

## INITIATION OF BALANCED ENVIRONMENTAL ASPECTS of SMEs PERSPECTIVE STRATEGIC MANAGEMENT APPROACH QUADRUPLE HELIX INNOVATION MODEL (QHIM)

Harminingsih<sup>1,2</sup>, Kumaratih S.<sup>3,4</sup>, Andriani K.<sup>5,6</sup>, Harsanto<sup>7,8</sup>

<sup>1,3,5,7</sup> Doctoral Program, Yogyakarta University of Technology

<sup>2</sup> Intermediate Superintendent of Disdikbud Prov. Central Java

<sup>4,6</sup> STMIK Sinar Nusantara Surakarta

<sup>4,5</sup> Faculty of Computer Science, Universitas Duta Bangsa Surakarta

Email: [harminingsih.7200111002@student.uty.ac.id](mailto:harminingsih.7200111002@student.uty.ac.id), [kumaratih@gmail.com](mailto:kumaratih@gmail.com), [andriani@gmail.com](mailto:andriani@gmail.com),  
[harsanto@udb.ac.id](mailto:harsanto@udb.ac.id)

**Abstract:** The prolonged covid-19 pandemic entering its third year has created turbulence, which has resulted in various conditions that must be faced for Indonesian SMEs and in general the country's economy has also undergone terrible changes, then how can SMEs survive the current prolonged crisis due to the Covid-19 pandemic? This study aims to provide an understanding of how the customized configuration of various strategic initiatives can help Indonesian SMEs survive through the mass crisis based on the QHIM (Quadruple Helix Innovation Model) mechanism. Using a qualitative approach based on group discussions with the support of expert facilitators and involving parties from various fields, such as academia, banking, the entrepreneurial community and SMEs. SMEs operate in uncertain conditions, and some findings show that there has been an integration of various initiatives, such as financial resource management, opportunity exploration-exploitation, efficient negotiation, digital adoption and strategic management through balancing play an important role in terms of survival in crisis and how the Quadruple Helix perspective can become an important concept in the survival process of Indonesian SMEs.

**Keywords:** Covid-19 Pandemic, Crisis Management, digitalization, Innovation, SMEs

### 1. Preliminary

The prolonged covid-19 pandemic entering its third year has created turbulence, which has resulted in various conditions that must be faced for Indonesian SMEs and in general the country's economy has also undergone terrible changes, then how can SMEs survive the current prolonged crisis due to the Covid-19 pandemic? Actually, there is no direct answer (Limanseto, 2021).

Some countries are still growing positively but declining compared to right? quarter before like in America experience drop from value of 2.3% to 0.3%, while South Korea experienced a decline from 2.3% to 1.3% while Vietnam departed from the value of 6.8% decreased sharply to 3.8%. Likewise, the Indonesian state slides quite deep from the value of 4.97% in the 4th quarter of 2019 became only 2.97% on quarter first (Thaha, 2020). Growth

economy country on quarterly first 2020 tend decrease from quarterly four 2019 (Nazwirman, 2008) .

The spread of Covid-19 with various variants and names still shows an increase, so that uncertainty continues to affect the pace of the global economy. In 2019 there was economic growth at 5.02%, so the slowdown in economic growth is predicted to continue in 2021 until entering March 2022 , accompanied by limited strengthening movement to grow only 4.9 % (Thaha, 2020) . Crisis state like Therefore , the government needs to pay special attention to this because the micro-enterprise sector is a national supporting pillar that contributes to the strengthening of economic growth biggest to GDP and Becomes mainstay main role in the efforts of the labor-intensive movement to reduce unemployment and poverty through absorption of power work (Shafariah et al., 2016) .

Micro-enterprises are at the forefront of the economic shocks caused by the COVID-19 pandemic. steps locking ( *lockdown* ) or whatever its designation is , has stop activity economy by suddenly , then the beginning of bankruptcy in all sides of entrepreneurial business, especially national micro-enterprises in in Indonesia (Thaha, 2020) . It was recorded that 37,000 Small and Micro Medium Enterprises were affected by the Covid -19 pandemic, from the data reported by the Ministry of Cooperatives and SMEs, it was 56%. SMEs experienced a sharp decline in sales of 22%, then 22% capital difficulties, further disruption of distribution channels by 15%, and 4% is the difficulty of getting material supplies raw (Media, 2020).

The Covid-19 pandemic has forced wholesale-level trading businesses and apparel market centers in the capital Jakarta and its surroundings to temporarily close business activities with the consideration of breaking the chain of the Covid-19 virus, so this has also affected the rate of sales circulation for fabric craftsmen. batik in the region. This includes batik artisans in Surakarta, Central Java. The number of SMEs in the Central Java region in 2019 reached 4.2million MSMEs, of which 85.09% are micro enterprises; 14.19% is small business; 0.57% of medium-sized enterprises and only 0.15% of small-scale enterprises big. Even though the MSME sector in Java Central is a strategic sector for the economy in Central Java , which is a contributor to Products Domestic Regional Gross (GDP) by 53.4% or equivalent to IDR 415.7 trillion (BPS Java Middle, 2020).

Collaboration between the government, academia, industry and civil society (media) to deal with this emergency and build another paradigm of potential resilience, such as in the face of the third World War against the Covid-19 pandemic, it is necessary to take an innovative evolutionary leap (James, 2019) . Horizontal cooperation and a clear position of the government in participating in solving the crisis and the need for creative solutions rather than just redistribution of available resources and better communication are among the strategies (Glore, 2010) .

Most crisis response research tends to rely on larger organizations , however, small and medium enterprise (SME) crisis management mechanisms have not been adequately investigated to build sound theory and practical implications for management ( Oschlies , 2013) . Crisis management research for SMEs is very important regarding the contribution of SMEs to developing countries, as an effort to force the severe turbulence effects of the covid-19 pandemic is important to detect a suitable framework based on a solid theoretical foundation for comprehensive credibility that can help SMEs to survive through the crisis. prolonged.

## **2. Research methods**

This research is part of a preliminary research collaboration between the Al-Abidin Research and Development Institute in Surakarta with research lecturers across fields of expertise in economics, applied mathematics, informatics engineering at Duta Bangsa University Surakarta, and STMIK Sinar Nusantara Surakarta, by developing a conceptual framework model for strategies to improve financial resilience. through an effective assessment of financial *literacy* , *financial inclusion* , innovation capability, *financial quotient from the Collaborative aspect Network, IT, and Entrepreneurial Orientation* with an IPO (Input-Process-Output) approach.

The research results are expected to be the initial part of research and research feasibility tests in building motivation to increase financial resilience *and* provide a conceptual framework on how to improve innovation performance through increasing creativity with approaches and interactions in QHIM ( *Quadruple Helix Innovation Model* ) . In this framework, creativity is an important element in improving innovation performance in SMEs during the Covid-19 pandemic by connecting the Al-Abidin and Lazis Al-Abidin BMT institutions to SMEs partnering independent micro community groups.

## **3. Quadruple Helix Paradigm**

The Quadruple Helix Innovation Model (QHIM) concept is the development of the triple helix concept by integrating the roles of academics, entrepreneurs, government and society into creative and knowledge activities. On the other hand, research on the QHIM concept in dealing with the Covid-19 pandemic crisis for SMEs is still very limited ( Prabawani, 2016) .

The Indonesian government seeks to improve the quality of SME human resources during the Covid-19 pandemic proactively so that they remain able to move in the economic crisis through various innovations so that through the synergy of all parties, namely the government together with academics, entrepreneurs and community support who are members of the Quadruple Helix to increase the growth of SMEs . Indonesia.

The Quadruple Helix concept offers a contribution to the innovation process by involving industry, universities, government, and, at a later stage, civil society so that the four elements can interact with each other to accelerate the transfer of innovation to generate new ideas in highly innovative products and services. .

Prabwani (2016) explained that the support for cooperation and interaction between academics (universities), business people, government and society is the embryo that drives creativity, ideas, and knowledge. Meanwhile, Adam ( 2021) explained that it was emphasized that the triple helix concept which was refined into a Quadruple Helix would be able to give birth to new creativity, ideas and skills as well as new knowledge. Academics play an important role in developing creativity and innovation as well as transferring knowledge to business players in the creative industry, especially this is very much a solution and alternative for the Covid-19 pandemic, which is entering its third year.

QHIM ( *Quadruple Helix Innovation Model* ) framework provides suggestions for the creation of innovation performance in SMEs towards creative micro-industry in order to be able to increase creativity and competitive advantage through contributions and interactions between university-business-government and civil society (Carayannis & Campbell, 2009) . This is because the creativity possessed by SME business actors will create new products and services that are new and difficult for competitors to imitate. It is hoped that by understanding the performance of innovation in the SME creative industry, micro business actors can prepare what factors are needed in dealing with market changes, consumers, in intense

competition and technological developments that have occurred during the Covid-19 pandemic until now.

Generating product and service ideas that are able to compete with good quality and *value added* in the hearts of consumers is an alternative. It is proven that during this pandemic, it turns out that changes in the lifestyle of Indonesian people are changing very quickly, including the habits and pleasures of traveling to *super malls*, shopping at *big store places* is being replaced with things that make it easy for applications on smartphones as value added. social restriction policy by the Indonesian government. Starting from this, so that the overall innovation performance provides maximum results, the elements in the Quadruple Helix It is very necessary to further encourage the creativity of SME industry entrepreneurs to be more creative and innovative so that continuous improvement in innovation performance will be carried out in a sustainable manner (Dzisah & Etzkowitz, 2008). Facts in the field show that business actors in SMEs who have high creativity have a higher ability to produce more innovative products and have superior added value, which requires innovation performance through open mind character capital and continuous knowledge sharing behavior so that creativity can support creation of superior new products and services.

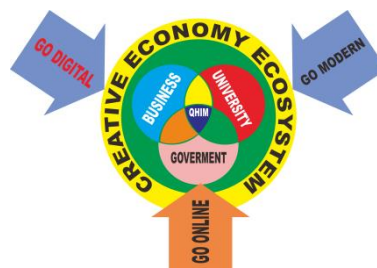


Figure 1 Creative Economy Ecosystem in Indonesia

QHIM ( *Quadruple Helix Innovation Model* ) framework in forming a creative economic ecosystem for SMEs, so that they are able to go modern include SMEs being able to modernize business such as doing branding or building a brand and managing finances as an effort towards financial resilience ( *Financial Resilience* ), then SMEs Towards Go Digital, among others, SMEs are able to digitize their business through social media and digital applications, finally starting from SMEs to Go Modern and SMEs to Go Digital, SMEs are able to expand their market reach and marketing by using an online-based selling system (Hamdan Zyadat, 2016).

From the QHIM framework, an open innovation paradigm will be formed, i.e. it is assumed that useful and high-quality knowledge is widely distributed so that it can create a digital ecosystem and become a digital highway (James, 2019).

#### **4. Triple Helix Stimulates Academics and Industry in Independent Learning**

Merdeka Learning is a " *big goal* " Ministry of Education, Culture Research and Technology, in Merdeka Learning there is a philosophy of the learning process that is not shackled by the formal curriculum, or even shackled in the circle of formal educational institutions, even "radically" Merdeka Learning has a school learning philosophy with specificity without being tied to the noose of a formal curriculum (Ibrahim & Mumpuni, 2021). Innovation model The Quadruple Helix Innovation Model (QHIM) concept as the development of the triple helix

concept by integrating the roles of academia, businessmen, government and society into creative activities and broadly open knowledge, will bring up some " **destructive " consequences** in the sense that creativity and innovation will bulldoze and "destroy" old technology or obsolete technology (Anatan, 2010) .

Furthermore, from the triple helix concept, it can be realized through the form of a real movement "Free Campus, Free Learning" which actually has three main pillars, namely academics, government and industrial business actors collaborating to make superior research oriented to benefit, and benefit not only for the purpose of achievement " *cum laude* " with a "steady spirit" achievement index in the academic world, but raises applied research champions who are implemented and support the real establishment of an educational climate that supports the development of applied research-based science, and has "high utilization" in the world of industry and Indonesian micro-business.

### **5. The role of the Triple Helix in a crisis context**

The state of the Covid-19 pandemic has created a series of major threats to SMEs, but on the other hand, several significant opportunities have also emerged. The need for crisis management and strategic planning as part of strategic management is to take a different approach by considering the basis of interconnection offered by the Triple Helix Concept so that it can be taken by SME actors or managers for building a tough business and a more resilient society (Ermita, 2012) .

Using the QHIM perspective as a strategic management framework, it is necessary to understand how various capacities can be served by the Indonesian government, academia, business, and the media in responding to various crises due to the Covid-19 pandemic in order to advance real steps in current crisis management in the context of SMEs in Indonesia. A "different and different" scenario is needed to 'see the lessons' and map out a prosperous future for SMEs and not just 'survive' the Covid-19 crisis.

Crisis management for SMEs is very important regarding their contribution to a developing country like Indonesia against this severe turbulence, it is important to detect a suitable framework based on a solid theoretical foundation for comprehensive credibility that can help SMEs.

The turbulence of the Covid-19 pandemic crisis Omicron variant in January to February 2022 was felt by many SMEs and mothers with the loss of cooking oil in the market , until it dragged on without any resolution of the government's "Iron fist" against the "losers" of distribution and production domestic cooking oil. So that SME business organizations must be able to adapt to various strategies to deal with dangerous scenarios that threaten the interests of organizational stakeholders due to the crisis. Furthermore, it can be concluded that there are three dimensions of a crisis situation for SMEs, namely (1) Danger to business, (2) Surprise invoices, (3) Need for fast and accurate decision making.

The danger for business is that it requires dynamic and innovative capabilities and is willing to learn from crises and has a tendency to recover quickly (Elliott and MacPherson, 2010; Saunders et al., 2014). Here SMEs require an informal learning process through networking initiatives, mentoring, or coaching (Saunders et al., 2014). Furthermore, SMEs can explore business opportunities and integrate technology into their future growth processes, using strategic management from the perspective of a dynamic learning approach and adapting to crisis scenarios. At this point, the intention to grow can be a strong driving factor for SMEs to strengthen the resilience framework and sustainable strategy of SMEs.





Figure 2 Quadruple Helix Mechanism

From the picture of the Quadruple Helix mechanism, it can be described a crisis mechanism with the Quadruple Helix approach, that is, suppose an individual in a company comes up with a good idea for innovation in the technical process (knowledge stage), then if the idea is supported by his supervisor and manager (persuasion stage), then management may decide to contact and partner with universities or academics to conduct further research (decision-making stage), where the university has the researchers and finance (or the company will choose to provide funding) to carry out the necessary testing, resulting in method innovation (implementation stage) can be applied by the company, which is then found a product that is more advanced and up-to-date so that it can be developed. Here, the company concerned may also intend to apply for a product invention patent (confirmation stage), through several government agencies as regulatory holders and providing assistance. Here there has been an interaction that has occurred in Helix and is generally part of an effort to overcome an emergency (crisis period) and create solutions when facing innovation challenges that are not determined by certain trends.

In this case, the research actors have proposed a configuration that is referred to as part of the "SME strategic survival model" which is a "SME strategic survival model" that is appropriate and responsive to planning and adaptation along with five dimensions that support, namely (1) access and financial resource management, (2) opportunity exploration, (3) digital adoption, (4) efficient negotiation, and (5) leadership.

## 6. Conclusion

The Quadruple Helix approach will be able to give birth to new creativity, ideas and skills as well as new knowledge with the support between academia, business, government and

society. the elements in the Quadruple Helix are needed to further encourage the creativity of creative industry business actors so that continuous improvement in innovation performance can be carried out in a sustainable manner. Facts on the ground show that business actors in the creative industry who have high creativity have a higher ability to produce products that are more innovative and have superior added value.

## **References**

- Adam, N. A., & Alarifi, G. (2021). Innovation practices for survival of small and medium enterprises (SMEs) in the COVID-19 times: The role of external support. *Journal of Innovation and Entrepreneurship*, 10(1), 15. <https://doi.org/10.1186/s13731-021-00156-6>
- Anatan, L. (2010). Meraih Keunggulan Kompetitif Berkelanjutan Melalui Pengintegrasian Fungsi Sumber Daya Manusia Dalam Strategi Bisnis. *Jurnal Manajemen Maranatha*, 4(2), 28–40.
- Carayannis, E. G., & Campbell, D. F. J. (2009). “Mode 3” and “Quadruple Helix”: Toward a 21st century fractal innovation ecosystem. *International Journal of Technology Management*, 46(3/4), 201. <https://doi.org/10.1504/IJTM.2009.023374>
- Dzisah, J., & Etzkowitz, H. (2008). Triple helix circulation: The heart of innovation and development. *International Journal of Technology Management and Sustainable Development*, 7(2), 101–115. [https://doi.org/10.1386/ijtm.7.2.101\\_1](https://doi.org/10.1386/ijtm.7.2.101_1)
- Ermita. (2012). Hubungan Antar Manusia dan Semangat Kerja. *Jurnal Ilmiah Ilmu Pendidikan*, XII.
- Glore, P. (2010). *Identifying Motivational Strategies To Engage Undergraduate Learning In Web-Based Instruction*. Capella University.
- Hamdan Zyadat, A. A. (2016). The Impact of Sustainability on the Financial Performance of Jordanian Islamic Banks. *International Journal of Economics and Finance*, 9(1), 55. <https://doi.org/10.5539/ijef.v9n1p55>
- Ibrahim, I. S., & Mumpuni, K. (2021). *Panduan Pelaksanaan Kompetisi Sains Nasional*.
- James, H. (2019). The end of globalization: Lessons from the Great Depression. *Harvard University Press*.
- Limanseto, H. (2021). *Dukungan Pemerintah Bagi UMKM Agar Pulih di Masa Pandemi*. Kementerian Koordinator Bidang Perekonomian Republik Indonesia. <http://www.ekon.go.id/>
- Nazwirman, N. (2008). Peranan Lembaga Keuangan Mikro Berbasis Teknologi Informasi dalam Mengembangkan Usaha Mikro. *The Winners*, 9(2), 124. <https://doi.org/10.21512/tw.v9i2.721>
- Oschlies, M. (2013). *Strategic Management in Emerging Industries: Evidence from the Renewable Energy Industry*. University of St. Gallen.
- Prabawani, B. (2016). *Business Sustainability dan Peran Triple Helix dalam Industri (I)*. Terra Media.
- Shafariah, H., Edison, E., & Mattajang, R. (2016). Hubungan Orientasi Kewirausahaan Dengan Pertumbuhan Umkm: Peran Aspek Permodalan Dan Pemerintah Sebagai Moderator. *Jurnal Riset Manajemen dan Bisnis (JRMB) Fakultas Ekonomi UNIAT*, 1(1), 61–70. <https://doi.org/10.36226/jrmb.v1i1.11>
- Thaha, A. F. (2020). Dampak Covid-19 Terhadap UMKM di Indonesia. *Jurnal Brand*, 2(1), 147–153.