The emergence of the fourth industrial revolution (4IR) poses the risk of bringing about a new wave of disparities due to changed employment patterns and a global economic environment that is experiencing rapid transformation. Automation and so-called «thinking machines» are displacing humans in a variety of professions and functions, which in turn is causing businesses to reevaluate the competencies they seek in prospective workers. The main goal of sustainable economic participation in the 4IR is to harness the localized economic potential by promoting innovation to all its growth aspects. This is accomplished via a unified approach to development rather than a «one size fits all» solution. To that aim, small, micro, and medium-sized enterprises (SMMEs) is one of the most crucial pillars that support the economy. As a result, sustainable entrepreneurship in the context of the 4IR was approached in this research as an outcome-based local initiative that was addressed by key stakeholders.

The fundamental purpose of this study was to analyze the factors that led to the successful identification and utilization of local resources, ideas, and skills by entrepreneurs in order to stimulate economic growth and development in the Fourth Industrial Revolution (4IR). The aim of this study was to evaluate the problems faced by company owners and the impact that provincial and national government aid had on their ability to continue operations. In this study, qualitative research technique and an exploratory research methodology were employed. The 12 SMMEs comprising the study’s population are located in the eThekwini area of KwaZulu-Natal, South Africa. The participants in the study were not selected by chance, but rather on the basis of a predetermined criterion aimed at senior management. Semi-structured interviews constituted the entirety of the data collection. The data was analyzed via NVivo and thematic analysis. This research has contributed to the subject by presenting a business sustainability strategy for SMMEs, with the aim of enhancing the performance and growth of these firms in an uncertain digital realm.

Keywords: sustainable entrepreneurship, 4IR, SMMEs, enterprise development, economic growth, business sustainability strategy.

1. Introduction

The South African economy evolved to the fourth industrial revolution with «developmental» indigenous entrepreneurship and «pro-poor» development policies [1]. 4IR manufacturing and value creation transformations are substantial and pose significant challenges to businesses. Enterprises must plan beforehand to embrace 4IR technologies such as digitalization, the Internet of Things, and blockchain to improve operations and establish innovative business models [2].

Underperformers are at risk of closure prematurely. To secure success in South Africa, businesses must recognize these revolutionary dynamics early on and adapt their business plan to the 4IR [3]. To deal with the 4IR, enterprises require a strong social, legislative, and infrastructural environment [1]. Many big enterprises are already attempting to anticipate the opportunities and risks of 4IR for their business models and have built innovation processes, but SMMEs appear to be struggling to adapt. This is due to a variety of internal factors. These concerns should cause environmental agencies to intervene.

The South African Constitution supports small businesses to foster job creation and poverty reduction [3]. Poor analysis of the local economy, unsustainable community programmes, incompetence, and resources restrict «pro-poor» implementation. Consequently, sustainable, and long-term entrepreneurship in 4IR benefits a country’s in-
dustry, democracy, and society [4]. SMMEs thrive through adjusting to the ever-changing local, national, and global market economies. Local variables in South Africa might either help or hinder SMME growth. This study will look at the factors that impact SMMEs’ capacity to attract, develop, and retain investment.

2. The object of research and its technological audit

As it is anticipated that emerging countries would implement a wide range of economic policies, it is crucial to assess the variables that impact the continuing viability of businesses, as these aspects vary from nation to nation [4]. Since the contribution of corporate entrepreneurship in the dynamic terrain of the Fourth Industrial Revolution tends to favour big corporations or organizations over SMMEs, the objective of this research is to bridge the gap between the two business types and sectors. In the era of the 4IR, there is a dearth of reliable information addressing the factors that promote sustainable entrepreneurship [5]. This research is academically significant since it attempts to contribute to the existing body of knowledge on SMMEs that operate in situations that are volatile and constantly changing. Beyond the academic setting, the research boosts owner and management perspectives of how the deployment of 4IR technology and its best practices would be used to deliver contingent solutions to SMMEs’ development, sustainability, and automation. In addition, if the study’s suggestions were adopted, it would boost corporate growth and performance, hence generating employment and boosting the economy and quality of life. The research will also aid policymakers in designing and regulating SMME-specific policies.

3. The aim and objectives of research

The research aims to assess the elements that enable entrepreneurs in the 4IR to identify and use ideas, skills, and local resources to boost economic growth. The objective of sustainable entrepreneurship:

1. Seeks to reduce poverty, generate equal job opportunities, and redistribute resources and opportunities to all local citizens.
2. Evaluate entrepreneurs’ struggles in seeking governmental assistance in bid for their survival and provide strategies to overcome such obstacles.

4. Research of existing solutions of the problem

The terms small, medium, and micro enterprise (SMME) and entrepreneurship are frequently used interchangeably [5]. However, there is a subtle distinction between the two: entrepreneurship is a process that results in SMME formation and enterprise activities, whereas SMMEs are essentially business enterprises that result from the risk-taking efforts of entrepreneurs. From entrepreneurial inventions, enterprise opportunities are discovered, and resources are allocated to convert the concept into viable firms. However, characterizing SMMEs may be difficult because the phrase has a broad variety of definitions throughout the world [4].

When discussing SMMEs, nations and businesses commonly cite firm size, asset worth, number of employees, and annual income. Likewise, there has never been a precise, widely acknowledged definition of entrepreneurship [6]. Individuals must be encouraged to develop entrepreneurial sustainability skills in order to promote economic growth in the country. Individuals’ perspectives on commercial endeavours have been altered by the emergence of sustainable entrepreneurship [2]. Nevertheless, the notion of sustainable business in the 4IR is novel; no broad explanation of it exists.

The success of SMMEs is contingent on a number of multidimensional elements; consequently, policymakers and business owners must recognize how these factors affect the viability of firms. KwaZulu-Natal SMMEs are not an exception to this, since 41% of South Africa’s Gross Domestic Product (GDP) is comprised of entrepreneurial ventures [7]. According to research by Economic Development and Growth in eThekwini, SMMEs consist of a wide variety of businesses, ranging from long-established family businesses with around a hundred employees to survival entrepreneurial company endeavours (micro-enterprises). The KwaZulu-Natal province contributes 17% of the nation’s gross domestic product through its manufacturing, trade, and financial sectors [8].

According to a report by COEFS in 2018, for the industrial revolution to be sustainable in South Africa, a robust digital ecosystem must be in place [9]. Access to economical and dependable power is a need for utilizing contemporary technology. Participation in the digital economy also requires internet availability, notably high-speed internet for enterprises, and inexpensive access to data and devices. There are several elements that influence sustainable entrepreneurship, and they may be internal or external to the firm. External and internal environmental variables impact the long-term viability of businesses [10]. Similarly, previous research has demonstrated that the sustainability of entrepreneurship is the result of both internal and external environmental influences.

Assistance from both private and governmental entities is essential for the formation and maintenance of SMMEs [8]. Since 1994, the government of South Africa has developed many programmes to help SMMEs in the country [8], 1994’s Reconstruction and Development Programme (RDP), 1996’s National Business Act, and 1996’s Khula Enterprise Finance Limited are among the projects [9]. Small Enterprise Development Agency (SEDA) was founded in 2004 with the mission of executing the government’s small industry strategy and unifying government-sponsored small initiative assistance across all levels of government [10].

The government, through SEDA, also manages several business incubators in all South African provinces, with the goal of fostering the growth of small firms into profitable enterprises [11]. The government enacted the Accelerated Shared Growth Initiative for South Africa in 2006, the New Growth Path in 2010 and the National Development Plan in 2012, all of which intended to promote SME development for job creation and economic expansion [12]. In addition, the Small Enterprise Finance Agency was established in 2012 with the intention of addressing the issues of small business firms’ access to capital for start-up and expansion [13].

5. Methods of research

This study adopted an interpretivism philosophy which aided the researchers to understand the impact of 4IR on SMMEs. The researchers through the interpretation of the research participants’ own experiences recognised the dilemma under review.
This study employed a phenomenological research approach. The methodology has its roots in the fields of philosophy and psychology, and it entails describing the participants’ own first-hand accounts of a phenomena being studied [14]. The Qualitative research approach was suitable to this study because the possible answer to the research questions required clarification and reasoning from the respondents rather than a simple multiple-choice answer [15]. Additionally, this approach was pertinent to this study due to its flexibility in eliciting more answers from respondents through further probing because of the open-ended questions deployed by the researchers.

6. Research results

The Thematic Analysis formulated 3 main themes of the study that was carried out. Hereunder, each theme, qualitative technique used to analyze it using the NVIVO software and the interpretation of it are discussed.

6.1. Understanding 4IR in business operations, and current workplace trends. Bubble diagrams as shown in Fig. 1 were used for the cluster analysis that was performed using NVivo. The data, represented above as «bubbles», are presented in the form of key phrases in these diagrams. The greater the size of the bubble, which signifies the greater the frequency of the terms or allusions. Furthermore, the proximity of the bubbles indicates that there was some kind of connection between the words in question [16].

Integration and advancement seemed to be the highest ranked factor in regard to 4IR. This was informed by the following: Advanced technologies in business.

It was all about utilizing advanced technologies in business. This included powerful technologies such as AI, IOT, Quantum computing, Big Data and Blockchain among others. These technologies would serve to change the landscape of how business was conducted and transform the way traditional business operated [17]. The Machine would become the dominant force of business.

This is supported by the following respondents who conveyed the same:

<Files\Participant 1> – § 1 reference coded [2.54 % Coverage]
The Fourth Industrial Revolution is an umbrella term for the merging of the analogue, digital, and biological spheres. It’s the coming together of cutting-edge areas of technology including AI, robots, IOT, 3D printing, GE, quantum computing, and more.

<Files\Participant 11> – § 1 reference coded [0.97 % Coverage]
I believe its technological systems integration combined with corporate IT systems.

<Files\Participant 3> – § 1 reference coded [2.69 % Coverage]
The 4th Industrial Revolution is characterized by the integration of various emerging technologies in the business sector.

<Files\Participant 4> – § 2 references coded [1.56 % Coverage]
Reference 1 – 0.60 % Coverage
Reference 2 – 0.96 % Coverage

<Files\Participant 6> – § 2 references coded [1.89 % Coverage]
Reference 1 – 1.08 % Coverage
Reference 2 – 0.81 % Coverage

Particularly SMMEs, to effectively align and automate their systems and processes

<Files\Participant 8> – § 1 reference coded [3.70 % Coverage]
In order for businesses to function more effectively, they are using technologies such as cloud computing, data analytics, remote work, and the usage of more advanced varieties of technology.

<Files\Participant 9> – § 2 references coded [2.93 % Coverage]
Reference 1 – 1.04 % Coverage

The combination of a number of different information technology systems in business is referred to as technological systems integration.
Reference 2 – 1.89 % Coverage
Without the integration of technologies and systems in the appropriate manner, digital transformation is not feasible. In addition, you will need to integrate the physical and virtual system components of your business throughout this procedure.

6.2. Enterprise sustainability and adaptability in the 4IR.

Tree maps as shown in Fig. 2 display the data (words that are used often) as a function of the size of the blocks. Therefore, the terms that were most often used are shown in bigger blocks. The whole of the map provides a comprehensive overview of how the data is arranged in terms of reference size [18].

This important theme was crucial to assess how sustainable the SMMEs were in the current economic times. However, the current economic times created significant limitation for SMMEs to be sustainable. The biggest contributing factor was the limited cashflow. Firstly, SMMEs were still emerging business had limited cash on hand. Furthermore, SMMEs had severe challenges accessing finance. This was because they were not properly established and hence had a lack of financial experience and track record [19]. This made the acquisition of loans and capital challenging.

Due to insufficient capitalization, unstable revenue streams, inexperienced management, and inadequate financial and business acumen, small and medium-sized enterprises pose a high credit risk profile. Because of these concerns, conventional lenders are often unwilling to work with small and medium-sized business owners. As a result, getting a loan may be difficult for businesses, especially new ones, due to the cautious attitude of banks and other institutional lenders. The credit market sees a need to limit risk, so even if these companies do get access to financing, it will be at exorbitant interest rates.

Reference 2 – 1.99 % Coverage
This might be because they lack the expertise and insight into how to efficiently set up and operate the firm, and the corresponding important KPIs to follow, or because they rely heavily on customers paying their bills on time and have a restricted cash flow:

Reference 1 – 2.81 % Coverage

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Reference 1 – 2.81 % Coverage

Small and medium-sized enterprises, especially new entrants, have a greater need for easy access to finance than do major corporations, which have more established networks from which to draw funding. Due to the higher perceived risk associated with SMMEs, access to financing is a substantial barrier to their growth. As a result, financial institutions often deny credit applications from SMME business owners or provide loans at exorbitant interest rates.

The SMMEs also had a lack of organizational structure and hindered impacted on their business model and operations. This could also hinder productivity [17]. This was supported by the assertions of the following participants:

SMMEs with short histories or low levels of maturity may lack the financial, operational, and strategic frameworks that are standard amongst more established organizations. This prevents them from optimizing their use of cash as they seek to expand their business.

Reference 2 – 1.89 % Coverage

For the most part, this is due to the fact that small businesses often lack robust performance management systems, distinct day-to-day operating models, and well-defined management structures and responsibilities.

Respondents also asserted the SMMEs were struggling in their sustainability effort due to the shrinking economy and which was worsened by COVID-19, unrest and flooding [20], as is shown below.

Reference 2 – 1.99 % Coverage

SMMEs are struggling to cope in the current economic times and therefore are not majorly focused on ensuring sustainable practices.

Reference 6 – 3.49 % Coverage

Over the last 3 years, SMMEs in KZN were forced to halt economic and social activities impacting on their ability to survive and causing financial distress as a result their resilience and sustainability was threatened. This was due to Covid-19 lockdown restrictions, the «July unrest» and the catastrophic floods that effected business and society at large.

6.3. Strategies to drive firm performance and development in the unstable corporate climate.
The word cloud depicted in Fig. 3 is visualizations that show which words are most commonly used. The greater the size of the typeface indicates that the term was used more often [21]. This makes it easier to identify important areas and patterns.
This was an important theme as it dealt with the strategies and support required to drive firm performance and development in the unstable corporate climate. In terms of government support, funding was the highest ranked factor. Funding was the core of attaining sustainability from the start for small businesses. Small businesses always had difficulties in terms of finance and capital and trying to adhere to the 4IR required substantial investment [22]. New products and services also required research and development as well escalating production costs [20]. Therefore, more funding opportunities must be provided by government.

This is supported by the following respondents who conveyed the same sentiments:

<Files\Participant 11> – § 1 reference coded [2.53 % Coverage]

Small businesses should receive financial assistance from both local and national governments so that we can improve our business practices and move closer to achieving a sustainable environment and harmonious community.

<Files\Participant 2> – § 1 reference coded [3.43 % Coverage]

In certain circumstances, the local government pays incentives to private enterprises producing a new product or service that would enhance a crucial aspect of an economy, such as transportation, energy, agriculture, or communications. Local governments and private investors often team together to sponsor research and development initiatives in certain regions.

<Files\Participant 3> – § 1 references coded [6.62 % Coverage]

Local and national government should provide financial assistance to small business so that we can also incorporate smart technologies brought by 4th industrial revolution to improve our business practices and move towards a sustainable environment and harmonious community.

<Files\Participant 5> – § 1 references coded [2.02 % Coverage]

More entrepreneurs will have access to the capital they need to start enterprises if the government increases the number of small business funds and subsidies.

There must be incentives for small businesses provided by government [19]. Such can include tax incentives, relaxation of certain regulations, funding for technology, and other related compensation. The following respondents echoed such sentiments:

<Files\Participant 11> – § 1 references coded [2.67 % Coverage]

The government should also explore providing tax incentives to SMMEs in order to encourage environmentally responsible business practices, particularly with regard to the acquisition of cutting-edge technology, services, and goods.

<Files\Participant 3> – § 1 reference coded [2.62 % Coverage]

Government should also consider giving small businesses tax rebates to promote sustainable business practices especially on the purchase of new and innovative technologies, services and products.

Transportation support is needed especially for business that needs to transport goods. The roads and infrastructure must also be maintained to prevent delays and damage to vehicles and goods [22]. The following respondent held the same view:

<Files\Participant 2> – § 1 reference coded [4.35 % Coverage]

Transporting raw materials to factories and completed products to plants and markets swiftly is essential to a company’s success. Businesses are able to more effectively transport their goods and services because of national government initiatives through SANRAL. Other types of infrastructure are also under their care. Everything from the construction of new infrastructure to the repair of existing roads, bridges, railroads, airports, seaports, power lines, and phone networks are all included here.

More effort has to be made by the government of South Africa to raise the level of education and training available to its citizens [17]. Increased funding for schools, Technikons, and universities means better educated and trained graduates and ultimately, better executives and employees.

7. SWOT analysis of research results

Strengths. The study proposes strategies to drive SMME performance growth and development in the unstable 4IR corporate climate:

- to enhance the long-term sustainability of SMMEs;
- to reduce the closure and premature demise rate of enterprises due to the lack of support and skills;
- to contribute positively towards the GDP and economic growth.

Weaknesses. After the steps have been put into place and implemented, only then will it be feasible to evaluate how successful they were.

Opportunities. The findings of the study can be implemented in other provinces throughout South Africa and scaled up to a national level. Beyond academia, the research improves owner and management perspectives of how 4IR technology and best practices will be used to deliver contingent solutions to SMME development, sustainability, and digitalization. The study’s suggestions would boost corporate performance and development, generating employment and raising living standards. The report will also help policymakers create SMME policies.

Threats. SMME management and policymakers’ reluctance to adapt to disruptive change.

8. Conclusions

The endurance of sustainable entrepreneurship is determined by internal elements in the business context such
as the managerial competence and skills, financial means, business management training, and technology capabilities. The results discussed in the study underlined the external environmental factors that influence the sustainability of innovative 4IR entrepreneurship, and these factors include economic markets and variables and, corruption and crime, labour, infrastructure, and laws and legislations. The viability of entrepreneurial endeavours is also impacted by factors such as competitiveness, globalization, and macroeconomic variables (i.e., inflation, taxes, and interest rates). Internal and external elements, such as financial strength, technical understanding, information management, legislation, customer demands, and organizational culture all play an important part in the continued viability of SMMEs.

Conflict of interest

The authors declare that they have no conflict of interest in relation to this research, whether financial, personal, authorship or otherwise, that could affect the research and its results presented in this article.

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