking in Organizations. (More on this in Section 3.3)
[327] Weick, K.E. 1995, 37. Sensemaking in Organizations.

a stimulus, or with observable behaviour, or with goal attainment. By doing this subtle, ways in which meaning is created, can be missed.

2. "Beware of Cartesian anxiety."[327] The caution here is the dilemma of the two extremes, where either there is an absolute ground or foundation or everything falls apart. People seem to have the idea that there exists a world with fixed and stable reference points, and if not so, the world falls into idealism, nihilism or subjectivism. Weick cites Varela[328] saying that "the world is not fixed and pregiven but continually shaped by the types of actions in which we engage."[327]

In order to connect the sense-making principle of enactment back to decision-making theory, it is necessary to glance back to Barnard's decision-making model in Chapter 2, where he (Barnard) argues that purpose in itself "has no meaning, however, except in an environment and can only be defined in terms of an environment."[329]. Here, Barnard expands on certain circumstances surrounding decisions, and elaborates on the environment of decisions (see section 2.1.1.4.3). The connection here lies in the enactment of the environment (as seen in Figure 24) where people create or produce the environment they make sense in. This connects to the purpose of a decision where, the result of a previous decision influence or play a role in the new decision (see section 2.1.1.4.3)

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[328] Weick, K.E. 1995, 38. Sensemaking in Organizations. (Varela, F.J., Thompson, E., & Rosch, E. (1991). The embodied mind: Cognitive science and human experience. Cambridge: MIT Press.)

[329] Barnard, C.I. 1938, 196. The Functions of the Executive: Barnard defines the environment as physical and social, for the physical aspects are constant and the social aspects are pertinent.
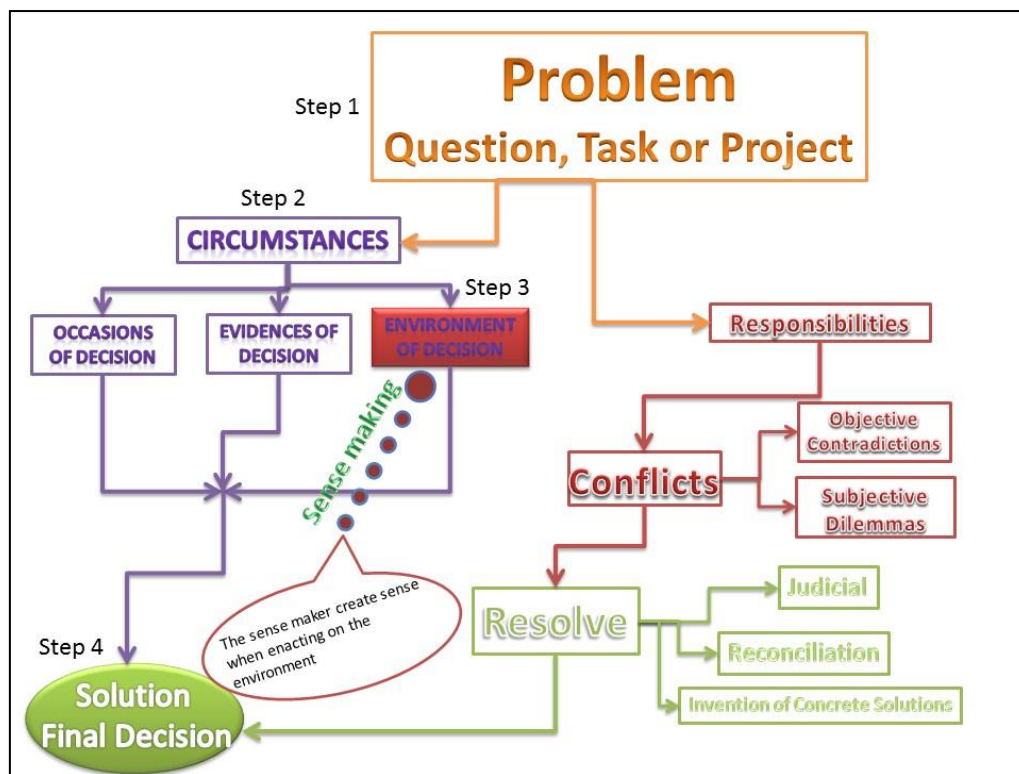
Figure 24 – Combination of Barnard and Weick: enacting on the environment[330]

Therefore, during the decision-making process (of Barnard specifically) one of the circumstances under which decisions are made, the environment, can be seen as the place where sense making takes place for the decision maker. Enactment on the environment has made it possible for the decision maker to take action because of the sense made on that point in the process.

3.1.1.3.4   Social

Sense making is both a cognitive as well as a social process. Weick reminds us that it is, in essence, a "human thinking and social functioning"[331] process, when he cites Resnick, Levine & Teasley. Weick cites Allport and states that in a social environment, the sense-making process is a social process in the sense that it is "an attempt to understand and explain how the thought, feeling, and behavior of individuals are influenced by the actual, *imagined, or*

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[330] Figure 24 © Ilse de Kock, 17 November 2017
[331] Weick, K.E. 1995, 38. Sensemaking in Organizations. (Resnick, L.B., Levine, J.M., &Teasley, S.D. (Eds.). (1991). Perspectives on socially shared cognition. Washington, DC: American Psychological Association.)

implied the presence of others."[332] Weick now reiterates what he had said in section 3.1.1.3.1, that sense making is not a solitary process, because "what a person does internally is contingent on others."[333] He also cites Blumer[334] that argues "that the actions of others have to be taken into account and cannot be regarded as merely an arena for the expression of what one is disposed to do, or sets out to do."[333] This enhances the statement from Weick on a crucial set of elements that determine sense making, which is; action, interaction, interpretation, meaning, joint action and self. This all comes together to establish that sense making is indeed a social activity, but "it is also important to maintain a differentiated view of the forms social influence may take."[335] Sense making is also social when:[336]

- People coordinate their actions, that is equivalent meanings[336]
- Meanings are distributed[336]
- Ambiguous events have overlapping views[336]
- Intimacy is non-disclosive[336]

Weick says that in order to understand sense making it is necessary to pay more attention to certain cues, such as "a generalized other, prototypes, stereotypes, and roles, especially considering that organizations seem to drift toward an architecture of simplicity."[336]

Weick cites Burns and Stalker[337], and thereby connects the sense-making process with the decision-making process, and states that "in working organizations decisions are made either in the presence of others or *with the knowledge that they will have to be implemented, or understood, or approved by others.*"[338] Weick makes a further connection by stating that "people who make sense are just as likely to *satisfice* as are people who make decisions."[339] Here he makes a direct connection with March's decision-making model of limited (bounded) rationality (see section 3.1.1.1.1), where March explains the term *satisficing* when he says

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[332] Weick, K.E. 1995, 39. Sensemaking in Organizations. (Allport, G.W. (1985). The historical background of social psychology. In G. Lindzey & E.Aronson (Eds.), Handbook of social psychology (3rd ed., Vol. 1, pp. 1-46). New York: Random House.) (spelling and italics as in source)

[333] Weick, K.E. 1995, 40. Sensemaking in Organizations.

[334] Weick, K.E. 1995, 40. Sensemaking in Organizations. (Blumer, H. (1969). Symbolic interactionism: Perspective and method. Englewood Cliffs, NJ: Prentice Hall.)

[335] Weick, K.E. 1995, 41. Sensemaking in Organizations.

[336] Weick, K.E. 1995, 42. Sensemaking in Organizations.

[337] Weick, K.E. 1995, 39. Sensemaking in Organizations. (Burns, T., & Stalker, G.M. (1961). The management of innovation. London: Tavistock.)

[338] Weick, K.E. 1995, 39. Sensemaking in Organizations. (italics as in source)

[339] Weick, K.E. 1995, 42. Sensemaking in Organizations. (italics to emphasise)

that during a decision-making process it is possible for the decision maker to compare the alternatives with a target, but only until one is found which is good enough. Therefore, the chosen alternative would change relative to the target. Hence, during the decision-making process when the decision maker is comparing the alternatives, *satisficing* (finding an alternative that is good enough, see section 3.1.1.1.1) takes place, therefore, it is also here where sense making can take place (see Figure 25).
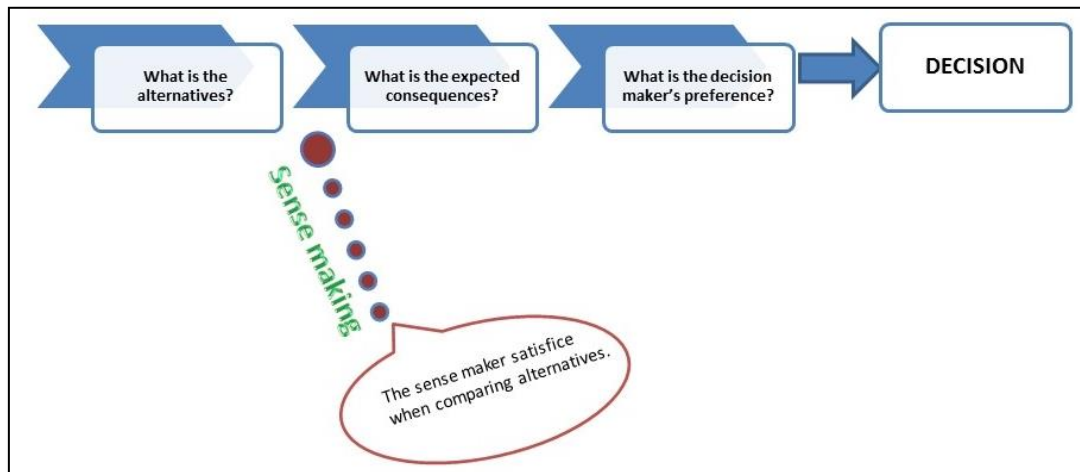
Figure 25 – Combination of March & Weick: Satisficing emerges when sense making takes place in the decision-making process[340]

3.1.1.3.5   Ongoing

Weick starts off this property of sense making by saying that, "sensemaking never starts", and that the reason is "that pure duration never stops."[341] Weick cites Winograd and Flores[342] who says that people find themselves *thrown* into an ongoing situation and that they have to make do with it in order to make sense of what is happening.[343] They, (Winograd and Flores), explain six different properties of *thrownness*:[343]

1. "You cannot avoid acting: Your actions affect the situation and yourself, often against your will."[344]

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[340] Figure 25 © Ilse de Kock, 17 November 2017
[341] Weick, K.E. 1995, 43. Sensemaking in Organizations.
[342] Weick, K.E. 1995, 43. Sensemaking in Organizations. (Winograd, T., & Flores, F. (1986) Understanding computers and cognition: A new foundation for design. Norwood, NJ:Ablex)
[343] Weick, K.E. 1995, 44. Sensemaking in Organizations. (italics to emphasise)
[344] Weick, K.E. 1995, 44. Sensemaking in Organizations.

2. "You cannot step back and reflect on your actions: You are thrown on your intuitions and have to deal with whatever comes up as it comes up."[344]

3. "The effects of action cannot be predicted: The dynamic nature of social conduct precludes accurate predictions."[344]

4. "You do not have a stable representation of the situation: Patterns may be evident after the fact, but at the time the flow unfolds there is nothing but arbitrary fragments capable of being organized into a host of different patterns or possible no pattern whatsoever."[344]

5. "Every representation is an interpretation: There is no way to settle that any interpretation is right or wrong, which means an "objective analysis" of that into which one was thrown, is impossible."[344]

6. "Language is action: Whenever people say something, they create rather than describe a situation, which means it is impossible to stay detached from whatever emerges unless you say nothing, which is such a strange way to react that the situation is deflected anyway."[344]

Weick continues his explanation on flow by saying that if people are constantly in the middle of projects and processes, then there are also aspects that bear on their projects, therefore even when people are absorbed in flows; they are not indifferent from what passes them by. "This is especially true for interruptions of projects."[345] Weick argues that when the flow is interrupted, then the reality of flows becomes most evident[345], and it is at this point of interruption that an emotional response is induced, and this is the exact point where emotion influences sense making. Weick states that "it is precisely because ongoing flows are subject to interruption that sensemaking is infused with feeling."[345]

Weick cites Berscheid and Mandler[346] on how they argue that a "necessary condition for emotion is 'arousal', … [that] is triggered by interruptions of ongoing activity."[347] For Berscheid and Mandler, arousal not only has a physiological (fight-or-flight)[348] importance but

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[345] Weick, K.E. 1995, 45. Sensemaking in Organizations.

[346] Weick, K.E. 1995, 45. Sensemaking in Organizations. (Berscheid, E. (1983). Emotion. In H.H. Kelley, E. Berscheid, A. Christensen, J. Harvey, T. Huston, G.Levinger, E.McClintock, A.Peplau, & D.R. Peterson (Eds), Close relationships (pp. 100 – 168). San Francisco: Freeman.) and (Mandler, G. (1984). Mind and Body: Psychology of emotion and stress. New York: Norton.)

[347] Weick, K.E. 1995, 45. Sensemaking in Organizations. (quotes as in source)

[348] Weick, K.E. 1995, 45. Sensemaking in Organizations. Arousal has physiological significance because it prepares people for fight-or-flight reactions.

also has a psychological significance that "the perception of arousal triggers a rudimentary act of sensemaking."[345]

With this statement, Weick takes us back to March's consequential decision-making process and his theories of attention in Section 3.1.1.1.3. Here, March indicates that attention affects the decision-making process in the sense that it affects the available information. The focus of attention during the decision-making process determines what the outcome of the decision is going to be. He (March) identifies two extra aspects that can influence the decision-making process in association with attention, namely *time constraints,* and *information overload* (or information management).
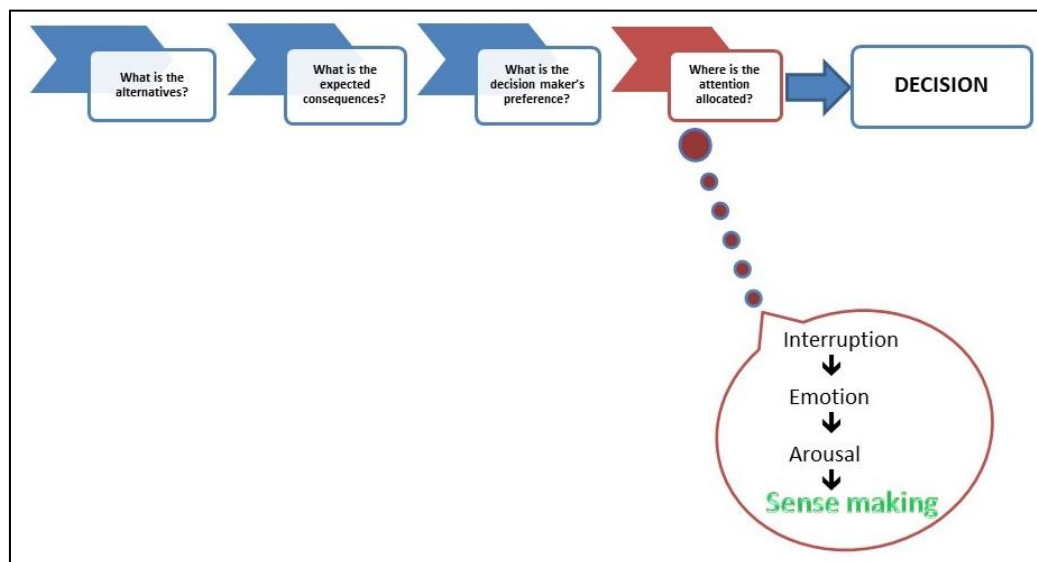
Figure 26 – Combination of March & Weick: The role interruption plays in the consequential decision-making process[349]

Weick now adds another aspect that can influence the decision-making process and at that moment create the act of sense making. This aspect is interruption. He argues that during the flow of a process, in this case, a decision-making process,[350] an interruption can break the flow of the process, and according to Berscheid and Mandler causes an emotion which they call an "arousal"[351]. They then continue to say that this arousal "provides a warning that there

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[349] Figure 26 © Ilse de Kock, 17 November 2017
[350] Weick, K.E. 1995, 46. Sensemaking in Organizations. Bercheid and Mandler use SOPs as an example of an organised action sequence. For the focus of this explanation, the writer uses the decision-making process as an example.
[351] Weick, K.E. 1995, 45. Sensemaking in Organizations.

is some stimulus to which *attention* must be paid in order to initiate appropriate action."[352] Therefore, (see Figure 26), an interruption in the decision-making process generates an emotion which in turn produces an arousal which triggers sense making. Weick also adds that arousal develops slowly, and that "arousal occurs roughly two to three seconds after an interruption has occurred, and this delay gives time for an appropriate action to occur."[345] The actual point of sense making is when the arousal state is at its highest point and the sense maker constructs a link between the current situation and a relevant prior situation, in order to make sense of the arousal.[353] "Arousal leads people to search for an answer to the question, 'What's up?'"[353]

Weick strengthens his argument on the ongoing principle of sense making by making a valuable connection between emotion and sense making. He states that "emotion is what happens between the time that an organized sequence [in this case a decision making process] is interrupted and the time at which the interruption is removed, or a substitute response is found that allows the sequence to be completed [in this case a decision made (see Figure 27)]."[353]
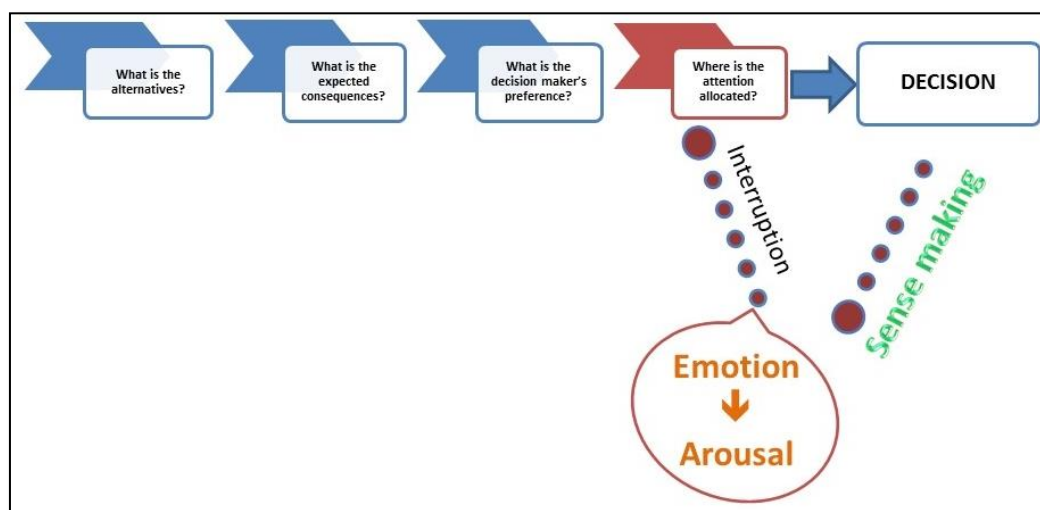
Figure 27 – Combination of March & Weick: Emotion as a link with sense making[354]

There is a continuing effort to complete the ongoing process and because of that, one of two events will take place. One, the arousal will increase, until either the interruption is removed

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[352] Weick, K.E. 1995, 45. Sensemaking in Organizations. (italics to emphasise)
[353] Weick, K.E. 1995, 46. Sensemaking in Organizations.
[354] Figure 27 © Ilse de Kock, 17 November 2017

or the process is completed, or two, the process will complete using numerous different ways, in which case arousal will not build up very much.[353] From this, it can be concluded that "people who are able to improvise, should show less emotional behaviour and less extreme emotions."[353] Weick adds that the emotions occurred, can either be negative (when the interruption is "harmful or detrimental"[355]) or positive (when either the interruption is unexpectedly removed, or the unexpected acceleration of a process[356]).

In the context of personal relationships with other people, the partner needs to have sufficient resources in order to "remove interrupting stimuli or accelerate the completion of plans."[356] In order to generate positive emotions, this removing or accelerating needs to be unexpected.

Therefore, "when people perform an organized action sequence and are interrupted, they try to make sense of it. The longer they search, the higher the arousal, and the stronger the emotion."[357]

- "If the interruption slows the accomplishment of an organized sequence, people are likely to experience *anger*."[358]

- "If the interruption has accelerated accomplishment, then they are likely to experience *pleasure*."[358]

- "If people find that the interruption can be circumvented, they experience *relief*."[359]

- "If they find that the interruption has thwarted a higher level plan, then the anger is likely to turn into *rage*."[359]

- "If they find that the interruption has thwarted a minor behavioural sequence, then they are likely to feel *irritated*."[359]

Weick concludes his argument on the ongoing principle of sense making, by saying that "past events are reconstructed in the present as explanations, not because they look the same, but because they feel the same."[360] Therefore this statement entails that sense making is very

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[355] Weick, K.E. 1995, 47. Sensemaking in Organizations. "If there is no means to remove or circumvent the interruption, the negative emotion should become more intense, the longer the interruption lasts."
[356] Weick, K.E. 1995, 47. Sensemaking in Organizations.
[357] Weick, K.E. 1995, 48. Sensemaking in Organizations.
[358] Weick, K.E. 1995, 48. Sensemaking in Organizations. (italics to emphasise)
[359] Weick, K.E. 1995, 49. Sensemaking in Organizations. (italics to emphasise)
[360] Weick, K.E. 1995, 49. Sensemaking in Organizations.

difficult, because "it tries to make two very different forms of evidence"[360], for sense making is ongoing and neither starts nor stops.

3.1.1.3.6   *Focused on, and by extracted cues*

Weick states that sense making is easy to observe because it is everywhere, but because of the effortless nature of sense making it is easy to see the sense that has been made but to see the actual making of it, is a bit more difficult. Therefore, Weick argues that it is important to "pay close attention to ways people notice, extract cues, and embellish that which they extract."[360] Weick cites James[361] who describes two points of reasoning on the importance of extracted cues:

1. "An extracted character [cue] is taken as equivalent to the entire datum from which it comes."[360]
2. "The extracted character thus taken suggests a certain consequence more obviously than it was suggested by the total datum as it originally came."[360]

According to Weick, "extracted cues are simple, familiar structures that are seeds from which people develop a larger sense of what may be occurring."[362] What the extracted cue will become depends on the context in two ways:

1. "Context affects what is extracted as a cue."[363]
2. "Context affects how the extracted cue is interpreted."[363]

Weick highlights the fact that "context affects the extraction of cues, and that small, subtle features can have surprisingly large effects on sensemaking."[364]

With these statements, Weick takes us back to March in section 2.1.3 where he describes that in order to understand a specific decision in a specific situation, there needs to be a great deal of concrete contextual knowledge. He (March) describes this context in being, historical, social, political and economic, with regards to the environment, as well as individuals, organizations, and institutions involved. So, therefore, according to March and Weick, it can be possible that within the decision-making process, sense making can take place while

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[361] Weick, K.E. 1995, 49. Sensemaking in Organizations. (James, W. (1950). The principles of psychology (Vols. 1 & 2). New York: Dover. (Original work published 1890))

[362] Weick, K.E. 1995, 50. Sensemaking in Organizations.

[363] Weick, K.E. 1995, 51. Sensemaking in Organizations.

[364] Weick, K.E. 1995, 52. Sensemaking in Organizations.

keeping the context in mind. It is possible that during the decision-making process, cues are extracted, influenced by the context, and that cues are used to complete or influence the decision-making process. Therefore sense making can be a crucial part of the decision-making process.

Weick further cites Leiter[365] who describes cues and indexicals, and what happens to cues after they are extracted. Leiter states that "without a supplied context, objects and events have equivocal or multiple meanings."[366] Leiter continues by saying that when people intend to connect a certain meaning with an expression, it can be that the "expressions are vague and equivocal, lending themselves to several meanings."[367] The meaning or sense of these expressions can only be clear if a context has been supplied.[368]

Regardless of the two above mentioned points,[363] Weick says that "the point to be retained is that faith in these cues and the sustained use as a reference point are important for sensemaking."[367] It is important to see, "that these cues ties elements together cognitively"[369], and these ties would then receive more "substance when people act as if they are real."[369] Weick explains this argument by citing Singer[370], who says that "if you are not happy, act the happy man. Happiness will come later."[371] He also cites James[372], who accentuates this argument by saying, "faith that life is worth living generates the action that then makes life worth living."[369] Because extracted cues are so crucial for the sense-making process, it is possible that "any point of reference will do, because it stimulates a cognitive structure that then leads people to act with more intensity."[369]

Weick underlines this argument by referring to a story about a lost military regiment in the Swiss Alps (see Figure 28).

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[365] Weick, K.E. 1995, 52. Sensemaking in Organizations. (Leiter, K. (1980). A primer on ethnomethodology. New York: Oxford University Press.)

[366] Weick, K.E. 1995, 52. Sensemaking in Organizations.

[367] Weick, K.E. 1995, 53. Sensemaking in Organizations.

[368] Weick, K.E. 1995, 53. Sensemaking in Organizations. "That context consist of such particulars as who the speaker is (his biography), the relevant aspects of his biography, his current purpose and intent, the setting in which the remarks are made or the actual, or potential relationship between speaker and hearer."

[369] Weick, K.E. 1995, 54. Sensemaking in Organizations.

[370] Weick, K.E. 1995, 54. Sensemaking in Organizations. (Singer, I.B. (1961). The Spinoza of Market Street. New York: Farrar, Straus, Cudahy.)

[371] Weick, K.E. 1995, 54. Sensemaking in Organizations. Weick further cites James, who says that "faith that life is worth living generates the action that then makes life worth living."

[372] Weick, K.E. 1995, 54. Sensemaking in Organizations. (James, W. (1950). The principles of psychology (Vols. 1 & 2). New York: Dover. (Original work published 1890))

> "we considered ourselves
>
> lost and waited for the end. And then one of us
>
> found a map in his pocket. That calmed us down.
>
> We pitched camp, lasted out the snowstorm and then with the map
>
> we discovered our bearings.
>
> And here we are.
>
> The lieutenant borrowed this remarkable map
>
> and had a good look at it. It was not a map of the Alps
>
> but of the Pyrenees"

Figure 28 – Extract of Weick's story about the map, the Alps and the Pyrenees[373]

This story of Weick raises the "possibility that when you are lost, any old map will do."[369] Therefore, when you are confused or uncertain, "any old strategy plan will do."[374] He also cites Starbuck[375] mentioning that "managers keep forgetting that it is what they do, not what they plan, that explains their success."[375] Therefore, managers should spend less time on planning and more time on acting. Weick concludes this section, by saying that, "what the leader has to do, when faced with this situation, is instill some confidence in people, get them moving in some general direction, and be sure they look closely at cues created by their actions so that they learn where they were and get some better idea of where they are and where they want to be."[375] Even if this was a bad map, the soldiers could still produce a positive outcome, and the reason for that was purely the fact that they were active—*they acted*. They also had a purpose, for they needed to get back to camp, and had an image of where they were and where they were going. The imperfect map, turned out to be good enough, for it kept them moving, it kept them noticing cues, and it kept updating their sense of where they were. "Once set in motion, sensemaking tends to confirm the faith through its effects on actions that make material that previously had been merely envisioned."[375]

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[373] Weick, K.E. 1995, 54. Sensemaking in Organizations. The extract is from http://leaderswedeserve.wordpress.com/tag/karl-weick/ (visited 16 October 2013)

[374] Weick, K.E. 1995, 54. Sensemaking in Organizations. (Starbuck, W.H. (1993). Strategizing in the real world. International Journal of Technology Management, 8, 77 – 85.)

[375] Weick, K.E. 1995, 55. Sensemaking in Organizations. (spelling as in source)

3.1.1.3.7   *Driven by plausibility rather than accuracy*

Weick starts by saying that it is reasonable to argue in studies of sense making, that "accuracy is nice, but not necessary."[376] He also cites Starbuck *et al*.,[377] who say that "one thing an intelligent executive does not need is totally accurate perception."[376]

There are eight reasons why accuracy is secondary when analysing sense making:

1. People should *distort and filter*, "to separate signal from noise … not to be overwhelmed with data."[378] Therefore, from a sense-making standpoint, it is "less productive to follow the lead of behavioural decision theorists … and more productive to look at filters people invoke, why they invoke them, and what those filters include and exclude."[379]

2. "Sensemaking is about the *embellishment* and elaboration of a single point of reference or extracted cue."[378]

3. Decision-making in organisations is time sensitive, and therefore the balance between speed and accuracy, usually, favours speed. Thus, *speed* reduces the necessity for accuracy. "A fast response can be an influential response that enacts an environment."[380]

4. If there would be an issue and accuracy has to be considered, then it should do so for "short periods of time and with respect to specific questions."[381] Weick cites Swann[382], who makes the distinction between global accuracy (a widely generalised belief) and circumscribed accuracy (focused on prediction of specific encounters).

5. With the constant referring to the interpersonal, interactive, interdependent quality of organisational life, accuracy makes less sense and is not the sole concern in sense making.

6. Projects have a very important effect on sense making. "Beliefs that counteract interruptions and facilitate ongoing projects are treated as accurate, [and] accuracy is defined by instrumentality, [and is], in other words, project specific and pragmatic."[383]

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[376] Weick, K.E. 1995, 56. Sensemaking in Organizations.
[377] Weick, K.E. 1995, 56. Sensemaking in Organizations. (Starbuck, W.H., & Miliken, F.J. (1988). Executives' perceptual Filters: What they notice and how they make sense. In D.C. Hambrick (Ed.), The executive effect: Concepts and method for studying top managers (pp.35 – 65). Greenwich, CT: JAI)
[378] Weick, K.E. 1995, 57. Sensemaking in Organizations. (italics to emphasise)
[379] Weick, K.E. 1995, 57. Sensemaking in Organizations.
[380] Weick, K.E. 1995, 58. Sensemaking in Organizations. (italics to emphasise)
[381] Weick, K.E. 1995, 58. Sensemaking in Organizations.
[382] Weick, K.E. 1995, 58. Sensemaking in Organizations. (Swann, W.B., Jr. (1984). Quest for accuracy in person perception: A matter of pragmatics. Psychological Review, 91, 457 – 477.)
[383] Weick, K.E. 1995, 59. Sensemaking in Organizations.

7. "Stimuli that are filtered out are often those that detract from an energetic, confident, motivated response."[384]

8. Accuracy is a nice-to-have, but not necessary for sense making and are nearly impossible tell if the perceptions will prove accurate or not. Weick cites Starbuck & Milliken by saying that "because perceptions are partly predictions that may change reality, because different predictions may lead to similar actions, and similar perceptions may lead to different actions."[384]

To summarise the seven properties of sense making, Weick states the following:

"Once people begin to act (*enactment*), they generate tangible outcomes (*cues*) in some context (*social*), and this helps them discover (*retrospect*) what is occurring (*ongoing*), what needs to be explained (*plausibility*), and what should be done next (*identity enhancement*).[385]

3.2   Sense making in organisations

Sense making made by individuals differs vastly from sense making made within organisations. Weick concurs with this statement when he says that "everyday sensemaking and organizational sensemaking are not identical."[386] There are in fact elements that are similar, but Weick shows us the transition that sense making goes through from individuals through to organisations. Some of the sense-making properties are re-visited in the following section to explain the transition.

3.2.1 Similar sense-making properties in organisations according to Weick

3.2.1.1   Ongoing

While explaining the ongoing property of one of his seven sense-making properties (see Section 3.1.1.3.5), Weick cites a statement from Cohen, March and Olsen[387] where they insist that "streams of problems, solutions, people, and choices flow through organizations and converge and diverge independent of human intention."[388] With this statement Weick recognises that the ongoing property of sense making has elements of "continuity,

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[384] Weick, K.E. 1995, 60. Sensemaking in Organizations.
[385] Weick, K.E. 1995, 55. Sensemaking in Organizations. (italics to emphasise)
[386] Weick, K.E. 1995, 63. Sensemaking in Organizations.
[387] Weick, K.E. 1995, 44. Sensemaking in Organizations. (Cohen, M.D., March, J.G., & Olsen, J.P. (1972). A garbage can model of organizational choice. Administrative Science Quarterly, 17, 1-25.)
[388] Weick, K.E. 1995, 44. Sensemaking in Organizations.

thrownness, and flows"[388] as part of the structure of sense making that exists within the decision-making structures of organisations.

Weick also cites Starbuck[389] who says that there are portions of flow within organisations that can be portrayed either as a problem or as a solution in order "to justify some perceived choice."[388]

Weick continues his explanation on the ongoing property of sense making by citing Eccles and Nohria,[390] where they describe that managing is the "ongoing flow of actions and words in an organization."[391]

During Weick's argument on interruptions in an ongoing process (see Section 3.1.1.3.5), he links this through to organisations by asking these two questions: "What is the distribution of interruption in organizations?"[392], and "where are interruptions most likely to occur, and how organized are the actions and plans that are likely to be interrupted?"[392] He argues that if these questions can be answered, then it would be possible to determine where sense making takes place within a process, and how it would be influenced by emotional experiences. Weick answers these questions in terms of an example, by using SOPs.[393] He explains that organisations with new, less-organised processes, with fewer SOPs, would be organisations where interruptions generate emotion, but because of these few, loosely coupled processes, the interruptions are less disruptive and therefore exhibit less emotion.[394] Therefore, Weick concurs that the more organised the processes are, the higher the impact of the interruption and the more emotions are generated.

This argument of Weick can be taken back to Section 2.2.3.2, where Cyert and March state that SOPs not only bring stability within an organisation, but also add value and influence the

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[389] Weick, K.E. 1995, 44. Sensemaking in Organizations. (Starbuck, W.H. (1983). Organizations as action generators. American Sociological Review, 48, 91 – 102.)

[390] Weick, K.E. 1995, 45. Sensemaking in Organizations. (Eccles, R.G., & Nohria, N. (1992). Beyond the Hype: Rediscovering the essence of management. Cambridge, MA: Harvard Business School Press.)

[391] Weick, K.E. 1995, 45. Sensemaking in Organizations. Eccles et al. describe examples of such events as product launches, off-site strategy planning, or budget meetings. They also explain that these events are significant in the sense that they serve as "moments to take stock of ongoing actions, to spin new stories, to set in motion future actions, to formally announce beginnings, milestones, and ends, to trigger a change of course, or just to touch base and reaffirm individual and organizational identities."

[392] Weick, K.E. 1995, 46. Sensemaking in Organizations.

[393] Weick, K.E. 1995, 46. Sensemaking in Organizations. "Standard operating procedures (SOPs) are a good example of organized action sequences."

[394] Weick, K.E. 1995, 47. Sensemaking in Organizations.

decisions made within the organisation. By adding Weick's above mentioned argument it is also clear that when such an organisation with strict and stable SOPs have events of interruption within these SOPs, then there would be a sense-making moment where emotions would rise very high and therefore arousal would lead towards the sense-making moment (see Figure 27).

Weick adds that in organisations emotions are largely negative, than positive and he gives three reasons why:

1. "People have little control over the onset or termination of interruptions."[395]

2. "Over time people tend to experience more rather than fewer interrupting stimuli in the form of regulations, deaths, competitors, takeovers, reorganizations, and so on."[395]

3. "The achievement of plans in organizations is more often slowed than accelerated due to, for example, budget cutting, turnover, resignations, shortages, or currency revaluation."[395]

3.2.1.2   Focused on and by extracted cues

This is Weick's sixth property of sense making, and during the description, Weick touches on the importance of this property in organisations. He argues that despite the fact "that the social context is crucial for sense making because it binds people to actions that they then must justify, it affects the saliency of information, and it provides norms and expectations that constrain explanations."[396] Weick also cites Mailoux[397] who says that context also incorporates politics: "Interpretations can have no grounding outside of rhetorical exchanges taking place within institutional and cultural politics."[396] Weick argues that "to talk about interpretation … without discussing a politics of interpretation, is to ignore [any form of] context."[396]

Weick continues his argument by citing Starbuck and Miliken[398], who says that "people in organizations are in different locations and are familiar with different domains, which means

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[395] Weick, K.E. 1995, 48. Sensemaking in Organizations.

[396] Weick, K.E. 1995, 53. Sensemaking in Organizations.

[397] Weick, K.E. 1995, 53. Sensemaking in Organizations. (Mailoux, S. (1990). Interpretation. In F. Lrntricchia & T. McLaughlin (Eds.), Critical terms for literary study (pp. 121 – 134). Chicago: University of Chicago Press.)

[398] Weick, K.E. 1995, 53. Sensemaking in Organizations. (Starbuck, W.H., & Miliken, F.J. (1988). Executives' perceptual Filters: What they notice and how they make sense. In D.C. Hambrick (Ed.), The executive effect: Concepts and method for studying top managers (pp.35 – 65). Greenwich, CT: JAI)

they have different interpretations of common events."[396] Within an organisation, there is a hierarchy structure and according to Starbuck and Miliken, people that are located at different levels within the hierarchy, have different views.[399]

3.2.1.3   Driven by plausibility rather than accuracy

Weick describes his seventh property on sense making when he cites Starbuck *et al*.,[400] by concluding that even though they speculate in a way, executives do not need total accurate perception. Sutcliffe[401] verifies this by saying that there is evidence "to show that executives are not always accurate anyway in their perceptions of their organizations and their environments."[402] He found that "the more diverse the work history of a top management team, the less accurate is the team in noticing munificence."[402] Weick continues to cite Sutcliffe by adding that "misperceptions may be beneficial if they enable managers to overcome inertial tendencies and propel them to pursue goals that might look unattainable in environments assessed in utter objectivity."[402]

Executives seldom produce accuracy says Weick, for it is not important and within the sense-making framework, it is "no big problem"[403], because sense making "does not rely on accuracy."[403] Instead, sense making rely on "plausibility, pragmatics, coherence, reasonableness, creation, invention, and instrumentality."[403]

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[399] Weick, K.E. 1995, 53. Sensemaking in Organizations. "People with expertise in newer tasks tend to appear at the bottoms of hierarchies and to interpret events in terms of these newer tasks and they welcome changes that will offer them promotion opportunities and bring their expertise to the fore. Conversely, people at the tops of organizational hierarchies tend to have expertise related to older and more stable tasks, they are prone to interpret events in terms of these tasks, and the favour strategies and personnel assignments that will keep these tasks central."

[400] Weick, K.E. 1995, 56. Sensemaking in Organizations. (Starbuck, W.H., & Miliken, F.J. (1988). Executives' perceptual Filters: What they notice and how they make sense. In D.C. Hambrick (Ed.), The executive effect: Concepts and method for studying top managers (pp.35 – 65). Greenwich, CT: JAI)

[401] Weick, K.E. 1995, 56. Sensemaking in Organizations. (Sutcliffe, K.M. (1994). What executives notice: Accurate perceptions in top management teams. Academy of Management Journal, 37, 1360 – 1378.)

[402] Weick, K.E. 1995, 56. Sensemaking in Organizations.

[403] Weick, K.E. 1995, 57. Sensemaking in Organizations.

3.2.2 Transition of sense making from individuals to organisations according to Weick

On the path to making the transition from individual sense making to organisational sense making, Weick defines this concept of sense making on organisation, by citing three different theorists' concepts. He mainly focuses on three.

3.2.2.1   Scott's analysis of organisations

Weick cites Scott and explains the concept of organisation in three ways.[404] The concepts are ordered from less to more openness to the environment and tighter to looser coupling among the elements:[405]

3.2.2.1.1   *Rational system*

Weick cites the definition used by Scott and states that organisations, as rational systems, are "collectivities oriented to the pursuit of relatively specific goals and exhibiting relatively highly formalized social structures."[405]

3.2.2.1.2   *Natural system*

Weick cites the definition used by Scott and states that organisations as natural systems are "collectivities whose participants share a common interest in the survival of the system and who engage in the collective activities, informally structures, to secure this end."[405]

3.2.2.1.3   *Open System*

Again, Weick cites the definition used by Scott and states that organisations as open systems are "coalitions of shifting interest groups that develop goals by negotiation; the structure of the coalition, its activities, and its outcomes are strongly influenced by environmental factors."[405]

Weick derives from these definitions that organisations that are "depicted as open systems should be the most concerned with sensemaking"[405] because their openness to input from the environment is greater and this then means that they have "more diverse information to deal with."[405] It is dealing with this openness that shifts the focus to sense making, "namely,

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[404] Weick, K.E. 1995, 69. Sensemaking in Organizations.
[405] Weick, K.E. 1995, 70. Sensemaking in Organizations.

what is 'out there', what is 'in here', and who must we be in order to deal with both questions?"[405]

Weick concludes by saying that "as we move from that which is rational, through that which is natural, to that which is open, we concurrently move from structures, processes, and environments that are less ambiguous to those that are more so. Therefore, with these moves comes a greater premium on sensemaking."[405]

3.2.2.2   Wiley's levels of sense making

Weick cites Wiley, who addresses sense making on a macro level, and states that above the individual level there are three more levels of sense making (see Figure 29).[405]
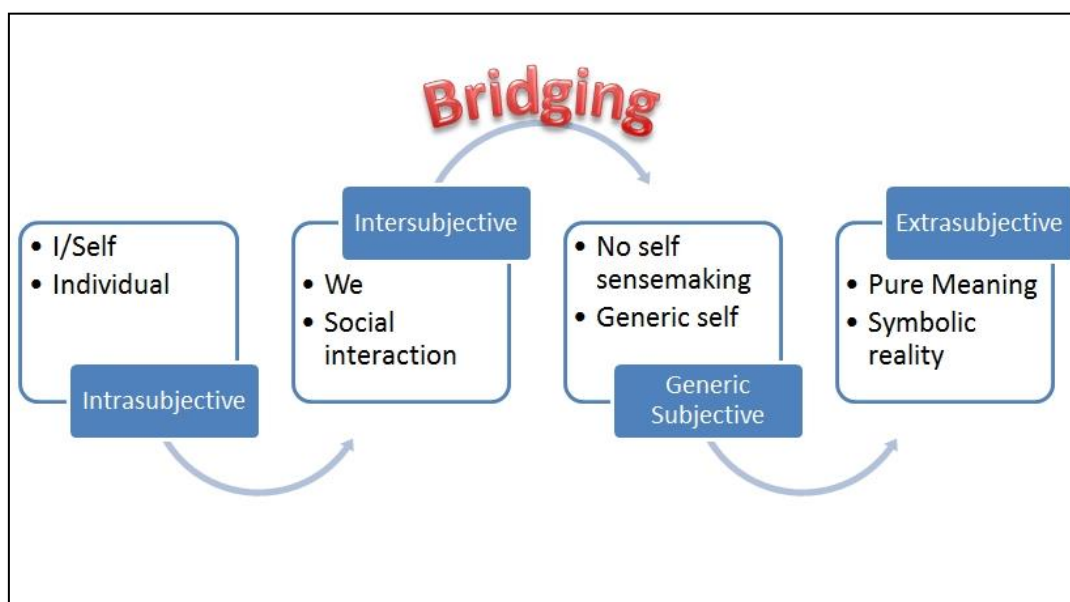
Figure 29 – Weick's four levels of sense making[406]

3.2.2.2.1   *Intrasubjective*

Individual sense making when the sense making is focused on the "I", therefore on the individual.

3.2.2.2.2   *Intersubjective*

When individual thoughts, feelings, and intentions are merged or synthesised into conversations during which the self is transformed from "I" into "we". Weick cites Wiley who

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[406] Figure 29 © Ilse de Kock, 17 November 2017

states that "inter-subjectivity is emergent upon the interchange and synthesis of two, or more, communicating selves."[407]

3.2.2.2.3   Generic subjective

Weick states here that "concrete human beings, subjects, are no longer present",[408] and no "concrete, individualized selves",[408] at this level. The self is left behind at the intra-subjective level, for this is a generic level where the social structure is no longer present and only implies roles and the following of rules.[408]

Weick refers to sense making through generic subjectivity the "mainstay of organizational analysis"[408], and are greatly involved in "changes in technology that alter work roles, relational roles, and social networks."[408]

At this level, there is also a mixture of inter-subjective and generic subjective elements when there are interactions that attempt to manage uncertainty "when people interact to synthesise new meaning"[408], and Weick refers to this "a hallmark of organizational sensemaking in general."[408]

3.2.2.2.4   Extrasubjective

Weick cites Wiley that says at this level, "a generic self that occupies roles is now replaced by 'pure meanings' without a knowing subject."[409] At this level, there is a symbolic reality that can be associated with subjects like "capitalism or mathematics, each viewed as a subjectless batch of culture."[410]

3.2.2.3   Smircich, Stubbart's bridging concept, and Westley's input

As seen in Figure 29 Weick identified and introduced a new term that he terms *bridging*. He now states that "organizational forms are the bridging operations that link the inter-subjective with the generically subjective,"[411] and that the description of these bridging operations fit best with descriptions of sense making.[411]

Weick now puts forth three examples of Smircich and Stubbart to illustrate his point:

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[407] Weick, K.E. 1995, 70. Sensemaking in Organizations. (Wiley, N. (1988). The micro-macro problem in social theory. *Sociological Theory,* 6, 254 – 261.)
[408] Weick, K.E. 1995, 71. Sensemaking in Organizations.
[409] Weick, K.E. 1995, 72. Sensemaking in Organizations. (quotes as in source)
[410] Weick, K.E. 1995, 72. Sensemaking in Organizations.
[411] Weick, K.E. 1995, 73. Sensemaking in Organizations.

3.2.2.3.1   *Organisation as a quality of interaction*

Weick states that Smircich and Stubbart "imply organizing as bridging when they describe organization as a quality of interaction."[412] They continue by saying that "organization 'is a set of people who share many beliefs, values, and assumptions that encourage them to make mutually-reinforcing interpretations of their own acts and the acts of others', and that encourage them to act in ways that have mutual relevance."[413]

This quote describes bridging by referencing intersubjectivity when they talk about, interaction, mutually-reinforcing, beliefs, values, and assumptions. They also reference generic subjectivity by talking about a set of people, sharing, acts of others, and mutual relevance.

3.2.2.3.2   *Organisation as a collection of interlocking routines*

Weick cites Westley stating that "organizations do not exist, and cannot be imbued with action potential: all organizations are in fact only a series of interlocking routines, habituated action patterns that bring the same people together around the same activities in the same time and places."[414] Weick further cites Czarniawska-Joerges saying that "organizations are nets of collective action, undertaken in an effort to shape the world and human lives. The contents of the actions are meanings and things (artifacts). One net of collective action is distinguishable from another by the kind of meanings and products socially attributed to a given organization."[415]

Westley's quote describes generic subjectivity when talking about the same people that show up day after day at the same time at the same place. Their activities become more mutually defined, dependent, and predictable and therefore generic subjectivity increases. However, when talking about interlocking routines and habitual patterns, it points in the direction of intersubjectivity.

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[412] Weick, K.E. 1995, 73. Sensemaking in Organizations. (Smircich, L. & Stubbart, C. (1985). Strategic management in an enacted world. *Academy of Management Review,* 10, 724 – 736.)

[413] Weick, K.E. 1995, 73. Sensemaking in Organizations. (quotes as in source)

[414] Weick, K.E. 1995, 74. Sensemaking in Organizations. (Westley, F.R. (1990). Middle managers and strategy: Microdynamics of inclusion. *Strategic Management Journal,* 11, 337 – 351.)

[415] Weick, K.E. 1995, 74. Sensemaking in Organizations. (Czarniawska-Joerges, B. (1992). *Exploring complex organizations: A cultural perspective.* Newbury Park, CA: Sage.)

Weick deduces from this that Westley grounds her understandings of an organisation in generic subjectivity and lean towards evident remnants of intersubjectivity, which reaffirm his bridging theory.

3.2.2.3.3   Organisation as interacting and communicating participants

Weick cites Schall, and argues that organisations are "entities developed and maintained only through continuous communication activity-exchanges and interpretations among its participants … As interacting participants organize by communicating, they evolve shared understandings around issues of common interest, and so develop a sense of the collective 'we' … that is, of themselves as distinct social units doing things together in ways appropriate to those shared understandings of the 'we'. In other words, the communicating processes inherent in organizing create an organizational culture revealed through its communication activities … and marked by role-goal- and context-bound communication constraints—the rules."[416]

Schall's quote describes inter-subjectivity when he talks about exchanges, continuous communication, and interacting participants. He also refers to generic subjectivity when he talks about shared understanding, issues of common interest and the collective "we", organisational culture, roles, and communication constraints in the form of rules. Weick concludes that Schall's quote articulates the bridge between inter-subjectivity and generic subjectivity.

This concludes the background on the transition on how the concept of sense making in organisations is interpreted by theorists. To maintain this train of thought it is pertinent to move these concepts onto a case study in order to portray the actual properties and the reality in an organisation.

3.3   Case study on sense making in organisations: The Hawick article

Hawick is a small town in the south of Scotland and is even today seen as ground zero for the Scottish knitwear and cashmere industry. In short, the Hawick article is about a particular case

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[416] Weick, K.E. 1995, 74. Sensemaking in Organizations. (Schall, M.S. (1983). A communication-rules approach to organizational culture. *Administrative Science Quarterly,* 28, 557 – 581.)

in the Scottish knitwear industry, and "how the structure of that industry both determines and is determined by managerial perceptions of the environment."[417]

Weick touched on the essence of the Hawick article[417] when he explained the sense-making property, enactment and stated that "the Hawick mind develops from the 'enacting of a competitive group' … [and that] … people in Hawick enact the environment that enacts their Hawick identity, and this process represents enactment in sensemaking."[418]

Weick uses sense making, in Hawick, as an example of how the seven properties of sense making are incorporated in the study on "how the mental models of organizational strategists determine perceptions of competing organizations and responses to competitive conditions."[417]

From arguments in Section 3.1.1.3 in Figure 22 to Figure 27 that sense making infuses the classic decision-making models and that sense making is detected to enhance and clarify the decision-making processes used by executives to make decisions. This study in Hawick portray the significant role that sense making plays within this *milieu* and portray the enhancement of quality decisions that flow because of this involvement.

3.3.1 Brief overview of the Hawick study—the study of the "Hawick mind"

The main aim of the study was to do research on business competition.[417] The study focus mainly on two issues:

1.   "Why some generic organizational forms succeed and others fail?"[417]

2.   "Why the strategies of some organizations lead to competitive superiority while others do not?"[417]

Porac *et al*. argue that organisations compete at two levels, and this competition takes place among suppliers, producers, and their customers.[419] The first level "occur at the *material* or technical level where decisions are being made about what goods or services to produce."[420] The second level occurs at a *cognitive* level, where "business competition must be analysed

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[417] Porac, J.F., Thomas, H. & Baden-Fuller, C. 1989, 397. Competitive Groups as Cognitive Communities: The Case of Scottish Knitwear Manufacturers.

[418] Weick, K.E. 1995, 36 – 37. Sensemaking in Organizations. (also see Section 3.1.1.3.3) (quotes as in source)

[419] Porac, J.F., Thomas, H. & Baden-Fuller, C. 1989, 398. Competitive Groups as Cognitive Communities: The Case of Scottish Knitwear Manufacturers.

[420] Porac, J.F., Thomas, H. & Baden-Fuller, C. 1989, 398. Competitive Groups as Cognitive Communities: The Case of Scottish Knitwear Manufacturers. (italics as in source)

in terms of the mental models of decision-makers and how such mental models lead to a particular interpretation of the competitive milieu."[420] Porac *et al*. further noted that research on the cognitive level has largely been ignored and therefore focused on "a cognitive perspective on rivalry as a complement to more traditional explanatory models."[419]

Because of taking a stance on a cognitive level, Porac *et al*. decide, "to explore the 'interpretive' side of organizational activities."[421] This approach stand on four assumptions:

1. "Activities and structures of organizations are assumed to be determined in part by the micro-momentary actions of their members."[419]

2. "Such actions are assumed to be based upon an information-processing sequence in which individuals attend to cues in the environment, interpret the meaning of such cues, and then externalize these interpretations via concrete activities."[419]

3. "It is assumed that 'meaning' is problematic and that individuals must construct actively an interpretation by linking received cues with well-learned and/or developing cognitive structures."[419]

4. "Individuals are assumed to possess a reflective capability such that they are able to verbalize at least the contents of their interpretations if not the processes through which such interpretations were generated."[419]

Porac *et al*. admit that the "material and cognitive aspects of business rivalry are thickly interwoven"[419] and that this mutual dependence (see Figure 30[419]) would have a major influence in their study.

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[421] Porac, J.F., Thomas, H. & Baden-Fuller, C. 1989, 398. Competitive Groups as Cognitive Communities: The Case of Scottish Knitwear Manufacturers. (quotes as in source)
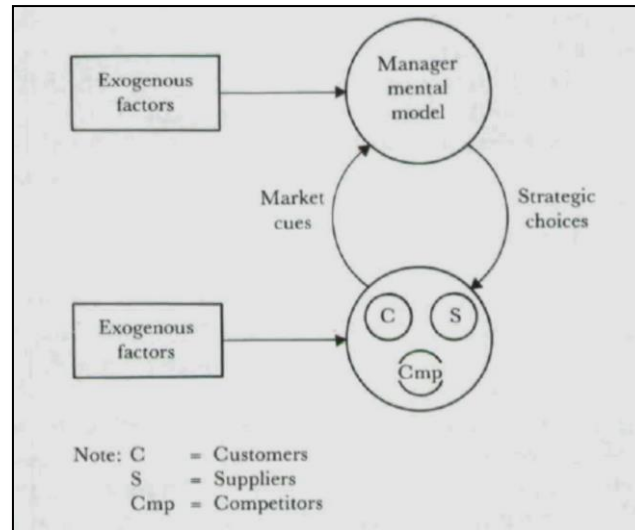
Figure 30 – Mutual dependence of material and cognitive levels of analysis[419]

Porac *et al*. use Weick's terms[422] and states that "the material and cognitive aspects of an organization's strategic activities are linked together in a loosely coupled 'enactment' process in which each is determined partly, but not solely, by the other."[423] Porac *et al*. further mentions that regardless of this complementarity, little is known explicitly about the cognitive side of business competition and how these "mutual enactment processes structure the activities of firms within a competitive milieu."[424]

Porac *et al*. selected a single industrial sector, namely the Scottish knitwear manufacturers ("relatively small firms located primarily in the Border region of Scotland")[424] in order to learn more about strategies that are formed and acted on cognitive models, and how these models influenced the industry structure.[425] Porac *et al.* elected this particular group as ideal because of four reasons:[424]

1.   "Small size"[424]

2.   "Cultural homogeneity"[424]

3.   "Geographical characteristics"[424]

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[422] Porac, J.F., Thomas, H. & Baden-Fuller, C. 1989, 400. Competitive Groups as Cognitive Communities: The Case of Scottish Knitwear Manufacturers. Porac cites terms from Weick's book: Weick, K.E. 1979. *The Social Psychology of Organizing.* Reading, Mass.: Addison-Wesley.
[423] Porac, J.F., Thomas, H. & Baden-Fuller, C. 1989, 400. Competitive Groups as Cognitive Communities: The Case of Scottish Knitwear Manufacturers. (quotes as in source)
[424] Porac, J.F., Thomas, H. & Baden-Fuller, C. 1989, 401. Competitive Groups as Cognitive Communities: The Case of Scottish Knitwear Manufacturers.
[425] Weick, K.E. 1995, 76. Sensemaking in Organizations.

4. "Long-standing traditions"[424]

Three investigators interviewed 35 executives of 17 firms over a six-month period. They combined the answers of these interviews with secondary industry data to answer three interrelated questions:[426]

Q1:   "What are the consensual identity and causal beliefs constructed by top managers to make sense of transactions within their competitive environment?"[426]

Q2:   "How do such beliefs relate to the strategic activities of firms within the sector?"[426]

Q3:   "How are such beliefs maintained or altered over time?"[426]

While answering these questions, and explaining the *Hawick mind*, Porac *et al*. touched on each of the seven sense-making properties.

3.3.2 Answers to the three questions in the study incorporated the seven properties of sense making

3.3.2.1   Identity

A key part of the mental model of the competitive environment, consist of "beliefs about the identity of the firm, its competitors, suppliers, and customers."[427] In order to make sense of their competitive environments, "the 17 firms have to set themselves apart as distinct from others who make sweaters, and then individually, they have to differentiate among themselves."[428] Although all 17 firms make high quality sweaters, they still have to "differentiate among themselves and compete for space in speciality shops"[429] as well as large department stores. An important part of sense making in Hawick is to define the competitive space where in decision makers "can both discover and invent who they are."[429] Sense making also provides meaning on "who they are becoming, relative to others [in the industry] whose identity may also be in flux."[429]

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[426] Porac, J.F., Thomas, H. & Baden-Fuller, C. 1989, 401 – 402. Competitive Groups as Cognitive Communities: The Case of Scottish Knitwear Manufacturers.
[427] Porac, J.F., Thomas, H. & Baden-Fuller, C. 1989, 399. Competitive Groups as Cognitive Communities: The Case of Scottish Knitwear Manufacturers.
[428] Weick, K.E. 1995, 76 – 77. Sensemaking in Organizations.
[429] Weick, K.E. 1995, 77. Sensemaking in Organizations. (quotes as in source)

In Section 3.1.1.1 Weick cited Starbuck and Milliken on how they defined sense making as "placing stimuli into some kind of framework."[429] In this case study, Porac *et al*. suggest that "a combination of enactment and selective perception among competitors produces"[429] a "cognitive oligopoly."[430] Porac *et al*. state further that this oligopoly takes the form of a "limited set of competitive benchmarks that is mutually defined to simplify and make sense of the business environment."[430] Weick now concludes that these benchmarks define the frameworks, where in the identity construction takes place as "frame[s] within which identities and strategies materialize." Weick says here that identity construction never ends and that the questions of "who am I", "who are they" and "who are 'we'" "dominate attempts at sensemaking."[429]

3.3.2.2   Retrospect

The sense-making property of retrospect, is implied, rather than discussed in Porac *et al*.'s study. "It is implied by the observation that the mental representations in the mental models used by the strategists are imperfect and simplified versions of the material world."[429] Weick assumes that the decision makers have this character, "because they are constructed on the basis of hindsight."[429] The decision maker "conveniently edits out the complex, flawed causal chains by which outcomes were actually produced."[429] Weick further states that the "outcomes can only be known after the fact, [and this] restricts [the strategists] to a backward glance."[429]

Weick also argues that the question: "How can I know what I've made until I see how it's sewn?", provides a retrospective element because the manufacturers have sold these garments only to high income consumers, even though modern techniques were available, they kept on manufacturing by hand, and in hindsight, they motivated it as providing "high quality" sweaters. Weick argued that "people in Hawick have been crafting hand-finished sweaters all along, although the interpretation of those prior actions as the pursuit of high quality did not crystallize until costs became an issue."[431] To conclude Weick remarked that "the one small flaw is that strategists take credit for their foresight when they are actually trading on their hindsight."[431]

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[430] Porac, J.F., Thomas, H. & Baden-Fuller, C. 1989, 413. Competitive Groups as Cognitive Communities: The Case of Scottish Knitwear Manufacturers.
[431] Weick, K.E. 1995, 78. Sensemaking in Organizations.

3.3.2.3   Enactment

From the four assumptions Porac *et al*. made in section 3.3.1 they concluded that when the four assumptions are combined, they portray "human activity as an ongoing input-output cycle in which subjective interpretations of externally situated information become themselves objectified via behaviour."[432] Weick complements Porac *et al*. on their description and insight on enactive sense making by aiding to the description saying that "when people take their interpretations seriously and act on them, the material world may cohere in a different way than it did before."[433] When the world/environment changes others, will notice it and act on these new interpretations. Over time, these interpretations become what Weick calls "a consensus on what is 'out there'."[433]

The Hawick network consists of producers, agents, retailers, and consumers and this is "literally an environment enacted on the basis of cues that were made salient by earlier enactments. Hawick executives act their way into their strategies, their routines, and their interpretations by enacting circumstances in which portions of the ongoing flow of inputs and outputs recycle and happen predictably, over and over."[433]

3.3.2.4   Social

It is clear that Porac *et al*. believe that sense making is relentlessly social. This is evident from the Porac *et al*.'s title: "Competitive Groups as Cognitive Communities."[434] Because of the cognitive oligopoly of Hawick, the environment is familiar and because of this, the executives can compare themselves to similar others. The executives communicate often, both formally and informally, for some of them live walking distance from one another.[435] Porac *et al*. continue by stating that there is indirect imitation among the firms, which is "when they all face a common enacted environment,"[436] and direct imitation, which is "when competitors exchange ideas."[436] At this point the intersubjective, generically subjective, and cultural levels of sense making come into play, when managers converge through a combination of

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[432] Porac, J.F., Thomas, H. & Baden-Fuller, C. 1989, 398. Competitive Groups as Cognitive Communities: The Case of Scottish Knitwear Manufacturers.

[433] Weick, K.E. 1995, 79. Sensemaking in Organizations.

[434] Porac, J.F., Thomas, H. & Baden-Fuller, C. 1989, 397. Competitive Groups as Cognitive Communities: The Case of Scottish Knitwear Manufacturers.

[435] Porac, J.F., Thomas, H. & Baden-Fuller, C. 1989, 405. Competitive Groups as Cognitive Communities: The Case of Scottish Knitwear Manufacturers.

[436] Weick, K.E. 1995, 80. Sensemaking in Organizations.

enactment and imitation, even though individual managers have their own mental models in their heads (see Figure 31[437]). Weick suggests here that "individual sensemaking is something of an oxymoron."[436]
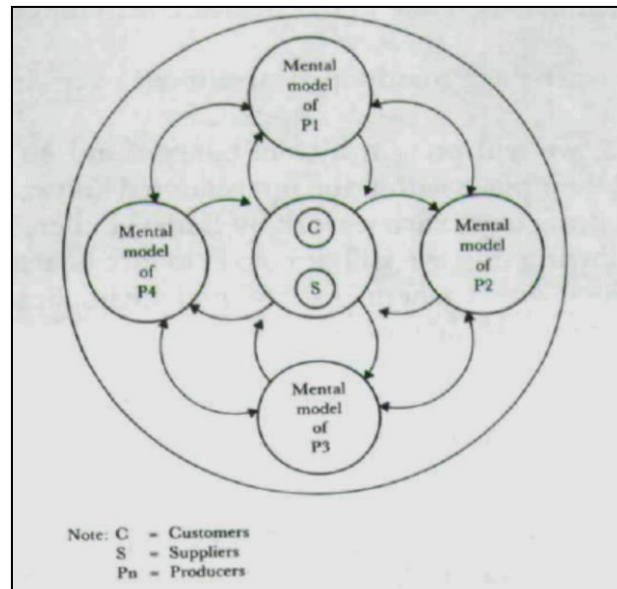
Figure 31 – Mutual enactment processes within an industrial sector[437]

3.3.2.5   Ongoing

Porac *et al*. are mindful that sense making is ongoing when they state that "human activity is an ongoing input-output cycle."[438] Weick explains this "that people are thrown into the middle of things where projects never seem to start even though they always seem to be interrupted (see Figure 30 and Figure 31)."[439]

Weick reflects back on the discussion in section 3.1.1.3.5 about interruption and the role it plays in sense making to be able to introduce emotions. Porac *et al*. do not mention much about interruption, but what they explicitly mention is the fact that the market activities among the Hawick manufacturers are a "tightly coupled system, with considerable inertia … [and] that means it would be hard to interrupt the projects of such a system."[439] The reason

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[437] Porac, J.F., Thomas, H. & Baden-Fuller, C. 1989, 401. Competitive Groups as Cognitive Communities: The Case of Scottish Knitwear Manufacturers.

[438] Porac, J.F., Thomas, H. & Baden-Fuller, C. 1989, 398. Competitive Groups as Cognitive Communities: The Case of Scottish Knitwear Manufacturers.

[439] Weick, K.E. 1995, 80. Sensemaking in Organizations.

for this is that "those projects are so well organized; an interruption that cannot be quickly repaired should be devastating."[439]

3.3.2.6   Extracted cues

Weick mentions that Porac *et al*. are attentive to the importance of extracted cues in sense making. It is these cues that are part of the executive's mental model and are in need of context to make sense. In this study, "cues to market changes are derived from at least four sources:"[440]

1. "Cues come from agents, directly when those agents place their orders, and indirectly when they discuss trends they think they see."[440]
2. "Design consultants provide market cues when they suggest new designs for garments that respond to fashion trends they perceive."[440]
3. "Cues what executives hear when they travel to visit stores and trade shows."[440]
4. "Cues arise when the firms of Hawick track one another and describe their own views of what might be happenings."[440]

Weick introduced this sense-making property in section 3.1.1.3.6 as "extracted cues", but Porac *et al*. now suggest that it rather be redefined as "enacted cues".[440] Weick argues that sense-making cues are both. He says that "cues are 'enacted' in the sense that each competitor makes strategic choices on the basis of its beliefs, and these choices put things out there that constrain the information the firm gets back."[440] "What the firm [then] gets back affects the next round of choices."[440] "Cues are also 'extracted cues' in the sense that others see these enacted changes and extract them as cues of larger trends. Thus these others come to use the 'same' cues for their strategic choices, as does the firm that first enacted those cues and made them available for extraction."[440] In time, all the firms in Hawick find themselves solving the same problems, which are signified by a set of cues with common meaning.[440]

3.3.2.7   Plausibility

Weick starts his statement by saying that "the role of *plausibility* at Hawick is subtle."[441] He explains that strategists at Hawick severely restricted the market information they had on

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[440] Weick, K.E. 1995, 81. Sensemaking in Organizations.
[441] Weick, K.E. 1995, 81. Sensemaking in Organizations. (italics as in source)

"consumer preferences and the competitive structure of the knitwear sector."[440] The reality of this situation was that certain agents were selected, who contacted only certain stores to sell to a narrow band of customers, who only had little to say about the knitwear sector. Consequently, the result was that the "feedback to the firm is both filtered and relatively uninformative."[440] In the end, the information that the firm "receive is probably accurate enough."[440] In this case, accuracy "does not mean much under these conditions, because so little is being monitored and sampled."[440]

Weick makes his case by saying that "a cognitive oligopoly[442] forms in the interest of plausibility rather than accuracy."[440] He claims that the "quest is for a stable set of transactions that make sense,"[440] and this stability is then "achieved by marking out competitive boundaries"[440] that consist of a "limited number of 'similar' firms, which serve as the frame inside of which interactions now make sense."[443]

Weick concludes by saying that "transactions within the frame make sense because firms converge on a set of enacted and extracted cues that make *common sense* and encourage coordinated action. Transactions within a cognitive oligopoly are plausible and predictable, rather than strange and indeterminate. In other words, they make sense."[444]

3.4   Theory on sense making—Conclusion

This chapter provided a literature study on the sense-making theory of Karl E Weick and provided the fundamental properties and basic insights of a few theorists into sense making. It revealed the direct connection of each of the seven properties of sense making into the decision-making theories, models, and concepts, studied in Chapter 2. It indicated where the decision-making models portrayed in Chapter 2 are fused with, or linked to each one of the sense-making properties as put forth by Weick. This also revealed the emergence of more complex models in decision making, on individual as well as organisational level.

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[442] The Free Dictionary. http://www.thefreedictionary.com/oligopoly (visited 7 August 2014): A market condition in which sellers are so few that the actions of any one of them will materially affect price and have a measurable impact on competitors.

[443] Weick, K.E. 1995, 82. Sensemaking in Organizations. (quotes as in source)

[444] Weick, K.E. 1995, 82. Sensemaking in Organizations. (italics as in source)

The Hawick case study evidently showed that these sense-making properties can also be linked to sense making within organisations, and therefore shows that the convergent models can be directed to be used in organisational decision making.

CHAPTER 4

The act of decision making—aided by sense making

"How can I know what I think until I see what I say?''

~ Karl Weick

4.1   Case study—Student laptop initiative

The previous chapters showed that there is a definite connection between the classical decision-making theories and the theory of sense making. This chapter would further conclude that the newly developed decision-making models infused with sense-making theory in Chapter 3 are equivalent to the decision-making process used in the following case study.

4.1.1 Background

During 2009, all of the 23 South African Universities' (see Table 3)[445] IT Directors founded the Association of South African University Directors of Information Technology (ASAUDIT) "to promote and advance the use and support of computing and information technology at South African universities."[446] It is a non-profit association and it "strives to promote professional skills and conduct in university ICT management."[446]

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[445] IEASA. http://www.ieasa.studysa.org/resources/study_sa/facts_figures_section.pdf (visited 9 April 2014)
[446] ASAUDIT. http://www.asaudit.ac.za/Pages/default.aspx (visited 9 April 2014)

Table 3 – The 23 universities in South Africa[445]

	TYPE	NAME	STUDENT POPULATION
1	Universities	University of Cape Town	22,298
2		Rhodes University	6,319
3		University of Pretoria	53,106
4		University of the Free State	26,189
5		University of Fort Hare	9,339
6		North-West University	47,008
7		University of KwaZulu-Natal	37,170
8		University of Limpopo	17,132
9		University of the Western Cape	15,070
10		University of Stellenbosch	23,983
11		University of the Witwatersrand	26,000
12	Comprehensive University	Nelson Mandela Metropolitan University	22,657
13		UNISA	262,680
14		University of Johannesburg	44,430
15		University of Venda	10,909
16		University of Zululand	10,316
17		Walter Sisulu University	24,970
18	Universities of Technology	Cape Peninsula University of Technology	29,361
19		Central University of Technology, Free State	10,895
20		Durban University of Technology	22,164
21		Tshwane University of Technology	51,628
22		Mangosuthu University of Technology	9,128
23		Vaal University of Technology	16,946

The first collaborative procurement undertaking of ASAUDIT was to facilitate a national procurement strategy, which will form the basis of a procurement policy for all the ASAUDIT members. In early 2011, the ASAUDIT group compiled a sub-committee called the ASAUDIT Procurement Committee (APC) in order to manage the procurement tenders and negotiations. The focus of the APC was largely upon two issues.

The first was to procure the most competitive pricing on laptops focused exclusively on this project, and the second was to make this special offer available country wide, to all students within South Africa. This project became known as the Student Laptop Initiative (SLI).

The APC was compiled of representatives from eight (NWU, UFS, UJ, UP, TUT, UCT, US, WITS) of the 23 universities in South Africa, a member of Purchasing Consortium Southern Africa (PURCO SA)[447] as well as a SLI Special Interest Group (SIG) member, who heads up the

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[447]PURCO SA is the purchasing consortium of the Higher Educational sector in Southern Africa (http://www.purcosa.co.za/). (visited 16 April 2014)

technical team of the APC. The members' roles within their various universities differed from CIOs, IT Directors, IT Managers as well as Technical staff.

4.1.2 The tender process

The APC decided on four laptop models (see Table 4) and the SLI SIG was allocated with the task to compile the technical specifications for each of the four laptop models that were part of the Request for Proposal (RFP).

Table 4 – Laptop technical specifications

Technical Specifications	Netbook	Entry Level	Main Stream	Top End
Hard Drive	~120GB	~250GB	~320GB	~500GB
Screen	~10"	~13"	~15"	~15"
Resolution	-	>=1366 x 768	>=1600 x 900	>=1600 x 900
Memory	2GB	2GB	4GB	4GB
Processor	Atom 1.6	i3	i5	i7
Warranty	12 months	12 months	12 months	12 months
DVD Writer	No	Yes	Yes	Yes
Graphics Card	On board	On board	On board	1GB dedicated graphics
LAN	10/100/1000 Mb/s	10/100/1000 Mb/s	10/100/1000 Mb/s	10/100/1000 Mb/s
WLAN	802.11 b/g/n	802.11 b/g/n	802.11 b/g/n	802.11 b/g/n
Bluetooth	Yes	Yes	Yes	Yes
Battery life	>3 hrs	>3 hrs	>3 hrs	>3 hrs
USB ports	>1	>2	>2	>2
External display port	Yes	Yes	Yes	Yes
Camera/Audio in & out	Yes	Yes	Yes	Yes
Operating system	Windows 7 home / OSX / Linux	Windows 7 home / OSX / Linux	Windows 7 home / OSX / Linux	Windows 7 home / OSX / Linux
Image to be preloaded by vendor	To be supplied by each institution	To be supplied by each institution	To be supplied by each institution	To be supplied by each institution

The task of the APC was now to prepare the content of the RFP document. This was done in association with PURCO SA, for they were the governing body over the RFP process. Ten Original Equipment Manufacturer (OEM) vendors were invited to the RFP process and the successful companies will sign a tender document with PURCO SA directly.

The RFP document was then sent to the ten OEM vendors, whom each have an equal opportunity to present a proposal within a certain amount of time. After the tender documents were submitted to PURCO SA, the vendors had a chance to present their proposal

as well as the four laptop models to the APC. The RFP documents and the four models were then adjudicated by the APC. A weighted summary, led by the top ten criteria (see Table 5) from the RFP document, was compiled in order to ease the decision-making process. The result of the weighted summary pointed out the top five vendors. The APC then informed the top five vendors to present their case for a second and final time.

Table 5 – Weighting table: The top ten criteria used to choose the top three vendors

Criteria	Priority	Weighting %
Suppliers ability to support on a national basis	3	10
Price	1	35
BBEEE (Certificates / Company profile)	9	10
Historical record both national and international	7	5
Lead time	4	5
Quality and design of product	2	15
Value added opportunities	8	5
Distribution model for student	5	5
Marketing	6	5
Local economy	10	5

These five vendors had an opportunity to present their four laptops to the committee whom will put it through tests, consisting of a technical, hardware and software evaluation, to make an informed choice on the quality of the products. All twenty laptops were tested, technically and physically, by all the members of the technical team of the APC.

4.1.3 The decision

There were a few questions that needed to be answered in order to make a decision on which of the top five vendors would proceed to serve on the SLI, and provide the laptops to the students.

- On what criteria would the top three vendors be chosen—from the top five?
- When the top three vendors are chosen:
    - How many vendors should partake in the SLI? One, two or three?
    - On what criteria would the top two be chosen?
    - What would the role of the third vendor be?

To answer all of these questions, the APC had to strategise on a process that would lead them to a decision and after hours of arguing the outcome was to proceed with a subset of the selected criteria, as follows:

- Price

- Quality and design of product

- Suppliers ability to support on a national basis

Based on the three criteria, the top three vendors were chosen, and the journey could start to decide on one, two or three vendors. A decision was made not to progress with one vendor for there would be no competition on pricing, also, to proceed with three vendors would yield be a too large quantity of laptops and the vendors would not meet their target margins on the number of laptops to sell in order to guarantee the lowest pricing. The final decision was to proceed with two vendors, in order to have decent competition that will benefit the pricing.

The test results were evaluated and after the final presentations, the APC selected the top three vendors and then appointed the top two vendors as successful candidates to serve on the SLI in South Africa. The third vendor would be able to step in if one of the top two vendors struggled to manage the SLI or perform sub standard on an evaluation annually, for a maximum of three years.

4.1.4 The post-decision proceedings

After the tender had been awarded to the top two vendors, they had to return to the APC with a marketing plan and implementation strategy on how they would proceed with the SLI. During this time the APC compiled a SLA-like[448] document that had to be signed by the vendors, and on what they would be evaluated in one year's time.

The main focus of the APC was to inform ASAUDIT on the outcome of the SLI and try to convince all of the members (see Table 3) to take part in the SLI. Not all the members had the infrastructure to assist with marketing and communication to the students. There were also some of the members who were not sufficiently staffed to allocate to assist with the project. It was the mission of the APC to try to convince all of the 23 CIOs/IT Directors to take part in

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[448] PURCO SA was coordinating the procurement process and because of that it was not necessary to compile a full SLA, but only a down scaled version that was more an understanding-of-process document.

this project for the SLI was negotiated for all the university students in South Africa.[449] At the start of the SLI, thirteen universities have indicated willingness to join the initial phase of the project with varying degrees of involvement. Participation ranged from simply informing the students of the initiative through to subsidising the purchase accompanied with an aggressive marketing campaign. Participating universities would determine the pace and roll out for the SLI themselves.

The project launched in October 2011, is still growing and is known to be a huge success.[450]

4.2   The decision-making process

The following section will describe the decision-making process, related to the case study. It will reveal the areas where sense making takes place within this decision-making process. The entire process will be divided into parts and compared to the decision-making models of our classic models as portrayed in Chapter 3.

4.2.1 Where and why is sense making part of the process

A possible flow diagram of the decision-making process of the above mentioned case study (in section 4.1) would be the following:

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[449] There would be a process in place to verify if the person is a registered student at one of the participating universities in South Africa.
[450] STP. www.stp.ac.za. In 2013 the project was rebranded to the STP: Student Technology Programme, for tablets was included.
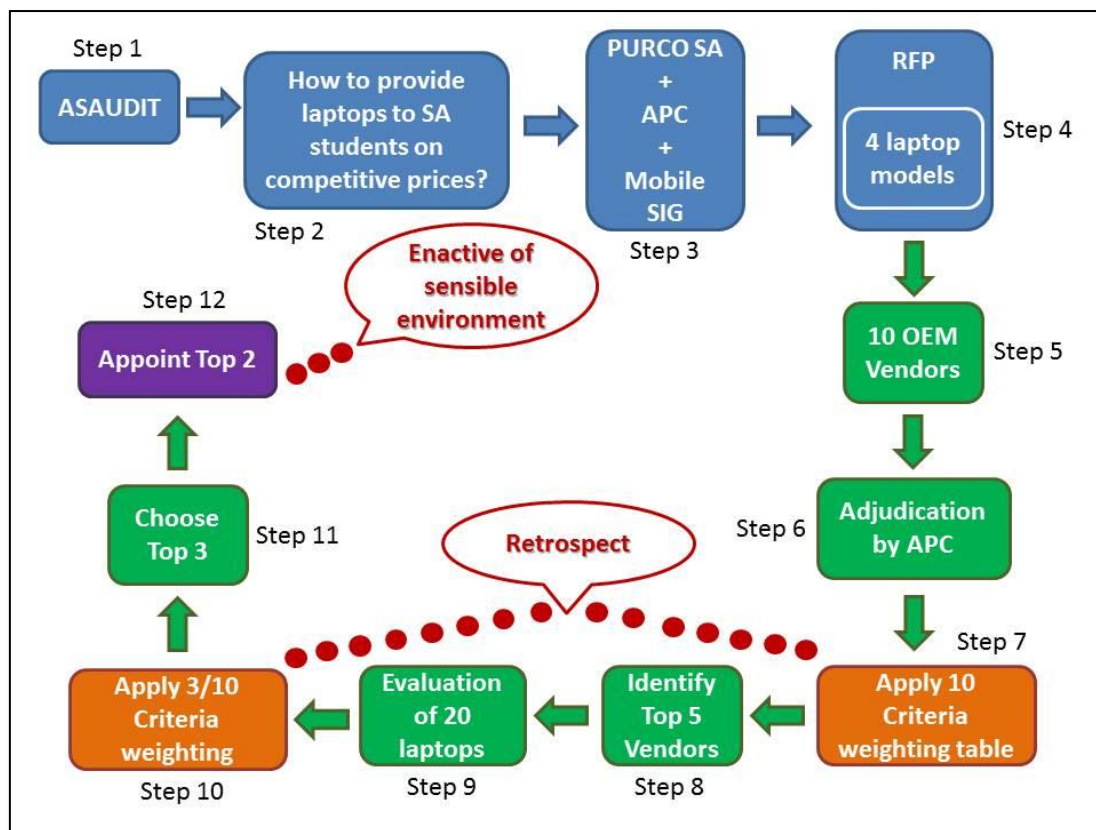
Figure 32 – SLI Process embedded with decision making as well as sense-making elements[451]

Figure 32 illustrates the entire process of the SLI from the establishment of ASAUDIT up to where the two final OEM vendors have been appointed to serve on the SLI.

During the above mentioned process, there is a problem/question phase (represented in blue), decision-making phases (represented in green) and two phases of the process where sense making can be identified (represented in orange and purple).[452]

4.2.1.1   Part 1 of the SLI's decision-making process

During the SLI process, the committee agreed on how the process should progress up until step 6. It was therefore clear that the RFP document should be sent to ten OEM vendors, and the returned documents would be adjudicated by the APC. Therefore, when following March's rational decision-making model, it represents the phase where alternatives are collected and consequences are expected (see section 2.1.3.2). Thus, step 1 in Figure 22 is

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[451] Figure 32 (and all subsets Figure 33 through to Figure 35) © Ilse de Kock, 17 November 2017
[452] The reason for sense making being portrayed in two different colours is that it is two different properties of sense making.

equivalent to step 5 in Figure 33, and step 2 in Figure 22 equivalent to step 6 in Figure 33. This all forms part of the decision-making elements.
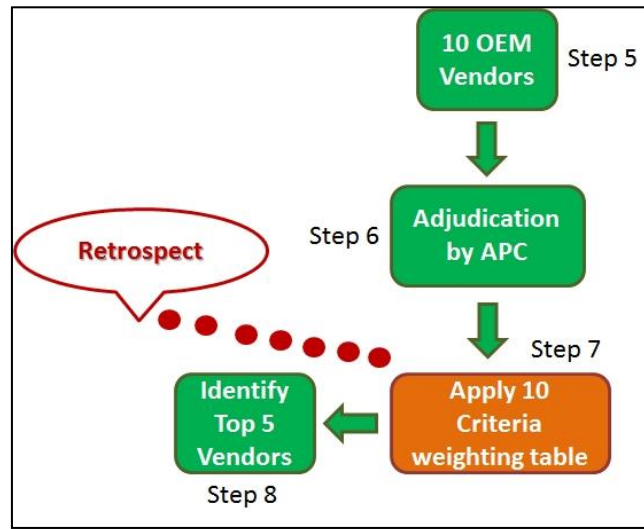
Figure 33 – Retrospective sense making within the SLI process—Steps 5 to 8[451]
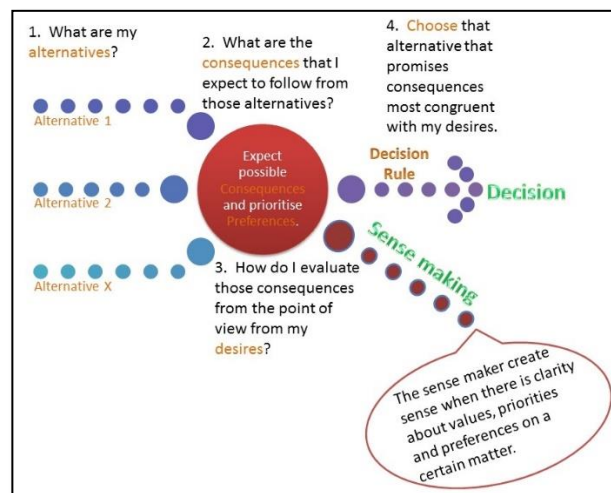
Figure 22 – For reference

During the next step in the SLI process, the APC struggled to decide what the criteria should be to obtain a score-like outcome to decide on the top five vendors. It was then presented to the committee to set up a weighted criteria table that would provide guidance to the team to determine the top five vendors. Setting up the criteria table (see Table 5) proved to be an enormous challenge, and it is here where the CIOs/IT Directors made a substantial contribution towards the decision-making process, and where Weick's theory on retrospective sense making comes into play. Weick states that "the most distinguishing characteristic of the present conceptualization of sense making is the focus on retrospect,"[303]

and this was very clear in the way the CIOs/IT Directors set up the weighting table. They had years of experience to add, and according to Weick, "people can know what they are doing only after they have done it."[303] The CIOs/IT Directors could easily provide content and meaning to the table because of historical experience that they have gathered over the years. Weick says that meaning arises retrospectively as shown in Figure 21. He makes a very important statement that assists in explaining the sense-making point in this model, by stating that a sense maker (in this view a committee member) has many meanings to reflect upon, and can find himself in a state of equivocality and confusion (see Figure 21).[310] In this situation, the sense maker needs "*values, priorities*, and clarity about *preferences* to help [him/her] to be clear."[453] Weick specifically mentions the procurement process as an example of sense making during the decision-making process when he cites Starbuck and Milliken and say that "when people put stimuli into frameworks, this enables them 'to comprehend, understand, explain, attribute, extrapolate, and predict.' [He cites Westley's examples and says that] people use strategy as a framework that 'involves *procurement*, production, synthesis, manipulation, and diffusion of information in such a way as to give meaning, purpose and direction to the organization.'"[454]

It is exactly at this point where *values, priorities,* and *preferences* come into play where sense making fits into the rational decision-making model as portrayed by March (see Figure 13). The committee members had to evaluate the returned RFP documents from their point of view incorporating their *values, priorities,* and *preferences* that would give clarity to a certain matter, namely which vendors would go through to the top five. This retrospective sense-making model assisted them in building the criteria for the weighting table, and that table provided clarity on the process on how to evaluate the consequences of the alternatives provided to them.

Therefore, a case can be made that step 3 in Figure 22 is equivalent to step 7 in Figure 33, and shows an element of Weick's retrospective sense making within the rational decision-making model of March.

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[453] Weick, K.E. 1995, 27. Sensemaking in Organizations. (italics to emphasise)
[454] Weick, K.E. 1995, 4. Sensemaking in Organizations. (quotes as in source, italics to emphasise)

The last element, step 8, in the SLI process was to identify the top five vendors and this is equivalent to step 4 of March's decision-making model in Figure 22 when alternative(s) are chosen that would promote the most congruent consequences.

4.2.1.2   Part 2 of the SLI's decision-making process
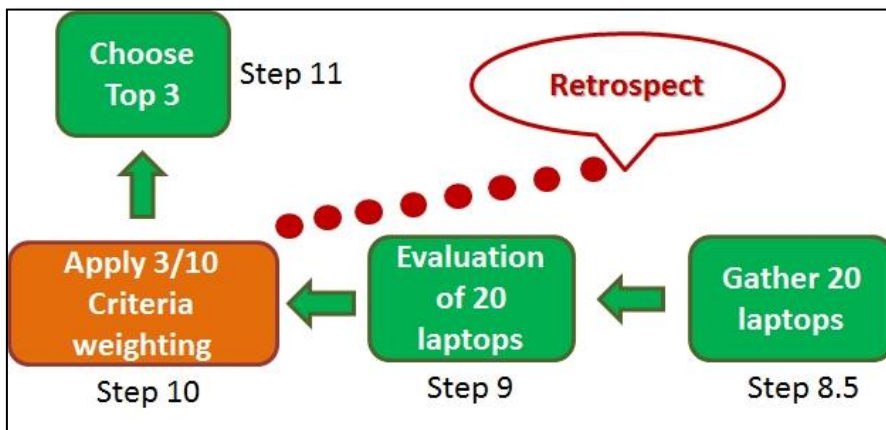
Figure 34 – Retrospective sense making within the SLI process—Steps 9 to 11[451]
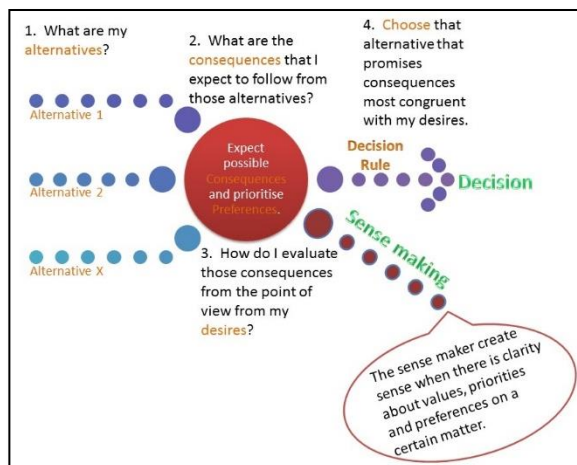
Figure 22 – For reference

The same argument can be followed for the second decision-making portion (see Figure 34) of the SLI process, where steps 9 to 11 correspond with Figure 22's steps 1 to 4, where step 9 incorporates step 1 and 2, because the 20 laptops were gathered between steps 8 and 9 (add a step 8.5). This process then determines the top three vendors of the SLI.

4.2.1.3   Part 3 of the SLI's decision-making process
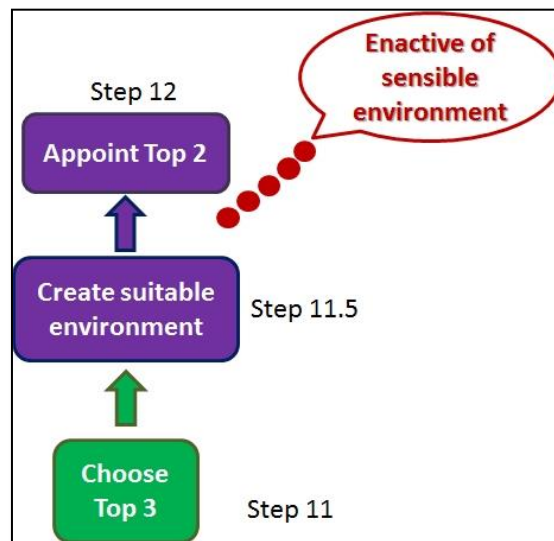
Figure 35 – Enactive of sensible environment, a sense-making property within the SLI process— Steps 11 to 12[451]
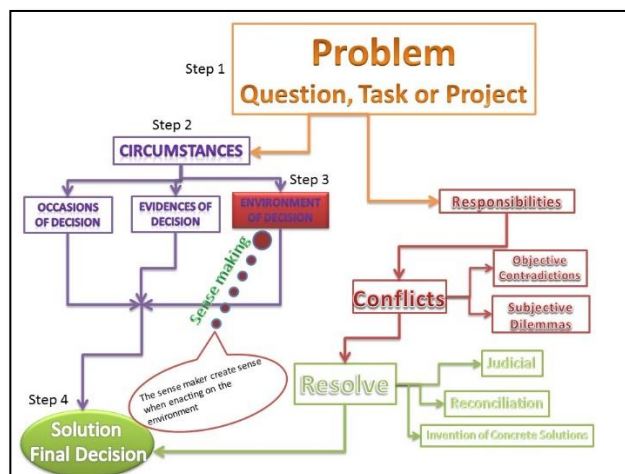
Figure 24 – For reference

The last part of the SLI process (see Figure 35) shows that after the top three vendors had been chosen, the committee had a few questions that needed answers (see section 4.1.3). Therefore, it is possible to say that step 1 in Figure 24 is equivalent to step 11 in Figure 35, because of the problem/question at stake.

They had certain results, namely the top three vendors, and now they had to make certain decisions or take action on these results, where the main purpose would be to appoint the successful candidates. Weick refers to this as "the activity of 'making' that which is sensed"[455],

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[455] Weick, K.E. 1995, 30. Sensemaking in Organizations. (quotes as in source)

which is the two fundamental pillars on which sense making is built: action (making) and cognition (sensing).[456] Reaching this act of sense making was a very significant goal, and the action taken was vital for the conclusion made in the end.

At the end of the SLI process, the committee members created an environment wherein they could make the final decision. This takes us back to Chester Barnard's model (see section 2.1.1.4.3, and Figure 24) where he stated that the environment consists of two parts, (i) purpose, and (ii) the physical world, the social world, the external things and forces, and circumstances of the moment.[457] In this case, the committee members' environment also consisted of two properties arose from assumptions they had to make:

i.   *Purpose*: Creating a reduced weighting table, which is "the result of a previous decision under previous conditions."[458] They assumed that three out of the previous ten chosen criteria would assist in the decision. Barnard stated that purpose could only be defined in terms of an environment.[459]

ii. *The physical world, the social world, the external things and forces and circumstances of the moment*: Identifying the economic variables, they assumed that one vendor would have no competition in the market and three vendors would have to share too much of the profit, for the economy is constantly evolving and always changing. Barnard stated that the elements of this property "is infinite and they are all always present. They are also always changing."[460]

Therefore, the created environment produced a setting where using the marks obtained out of the three criteria and the assumptions made on economic perceptions, they determined the top two vendors that would serve on the SLI.

Thus, it can be shown that as argued above, step 2 in Figure 24 is equivalent to step 11.5 in Figure 35, because of the sense-making property that is clearly visible in this step from both figures.

The last step, step 3 in Figure 24 is then equivalent to step 12 in Figure 35.

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[456] Weick, K.E. 1995, 30. Sensemaking in Organizations. (see section 3.1.1.3.3)
[457] Barnard, C.I. 1938, 194. The Functions of the Executive.
[458] Barnard, C.I. 1938, 195. The Functions of the Executive.
[459] Barnard, C.I. 1938, 196. The Functions of the Executive.
[460] Barnard, C.I. 1938, 197. The Functions of the Executive.

4.2.2 Pairing the elements

In this section, the elements from the two models in Chapter 3, used in the previous section, would be paired with the elements in the three parts of the model on the case study in the same section. This will be done by making use of set theory to show equivalent sets, and therefore show that the CIOs/IT Directors made use of the decision-making models, as shown in Chapter 3.

4.2.2.1   Background on set theory

In essence set theory (see Figure 36) is a mathematical term, and states "that two sets are equivalent if it is possible to pair off members of the first set with members of the second, with no leftover members on either side."[461]
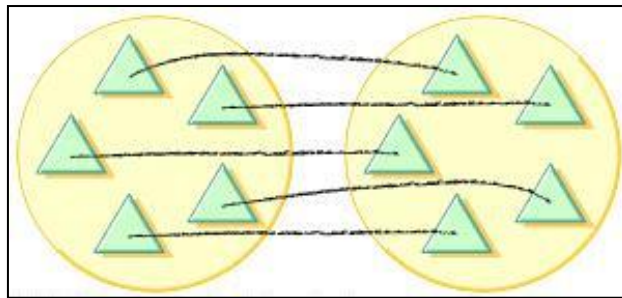
Figure 36 – Set Theory: "If it is possible to match the elements of A with those of B, then A = B, because a set of pairs meetings [certain] requirements can be formed"[461]

4.2.2.2   Part 1: Pair the elements of the model portrayed in Figure 22 onto the elements portrayed in Figure 33

As seen in section 3.1.1.3.2 on retrospective sense making, it is shown that within March's decision-making model on rational choice in section 3.1.1.1.1 there is a place/point where retrospective sense making takes place during the rational decision-making process.

The model that has been established in Figure 22 can be found in steps 5 to 8 in Figure 33 hence pairing the elements of the two models.

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[461]   Set Theory. http://www.britannica.com/EBchecked/topic/536159/set-theory/24031/Equivalent-sets. (visited 13 April 2014).
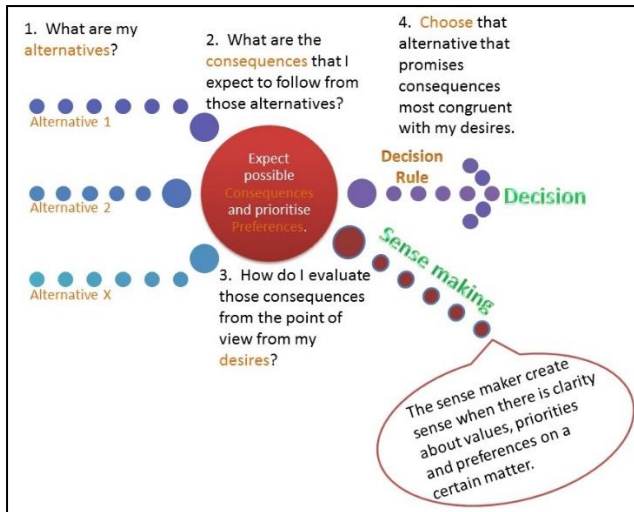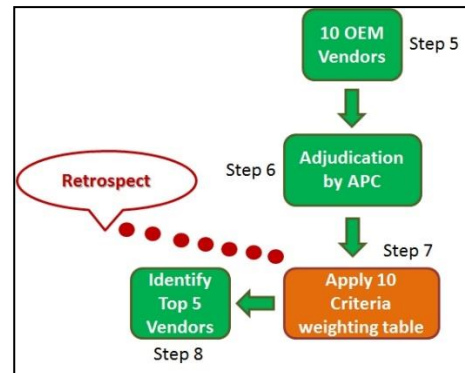
Figure 22   **Figure 33**

Therefore, according to set theory[461], it is possible to show that the part of the SLI process as shown in Figure 33 has the equivalent amount of elements, and in this case equivalent characteristics, of the model that is shown in Figure 22. Consider that Figure 22 is set A, and Figure 33 is set B, then:

A = {Step 1; Step 2; Step 3; Step 4}

And

B = {Step 5; Step 6; Step 7; Step 8}

Then, where:

Step 1 = Step 5; Step 2 = Step 6 Step 3 = Step 7 Step 4 = Step 8

Set C = {(Step 1, Step 5); (Step 2, Step 6); (Step 3, Step 7); (Step 4, Step 8)}

This then implicates that set A ≡ set B and therefore are equivalent sets. From this, it can be shown that Figure 22 is equivalent to Figure 33.

Consequently, it can be concluded that when CIOs/IT Directors make decisions, a case can be made that they indeed follow the process as portrayed by masters of the decision-making theory such as March.

4.2.2.3   Part 2: Pair the elements of the model portrayed in Figure 22 onto the elements portrayed in Figure 34

As seen in section 3.1.1.3.2 on retrospective sense making, it is shown that within March's decision-making model on rational choice in section 3.1.1.1.1 there is a place/point where retrospective sense making takes place during the rational decision-making process.

The model that has been established in Figure 22 can be found in steps 8.5 to 11 in Figure 34, hence pairing the elements of the two models.
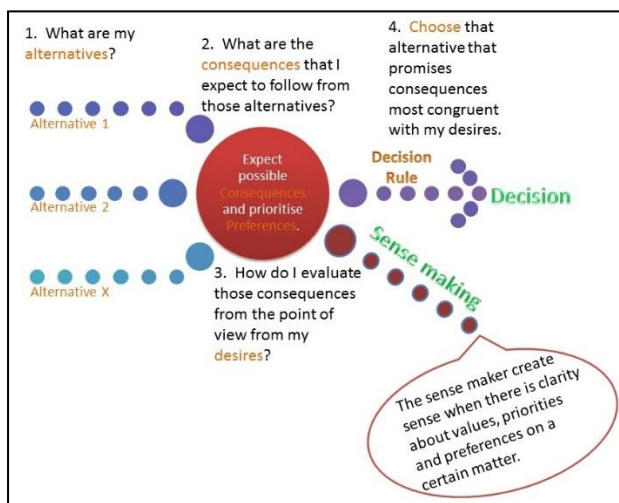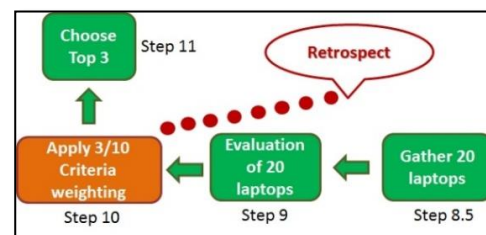
Figure 22   **Figure 34**

Therefore, according to set theory[461], it is possible to show that the part of the SLI process as shown in Figure 34 has the equivalent amount of elements, and in this case equivalent characteristics, of the model that is shown in Figure 22. Consider that Figure 22 is set A, and Figure 34 is set D, then:

A = {Step 1; Step 2; Step 3; Step 4}

And

D = {Step 8.5; Step 9; Step 10; Step 11}

Then, where:

Step 1 = Step 8.5; Step 2 = Step 9; Step 3 = Step 10; Step 4 = Step 11

Set E = {(Step 1, Step 8.5); (Step 2, Step 9); (Step 3, Step 10); (Step 4, Step 11)}

This then implicates that set A ≡ set D and therefore are equivalent sets. Hence, it can be shown that Figure 22 is equivalent to Figure 34.

Consequently, it can be concluded that when CIOs/IT Directors make decisions, a case can be made that they indeed follow the process as portrayed by masters of the decision-making theory such as March.

We can now further prove that set A ≡ set B ≡ set D, therefore, set B ≡ set D.

It can, therefore, be presented that March's decision-making model, infused with sense-making properties has been used repeatedly during a decision-making process in the above mentioned case study.

4.2.2.4 Part 3: Pair the elements of the model portrayed in Figure 24 onto the elements portrayed in Figure 35

As seen in section 3.1.1.3.3 on enactive of sensible environmental sense making it is shown that within Barnard's decision-making model on organisational theory in section 2.1.1.4.3, there is a place/point where enactive of sensible environmental sense making takes place during the organisational decision-making process.

The model that has been established in Figure 24 can be found in steps 11 to 12 in Figure 35, hence pairing the elements of then two models.
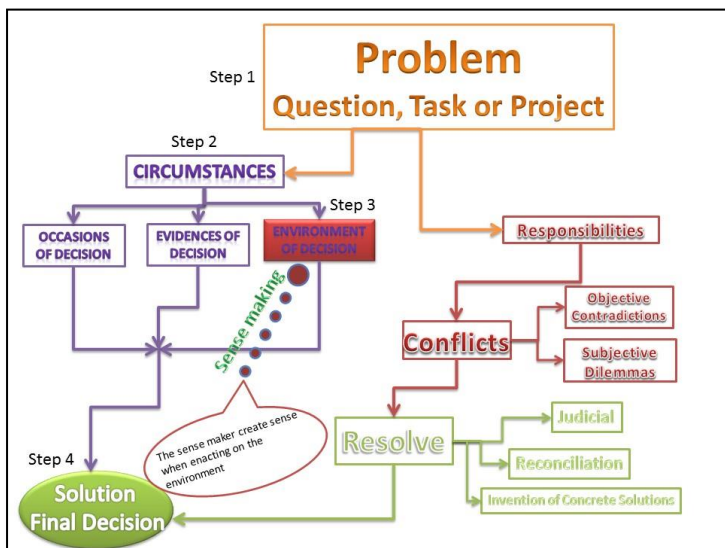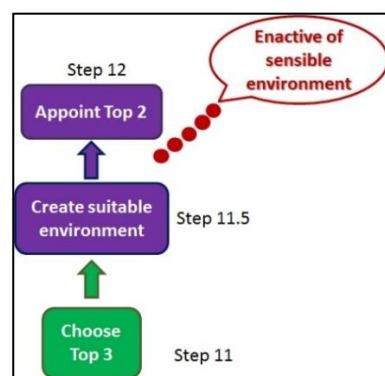
Figure 24   Figure 35

Therefore, according to set theory[461], it is possible to show that the part of the SLI process as shown in Figure 35 has the equivalent amount of elements, and in this case equivalent characteristics, of the model that is shown in Figure 24. Consider that Figure 24 is set F, and Figure 35 is set G, then:

F = {Step 1; Step 3; Step 4}

And

G = {Step 11; Step 11.5; Step 12}

Then, where:

Step 1 = Step 11; Step 3 = Step 11.5; Step 4 = Step 12

Set H = {(Step 1, Step 11); (Step 3, Step 11.5); (Step 4, Step 12)}

This then suggests that set F ≡ set G, and therefore are equivalent sets. Thus, it can be shown that Figure 24 is equivalent to Figure 35.

Consequently, it can be concluded that when CIOs/IT Directors make decisions, a case can be made that they indeed follow the process as portrayed by masters of the decision-making theory such as Barnard.

4.3   Making decisions—Conclusion

This chapter concludes step-by-step that the developed decision-making models which are infused with the properties of sense making and portrayed in Chapter 3 are indeed equivalent to similar decision-making processes of CIOs as represented in the case study presented in this chapter. The case study emphasised that the properties of sense making is evident in the way CIOs make decisions, and can be connected and, therefore proven to be equivalent to the newly developed decision-making models in Chapter 3.

This chapter put forth a case to be made that CIOs indeed use the decision-making processes as represented by master theorists like March and Barnard. These models, portrayed in this case study, have been applied and proven to be equivalent and connected to the decision-making process described in Chapter 3. Therefore a case can be made that CIOs indeed use these models to make decisions and that this equality has provided those models.

CHAPTER 5

Contributing factors to decision making—the quality of the models

"Deciding what not to do is as important as deciding what to do."

~ Steve Jobs

This chapter looks at the contributing factors that enhance the manner in which CIOs make decisions. The investigation looks into contributors such as governance frameworks, CIOs' expertise and Gartner's view on CIOs' decision making. These contributors are investigated, as well as how they assist to evolve and indicate the value of the models revealed in Chapter 3. Throughout this chapter a final overview of the decision-making models will be disclosed.

5.1   The contribution/significance of IT governance frameworks on a CIO's decision making

This chapter will provide a brief overview of a few key governance frameworks, and illustrate how they are connected to the sense-making properties that are infused in the models of the CIO's decision-making processes. These connections will provide insight on the level of quality of the models in Chapter 3 hence the connection between the frameworks, and the sense-making properties will prove that the quality of these models are substantial.

In the IT domain, there are a few governance structures that assist CIOs in their decision-making processes. This governance structures play an important role in the decision-making process, and this chapter will portray the role these governance frameworks play in their contribution to the decision-making models that emerged in Chapter 3.

There will be looked at three governance frameworks or guidelines, specifically, King III, ITIL and COBIT 5.

5.1.1 King III

5.1.1.1   Background on King III

The Institute of Directors in Southern Africa (IoDSA)[462] owns the copyright of the King III[463] report on governance. IoDSA has formally introduced the King III Report on Governance (King III)[464] in September 2009 in Johannesburg, South Africa, and the report came into effect on 1 March 2010.[465]

King III includes the following, which has not been taken up in King II:[466]

- "King III principles apply on an 'apply or explain' basis—NOT on a 'comply' basis"[466]
- "Is applicable to all entities, and not only listed companies"[466]
- "Information Technology Governance"[466]
- "Business rescue (recommendations for economically viable companies in financial difficulties)"[466]
- "Fundamental and affected transactions (mergers acquisitions amalgamations)"[466]

According to ITWeb, it is the first time in corporate governance in SA that the role of IT has been highlighted in a governance report, and Angeli Hoekstra (IT governance global leader) from PricewaterhouseCoopers, declares that "IT is so pervasive in business today, its importance has now been elevated to board and risk and audit committee levels. King III recognises IT as an integral part of the business and a strategic corporate asset that also

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[462] http://www.iodsa.co.za/ (visited 11 May 2013). Institute of Directors Southern Africa. "The Institute of Directors in Southern Africa (IoDSA) is a non-profit organization that is unique in that it represents directors, professionals, business leaders and those charged with governance duties in their individual capacities in southern Africa."

[463] http://www.itweb.co.za/index.php?option=com_content&view=article&id=26165 (visited 11 May 2013). King III highlights IT's importance. "King III is the shorter name for the latest update of good governance codes developed by a group headed by judge Mervyn King."

[464] http://www.iodsa.co.za/?page=kingIII

[465] http://www.iodsa.co.za/?page=kingIII (visited 11 May 2013). King Report on Corporate Governance in SA. Before King III, King I was published on 29 November 1994, and King II, on 26 March 2002. "Like its 56 commonwealth peers, King III has been written in accordance to comply or explain the principle based approach of governance, but specifically the apply or explain regime. This regime is currently unique in the Netherlands and now in South Africa. Whilst this approach remains a hotly debated issue globally, the King III Committee continues to believe it should be a non-legislative code on principles and practices.

[466] http://www.candorsolutions.co.za/king-iii/what-is-king-iii/ (visited 1 May 2014). King III in Summary.

carries some significant risks. It, therefore, needs to be well governed and controlled to ensure that IT supports the strategic objectives of the organization."[467]

Certain emerging governance trends were incorporated in the report, and IT governance was one of them. For the first time in 2009, CIOs in South Africa had a governance structure (King III) which they had to apply to their corporate business decisions or explain why certain recommendations were not implemented. The report states that previously, "information systems were used as an enabler to business, but have now become pervasive in the sense that they are built into the strategy of the business. The risks involved in IT governance have become significant."[468]

For the CIOs in South Africa, Chapter 5: The Governance of Information Technology, in the King III report would be the chapter to reference when making decisions, in order to comply, and align their decision with those of the institution. The chapter covers seven principles which will briefly be described below:[469]

5.1.1.2   The seven principles

5.1.1.2.1   *The board should be responsible for IT governance.[470]*

IT is pervasive in most companies because of its integral part of the business and therefore the board should understand the strategic importance of IT, and should place IT governance on the board's agenda. The board should be responsible for IT governance because the effective and efficient management of IT resources facilitate the achievement of a company's strategic objectives. The IT governance framework should be appropriate to the company and should enhance the company's ability to make the most appropriate decisions by incorporating IT into its operations. The board should establish, as part of the framework, a policy that would outline the decision-making rights and the use of IT within the organisation. The board should also ensure an ethical, sustainable and enhancing IT governance framework, especially focusing on the objectives of the company. Finally, the board should make sure that

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[467] http://www.itweb.co.za/index.php?option=com_content&view=article&id=26165 (visited 11 May 2013). King III highlights IT's importance.

[468] http://www.iodsa.co.za/ (visited 11 May 2013). Institute of Directors Southern Africa.

[469] http://www.iodsa.co.za/ (visited 11 May 2013). Institute of Directors Southern Africa. King III Report, p.70 – 75 (King III Report retrieved from http://www.library.up.ac.za/law/docs/king111report.pdf visited 21 March 2013)

[470] King III Report, 70, http://www.library.up.ac.za/law/docs/king111report.pdf (visited 21 March 2013).

IT governance focus on information as well as technology and ensure that it is effective, especially reporting between management and the board.

5.1.1.2.2 *IT should be aligned with the performance and sustainability objectives of the company.*[471]

Information technology and business plans should integrate as well as align IT operations with overall business operations. Information technology alignment plays a key role in the execution of the processes that support the strategic objectives of the company. Finally, the board should consider the impact of IT on the environment as well as where IT could efficiently and effectively improve the performance and sustainability of the company.

5.1.1.2.3 *The board should delegate to management the responsibility for the implementation of an IT governance framework.*[471]

The effective IT framework, structures, processes, procedures, and standards should be implemented by management, and the view of that should be to minimise IT risk, deliver value, ensure business continuity, and assist the company to manage IT resources efficiently and cost effectively. The board may appoint an IT steering committee to assist with IT governance. The structure of IT, its functions and roles, as well as its reporting lines, should reflect the company's decision on how IT is integrated with its operations. The CEO of the company should appoint an individual responsible for IT management (often referred to as a Chief Information Officer (CIO)), who should be experienced to interact regularly with the board and the CEO on IT governance matters. The CIO serves as the bridge between IT and the business and needs to understand the responsibility and accountability for IT, be business orientated, have a strategic approach to integrate IT into the business and implement sustainable IT solutions in order to achieve strategic objectives.

5.1.1.2.4 *The board should monitor and evaluate significant IT investments and expenditure.*[472]

The company should make sure that it acquires and uses the appropriate technology, processes and skilled people to support its business. It is still questionable whether investing in IT is generating value or not in proportion to the level of investment, even though

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[471] King III Report, 71, http://www.library.up.ac.za/law/docs/king111report.pdf (visited 21 March 2013).
[472] King III Report, 72, http://www.library.up.ac.za/law/docs/king111report.pdf (visited 21 March 2013).

companies know that the level of investment can be significant. By clarifying business strategies and objectives, measuring the amount spent, assigning accountability for organisational changes and learning from implementations; the board can oversee that the expected return on investment is delivered. Even where certain IT services are outsourced, the board still remains accountable for effective IT governance and have to make sure that these outsourced services are aligned to the company's objectives. Chief Information Officers have to make sure the appropriate project management principles are followed during all IT projects.

5.1.1.2.5   IT should form an integral part of the company's risk management.[473]
Information technology risks and the management of the risks of the company should be consolidated, and IT management should regularly demonstrate adequate disaster recovery. The board must make sure that IT comply with IT related laws, rules, codes, standards, and leading practices, and also consider how IT could assist the company in managing this. Information technology should also be part of the company's information management, by protecting information (information security), by managing information (information management), and by protecting personal information processed by the company (information privacy).

5.1.1.2.6   The board should ensure that information assets are managed effectively.[474]
As mentioned above, the board should firstly manage the information within the company, because information is the most important assets, for it is evidence of business activities. The board should, therefore, implement information security programmes, ensure that sensitive information is identified, classified and assigned appropriate handling criteria. The board should also manage information security risks, and establish processes that monitor all aspects of information and data quality. The board should also make sure that there is continuity in the company's information and recovery requirements.

Secondly, the board should ensure information privacy by providing systems that treat personal information as an important business asset and should be identified and processed according to applicable laws.

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[473] King III Report, 73, http://www.library.up.ac.za/law/docs/king111report.pdf (visited 21 March 2013).
[474] King III Report, 74, http://www.library.up.ac.za/law/docs/king111report.pdf (visited 21 March 2013).

Thirdly, the board should ensure information security by implementing Information Security Management Systems (ISMS) that is recorded in an information security framework and should include; (1) confidentiality of information, (2) integrity of information and (3) availability of information in a timely manner. The board should oversee the security strategy and empower IT management to implement it.

5.1.1.2.7 *A risk committee and audit committee should assist the board in carrying out its IT responsibilities.[475]*

The risk committee should ensure that IT risks are adequately addressed and seen as a crucial element through risk management procedures. The risk committee should make sure that appropriate controls are in place when areas that are highly dependent on IT are exposed. Information technology is also related to financial reporting and is, therefore, part of the responsibility of the audit committee. The audit committee should also make use of technology to improve their audit coverage and audit efficiency.

5.1.1.3 King III's contribution to the decision-making models

The King III report brought IT governance directly to the board table and made the board aware of the significance of IT in addition to the role it should play in making business decisions, and where to position IT within the financial strategies of the organisation. King III also made it very clear that the board is responsible for, and losses or gains, of IT projects.[476] The report also made it clear that information and the management thereof is of substantial importance, and that IT should be part of the company's risk as well as audit committees, and would, therefore, play an important role in the decision-making processes of a company's CIO.[476]

When CIOs implemented or adhere to the King III framework, they inadvertently establish a link from the facts and principles of King III to the sense-making properties. The CIOs will tend to make decisions keeping the above mentioned principles in mind (retrospective sense making). Some of the most important connections are as follow:

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[475] King III Report, 75, http://www.library.up.ac.za/law/docs/king111report.pdf (visited 21 March 2013).

[476] http://www.candorsolutions.co.za/king-iii/ (visited 11 May 2013). Candor Governance Specialists. "Chapter 5 – IT Governance."

5.1.1.3.1   *Connection from King III to retrospective sense making*

The three King III principles 5.1.1.2.1 (The board should be responsible for IT governance.), 5.1.1.2.5 (IT should form an integral part of the company's risk management.) and 5.1.1.2.7 (A risk committee and audit committee should assist the board in carrying out its IT responsibilities.) are all dealing with taking responsibility for certain consequences. These three principles link directly to the sense-making properties namely, *retrospective* (see section 3.1.1.3.2). The element within retrospective sense making that the CIO is dealing with is the fact that they make sense around the priorities of the possible consequences and to be able to prioritise it, they use the King III framework to deal with the responsibilities of the consequences (see Figure 22 for the model). Weick is very clear when he says that the sense maker needs "values, priorities, and clarity about preferences to help [him/her] be clear about which projects matter."[477] When taking responsibility you have to deal with consequences, and when dealing with consequences you have to prioritise. Thus, the King III framework directly contributes to the decision-making model portrayed in Figure 22 and provide considerable quality to the value of this model, when CIOs make their decisions, keeping King III in mind.

5.1.1.3.2   *Connection from King III to sense making grounded in identity construction*

The King III principle 5.1.1.2.2 (IT should be aligned with the performance and sustainability objectives of the company.) is linked with the sense-making property, *grounded in identity construction* (see section 3.1.1.3.1). One of the elements within identity-constructed sense making is that people are defined by whom they represent. Thus, when a CIO aligns the IT objectives with those of the organisation, his/her sense making is determined by that of the company. Therefore, the CIO's decisions are influenced by which he represents, i.e. his organisation. Weick states clearly that the situation is "defined by who I become while dealing with it or what and who I represent."[478] This statement links the King III framework to all the decision-making models shown in Chapter 3 and provides significant value to it, when CIOs make their decisions within the frame of the organisation they represent.

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[477] Weick, K.E. 1995, 27. Sensemaking in Organizations.
[478] Weick, K.E. 1995, 24. Sensemaking in Organizations.

5.1.1.3.3   Connection from King III to sense making enactive of sensible environments

The King III principle 5.1.1.2.4 (The board should monitor and evaluate significant IT investments and expenditure.) is linked with the sense-making property, *enactive of sensible environments* (see section 3.1.1.3.3). Therefore, the element of enactment that rises out from this principle explained that people create the environments wherein they act. Weick states that enactment is "to preserve the fact that, in organizational life, people often produce [or create] part of the environment they face"[479], and "these environments then [constrain] their actions."[480] Hence, because of the board investigating the significance of IT investments, it is the responsibility of the CIO to make sure that the projects within IT are aligned with organisational strategies and goals. Therefore, when the board investigates the projects within the lines of King III it provides the CIO with an environment wherein he/she can make decisions in order to align IT strategies to the organisational strategies and goals.

5.1.1.3.4   Connection from King III to sense making focused on and by extracted cues

The King III principle 5.1.1.2.6 (The board should ensure that information assets are managed effectively.) are linked to the sense-making principle, *focused on, and by extracted cues* (see section 3.1.1.3.6). According to Weick, "extracted cues are simple, familiar structures that are seeds from which people develop a larger sense of what may be occurring."[481] What the extracted cue will become depends on the context that dictates on what is extracted as cues and how the extracted cues are interpreted. Consequently, sense making takes place when the cues that are extracted are indeed the instructions and recommendations by King III, which provides the context and insight to the board that they need to provide secure systems. The CIOs then function and interpret within the cues that are extracted from King III. King III provides the context from where CIOs extract their cues.

The seven principles in the King III report is there for all CIOs in South Africa to apply within their institution or explain to the King committee why it has not been implemented. It, therefore, plays a significant role in how CIOs make decisions, it provides recommended guidelines but also give significant principles which if applied within an organisation can play

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[479] Weick, K.E. 1995, 30. Sensemaking in Organizations.
[480] Weick, K.E. 1995, 31. Sensemaking in Organizations.
[481] Weick, K.E. 1995, 50. Sensemaking in Organizations.

a vast role on how the organisation use technology and provide for IT in order for it to aid in the success of the organisation.

The King III report has also recommended that "international guidelines such as Information Technology Infrastructure Library (ITIL), and Control Objectives for Information and Related Technology (COBIT) be used as a check or audit for the adequacy of the company's information security."[482] The following two sections (5.1.2 and 5.1.3) will provide a very brief overview and insight into the benefits of ITIL and COBIT 5 for CIOs.

5.1.2 ITIL

5.1.2.1   Background on ITIL

ITIL started in the 1980s because of a concern Her Majesty's Government in the United Kingdom had with its IT service. The Central Computer and Telecommunications Agency developed a framework "for the efficient and financially responsible use of IT resources."[483] An IT infrastructure library with 42 books was created that addressed management issues, and not particular technology aspects in organisations. In the mid-2000s the libraries were revised and "the management of IT was raised to encompass the whole of the service management 'lifecycle'."[483] As ITIL matured the need existed for individuals to be trained and gain ITIL certification, and ITIL (V3) was introduced in 2007, and V2 was discontinued in 2011. Therefore, "the lifecycle under V3 is now the only scheme in existence."[484] The main difference between ITIL V2 and ITIL V3, as seen in Figure 37, is that ITIL V2 is seen as process oriented and ITIL V3 is seen as more service oriented.[485] The building blocks stayed the same since V1, but it is the structure that has changed.

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[482] http://www.iodsa.co.za/ (visited 11 May 2013). Institute of Directors Southern Africa. "Corporate and Commercial/King Report on Governance for South Africa – 2009. 70 – 75" (Abbreviation spelled out fully, for it is the first time it is used in this document)

[483] Whittleston, S. March 2012, 3. http://www.best-management-practice.com/gempdf/ITIL_is_ITIL_White_Paper_Mar12.pdf (visited 21 March 2013). ITIL is ITIL.

[484] Whittleston, S. March 2012, 3. http://www.best-management-practice.com/gempdf/ITIL_is_ITIL_White_Paper_Mar12.pdf (visited 21 March 2013). ITIL is ITIL. "Since its conception, ITIL has matured and developed to meet the challenges that IT service management faces. It has continued to do that from the mainframe days of the 1980s to the clouds of the present day, but at its heart, it is, and will always remain, just ITIL."

[485] Teamquest. 2013. http://www.teamquest.com/news/newsletter/archived-newsletters/display/63/ (visited 21 May 2013). ITIL v2 vs ITIL v3.
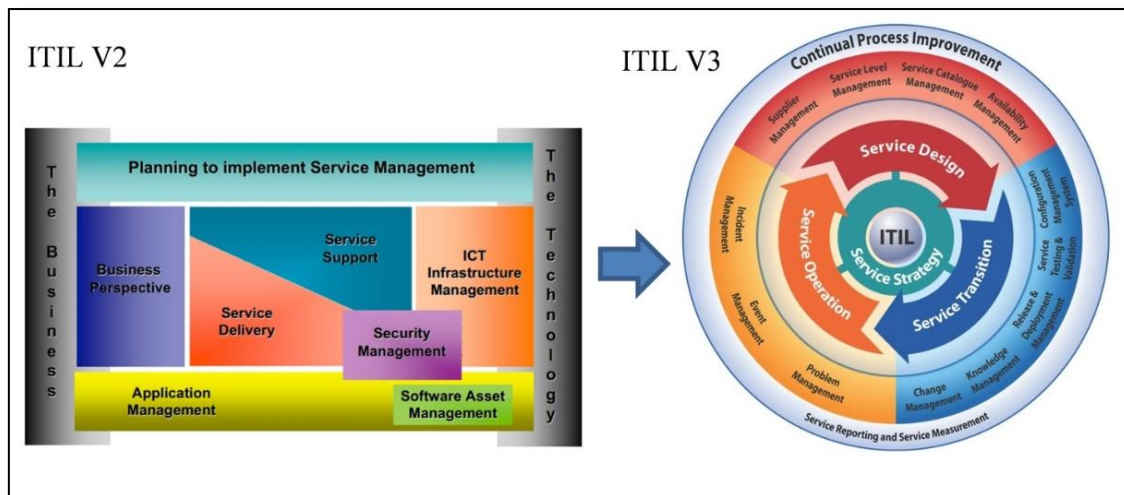
Figure 37 – ITIL V2 vs ITIL V3[485]

ITIL V3 is "a *logical living framework* for managing IT which works in a variety of circumstances."[486]

5.1.2.2   What is ITIL and where does it fit in for CIOs?

ITIL is a product within the Best Management Practice portfolio, which has been created and is owned by Her Majesty's Government in the United Kingdom, and consists of five lifecycle stages (see Figure 37 – ITIL V3, and Figure 38).

1. Service Strategy
2. Service Design
3. Service Transition
4. Service Operation
5. Continual Service Improvement

An important principle assisting CIOs is that "the core philosophy of ITIL is that it responds not only to the technological changes but also to *the needs of the business*."[487] Whittleston refers to research that has been done indicating that "a successful enterprise approach is to lay the foundations by digitising business processes to automate a company's core

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[486] Whittleston, S. March 2012, 4. http://www.best-management-practice.com/gempdf/ITIL_is_ITIL_White_Paper_Mar12.pdf (visited 21 March 2013). ITIL is ITIL. (italics to emphasise)
[487] Whittleston, S. March 2012, 5. http://www.best-management-practice.com/gempdf/ITIL_is_ITIL_White_Paper_Mar12.pdf (visited 21 March 2013). ITIL is ITIL. (italics to emphasise)

capabilities."[488] This research has also shown that "an effective foundation for execution depends on tight alignment between business objectives and IT capabilities",[488] and according to the research, this alignment has some challenges due to business strategies being too vague.[488] Hence, for CIOs to master some of these challenges, Whittleston highlights, from this research, that there are three key disciplines that should assist companies with these challenges:

1. "standardising the way data is shared at the operational level"[488]

2. "developing organizational enterprise architecture"[488]

3. "developing a series of governance mechanisms to ensure IT and business projects achieve organisational objectives."[488]

Whittleston also states "that the key concepts from the ITIL framework, alongside business strategic initiatives and effective governance, are crucial to the success of business/IT integration."[488] According to Whittleston there is also evidence that shows that "those organisations that adopt IT management frameworks alongside other standards-based approaches are more successful in their IT service management (ITSM) implementations."[488] Standards can also assist CIOs in "building a robust structure which embeds accountability, especially in terms of legal and financial issues."[488]

Chief Information Officers, using ITIL as a guideline/service lifecycle framework, would, according to Whittleston, be able to reflect on the fact that because they are putting out their hands to the business, the business should be capable to respond appropriately. Whittleston also reports that as seen by the plethora of white papers on ITSM, that CIOs has been implementing ITIL as a toolkit, simply because of it being non-prescriptive and do not rely on particular versioning. The main argument on why or why not to use ITIL is merely "persuading the *business to … fully support the endeavours of IT*."[489]

Whittleston recommends to CIOs that in order for them to convince business to follow the path of ITIL, it is necessary to look at existing examples, because ITIL leads by example and then would business strategists think more clearly about the approach to business processes

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[488] Whittleston, S. March 2012, 6. http://www.best-management-practice.com/gempdf/ITIL_is_ITIL_White_Paper_Mar12.pdf (visited 21 March 2013). ITIL is ITIL.

[489] Whittleston, S. March 2012, 6. http://www.best-management-practice.com/gempdf/ITIL_is_ITIL_White_Paper_Mar12.pdf (visited 21 March 2013). ITIL is ITIL. (italics to emphasise)

and their relationship with IT. Especially with increasing services migrating to cloud computing, it is now more significant than ever for businesses to re-think their processes and ITSM practices.

5.1.2.3   Why would CIOs implement ITIL?

CIOs would benefit in implementing ITIL, because of it being an ever *evolving and growing framework*, directly supporting IT in its endeavours, and therefore ensuring IT to be an effective asset to the business (see Figure 38[490] for the benefits and features associated with the five ITIL lifecycle stages).

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[490] Kneller, M. 5 September 2010. http://www.best-management-practice.com/gempdf/OGC_Executive_Briefing_Benefits_of_ITIL.pdf (visited 21 March 2013). The Benefits of ITIL.

Service strategy
- A portfolio of IT services support business strategy and align with business objectives.
- IT investment decisions result in tangible and quantifiable business value.
- Focus on the value of IT services in relation to business objectives.
- IT costs (one-off project costs and ongoing costs of ownership) planned, understood, agreed with the business and kept under control.
- Priorities, demand, resources and costs managed in line with business needs.
- IT services benefit from industry knowledge and corporate learning, through applying a strategic approach to service development.

Service design
- IT services designed to meet business objectives.
- Services designed to be both fit for purpose and fit for use.
- Cost of ownership planned to achieve return on investment
- Balanced functionality, cost and performance.
- Potential risk mitigated, so the IT service is protected from security threats.
- IT services more stable and predictable.

Service transition
- IT changes managed and controlled.
- Failures and service disruptions resulting from change are reduced.
- Unexpected impact to day-to-day business operations avoided.
- Cycle time for change reduced significantly.
- More change achieved faster and cheaper, driving additional value.
- Pace of change creates organizational agility.

Service operation
- Live IT services delivered and supported to meet business needs and expectations.
- IT services operated securely and reliably, avoiding failures and unexpected disruptions.
- Business customers able to achieve expected benefits and get required value from their IT.
- Incidents and problems dealt with professionally, responsively, so the root cause is addressed.
- Costs kept under control.

Continual service improvement
- Learning from experience.
- IT services reviewed regularly to ensure they remain aligned with changing business priorities.
- Focus on improving quality, reducing costs, improving effectiveness and efficiency of IT services.
- IT services adapted to changing business needs.
- Advantage taken of technology improvements where appropriate.
- Organizational agility created through improving quality and reliability of critical IT.

Figure 38 – Benefits and features associated with the ITIL lifecycle stages[490]

5.1.2.4   ITIL's contribution to decision-making models

ITIL provides a framework "for the efficient and financially responsible use of IT resources."[483] Therefore, when CIOs implement these libraries it provides a sense-making context which unequivocal links into the decision-making models as follows:

5.1.2.4.1   *Connection from ITIL to retrospective sense making*

Retrospective sense making (see Section 3.1.1.3.2) provides clarity on values, priorities, and preferences as seen in Figure 22, and ITIL-based decision making can be directly linked to this

type of decision making for when CIOs have to choose their preferred consequences. Chief information officers motivate their preferred consequences according to the ITIL framework when they make their decisions in line with ITIL and business strategies. The ITIL framework responds to the needs of the business, and therefore CIOs are able to choose the preferred consequences so that IT strategies are aligned with the business objectives. Weick is very clear when he describes retrospective sense making and states that in order for the sense maker to create sense in a certain situation he/she does not need information to get rid of the equivocality; instead he needs "values, priorities, and clarity about preferences to help [him/her] be clear about which projects matter."[491] ITIL also assists the CIO in building a robust structure that embeds accountability, and therefore CIOs can motivate their decisions with ITIL as the base and also reflect on outcomes as a result of implementing ITIL as an IT framework.

5.1.2.4.2   *Connection from ITIL to social sense making*

The social element of sense making (see section 3.1.1.3.4) portrays that "decisions are made … *with the knowledge that they will have to be … approved by others.*"[492] The ITIL framework links into this element because it provides a non-prescriptive toolkit which aids the CIO to persuade corporate management to support IT endeavours (see section 5.1.2.2) and also provides evidence that organisations that adopt ITIL are more successful in ITSM implementations. Weick further expands this social element by saying that "people who make sense are just as likely to satisfice as are people who make decisions."[493] Hence, when comparing alternatives to a target, satisficing takes place. Therefore, ITIL provides a satisfying situation, for the framework assists in deciding what alternatives to compare and these alternatives are compared according to ITIL that provides the target. This contribution of ITIL in supporting the social sense-making property enhances the model portrayed in Figure 25.

5.1.2.4.3   *Connection from ITIL to ongoing sense making*

Sense making's ongoing element (see section 3.1.1.3.5) accentuates that sense making never stops and never starts. Weick cites Winograd and Flores[494] who says that people find

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[491] Weick, K.E. 1995, 27. Sensemaking in Organizations.
[492] Weick, K.E. 1995, 39. Sensemaking in Organizations.
[493] Weick, K.E. 1995, 42. Sensemaking in Organizations.
[494] Weick, K.E. 1995, 43. Sensemaking in Organizations. (Winograd, T., & Flores, F. (1986) Understanding computers and cognition: A new foundation for design. Norwood, NJ: Ablex)

themselves *thrown* into an ongoing situation and that they have to make do with it in order to make sense of what is happening.[495] ITIL enhances and supports this property for ITIL is ever evolving and growing, and directly support IT in its endeavours to ensure IT to be an effective asset to the business (see section 5.1.2.3).

ITIL links directly into this sense-making property for it provides an ongoing framework to ensure support to IT decisions. ITIL further supports this sense-making property because ITIL v3 is portrayed as "a logical *living framework* for managing IT which works in a variety of circumstances."[496] Weick states that "it is precisely because ongoing flows are subject to interruption that sense making is infused with feeling."[497] This aspect of ITIL enhances the quality of the decision-making model in Figure 26.

5.1.2.4.4   Connection from ITIL to sense making as driven by plausibility than accuracy
Weick states that people should *distort and filter*, "to separate signal from noise … not to be overwhelmed with data."[498] Plausible sense making provides a more productive look at filters in specific what filters are included or excluded. ITIL link strongly into this structure for it provides these filters in a way that CIOs can filter vast amounts of data with the ITIL framework, as a filter, in mind. ITIL is used as a template for filtering vast amounts of data in order to provide a context where decisions can be made. Plausible sense making also takes place in organisations because decisions is time sensitive and the speed in which decisions takes place usually reduces the necessity for accuracy. Because ITIL responds to the needs of the business, it assists in quicker decisions for the framework is used as a tool to assist in faster decision making during restricted time frames.

This framework, therefore, provides a foundation and context (frame) from where it is possible to evaluate against, and base decisions on. It provides a guide for best practices within the IT service management environment and with these key principles in mind, CIOs are provided with an environment within they can make decisions. Therefore, international IT frameworks, such as ITIL, have the potential to provide CIOs with an environment and

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[495] Weick, K.E. 1995, 44. Sensemaking in Organizations. (italics to emphasise)
[496] Whittleston, S. March 2012, 4. http://www.best-management-practice.com/gempdf/ITIL_is_ITIL_White_Paper_Mar12.pdf (visited 21 March 2013). ITIL is ITIL. (italics to emphasise)
[497] Weick, K.E. 1995, 45. Sensemaking in Organizations.
[498] Weick, K.E. 1995, 57. Sensemaking in Organizations. (italics to emphasise)

background, with certain principles, that would enhance the quality and value of their decision making, and therefore the models provided in Chapter 3. ITIL, therefore, enhances the environment wherein CIOs make decisions and wherein they use the models portrayed in Chapter 3.

5.1.3 COBIT 5

5.1.3.1   Background on COBIT 5

Control Objectives for Information and Related Technology (COBIT), developed over the past 16 years, is a groundbreaking framework for the *governance and management of enterprise IT*, developed by Information Systems Audit and Control Association (ISACA)[499], the leading independent global IT association. "COBIT 5 represents the collective wisdom of global experts. It is designed to fill the need of business executives and IT professionals by providing a system of proven principles that address the critical issues and is built on five key principles (see Figure 39[500]):[501]
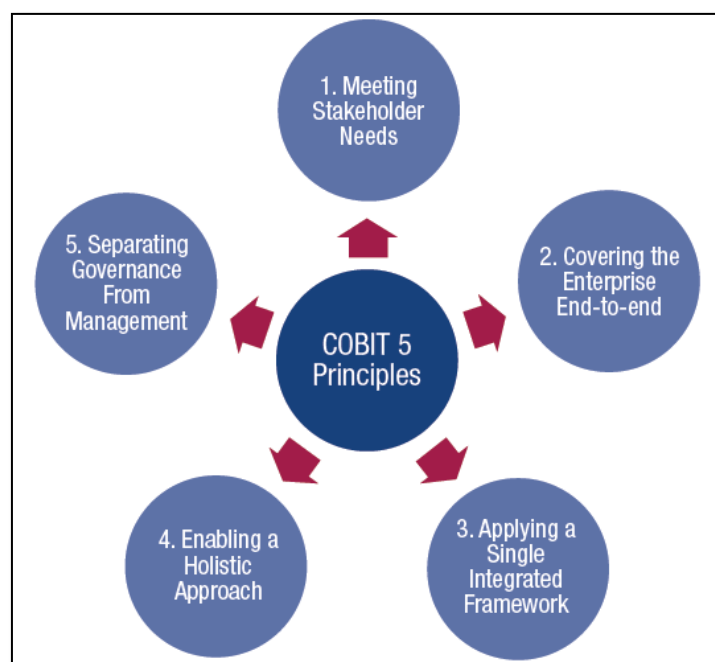
Figure 39 – Principles of COBIT 5[500]

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[499] http://www.isaca.org/about-ISACA/Pages/default.aspx
[500] COBIT 5. 2012, 13. http://www.isaca.org/COBIT/Pages/default.aspx (visited 21 March 2013). COBIT 5: Figure 2
[501] YouTube. http://www.youtube.com/watch?v=q7xexHtwSGI (visited 21 March 2013): Introducing COBIT 5

COBIT 5 provides the structure, practices, and tools to help CIOs proactively deliver value, manage IT-related risk, protect intellectual property, avoid potential disaster, and maximise ROI (see Figure 40)."[501]

Figure 40 – The functions of COBIT 5[501]

COBIT 5 also integrates other standards, frameworks and good practices, such as ITIL (as seen in Section 5.1.2) and ISO (International Organisation for Standardisation) to provide enterprise-wide perspective and clearly align business as well as IT goals.[501] COBIT 5 furthermore delivers effective alignment of IT with business objectives, better enterprise communication, maximised value, and increase trust.[501]

According to ISACA, IT has "become pervasive in enterprise and in social, public and business environments,"[502] and because of this, it is today even more than ever, the obligation of the CEO, in conjunction with the CIO, to coordinate and align business and IT goals and objectives. ISACA states that because of this cooperation, CEOs strive to:

- "Maintain high-quality information to support business decisions."[502]
- "Generate business value from IT-enabled investments."[503]
- "Achieve operational excellence through the reliable and efficient application of technology."[502]
- "Maintain IT-related risk at an acceptable level."[502]

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[502] COBIT 5. 2012, 13. http://www.isaca.org/COBIT/Pages/default.aspx (visited 21 March 2013). COBIT 5
[503] COBIT 5. 2012, 13. http://www.isaca.org/COBIT/Pages/default.aspx (visited 21 March 2013). COBIT 5: Achieve strategic goals and realise business benefits through effective and innovative use of IT.

- "Optimise the cost of IT services and technology."[502]

- "Comply with ever-increasing relevant laws, regulations, contractual agreements and policies."[502]

COBIT recommends that "the board and executives need to embrace IT like any other significant part of doing business."[502] Business and management should work together, therefore IT must be included within governance and management, and this is where COBIT assists in achieving the objectives for the governance and management of enterprise IT. "COBIT 5 enables IT to be governed and managed in a holistic manner for the entire enterprise, taking in the full end-to-end business and IT functional areas of responsibility, considering the IT-related interests of internal and external stakeholders."[504]

5.1.3.2   COBIT 5's five key principles

As mentioned in Figure 39, COBIT 5 is based on five key principles for governance and management of enterprise IT:

5.1.3.2.1   Principle 1: Meeting stakeholder needs[505]
The reason for the existence of enterprises is to create value for their stakeholders and therefore value creation is one of their main governance objectives. "Value creation means realising benefits at an optimal resource cost while optimising risk."[506] At government entities, *benefits* are e.g. public services, *creating value* means different things to the many stakeholders involved, and *governance* is about negotiating and deciding amongst all the stakeholders' value interests.[507] As a consequence, the governance system should consider all the stakeholders when making decisions on benefit (For whom are the benefits?), risk (Who bears the risk?), and resource assessment decisions (What resources are required?).[507]

5.1.3.2.2   Principle 2: Covering the enterprise end-to-end[505]
One of the main focuses of COBIT 5 is to integrate the governance of enterprise IT *into* the governance of the enterprise. COBIT 5 has an enterprise IT governance system, which

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[504] COBIT 5. 2012, 13. http://www.isaca.org/COBIT/Pages/default.aspx (visited 21 March 2013). COBIT 5: COBIT 5 is generic and useful for enterprises of all sizes, whether commercial, not-for-profit or in the public sector.
[505] COBIT 5. 2012, 14. http://www.isaca.org/COBIT/Pages/default.aspx (visited 21 March 2013). COBIT 5
[506] COBIT 5. 2012, 17. http://www.isaca.org/COBIT/Pages/default.aspx (visited 21 March 2013). COBIT 5: Figure 3
[507] COBIT 5. 2012, 17. http://www.isaca.org/COBIT/Pages/default.aspx (visited 21 March 2013). COBIT 5

integrates seamlessly with any governance system. It does not only focus on the function of IT but "treats information and related technologies as assets",[505] and these "assets need to be dealt with just like any other asset by everyone in the enterprise."[505] COBIT 5 also "considers all IT-related governance and management enablers as enterprise-wide and end-to-end."[505] This includes "everything and everyone—internal and external—that is relevant to governance and management of enterprise information and related IT."[505] It includes "all functions and processes required to govern and manage the enterprise information and related technologies."[508] COBIT 5 addresses the scope of the whole enterprise, and therefore, for all information regardless of where the information was processed. The last component defines roles (Who is involved in governance?), activities (How are they involved/what they do in governance?), and relationships (How they interact, within the scope of any governance system?).[509]

CIOs can, therefore, apply this IT governance system, as an aid, that integrates with enterprise's governance to align IT governance *into* enterprise governance.

5.1.3.2.3   *Principle 3: Applying a single, integrated framework*[505]

A significant benefit of COBIT 5 is that it is aligned with IT-related standards and other existing frameworks, and "thus can serve as the overarching framework for governance and management of enterprise IT."[505] COBIT 5 is structured that it can seamlessly integrate other existing frameworks that are already used or integrated into the governance of the enterprise.

COBIT 5 provides CIOs with "complete and up-to-date guidance on governance and management of enterprise IT"[510] by:

- "Researching and using resources that have driven the market, such as COBIT 4.1, Risk IT, ITIL and ISO."[510]

- "Defining governance and management enablers, which provide a structure for all guidance materials."[510]

- "Populating a COBIT 5 knowledge base that contains guidance of current and future content."[510]

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[508] COBIT 5. 2012, 23. http://www.isaca.org/COBIT/Pages/default.aspx (visited 21 March 2013). COBIT 5

[509] COBIT 5. 2012, 24. http://www.isaca.org/COBIT/Pages/default.aspx (visited 21 March 2013). COBIT 5

[510] COBIT 5. 2012, 26. http://www.isaca.org/COBIT/Pages/default.aspx (visited 21 March 2013). COBIT 5

- "Providing sound and comprehensive references, based on good practices."[510]

The result is that COBIT 5 provides CIOs with an all-in-one framework to maintain and focus on for governance and maintenance.

5.1.3.2.4   Principle 4: Enabling a holistic approach[505]

For CIOs to efficient and effective govern and manage enterprise IT, they need to have a holistic approach, which is provided by COBIT 5. It provides CIOs with "a set of enablers to support the implementation of a comprehensive governance and management system for enterprise IT."[505] An enabler is anything that can assist to achieve the objectives of the enterprise[505], which individual or collective, influence whether governance or management will work in enterprise IT.[511] COBIT 5 defines seven categories of enablers, which "enable the enterprise to build an effective governance and management framework that optimises information and technology and use for the benefit of the stakeholders":[512]

1. **"Principles, policies and frameworks:** Translate the desired behaviour into practical guidance for day-to-day management."[512]

2. **"Processes:** Describe an organised set of practices and activities to achieve certain objectives and produce a set of outputs in support of achieving overall IT-related goals."[512]

3. **"Organisational structures:** Provides the key decision-making entities in an enterprise."[512]

4. **"Culture, ethics, and behaviour:** Underestimated success factors in governance and management activities."[512]

5. **"Information:** The key product of the enterprise is information, which is either produced by or used by the enterprise. It keeps the organisation running and well governed, especially at operational level."[512]

6. **"Services, infrastructure, and applications:** The infrastructure, technology and applications that provide the enterprise with information technology processing and services."[512]

7. **"People, skills and competencies:** Provided by people in order to successful complete activities, make correct decisions and take correct actions."[512]

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[511] COBIT 5. 2012, 27. http://www.isaca.org/COBIT/Pages/default.aspx (visited 21 March 2013). COBIT 5
[512] COBIT 5. 2012, 14, 27. http://www.isaca.org/COBIT/Pages/default.aspx (visited 21 March 2013). COBIT 5

Enablers 5, 6 and 7 are also enterprise resources that need to be managed and governed as well. Enablers are also interconnected and are interdependent in need to function. Therefore, "when dealing with governance and management of enterprise IT, good decisions can be taken only when this systemic nature of governance and management arrangements is taken into account."[513] The impact of this is that when stakeholder's needs are taken into account, all the interconnected "enablers have to be analysed for relevance and addressed if required."[513] The top of the enterprise have to drive this mind set and the role of the CIO is imperative in this strategy.

5.1.3.2.5 *Principle 5: Separating governance from management*
COBIT 5 makes it clear that governance and management is two very different entities:

- "It encompass different types of activities"[514]

- "It require different organizational structures"[514]

- "It serves different purposes"[514]

"Governance ensures that stakeholder needs, conditions, and options are evaluated to determine balanced, agreed-on enterprise objectives to be achieved; setting direction through prioritisation and decision making; and monitoring performance and compliance against agreed-on direction and objectives."[515] Governance contains five processes—and within each process there is defined, evaluate, direct and monitor (EDM).[516]

"Management plans, builds, runs and monitors activities in alignment with the direction set by the governance body to achieve the enterprise objectives."[517] Management contains four domains in line with the responsibility areas of plan, build, run and monitor (PBRM).[518] The four domains are:

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[513] COBIT 5. 2012, 28. http://www.isaca.org/COBIT/Pages/default.aspx (visited 21 March 2013). COBIT 5

[514] COBIT 5. 2012, 14, 31. http://www.isaca.org/COBIT/Pages/default.aspx (visited 21 March 2013). COBIT 5

[515] COBIT 5. 2012, 14, 31. http://www.isaca.org/COBIT/Pages/default.aspx (visited 21 March 2013). COBIT 5: "In most enterprises, overall governance is the responsibility of the board of directors, under the leadership of the chairperson."

[516] COBIT 5. 2012, 32. http://www.isaca.org/COBIT/Pages/default.aspx (visited 21 March 2013). COBIT 5: "In the context of the governance domain, 'monitoring' means those activities where the governance body checks to what extent the direction that has been set for management is actually applied."

[517] COBIT 5. 2012, 14, 31. http://www.isaca.org/COBIT/Pages/default.aspx (visited 21 March 2013). COBIT 5: "In the most enterprises, management is the responsibility of the executive management under the leadership of the CEO."

[518] COBIT 5. 2012, 32. http://www.isaca.org/COBIT/Pages/default.aspx (visited 21 March 2013). COBIT 5

1. "Align, Plan and Organise (APO)"[518]

2. "Build, Acquire and Implement (BAI)"[518]

3. "Deliver, Service and Support (DSS)"[518]

4. "Monitor, Evaluate and Assess (MEA)"[518]

"An enterprise can organise its processes as it sees fit, as long as all necessary governance and management objectives are covered."[518]

5.1.3.3   COBIT 5's contribution to decision-making models

With the assistance of above-mentioned principles within COBIT 5, that CIOs are able to make well-structured decisions, influenced by the structure, and processes portrayed in the COBIT 5 framework.

COBIT 5 has been developed over the past 16 years and has been well established within the IT realm supporting the governance and management of enterprise IT, it enables IT to be governed and managed in a holistic manner, for business as well as IT. COBIT 5, *per se,* proactively provides value to IT management, allows any enterprise to achieve what it is intend to, and offers quality to the decision-making models provided in Chapter 3, as follows:

5.1.3.3.1   Connection from COBIT 5 to retrospective sense making

Principle 1: Meeting stakeholder needs (see section 5.1.3.2.1) makes it clear that IT is no longer the sole responsibility of the CIO, but is a board level issue. One of the main goals of Principle 1 is to deliver *value* for stakeholders by achieving the benefits of COBIT 5. "COBIT 5 provides a comprehensive framework that assists enterprise to achieve their goals and deliver value through effective governance and management of enterprise IT."[519] Therefore, the stakeholder needs are directly tied to the IT related goals. From this principle it is then linked to Weick's retrospective sense-making property for the sense maker to create sense in a certain situation he does not need information to get rid of the equivocality, instead he needs "*values*, priorities, and clarity about preferences to help [him/her] be clear about which projects matter."[520] Creating, delivering and providing value, then enhance the quality of sense making, infused into the decision-making model as seen in Figure 22.

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[519] COBIT 5. 2012, 10. http://www.isaca.org/Education/Online-Learning/Pages/A-COBIT-5-Overview.aspx. (visited 1 June 2014). COBIT 5

[520] Weick, K.E. 1995, 27. Sensemaking in Organizations. (italics to emphasise)

5.1.3.3.2   Connection from COBIT 5 to sense making that is grounded in identity construction as well as sense making enactive of sensible environments

Principle 2: Covering the enterprise end-to-end (see section 5.1.3.2.2) clear that the governance of IT have to align to the governance of the enterprise. This principle provides a holistic view for business as well as enterprise and provides an identity to the CIO to know who he/she is to know what decisions to make. Weick is very clear here when he says that, "Whenever I define self, I define "it", but to define it is also to define self. Once I know who I am then I know what is out there."[521] This principle of COBIT 5 is directly tied into Weick's just mentioned statement which is connected to the two sense-making properties *grounded in identity construction* (see section 3.1.1.3.1) and *enactive of sensible environments* (see section 3.1.1.3.3), and as a result this connection enhances the quality of the decision-making model as seen in Figure 24.

Principle 4: Enabling a holistic approach (see section 5.1.3.2.4) provides a realm that also support sense making's *grounded in identity construction* (see section 3.1.1.3.1) by offering a holistic identity to a CIO in the sense that the framework incorporates stakeholder needs and goals, enterprise needs and goals as well as IT needs and goals. Decisions are made based on this approach and enhance the quality of the decision-making models in Chapter 3.

5.1.3.3.3   Connection from COBIT 5 to social sense making

Principle 3: Applying a single, integrated framework (see section 5.1.3.2.3) is aligned with international standards, such as ISO etc. which are socially and strategically acceptable to enterprises. This principle provides an overarching consistency and integrated source of guidance that increase trust and ensure improved enterprise communication. Hence, when CIOs make decisions they compare all the alternatives relative to a target, in this case, the target is the international standards provided by COBIT 5. Therefore, when comparing to these standards, satisficing takes place, therefore sense making takes place, and a direct link is provided from COBIT 5 to the social sense-making property.

5.1.3.3.4   Connection from COBIT 5 to sense making enactive of sensible environments

Principle 5: Separating governance from management (see section 5.1.3.2.5) provides the clear-cut perspective on governing and managing. Governance ensures that stakeholder

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[521] Weick, K.E. 1995, 20. Sensemaking in Organizations.

needs, conditions, and options are evaluated to determine balances, agreed-on enterprise objectives to be achieved. Management plans, build, runs and monitor activities in alignment with the direction set by the governance body to achieve enterprise objectives. These two statements provide an environment where in CIOs can make decisions prescribed by an international IT framework. This principle enhances and provides the final contribution to the decision-making models portrayed in Chapter 3.

This framework, therefore, assists and enables CIOs to achieve strategic goals through the effective and innovative use of IT. It provides a key contribution to the decision-making environment and models that have been presented in Chapter 3, and enhances these models by providing quality and value in such a way that these models assist CIOs to govern and manage the IT environment in a holistic manner. This framework supports CIOs to take IT onto the executive table and optimise IT to transform it into an enabling function within the larger company. This framework further provides an environment that is optimised and benefits the CIOs in their decision-making processes; thus the COBIT 5 framework *enhances* the way CIOs think and makes decisions as well as their governance, management skills and priorities. CIOs' decision-making models have now been enhanced with this framework and the quality and strategic value of the models in Chapter 3 are now even more significant.

5.1.4 Contribution of governance frameworks to decision-making models

All three of the above mentioned frameworks will provide an *environment* with a certain *context* from where CIOs will be able to extract certain cues in order to be able to make sense in, thus provides the context for decision making. These frameworks provide a *stimulus* of a situation in order to *enact* upon as well as an *identity* to the CIO in order to know whom he/she is in order to know what to decide.

The main function of IT frameworks is that they provide guidelines that are focused to be *aligned* with organisational objectives. The connections that have been made in sections 5.1.1.3, 5.1.2.4 and 5.1.3.3 provide evidence and direct links from these frameworks to the sense-making properties. Therefore, IT focused governance and management frameworks, enhance the quality of the sense making-infused, decision-making models portrayed in Chapter 3. The following figures (See Figure 41 to Figure 44) portray the models and show the contribution of governance frameworks as described in sections 5.1.1.3, 5.1.2.4 and 5.1.3.3.
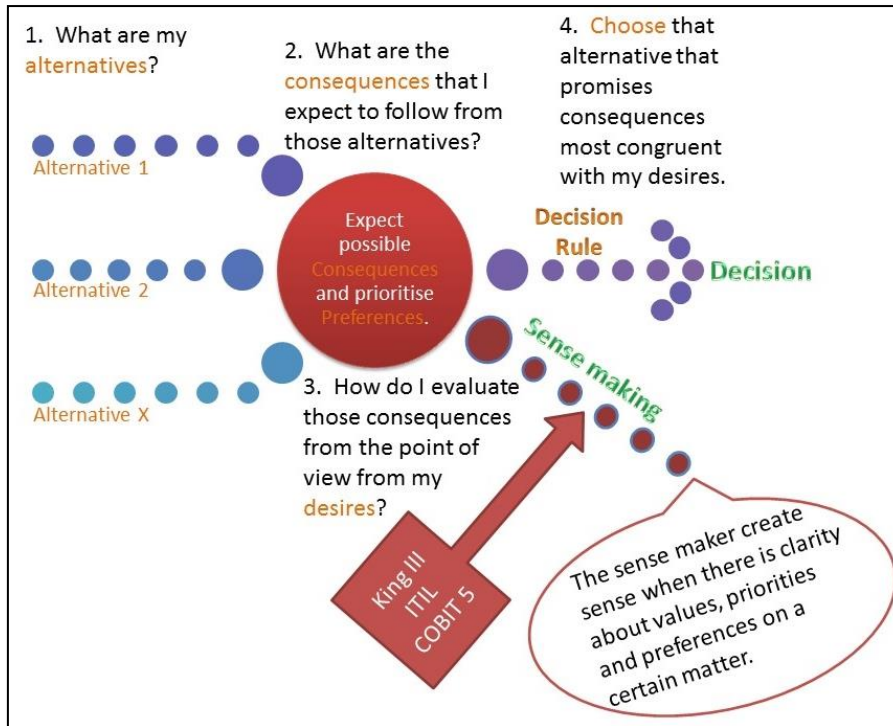
Figure 41 – March & Weick: Contribution of governance frameworks on retrospective decision making[522]
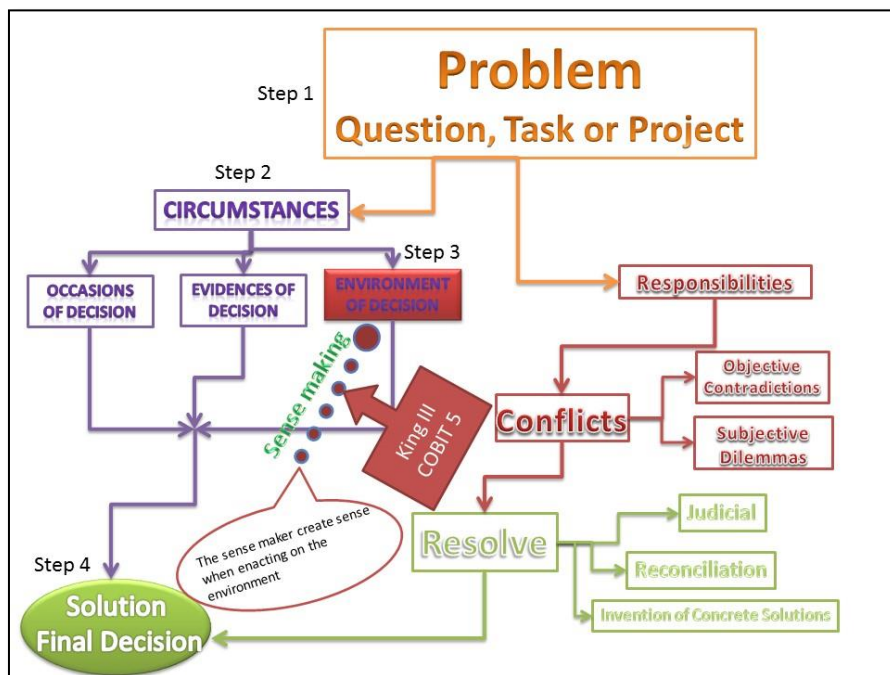
Figure 42 – Barnard & Weick: Contribution of governance frameworks on Barnard's decision-making model[522]

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[522] Figure 41 to Figure 44, © Ilse de Kock, 17 November 2017
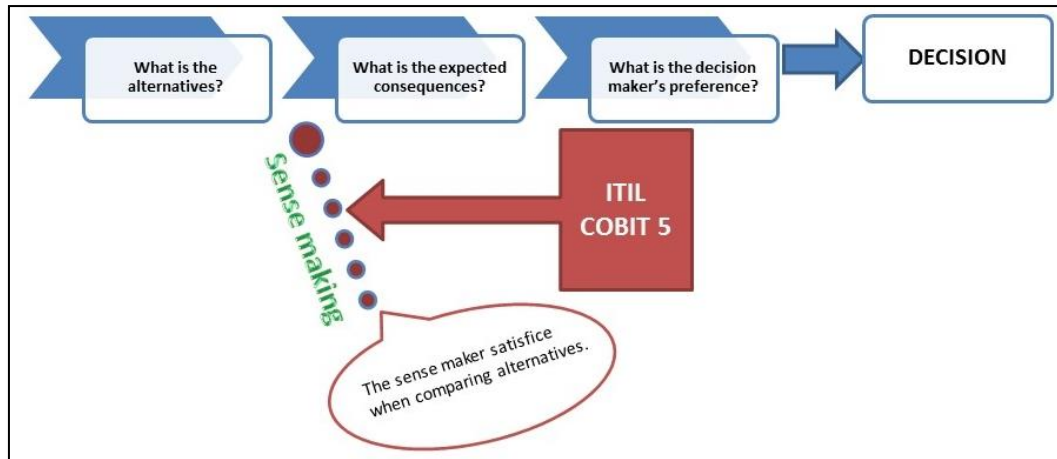
Figure 43 – March & Weick: Contribution of governance frameworks within a social decision-making process[522]
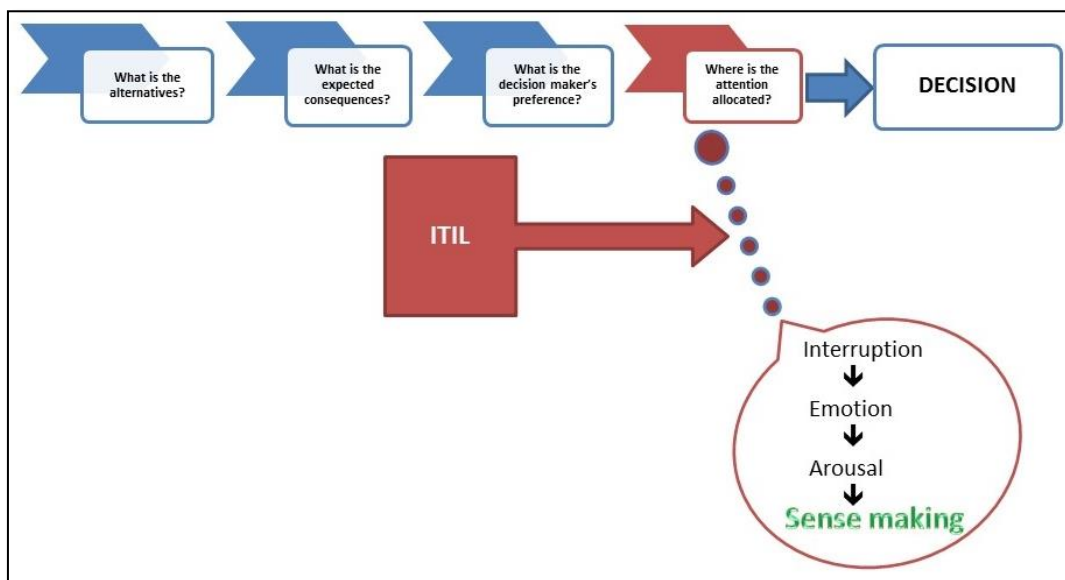
Figure 44 – March & Weick: Contribution of governance frameworks within an ongoing decision-making process[522]

5.2   Expertise of CIOs as a contributing factor to organisational decision making

Even though governance frameworks within the IT environment play an exhaustive role in the decision-making processes of CIOs, it is without a doubt that the role of the expertise and skills of the CIOs provide even more significance in the quality and effectiveness of the decision-making models used by them. This section will look at the role of the CIO, and the

contribution of the experience and expertise of a CIO, towards the decision-making models in Chapter 3

5.2.1 The function and role/responsibility of the CIO

One of the principles recommended by the King III report (as seen in section 5.1.1.2.3) was that the board should delegate to management the implementation of an IT governance framework. They continue by recommending that the CEO of the company should appoint an individual responsible for IT management (often referred to as a CIO). The characteristics of a CIO should be someone with *experience,* to interact regularly with the board, and the CEO on IT governance matters. According to King III, the CIO should also serves as the bridge between IT and the business, and needs to understand the responsibility and accountability for IT, be business orientated, have a strategic approach to integrate IT into the business and implement sustainable IT solutions in order to achieve strategic objectives. Banker *et al*. explain that "[t]he CIO has many roles, such as business leadership, and relationship builder."[523] According to Khallaf *et al*. "previous studies that examine the impact of the CIO on IT capability have revealed that CIOs add value by enhancing the strategic role of IT in business organization."[524] In an article published by Gartner (see Figure 45), it is also noteworthy to see that the role of the CIO has been changing from a role providing an *interface*, through the role to *intervene*, and concluding in a role to *innovate.*[525]

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[523] Banker, R.D., Hu, N., Pavlou, P.A. & Luftman, J. 2011, 489. CIO Reporting Structure, Strategic Positioning, and Firm Performance.

[524] Khallaf, A. & Majdalawieh, M. 2012, 55. Investigating the Impact of CIO Competencies on IT Security Performance of the U.S. Federal Government Agencies.

[525] https://www.gartner.com/doc/1440634/executive-summary-cios-role-managing (visited 31 May 2015). "The CIO's Role in Managing the Expanding Universe of Digital Technologies".
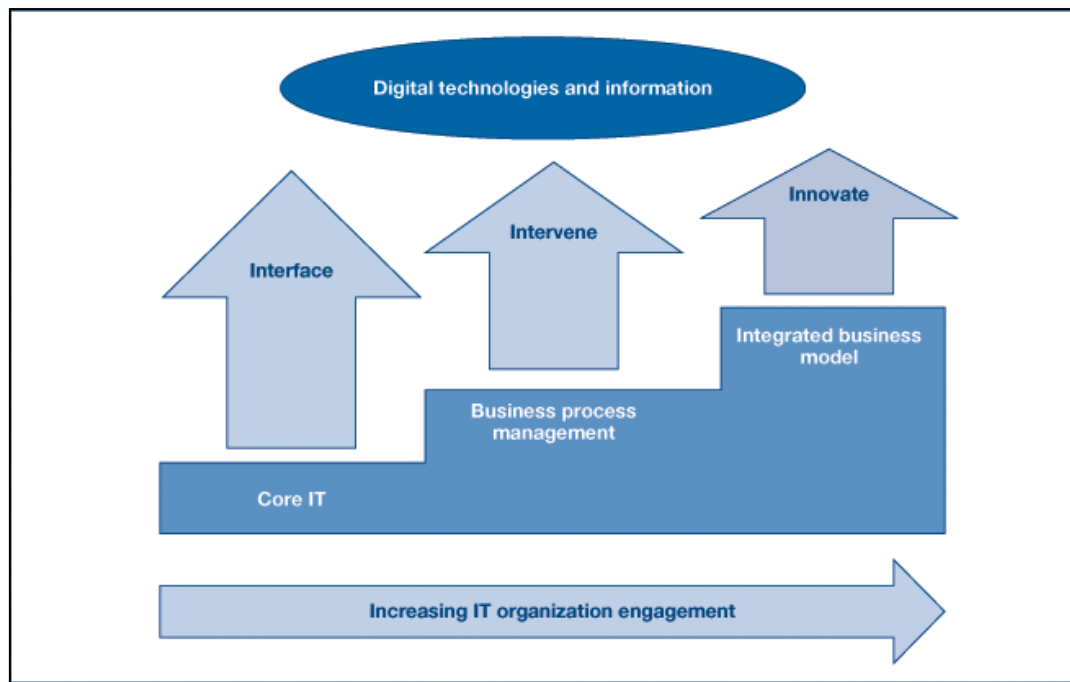
Figure 45 – CIOs can bridge the digital technology and information divide on the three levels[525]

Gartner explains the three levels as follows:

1. *Interface:* "Stay within the traditional boundaries of IT—i.e., applications and infrastructure—and build application programming interfaces (APIs) to link to operational and other digital technologies, allowing various enterprise departments to continue designing and operating these technologies with limited architectural engagement."[525]

2. *Intervene*: "Lead the integration of business processes and information—ensuring that all digital technologies and associated information integrate with these processes from their design phase onward. Other departments will continue to operate diverse technologies but with increased convergence (e.g., IT may provide the servers and network, but the departments will run the software)."[525]

3. *Innovate*: "Lead the adoption and use of all digital technologies so that they fit seamlessly into business processes. To support critical decisions, an enterprisewide drive for convergence, common standards and integration of associated information needs to exist."[525]

The above mentioned recommendations from King III further provide us with a certain outline of what the function and responsibility of a CIO should be. Weiss *et al*. cite that "prominent

MIT researchers (e.g., Broadbent and Kitzis, 2005) and observers of professions (e.g., Melymuka, 2002) argue that the role of IT leaders, CIOs in particular, is changing from "chief technology mechanic" to competencies focused more on strategic business issues. Broadbent and Kitzis (2005) stated that: The business and technology contexts surrounding the CIO are substantially different than ever before. The job has become far more complex at the same time that the critical nature of information systems has gone up. To compound matters, there's an unprecedented urgency to develop and implement IT capabilities."[526] Weiss *et al*. also argues that the "CIO job, in particular, is more 'executive' in nature than 'functional'."[527] The role of the top IT executive has evolved since the 1970's[528] in four phases according to Weiss *et al*.:[529]

1. "Glorified data processing managers."[529]
2. "Technocrats"[529]
3. "Business executives"[529]
4. "Technocrats and business executives"[529]

According to Banker *et al*. "the CIO is defined as the highest level IT executive or manager in a firm or business unit,"[530] they continue by saying that further roles of the CIO is "business leadership and relationship builder."[530] They also say that, not only has the decision-making power of a CIO changed but that the CIO also "shapes the firm's strategy."[531] They further suggest that the CIO's role is to lead the entire firm, suggesting that CIO should mean 'chief influencing officer'."[530] Weiss *et al*. cites Gottschalk who described nine CIO leadership roles:[532]

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[526] Weiss, J.W. & Adams, S.M. 2011. 13. Aspiring and Changing Roles of Technology Leadership: An Exploratory Study.

[527] Weiss, J.W. & Adams, S.M. 2011. 14. Aspiring and Changing Roles of Technology Leadership: An Exploratory Study. (quotes as in source)

[528] Khallaf, A. & Majdalawieh, M. 2012, 56. Investigating the Impact of CIO Competencies on IT Security Performance of the U.S. Federal Government Agencies.

[529] Weiss, J.W. & Adams, S.M. 2011. 14. Aspiring and Changing Roles of Technology Leadership: An Exploratory Study.

[530] Banker, R.D., Hu, N., Pavlou, P.A. & Luftman, J. 2011, 489. CIO Reporting Structure, Strategic Positioning, and Firm Performance.

[531] Banker, R.D., Hu, N., Pavlou, P.A. & Luftman, J. 2011, 489. CIO Reporting Structure, Strategic Positioning, and Firm Performance. "CIOs have also become attractive candidates for the CEO position".

[532] Weiss, J.W. & Adams, S.M. 2011. 14. Aspiring and Changing Roles of Technology Leadership: An Exploratory Study. (Gottschalk, Petter, "The Changing Roles of IT Leaders," in R Papp (Ed.), Strategic Information Technology: Opportunities for Competitive Advantage, Idea Group Publishing (2001).)

1. "Informational"[532]

2. "Decisional"[532]

3. "Interpersonal"[532]

4. "Chief architect"[532]

5. "Change leader"[532]

6. "Product developer"[532]

7. "Technology provocateur"[532]

8. "Coach"[532]

9. "Chief operating strategist"[532]

Weiss *et al*. also agree with Banker *et al*. and Khallaf *et al*. by stating that in recent times "IT leaders have been responsible for strategic alignment between IT and business."[529] Weiss *et al*. proposed that there are three broad IT leader roles:[529]

1. "Technology management (managing and measuring the effectiveness of IT infrastructure and disaster recovery)"[529]

    a. "Technologist … (focuses on the traditional functional aspect of IT)"[529]

2. "Strategy management (business process redesign, competitive advantage, and information architecture)"[529]

    a. "Change agent … (focuses on organizational business management aspects of IT)"[529]

3. "People and support management (organizational learning and executive and design support)"[529]

    a. "Business expert … (focuses on organizational business management aspects of IT)"[529]

5.2.2 Naming conventions of the highest level IT executive

There are a number of equivalent titles used instead of CIO, as cited by Banker *et al*. from the "State of the CIO" survey[533]. "60% of the heads of IT carry the CIO title, while other titles include director of IT (18%), vice-president of IT (11%), and chief technology officer (CTO) (4%). Other titles are emerging that eliminate the terms *technology or information*, such as

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[533] Banker, R.D., Hu, N., Pavlou, P.A. & Luftman, J. 2011, 489. CIO Reporting Structure, Strategic Positioning, and Firm Performance. Information on the survey can be found at www.cio.com/article/147950.

vice-president of services. Still, the CIO title is the most widely accepted for the firm's top IT executive."[534] Weiss *et al*. contribute two more slightly different titles: "Vice-President of Technology, and Director of Technology."[529]

5.2.3 Reporting structure of the CIO

There are various arguments as to whom the CIO should report to. Banker *et al*. states that a firm's reporting structure is "closely tied to strategy and performance,"[530] and therefore the CIO's reporting structure is a key element there of. Thus, the "CIOs tend to report either to the highest-level executive, or the highest-rank finance executive."[535] Banker *et al*. shows in their study "that the strategic role of IT determines the CIO reporting structure, and … propose that it is the firm's strategic positioning that influences the CIO reporting structure."[536]

5.2.4 Background on CIOs' expertise

5.2.4.1   Skills requirements of a CIO

Banker *et al*. states that "the CIO position is becoming more important as IT is increasingly playing a greater role in the firm's strategy."[536] Khallaf *et al*. emphasise this by saying that "research has stressed the value of a broad range of skills that are essential for IT expertise to meet the operational requirements of organizations."[537] Some recommended expertises are as follows:

- Technical Skills
- Managerial Skills
- Leadership Skills
- "Substantial discretion in determining firm strategic direction"[537]

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[534] Banker, R.D., Hu, N., Pavlou, P.A. & Luftman, J. 2011, 489. CIO Reporting Structure, Strategic Positioning, and Firm Performance.

[535] Banker, R.D., Hu, N., Pavlou, P.A. & Luftman, J. 2011, 489. CIO Reporting Structure, Strategic Positioning, and Firm Performance. CIOs can also report to the COO, but this is not very common.

[536] Banker, R.D., Hu, N., Pavlou, P.A. & Luftman, J. 2011, 490. CIO Reporting Structure, Strategic Positioning, and Firm Performance.

[537] Khallaf, A. & Majdalawieh, M. 2012, 57. Investigating the Impact of CIO Competencies on IT Security Performance of the U.S. Federal Government Agencies.

- "Make their own selective strategic decisions about the acquisition and managing of firm valued resources."[538]

Khallaf *et al*. continue by stating that "the key executives are empowered to make strategic options that, in turn, influence organization performance."[539] Khallaf *et al*. further argue that "a firm's capability to use its IT resources to adapt to the changes in the business environment depends on three important factors that include business governance, IT governance, and managerial capabilities of IT executives."[540] Khallaf *et al*. also cite a study by Heart *et al*. (2010) who "studied the effects of IT executives' managerial capabilities on IT-enabled enterprise capability. Their results indicate that managerial capabilities of IT executives are crucial in achieving IT-enabled enterprise adaptability."[539]

In aid of Khallaf *et al*.'s argument, Weiss *et al*. completed a study on the competency needed for a CIO or IT leader and founded the following results: "Eighteen (32.7%) of the 55 respondents were female and 37 were male, a realistic sample since 13.7% of the highest level CIOs in the Fortune 1000 companies are women. The sample originates from organizations (see Figure 46) ranging in size from 40 to 70 000 employees … with IT staff ranging from 2 to 50 000 employees."[529] "Six have undergraduate degrees, nine a MBA degree, and 15 a Master's degree in IT. Current job titles of the respondents were classified as business manager (e.g., product manager for an IT product; n=2), technical specialist (e.g., programmer, n=9), IT manager (e.g., director-level position; n=11), and IT executive (e.g., vice-president or CIO; n=9), according to the individual's level in the organization and job function."[541]

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[538] Khallaf, A. & Majdalawieh, M. 2012, 57 – 58. Investigating the Impact of CIO Competencies on IT Security Performance of the U.S. Federal Government Agencies. "Based on 35 case studies, Simonsson, Johnson, and Ekstedt (2010) find a strong positive correlation between quality management and IT governance performance. According to upper echelon theory [The central notion for echelon theory is that the characteristics of top executives influence an organization's performance], achieving superior performance is the result of discretionary rational managerial choices and successful organizations are that acquire and maintain valuable idiosyncratic resources."

[539] Khallaf, A. & Majdalawieh, M. 2012, 58. Investigating the Impact of CIO Competencies on IT Security Performance of the U.S. Federal Government Agencies.

[540] Khallaf, A. & Majdalawieh, M. 2012, 58. Investigating the Impact of CIO Competencies on IT Security Performance of the U.S. Federal Government Agencies. (italics to emphasise)

[541] Weiss, J.W. & Adams, S.M. 2011. 15. Aspiring and Changing Roles of Technology Leadership: An Exploratory Study.

AppIQ	Genzyme Inc
Bank of America	Gillette
Berry	Hologic, Inc
Blue Cross Blue Shield	HP Hood, LLC
Bose	ING
Corning Inc	Interactive Data Corp
CSC	Liberty Mutual
Cytyc Corp	Monster.com
Deloitte and Touche	Motorola
Delta Dental	Protiviti
Edgewater	SPSS Inc.
Elixir Technologies	State Street
Endeca Technologies	Texas Instrument
Ensim	US Coast Guard Academy
Fidelity Investments	Windward School

Figure 46 – The study of Weiss *et al*.: Organisations in the study[541]

Weiss *et al*.'s study leads to trajectory of development (see Figure 47) within and across the three roles (mentioned in section 5.2.1) that lead to leadership:

(Depth)	Developmental Areas of Competency (Breadth)		
	Technologist	Change Agent	Business Expert
Basic Level	e.g., understanding existing systems and technology	e.g., understanding sources of conflict and resistance to change	e.g., understanding business practices, processes, and approaches
	e.g., applying procedures, tools, and methods; designing and developing applications	e.g., focusing on results; building relationships and teamwork	e.g., managing projects; planning, prioritizing and administering work
Expert Level	e.g., designing technical architecture; integrating systems	e.g., leading, inspiring and building trust; principled negotiating	e.g., leading cross-functional IT and business teams

Figure 47 – Weiss *et al*: IT leader (CIO) career profiles: Breadth and depth of competencies needed[541]

Weiss *et al.*'s study reported the following findings: "Organization size and IT staff size are positively related as would be expected. Organization size and IT staff size are positively related to the percent of time that IT leaders reported they spent in their roles as technologist—a finding that is consistent with the specialization of tasks found in larger organizations. Technology expertise is positively related to report percent of time spent as technologist … and negatively related to time spend as a business expert. Technology expertise is also positively related to the amount of time preferred to spend as technologist. Other correlations indicate distinctions among the role dimensions."[541]

Some of the qualitative findings that were based on open-ended questions were very interesting in aiding some insight on the career path of some CIOs. These findings suggested two themes:

1. "A transition of the field from focusing on the technologist role to one of multiple roles."[541]

2. "Climbing the career ladder to senior IT management involves business knowledge and people management."[541]

For example:

- "Being a CIO/IT leader isn't about implementing the coolest technology—it is about implementing the most relevant technology to solve a business problem."[542] (female, senior IT manager, retail company)

- "Technology leaders are paid for knowing 'why', not for knowing 'how'. This is an enormous challenge for people who come up the technical ladder."[542] (female, CIO, university)

- "Be ready and willing to make the move into a supervisory or technical leadership position, even if you are managing one or two staff members. You won't attain a CIO or leadership role on tech skills alone."[542] (male, Associate VP of IT, hospitality company)

- "Major career advancement problems include, … possible perception that IT is primarily 'plumbing' within the organization."[542] (male, Senior Director of IT, biotech company)

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[542] Weiss, J.W. & Adams, S.M. 2011. 15 – 16. Aspiring and Changing Roles of Technology Leadership: An Exploratory Study.

- "Learn how to run a business. IT is just a business that provides technology services."[542] (male, Senior Director of Global Technology, technology company)

- "You need to think more like a business person than a techie!"[542] (male, CIO, medical device company)

- "Alignment with the business is critical—a partnership must exist. IT must be viewed as a value-add and high ROI organization."[542] (male, IT Director, insurance company)

- "Career advice: Play well on a team and learn how to connect to resources, rather than 'owning' them."[542] (female, CEO/ President, online marketing company)

- "Career problems include … inability to lead select/identify staff who can move organization forward and to admit mistakes and change course rapidly."[542] (female, IS Manager, insurance company)

Weiss *et al*. conclude their study by stating that "implications of this study for organisations suggest that IT professionals and leaders seek more business involvement and change agent responsibilities with their technology roles and expertise. Satisfying these aspirations could enhance motivation and performance. Aspiring technology leaders may inquire about the integration of business and strategy with technology in the roles they assume before joining a company. Offering developmental opportunities for aspiring IT leaders may indeed become a competitive advantage for organizations."[543]

Weiss *et al*. recommended skills that require leadership development and expanded the list of CIO expertise at the beginning of this section:

- "Leadership development programs for developing leadership skills."[544]

- "Soft skills related to influence and negotiating … for handling conflict and change resistance."[544]

- "Emotional intelligence competencies … for the development of empathy that is needed for collaborative efforts."[544]

- "Exposure to business objectives and decision making."[544]

- "More strategic business skills than technology capabilities."[544]

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[543] Weiss, J.W. & Adams, S.M. 2011. 17. Aspiring and Changing Roles of Technology Leadership: An Exploratory Study.

[544] Weiss, J.W. & Adams, S.M. 2011. 16. Aspiring and Changing Roles of Technology Leadership: An Exploratory Study.

Brown *et al*. say that "CIOs who reach the highest levels in their enterprises share a core set of skills and experiences."[545] They continue by saying that "the path from IT management to trusted member of an organization's senior management team varies based on personality, industry, market cap and others."[545]They also state that "CIOs who reach the highest levels of influence and effectiveness in their enterprises, share a core set of skills and experiences."[545] Brown *et al*. expands the ongoing list and propose the following factors which strongly influence the climb up the corporate ladder to later sit at the decision-making table; not to listen, but to align and shape business strategies with IT strategies:

- "The right image":[545] Executives are business strategists first, then specialists.

- "Financial Smarts":[545] Know your company's financial figures and ratio's, then you know where the money comes from and where it goes.

- 'Business Knowledge":[545] Know and speak the details of the business; know the business drivers.

- "Daily Reading":[545] Industry, IT and general publications.

- "Intentional job growth":[545] Develop IT's strategies to align with the business, expand responsibilities, show interest in all parts of the business, and socialise to the extent that feels comfortable.

- "Innovative cost management":[545] Reduce indirect cost (software licences, telecom expenses etc.), before layoffs.

- "Contract management":[545] Negotiate contracts e.g. caps on increases, reasonable vendor audit clauses, nondisclosure agreements, and ownership of outsourced services.

- "Architectural blueprint and implementation":[545] Build a stable, long-term IT platform and deliver on promises, this is more acceptable to senior management.

5.2.4.2   Examples of CVs of CIOs

When looking at the previous section providing a holistic view of the entity of a CIO, then it becomes evident that CIOs have the majority of essential expertise to successfully manage to align IT strategies with those of the organisation. IT is now the prime supplier of all technologies running at an organisation; any business is now very dependent on services and

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[545] Brown, E.J. & Yarberry Jnr, W.A. 2010. 12. Going beyond a seat at the Table.

solutions provided by IT. By examining the CVs of the CIOs of a few fortune 500 companies, as well as some well-known Universities, and a few successful companies and Universities in South Africa it should be evident that the role of the CIO within these companies are extremely important.

This short case study can provide us with some proof, although not exclusive fact, that the pertinent role of the CIO indeed are of utmost importance, and that when the CIO actually contributes at the executive decision-making table, the decision-making models IT Executives use are endorsed by the skills and expertise of a company's CIO. In the following sections, these skills and expertise will be shown to be contributing significantly to the decision-making models in Chapter 3.

5.2.4.2.1   CVs of CIOs from five Fortune 500 2014 companies

i.   CIO: Karenann Terrel, Wal–Mart Stores[546]

Karenann's full job title is "executive vice-president and chief information officer for Wal-Mart Stores, Inc.",[546] and joined Wal-Mart in 2010. She is responsible for "the company's global technology including stores and clubs, supply chain, merchandising, security and enterprise infrastructure."[546]

Her previous experiences include "chief information officer of Baxter International, Inc. and chief information officer of the Chrysler Group and Mercedes-Benz North America."[546] She started her career at "General Motors in 1986, where her responsibilities included automotive manufacturing and engineering as well as brand development at Cadillac."[546]

"In 2013, Karenann was named CIO of the Year by the National Association of Software & Services Companies (NASSCOM). She has been recognized as one of the 100 Most Influential Women in the Automotive Business by Automotive News."[546]

Her academic studies are a "bachelor's degree from Kettering University, and a master's degree from Purdue University, both in *electrical engineering*."[547]

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[546]   Walmart.   http://corporate.walmart.com/our-story/leadership/executive-management/karenann-terrell/ (visited 10 June 2014).

[547]   Walmart.   http://corporate.walmart.com/our-story/leadership/executive-management/karenann-terrell/ (visited 10 June 2014). (italics to emphasise)

Karenann, therefore, obtained her corporate experience of over 28 years outside the company where she resides as CIO today and is an electrical engineer by profession.

ii.   CIO: Joseph C. Geagea, Chevron[548]

Joseph's title is the "senior vice-president of Technology, Projects, and Services, a position he has held since January 2014."[548] "He is responsible for energy technology, delivery of major capital projects, procurement, information technology, upstream production services, and talent selection and development in support of Chevron's upstream, downstream and midstream businesses."[548] Joseph previously "served as a corporate vice-president and president of Chevron Gas and Midstream from 2012 until 2014, and was responsible for commercializing Chevron's natural gas resources and supporting the development of new growth opportunities worldwide."[548]

His previous experiences include: "2008, managing director, Chevron Asia South Ltd., responsible for Chevron's upstream activities in Bangladesh, Cambodia, China, Myanmar, Thailand and Vietnam; 2006, vice-president, Upstream Capability, responsible for improving the delivery of support services to Chevron's global upstream operations; 2005, vice-president, Chevron International Exploration and Production Co; 2004, president, Fuel and Marine Marketing; 2002, president, downstream operations in East Africa, the Middle East and Pakistan."

Joseph "joined Chevron in 1982 as a design engineer. He earned a Bachelor's degree and a Master's degree in *civil engineering* from the University of Illinois in 1981 and 1982 respectively."[549]

Joseph is, therefore, a CIO who worked himself up the corporate ladder with over 32 years of experience to where he resides today and is a civil engineer by profession.

iii.   CIO: Merlin R Lindstrom, Phillips 66[550]

Merlin's full job title is, Vice-President Technology, for Phillips 66, since 2012.[550]

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[548] Chevron. http://www.chevron.com/about/leadership/corporateofficers/geagea/ (visited 10 June 2014).

[549] Chevron. http://www.chevron.com/about/leadership/corporateofficers/geagea/ (visited 10 June 2014). (italics to emphasise)

[550] Phillips 66. http://www.phillips66.com/EN/about/leadership%20team/Pages/Lindstrom.aspx (visited 11 June 2014).

"Before assuming his current role, Lindstrom was senior vice-president, Technology, for ConocoPhillips. In his tenure with ConocoPhillips, Lindstrom served in a variety of technological and research and development (R&D) roles. He has worked in managerial R&D roles for various organizations including Downstream Technology, and Technical Services and Facilities. From 1998 to 2001, before the merger with Conoco, Lindstrom worked for Phillips Petroleum as general manager of the Woods Cross Refinery. He also spent time in various managerial R&D roles in the chemicals and petrochemicals divisions. He previously served as director of plastics/chemicals in planning and budgeting."[550]

"Lindstrom began his career with Phillips in 1978 as a research chemist in research and development (R&D). In 1984, he was promoted to section supervisor in R&D in the polymers and materials area. In 1987, he was promoted to director of industry analysis in planning and budgeting for Phillips 66 Company, a division of Phillips; and he became director of alloys, blends, and compounds in plastics in 1988. He returned to R&D in 1988 as manager of the engineering materials branch."[550]

Lindstrom "graduated from North Dakota State University in Fargo, earning a *Bachelor of Science* degree in 1973, and a *Doctorate* in 1978 in *chemistry*."[551]

Lindstrom, therefore, is a CIO who worked his way up the corporate ladder with over 35 years of R&D and technology experience and is a chemistry scientist by profession.

iv.   CIO: Randall D Mott, General Motors[552]

Randall's full title is, the "Senior Vice-President, Global Information Technology & Chief Information Officer of General Motors, effective February 27, 2012."[552]

"His most recent position was executive vice president and chief information officer of Hewlett-Packard, where he was responsible for the global information technology (IT) strategy and all of the company's IT assets."[552] "Previously, Mott was senior vice-president and chief information officer for Dell, Inc., which he joined in 2000. He was responsible for managing that company's global IT infrastructure, which included the backbone of its extensive Internet and web-based capabilities."[552] "Prior to Dell, Mott spent 22 years at Wal-

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[551] Phillips 66. http://www.phillips66.com/EN/about/leadership%20team/Pages/Lindstrom.aspx (visited 11 June 2014). (italics to emphasis)
[552] General Motors. http://www.gm.com/company/aboutGM/GM_Corporate_Officers/randy_mott.html (visited 11 June 2014)

Mart Stores Inc., where he held a variety of technical and management positions and pioneered retail and supply-chain systems automation. In 1994, Mott was named senior vice-president and chief information officer."[552]

For the six years after Mott joined Wal-Mart, they "almost tripled in revenue and its IT group earned a "best-of-class" reputation as it cost-effectively leveraged global and common IT systems. In 1996, Mott was promoted to Wal-Mart's executive committee, and in 1997 Information Week named him 'Chief of the Year'."[552] "In June 2007, he received the "Roger Milliken Career Achievement Award" from the Voluntary Interindustry Commerce Solutions Association for his dedication and contributions to enabling the retail and consumer-focused industries through the creation and implementation of supply chain standards and best practices."[552]

"Mott has a Bachelor of science in mathematics from the University of Arkansas, Fayetteville."[552]

Randall, therefore, is an incredible experienced CIO with over 36 years of various corporate experiences and is a mathematician of profession.

v.   CIO: Nicholas J Smither, Ford[553]

Nicholas's full title is "Group Vice-President and Chief Information Officer of Ford Motor Co."[553] He served in this position since 1 April 2008.[554]

Previously Nicholas "served as the Chief Information Officer and Vice-President of Ford Motor Co., from 21 April 2006 to April 2008. He served as an Executive Director of Global Information Technology Business Operations of Ford Motor Co. He joined Ford in 1980, and served as an Engineer in Product Development for Ford of Europe, and also served as a Systems Analyst and held a variety of management positions in Product Development, Finance and Marketing and Sales of Information Technology since 1983."[554]

Nicholas has a Bachelor's degree in engineering from Loughborough University, as well a Master's degree in Advanced Automotive Engineering from the same university.

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[553] Ford. http://corporate.ford.com/our-company/governance-hub/ford-officers-802p?releaseId=1244756878843 (visited 11 June 2014)
[554] Businessweek. http://investing.businessweek.com/research/stocks/people/person.asp?personId=26916002&ticker=F (visited 11 June 2014)

Nicholas, therefore, is a CIO that worked his way up the corporate ladder within Ford, and has over 44 years' worth of in-house experience, and is an engineer by profession.

5.2.4.2.2   *CVs of CIOs of well-known international universities*

i.   *CIO: John Charles, MIT[555]*

John's full title is "Vice-President for Information Systems and Technology"[555] of MIT, since 1 January 2014.[556] "The Vice-President for Information Systems and Technology (IS&T) is responsible for leading the IS&T organization in implementing a shared technology vision crafted together with faculty, staff, and students in support of MIT's education, research, and administrative programs."[555]

"Prior to joining MIT, John served as the Senior Advisor for Strategic IT Initiatives at the California State University (CSU) Office of the Chancellor."[555] "This appointment followed a two-year transitional role as the Chief Operating Officer (COO) for the Corporation for Education Network Initiatives in California (CENIC)."[555] "Prior to CENIC, John served as Chief Information Officer (CIO) at California State University."[555] "Prior to moving to California, John served as an IT director at Harvard University."[555] "His career as a user, manager, and student of information technology also included several years of experience planning and implementing shared technology infrastructures within the Department of Defense, plus three years of teaching experience as a member of the engineering faculty at the U.S. Military Academy, West Point."[555]

John "received his *BSc in engineering science* and mechanics, and his *MSc in engineering science, computer science and applied mathematics* from the University of Florida."[557]

John, therefore, is a CIO with a vast amount of experience within field of tertiary institutions and he is a computer science engineer by profession.

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[555] MIT. http://orgchart.mit.edu/node/161/biography (visited 11 June 2014)
[556] MIT. http://libraries.mit.edu/mithistory/institute/offices/mit-information-services-and-technology/ (visited 16 June 2014)
[557] MIT. http://orgchart.mit.edu/node/161/biography (visited 11 June 2014) (italics to emphasise)

ii.   CIO: Anne Margulies, Harvard University[558]

Anne's actual title is that of "University Chief Information Officer at Harvard"[559], and she has been in this position since September 2010.[560] She is mainly responsible for "technology plans, policies, and services that support the University's mission of teaching, learning, and research. In addition to her institution-wide technology planning and coordination role, Anne directly oversees Harvard University Information Technology (HUIT), which provides IT services to 30,000 educators, students, and staff."[559]

"Before returning to Harvard—she had been Assistant Provost and Executive Director of Information Systems in the late 1990s—Anne was Assistant Secretary for Information Technology and CIO for the Commonwealth of Massachusetts."[559] "Prior to her service with the Commonwealth, Anne was founding Executive Director of MIT OpenCourseWare, MIT's internationally acclaimed initiative to publish the teaching materials for their entire curriculum openly and freely over the Internet. She was the founding Chair of the OCWConsortium, an international organization comprising 300 universities around the world working together to share educational materials. Anne's career started in systems support and marketing at AT&T"[559]

"Anne has been recognized for her IT leadership accomplishments. In 2009, she was a finalist for CIO of the Year Award given by the Massachusetts Technology Leadership Council. Massachusetts Governor Deval Patrick selected her as the sole Massachusetts state government nominee for the National Leadership in Public Service Award. In 2010, she was selected as one of the Top 25 Doers, Dreamers, and Drivers by Government Technology."[559]

"Margulies received her B.A. from the State University of New York at Plattsburgh."[561]

Anne, therefore, is a CIO with a vast and diverse experience record, with over 26 years of experience, and an Arts Major as the origin for her profession.

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[558] Harvard. http://huit.harvard.edu/pages/about (visited 12 June 2014)
[559] Harvard. http://huit.harvard.edu/pages/anne-margulies (visited 16 June 2014)
[560] Harvard. http://news.harvard.edu/gazette/story/2010/07/harvard-university-appoints-anne-h-margulies-as-chief-information-officer/ (visited 16 June 2014)
[561] Government Technology. http://www.govtech.com/policy-management/Massachusetts-CIO-Anne-Margulies-Starts-Tuesday.html (visited 16 June 2014)

iii.   CIO: Mike Russel, Imperial College London[562]

"Russell is the Imperial College CIO … with responsibility for the ICT organisation and services."[562] He has been in this position since 11 November 2013.[563]

"Mike was previously at the international consulting engineering firm, Atkins."[562] "Mike was Atkins CIO from 2008, responsible for strategic direction and delivery of IT services to Atkins internationally."[562] "Mike's early career was with EMI Electronics as an electronic engineer designing and implementing instrumentation and computer control systems in the offshore oil and gas industry."[562]

Mike "holds a BSc in *Electrical & Electronic Engineering* from Nottingham University, an MSc in Physical Instrumentation."[564]

Mike, therefore, has gained his experience in the private sector and is a CIO with an Engineering profession.

iv.   CIO: Prof Anne Trefethen, University of Oxford[565]

The full title of Anne's position is "Chief Information Officer and Fellow of St Cross College."[565] Anne has been in this position since 1 March 2012.[566] Anne "will be taking forward the work that she has been overseeing as ICT Central Coordination Programme lead since July 2011, through to completion of the transition to the new department. In her new role, she will have responsibility for the management and future development of the new integrated central ICT department, and will also take forward the development of policy and strategy for ICT across Oxford."[566]

"Before coming to Oxford in 2005, Anne Trefethen was a Director of the UK e-Science Core Programme and, before this, she worked at NAG (Numerical Algorithms Group) in both management and technical roles. She has spent ten years in the US at Thinking Machines Corp and at the Theory Centre, Cornell University, in leadership roles."[566]

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[562] Imperial College.
http://www.imperial.ac.uk/AP/faces/pages/read/Home.jsp?person=mike.russell&_adf.ctrl-state=aaturrwp8_3&_afrRedirect=537303297756923 (visited 14 June 2010)
[563] Imperial College. http://wwwf.imperial.ac.uk/blog/announcements/2013/11/ (visited 14 June 2014)
[564] Imperial College.
http://www.imperial.ac.uk/AP/faces/pages/read/Home.jsp?person=mike.russell&_adf.ctrl-state=aaturrwp8_3&_afrRedirect=537303297756923 (visited 14 June 2010) (italics to emphasis)
[565] University of Oxford. http://www.ox.ac.uk/about/organisation/university-officers (visited 14 June 2014)
[566] University of Oxford. http://www.ox.ac.uk/staff/news/appointment_of_cio.html (visited 14 June 2014)

"In academia, she has been a researcher and educator as well as administrator. She was a researcher in parallel computing at the Cornell Theory Centre, one of the NSF four USA national HPC facilities; where she later became the Associate Director for Computational Support and Software and developed online educational courses and technology."[567]

Anne, therefore, has over 25 years of experience, and as a CIO she gathered her experience in the industry as well as academia and has a computational science profession.

v.   CIO: Bill Clebsch, Stanford University[568]

Bill's full title is that of Associate Vice President for IT Services at Stanford since 2009.[568] "He holds university-wide responsibility for Stanford's data center planning and operations; research computing; network and communication services; infrastructure applications; desktop and mobility support; call center services; and help desk support."[568]

"Bill came to Stanford in 1986 for the project that implemented the campus-wide voice and data network. After holding several positions of increasing responsibility in IT, Bill assumed the leadership role for the central IT organization in 2006."[568]

"Bill has spoken at numerous conferences worldwide on topics such as Talent Development, Next Generation Data Centers, Green IT, Management by Metrics, Continuous Improvement Organizations, and Future Trends in Technology. He has written articles on these subjects, and his article, 'Management by Fact: Deep Benchmarking', received the 2006 Educause Award for Outstanding Contribution."[568]

"He holds a Bachelor of Arts from Stanford University, an MBA from San Francisco State University."[568]

Bill, therefore, is a CIO who has worked himself up the ranks within Stanford University, and has over 28 years of experience within IT. His undergraduate studies are within the Arts, but he obtained a business degree later in his career.

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[567] ICRI. http://www.icri2014.eu/speakers/anne-trefethen (visited 14 June 2014)
[568] Stanford. https://businessaffairs.stanford.edu/people/bill-clebsch (visited 14 June 2014)

5.2.4.2.3   CVs of CIOs of successful companies in South Africa

i.   CIO: Mike Henry, BHP Billiton[569]

Mike is the equivalent of a CIO of the BHP Billiton global company, and his full title is "President, HSE, Marketing & Technology"[569], since May 2013.

"Mike joined the Group in 2003"[569] and prior to being appointed in this position "he was Chief Marketing Officer."[569] "Mike's earlier career with BHP Billiton included various business development and marketing roles, including Marketing Director for Petroleum, Marketing Director for Energy Coal & Freight and Vice President Business Development for the Energy Coal Customer Sector Group. Prior to joining BHP Billiton, Mike worked for Mitsubishi Corporation where he held a number of commercial roles."[569]

Mike is a CIO with a BSc (Chemistry) degree and has been part of the IT community for over 20 years.

ii.   CIO: Johan Swartz, SAB Miller[570]

Johan is the CIO and IT Executive of SABMiller, since June 2003.[571] He has positioned "various senior executive roles in IT and business transformation leadership."[571] He has "5 years in IT management and executive roles followed by 8 years as a CIO (at regional level) in SABMiller, and 2 years at SASOL in Business and IT Transformation leadership roles."[571]

He has been with SABMiller since 1994 and has therefore over 20 years of experience in the corporate sector.

iii.   CIO: Jyoti A Desai, MTN Group[572]

Jyoti's formal title is "Group Chief Technology and Information Officer of MTN Group Limited."[572]

"Jyoti started her career at The Standard Bank of SA Limited. She moved to Telkom SA in an executive position before joining MTN Nigeria as chief information officer. She then moved

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[569] BHP Billiton. http://www.bhpbilliton.com/home/aboutus/leadership/Pages/default.aspx (visited 14 June 2014)

[570] Bloomberg. http://www.bloomberg.com/apps/news?pid=newsarchive&sid=atrbORz87hUA (visited 14 June 2014)

[571] LinkedIn. http://www.linkedin.com/pub/johan-swartz/6/89a/869 (visited 14 June 2014)

[572] MTN. https://www.mtn.com/MTNGROUP/About/MTNExecutiveMembers/Pages/JADesai.aspx (visited 15 June 2014)

to Iran in 2005 to start up the Iran operation as COO of MTN Irancell before taking up her current role."[572]

Jyoti has a BA (Hons) BCom degree and is a CIO with corporate experience.

iv.   CIO: Andreij Horn, Media24[573]

Andreij's title is Group CIO of Media24, and he has been in this position since January 2014.[574] Andreij mainly assists the divisional CEO and is responsible for Big Data, group-wide SAP ERP platform, Infrastructure, and Architecture.[574]

Prior to this position he has been with Media24 from 2008 to 2011 and after that, he was the CEO of On the Dot, a media distribution company from 2011 to 2013.[574] He started his career in 2000 establishing an e-procurement company that sourced services to Naspers.[574]

Andreij has a Master's degree from the University of the Free State, and a MBA from the University of Cape Town.[574]

Andreij is, therefore, a CIO with corporate experience and a business degree.

v.   CIO: Rose Keanly, Old Mutual[575]

"Rose is Managing Director of OMEM (Old Mutual Emerging Markets) Customer Service & Technology (CST)"[575]

"Rose started her career at Old Mutual in Information Technology in 1980 and later transferred to Group Schemes during the merger with Colonial Mutual. She was then seconded to Old Mutual International (OMI) in the United Kingdom during 1997, where she progressed to Joint Managing Director of OMI."[575]

"Rose returned to South Africa and was responsible for the launch of the Masthead Distribution business in 2004. She then joined Old Mutual Service Technology and Administration (OMSTA) to drive the transformation of service and operational processes using Lean methodology. In August 2006, she was appointed Managing Director of OMSTA, responsible for leading the Service, Technology and Administration businesses of Old Mutual South Africa."[575]

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[573] Media24. http://www.media24.co.za/en/company-information/management-team.html (visited 15 June 2014)

[574] LinkedIn. http://www.linkedin.com/pub/andreij-horn/76/5bb/710 (visited 15 June 2014)

[575] Old Mutual. https://www.oldmutual.co.za/about-us/executive-management-sa.aspx (visited 15 June 2014)

"The creation of Old Mutual Emerging Markets Customer Service & Technology (OMEM CST) in January 2014 saw the joining of OMSTA and the OMEM IT business to partner and better enable an integrated operations, customer service and IT structure for all businesses and countries in OMEM. Apart from providing strategic and operational customer service, operations and technology, Rose is also responsible for driving ownership of IT and operations across OMEM to set best practice, provide thought leadership and reduce cost and risk."[575]

"Rose was born in Cape Town and obtained a B.Sc and B.Com (Honours) from the University of Cape Town."[575]

Rose has over 34 years of experience within Old Mutual and most of her experience lies within IT.

5.2.4.2.4   CVs of CIOs of well-known South African universities

   i.   CIO: Izak Janse van Rensburg, University of Cape Town[576]

Izak's formal title is "Executive Director: Information and Communication Technology Services (ICTS)"[576] and he "joined UCT as executive director of Information and Communication Technology (ICT) on 1 February 2009."[576] "Prior to his appointment Janse van Rensburg was director of ICT at the University of the Free State (UFS)."[576]

Izak "holds an MBA from UFS, and has more than 25 years' experience in the ICT sector. He spent 22 years in the private sector, during which time he built a private business that was sold to a JSE-listed company in 1998."[576]

Izak is a computer technician by trade and obtained a business degree later in his career.

   ii.   CIO: Prof Antonie de Klerk, University of Pretoria[577]

Antonie's professional title is "Executive Director: Infrastructure and Sport"[577], and he is in this position since 2002.

"Prof De Klerk joined the University of Pretoria from industry in 1992 as professor and incumbent of the Chair of Engineering Management in the Faculty of Engineering. He established the Department of Engineering and Technology Management at the University, and was appointed as the first head of the department. He thereafter became Director of the

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[576] UCT. http://www.uct.ac.za/about/management/execdirectors/ (visited 15 June 2014)
[577] UP. http://web.up.ac.za/default.asp?ipkCategoryID=15 (visited 15 June 2014)

Graduate School of Management at the University. Prof De Klerk was also the founding managing director of CE at UP (Pty) Ltd, a company owned by the University of Pretoria which provides continuing education."[577]

Antonie "obtained a BEng and MEng degree from the University of Pretoria, and a PhD from Stanford University."[577]

Antonie, therefore, is an engineer by profession and has over 28 years of experience in IT in higher education.

iii. CIO: Helmi Dreijer, University of Stellenbosch[578]

Helmi's formal title is the Senior Director: Information Technology at the University of Stellenbosch. "The Senior Director is responsible overall for the effective employment of information technology and systems in support of teaching and learning, research, community outreach and management functions at the university."[578]

"With twenty five years of experience in the IT industry, mainly in the higher education sector, he has a good insight into IT trends, how to position IT as an enabler for institutional transformation, how to manage technology and how to ensure that the necessary IT governance processes are in place."[578]

Helmi holds a degree in Electrical Engineering, a Master's degree in Industrial Engineering and an MBA from Stellenbosch University.

Helmi, therefore, has over 25 years of experience as a CIO and is an engineer by profession.

iv. CIO: Lungi Sangqu, University of South Africa[579]

Lungi's formal title is Executive Director of ICT at UNISA.[579] "In 1994, Sangqu led the amalgamation of the social pension systems of the former Transkei, Ciskei, and parts of the Republic, and then joined the Department of Social Services as a deputy director responsible for the processing of monthly payments to about 630 000 pensioners. She returned to IT when she moved to Gauteng and held senior positions at the SA Post Office, the State IT Agency, the SA Reserve Bank and DHL before joining Unisa."[580] She is also is "responsible for the

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[578] SUN. http://blogs.sun.ac.za/it/about-2/directorate/ (visited 15 June 2014)
[579] UNISA. http://www.unisa.ac.za/Default.asp?Cmd=ViewContent&ContentID=10890 (visited 15 June 2014)
[580] ITWEB. http://www.itweb.co.za/index.php?option=com_djcatalog2&view=item&id=1162:lungi-sangqu&cid=9:education (visited 15 June 2014)

provision of all ICT services for Unisa, which is no small order given the size of the institution and its commitment to offering true open distance learning."[580]

"Lungi Sangqu graduated from the University of the Transkei with a degree in Computer Science, Mathematics, and Chemistry. She also holds a Master of Business Leadership from Unisa."[580]

Lungi is a versatile CIO that has a corporate as well as a higher education background within IT. Her profession is within the Mathematical Sciences.

v.   CIO: Andile Swartbooi, University of Johannesburg[581]

Andile's formal title is "Executive Director: Information & Communication Systems at the University of Johannesburg."

"With over 25 years of experience in the IT industry, Swartbooi has held various executive positions in the financial services industry, including Sanlam s Head of Software Development and GM of Software Development Support for Absa Group. He was also Director of Computer and Network Services at the University of the Witwatersrand."[582]

Andile holds a "B.Sc Computer Science degree from the University of Fort Hare, and a Master's degree in Information and Knowledge Management from the University of Stellenbosch."[582]

Andile is, therefore, a versatile CIO with a diverse background in the corporate sector as well as the tertiary environment. He has over 25 years of experience and is a computer scientist by profession.

5.2.5 Contribution of a CIO's expertise to decision-making models

"Executives' skills and characteristics are the driving forces that link management strategic decisions and organizational performance."[583] This is a very important statement made by Khallaf *et al*. for it provides an extremely evident link from the essential expertise of a CIO to

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[581] UJ. http://www.uj.ac.za/en/aboutuj/executiveleadershipgroup/pages/executivedirectors.aspx (visited 16 June 2014)
[582] Brainstorm.
http://www.brainstormmag.co.za/index.php?option=com_djcatalog2&view=item&id=1313:andile-swartbooi&cid=9:education (visited 16 June 2014)
[583] Khallaf, A. & Majdalawieh, M. 2012, 58. Investigating the Impact of CIO Competencies on IT Security Performance of the U.S. Federal Government Agencies.

the *quality* of the decision-making models that provide the organisation with trustworthy results.

The previous section (5.2.4) is summarised in Table 6 (below) to emphasise the vast amount of experience the average CIO has. This summary accentuate the fact that when CIOs make decisions, they make it in their entirety including their experience and skills gathered over an average of 28 years in this case.

Table 6 – Summary of CIO experience case study

Major	Amount CIOs	Average Years Experience
Engineering	7	32
Science	7	29
Arts	2	26
Business	4	26
	20 CIOs	**Average 28.25 years experience**

Weiss *et al*. emphasises the need that "aspiring IT leaders see the key to achieving leadership roles as the ability to link technology to business goals and people management activities. They want to be seen as business and organizational leaders, not necessarily technology leaders. This is a profound shift that has implications for hiring technology professionals who can develop the soft skills necessary to lead at the strategic level, employing IT services and tools for business success."[584] Weiss *et al*. provide us here with an obvious and direct link between IT leaders as technology professionals moving towards an executive IT professional whose expertise improve and underlines strategic enterprise decision making. Because of the exposure to business strategies and decision making, it is evident that the influence of the expertise of a CIO directly improves the *quality* of the decision-making models and methods used (as portrayed in Chapter 3) when making decisions.

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[584] Weiss, J.W. & Adams, S.M. 2011. 16. Aspiring and Changing Roles of Technology Leadership: An Exploratory Study.

Taking the models in the previous section (5.1.4) and embedding the experience and expertise of CIOs into it (see Figure 48 to Figure 51) will indicate a contribution towards the models in Chapter 3. This enhances the quality and excellence when determining the value of these external factors within the decision-making models infused with sense-making principles.
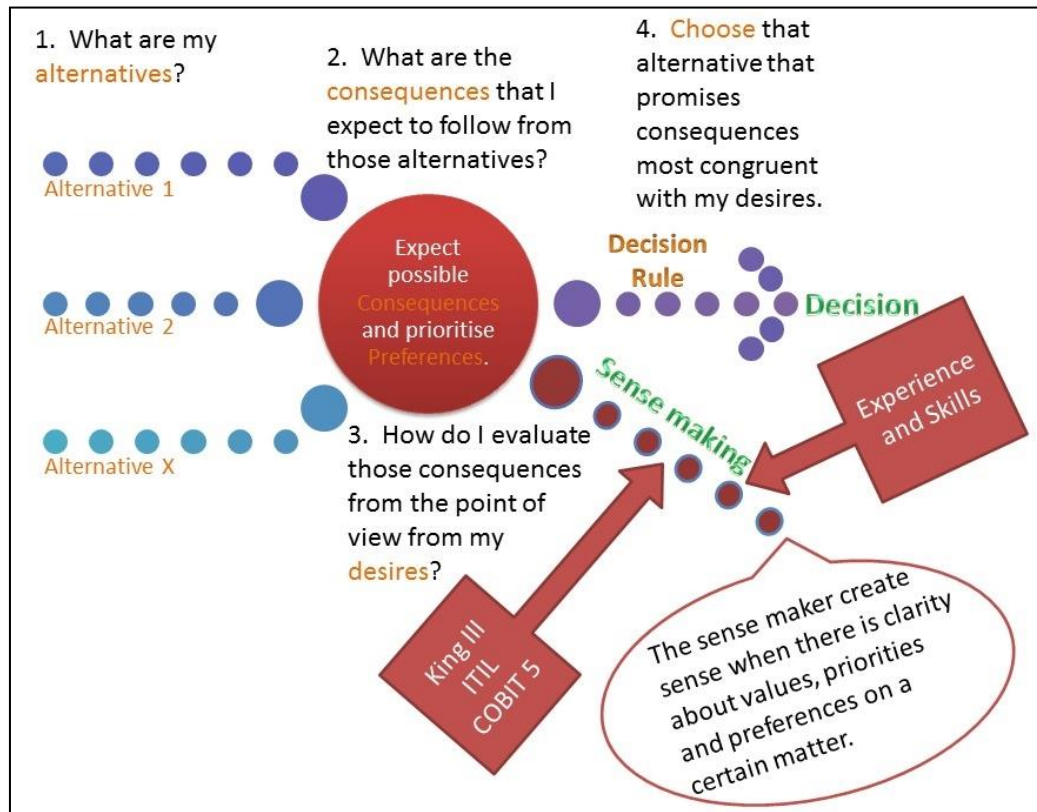

Figure 48 – March & Weick: Contribution of governance frameworks and CIOs' experience and skills on retrospective decision making[585]

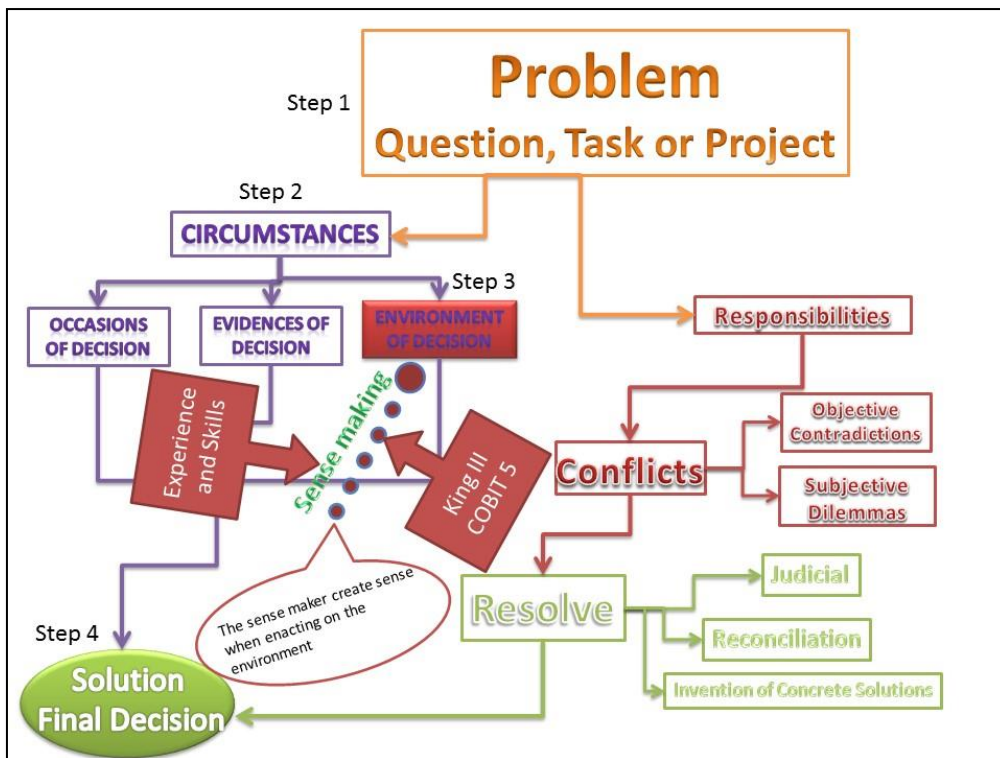[585] Figure 48 to Figure 51 © Ilse de Kock, 17 November 2017

Figure 49 – Barnard & Weick: Contribution of governance frameworks and CIOs' experience and skills on Barnard's decision-making model[585]
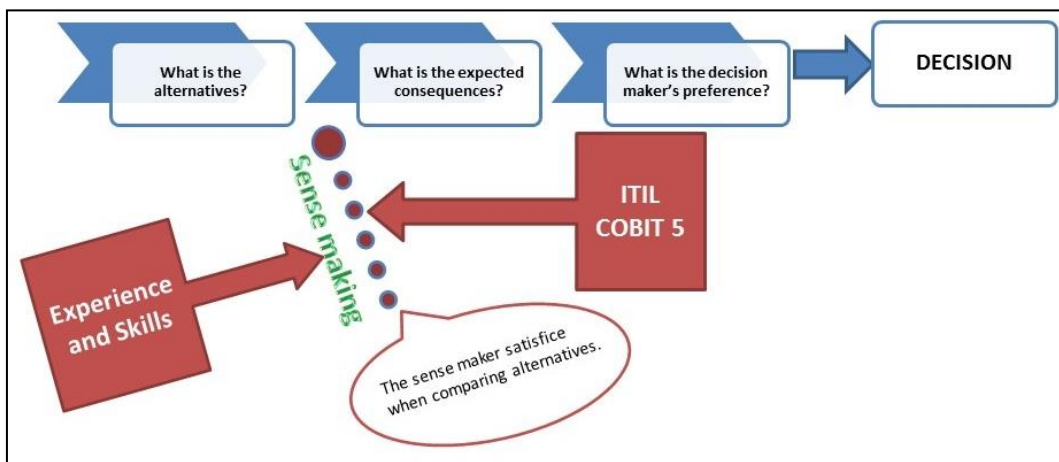

Figure 50 – March & Weick: Contribution of governance frameworks and CIOs' experience and skills within a social decision-making process[585]
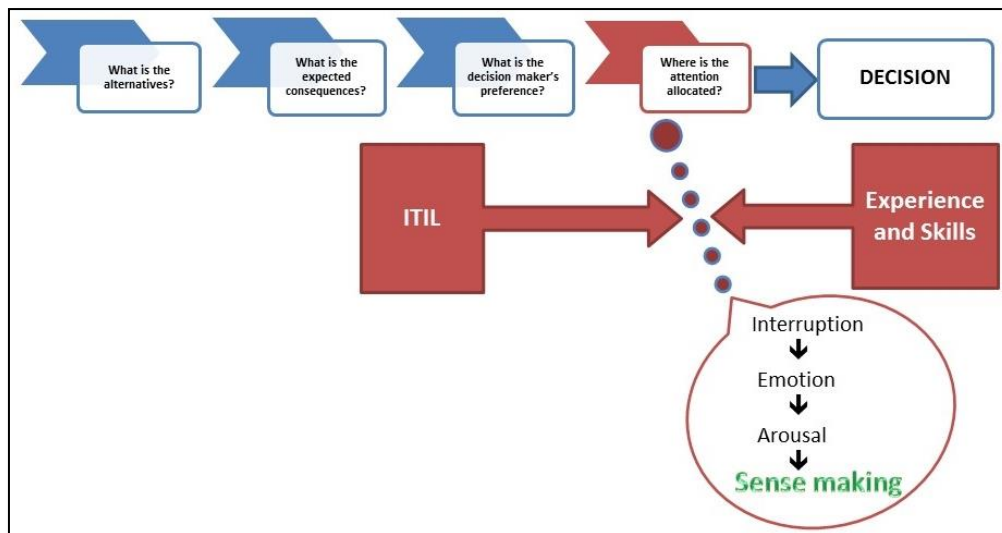
Figure 51 – March & Weick: Contribution of governance frameworks and CIOs' experience and skills within an ongoing decision-making process[585]

In conclusion, the CIOs in this case study can be unpacked into two groups. The one group include those CIOs that came through the ranks and moved up the corporate ladder from the start of their professional career. The other group of CIOs has managed to obtain a vast amount of experience within the corporate world and made that the basis of their career in order to contribute to these success stories of the above mentioned companies and universities. With this above mentioned statements and the CVs of the CIOs portrayed in the previous section, it is evident that high ranked companies and universities' CIOs have vast amounts of experience. It is also evident that the expertise of the CIO, either from outside the company or inside, have an enormous effect on their management skills, and that includes their decision-making skills.

5.3   Gartner's view on CIOs' decision-making processes in higher education

In order to penetrate further into the decision-making skills and quality of CIOs, it will be worth while to add the opinion of one of the world's leaders on information technology analysts. "Gartner is the world's leading information technology research and advisory company. They deliver the technology-related insight necessary for their clients to make the right decisions. From CIOs and senior IT leaders in corporations and government agencies to

business leaders in high-tech and telecom enterprises and professional services firms, to technology investors, they are the valuable partner to clients in 12400 distinct organizations. Through the resources of Gartner Research, research, analyse and interpret the business of IT within the context of their individual role. Founded in 1979, Gartner is headquartered in Stamford, Connecticut, USA, and has 5300 associates, including 1280 research analysts and consultants, and clients in 85 countries." [586]

According to research done by Gartner, "the main problem in higher education governance is usually the lack of time the academic stakeholders are prepared to spend on decisions about IT and their relative inexperience in making concrete decisions at all."[587] This conclusion is based on the most frequent question asked by higher education CIOs, which is: "How to get IT governance going (and sustain it)?"[588] Gartner states that there is, in fact, no shortage of advice, best practices, and governance frameworks, but few institutions can gather the enthusiasm needed to implement and sustain such a framework. Many institutions find that these frameworks has been developed in the corporate domain, and is seldom a perfect fit for higher education.

Gartner proposes a solution where the institution has a "grand-enough vision (full picture) of the needed components, know which end to start with, be patient and dare to keep it simple."[587] They "offer a simple, tangible way to get started through [a basic] three-layered service portfolio (see Figure 52) approach, aligned with an embryo of an example governance framework that is the first step in building the five pillars of the higher education governance ecosystem."[587] They, however, emphasise that the key to this ecosystem is not the individual pieces; but how these pieces fit together.

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[586] Gartner. http://www.gartner.com/technology/about.jsp. (visited 21 April 2013).

[587] Gartner. 18 June 2010, 3.
http://my.gartner.com/portal/server.pt?open=512&objID=260&mode=2&PageID=3460702&resId=1388119&ref=QuickSearch&sthkw=Decision+making+in+Higher+Education (visited 17 March 2013). Concrete Governance in Higher Education.

[588] Gartner. 18 June 2010, 2.
http://my.gartner.com/portal/server.pt?open=512&objID=260&mode=2&PageID=3460702&resId=1388119&ref=QuickSearch&sthkw=Decision+making+in+Higher+Education (visited 17 March 2013). Concrete Governance in Higher Education.

5.3.1 Gartner's boundaries on decision discussions

Gartner states that "a very specific problem in IT governance in higher education is: 'What shall be governed?' for frequently IT governance discussions tend to be high-level … about the importance of IT, in supporting the missions of the institution, but with low-level … guidance on which IT to prioritize with the limited funds available."[587] Gartner states that in order to overcome this problem, IT Managers has to use the "service concept"[587], where IT Managers define IT as a Service (ITaaS), and "have a price/performance dialogue with the stakeholders that IT services introduce."[587] However, Gartner states that ITaaS defined with a cost is not enough, and IT Managers need to provide "a full picture of all services at all stages to enable an informed prioritization leading to an optimized yield of the institution's IT resources."[587]

5.3.2 The three-layered portfolio providing the full picture

In order for CIOs to provide their institution with the full picture on how IT decisions can be aligned with the mission of the institution, it is recommended by Gartner that CIOs use the three-layered portfolio model which consists of "three interrelated service-oriented portfolios: the project portfolio, the services portfolio and the service catalog (see Figure 52)."[589] "The key goal of the simple, three-layered portfolio approach is to create a tangible, comprehendible and comprehensible framework in which enough data is available to make timely, informed priority decisions."[590]

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[589] Gartner. 18 June 2010, 3.
http://my.gartner.com/portal/server.pt?open=512&objID=260&mode=2&PageID=3460702&resId=1388119&ref=QuickSearch&sthkw=Decision+making+in+Higher+Education (visited 17 March 2013). Concrete Governance in Higher Education.
[590] Gartner. 18 June 2010, 9.
http://my.gartner.com/portal/server.pt?open=512&objID=260&mode=2&PageID=3460702&resId=1388119&ref=QuickSearch&sthkw=Decision+making+in+Higher+Education (visited 17 March 2013). Concrete Governance in Higher Education.

Figure 52 – The three-layered portfolio framework helps to manage and market the IT organization's deliverables[589]

The Service Portfolio is the centrepiece, and the main goal thereof is "to manage the full service level and cost of existing IT services at the institution."[591] The Service Portfolio fulfils three criteria:[592]

- "Define the services the way end users consume them—in order for stakeholders to understand the value they provide."[592]

- "Show the full cost for providing the service to the institution—this includes hardware, software, services as well as indirect costs such as management and facilities. It is also very important to include the cost of the internal personnel, for this is the most difficult component to change."[592]

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[591] Gartner. 18 June 2010, 4.
http://my.gartner.com/portal/server.pt?open=512&objID=260&mode=2&PageID=3460702&resId=1388119&ref=QuickSearch&sthkw=Decision+making+in+Higher+Education (visited 17 March 2013). Concrete Governance in Higher Education.
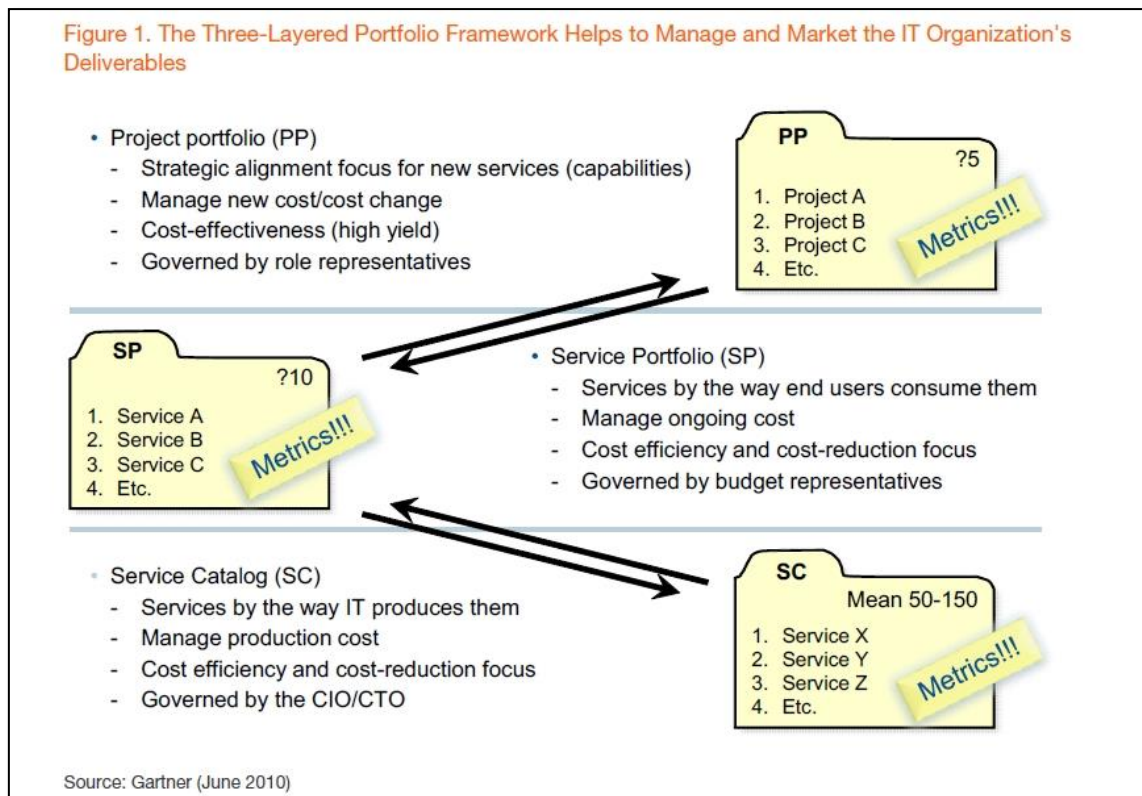[592] Gartner. 18 June 2010, 4 – 5.
http://my.gartner.com/portal/server.pt?open=512&objID=260&mode=2&PageID=3460702&resId=1388119&ref=QuickSearch&sthkw=Decision+making+in+Higher+Education (visited 17 March 2013). Concrete Governance in Higher Education.

- "Never have more services than can be comfortably overviewed on a page—ideally ten or fewer, for the idea is that decision makers should be able to grasp very quickly the full extent of the data."[592]

The configuration of the service portfolio would make the most sense if it were based on the "business areas" within the institution, such as research education and administration.

The second part of the trilogy is the Project Portfolio, and the main goal is "to manage the introduction of new (or, more correctly, changed) service levels (capabilities) and the cost of IT services at the institution."[593] The Project Portfolio fulfils three criteria:[594]

- "Define the projects by the way they contribute to the institutional priorities"—match the projects to the institution's existing strategic documents, and do not use technical language.
- "Show the full cost of the project, including changes to the ongoing costs in the service portfolio"—the stakeholders need to understand the ongoing cost associated with the new project.
- "Never have more projects than can be comfortably overviewed on a page"—ideally five or fewer.

The final piece in this trilogy is the Service Catalog, and the main goal is "to manage the sourcing and production costs of the IT services at the institution." [595] The Service Catalog also fulfils three criteria:[595]

- "Define the services by the way the IT organizations produce them"[595]—use standard service-level agreements or operating-level agreements because the catalogue is aimed at IT professionals.

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[593] Gartner. 18 June 2010, 5.
http://my.gartner.com/portal/server.pt?open=512&objID=260&mode=2&PageID=3460702&resId=1388119&ref=QuickSearch&sthkw=Decision+making+in+Higher+Education (visited 17 March 2013). Concrete Governance in Higher Education.
[594] Gartner. 18 June 2010, 5 – 6.
http://my.gartner.com/portal/server.pt?open=512&objID=260&mode=2&PageID=3460702&resId=1388119&ref=QuickSearch&sthkw=Decision+making+in+Higher+Education (visited 17 March 2013). Concrete Governance in Higher Education.
[595] Gartner. 18 June 2010, 6.
http://my.gartner.com/portal/server.pt?open=512&objID=260&mode=2&PageID=3460702&resId=1388119&ref=QuickSearch&sthkw=Decision+making+in+Higher+Education (visited 17 March 2013). Concrete Governance in Higher Education.

- "Show the full cost for each service"[595]—the cost model needs to be aligned with the services in the service portfolio.

- "List all discrete services needed to deliver the agreed capabilities in the service portfolio"[595]—a typical range would be between fifty and hundred-and-fifty because the number of services portrays the function of the design of the IT organisation.

5.3.3 How the three layered portfolio relate to decision making

According to Gartner the real power of the three-portfolio framework lies in how it ties the decision maker and the decision making together. The goal is transparency, combined with simple logic enabling sustainable decisions.[595] Gartner states that the implementation of this framework would depend on "history, culture and people chemistry,"[595] but should be applicable to most institutions; for the institution should be able to simplify the framework relative to their environment.

Gartner provides an example (see Figure 53) of a mid-sized, decentralised, research institution[596], where "money is a fundamental resource constraint that has to be dealt with in all prioritization decisions"[597], therefore creating a foundation with a logical chain ("red thread"), which is the glue that ties the whole structure together. Funding provides the basis for all sustainable decisions because it attracts all the key decision makers and increases the likelihood of a sustainable decision.

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[596] Gartner. 18 June 2010, 7.
http://my.gartner.com/portal/server.pt?open=512&objID=260&mode=2&PageID=3460702&resId=1388119&ref=QuickSearch&sthkw=Decision+making+in+Higher+Education (visited 17 March 2013). Concrete Governance in Higher Education. "The institution has about 30 000 students and 3000 employees, with at least 30% of funding through individual research grants."
[597] Gartner. 18 June 2010, 7.
http://my.gartner.com/portal/server.pt?open=512&objID=260&mode=2&PageID=3460702&resId=1388119&ref=QuickSearch&sthkw=Decision+making+in+Higher+Education (visited 17 March 2013). Concrete Governance in Higher Education.

Figure 53 – Cost is key in the tree-portfolio-based "Red Thread" governance framework[596598]

IT Managers, (or in this example, CIOs), experience "tension between spending on common services, … and local investment in teaching and research."[599] The three-layered portfolio framework provides IT Managers with a two governance body structure to represent the two different funding streams;[599]

- A governance body for the project portfolio with direct mandate and funding from the president/senior management team. In Figure 53, labelled the "IT board", there to manage strategic issues, representing roles within the institution.

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[598] In this figure, the term CIO is equal to the term IT Manager used in this thesis. In the figure, the titles of "Manager Local IT", is the view of a decentralised institution where there are decentralised IT Managers in the various Faculties.

[599] Gartner. 18 June 2010, 8.
http://my.gartner.com/portal/server.pt?open=512&objID=260&mode=2&PageID=3460702&resId=1388119&ref=QuickSearch&sthkw=Decision+making+in+Higher+Education (visited 17 March 2013). Concrete Governance in Higher Education.
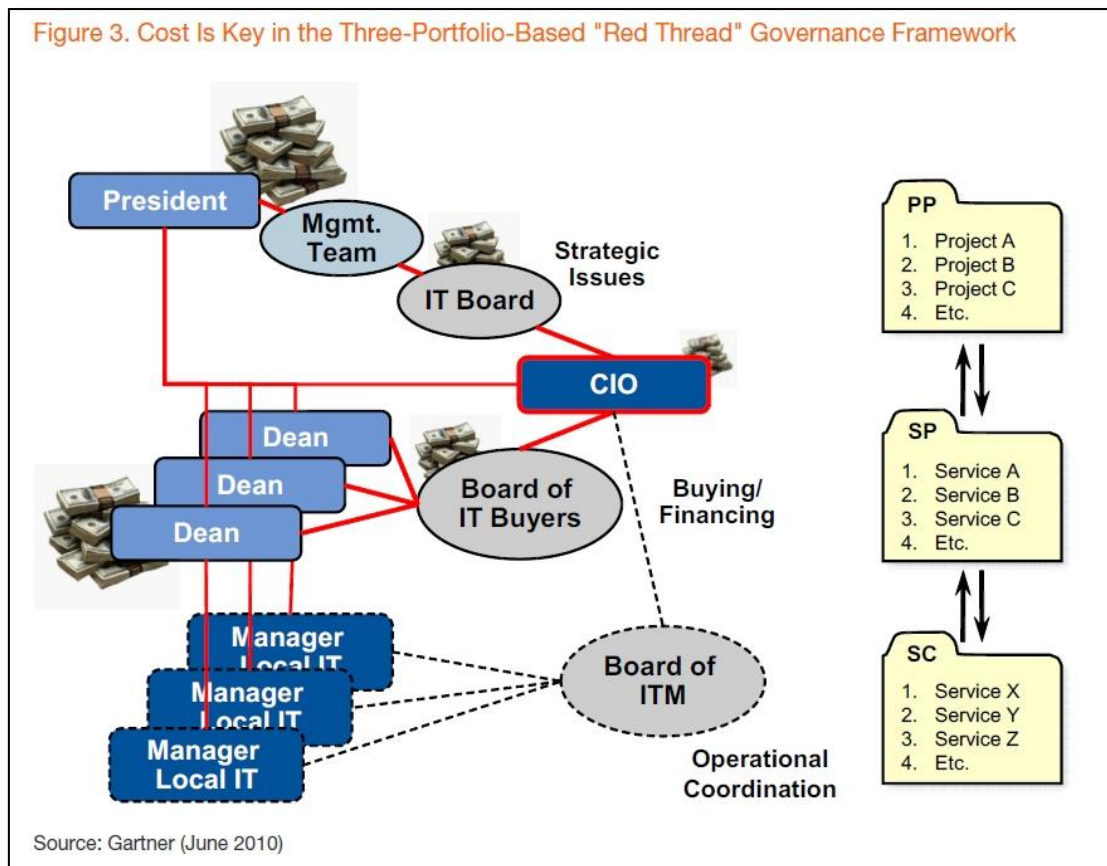
- A governance body for the service portfolio with direct mandate and funding from the deans/heads of units. In Figure 53, labelled the "IT buyers board", there to represent the major budget units, such as faculty, school or departments, within the institution.

The IT buying board plays a crucial role in the sense that they negotiate and agree on the service levels and the funding mechanisms for the service portfolio. They are responsible to make the most important decisions, and that is to "accept the cost and funding mechanism for the service portfolio at the end of each yearly budget cycle."[599] The role of the IT board, on the other hand, is "to be the forum for irresolvable conflicts [from the IT buyers' board] that need to be escalated to a 'higher' level."[599] From this it is clear that all projects and all the changes certain projects have on the service portfolio need to be accepted by the IT buyers' board. According to Gartner in this example, the role of the CIO, is to be the "linchpin …, acting as the conduit between the two boards and portfolios, [and] ultimately assuming responsibility for the delivery of the agreed outcomes at the agreed cost."[600] In order for the CIO to play this role, the service catalogue has to be the CIO's main tool.

In this three-layered framework by Gartner, the role of the CIO differs from a decentralised and centralised institution. In the former, the CIO is the chair of the IT Managers' (or Heads of Internal IT organisations) board, who manages the service catalogue, and in the latter, the service catalog is fully in the hands of the CIO.

This recommendation from Gartner is only one of a vast amount of information provided to CIOs as guidelines supporting them to make decisions in the constantly varying IT environment.

5.4   Contributions to decision making—Conclusion

This chapter has taken us through from what the IT governance frameworks entail, the role they play in decision making, through to what the role of a CIO is, and how their experience and skills contribute to their decision-making skills.

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[600] Gartner. 18 June 2010, 8 – 9.
http://my.gartner.com/portal/server.pt?open=512&objID=260&mode=2&PageID=3460702&resId=1388119&ref=QuickSearch&sthkw=Decision+making+in+Higher+Education (visited 17 March 2013). Concrete Governance in Higher Education.

Concluding as such that the existing governance frameworks that CIOs are expected to know and use, have been shown to have a significant influence on their decision making processes. It plays a substantial role in the decision-making process and contribute to the quality of the models CIOs use to make decisions.

This chapter further revealed that the experience and skills CIOs have, play an even more significant role in their management and therefore their decision making.

In the end, Gartner just highlights the findings and emphasises the fact that when CIOs make decisions, they indeed allow their attentiveness of governance frameworks and the knowledge, experience, and skills to support them greatly in making strategic and insightful decisions.

CHAPTER 6

Conclusion

"May your choices reflect your hopes, not your fears."
~ Nelson Mandela

6.1   Conclusion

This thesis focused on portraying the classic decision-making models of Chester I Barnard, Herbert A Simon and James G March. These models have been set forth in physical diagrams portraying the flow of the decision-making process in order to be used throughout the thesis. From here, the focus was shifted to the decision-making processes used in organisations, and from there even more closely to the decision-making processes used by CIOs within the IT environment.

With these decision-making models kept in mind, the basic principles of Karl E Weick's sense-making theory ware taken and infused into these above mentioned decision-making models. Clear connections are linked from the sense-making theory, directly into the decision-making theory, and embedded within the classic models of the classic decision-making theorists. Visible models of these convergent theories have been portrayed in order to clearly show the direct link between the two theories and exactly where in the decision-making process sense making takes place. From here, the focus was directed to the way individuals make decisions within organisations and portrayed the influence of it by discussing the case study of the Hawick article.

The thesis then put forth the conclusion that when CIOs make decisions, they use the traditional decision-making models as portrayed in Chapter 2, but on further research, it has been revealed that these decision-making models are indeed infused with various sense-making properties that have been portrayed in Chapter 3.

A case study has further shown that this is indeed the way senior IT executives, such as CIOs, make their decisions, and indeed uses these processes to make high-level IT decisions.

Further arguments were made in order to portray the influence of IT governance frameworks, experience, and skills of CIOs as well as advisory companies like Gartner, on the quality of these abovementioned models.

In Chapter 5, these sense making-infused models have shown to be valuable and of high quality for it could be shown that the CIOs use these models when aided by high quality IT governance frameworks, as well as their experience and skills as masters in their profession.

6.2   Answers to research questions

6.2.1 Answer to primary research question

The primary research question, "*What decision-making models do CIOs use to make decisions?*" was answered in Chapter 3, and concluded that CIOs make use of the classic decision-making models and processes as portrayed by Chester Barnard, Herbert Simon and James March. However, these models are shown to be infused with the sensemaking properties of Karl Weick and set forth the models as shown below in Figure 22 and Figure 24.

6.2.2 Answer to secondary research question

The secondary research question, "*What is the quality and value of the models and processes that CIOs use to make decisions?*" was answered in Chapter 5. The IT governance frameworks, experience and expertise of CIOs and Gartner's view was portrayed to emphasise the value it adds towards the decision-making processes and models that were shown to be used by CIOs. These value added models can be seen in Figure 48 to Figure 51

6.3   Value for research

6.3.1 Current research:

This thesis adds to the body of knowledge in creating new insight to subject areas such as Classic Decision Making, Strategic Decision Making, Bounded Rationality, Sense making, Chief Information Officer, Information Systems, Leadership, and Governance Frameworks. It also provides an insight into newly developed decision-making models used by CIOs. The research further emphasised that these models have a direct connection with sense-making theory which infused into the models converge new models that provide insight on the decision-

making processes of CIOs. The quality of these new models is directly influenced by a combination of governance frameworks and the CIO's experience and expertise.

6.3.2 Further research:

- Research the impact of the expertise of CIOs on their decision-making abilities by doing a survey or one-to-one meeting with CIOs in order to determine their experience, expertise, prior knowledge and skills to make certain decisions in certain circumstances.

- Determine how CIOs actually make decisions by monitoring and observing CIOs.

- Obtain further intensive case material on how CIOs make decisions and evaluate the process on the models established in this thesis in Chapters 2 and 3.

- Test the actual quality of the models and determine if it can be used in practice and how it would possibly be implemented.

- Further research is needed to address these findings, e.g. studies that focus on differences associated with leadership levels, such as CIOs, IT Directors, CTOs, Technology VPs.

- Case studies that include more in-depth observations and interviews could provide insight and clarification of the themes (decision-making models) discussed in this thesis.

6.4   Value for practice

Direct lines are drawn from decision-making theory to sense-making theory, and then on IT governance frameworks. Therefore, a chain is portrayed linking the influence of frameworks on IT decision making while keeping an eye on sense making's involvement within the decision-making models and concluding with the prior knowledge and expertise of CIOs.

In practice, CIOs would be able to obtain insight into their decision-making models and adhere, comply or confirm decision-making processes as well as motivate that their decisions have high quality and value. Chief information officers will also be able to compare their skills to CIOs in top companies and gather information or sharpen their knowledge on governance frameworks and confirm the role it plays in organisational decision making.

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