

A GROUNDED THEORY ANALYSIS FOR REMODELLING BUSINESS INCUBATION IN THE CONTEXT OF THE COVID-19 PANDEMIC

Thobekani Lose, Walter Sisulu University
Khulekani Yakobi, Walter Sisulu University
Francis Kwahene, Walter Sisulu University

ABSTRACT

Employing the grounded theory methodology, this paper sought to explore business incubation in the context of the covid-19 pandemic. The paper analysed sectoral briefs released by the International Labour Organisation on its online portal, focusing on its recommendations to identify patterns for operating businesses that can be useful to business incubators post covid-19. The study question was: What theory or explanation of business incubation in the context of the covid-19 pandemic emerges from an analysis of the data collected about this phenomenon from the ILO publications? The study identified six determinants of successful business incubation during and after the Covid-19 pandemic, namely: social dialogue, technological adoption, stakeholder engagement, collaborations, business re-purposing, shock resilience. The findings of the study are consistent with other research findings but the Covid-19 global pandemic appears to intensify recognition of the six identified elements. Of the six elements, social dialogue was found to be the central factor in ensuring business resumption and resuscitation after the global Covi-19 pandemic.

Keywords: Incubation, Small Business, Covid-19, Social Dialogue.

INTRODUCTION

In a study of the global macro impacts of Covid-19, McKibbin & Fernando (2020) explain that mortality (death) and morbidity (incapacitation) are the two conventional ways of analysing the economic effects of infectious diseases. Jackson, Schwarzenberg and Nelson (2020) commented that the Covid-19 crisis is likely to create a global economic recession that is of the same magnitude as that of the 1930s. In South Africa the economic contraction, shocks and pressures associated with the Covid-19 pandemic have significantly affected small businesses which make up about ninety eight percent (98%) of all businesses (Rajagopaul et al., 2020). Remodelling operations as a solution to reduce the mortality and morbidity of organisations is worth analysing during and post the global Covid-19 pandemic. The International Labour Organisation [ILO] (2020) notes that Covid-19 has affected and is still affecting both the supply side (production) and demand (consumption and investment) side of the economy with small businesses being severely affected and at a higher risk of failure to sustain operations. Business incubation is considered a critical phenomenon to support entrepreneurship and reduce the mortality of business start-ups (Small Enterprise Development Agency [SEDA], 2018, Small Lose, 2019). Prior to Covid-19, these services were offered by business incubators. The present paper takes the stance that there are some modifications to business operations that deserve an equal reaction from businesses so that they can effectively respond to the changed business

landscape. The assumption forming the basis for this paper is that business incubators ought to adopt a new approach to incubation during and post the Covid-19 crisis. The rationale for studying business incubators is based on the observation that small businesses appear to have been significantly harder hit by the pandemic than big businesses (Rajagopaul et al., 2020; ILO, 2020).

Using a grounded theory approach, the aim of this paper is to generate a theory of business incubation post the Covid-19 shock. The research observed that the Covid-19 was not anticipated and provided circumstances which were novel. Therefore, the paper assumed that this study was capable of generating data that can offer new insights of concepts and categories from data that is based on the existing scenarios. Glaser (2007) argued that in grounded theory 'all is data,' despite the form that it takes. The theory to be generated will be based on the data collected from small business articles released by the International Labour Organisation (ILO). The ILO and the World Health Organisation (WHO) became key sources of information during the Covid-19 outbreak. As a result, the study was premised on the argument that adequate analysis of the information as it relates to the new phenomena is likely to result in new ways of understanding certain theories and concepts related to small businesses and their incubation. Against this background, the literature review conducted in the present section was conducted following Urquhart and Fernández's (2016) exposition that grounded theory follows a phased literature review that involves: (1) theoretical sensitivity and review of existing theories, and (2) comparison of existing theories with emergent theories.

Business Incubation Theory

Over the past years, business incubation has received significant attention (Dubihlela & Van Schaikwyk, 2014), not only in Africa or in other developed countries but worldwide (Lose, et al., 2020). Policy makers, led by leaders of national governments have rightly and consistently argued that business incubation has the capacity of fuelling economic growth and helps in addressing the economic evil of unemployment (Allahar & Brathwaite, 2016; Lose et al., 2016). It should be kept in mind, that the term incubation originated from the field of Biology, and was adapted in business literature to describe the nurturing of small businesses at their infancy so that they could get enough support in their formative years until they could stand alone. In an effort to strengthen business incubation in South Africa, the Small Enterprise Development Agency supports the majority of business incubators in South Africa (Lose & Mafini, 2019). However, a notable proportion of business incubators face a number of challenges to growth and development. As a result, the concept of business incubation has gained prominence in academia in recent years as a vehicle for small business development.

In a review of incubation literature, Allahar and Brathwaite (2016) note that theories of business incubation include: (i) generational incubation theories, (ii) mode of operation theories (physical and virtual incubators), (iii) theories based on types of incubators (technology based, university based, accelerators, for profit, non-profit, innovation based), and incubation stage theories (pre-incubation, post-incubation). In theorising incubation, services offered by incubators include mentoring, coaching, financing, providing infrastructure and other support functions. It is clear from the above that there are various dimensions for theorising incubation. The present paper seeks to address operational shifts in business incubation business models that will be appropriate for responding to the Covid-19 disaster. The study was based on the argument that the Covid-19 disaster have created a new mode of operation for business incubators.

Covid-19 Based Dimensions for New Business Incubation Models

It is to be noted that during pandemics, business incubators should be able to provide the right information on the shocks, risks and possible ameliorative measures associated with the pandemic. Rajagopaul et al (2020) commented that the viability of small businesses during economic turbulences such as those associated with the Covid-19 pandemic is critical. In order to promote such viability, reliable global information is essential. In an editorial comment in the Lancet, Anon (2020) took an information-based position for theorising business incubation in the era of Covid-19, which argues that accurate and correct information on the pandemic is essential to reduce panic. This argument is elaborated upon with an opinion that the Covid-19 pandemic is also associated with an 'infopandemic' which is based on wrong and destructive information that circulates on various unofficial platforms such as those on social media. The information dimension seems to suggest that business incubators should regularly scan global disaster alerts based on official information platforms and advise incubatees, potential incubatees and former incubatees appropriately. For this reason, it was important to rely on official reports, hence the study was based on information released by the ILO.

Statement of the Study Problem

Given that ninety eight percent of businesses in South Africa are small enterprises (Rajagopaul, 2020) the threat of the Covid-19 pandemic on the small business sector is a cause for concern. Many small businesses are faced with the risk of total collapse and failure to re-open after closing during the lockdowns effected to reduce the spread of the coronavirus. Consequently, there is a greater challenge faced by small business incubators to resuscitate, remodel and promote the re-establishment of small business and entrepreneurship initiatives (Lose & Tengeh, 2015). It is also generally acknowledged that the re-start of small business operations will be gradual and may take years to reach full potential. Business incubators, as a result are faced with the challenge of operating under a changed business environment in a way that promotes new models of small business operations. The environment after and during the lockdown will be characterised by Covid-19-induced phenomena such as 'social distancing, limited operational hours, lockdowns, sanitisation, disinfections and constant Covid-19 testing.' Small businesses in the post Covid-19 era have to adopt new business models and business incubators are also expected to remodel their incubation packages to promote the survival of small businesses operating in a different way post Covid-19. Basnayake et al. (2020) commented that the Covid-19 pandemic has disrupted previous value chains and there is a need for new strategies and new operating models that fit the new situation.

Aim and Objectives of the Study

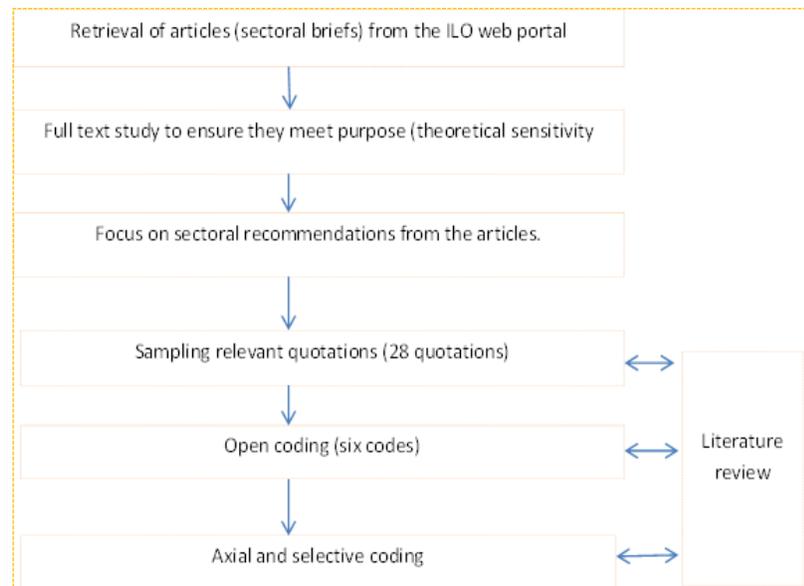
The aim of the study is to infer a post Covid-19 theory of business incubation from the publications of the International Labour Organisation (ILO). The ILO published various articles on its website to assess the impact of Covid-19 on sectors of the economy and provide recommendations to reduce the effects of the disease on businesses from various sectors and industries. The present paper will look at the following aspect: What theory or explanation of business incubation post Covid-19 emerges from an analysis of the data collected about this

phenomenon from the ILO publications? To deduce a possible emerging way of operation for business incubators, the study analysed the pattern of themes observable from the ILO releases.

REVIEW METHOD

The study question was: What theory or explanation of business incubation post Covid-19 emerges from an analysis of the data collected about this phenomenon from the ILO publications? A grounded theory methodology was adopted for this study following the seminal ideas of Glaser and Strauss's (1967) publication on grounded theory. Principles of purposive and theoretical sampling were adopted to identify data sources and to sample out possible data for theory generation. Glaser and Strauss (1967) acknowledged took the view that theory generation is possible from qualitative data. The argument is that a theory can emerge which is grounded in the data that has been collected. A system of coding, creation of categories and comparison with related literature forms the central elements of the grounded theory technique. Sbaraini et al. (2011) example of a procedure for conducting grounded theory, states that purposive sampling forms the initial strategy for data collection. The study sought to investigate an emerging theory for business incubation based on the observation that many business incubators as well as small businesses had closed their doors due to the Covid-19 pandemic. The post Covid-19 era is predicted to be different as new ways of doing business are expected to emerge. The lifting of lockdowns has been gradual and has followed phases. As a result, business incubators are also expected to start slowly as small businesses gradually start operating. This situation implies that the mode of operation is expected to be different when compared to the period prior to the Covid-19 pandemic.

In its response to the pandemic, the ILO published articles to explain the impact of Covid-19 on businesses in various sectors and also provided recommendation of what can be done to reduce the total collapse of businesses in various sectors. The study analysed the recommendations of the ILO to identify the new ways or models of operations that businesses in various sectors were being advised to adopt in order to rise up and become competitive once again. The rationale for using the ILO releases was based on the need to use reliable data that can be trusted to generate credible new directions. The new directions provided were also assumed to be capable of forming a basis for generating new innovative ways for business sustainability. Eight (8) sectoral brief articles were retrieved from the ILO website. The ILO published articles on the eight (8) sectors, namely: Food and Retail sector; Automotive industry, Textiles, Clothing, Leather and Footwear industries; Civil Aviation sector, Tourism sector, Agriculture and Food security sector, the Shipping, Maritime and Fishing sector and the Health sector. Theoretical sampling was used to select quotes from the articles. The research question that guided the theoretical sampling was: What theory or explanation regarding business incubation post Covid-19 emerges from an analysis of the data collected about this phenomenon from the ILO publications? A coding procedure was performed on the selected quotes. Six (6) in-vivo codes were generated using Atlas.ti. (software for qualitative data analysis). These codes are: (1) Stakeholder engagements, (2) Technological solutions, (3) collaborations, (4) E-business solutions, (5) Repurposing production, and (6) shock resilience. Figure 1 shows the processes that was followed in this analysis



Source: Author's construction

FIGURE 1
DATA COLLECTION AND ANALYSIS PROCEDURE

The above procedure was followed based on the grounded theory methodology. Glaser and Strauss (1967:21) argued that the method of constant comparison is central for generating theory in both the quantitative and qualitative research. Constant comparison involves the repeated linking of units and elements to establish possible relationships among them which become the basis for new theory (Hoare, Mills and Francis, 2012:240). Hoare, et al. (2012:240) goes on to explain the pragmatic nature of grounded theory and emphasises that new theory is based on a process of going forward and backwards as well as sideways in search of emerging relationships. This process involves collecting data and analysing it immediately and creating units for comparison while making constant reference to the literature throughout the analysis. The last three stages of the process shown in Figure 1. Involves significant application of the constant comparison technique.

REVIEW RESULTS

Table 1 shows the quotes and the codes generated to establish the emerging directions for business incubators in the post Covid-19 era. The codes were created following purposive theoretical sampling techniques as suggested within the Grounded Theory methodology. This implied that codes were selected based on their relation to the research question that was formulated for the study.

Table 1 RESULTS OF OPEN CODING		
Open coding codes	Original statement (initial concept)	ILO sectoral brief reference
e-business solutions to business disruptions social dialogue	Quote 1.1: "...While food retail businesses have been spared forced closure, delivery times for food provisions have been under stress. These issues are associated with a slowdown in transport and supply chains' operations. It is estimated that the hardest hit will be small and medium-sized food retail businesses, which have no alternative mechanisms of delivery and sale, such as e-commerce, unlike large retailers..." Quote 1.2: "...social dialogue in particular can be useful in the context of Covid-19 response policies for the food retail industry to ensure continued operation of food retail enterprises."	Covid-19 and the Food retail sector
e-business solutions Stakeholder Collaboration Repurposing of production Social dialogue	Quote 2.1: "...the automotive industry is facing a sharp drop in demand and investment. It is also struggling with an abrupt and widespread stoppage of economic activity, as workers are told to stay at home, supply chains grind to a halt and factories close..." Quote 2.2: "...small and medium-sized enterprises (SMEs), which account for the bulk of employment in the sector and provide intermediate inputs and services to multinational carmakers, are expected to be severely affected (backward linkages). Sectors likely to be affected by the closedown in the automotive industry through forward linkages include transportation (e.g. freight, ground passenger transport, charter buses) and services (e.g. passenger car rental and car repair)..." Quote 2.3: "...many more jobs will be at risk if governments, employers and workers do not take immediate action to ensure the survival of SMEs and protection of workers..." Quote 2.4: "...leading automakers across the globe have repurposed production to make ventilators, disinfectant and face masks..." Quote 2.5: "...social dialogue for the identification of solutions."	Covid-19 and the automotive industry
E-business solutions to business disruptions Social dialogue Collaboration of partners	Quote 3.1: "...the short-term impact of the Covid-19 crisis has been reflected in a sharp drop in TCLF product sales, as more and more shops are forced to close due to government restrictions, and as consumers are instructed to stay at home." Quote 3.2: "...the extent to which online retail can compensate in terms of overall sales during the period of store closures is yet to be seen. Retailers have employed tactics such as free shipping and heavily discounted products to encourage consumers to shop online. Nevertheless, while online shopping remains a viable option, rising unemployment, falling incomes and growing uncertainty mean that purchasing new clothing may no longer be priority for many consumers..." Quote 3.3: "social dialogue to build trust between governments, businesses and workers, to ensure their continued commitment to the necessary policy responses and workplace measures." Quote 3.4: "...adapting factory-level operations on crucial health and safety issues, coordinating information campaigns and training for national partners, providing policy advice for factories and brands, and working with governments and international buyers to identify opportunities to protect suppliers and their workers..."	Covid-19 and the textiles, clothing, leather and footwear industries
Social dialogue	Quote 4.1: "...the effects of Covid-19 have impacted aviation demand and will translate into significant losses." Quote 4.2: "...clear evidence that social dialogue is an effective and preferred means to achieving a feasible, successful and acceptable business model for the current aviation climate"	Covid-19 and civil aviation
	Quote 5.1: "... measures such as travel restrictions, flight cancellations and the	Covid-19 and the

Repurposing operations Social dialogue	closing of tourism businesses have had an immediate impact and have significantly diminished the supply of, and demand for, domestic and international tourism services...” Quote 5.2: “...tourism resources repurposed...” Quote 5.3: “...relying on social dialogue for solutions.”	tourism sector
Table 1 RESULTS OF OPEN CODING		
Shock resilience Social dialogue Fourth revolution technological adoption International collaboration Shock resilience Social dialogue	Quote 6.1: “...the outbreak of novel coronavirus disease (Covid-19) puts a spotlight on the resilience of health systems and countries’ emergency preparedness and response.” Quote 6.2: “... health workers are the backbone of the health system. Due to the nature of their profession, millions of them risk their own health doing their daily work. So, who is protecting health workers, who are so critical to the fight to stem the Covid-19 pandemic?” Quote 6.3: “... emphasises the importance of social dialogue and the vital role of employers’ and workers’ organisations in crisis response.” Quote 6.4: “...voice and participation are critical for enabling health workers, employers and other stakeholders in the health system to play an active role in responding to the Covid-19 outbreak.” Quote 6.5: “...technological advances, such as online and mobile health applications, 3D-printing and artificial intelligence can enhance health service delivery and ways of working during and beyond the pandemic. Some countries have introduced the use of mobile phone location data to track Covid-19 spread at the national level. In the Netherlands, medical students are being employed in a call centre, which patients experiencing severe symptoms can use to be directed towards the care they need. Introducing and scaling-up digital technologies to inform, train and guide health workers, especially in poor and remote locations, can improve transparency, service delivery and management during the pandemic.” Quote 6.6: “...international collaboration...” Quote 6.7: “...progressively building shock responsiveness...” Quote 6.8: “...relying on social dialogue for solutions...”	Covid-19 and the health sector
Business disruptions	Quote 7.1: “...since the beginning of the pandemic, no significant disruptions in the supply of food have been experienced so far. However, logistical challenges within supply chains, particularly cross-border and domestic restrictions of movement, as well as labour issues, may lead to disruptions in food supply, especially if they remain in place long-term. High-value, and especially perishable commodities, such as fresh fruit and vegetables, meat, fish, milk and flowers, are likely to be particularly affected.” Quote 7.2: “...the pandemic may also have a serious impact on labour-intensive crop production and processing due to labour shortages and the temporary cessation of production.”	Covid-19 and the impact on agriculture and food security
Social dialogue	Quote 8.1: “...relying on social dialogue.”	Covid-19 and maritime shipping and fishing

In order to deduce a pattern on the data, an axial code was searched. This involved elements of theoretical sensitivity and reference to the literature. An analysis of the groundedness and density of the codes using Atlas.ti resulted in the generation of the framework diagram shown in Figure 2. Social dialogue was the most grounded code and it had the highest density, indicating its centrality to all other codes. This implies that social dialogue will be a key element

in establishing business incubators in the post Covid-19 era. Theoretical saturation was also observed since the articles seemed to mention certain similar concepts repeatedly and social dialogue appeared a central component.

EMERGING THEORY

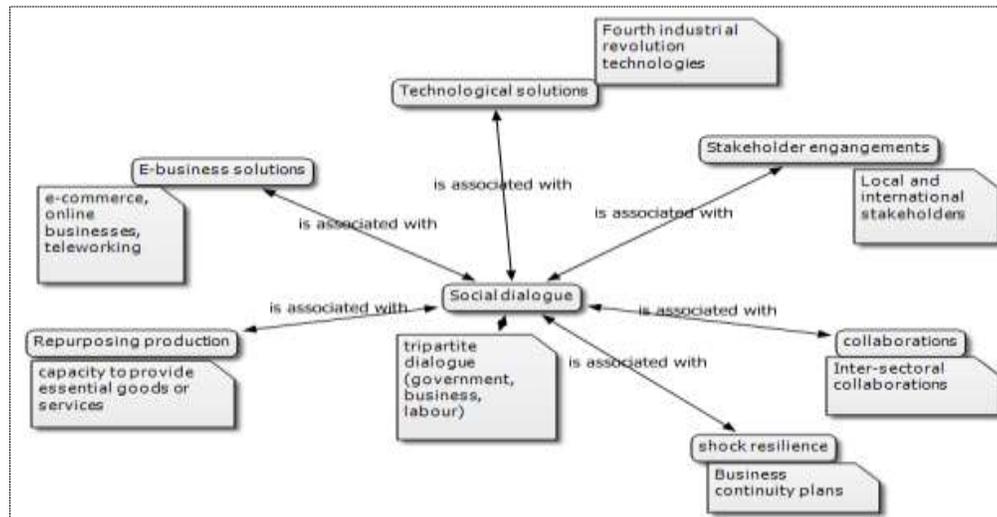


FIGURE 2
NETWORK DIAGRAM SHOWING THE RELATIONSHIPS OF FACTORS IN REMODELLING BUSINESS INCUBATION POST COVID-19

DISCUSSION OF RESULTS

This study searched for an emerging theory for business incubation grounded in the recommendations provided in sectoral brief articles provided by the ILO on its online portal. Grounded theory methodology suggests the constant comparison of emerging theories with literature in order to decipher new, unique or regular patterns in emerging data. An important emerging idea from this study is that social dialogue is central to business incubation during and post the Covid-19 pandemic. The finding seems to be consistent with previous studies on the essence of the social element in business management. Social dialogue can constitute all levels of responses to the pandemic and this can include global, regional, national, sectoral and organisational responses (Djalante et al., 2020). Basnayake et al. (2020) echoed this argument and emphasised that interaction with stakeholders is a critical component that is required to rejuvenate the small businesses affected by the Covid-19 pandemic. Meutia and Ismail (2012) use the term social competence in a research study of how social attributes influence the ability to create business networks and ultimately result in the success of small businesses. When related in line with the findings of the present study, it can be concluded that the stakeholder and engagement factor, together with the collaborations interlinkage, can be viewed as business connections, which build the social dialogue concept and finally result in successes. Earlier, Gray and Crofts (2002) conducted a study of social entrepreneurship in which elements such as social capital and social responsibility were found to be essential in the success of small businesses. When considered relative to the present study, it should be appreciated that Covid-19 presents social problems ranging from loss of work, income, violence and health-related social issues.

Business incubators who wish to re-emerge following the Covid-19 crisis could use social work and social entrepreneurship based on social dialogue to start operations again after the closure. This implies that business incubators could use their facilities for social work, for example, through social dialogue with stakeholders, business incubator premises could be provided to be quarantine centres, information dissemination points, call centres and so on. That way, business incubators can start to prepare their market positions.

This study has also identified the essence of business re-purposing as an element associated with social dialogue, which can be useful for business incubators to start operations post the Covid-19 pandemic. Business re-purposing is also in line with other elements such as collaborations and stakeholder engagements which can be seen in the model depicted in Figure 2. Business re-purposing as a response in times of crisis can also be central to business incubators. In this way, business incubators can incubate for small businesses that provide essential requirements during crisis. In the context of Covid-19, business incubators could incubate small businesses to repurpose to mask production, provision of sanitisers and other essentialities required. This can be done through social dialogue involving key stakeholders such as governments and health organisations. Some re-purposing of production can be done as part of social responsibility or as contracts from key institutions and authorities. Hughes, Ireland and Morgan (2007) mention that social capital theory argues that developing interactive relationships influences business performance by changing the conditions that are critical for value creation. In line with these arguments, the present study has observed the criticality of social dialogue and its associated elements such as collaborations, stakeholder engagements and repurposing in creating business incubation models post Covid-19.

Another critical finding of the present study is the role of technology in businesses in the Covid-19 pandemic. Global technological developments have reached a magnitude which Schwab (2016) and the World Economic Forum [WEF] (2018) describe as a new frontier constituting the Fourth Industrial Revolution (4IR). The 4IR revolution is expected to be characterised by widespread use of technologies such as artificial intelligence, 3D printing and robotics. The 4IR has been associated with several technologies that have disrupted business models and have changed traditional standards of industry competitiveness (Berg et al., 2018). The present study notes the significance of technological factors in responding to the Covid-19 pandemic. Social distancing, in particular, has been observed to call for new operational models such as teleworking and e-business. This study reiterates the significance of 4IR technologies in enhancing the operations of business incubators post Covid-19. McCall (2020) notes the role of Artificial Intelligence (AI) - a 4IR key technological phenomenon - in the era of Covid-19. Business incubators can be operational during pandemic outbreaks if they rely on artificial intelligence (AI).

CONCLUSION AND RECOMMENDATIONS

The results of this study suggest important directions and new values that are important for resuscitating and rejuvenating business incubators that have been affected by the Covid-19 pandemic. Important relationships and links were revealed in the study. As the results show, the key elements to be taken into consideration during and post Covid-19 business incubation include social dialogue, re-purposing business operations, and technological solutions. Other factors include stakeholder engagements and collaborations to foster shock resilience after the disturbances. The essence of social dialogue seems central. Social dialogue, as argued in this study, is a call for involving all relevant partners in a collaborative problem solving approach to

improve the difficult context of small businesses. A number of social groups and institutions have implications. Business incubators are recommended to strengthen their social ties and to accelerate technological acquisition in line with the 4IR. The link between social dialogue and technological associated with the 4IR is also critical. The 4IR can be seen as an important factor in effective social dialogue among key business stakeholders. Business incubators are recommended to adopt a social dialogue approach in linking with both possible clients and in other business stakeholders. The central government is also recommended to create form structures for purposes of social dialogue to facilitate a new model for business incubation.

REFERENCES

- Allahar, H., & Brathwaite, C. (2016). Business incubation as an instrument of innovation: the experience of South America and the Caribbean. *International Journal of Innovation (IJI Journal)*, 4(2), 71-85.
- Anon. (2020). COVID-19: fighting panic with information. *The Lancet*, (395), 537.
- Berg, J., Furrer, M., Hamon, E., Rani, U., & Silberman, S.M. (2018). *Digital labour platforms and the future of work: towards decent work in the online world*. Geneva: International Labour Organisation.
- Basnayake, H., Mack, C., Cui, M., Peters, G., Koo, A., Zhou, J., Tong, I., Saretzki, D., & Toh, A. (2020). *How companies can reshape results and plan for a COVID-19 recovery*. Ernst & Young Global Limited
- Dubihlela, J., & Van Schaikwyk, P.J. (2014). Small Business Incubation and the Entrepreneurial Business Environment in South Africa: A Theoretical Perspective. *Mediterranean Journal of Social Sciences*, 5(23), 264-269.
- Djalante, R., Shawb, R., & DeWit, A. (2020). Building resilience against biological hazards and pandemics: COVID-19 and its implications for the Sendai Framework. *Progress in Disaster Science*, 6(2020), 1-7.
- Glaser, B.G., & Strauss, A.L. (1967). *The discovery of grounded theory: Strategies for qualitative research*, New York: Aldine De Gruyter.
- Glaser, B.G. (2007). Constructivist grounded theory?. *Historical Social Research/Historische Sozialforschung, Supplement*, 93-105.
- Gray, M., & Crofts, P. (2002). Social entrepreneurship and its implications for social work: preliminary findings of research into business and social sector relationships in Newcastle and the Hunter Region of New South Wales, Australia, Asia. *Pacific Journal of Social Work and Development*, 12(2), 95-122.
- Hughes, M., Ireland, R.D., & Morgan, R.E. (2007). Stimulating dynamic value: social capital and business Incubation as a pathway to competitive success. *Long Range Planning*, 40(2007), 154-177.
- Hoare, K.J., Mills, J., & Francis, K. (2012). Dancing with data: An example of acquiring theoretical sensitivity in a grounded theory study. *International Journal of Nursing Practice*, 2012(18), 240-245.
- International Labour Organisation. 2020. Covid-19 and the automobile industry. www.ilo.org. [18/05/2020],
- International Labour Organisation. 2020. Covid-19 and the clothing and textiles retail sector. www.ilo.org. [18/05/2020],
- International Labour Organisation. 2020. Covid-19 and the tourism sector. www.ilo.org. [18/05/2020].
- International Labour Organisation. 2020. Covid-19 and health sector. www.ilo.org. [18/05/2020].
- International Labour Organisation. 2020. Covid-19 and the civil aviation sector. www.ilo.org. [18/05/2020].
- International Labour Organisation. 2020. Covid-19 and the maritime, shipping and fishing sector. www.ilo.org. [18/05/2020].
- International Labour Organisation. 2020. Covid-19 and the food retail sector. www.ilo.org [18/05/2020].
- International Labour Organisation. 2020. Covid-19 and the agricultural and food security sector. www.ilo.org. [18/05/2020].
- Jackson, J.K., Weiss, M.A., Schwarzenberg, A.B., & Nelson, R.A. (2020). *Global Economic Effects of COVID-19*. Congressional research Service, R46270 (26).
- Lose, T., & Tengeh, R.K. (2015). The sustainability and challenges of Technology Business Incubators in the Western Cape Province, South Africa. *Sustainability*, 7(10), 14344-14357.
- Lose, T., Nxopo, Z., Maziriri, E., & Madinga, W. (2016). Navigating the role of business incubators: A Review on the current literature on Business Incubation in South Africa. *Acta Universitatis Danubius. (Economica)*, 12(5).

- Lose, T., & Mafini, C. (2019). Challenges Faced by Isi-Xhosa Survivalist Entrepreneurs in Butterworth, South Africa. Korea Distribution Science Association. *International Conference on Business and Economics (ICBE 2019)*. 119-124.
- Lose, T. (2019). A framework for the effective creation of business incubators in South Africa (Doctoral dissertation, Vaal University of Technology).
- Lose, T., Rens, V., Yakobi, K., & Kwahene, F. (2020). Views from within the incubation ecosystem: Discovering the current challenges of technology business incubators. *Journal of Critical Reviews*, 7(19), 5437-5444.
- McCall, B. (2020). COVID-19 and artificial intelligence: protecting healthcare workers and curbing the spread. *The Lancet*. [https://doi.org/10.1016/S2589-7500\(20\)30054-6](https://doi.org/10.1016/S2589-7500(20)30054-6) [20/04/2020].
- McKibbin, W., & Fernando, R. (2020). The global macroeconomic impacts of COVID-19: seven scenarios. https://www.brookings.edu/wp-content/uploads/2020/03/20200302_COVID19.pdf [20/04/2020]
- Meutia, & Ismail, T. (2012). The development of entrepreneurial social competence and business network to improve competitive advantage and business performance of small medium sized enterprises: a case study of Batik Industry in Indonesia. *Procedia - Social and Behavioral Sciences*, 65(2012), 46-51.
- Rajagopaul, A., Magwentshu, N., & Kalidas, S. (2020). *How South African SMEs can survive and thrive post COVID-19*. Johannesburg: McKinsey & Company.
- Sbaraini, A., Carter, S.M., Evans, R.W., & Blinkhorn, A. (2011). How to do a grounded theory study: a worked example of a study of dental practices. *BMC Medical Research Methodology*, 11(28), 2-10.
- Schwab, K. (2016). *The fourth industrial revolution*. New York: Crown Business.
- SEDA (Small Enterprise Development Agency). (2018). Annual Review. Pretoria: SEDA Technology Programme. 1-58.
- World Economic Forum. (2018). World Economic Forum and the Fourth Industrial Revolution in South Africa.