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Mark Prevost

University of Cape Town, PRVMAR003@myuct.ac.za

Kevin Allan Johnston Prof

University of Cape Town, Kevin.Johnston@uct.ac.za

Maureen C. Tanner

University of Cape Town, mc.tanner@uct.ac.za

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Awareness and Preparedness of IT managers to digital disruption: A South African Exploratory Case Study

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Mark Provost

University of Cape Town
mark@glassbox.co.za

Kevin Allan Johnston

University of Cape Town
Kevin.johnston@uct.ac.za

Maureen Tanner

University of Cape Town
mc.tanner@uct.ac.za

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ABSTRACT

Digital disruption consists of breaking down long established business models. In most organizations, IT managers are charged with management of technology-enabled change. It is therefore important that IT managers understand the opportunities and challenges posed by digital disruption to aid the organization's response. The purpose of this study was to explore what South African IT managers perceive, and what their responses (or planned responses) to digital disruption within the context of a financial services organization are. The study is interpretive, exploratory and qualitative, drawing from situational awareness theory to ground the participants' perception of digital disruption. The study draws on Disruptive Innovation Theory to assess the participants' actual (or planned) responses to digital disruption. The findings indicate that IT managers perceive digital disruption as both technological disruption and sense making mechanism for changes in work practices, along with posing several new opportunities and challenges.

Keywords

Digital Disruption, Disruptive innovation, Resources, Processes, Values.

INTRODUCTION

Digital disruption is a phenomenon that changes and challenges the conventional ways of value creation, social interactions, business models and thinking, and is caused by digital technologies, channels (i.e. ways of delivering information/products from one end to another end) or assets (Møller, Gertsen, Johansen, Stine & Rosenstand, 2017; Molla, Cooper & Karpathiou, 2015; Smith & Plummer, 2017). Digital disruption is not a marginal and temporary change, digital disruption leads to a fundamental change that changes the core of value creation and has a long-term impact on business processes, technology, the industry and/or society (Molla et al., 2015; Smith & Plummer, 2017).

General Purpose Technologies (GPT) are technological innovations that interrupt and accelerate the normal march of economic progress and established ways of doing business (Naughton, 2016). There has been an exponential growth in performance and capacity of GPTs for nearly half a decade, resulting in improvements in application, use, and functionality of digital technologies (Regårdh, 2016). The ensuing rapid digital innovation and resultant impact are what is referred to as digital disruption (Molla, et al., 2015).

Digital disruption is a complex phenomenon and its impact is often difficult to identify and comprehend (Riemer, Gal, Hamann, Gilchrist & Teixeira, 2015). It is therefore critical that individuals in decision-making positions within Information Technology (IT) departments are aware of and better understand the potential challenges and opportunities presented by this rapidly advancing phenomenon (Møller et al., 2017). Although some research has been done on this gap (Møller et al., 2017), none was found for a developing country such as South Africa. There have been calls for further research to investigate how financial institutions are managing and responding to digital disruption (Oshodin, Molla, Karanasios & Ong, 2017).

The research problem is that IT managers are required to understand and respond to the challenges and take advantage of the opportunities presented by digital disruption (White, Pennington, Galizia & Habeck, 2016). The purpose of this study is first to explore what IT managers perceive the challenges and opportunities of digital disruption to be. Secondly, it aims to uncover the planned and/or active responses by IT managers to digital disruption. The research questions investigated are as follows:

- What are the perceptions of South African IT Managers on digital disruption?
- What are the responses of South African IT Managers to the opportunities and challenges of digital disruption?

The objectives were to establish the perceptions and responses of South African IT managers to digital disruption, and to compare these to literature.

The findings were that digital disruption is a complex phenomenon that is perceived both as technological disruption, and sense making of recent and ongoing changes. From a comprehension and projection perspective digital disruption is seen to offer multiple opportunities and changes in providing new ways of working, new sources of competition and a renewed talent challenge. The study finds that responding to digital disruption is risky and unpredictable and requires businesses to focus on the effective use of, and investment in, technology and finding new and more efficient ways of working and organizing.

The outcome of this study provides an overview of the level of awareness and preparedness of IT managers to provide an appropriate response to digital disruption. It is hoped that these insights will enable organizations to take full advantage of the opportunities, whilst avoiding the challenges posed by digital disruption.

Permission was requested and granted to replicate a study by Molla et al. (2015). The context of the study has been modified to the financial services industry in South Africa, whereas the Molla et al. (2015) research was conducted within the IT department of an Australian university.

The paper is organized as follows; A literature review is first presented on issues around digital disruptions. The methodology employed for the study is then described, followed by a discussion of the findings. The paper is then concluded.

LITERATURE REVIEW

Perceptions of Digital Disruptions

Digital disruption is a result of the rapid digitization of businesses and the combination and recombination of advancing digital technologies (Bradley et al., 2015). These are breaking down traditional industry barriers and destroying long-established business models (Weill & Woerner, 2015). From a Financial Services sector perspective, there are three main technological developments driving potential for disruption, namely (1) Application or distributed ledgers (blockchain technology), (2) Automated services providing financial advice commonly known as robo-advisors and (3) Online Loan and capital raising platforms (Preece, 2016). Blockchain is a distributed ledger which allows information to be stored and shared within a community (Piscini, Guastella, Rozman & Nassim, 2016). In its simplest form, robo-advise offers potential investors advice based on the individual's investment preferences, such as risk and investment goals (Preece, 2016). What follows is a review of opportunities and challenges posed by digital disruption identified in the reviewed literature.

New ways of doing business

More and more companies are building on existing information systems, along with new technologies such as social media to get to know their customers better (Weill & Woerner, 2015). Beyond the statistics, real-time data affords companies the opportunity to refine and approve what they are offering (Outram, 2016). Customer feedback also gives companies an additional opportunity to be more flexible in approaching product design through creating prototypes and adjusting to suit actual customer needs (Cusumano, 2014).

From a business operations perspective, the combination of big data and machine learning algorithms is opening up a wide range of more sophisticated processes that can be automated (Hirt & Willmott, 2015). These algorithms aid the computerization of non-routine tasks or find patterns in data that are simply not possible for a human being to do (Frey & Berger, 2015).

Finally, new business models are emerging as companies find ways to either augment physical products with digital offerings, create new businesses around digital offerings or create digital or services wrappers around existing physical products (Westerman, Bonnet & McAfee, 2014).

New sources of competition

For existing companies, the threat of disruption looms greater (Weill & Woerner, 2015). In the past, there might have been a few new entrants where now there may be dozens (Hirt & Willmott, 2014). Digitization of information reduces the barriers that new entrants would otherwise have had into an existing market (Briggs et al., 2016). Downes and Nunes (2013) warn of "big-bang" disrupters who may not even have been seen as competition, but when they arrive they completely rewrite the rules of entire industries. An example of such big-bang disruption is the impact the smartphone has had on portable navigation equipment companies such as Garmin and Tom-Tom (Downes & Nunes, 2013).

Top talent shortage

Rapid advances in three-dimensional (3D) printing, big data, cloud technologies and robotics all have the potential to impact on the world of work (Frey & Berger, 2015). At the same time, companies are struggling to find the right talent in areas that cannot be automated (Kane, Palmer, Philips, Kiron & Buckley, 2015). Problem-solving, intuition, creativity and persuasion abilities have proven difficult to automate (Autor, 2015). Such tasks often require high level of skills, including a university degree or specialist technical skills (Regårdh, 2015) and in particular fusion skills, which require a mix of creative, digital and entrepreneurial skills (Frey & Berger, 2015). The ability to be able to quickly adapt to a rapidly changing environment has also been identified as critically important (Kane et al., 2015).

Responding to Digital Disruptions

Companies cannot explore all potential disruption plans, or their prospective opportunities equally, and so need to create a prioritized investment plan for responding to digital disruption that best suits their business (Plummer, Smith & Hill, 2017). A key point is establishing a team of individuals tasked with staying current and identifying possible disruptions, and allocating funds towards ventures that may arise from disruptions (Plummer et al., 2017). Companies should establish digital disruption as a critical part of the innovation initiative and develop a culture where creating disruptive innovation plans is achieved in addition to the reactive management of disruption (Plummer et al., 2017).

Responding to digital disruption is risky and unpredictable (Karimi & Walter, 2015). In unpredictable times companies need to adapt quickly to take advantage of rapidly evolving opportunities (Bharadwaj, El Sawy, Pavlou, Venkatraman, 2013). Through the effective and strategic use of digital technologies, companies can develop dynamic capabilities to respond to the opportunities and challenges of digital disruption (Grandos & Gupta, 2013). An analysis of how resources, processes and values have been changed, extended or adopted by companies in the reviewed literature as a response to digital disruption follows.

Resources

Companies must react to the threat of disruption, but importantly they must not overreact, by dismantling established profitable ways of doing business (Christensen et al., 2015). Responding to digital disruption, in most cases, requires a deviation from current business and product strategies that serve existing customers (Gans, 2016).

Companies that have responded well in the face of digital disruption have made a comparatively higher digital investment than their peers (Karimi & Walter, 2015), focusing on customer experience, social media, mobile, process digitization and internal communication (Westerman et al., 2014). In addition, the human aspect also determines success or failure during these disruptive times (Bolden & O'Regan, 2016). To be responsive and adaptive, organizations need to tap into the collective knowledge, skills and resources of all staff (Bolden & O'Regan, 2016).

Processes

Processes form the building blocks of organizational capability and competitive advantage (Karimi & Walter, 2015). Process changes and organizational shifts are, in most, cases what enable companies to harvest the opportunities of disruption (Bolden & O'Regan, 2016).

Karimi and Walter (2015) found that the establishment of autonomous business units, along with the staged allocation of resources to innovative projects, is essential to create new processes in responding to digital disruption. Fisher and Lynch (2015) recommend that companies look at cross functional teams to spearhead digital initiatives and tackle the complexity of change. These teams should ideally comprise of a diverse mix of technical and business stakeholders, who could be described as enthusiastic and possess characteristics such as “start-up” ingenuity (Fisher & Lynch, 2015).

Values

Values are the primary building blocks of organizational culture (Karimi & Walter, 2015). Digitally maturing companies share a culture that is conducive to digital transformation (Kane et al., 2015). Prior to making decisions about resource allocations and process changes, company management needs to start with developing a vision for the future and, in particular, the impact digital technologies will have on its customers over the next decade (Kane et al., 2015). Executives will be faced with tough questions starting with: ‘Why do we exist’ (Cordon & Ferreiro, 2016) and ‘Are we in the right business to start with?’ (Hirt & Willmot, 2014).

Both business leaders and employees will then require a change in mindset to accept failure as part of success (Kane et al., 2015). Finally, executives and company leaders must build digital strategies into the core strategy of the business (Grossman, 2016). For those industries that anticipate digital disruption, it is critical that there is a full commitment to becoming a more digitally adept organization (Grossman, 2016).

THEORETICAL FRAMEWORK

In answering the first research question, Molla et al. (2015) drew from situation awareness theory to anchor IT Managers' perceptions of digital disruption. In its simplest form, situational awareness (SA) can be described as “knowing what's going on” (Wickens, 2008). To ground IT managers responses to digital disruption, Molla et al. (2015) also made use of the resources, processes and values view of Disruption Innovation Theory. As the research was replicating the Molla et al. (2015) paper, the same theories were used.

Situational awareness theory

Endsley (1988) defined Situational Awareness (SA) as “the perception of the elements in the environment within a volume of time and space, the comprehension of their meaning, and the projection of their status in the near future” (p. 97). Situational Awareness' three primary constructs are Level 1- Perception, including noticing, Level 2 – Comprehension, and Level 3 - Projection of a dynamic situation over a short period of time (Endsley, 2015; Wickens, 2008). Endsley (2015) points out that the model is not strictly linear. In other words, an individual can possess Level 2 and level 3 SA without an accurate Level 1 SA. In this case, the individual makes use of Level 2 and 3 SA to gain a higher level of Level 1 SA (Endsley, 2015).

This study followed the same theory as Molla et al. (2015) to understand IT managers' perception of digital disruption. The study is concerned with the perception (Level 1), comprehension (Level 2) and projection (Level 3) concepts of situational awareness theory. The study attempts to uncover the participants' understanding of how and to what extent digital technologies are impacting their organization (Level 1). The focus is then placed on what the participants perceive the opportunities and

challenges posed by digital technologies to be in order to measure the comprehension of the current situation and projection of a future state - Levels 2 and 3 respectively (Endsley, 2015).

Disruptive Innovation theory

Disruptive Innovation theory describes disruption as a process whereby over time a smaller company, usually with fewer resources, is able to challenge a larger, more established business (Christensen, Raynor & McDonald, 2015). The new entrant usually begins by offering, at a lower cost and lesser performance, product or service in an area that has either been overlooked by the incumbent or is a new market entirely (Christensen et al., 2015).

In time the newcomer's offering moves upstream in value and performance, eventually being adopted by the incumbent's mainstream customers, causing disruption to the incumbent's business (Christensen et al., 2015). In most cases the incumbent itself is looking upstream at customers that offer higher profit margins and do not notice the newcomer until it is too late (Bower & Christensen, 1995).

A company's resources, processes and values determine what a company can and cannot do (Christensen & Overdorf, 2000). The application of the theory in this study therefore focuses on the resource, process and values framework, described by the theory as a useful way for management to assess a company's strengths and weaknesses in responding to disruptive change (Karimi & Walter, 2015).

METHODOLOGY

This study is interpretive, exploratory and qualitative in nature and was conducted using a case study. Case study research is well suited for answering "how", "what" and "why" type of research questions (Yin, 2009). The research questions are both "how" type questions, suiting case study research approach.

The case site was an Investment Management Company (IMC) a company which operates solely within the borders of South Africa. Six participants were interviewed across the organizational IT structure to explore digital disruption across multiple levels of management. This is in line with qualitative sample sizes which tend to be smaller while focusing on exploration (Marshall, 1996). The sampling strategy was one of convenience (Marshall, 1996) based on the number of people that the researcher had access to and what was practical given the time constraints for the study. The profile of the respondents is described in Table 1.

Semi-structured interviews allowed for sufficient flexibility to give participants the opportunity to talk freely about events, behavior, and beliefs (Saunders et al., 2009). The interview questions were formulated based on the various elements from the theoretical framework and focused on gathering information on the participants' details as well as their perceptions on Digital Disruptions. All interviews were conducted face-to-face in mid-2016 by the principal researcher, at IMC's offices. All interviews were recorded using a mobile phone, lasted between 70-90 minutes, and were transcribed by the principal researcher.

Participant	Title	Role
Andrew	Head of IT	Responsible for the Group IT function, reporting directly to the Chief Operating Officer
Bob	Support Service Manager	Leading the Service Desk and managing and providing input on the Service process
Chris	Digital Marketing Manager	Manages all Public Digital Presence channels and content, including user experience and design
Dan	Domain Owner	Manages the Secure website domain and team. Responsible for researching and tabling a digital business strategy to the executive committee
Eric	Feature Team Lead	Focused on financial advisor needs and mapping them to high level IT strategy
Fran	User Experience Researcher	Currently focused on researching direct investor digital platform needs

Table 1. Respondent’s profiles

The data was analyzed and interpreted by following a step by step thematic analysis (Fereday & Muir-Cochrane, 2006). First a code manual was developed based on the research questions and theoretical frameworks used in the study. The codes were then tested on Andrew and Bob, the most senior interviewees. Once a review of the raw data was completed, in order to identify additional themes, the codes were then added as nodes to N-VIVO, a qualitative data analysis computer software package. The researcher then followed an iterative process of connecting the codes to the raw text data, which allowed for the identification of further themes (Wahyuni, 2012). Finally, the codes were collaborated by reviewing the final themes against the initial data analysis and codes (Fereday & Muir-Cochrane, 2006). The code manual is presented in Table 2.

FINDINGS

Perception of Digital Disruption

The participants reported that digital disruption encompass both technological disruption and sense-making of changes in individual practices and ways of working. This is further discussed in the following sub-sections.

Technological Disruption

From a technology perspective, the study found that the combination of social, mobile, predictive analytics, cloud and the Internet of things is opening a whole new world of business possibilities: “If you look at Uber, they definitely couldn’t have built that business without using cloud services” (Andrew). This is supported by Lanley et al. (2014). It was also reported that technology has matured to a point that computers are now capable of a far wider range of tasks like predictive analytics, machine learning and Robo-advice platforms and services: “I mean machines are now capable of doing lots of things that (we) took for granted that you needed a person to do” (Dan). The maturing of technology has also been mentioned by Soule et al. (2014).

However, in contrast to Preece (2016), some respondents felt that, due to high regulatory requirements, neither Robo-advise nor any other emerging technology that they are aware of would have an immediate impact: “I think we are less convinced that it is going to have a major impact on us. Not for at least the next... I don’t know, maybe in 10... maybe in 20 years’ time” (Andrew).

Theme	Node (1)	Nodes (2)	Node (3)	Participant Keywords	Participant Keywords	Participant Keywords
Perception	Technological Disruption			AI	Robo Advisors	Early days (nascent)
				Block chain	Smart Contracts	Crypto currencies
				Convenience		
				Ease of use	Simple	
				Mobility	Devices	
				Faster	Quicker	
	Making sense of change			New normal	Pace of Change	
				Individual Expectations	Generation gap	Experience
				(Digital interactions)	(ease of doing business)	
				User expectations	Consumer IT	Flexibility
				Access to skills	Developers	High competition
				Lower barriers to entry		
				Scale quickly	Shorter product life cycle	
				Regulation	Organization inertia	
Comprehension & Projection	Opportunities & Challenges	New ways of doing business	Automation	Straight through Processing	Productivity	Operational Efficiencies
			Business model	Organizational Structure		
			Customer insights	New Markets	Broader client base	
			Flexibility	Business models	Blockchain, Smart Contract	Distribution Model
			New Products and services			
		Skills		Skills	Talent pool	International Competition
		New sources of competition	Regulation			
Response	Processes			Collaboration	External - FICA	
				Feature Teams		
				IT Service Culture		
				User Centered Design	Usability testing	
				Workplace flexibility	Remote work	Dress Code
	Resources			Sourcing skills	Altered dress code	Flexible working conditions
				Improved digital presence		
	Values			Strategy		
				Customer-centric thinking		
				Data driven decision making		

Table 2. Code manual.

Making Sense of Change

Respondents have noted the various types of changes that have occurred in the work place, related to higher demand for IT and higher user expectations: *“When I started working we didn’t have, you know, the majority of people didn’t have access to PCs at home and they didn’t have access to stuff. Now everybody does and they are expecting a similar kind of experience they are getting with the internal apps as well as the capabilities that they have at home or that they have outside the office”* (Andrew). It was also reported that there were shifts in expectations related to attitude, work conditions and where and when people wanted to do work. *“I like to be home for our kids’ bed time and bath time and if I need to work, I can work from home. And there are lots of people now who have that approach”* (Chris). This is in line with Riemer et al. (2015) who found that as our work changes, so does our understanding of what is meaningful.

Opportunities and Challenges

Disruption is both an opportunity and a challenge that is dependent on the individual’s context and point of view (Moyer et al., 2015). The following discussion reinforces this view, given that each point discussed poses both a potential opportunity and challenge to IMC.

- **New ways of doing business**

In the context of the case-study, there is evidence that new ways of doing business using digital technologies is one opportunity that emerges from the disruption. For example, through the use of technology, there is the opportunity for IMC to know their customers and Independent Financial Advisors better, resulting in improved customer relations: *“Ja, a big opportunity. Because our financial advisors love speaking to us to find out how we can make their lives easier”* (Eric).

Another substantial opportunity exists for IMC in the digitization of existing business processes in order to *“create scale”* (Dan) in the business. The key opportunity is in automating processes in order for the business to grow without increasing the staff: *“I think there is broad agreement we just need to get as much of those processes from a people-intensive to an automated process so we create scale in the business. So if we double our number of customers we don’t have to double our people in there”* (Eric). However, the process of digitizing some of the current aspects of the business has not been straight forward with a perception that some, in particular older generation customers and independent advisors, are resistant to change: *“Probably more with the advisors. Their average age ... they are older”* (Andrew).

Just as much as there is an opportunity for IMC to provide new products and services, the existing business model, in particular the distribution model, poses an equal challenge: *“If we didn’t have the financial advisors, I can guarantee you right now IMC would already have its own robo platform... The reason we haven’t gone anywhere near there is it would really hurt our business model at the moment”* (Eric).

- **New sources of competition**

In the context of the case study, it was found that digital technologies not only lower the barrier to market entry but are also breaking down traditional industry lines: *“I think the barriers to entry, particularly with cloud, you no longer need to be a Fortune 500 company to go up against another Fortune 500 company. You can be smaller. You can scale quickly.”*(Andrew). Fran’s comment also suggests that competition for IMC will potentially come from non-traditional financial services industry companies: *“The disruption is going to come from the technology houses...like Google is going to throw*

something. Or you are going to get a random start-up that is going to disrupt the industry. That is where the competition lies”. However, in Andrew's opinion, industry regulation remains a big challenge to new market entrants who wish to compete with established incumbent businesses. “I think regulation. You don't just decide to set up a unit trust business and start running money. It has become more and more difficult to set up.”

• **The talent shortage**

Driving digital is requiring companies to look for highly skilled people with unique dynamic skill sets (Regårdh, 2015). IMC is no different: “we are not looking for a front .net developer. We are ideally looking at guys who see development languages as one of many tools rather than someone who considers himself as a specific artisan of a certain language... We are looking for people who are quite dynamic” (Eric).

Unfortunately for IMC the challenge is not only about finding the right people, but includes increased competition in attracting new talent. International technology companies can offer favorable working conditions and superior compensation, making it difficult for IMC to compete: “we are competing with the likes of Amazon and Fintech that are funded from the US.” Chris adds: “so the developers for example, they can very easily work for a US company from home and get paid in dollars. And all of a sudden we are not competing with (another South African investment management company), we are competing against Google and Facebook” (Andrew).

Table 3 provides a full summary of the study findings in answering the first research question.

Area	Findings
Perceptions on Digital Disruption	Maturing technology <ul style="list-style-type: none"> - Cloud, Mobile and Predictive Analytics - Robo-advice platforms and services
Opportunities and Challenges of Digital Disruption	New ways of doing business <ul style="list-style-type: none"> - Improved customer relations - Digitization and automation of business processes - Resistance to Change - Competing with existing business models New sources of competition <ul style="list-style-type: none"> - Lower barrier to entry - Non-traditional financial services competitors - Knowledge of regulatory requirements Talent Challenge <ul style="list-style-type: none"> - Finding skilled technology professionals - Competing with international companies

Table 3. Summary of Findings: Perceptions of IT Managers

Responding to Digital Disruption

The respondents point to a rising awareness within IMC of digital disruption as an important concern. An overview of how this is achieved in IMC from a resource, process and value perspective follows.

Resources

In the context of the study, the findings show that IMC is committed to the existing business: “At heart what we do is we create long term wealth for clients. If we do a good job at that we will stick around” (Chris). However, responding to digital disruption often requires a deviation from current business and product strategies that serve existing customers along with the uncertainty of how many resources are needed and where to invest, makes for difficult management decisions (Gans, 2016). Andrew's

comments highlight this challenge when he says: *“if we were to launch another product that is going to mean another 100 or 200 people and it’s going to contribute another 5% to the bottom line, we are like, jeez do we really need that? Is it worth diverting attention?”* This suggests that IMC is less likely to commit resources until it is clear which technology is being favored by their customers. A wait and see approach to committing resources is a way of identifying which technology investments may pay off in the long run, but it can end up being a costly route too (Gans, 2016).

A key emphasis of the company’s digital initiatives is on improving the overall user experience of both customers and suppliers who are interacting online with IMC, which is in line with Westerman et al. (2014). Chris says: *“A lot of the stuff that I am doing is kind of trying to do a much better job digitally... So what we are trying to do is use existing technologies to their maximum capacity to improve the experience.”* Further to user experience Dan felt that IMC needs to focus more resources on improved use of existing client data to get to know the customer better: *“in this area around machine learning, data analytics, big data, I think the technology is very mature where we could do a lot to really transform our business there.”*

Processes

The power of responding to and taking advantage of the opportunities of digital disruption lie in a company’s ability to transform its ways of working (Kane et al., 2015). Fran sees the potential of this approach when discussing how IMC was able to bring about large changes to its public facing website: *“I would really like to see how IMC did what they did with their new site. With all that legacy and bureaucracy and red tape. How did they do that? They must have said...here are those 5 people. We will ring fence them. This is the innovation room. This is what you do here.”*

A further recent change to the way in which IT delivers services at IMC has been the introduction of cross-functional teams. Eric’s view of the cross-functional team is: *“So you can throw any problem at this team and it is completely within their realm of control to solve the problem.”* He goes on to suggest that this in turn speeds up delivery time: *“they don’t need to wait on a resource from another team that has another list of priorities.”*

Another evident recent process change at IMC is a move toward taking customer-centric, data-driven decision making away from, ‘HiPPO’ (‘Highest Paid Persons Opinion’) which has tended to be the norm in the past. Fran, who is involved in improving the direct investor digital platform experience says: *“Let’s stop asking the smart, opinionated stakeholders what they want. Let’s go and ask clients... I think the core would be doing things in a user centered way. ‘Cause you have looked at the Uber studies and the WhatsApp studies and the core thing there. They are focusing on product and not strategy.”*

Values

Respondents felt that IMC needed to start by developing a compelling view of the future digital state with sharp focus on what this means to the company’s customers: *“I mean, there is stuff but it is not relevant to us. So we are trying to frame it. What is the word digital?... We want to make sure that we are focused enough. So understand what it is and what it isn’t...So at this stage we have a focused digital team that is trying to understand what digital means to IMC”* (Andrew). Dan, who leads this team refers to the vision as a *“digital enable strategy.”*

There is a cultural willingness to accept new opportunities provided they are supported by sufficient evidence: *“We have some really tough execs in this building. But if you show them something that is like a clear business opportunity...this is how much it will cost...this is how we can benefit from it...nice...simple, I don’t think people will be like... nah, it is too risky”* (Eric).

When asked if there was executive commitment to a digital agenda Dan said: *“it is a priority for the whole of exco”*. However, Andrew's additional comments on how digital is positioned at executive and board levels paints a slightly different picture: *“We prioritize once a year. We have like a 2 to 3-day breakaway and... Execs, Exco approved. We will have things that we want to do that will be like strategic actions, a bunch of projects and then there will be thinking items. I guess this is one of those. The bar for thinking items is a lot lower”*. This suggest that although potential opportunities and challenges of digital disruption are receiving Exco and Executive attention and discussion, it still has some way to go before it is at the core of IMC’s business strategy.

Table 4 provides a summary of the main findings, from a resources, processes and values view of disruptive innovation theory (Karimi & Walter, 2015).

Area	Findings
Resources	<ul style="list-style-type: none"> - Effective use of technology - Investment in digital platform presence with focus on user experience - Improved use of existing big data and analytics
Processes	<ul style="list-style-type: none"> - Cross functional teams - Data-driven decision making
Values	<ul style="list-style-type: none"> - Start with defining digital - Openness to change & experimental culture

Table 4. Summary of findings: Responding to opportunities and challenges of digital disruptions

CONCLUSION

In the context of the study, it was found that IT Managers at IMC perceive digital disruption as both technical disruption, as a result of maturing digital technologies, and a sense making mechanism for changes in their lives, which is in line with Molla et al. (2015) findings. The participants broadly shared a common perception of the opportunities and challenges, being new ways of working through the effective use of technology, the potential for new forms of competition and a growing challenge in attracting and retaining skilled IT professionals.

In responding to digital disruption in the context of the study, it was found that the participants have witnessed changes to how IT resources are managed, the introduction of new ways of organizing teams and altered decision making processes to be more data driven. An initiative, led by an IT team, to “frame” what digital means to IMC is also underway and is referred to as the “digital enablement strategy.” However, here the study suggests that differing opinions on approaches and perspectives in how the organization is responding or should respond to digital disruption.

Responding affectively to digital disruption involves the collective effort and commitment of the entire organization (Gans, 2016). Any effort will require starting with a clear vision (Kane et al., 2015;

Westerman et al., 2014) and strong leadership (Farral et al., 2012). IMC must include a vision of a future digital state in its “digital enablement strategy” and place it at the core of its business strategy (Gans, 2016). Only then will the organization be able to transform its existing resources, processes and values to take full advantage and avoid the challenges of digital disruption. Further research into the rising and worsening talent shortage posed by digital disruption, with particular focus on the South African context is encouraged. The paper contributes to the limited research of digital disruption from an IT manager’s perspective (Molla et al., 2015) and encourages further research into a critical rising and worsening talent shortage posed by digital disruption with particular focus on the South African context.

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