E-Leadership in Small and Medium-Sized Enterprises in the Developing World

Maksim Belitski and Bain Liversage

> *"For Europe to compete, grow and generate jobs, we must ensure that we have the people who can lead the digital innovation and transformation of our industries. … E-leadership is a key component of the Digital Single Market Strategy's drive to foster digital skills needed for the modern European industry."*
>
> Lowri Evans
> European Commission Director General
> Internal Market, Industry, Entrepreneurship and SMEs

Small- and medium-sized enterprises (SMEs) play an important role in the economies of many developing countries. A critical challenge faced by SME leaders, as digitization continues, is how to adopt digital technologies to create value and enable faster product commercialization. There is a paucity of empirical research examining how e-leadership in SMEs drives technology and new product commercialization processes in the developing world. In this study, we have broadened the notion of what constitutes e-leadership, from the perspective of how advanced information technologies affect the leadership dynamic and the appropriation of advanced information technologies. Although there have been several studies on leading technologies in developed countries, we focus on developing an e-leadership framework for SMEs in developing economies. Using this framework and five selection criteria, we conducted 11 interviews with a sample of successful SMEs selected from a pool of 2,240 firms in the city of Johannesburg, South Africa. We conclude by highlighting the five key findings of this study, which explain how SMEs can develop effective e-leadership to foster commercialization and improve firm performance.

Introduction

Information and communication technology (ICT) has a major impact on businesses and society, however, the adoption of ICT has not been well incorporated into leadership theory (Van Wart et al., 2017). In particular, there is a paucity of research on e-leadership in developing countries (Hüsing et al., 2015; Rogerson, 2000) and the factors that direct leadership behaviour towards commercialization. The creation of new products to exploit existing technologies in a firm is a good example of a situation where knowledge that is codified within a firm requires the setup of a system of stable interactions between sets of skills relating to management, strategy, and ICT. These interactions and their implementation as managed by an e-leader will enable faster development and commercialization of new products and services.

However, simply having skills in management, operations, strategy, and ICT is not enough to effectively commercialize new products and new knowledge. It is also important to generate congruence between them, which is known as e-leadership (Coltman et al., 2015). E-leadership in SMEs will thus rely on the leader's capacity to learn, change, and apply ICT to the existing firm's dynamic capabilities (Cohen & Levinthal, 1989; Zahra & George, 2002) in a fast-moving environment. The importance of using e-leadership in facilitating new product commercialization and, in particular, for SMEs has been emphasized recently (Li et al., 2016).

The lack of empirical evidence and theory on e-leadership does not allow policy makers and firm leaders to understand how competitive advantage could be created using ICT (Walumbwa et al., 2011). Along with facilitating e-leadership, firms must also to keep up with

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technological developments, which naturally affects how leadership is viewed (Avolio et al., 2014).

Although e-leadership is an emerging phenomenon in the developed world (Avolio et al., 2014; Li et al., 2016), it has received little attention in developing countries. In many instances, e-leadership is viewed as the adoption of ICT by SMEs (Gono et al., 2016), which is a limited view. The concept of e-leadership is broader than simply focusing on how leaders use advanced information technologies. Our view is "zooming out" in an examination of leadership and advanced information technologies by considering how advanced information technologies and leadership – in the broadest sense – are interrelated. We argue that e-leadership is a fundamental building block for organizations operations and strategy to comply with the alignment of information systems strategic business and IT. Consequently, to the extent that examination of e-leadership is broader than simply focusing on how leaders use technologies, it is about decision making engaging with inter-disciplinary staff, suppliers, and customers, and interacting in a digital space. Specifically, in our examination of e-leadership is a dynamic process of interaction with technologies and people within an organization and beyond, by bringing together organizational culture, knowledge of technology, and interconnectivity.

In this study, we focus on the development of an e-leadership framework in SMEs and ask the following research question: what are the building blocks of e-leadership as a strategic, management, and operational component of an organization, and how do they interact to create a better value for an organization? To answer this question, we use a mixed-methods approach: 11 face-to-face interviews with fast-growing SMEs in Johannesburg, South Africa, and data-mining using interview data. Johannesburg is an interesting case in the developing world because the city is dominated by young people and 82% of its business and community services already use digital technology (City of Johannesburg, 2018). Moreover, the local government has recognized the economic value of digital skills in SMEs and has begun to facilitate programs to support ICT skill development in Johannesburg.

Using the Johannesburg context, our study theoretically examines and empirically tests e-leadership skills in the developing world as a commercialization tool for new knowledge and products within this novel area of research on innovation commercialization and information systems. In addition to knowing about the adoption of digital technologies in the developing world (Nkomo & Kriek, 2011), managers in SMEs need to know to what extent e-leadership can be exploited as a conduit to new market knowledge, creativity, and firm performance (Audretsch & Belitski, 2017; Belitski & Desai, 2016). Indeed, in South Africa, e-leadership supports SMEs in the adoption and management of technologies and in commercializing them in the market (Audretsch & Keilbach, 2007).

The remainder of the article is structured as follows. Next, we briefly describe the current state of e-leadership in South Africa, where SMEs struggle with ICT skills shortages and ineffective commercialization of new products. Then, we develop the theoretical framework of e-leadership. This is followed by descriptions of the methodology and results. Finally, we discuss the findings of the study and their managerial and policy implications.

E-Leadership in South Africa

Ever since the end of the apartheid era and the implementation of a new South African constitution in 1994, the government has placed significant emphasis on innovation and entrepreneurship. Almost 95% of businesses in South Africa are small firms, which are the main job creators in the institutional context of corruption, high poverty, and inequality. South Africa's SMEs contribute around 34% of the country's gross domestic product (GDP) and employ approximately 60% of the labour force (Naicker & Peters, 2013). These statistics are similar to other emerging economies in Africa. Government support to SMEs in South Africa is provided through the Small Enterprise Development Agency (SEDA), the Industrial Development Corporation (IDC), and the National Empowerment Fund (NEF), which were initiated by the National Development Plan (NDP) to enable their neo-liberal policy to drive economic development. The success of these agencies has unfortunately been negligible mostly due to the lack of awareness by SMEs of how to combine skills and in what technologies to invest in a digital age (Cant & Wiid, 2013; Naicker & Peters, 2013).

There is no shortage of entrepreneurs in African countries, however, few of them survive because they are unable to effectively commercialize the products and services that they produce (Rogerson, 2000). In developing African countries, SMEs face tremendous challenges in establishing and adopting new technologies. The limitations are associated with limited access to finance, low skill levels, ineffective leadership, and slow adoption of digital technologies (Matzler et al., 2008). In

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these circumstances, an alignment of businesses and ICT operations and strategies (De Haes & Van Grembergen, 2009) does not happen effectively and the commercialization of new products can be delayed up to the point when they become obsolete by the time they reach the market.

Theoretical Framework

Building on the work of Avolio and colleagues (2014) and Li and colleagues (2016) in conceptualizing e-leadership, we found that the concept is based on successful alignment between business strategy and digital technology fostering longevity and firm growth. Li and colleagues (2016) conducted 42 interviews exploring the construct of e-leadership and how successful SMEs achieve an effective strategic alignment through e-leadership. For SMEs in developing economies, e-leadership could be viewed as a commercialization tool that enables e-leaders to better leverage business and digital skills to exploit the potential of digital technologies in selling the products to market. In doing so, SMEs in developing economies will aim to improve IT adoption and diffusion to facilitate firm performance and sales (Bruque-Camara et al., 2004; Ramamurthy & Premkumar, 1995).

We therefore distinguish three groups of factors that affect e-leaders in SMEs in developing economies more than those in developed economies. First, are the individual characteristics and personality traits influencing the ability of an e-leader. Second, is the organizational environment in which technologies are adopted (Bruque-Camara et al., 2004). Third, is the entrepreneurship ecosystem: how competitive it is, its culture, its institutions, and regulations about new technologies and how firms can exercise and adopt them (Audretsch & Belitski, 2017). Linking these three strands of antecedents, we argue that the e-leadership is embedded into individual skills at organizational and ecosystem levels. In adopting and developing e-leadership, an SME is required to translate its existing, traditional leadership (Vargas, 2015) into e-leadership by making the organization acquire such dynamic competences as strategic leadership, ICT readiness, and business readiness, which correspond to strategic, digital, and business savviness (Hüsing et al., 2013; Korte et al., 2015). In the digital age, these three characteristics emerge as important dynamic capabilities in an organization (Zahra and George, 2002), which empower its leaders (Seltzer & Bass, 1990; LEAD, 2014; Li et al., 2016).

A process that enables transformational leadership (Vargas 2015) into e-leadership is crucial to enable learning new ways of commercializing new ideas and knowledge. Leadership requires transformation to enable better responses to changes in the business environment and entrepreneurship ecosystem (Audretsch and Belitski, 2017) and to commercialize new products. E-leadership is viewed in this instance as the ability to open up to new ways of making products and services using both market knowledge and digital tools to be highly innovative. This transformational process from traditional leadership mainly focuses on individual-level factors (Matzler et al., 2008), but it also embraces the adoption of digital technologies (Li et al., 2016). E-leadership, therefore, builds on the importance of changing behaviours using market knowledge and networks only, rather than learning new ICT skills, to be able to effectively manage and sell technology (Avolio et al., 2001). By learning and integrating a variety of strategic, business, and ICT capabilities, SMEs in developing countries will not aim for stronger alignment of business and IT strategy and operations; rather, SME leaders will transform their firms' commercialization practices by exploiting digital technologies (Li et al., 2016) to market, position, and deliver the product to customers. This is when e-leadership is not only required to change the skill-set but also to integrate new knowledge into organizational routines and practices (Li et al., 2016). New e-leaders will themselves adopt and exploit technology for potential performance gains as well as being able to view other departments by integrating their ICT skills and market knowledge. These changes require e-leaders to appoint digital tools and learn new skills to sell (Avolio et al., 2001) to align business and ICT, as many large firms and SMEs in developed countries do already (Korte et al., 2015; Li et al., 2016). Based on this view, we have developed a model of e-leadership formation and adoption in SMEs (Figure 1).

An important question to answer here is: How does e-leadership work as a tool to facilitate product commercialization? E-leaders provide the guiding vision for SMEs, set the business standards, and set out how to use new technologies. These links appear when the e-leader understands customer needs and develops solutions to meet these needs. Furthermore, digital savviness is important (Hüsing et al., 2013; Korte et al., 2015). When digital technology is available in an organization, e-leadership is a way to encourage risk taking and problem solving. Thus, it is important to develop an understanding of what technology – whether it is

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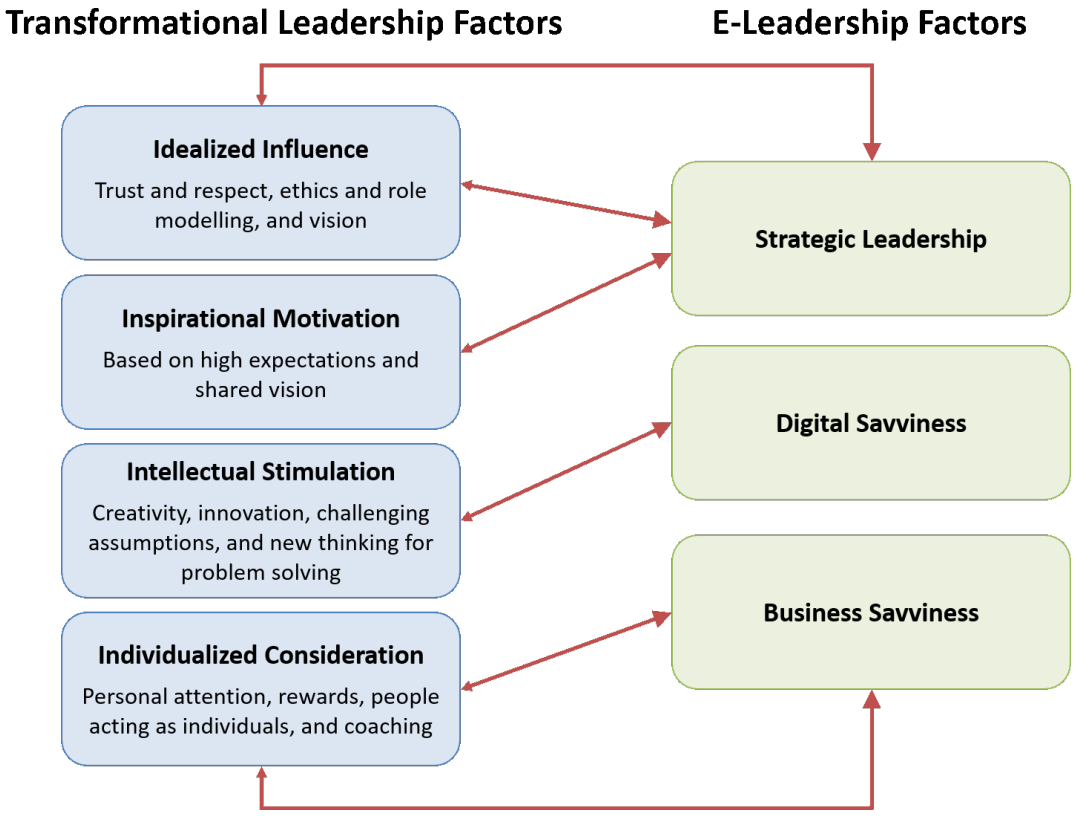

Figure 1. Adopting e-leadership in SMEs

mobile apps, the Internet of Things, social media, or some other technology – can or cannot do to exploit business ideas, collect feedback, or market a product. E-leadership recognizes the need to further develop and update digital technologies along with individual competences on how those technologies could be used (Hüsing et al., 2015). Thus, digital savviness complements business expertise in one area, while business savviness may complement another employee's knowledge on how to use technology. Business and ICT savviness in addition to strategic management of resources (Li et al., 2016) will enable complementarities and the development of a system for understanding customers and using technology to position the firm's product accordingly.

At the same time, we identify two major challenges that may be faced by e-leaders in SMEs in developing countries when adopting and understanding digital technologies. First, in ensuring that technology is embedded in managerial and strategic practices in organizations (e.g., that it is used both during the negotiations and during marketing and product development). Second, digital technologies should be supporting business strategy, and this is only possible if employees are trained (Avolio & Kahai, 2003). E-leadership is also different because of changes in access to information and media. There is now greater workforce interconnectedness, so it is easier to reach others and communication is more permanent. Thus, faster commercialization of products and targeting more distant markets has become possible.

One of the main challenges faced by SME leaders in developing countries, as compared to those in developed countries, is how to optimally integrate business and information technology to deliver the best experience to external stakeholders and, in particular, to customers. The integration of business and information technology aims to achieve greater customer satisfaction while also making them more digitally savvy in the ways they engage with a company, such as by posting and sharing information about their experiences on Instagram, Facebook, and other digital means (Ferneley & Bell, 2006). Not surprisingly, SME leaders capable of effectively introducing new products to market by developing both business and digital strategies are more likely to succeed (Sun et al., 2014). However, to the best of our

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knowledge, there is little research examining how e-leadership within SMEs drives successful alignment between business needs and technology innovation for customer needs, even though alignment thinking is dominant in the literature (Avolio et al., 2001, 2014).

Method

To answer our research question, we use a mixed-method analysis (Lieberman, 2005) including qualitative semi-structured interviews and data mining. This approach is based on existing e-leadership research (Avolio et al., 2014; Bansal & Singh, 2017; Hüsing et al., 2015; Li et al., 2016; Purvanova & Bono, 2009) and the digital adoption literature (Gono et al., 2016; Van Wart et al., 2017). The semi-structured interview approach enabled us to gain a better understanding of the experiences, attitudes, values, and processes regarding the adoption of e-leadership in SMEs (Lieberman, 2005).

The qualitative data collected were coded and transcribed, and the data were then analyzed through word-processing software to ascertain commonalities and anomalies from which conclusions could be drawn. For the quantitative analysis, we used basic descriptive statistics of mean standard deviation, maximum and minimum values.

Sampling

We started our sampling by following Li and colleagues (2016) to develop our selection criteria. Out of a population of all SMEs in Johannesburg, we preselected those who have websites or Instagram accounts, or who trade their products digitally (e-commerce). Second, out of pool of 2,240 firms, we selected those who complied with the following criteria: 1) employ between 10 and 250 people; 2) operate in the greater Johannesburg area (but may have national representation), 3) have been in operation for three or more years; 4) show turnover growth of approximately 20% annually over past the three consecutive years (gazelles); and 5) be considered successful in the ICT sector, as acknowledged by a third party (e.g., a national newspaper publication or national award). These criteria yielded an initial sample of 177 SMEs, to which an introductory email containing the permission and information documentation was sent to the leaders of the selected SMEs (Li et al., 2016).

The responses resulted in a final sample of 11 SMEs. Care was taken in selecting the appropriate level or seniority of leadership; to be invited, interviewees must perform a strategic or directional role in their organization. Thus, we interviewed 4 Chief Executive Officers (CEO), 2 Managing Directors (MD), 1 Partner, 1 Chief Information Officer (CIO), 2 Sales Directors, and 1 Marketing Director (Table 1). The semi-structured questions allowed for easy adaptation and rephrasing to ensure a proper understanding of the responses. They also provided flexibility, depth, and anonymity. Conditions and boundaries were established when developing the open and closed-ended questions using categorization. The interview protocol is provided in Appendix 1.

To make further sense of the data, we used NVivo software to reduce and code the data into themes. Each question was designated as a node from which the essence of the answers was identified. Through this method, the data were quality tested to meet the criteria discussed earlier. The data analysis presented patterns of the views and experiences of the interviewees, thereby forming identifiable links to the literature and the transformational and e-leadership continuum to answer the research question.

Results

Our analysis yielded five key findings about e-leadership development and its role in the commercialization of new knowledge in developing countries.

1. Adoption of digital technology is higher in ICT-related businesses

In our sample, as expected, the adoption rate was higher in ICT-related businesses because they were already advanced in these technologies, due to the nature of their businesses. The higher level of adoption of digital technologies in ICT firms was true only for these four SMEs. The other seven SME leaders commented they are challenged to adopt technology, particularly those limited and more expensive technologies such those supporting the Internet of Things. All interviewees agreed that digital technology is important in commercializing new products. When asked if the digital technology adoption and its support in commercialization is higher in their SMEs than in other firms two CEOs responded, "I wouldn't say so as we all use it for commercialization of what we do" (Interviewee 1) and "No, it needs more focus on the commercialization side" (Interviewee 11). Another described the role of e-leadership in commercialization as, "I see that e-leadership, or as we call it here, "IT leadership", is required to intellectually stimulate and challenge leaders, making all employees digital leaders in their field and making them digitally savvy. Digitization and savviness are not only about the Chief Technical Officer, but everyone, such as a secretary who is able to a use computer, use

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Table 1. The sample of SME leaders interviewed for this study

Company	Industry Sector	Founding Year	Product Type	Leader Interviewed	Location in Johannesburg
SC	ICT	2006	Cellular VAR	CIO	Hyde Park
RA	ICT	1983	Automation RF	MD	Bedfordview
IU	ICT	1983	SAP consultancy	Partner	Sandton
PC	ICT	2004	Medical technology tracking	MD	Bryanston
WA	ICT	1998	ISP	Sales Director	Sandton
TR	ICT	2011	Mobility billing solutions	CEO	Illovo
SCS	ICT	2007	WASP	CEO	Rosebank
BC	ICT	2006	ISP	Sales Director	Bryanston
ZN	ICT	2010	ISP	CEO	Fourways
AM	ICT	2005	Mobility solutions & applications	CEO	Bryanston
SK	ICT	2007	Cellular contract sales	Marketing Director	Craighall Park

software to make a presentation, promote a company online, design a promotion video, or unite people with other skills to enhance online presence of a company" (Interviewee 5).

2. Digital technologies improve sales

All SMEs leaders interviewed view their uncompromising focus on commercialization as vital to their business and IT strategy. Therefore, the role of e-leadership is seen as a skill itself to transform traditional leadership model and come up with a more agile one as a combination of management and ICT. This seems mainly due to the size of the organizations and their respective context and competitive environment. When asked to describe the role of e-leadership in commercialization, three out of eleven CEOs referred to the importance of "hands-on" experience with newly adopted technologies in their organizations. They mentioned that this is crucial to support sales.

One Chief Technical Officer posited that "The place of digital leadership and technology needs to be given better attention. This also includes recognizing the power of social media. Moreover, business strategy needs to move forward from the sale concept to the more embracing market concept." (Interviewee 2). A Chief Information Officer argued that "Digital leadership is strategic management with business and technological acumen with the purpose of adapting in line with innovations in order to ultimately gain competitive advantage and sell. Adoption of digital techs is done by implementing technologies that improve the effectiveness and efficiency of sales first." (Interviewee 9) They added that "Digital leaders are important because they have a wide understanding of how digital technologies can be used to market the products at different lifecycles. This changes sales. Introducing products using digital techs is important for our new customers. Digital techs help to keep up with trending technologies, thinking strategically, to increase sales and gain competitive advantage" (Interviewee 9).

Our word-mining techniques were able to determine that the most-repeated words when the interviewees were asked about e-leadership as sales skills, and the results were "sales and business performance", "commercialization through technology", "sales", and "making product visible". As one leader put it, "If I do not use social media, I am powerless to make myself visible to customers, so my sales don't take off" (Interviewee 10).

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3. Digital technologies act as a feedback tool

Firms must effectively gather and internalize customer feedback to improve their products. As one leader said, "That's interesting, I hadn't given much thought to the idea of 'in-house' apps, or apps for a smaller community that works together. A company can communicate more efficiently and effectively if they are sharing a bespoke app on a project or a new initiative. These apps will need daily monitoring, reporting feedback, and collecting data and responses. This will all need to be managed and presented, and it will become more effective as the learning process evolves." (Interviewee 4). Another IT director added that "These digital technologies now have the power to enable businesses to talk to themselves and exchange feedback, but also business-to-business interaction is important. With the app that we created, we connect to our colleagues within the enterprise group and use Microsoft Yammer to provide feedback on sales or any issues." (Interviewee 8). His colleague also explained the role of technology in feedback: "From mere observations of technology adopted and used in some organizations or businesses, I see the challenges that face the digital leader and their team. First, by making sure that the technology adopted is dynamic enough to embrace any foreseen changes and respond quickly to customer and supplier feedback. It is very important for technology to process information and to relate that to everyone on board from bottom to top. Second, it is vital that the company implements training on simplifying the use of that technology and is open to the feedback gathered while implementing the technology within a company." (Interviewee 6). An IT Director in one of the IT sector SMEs further suggested that "the most challenging one, and after digesting all that, here comes the point of presenting/introducing the technology to the end user in a friendly and simple way. It cannot be done without collecting daily feedback on who adopts and uses the technology, and clients should ensure that everything is presented to them." (Interviewee 1). He further posits "Only a skillful e-leader with a team, of course, can blend all these pieces of information and feedback into a friendly, acceptable, and productive interface of the organization."

Another added that, without e-leadership, there would be no mobility solutions and "our networks will be flat" (Interviewee 5). Another stated the following: "My firm relies a lot on repackaging, and providing novel services is of great importance to customers who are often larger organizations lacking the flexibility of SMEs, where our digital technology allows to track products all the way to customers and see how happy they are" (Interviewee 10). Our interviews demonstrated that e-leadership is also about engagement with customers throughout commercialization of a product and customer management. It is important to ensure that SMEs in developing economies adapt to environmental pressures (Audretsch & Belitski, 2017) so that suppliers and customer are connected through technology.

4. Digital technologies facilitate information exchange with customers

Leaders from all 11 SMEs found information exchange between their firms and customers to be critical to their business performance and sales. Answering the question "How is information strategically collected and used to enhance sales?", one leader posited that "it's by exchange of information that we develop credibility and know how marketing should be arranged" (Interviewee 10). Another added, "Digital technologies would allow for an interactive chat, which is very helpful to understand your customers" (Interviewee 3). Another lamented that "Without digital chat and online connection with my customers, commercialization would take ages and never directly reach customers, but I will be asking a middle man to be this channel" (Interviewee 5).

5. E-leadership facilitates human resources management

People and business success are linked, and factors that affect business competences will also affect ICT skills. One leader commented that "Human resource management acumen is of great importance and technology enables to easier monitoring and motivating employees" (Interviewee 8). Another added that "We need digital leaders to see whom to employ and effectively fast-screen and pre-select candidates so we only pick up those who quickly create value" (Interviewee 11). It was also stated that "Firms often have flat organizational structures making decision making easier, transparency is heightened, and people are clear about what is needed and how technology is to be used (Interviewee 1). One leader explained that "We need a hands-on approach to day-to-day operations, and digital skills of managers are important to see what works at different levels of management (Interviewee 6). Another added that "Being overly operational is bad; when managing people, you need to be both operational and strategic" (Interviewee 10). Finally, one leader noticed that "Technology can improve business operations and increase automation to free-up e-leaders to focus on the future, but it is e-leaders who arrange it altogether, looking at human resource requirements and what digital skills new recruits need to have. If the e-leader does not know what digital technologies and skills are there, how can they hire new people and make them sell?" (Interviewee 2).

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Discussion and Conclusion

This study demonstrated that e-leadership is seen as a tool for new knowledge and new product commercialization. By combining technology, business, and management skills, e-leaders of SMEs in the city of Johannesburg, South Africa, were able to better connect with their customers (sell), recruit employees with relevant skills (manage people), receive feedback from customers and better engage in new product development (manage customers), and transfer information with their suppliers and customers throughout product creation and delivery (exchange information).

Through this work, we make several contributions. Building on the innovation and information systems literature (e.g., De Haes & Van Grembergen, 2009; Leidner & Preston, 2011; Lyytinen et al., 2016), our first contribution comes from applying an e-leadership perspective to new product commercialization as a combination of management, strategic, and ICT skills for improving a firm's market position and performance. Thus, our goal was to inform academics, policy makers, and firm managers about the role of e-leadership in the commercialization of knowledge and new products by managing people, information, sales, and firm performance through the use of digital technology.

Our second contribution is in demonstrating the role of alignment between the management, strategic, and ICT operational component (Leidner & Preston, 2011) of e-leadership and the role than ICT capabilities play in decision making and new product commercialization.

Our most interesting finding is that e-leadership provides a tool for commercialization and it enables digital technologies to be used to create new value for businesses. Unlike e-leadership in developed countries (Avolio, 2014; LEAD, 2014), in a developing country such as South Africa, e-leadership emerges as a skill of commercialization rather than a skill of business-IT alignment in a firm (De Haes & Van Grembergen, 2009). This is a major and important difference, which switches the focus of academics and policy makers on e-leadership as a tool for the exploitation of knowledge rather than locking it within the congruence of operations and the strategic component in digital business models.

The study yielded five findings that demonstrate how a theoretical perspective on e-leadership in SMEs is realized through engagement with the market using data from 11 fast-growing SMEs in the city of Johannesburg. The e-leadership perspective on commercialization in developing economies is different from the one applied in developed economies, where e-leadership affects firm performance through strategic alignment of business and IT operations and strategies (Avolio et al., 2001, 2014; Avolio & Kahai, 2003; Li et al., 2016).

Although a transformation process may take time (Avolio et al., 2014), it has become clear that the application of e-leadership as a skill in SMEs in South Africa is critical to winning customers in today's market. Government agencies and policy makers must, therefore, consider programs that communicate and promote the learning of e-leadership as a skill. In so doing, they should facilitate the development of practices that give SMEs easier access to technology-based training. Access to cheaper or subsidized technology should become a more focused proposition, where policy makers apply price pressure to data and technology suppliers, to form a lower price of entry. Innovative costing and payment structures should be devised to facilitate access to technology. Initiatives such as those proposed by the Department of Trade and Industry (DTI) that aim to encourage and develop innovation and commercialization in SMEs must continue. E-leaders in SMEs should engage in support tools available through online education such as those offered by online open courses. This can be accomplished through partnerships that link government support initiatives to SMEs and universities on their way to commercialization. For example, SMEs could join networks of local universities.

Larger corporations can contribute to training and development activities, and in so doing support the economic improvements needed in developing countries. Established SMEs, such as those that formed part of our research, should formalize their digital strategies. Crucially, in the final stage of e-leadership development, e-leaders will need to align their digital strategy to their overarching business strategy.

This study examined a limited sample of SMEs in South Africa. Future research will expand the sample and include the role of regional culture and institutions in e-leadership. There are differences of opinion on how culture affects hiring decisions, but the overall sense is there must be a combination of skills and cultural fit for effective e-leadership to take root.

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Appendix 1. E-leadership domain and capabilities questionnaire protocol

Background of the successful SME

- When was the business founded and by whom?
- Where is the head office and are there regional offices or representation?
- How many people are employed here?
- What are your core products and services?
- Who are your customers?
- Would you consider your business successful and why?
- How would you describe the leadership style adopted in your business?
- Are you aware of what transformational leadership is and what does it consist of?
- Does your business have a vision, mission, or purpose statement and what does it consist of?

Digital adoption and ICT use

- Overall, how is ICT used from a strategic point of view in your business? Consider from operational efficiency, customer engagement, and product and service innovation perspectives.
- Has the role of digital been identified within your business?
- Is digital a discussion point at the board level and is there a responsible board representative focused on digital?
- Is digital transformation considered high on the strategic agenda?
- What enterprise systems does your business make use of, if any?
- Does your business make use of mobile applications in day-to- day operations?
- What percentage of investment has been allocated to development and integration of digital technologies?
- Was your website set up with the intention of improving sales or for general information purposes or because other businesses were doing it?
- How often does your business update and enhance its website?
- Does your business make use of social media? If so, which platforms are made use of?
- Do you as a leader make use of social media for business purposes, if so, how active are you?
- Do you think your business is currently benefiting from digital technologies?
- What was the most significant innovation in your business over the last few years and what role did digital play?
- Has the use of digital technology helped your business access new markets?

E-leadership

- Over the next five years, what sort of leaders do you anticipate your business will need?
- Is there a skills gap regarding digital technology within your business?
- Does your business have a strategy for developing e-leaders?
- What are the most relevant e-skills necessary for e-leaders to obtain?
- When employing new managers/leaders, what emphasis do you place on their knowledge of and experience in the use of digital technologies.

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