

Risks Caused by Disrupted Forces in Gauteng Information Technology Consulting Firms

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Abstract: The rapid speed at which technology is changing has led to a volatile business ecosystem. Due to challenges brought by technological disruptions that open doors to various kinds of risks, companies find themselves on the back-foot of keeping up with the change as they race to stay in business. This opens up opportunities for consulting firms as their services are sought after by other entities to address skills shortages or improve competency. This exploratory paper was conducted to get a thorough understanding of how small IT firms (SMEs) manage risks. A case study research design was used together with qualitative methods. The SMEs that formed part of the paper were selected by purposive sampling, with semi-structured interviews being used as the data collection method. To analyse the data, thematic analysis techniques were followed. The findings of the paper show that technology disruptions highly influence the environment of the IT consulting firms. As disruptions sweep through their business environment, SMEs are confronted with various risks that affect their business models, operations and human capital. As a result, SMEs have to deal with financial challenges, more consumer influence and high turnover among the workforce as the aftermath of disruptions.

Keywords: Business model, Changing business environments, Customer expectation, IT consulting, SMEs, Technological disruptions

1. Introduction

Garson (2014) argues that, "it is not the strongest of the species who survive, not the most intelligent, but those who are most adaptive to change." This saying is associated with Charles Darwin, who founded the theory of evolution. The adage is also applicable to business, implying that it is those that are determined to undergo a transformation and evolve that will achieve success. Because of ever-changing conditions that companies are subjected to, the strategies that used to be successful are rendered ineffective (Chartered Institute of Management Accountants, 2009). Today's exposure to risk is enormous, and unlike in the past, to absorb the risk has proven to be growing increasingly difficult (Slywotzky, 2004). Competition dynamics are also changing. Chesbrough (2007:12) notes that reliance on long-standing technologies is diminishing, as they are no longer profitable due to being quickly commoditised. Chesbrough (2007) further claims that it is challenging to drive the company towards success amid forever evolving technologies, industries and markets.

Inability to keep up with the pace of change will drive the companies to fall victims of market disruptions (Deloitte, 2013:3). The demise of Compaq Computer Corporation (Chancellor, 2015) and Zenith Electronics (Ernst & Young, 2016:10) stands as a notable testimony of the established players being pushed out of the market. Driven by emerging technologies as well as changing demands and customer needs, companies are pressured to review their business models to stay afloat in business (Hargadon, 2015:33).

Forces such as technology, globalisation and demographics are reported to be at the core of the disruptions (Ernst & Young, 2016:13). The business landscape changes as disruptions introduce new business processes (Mäkinen & Dedehayir, 2014:2867). Kopetzky, Stummer and Kryvinska (2011:125) highlight that introduction of new technologies devalues investments in contemporary technologies since their benefits can no longer be guaranteed. Consulting companies find themselves daunted by the challenge of keeping pace with

changes induced by delivery methods, customer needs and developments in digital technologies (Cecere, 2016). Different studies (Slywotzky, 2004:13; Patki, 2006:19; Christensen, Wang & van Bever, 2013:5-6; KPMG, 2017:12-16), shows that disruptions present many challenges in the IT field and many consulting companies, particularly the small ones, find themselves being pushed out of business.

In South Africa, the skills shortage in the ICT sector is massive (Plaatjies & Mitrovic, 2014:351), and according to Schofield (2018:13), the country is trailing most of its peers in this sectors as the National List of Occupations in High Demand published in 2018 attests. Various entities in South Africa source the services of these SMEs for their business needs. Not much research has been done in South Africa on the risks faced by small and medium-sized enterprises (SMEs) that provide technology-based solutions as their core business. The paper will contribute to the consulting sector as the findings can be used by the new entrants to manage risks stemming from the inevitable changes in the market. Furthermore, the paper makes a contribution to the existing body of knowledge on the SMEs involved in IT consulting. Based on the description by Krause and Schutte (2015:166), in South Africa, SMEs are considered to be the companies that employ less than 200 people, with those with less than 50 employees classified as small companies.

The organisational structures of SMEs are simple and mainly centralised, with decision primarily making residing with the CEOs who could also be owners of the company (Nie, 2007:4343). The main objective of this paper is to explore how IT consulting SMEs based in the Gauteng province of South Africa manage risks they encounter in the unstable business environment. The following sub-objectives were constructed to give effect to the main objective: To understand the impact of technological changes on how small IT consulting firms based in Gauteng provide service to get perspective of the challenges they experience. To identify the risks that small IT consulting firms in South Africa face, and strategies they use to manage them.

2. Literature Review

Introduction of new technologies to the market is fast-paced. Their submission, as Schuelke-Leech (2017:263) highlights, can drive economic success and solve some problems experienced by society.

Notwithstanding its benefits of bringing positive changes, there are downsides to technology, like data risk, and even obsolescence. As it is explained, technology has contributed to tremendous growth and reliance on data, which increases the chances of security breaches. Adding to this threat, some jobs or functions may be rendered obsolete by trends such as Artificial Intelligence (Human Resource Management International Digest, 2017:13-14).

Harno (2011:913) opines that readiness is crucial for companies as technology and business ecosystems are increasingly becoming interconnected, which result in disruptions. Explaining disruption, Harno (2011:913) explains that it happens when one technology moves to another sector and outperforms the once-dominant technology. How disorder occurs is well captured by Christensen's Disruptive Innovation theory (Christensen, 1997; Christensen & Raynor 2003). According to this theory, the established incumbents in business are challenged by those with fewer resources. The attention of the incumbents is mostly on providing better products to their demanding customers and thereby overlooking some of the segments. The entrants target those areas that have been ignored by the incumbents and operate at lower prices. With their focus on highly-priced profitable markets, the incumbents miss the innovation or fail to respond. The entrants then gain popularity and eat into the incumbents' customer base. As Kaplan (2017a:2) warns, companies need to continuously reinvent as the competitive edge cannot be sustained due to the fast commoditisation of products, services and business models.

Time is a crucial factor in technology adoption. Not being able to respond to market changes in time is risky, which can also impede economic development (Dobrin, 2015:49). Padayachee, Matthee and van der Merwe (2017:843) note that timely decisions are critical in volatile technology environments as they can have a bearing on the success or failure of organisations. The views also corroborate Christensen's theory of disruptive technologies. Christensen states that with disruptive technologies, the companies stand to benefit enormously from early entry into markets, as being a first-mover carrying significant advantages.

Technology adoption carries overhead costs that might negatively affect their customer retention (Pérez & Ponce, 2015). A suggestion by Govender and Pretorius (2015:12) is that companies need to

adopt agile strategies to enable them to be flexible and adaptive when confronted by unforeseen market changes. Because of what has been mentioned, a point can be made that disruptive technologies carry not only opportunities but also pitfalls when organisations are not ready for changes.

Disruptive technologies also influence employee expectation (Cisco, n.d.). Global competition, as well as market and technological changes, affects employee retention, the effects of which can be tangible or intangible (Goldberg, 2014). As Goldberg points out, there are financial and administrative costs associated with employee turnover that companies can experience. Other drawbacks associated with employee turnover is its impact on workforce morale, reputation, benefits pay-outs as well as recruitment of new employees. Also highlighting the downside of employee turnover, Nyaga (2015:47) mentions that companies can find themselves running into enormous expenditure due to the hiring and training of new employees. As new employees need time to reach the expected levels of effectiveness, the companies' productivity levels may be impacted.

The consulting sector is not immune to technological disruptions. Christensen, Wang and van Bever (2013:1) note that the same factors that disrupt other business sectors have the same influence on consulting. Christensen *et al.* (2013:1) reveal that a vast amount of disruptions occurs in this sector, which includes suave competition and ground-breaking business models that gain popularity. Sharing the view of changing environment, de Man (2016:2-3) contends that the continually changing business environment pressures the consultancy sector to test new business models. Due to technology and pressure from clients, consultants are forced to explore new ways of conducting their work. New consulting business models with a focus on specialisation, networking and quick response to clients pose a stiff challenge to long-established revenue models that use hourly rates to bill clients. Disruption of consultancies has also seen their internal operations being threatened by the upsurge of digital technologies as independent consultants and digital-driven networks of consultants can team up productively by using technology (Consultancy.eu, 2019).

The developments in the South African Management Consulting industry are inextricably connected to the changes affecting the industry globally and, thus,

making it inexorably influenced by the driving forces such as globalisation, economic and technological developments that shape the international environment (Oosthuizen, 2003). Pahaladh (2016) has found out that the big firms mainly dominate the South African consultancy market, in both the public and private sectors. According to Pahaladh, the perception of value favours large firms, and thus put them on advantage against small firms, especially when it comes to awarding of tender contracts. The changing consulting landscape is becoming more competitive for SMEs as large consulting companies are investing more in new technologies such as automation and Artificial Intelligence (Consultancy.co.za, 2019). As reported, large incumbents are redefining themselves by building capabilities in response to disruptions caused by these new technologies. The situation is compounded further for SMEs by increasing international competition as the government stimulates foreign investments. Based on these developments, an observation that can be made is that the SMEs are operating in challenging business environments that require them to respond to changes and disruptions to stay afloat.

With much uncertainty around managing disruptions, Christensen (1997) makes a few suggestions on how to handle them. The strategies suggested are: Ongoing innovation; spinning-off an independent organisational unit that will take risks and handle disruptions while the leading organisation handles sustaining innovations; taking the lead in adopting disruptive technologies as being a first-mover comes with advantages; and going through trials and errors in pursuit of the suitable strategy, since failure and learning are intrinsic to while pursuing success with disruptive technologies.

3. Methodology Followed

This paper followed a qualitative method to address the formulated research objectives. Walliman (2011:16) explains that the underpinning philosophy largely influences the way the research is conducted. The authors followed qualitative methods. To collect information, interviews were used to allow the participants to share their experiences freely. Data collection, analysis and interpretation, is outlined in the following sections.

The authors chose a case study as a research design, where four IT consulting firms based in Gauteng Province were selected. With purposive sampling

selected as the sampling technique, the selection criteria for the firms was that they need to have been conducting business for at least five years, with management personnel of more than five years of working experience. To collect data, interviews were conducted with managers, directors and the staff in strategic decision-making positions.

The authors followed semi-structured interviews to achieve the objectives. The research instrument in the form of an interview guide was used for the interviews. The questions in the interview guide, which is the research instrument, were informed by the literature.

The researcher followed an inductive approach to analyse the data. The inductive approach, as Saunders, Lewis and Thornhill (2009:490) explain, is observed when any theoretical framework does not inform the paper. The appropriateness of an inductive approach to this paper is that the purpose was clearly defined and the authors had no prior knowledge of the constructs. Various sources made up the data corpus of this paper; however, the only dataset used for data analysis was semi-structured interviews.

4. Results and Findings

The first part of the interviews contained questions aimed at understanding the participants' context,

which was analysed to ensure the data was obtained from experts with the requisite expertise. Table 1 below displays the profile of the participants.

From Table 1 it can be seen that all the participants interviewed hold strong decision-making roles in their respective businesses. Participants have no fewer than five years of management positions experience and over ten years of total IT experience. Most provide services related to software creation and system integration. All the participants have pointed to the fact that when operating their businesses, they face disturbances. Participants again became aware of the danger of not reacting to changes. Another participant explained: *If you don't move with the new trends, if you don't move with the latest thinking, then you are going to have something taken underneath you.*

4.1 Findings from Risk-Management

The researchers conducted the interviews with the paper's goals in mind, and the subjects were primarily focused on feedback from the participants. The themes captured the techniques or approaches to risk management that SMEs employed in the face of technological changes, which formed the basis of the critical research objective. Table 2 on the next page describes the themes that emerged from the analysis of the interviews, and the number of participants expressing the same views on each theme.

Table 1: Profile of the Participants

Participant	Position in the Company	Number of Years in the Position	Number of Years in IT	Company Core Business
Participant 1	Managing Director/Technical Consultant	8 years	>10 years	Software Development, Enterprise Resource Planning (ERP) Solutions
Participant 2	Executive director	6 years	>10 years	Managed services/System Integration
Participant 3	General Manager	12 years	>15 years	System development, System Integration, Enterprise Architecture Design
Participant 4	Director	8 years	16 years	Software
Participant 5	Deputy Director	5 years	12 years	System Integration
Participant 6	Delivery Executive	8 years	18 years	Software Development, Architecture
Participant 7	Director	5 years	15 years	Software Development
Participant 8	Director	7 years	18 years	Software Development, System Integration

Source: Mofokeng (2018)

Table 2: Summarised Findings from the Interviews

Research Objective	Themes	Sub-themes	Number of Participants
To understand the effects of technological changes on service provisioning by small IT consulting firms in Gauteng in order to gain a perspective of the challenges they encounter.	Effects on customer approach	High client expectations	8
		Shorter contracts	4
	Effects on SMEs	Move towards agile delivery	7
		Flexibility in business models	4
		Reconfiguration of responsibility roles	5
To identify the risks that small IT consulting firms in Gauteng province of South Africa are facing and identify the strategies that they employ to manage these risks.	Risks to business	Skills shortage	3
		Cost	7
		Loss of revenue	3
		Employee turnover	8
		Contractual problems	5
		Productivity	4
		Cloud associated risks	4
	Capacity building	Staff development	8
		Employee well-being	3
		Product line diversification	6
		Researching new trends	5
	Relationship management	Partnerships	5
		Building good relationships with clients	5

Source: Mofokeng (2018)

Effects on Customer Approach and Effects on SMEs were the two main trends that emerged from IT consultancy SMEs' impacts of technological advances on service provision. A brief description of the themes is given below along with supporting quotes from the participants

4.1.1 Effects on Customer Approach

The theme captured the client or consumer impact of technical advances that lease the consulting firm's services. The way customers respond to technological changes affects consulting firms as service providers. *High client expectations and shorter contracts* covered the sub-themes in this group.

4.1.1.1 High Client Expectations

Participants shared the opinion that consumers have higher standards for the solutions they seek because of emerging technology. It relates to turn-around times and providing better options, as the participants explained. That is because consumers are more informed about technology, and what salespeople can provide technology pledge. Participant 2 told: *I think our experience is that the user is becoming more literate. So the expectation and the customer's mind the whole time is that you must do*

this work. Unfortunately, what they don't realise is that to make all the stuff work, if it is not customised, there is a need to understand data, processes, and where the systems integration solution points on. They don't always appreciate that. I think it is becoming harder and harder for IT departments, for IT companies, to manage the expectation of the clients. I don't think there is a quick answer, either.

4.1.1.2 Shorter Contracts

Because of rapid changes and confusion around consulting firms to deliver the solutions needed, most clients now provide shorter contracts, according to the participants.

Participant 2: *You can't have a three-year plan anymore. You've got to have six to twelve months' plans.*

4.1.2 Effects on SMEs

The overall trend captured the impacts of SME shifts. Many of these developments forced them to alter the way they do business and adjust their organisations internally. This overarching theme, consisting of three sub-themes, captured these changes: *Move towards agile delivery, Flexibility in business models, and Reconfiguration of responsibility roles.*

4.1.2.1 Move Towards Agile Delivery

Participants clarified that consulting companies need to adapt methodologies and follow those tailored to changing environments. Some participants cited agile methods as a suitable technique to follow.

4.2 Flexibility in Business Models

Participants clarified that changes placed them in a position not to adhere to a particular business model. Like others have found out, in some instances the conventional consultancy business model known like the body shop, where the client is billed every hour for consultants' services is obsolete. Most tend to have different models implemented. The billing is also done at the complete solution. This supports Cecere's (2016) argument that due to changes, the conventional body shop business model is becoming less preferred. Li (2017) stressed once again that businesses are implementing multiple business models as portfolios.

4.2.1 Reconfiguration of Responsibility Roles

Organisations have to continuously analyse and reconfigure their internal structure according to the participants. As they clarify, some of the functions performed by their staff become obsolete when those service services are discontinued. Changes like Cloud migration will bring this in.

4.3 Risks to Business

Participant interviews pointed to the variety of technical improvements brought on by the threats. Such threats have different consequences for SMEs. That theme revolved around the caused risks. From the data review, the trends emerging that formed this overarching theme were *skills shortage, cost, loss of revenue, employee turnover, contractual problems, loss of productivity, and Cloud associated risks.*

4.3.1 Skills Shortage

It is not easy to find the right business skills to adapt to changes, and it affects profit margins for businesses.

Another participant found out that some clients end up searching beyond the country for cheap labour. It is difficult to break into the market when small and medium-sized businesses have acquired the necessary resources and trained their workforce, paying usual local competitive rates.

4.3.2 Cost

Most participants listed cost as a factor which is highly influenced by changes in technology. Changes lead to additional cost of operating the company. SMEs incur charges by training of workers and outsourcing skills which are not available internally. One respondent stated: *If there is a disruption, and we have to go for training, we have to reconfigure our top management structure, for example. All these things bring in additional financial aspects.*

4.3.3 Loss of Productivity

When emerging innovations enter the markets and are embraced by SMEs, it needs the workforce to have time to learn and achieve higher levels of competency, according to the participants. As explained by the respondents, that affects productivity.

4.3.4 Loss of Revenue

It is probable, according to the participants, that specific clients cancel contracts as they move to new technology. One example given was Cloud; it was pointed out that most consumers tend to pay for on-demand services and are no longer in favour of long relationships.

Loss of revenue can again be attributed to discontinued projects. As Participant 6 explained: *With the adoption of the Cloud there might not be a need for customers to have people that support, for example, databases or Unix systems, because the infrastructure or the Operating System would have been moved over to the Cloud providers. So, we had an instance where the business lost clients because the client no longer required certain services due to the adoption of the Cloud.*

4.4 Capacity Building

Responses from the participants showed that it is important to have professional personnel to handle the risks of disturbances. This theme captured numerous techniques for managing the risk.

4.4.1 Staff Development

Most participants perceived workplace skills as critical to addressing technological change. Employee preparation is the primary workforce development strategy adopted. Employees are educated in emerging new technology, as well as developments impacting existing technologies. Such training is not carried out as a one-off practice taken solely

to adapt to shift, as the SMEs participate in ongoing employee training. One participant said: *You have to keep learning. IT people, by nature, want to keep learning. So, you just have to do it in the right way and manage the expectations of the employees. But you have to keep investing and pay for people to get certifications. For us, investment creates space for people to experiment. We don't push a lot of classroom learning. We would rather have you learn on the job and have you grow through the projects that you work on. Through that way, you gain experience.*

4.4.2 Employee Well-Being

Participants reported that taking care of the employees will lead them to stay with the organisation for longer. This is achieved by handling them and ensuring the work-life balance is good.

4.4.3 Product Line Diversification

Participants clarified that rising costs are not only impacting consulting firms. Cost-saving is a concern for consumers too. As a result, by ditching proprietary solutions and opting for open source products, most consumers handle the costs. To ensure market opportunities are not lost, consulting firms diversify by providing proprietary as well as open-source solutions. This is what one of the participants said: *If we were only proprietary, it would be a problem. Because we are not, that was the part of the strategy when we went the open-source route. So we've got both. You want to get rid of proprietary and put the open-source platform? No problem. We know how to switch the guys over and carry on.*

4.4.4 Researching New Trends

More insight into which technologies to implement is important. There is a possibility, as the participants pointed out, of implementing innovations which do not have staying power. Therefore, they identified research as a significant activity in the disruption approach. One participant referred to Gartner as one of the companies to remain informed about new trends.

It is necessary to know not only which innovations reach the market but also which ones perform well. Another participant had this opinion: *I think from our side one of the things that you always need to do as an SME, you need to be on the cutting edge of technology. And that involves much research on trends and technologies, and how the technologies are performing in the market.*

4.5 Managing Relationships

The participants regarded partnerships with customers, large firms and other small and medium-sized enterprises as significant, and helping SMEs tackle the challenges of technology disruptions.

4.5.1 Partnerships

Participants claim they are entering into relationships to fulfil corporate commitments, as it allows them to conduct business better. This is despite being competitive with SMEs. It is in line with Edison, bin Ali and Torkara's (2013) argument that collaborations with rivals help small and medium-sized companies fend off the major consulting house rivalry. Mahmood, Shevtshenko, Karaulova and Otto (2017) also pointed out that organisations develop alliances through the establishment of virtual networks that can help them deliver faster solutions.

4.5.2 Building Good Relationships with Clients

Participants believe that maintaining strong customer relationships is essential to keeping SMEs in operation. The connections can be preserved by pleasing the client. Participant 5 said: *We have worked a lot on ensuring excellent customer relationships. We strengthen our customer relationships whenever we agree just to make sure that we create strong bonds with the customer. We make sure that we deliver value to our customers, that we deliver quality.*

Last but not least, we also want to make sure that we provide at the lowest cost possible by working with the customer. That's our differentiator. This again reinforces the view expressed by Appelbaum & Steed (2005) that professional and experienced consultants will help to improve the relationships between consulting firms and their clients. Momparler, Carmona & Lassala (2015) support this view, as they perceive expertise and professional competence as the consulting core.

5. Conclusion

The paper was focused on the following objectives: to examine how small IT consultancy firms in the province of Gauteng, South Africa, handle the threats defined by disruptive forces within their dynamic environments. The paper showed that small and medium-sized businesses work in a volatile environment as technological patterns shift. The experienced risks vary and can be mapped into various categories as described by Cheese (2016),

who categorises different types of risk into strategic risk, operational risk, financial risk, the risk to people, and regulatory risk. The paper indicates that the majority of risks faced by SMEs are associated more closely with financial risk and risk to people. Financial risk may be due to cost, sales loss and lower productivity. The challenges facing people are workplace turnover and capacity shortages. Problems with contracts contribute to compliance threats. Cloud computing raises regulatory, as well as operational, challenges.

To handle those risks, SMEs use different techniques. They do so by studying changes to technology, diversifying their product portfolios, recruiting personnel, entering into alliances, creating strong customer relationships and promoting well-being for employees.

The paper results were associated with disruption management approaches as proposed by Christensen in Disruptive Innovation Theory. Noteworthy is that some of the techniques might not be relevant to SMEs, such as setting up a separate organisational unit. The benefits of the first-mover strategy, which is beneficial when engaging in a competitive environment, are also not used by SMEs. The findings show that the approaches of the SMEs are more aligned to support innovation as their business decision is guided by customer requirements being met. The announcement that they have concentrated on establishing good relationships with their existing customers and rely on market forecasts as part of their risk management strategies also confirms their alignment with sustaining technologies. As Christensen suggests, careful plans and reliance on consumer feedback and projections are the best recipes for maintaining systems, but for disruptive technology, meticulous planning must be followed by execution. The strategy of SMEs to diversify their offerings, however, can enable them to develop new markets which can put them on the road to disruptive innovation. This approach is consistent with Christensen's technique of trial and error.

The paper has achieved its objective of exploring how small IT consulting firms based in Gauteng, South Africa, handle risk in their business environments, which are vulnerable to technological disruption. With these changes generating various types of threats on multiple fronts, SMEs' risk management approaches focus on specific elements

from human resources, logistics, management processes and business models. Consequently, risk management is an evolving process for SMEs that requires organisational resilience at both strategic and operational levels, with a strong focus on human capital investment. Nonetheless, SMEs do not seek disruptive technologies when competing with principal players and when adapting to changes in the market environment. Answer to market disruptions often requires disruptive innovation, as it can increase the consumer base and disrupt the business of large incumbent companies.

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