Creative-destructivism: A Delphi study of the current South African business environment

Abstract:

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The research will contextualise the current South African business environment, by means of a Delphi study with the results offering insight into the management of the creative-destructive environment.

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1. Introduction

Drucker (1992:95) is of the opinion that society at large rearranges and transforms itself in terms of its views, values, fundamental social and political structures and institutions every few hundred years. From a Western, and more specifically an American perspective, the current transformational period may be attributed to the post World War II era when returning American war veterans were subsidised to attend universities in the United States of America. This initiative ushered in a new society where knowledge and knowledge acquisition was (and still is) the primary economic activity and resource. The dichotomy of the new economic order is that the specialised knowledge created by the knowledge workers cannot create any products or services in isolation. The only way for the knowledge created by the knowledge workers to be productive in the sense to manufacture goods and services, is by integrating the knowledge into a task, and more specifically, organised tasks. The groupings of the organised tasks may be coined as organisations. Thus, the current knowledge society is a society of organisations with the core purpose of integrating specialised knowledge into common tasks.

It should be noted that some inference could be made about the interplay and dynamics of society and the structural representation of the specialised knowledge of the society at large. The inherent motivation to classify people and knowledge within a societal context is to create an environment of minimal disruptions, an environment that is stable and does not exhibit high levels of change. Contradictory to the efforts of the conserving institutions, i.e. society at large, "the modern organisation is a destabiliser" (Drucker, 1999:96). Thus, the impetus of the structured specialised knowledge entities, also referred to as organisations, is to create an environment of constant change. The interplay and dynamics can be summarised in the words of the economist Joseph Schumpeter as "creative destruction", i.e. the innovative process of reorganising all aspects of what may be seen as customary, known and stable. Drucker (1999:97) attributes creative-destructivism to:

- technological advancements,
- the fact that the economy is demand-driven, i.e. the market forces dictate what needs to be manufactured to satisfy the wants and needs of the society, and
- the constant evolution of how human beings, as representatives of the society and of the organisations, acquire new knowledge.

The interest in this research can be attributed to the significant impact that the advent and use of information and communication technologies (ICTs) within the society and organisations have brought about. The volume, variety and velocity of information generated by the use of ICTs, especially within the business environment, have necessitated businesses to rethink and realign structures to maintain profitability. The objective of the research is to determine what is the typical business environment in which information architecture exists, or in other words, how would you characterise the current business environment? Therefore the following formal research question were postulated:

What is the typical business environment in which information architectures exist (i.e. how would you characterise the current business environment)?

The following sections firstly delineate and elaborate on the notion of creative destructivism after which the methodology and results of the research that addressed the typical business environments in which information architecture exists, will follow.

2. Literature review

Based on the introduction, the notions of uncertainty, management of uncertainty and the concept of flexibility as new fundamental organisational constructs are investigated in terms of the business environment.

2.1 Uncertainty and the challenges facing the business environment

Wetherly and Otter (2014:23) propose that a result of the dynamic nature of the current business and societal climate is that no individual or specialised knowledge entities will ever have complete information, knowledge or fore-knowledge of how the environment will shape and change in the near future. An important inference about this lack of information and knowledge is the fact that the structured knowledge entities, i.e. the organisations, will operate in an uncertain environment. Notwithstanding the fact that the current economic climate is characterised by uncertainty, it is possible to identify various challenges that the organisations are facing within the aforesaid environment. According to a KPMG (2012) report, the modern day changes and challenges includes the following:

• globalisation,
• digital connectivity,
• accelerated consumption,
• disparate prosperity,
• ecological decline,
• lack of global sustainability and governance, and
• resource scarcity.

Tăchiciu (2015:6) calls for a better understanding of the impact of the challenges on the business environment, with specific emphasis on globalisation. Globalisation has resulted in an economic shift in balance of power from the industrialised world to an emerging market orientation. Continuous growth in the population, and more specifically a growth within the global middle class consumer, has fuelled an increase in demand for products and services. Although the current economic climate has produced numerous opportunities for the organisations, the major challenge facing the organisations is the impact of business on the environmental wellbeing and the planet's inability to satisfy the mounting need for growth. These pertinent challenges can be summarised in terms of resource scarcities, climate change and the lack of global sustainable governance to mitigate environmental decline.

Considering the numerous challenges within the business environment, Sanchis Llopis, Millán, Baptista, Burke, Parker and Thurik (2015:244) state that "as the global economy slowly emerges from the worst financial crisis in more than six decades" change management is fundamental to ensure recovery of the global economy. Reflecting on an information perspective dictating the discourse of the current economical climate and current study, the core focus of the management of a specialised knowledge entity should be on the way that information can be architected and ultimately managed to create and maintain innovative processes, products and services.

2.2 Management in a changing environment

Kanter (1982:279) defines change as the "crystallisation of new action possibilities (new policies, new behaviour, new patterns, new methodologies, new product or market ideas) based on the reconceptualised patterns in the organisation. The building blocks of change involve the design and construct of new patterns, or the reconceptualisation of old ones, to make new, and hopefully more productive actions possible". In an attempt to identify the causes of change, McCalman and Paton (1992:5) assume that change may occur as a result of environmental

disturbances (i.e. external changes), internal disturbances within the organisational structure of the business (i.e. internal changes) or by the organisation itself trying to realign or to anticipate change in the bigger business environment (i.e. proactive change). Considering and applying the information perspective, any change in the delivery, exchange or processing of information within the internal or external environment may impact greatly on the organisation.

It is evident from the definition of Kanter (1982:279) that change is a constant, ongoing process rather than a final state for the organisation. The organisation thus needs to be able to adjust and facilitate, on an ongoing basis, the processes of change. To secure the longevity and profitability of the organisation it is important for management to be flexible and be able to adapt to a changing business environment (Buhler 2014:6). Wrigley *et al*. (2016:22) define the management processes of change as a "dynamic, design driven lens [that] can create new perspectives, by looking beyond known assumptions, barriers and constraints". Considering the definitions of change and change management, it is essential to identify the elements within the organisational context that should be managed to facilitate change. Koornhof (1998) indicates that management should consider, act and manage the change as a process and function, focusing on the following elements within the organisation:
• quality,
• innovation and technology,
• product design,
• manufacturing,
• employee involvement and the empowerment of the staff,
• competition and customer satisfaction,
• management style and leadership within the organisation,
• vision and strategy of the organisation, and
• flexible, organisational structure.

Considering each of the elements it becomes evident that the quality component does not only refer to the products and services of the organisation, but the ongoing processes of positive change embedded in every product, service and activity of the organisation to ensure that quality becomes part of the organisational philosophy. The importance of change as an organisational philosophy becomes apparent if technology and innovation within the organisational context are taken into consideration. The new, dynamic, ever-changing business environment necessitates innovation as a part of the business life cycle. Thus, management is responsible to initiate innovation (in line with the Schumpeterian notion of creative-destructivism as discussed in the introduction) by means of change, i.e. changing and facilitation of a micro business environment, offering staff members a creative and innovative workspace. Part of the management of the changing business environment should focus on providing the correct tools to ensure that levels of competitiveness remain constant within the organisational context.

The aforesaid process is limited by means of cost/benefit ratios, but the cost of not keeping up with a changing technology should not be neglected. Competitive advantage in the business environment may be gained by means of a profitable product design. To achieve a profitable product design, a flexible information structure pertaining to the customers and their wants and needs should be of paramount importance. It should be noted that not only the finding of information pertaining to the customers and their needs and wants is important, but how the information flows and is architected within the organisation will be a deciding factor in the overall profitability of the organisation. Taking the customers and their wants and needs into

consideration, the management of the organisation should ensure a flexible organisational structure to negotiate any sudden change in the market environment.

Peters (1991:340) is of the opinion that the people as employees within the organisational context can no longer just be seen as another factor of production, but employees should be regarded as one of the primary sources of competitiveness. Buhler (2014:6) concurs and adds that flexibility in people management originates with a commitment to diversity. Building on the new primary source of competitiveness, management should also consider the impact of globalisation and the changing needs and wants of the customers/consumers. The concept of globalisation dictates that any product may be produced anywhere, by any organisation using resources from anywhere and selling the products and/or services to anyone, located anywhere. Based on globalisation the number of decisions faced by management in the changing business environment has grown exponentially. To negotiate the multitude of possible decisions, management needs accurate information. Furthermore, Koornhof (1998:90) is of the opinion that "management style should match the demands of the times". Thus, management should adopt their management styles according to the information obtained from the changes in the business environment. Although management must keep up with and be flexible in management style, the vision and strategy of the organisation still guide the overall activities of management. Taking the ever-changing business environment into consideration, the vision and strategy of the organisation should be unique, specific, flexible and general enough for radical and new decisions in the rapidly changing environment. Buhler (2014:8), states that "today's organisations require none other than flexibility in both planning and implementing strategy", thus emphasising the importance of flexibility in strategy. The changing business environment will result in a ripple effect in terms of a changing business strategy, necessitating a change in the organisational structure. Buhler (2014:8) is of the opinion that this organisational structure should be organic in nature to allow for a changing business environment.

Throughout the discussion of change, creative-destructivism and the management thereof, the construct of flexibility as a prominent prerequisite to ensure the longevity and viability of the organisation is pronounced. Various authors on management have recognised the importance of flexibility within the organisational context. Pasmore (1994:4) is of the opinion that the more flexible an organisation is in design and process, the better the organisation can respond to a changing business environment. Matejun (2014:154) states that flexibility is a "feature which is nowadays perceived as the key factor determining competitiveness and a competitive edge of contemporary organisations". Sushil (2015:114) concurs and adds that "the overall landscape is changing fast and in an unpredictable manner, in which only strategically flexible enterprises can hope to steer and achieve their goals in an inclusive and engaging manner". Considering the proposition that the current society is a society of information, and that information is the fundamental building block for all decisions, processes and actions in the said context, it can be inferred that the catalyst for flexibility is information.

The extent of the flexibility, information, structuring information for flexibility and the impact thereof on the organisation will be dealt with according to flexibility as a fundamental organisational construct, facilitating the creative-destructivism needed within the new business environment.

2.3 Flexibility as fundamental organisational construct

Allen (1994:1) states that for an organisation to remain competitive, the organisation needs to be aware, anticipate and adapt to the changing business environment. He extends the proposition and adds that flexibility may be regarded as inherent to the aforementioned activities. Dunford *et al.* (2013:85) acknowledge the idea of Allen (1994:1) and add that because

of the increased tendency to define the organisational environment as being dynamic in nature, flexibility fuelled by information is "being labelled as a core capability" of the organisation.

An overview of the concept of general flexibility is needed. The concept of flexibility within the modern organisational management literature is diverse and not precisely defined. Different authors propose different approaches to define the concept with one of the earliest contributors to the notion of flexibility being Hart (1937:273), who was of the opinion that flexibility is a key element of a sustainable organisation. For authors Golden and Powell (2000:373) flexibility is the capacity of the organisation to adapt. More recently Nogalski and Niewiadomski (2013:50) regard flexibility as a quality and a process within the organisation. Madhani (2013:44) states that flexibility can be regarded as a dynamic capability of the organisation through which the organisation manages change. Matejun (2014:155) concurs and adds that "the notion of flexibility is related to the ability of an organisation to quickly and easily implement changes (to adapt) in response to internal or (more often) external impulses". Sushil (2015:113-114) extends the discussion by adding that flexibility can be "proactive as well as reactive strategic moves for change". Sushil (2015:113-114) furthermore suggests that flexibility should be viewed as both internally as well as externally and anchored in the values, culture and competencies of the organisation with specific reference to strategic positioning of the organisation, i.e. what makes the organisation unique. An important inference can be made based on the work by Sushil, namely that organisational responsiveness to a changing business environment via its strategic intent is based on the concept of organisational flexibility.

3. Methodology [2]
This section is dedicated to a discussion of the metaphysical and philosophical concepts of this research in terms of the ontological, epistemological and methodological assumptions applicable to this research.

3.1 Pragmatism as ontological stance for the research
Hauer and Muntean (2010:3), states that "an ontology is not just a collection of facts that arise from an actual, specific situation, but a definition that provides all semantic entities and their potential interactions that would be necessary to completely describe that situation".
Considering the fundamental construct of existence as postulated in the statement of Hauer and Muntean (2010:3), the ontological stance of this research concurs with and will portray the existence of multiple realities that may be subjectively interpreted and result in a social construct. The paradigmatic stance identified for this research is pragmatism, and more specifically neo-pragmatism. Jacobs (2010:725) summarises the neo-pragmatist approach simply by stating that the "methodology embraces trial and error". Sekaran and Bougie (2013:30) extend the viewpoint of Jacobs (2010:725) and add that the "[neo]-pragmatists do not take on a particular position on what makes good research". The neo-pragmatic researcher is of the opinion that both observable, real life phenomena as well as subjective research can produce and contribute towards the body of knowledge under investigation, depending on the research question of the research.

3.2 Abductive reasoning as epistemological stance for the research
In the light of pragmatism being the chosen ontological stance for the research as attributed to Charles Sanders Peirce, the nineteenth-century American mathematician and logician, Jacobs (2010:725) postulates that "Peirce argued for abduction" as epistemological assumption.

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[2] *The methodology of the current research is based on the research methodology and design of an unpublished PhD study submitted in January 2018. The methodology of the current study forms part of two papers that will be submitted for the Academy of World Business, Marketing and Management Development Conference in Athens, Greece, 17-20 July 2018*

Reichertz (2014:126-127) points out that the research activity starts when the researcher realises that there is an imbalance between expectation and reality.

The premise of this research is based on the fact that there is an imbalance between organisations' expected ability to manage the ever-changing business environment and reality thereof, thus this research will attempt to contextualise the current business environment

3.3 Methodological assumptions for the research

The methodological assumptions focus on the process of research design. Kelemen and Rumens (2011) state that "in accordance with pragmatism's theoretical cornerstone, the pragmatist researcher is most likely to adopt research practices that will allow him/her to solve a practical problem in an efficient way". From the epistemological stance of the research it is evident that the pragmatist researcher needs to be able to acknowledge all interactions between knowledge and action within a specific area of investigation. Kelemen and Rumens (2011) are also of the opinion that "the pragmatist researcher tends to concentrate on human actions".

The research under investigation is best described as qualitative research based on the opinion of Adams *et al.* (2014:6) that qualitative research describes the reality as it is experienced by the participants in the research. Considering both the ontological as well as epistemological stance of the research, the research will employ a qualitative research methodology to investigate how experts in the field experience the reality of the architecture of information to facilitate flexibility and longevity in the business environment.

The tool that was used to collect the data was the Delphi technique. The selection of the Delphi technique is based on the fact that the Delphi technique was originally developed to predict future events as well as the outcomes of the events, based on the inputs from and the circumstances present in the environment.

Hsu and Sandford (2007) state that no exact criteria currently exist in the literature concerning the selection of Delphi participants, Linstone (1978), as quoted by Thangaratinam and Redman (2005), is of the opinion that "a suitable minimum panel size is seven". Hsu and Sandford (2012) are of the opinion that the number of contributors in a Delphi technique is generally between 15 and 20 experts in the field of research. The current research will consider the opinion of Hsu and Sandford (2012) and implement the suggested 15-20 experts as official sample size for the research. Because the Delphi technique is based on expert opinion and input, Skulmoski *et al.* (2007) agree with Fink and Kosecoff (1985) that a purposive sample is necessary for the technique

The research will apply a purposive sampling technique by using contact detail from a LinkedIn group (South African Enterprise Information Architecture Group) to identify and request participation in the research. The Massachusetts Institute of Technology (MIT) Architecture Position Description report was used to identify specific criteria for the participants of the Delphi technique. The qualifying criteria to participate in the current research dictate that the participants be willing and able, and have time to participate in the research. The participants should be associated with, employed by or participate in a South African based organisation. They should exhibit basic managerial characteristics including consulting and change management skills. The most important consideration to qualify is sufficient expertise in the field of information architecture.

Considering the methodological assumptions and prescriptions,15 invitations were sent to experts, who adhered to the selection criteria. These invitations were sent out during March 2017.

3.4 Axiological assumption of the research

Adams *et al.* (2014:21) are of the opinion that in "any research there is an ethical responsibility to do the work honestly and with integrity". DeRoche and DeRoche (2012) furthermore indicate that the ethical application of research is no longer just left to the individual researcher, but in most countries and fields of investigation the research is governed by external entities, authorities, committees or governments. The current research adhered to all the ethical conditions and policies set forth by the University of Johannesburg's ethical committee, with specific emphases on:

• how access to the field of study was gained,
• obtaining informed consent from the participants,
• ensuring confidentiality of the information pertaining to the participants, and
• protecting the participants in the research.

3.5 Reporting on the Delphi process

The table below details the manner in which the Delphi process was managed. It also reports on the attrition of experts experienced during the duration of the data collection and analysis stages of the Delphi process.

Table 1 Delphi process

DATE	STAGE OF DELPHI	OUTCOME OF STAGE	MANAGEMENT OF OUTCOME
January – February 2017	Expert participation request	14/15 of sample of experts consented to participate.	93.3% response rate deemed sufficient. Round 1 of Delphi to be implemented.
April 2017	Round 1: data collection through open-ended questions inviting narrated responses from experts.	11/14 experts completed questionnaires.	78,57% response rate considering that three experts exercised the right to withdraw from the study. The method of analysis applied in the open-ended answers was thematic classification. This formed the basis of the review questions for the concensus-seeking questionnaire used in Round 2
May 2017	Round 2: concencus-seeking questionnaire based on 19 statements derived from the thematic classification after round 1.	9/11 responses received in the form of level of agreement to the 19 statements in the questionnaire.	81,81% response rate from the remaining sample. Two experts exercised the right to withdraw from the study. Analysis of the level of agreement to develop the opportunity to verify and validate the expert's level of agreement or disagreement towards the concensus-seeking questionnaires.
July 2017	Round 3: verification and validation of the level of agrrement to the statements from round 2.	5/9 responses received to validate level of agreement.	55% response rate from remaining sample. Four experts exercised the right to withdraw from the study. Revision and reformalation of the statements followed.
July – August 2017	Round 4: concensus-seeking to newly revised statements from round 3	14/14 responses received for concensus-seeking on final statements.	100% response rate from the original sample. All experts agreed to the newly revised statements and no further revisions were recommended.

The following sections present the research findings from the Delphi study. The presentation of the research findings are based on the thematic classification and content analysis identified during the Delphi technique and the processes as discussed.

4. Results

This section describes the responses to the question: What is the typical business environment in which information architecture exists, or in other words, how would you characterise the current business environment?

The foundations of the thematic classification of the current business environment revealed that the expert panel is of the opinion that people, business and society at large are still prone to consume information by means of traditional methods (PM1R1). Although the panel member did not elaborate or indicate what is meant by traditional methods of consuming information, the inference is made that these traditional methods include – but are not limited to – paper, electronic and any other form of communicating a specific message from one source to the next. From a business perspective the environment is characterised by high levels of digital interaction and transactions between the organisations and individuals, rendering services and/or products from the organisations (PM2R1). According to PM13R1, the fact that "business is very volatile and [businesses are] expected to deliver the same results, or even better results, with the same (if not less) resources", necessitates a rethink of traditional business models. Furthermore, PM5R1 also stated that the use of data and information might be regarded as the secret to unlocking business predictability and flexibility, thus ensuring that the business can adapt to rapidly changing variables within the business environment.

Inferring that data and information can be regarded as a business catalyst, the analysis of the responses of the expert panel revealed that there is a need for information architecture. Although the concept of an information architecture might be new to some within the business environment, PM5R1 explicitly stated that "many organisations will have some degree of information architecture even if it is not fully documented and defined". Because of a lack of awareness about information architecture, a theme emerged relating to where information architecture should be defined, documented and placed within the organisational structure. Analysing the statements from the expert panel showed that businesses believe that information architecture is a subset of enterprise architecture and is often confused with data architecture. Extending the hypothesis that information architecture is a subset of enterprise architecture, a panel member indicated that "information architecture typically exists within Information Technology (IT) organisations rather than in business organisations and are generally used to set-up data and analytics environments and ecosystems" (PM5R1). The IT-centric association with information architecture was re-emphasised by the lack of communication within the micro business environment when it comes to formulating an information architecture. Furthermore, some of the panel members viewed information architecture as only a tool, with specific reference to information architecture as a regulatory tool (i.e. creating and defining rules to mitigate risk), and as a tool within the business intelligence space (PM5R1, PM6R1, PM7R1).

Following the analysis of the responses to the Round 1 open-ended questions, important statements and elements were identified, and formed the basis for consensus seeking in Round 2. Table 1 provides an overview of the level of agreement that each panel member expressed relating to the combined statements that were received from Round 1 pertaining to the question: "What is the typical business environment in which information architectures exist (i.e. how would you characterise the current business environment)?"

Table 2 Level of consensus pertaining to research question

Statement from Round 1 (N=11)	Totally agree	Neither agree nor disagree	Totally disagree

	Consensus Round 2 (%, N=9)		
1 The current business environment is still prone to traditional methods of consuming information.	89	11	0
2 The current business environment is characterised by high levels of digital customer interaction and/or high levels of customer transactions.	56	44	0
3 Increased competition and the threat of disruption and disruptors are driving traditional business models to consider new avenues and ways of doing business.	67	33	0
4 The key to unlocking this success (new avenues and ways of doing business) is data and information.	89	11	0
5 Data and information is the secret to unlocking business predictability.	78	22	0
6 Business needs to adapt fast to the variables that influence them within the business environment.	89	11	0
7 Reporting structure dictates the flow of information from the bottom up within the organisational context.	34	44	22
8 Reporting structures that dictates the flow of information is primarily performance based, e.g. in terms of financial parameters.	45	44	11
9 Business is very volatile and expected to deliver the same results, or even better results, with the same (if not less) resources.	89	11	0
10 Pervasiveness of data combined with the operational and strategic demands of business currently necessitates information architecture across multiple sectors and industries.	89	11	0
11 Information architecture is a fairly new concept within most organisations.	78	22	0
12 Given the current data and information landscape shaping our economy, many organisations will have some degree of information architecture even if it is not fully documented and defined.	56	33	11
13 Information architecture is founded within enterprise architecture.	56	22	22
14 Information architecture is often confused with data architecture.	78	22	0
15 Information architecture is used in the business intelligence space.	33	22	45
16 Information architecture typically exists within information technology (IT) organisations rather than in business organisations.	56	33	11
17 Information architecture is generally used to set up data and analytics environments and ecosystems.	56	33	11
18 Information architecture is generally perceived by business to be technology-driven, resulting in very little interaction with business when it comes to formulating an information architecture.	67	22	11
19 Information architecture is mainly driven by risk and regulation, i.e. a regulatory end.	22	56	22

The experts were offered the opportunity to provide reasons for neither agreeing nor disagreeing or totally disagreeing with statements and elements made in Round 2. With a response rate of 55,5%, Round 3 as presented in Table 2 provides an overview of the reasons why some of the respondents neither agreed nor disagreed or totally disagreed with the statements and elements identified in Round 2.

Table 2 provides the original statement as well as the verbatim quote of the expert/s. The number, e.g. PM1, before the verbatim quote relates to the number associated with a specific panel member (i.e. the expert). Furthermore, it should be noted that the grey cells in Table 2 focus on reasons for totally disagreeing with a statement or element, and the areas or cells without any colour relate to reasons for neither agreeing nor disagreeing with a statement or element. The cells in black present the revised statements to be considered as the Round 4 consensus-seeking methodological tool.

Table 3 Verbatim quotes pertaining to research question

Original statement Round 1 (N=11)	Verbatim quote Round 3 (N=5)
1.1 The current business environment is still prone to traditional methods of consuming information.	• PM9R3: "This is departmental driven − and in some departments, it goes down to a person-level."
The current business environment is still prone to traditional methods of consuming information based on personal as well as organisational demands.	
1.2 The current business environment is characterised by high levels of digital customer interaction and/or high levels of customer transactions.	• PM2R3: "This is a statement that is true for some for some [sic] business and not for others." • PM6R3: "Exponential organizations, growth of the infrastructure, platform and the crowd has led to a massive increase in growth in digital interaction – blame Moore's law for this!"
Although organisational and situation specific, the current business environment is characterised by high levels of digital customer interaction and/or high levels of customer transactions.	
1.3 Increased competition and the threat of disruption and disruptors are driving traditional business models to consider new avenues and ways of doing business.	• PM8R3: "In my experience it appears that organisations will consider new ways of conducting business in order to increase revenue or decrease expenditure. While this may indirectly be as a result of disruptions to the marketplace, it's not necessarily stated as such."
Increased competition and the threat of disruption and disruptors are driving traditional business models to consider new avenues and ways of doing business in an attempt to remain financially viable in the marketplace.	
1.4 The key to unlocking this success (new avenues and ways of doing business) is data and information.	• PM8R3: "While data and information have a part to play, a system consists of more than just those two elements."
The key to unlocking organisational success (new avenues and ways of doing business) is data and information, where data and information forms part of a larger organisational system.	
1.5 Data and information is the secret to unlocking business predictability.	• PM6R3: "Data only becomes valuable and a resources [sic] once used, mashed-up and utilized to help organizations to look at predicting [sic] future outcomes/trends – current systems are pretty much backward looking, with big data, GAI (general artificial intelligence) now becoming more part of our digital lives, given the massive growth in big data, IoT [Internet of Things], AI [Artificial Intelligence] /GIA, etc – this will drive consumer behaviour and business outcomes to a large extent – once we fully understand how to fully unlock the data and information value."
The application of data and the utilisation of information as valued resource will drive consumer behaviour and business outcomes, thus enabling organisations to look at predicting future outcomes and trends.	
1.6 Business needs to adapt fast to the variables that influence them within the business environment.	• PM7 *Only panel member 7 neither agreed nor disagreed with statement 1.6. No response was recorded by the panel member. Furthermore, the panel member withdrew from the study during Round 3, thus a response cannot be elucidated from this panel member.
Original statement remained unchanged.	
1.7 Reporting structure dictates the flow of information from the bottom up within the organisational context.	• PM8R3: "While it is natural for information to flow upward in the form of meetings, reports, etc. between manager and staff, much information flows upward as a result of cross-organisational committees, which break down traditional reporting lines and hierarchy." • PM9R3: "Again, depends on the Department and the leaders."
Reporting structures dictate the flow of information within the organisational context.	

	• PM2R3: "This is not always true. Many businesses have implemented Balanced Scorecards." • PM8R3: "While finance is the primary driver, not all performance reports are financially based. My answer is based on experience in that call centres may report on the financial aspects of their activities, their reports also include other performance [metrics] for example the number of calls answered per hour and the length of time spent on each."

Reporting structures as well as information architectural design dictate the flow of information, which is primarily performance-based and could cover financial or non-financial performance measures, such as balanced scorecards, to drive the process.

1.9 Business is very volatile and expected to deliver the same results, or even better results, with the same (it not less) resources.	• PM12: *Only panel member 12 neither agreed nor disagreed with statement 1.9. No response was recorded by the panel member. Furthermore, the panel member withdrew from the study during Round 3, thus a response cannot be elucidated from this panel member.

Original statement remained unchanged.

1.10 Pervasiveness of data, combined with the operational and strategic demands of business, currently necessitates information architecture across multiple sectors and industries.	• PM2: *Only panel member 2 neither agreed nor disagreed with statement 1.10. No response was recorded by the panel member. Furthermore, the panel member withdrew from the study during Round 3, thus a response cannot be elucidated from this panel member.

Original statement remained unchanged.

1.11 Information architecture is a fairly new concept within most organisations.	• PM12: *Only panel member 12 neither agreed nor disagreed with statement 1.11. No response was recorded by the panel member. Furthermore, the panel member withdrew from the study during Round 3, thus a response cannot be elucidated from this panel member.

Original statement remained unchanged.

1.12 Given the current data and information landscape shaping our economy, many organisations will have some degree of information architecture even if it is not fully documented and defined.	• PM8R3: "My view is that some organisations will have some degree of information architecture, even if it is not fully documented, but that many organizations, especially SMEs, have not undertaken formal information architecture activities."

Given the current data and information landscape shaping our economy, some organisations will have some degree of information architecture even if it is not fully documented, but many organisations, especially SMEs, have not undertaken formal information architecture activities.

1.13 Information architecture is founded within enterprise architecture.	• PM1R3: "We commonly see that information architecture happens in silos within the enterprise. Each business unit/division has their own requirements and implements their own information architecture to service these requirements."
1.13 Information architecture is founded within enterprise architecture.	• PM6R3: "EA in my view helps to drive IA in terms of process and provides a platform for business to build on – it could be either way where depending on the business model it could be driven by IA or by EA."

Organisational specific needs and requirements will dictate and drive the architecture of information from an information architecture or enterprise architecture perspective.

1.14 Information architecture is often confused with data architecture.	• PM8R3: "These are not confused in the areas I have been involved in, but I couldn't comment on whether they are confused elsewhere."

In some settings information architecture is often confused with data architecture.

1.15 Information architecture is used in the business intelligence space.	• PM1R3: "IA is not just used in the BI space, as it is also used in ad-hoc, monthly board packs and static reporting where collaboration of multiple Excel Spreadsheets take a lot of time to prepare each month." • PM9R3: "Companies are more prone to using Information Architecture and Canonical Models in the Integration space. Current environment will only now (after 10 years of using a Canonical Model in Integration) be implementing Information Architecture in BI space. BI in the current environment source data from applications, not through the integration bus. Previous environment (in the Financial industry) did not recognize Information Architecture. Did build a common model for Data-in-Motion. Again distanced from BI."
1.15 Information architecture is used in the business intelligence space.	• PM2R3: "Sometimes it is and sometimes it isn't."
Information architecture is used in multiple organisational spaces, including integrating information architecture as independent and separate activity within the business intelligence space.	
1.16 Information architecture typically exists within information technology (IT) organisations rather than in business organisations.	• PM1R3: "It exists in both and is sometimes even driven by business, without involving IT." • PM8R3: "The information architecture activities I have undertaken have seldomly [sic] been performed in Information Technology organisations, but one would not be favoured over the other since the expertise are contracted in and not always held within the organization."
Information architecture is business agnostic.	
1.17 Information architecture is generally used to set up data and analytics environments and ecosystems.	• PM2R3: "Sometimes it is and sometimes it isn't." • PM9R3: "I believe it is used more for the Integration [Enterprise Service Bus] (ESB) space, but current environment[s] are moving towards the analytical space."
Information architecture can be used to set up data, analytical environments and ecosystems or for integration purposes with a recent move towards the analytical management.	
1.18 Information architecture is generally perceived by business to be technology-driven resulting in very little interaction with business when it comes to formulating an information architecture.	• PM8R3: "Information architecture is seen as a crucial step in the process, and once defined, it is understood to incorporate the entire business and is information driven, not technology driven. The default understanding may be that it is technology driven."
Although the default understanding might be that information architecture is technology-driven, information architecture should be seen as a crucial step in organisational design and that the process is information-driven.	
1.19 Information architecture is mainly driven by risk and regulation, i.e. a regulatory end.	• PM1R3: "It does come into play at a later [stage] but not necessarily the driving factor." • PM2R3: "Sometimes it is and sometimes it isn't." • PM8R3: "At times risk and regulation may call for information architecture to be undertaken, but projects are also undertaken because of other drivers." • PM9R3: "Even though Information Assets should be driven by Risk and Enterprise Information Management by Business, I find that most companies drives [sic] Information Architecture through the Enterprise Architecture Department in IT."
Various factors may drive the information architecture activities, including risk and regulatory needs of the organisation, projects undertaken or enterprise architecture.	

5. Analysis and discussion

The current business environment is still prone to traditional methods of consuming information based on personal as well as organisational demands. It should also be noted that the same environment is also characterised by high levels of digital customer interaction and/or high levels of customer transactions. Considering this juxtaposed situation as well as the increased levels of competition and the threat of disruption and disruptors, traditional business models and organisations are searching for new avenues and ways of doing business in an attempt to

remain financially viable in the marketplace. The key to unlocking the success of the organisation (new avenues and ways of doing business) is data and information as part of a systems theoretical approach where data and information form part of a larger organisational system. The application of data and the utilisation of information as valued resource will drive consumer behaviour and business outcomes, thus enabling organisations to predict future outcomes and trends.

Given the current data and information landscape shaping our economy, some organisations will have some degree of information architecture even if it is not fully documented. However, many organisations, especially SMEs, have not undertaken formal information architecture activities. Organisational-specific needs and requirements, for example risk and regulatory needs, will dictate and drive the architecture of information from an information architecture or enterprise architecture perspective. Many organisations have implemented Balanced Scorecards to drive this process.

Although the default understanding might be that information architecture is technology-driven, information architecture should be seen as a crucial step in organisational design and that the process is instead information-driven. Reporting structures as well as information architectural design dictate the flow of information that is primarily performance-based and should cover parameters like finances and related activities.

Furthermore, it should be noted that information architecture is business agnostic and is used in multiple organisational spaces, including integrating information architecture as independent and separate activity within the Business Intelligence space. Information architecture is sometimes used for integration purposes with an emphasis on the analytical management and results pertaining to the integration activities.

6. Conclusion
Although the current business environment is based on the notion of complexity and in a constant state of flux, personal and organisational information use is still grounded in traditional consumption patterns and methodologies. In order for organisations to remain profitable a fundamental shift in organisational management and design is needed. This shift is built upon the notion of information and knowledge being the fundamental organisational construct, thus necessitating the need to for a formal information architecture and management thereof.

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