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Evaluation of the Success Level of the Matching Fund Program in Supporting MSME Business Development in Sustainable Villages

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Abstract

This research aims to illustrate the importance of developing a startup 4.0-based MSME learning curriculum in the context of the rapidly developing Indonesian economy, as well as to present the main findings from the implementation of this curriculum and its implications. In the era of industry 4.0 which is driven by technology, Indonesian MSMEs need to adopt the startup 4.0 concept to increase competitiveness. This learning curriculum is designed to provide the necessary knowledge, skills and support to MSMEs to be able to adopt and integrate technology and innovation in their business. This research includes analyzing the needs of MSMEs, developing a startup 4.0-based curriculum, implementing the curriculum, and evaluating its effectiveness. Data was collected through surveys, interviews, and document analysis. Key findings include increased understanding of startup 4.0 concepts, development of technology skills, innovative thinking, and better digital marketing. In addition, MSMEs experience increased competitiveness, income and customer relationships. The development of a startup 4.0 based MSME learning curriculum has great significance in facing challenges and opportunities in the digital era. This empowers MSMEs, contributes to economic growth, and drives sustainable innovation.

Keywords: *Matching Fund, MSME, Business, Sustainable Villages.*

Introduction

(Micro, Small and Medium Enterprises) have a very important role in the Indonesian economy. They are one of the backbones of the country's economy, making a significant contribution to economic growth, job creation and poverty alleviation (Caballero-Morales, 2021). It is important to understand how MSMEs play a role in the Indonesian economy and how the Industrial Revolution 4.0 affects this sector (Türkeş et al., 2019). MSMEs have long been an integral part of the Indonesian economy. They are businesses owned and operated by individuals or small groups, often operating at a local or regional level. MSMEs have a significant impact on various aspects of the economy (Juergensen et al., 2020).

MSMEs are one of the largest providers of employment opportunities in Indonesia. They create employment opportunities for millions of people, including those with less skills or less education, thereby contributing to poverty alleviation. MSMEs make a major contribution to

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the growth of the Indonesian economy (Wulandari et al., 2016). They create added value for the economy by producing goods and services that society needs. MSMEs often operate at a local or regional level, meaning they can help develop and drive local economies. This can increase the income of people in that area (Khalili et al., 2023). MSMEs contribute to diversity in the economy by producing various types of products and services. They play an important role in maintaining cultural and industrial diversity in Indonesia. By creating job opportunities and additional income, MSMEs can help improve people's quality of life, including their access to education, health services and basic infrastructure (Cassetta et al., 2020).

The Industrial Revolution 4.0, which is characterized by digitalization, connectivity and advanced uses of technology, has changed the business landscape globally. Its influence on MSMEs in Indonesia is also significant (Ooi & Richardson, 2019): One of the most striking aspects of the Industrial Revolution 4.0 is digitalization. MSMEs now have greater access to digital technology that allows them to increase operational efficiency and reach more markets widely through e-commerce and online marketing (Daud et al., 2022). The internet and improved connectivity have opened the door for MSMEs to connect with customers, suppliers and business partners around the world. This opens up new opportunities for expansion and growth. Data is a valuable asset for MSMEs. They can use data analytics to better understand customer behavior, optimize supply chains, and make smarter business decisions (Maksum et al., 2020). Technology enables MSMEs to develop more innovative products and services. They can leverage technologies like 3D printing and artificial intelligence to create more great products. Although technology provides great benefits, MSMEs must also pay attention to data security. Cyber threats can have a serious impact on their business, and they need to invest in strong data protection (Rauch & Brown, 2020).

MSMEs can use social media, online advertising and other digital marketing strategies to reach a larger audience and grow their brand. MSMEs can sell their products online through e-commerce platforms, which allows them to reach a wider market and be competitive with large companies (Ibrahim et al., 2023). MSMEs require training of employees and business owners to utilize technology effectively. This can help them exploit the full potential of the Industrial Revolution 4.0. Technology too opens doors for innovation in the financial sector (Peter et al., 2020). MSMEs can access digital financial services such as online loans and digital payments to support their business growth. By using technology wisely, MSMEs can achieve sustainable growth. They can reduce waste, increase energy efficiency, and contribute to sustainable development goals (Shahzadi et al., 2023).

In order to exploit the full potential of the Industrial Revolution 4.0, governments, financial institutions and MSME development organizations need to work together to provide training, access to technology and financial support to MSMEs. Apart from that, cyber data protection and security must also be a focus, because MSMEs are often the targets of cyber attacks that can threaten the continuity of their business (Zhu et al., 2019). Overall, MSMEs have a very important role in the Indonesian economy, and the Industrial Revolution 4.0 opens up new and challenging opportunities for this sector. With the right investment in technology and the necessary support, MSMEs can continue to grow and develop, contributing to sustainable growth and improving the economic welfare of society (Hengo et al., 2021).

Theoretical Framework

MSME (Micro, Small and Medium Enterprises) Concept

MSME is the abbreviation of Micro, Small and Medium Enterprises. The MSME concept

refers to the business sector which consists of businesses that have a small to medium scale in terms of number of employees, production levels and income. MSMEs often become an integral part of a country's economy, including Indonesia, and have an important role in economic growth, job creation, and contributing to national income (Kay et al., 2019). The definition of MSMEs can vary by country and regulatory agency, but in general, MSMEs are defined based on factors such as number of employees, annual sales turnover, or business assets. Business with less than 5 employees or has an annual sales turnover of less than IDR 300 million. Businesses with between 5 and 19 employees or have an annual sales turnover of between IDR 300 million and IDR 2.5 billion (Nair et al., 2019).

MSMEs have an important role in the economy of Indonesia and other countries. The following are some of the key roles of MSMEs in the economy. MSMEs are one of the main job creators in many countries. They provide employment to a large part of the economically active population (Wahyono & Hutahayan, 2021). MSMEs contribute significantly to a country's Gross Domestic Product (GDP) through the sale of their products and services. MSMEs also contribute to state tax revenues through income tax and sales tax. Despite their small scale, MSMEs are often important innovation sites in the development of new products and services (Rachmania et al., 2012). MSMEs often have roots in local communities, and they can strengthen the local economy by purchasing goods and services from other local providers. By providing jobs and business opportunities to individuals and families, MSMEs can help reduce poverty levels (Hutabarat & Pandin, 2014).

MSMEs can also help reduce dependence on large companies or certain industrial sectors, increasing a country's economic independence. MSMEs can be a motor of regional economic growth, especially in less developed areas (Christen et al., 2022). Thus, MSMEs are not only an integral part of the economy, but also have a significant social impact and play a role in supporting sustainable economic development. A strong understanding of the concept of MSMEs and recognition of their role in the economy is essential for the development of effective policies and support for this sector (Wong et al., 2022).

Industrial Revolution 4.0

Industrial Revolution 4.0 is a term that refers to a fundamental transformation in the way of production, communication and industrial automation driven by advanced advances in information and communication technology (Galati & Bigliardi, 2019). This concept refers to major changes in various economic sectors triggered by technological developments such as IoT (Internet of Things), artificial intelligence (AI), cloud computing, robotics, and data analytics. The following is a more detailed explanation of the concept of Industrial Revolution 4.0 and its impact on various sectors (Thomas & Paul, 2019). One of the main pillars of the Industrial Revolution 4.0 is the Internet of Things (IoT), which connects various devices and physical objects to the internet. This allows devices to communicate and share data in real-time, opening the door to more efficient monitoring and control in sectors such as manufacturing, agriculture, transportation and energy (Machado et al., 2021).

Artificial Intelligence is technology that allows machines and computers to learn and make decisions like humans. In the Industrial Revolution 4.0, AI is being used to automate complex tasks, analyze big data, and improve operational efficiency in sectors such as manufacturing, financial services, and healthcare (Türkeş et al., 2019). Cloud computing allows access and sharing of data and internet-based computing. This allows companies to store and manage their data more efficiently, and also to provide services flexibly over the internet (Ott & Liesaputra, 2020). The use of robotics in

production and logistics has grown rapidly in the Industrial Revolution 4.0. Robotics can be used in automated manufacturing, automated delivery of goods, and even in healthcare for more precise operations and maintenance (Bag & Pretorius, 2022).

Data analytics involves analying big data to gain valuable insights. In the context of the Industrial Revolution 4.0, data analytics is used to optimize supply chains, forecast customer demand, and make data-backed decisions (Olajire, 2020). The Industrial Revolution 4.0 brings more advanced automation, real-time production monitoring, and the use of robotics to increase efficiency, quality, and flexibility in manufacturing processes. The agricultural sector uses IoT technology to optimize data-driven agriculture, including crop monitoring, irrigation management, and more accurate weather forecasting (Handayani et al., 2020). The impact of the Industrial Revolution 4.0 is very broad and sustainable, and has changed the way work, production and human interaction in various sectors. Adoption of this technology is key to remaining competitive in an increasingly connected and digital global economy (Ivanov & Dolgui, 2021).

Methodological

1. Research Design

Research design is a framework that must be carried out, a guide to practical steps in carrying out research. In this research, which aims to develop a learning curriculum based on MSME startup 4.0, the research design will detail how the research will be carried out, data collection methods, and analysis methods that will be used to achieve the objectives of this research. By digging further into research design, we can understand how this research plan will be implemented practically. Before designing the curriculum, the first step in this study is to carry out an in-depth needs analysis and literature review. Surveys and interviews will be used to identify the real needs of MSMEs in terms of knowledge and skills required to adopt startup 4.0 technology. Data will be collected from a number of MSMEs operating in various sectors and regions to ensure broad representation. Researchers will conduct a comprehensive literature review on the latest developments in startup 4.0 technology, business trends, and innovation in the context of MSMEs. This will help in designing a curriculum that is in line with the latest developments (Ukko & Saunila, 2020).

After the needs analysis and literature study are carried out, the next step is curriculum development. Based on the results of the needs analysis and literature study, learning materials will be selected. This includes topics such as e-commerce, data analytics, cyber security, digital marketing, and other related technologies. This material will be designed to be relevant to the needs of MSMEs. Effective teaching methods will be selected, including lectures, practical training, case studies, business simulations, and the use of online learning technology. The use of technology in teaching will allow wider access. Learning material will be developed in the form of modules that can be accessed online. This module will include text materials, videos, practical exercises, and other resources that support learning. Apart from material learning, a training and mentoring plan will be prepared to provide direct guidance to MSMEs in implementing the startup 4.0 concept in their business. This can involve face-to-face or online meetings with industry experts (Bag & Pretorius, 2022).

After the curriculum is created, the next step is implementation. Training will be provided to MSMEs through various platforms, including face-to-face classes, online courses and mentoring sessions. The training team will be involved in helping MSMEs understand and

adopt the startup 4.0 concept. During the implementation process, data will be collected regarding MSME participation, level of understanding, and level of continuity in applying the knowledge gained in the business. This will enable evaluation of the extent to which the curriculum has been successfully implemented (Al-Muallem et al., 2016).

After the curriculum is implemented, the next step is evaluation and continuous improvement. Evaluation will be carried out to measure the impact of the curriculum on MSMEs, including increasing productivity, increasing income and level of business continuity. This can be done through surveys, interviews and business data analysis. Feedback from MSME participants in the curriculum will be very valuable for evaluating the effectiveness of learning materials and teaching methods. Criticism and suggestions from participants will be used for continuous improvement. Based on evaluation results and feedback, the curriculum will be improved and updated regularly to ensure that learning material is still relevant to the latest technological and business developments (Tsaparlis et al., 2018).

The research results and curriculum developed will be widely disseminated and disseminated. The results of research and curriculum methodology development will be published in scientific articles and relevant journals to share knowledge with the academic community. Workshops and training will be held to share the curriculum with educational institutions, training and MSMEs. This will help spread successful learning approaches. Collaboration with related parties such as government agencies, business world associations, and technology companies will help in wider dissemination of the curriculum. Learning materials will be uploaded to an online platform that can be accessed by MSMEs throughout Indonesia, so they can access Power learning curriculum and resources anytime and anywhere (Nishant et al., 2020).

2. Population and Sample

The population in this study refers to the overall units relevant for the purpose of the study, namely MSME (Micro, Small and Medium Enterprises) involved in the Matching Fund program in sustainable villages. Proper population selection is a strategic first step to determining the scope and generalizability of research findings. In this context, the population is all MSMEs that are participants or beneficiaries of the Matching Fund program in the villages selected as the place of conduct of the research.

3. Instrumen/Procedure

The instruments used to collect the data will be carefully designed to ensure the accuracy and relevance of the information. This can include structured questionnaires for MSMEs involved, interviews with business owners, and official documentation of the implementation of the Matching Fund program. The instrument can be designed to cover a number of variables, such as income growth, the number of jobs created, and the social or environmental impact that the program may bring. The research procedure will include a series of steps, starting from planning and designing instruments to implementing data collection. In this context, data collection procedures may involve field visits to participating villages, direct interviews with business owners, and direct observation of the implementation of the Matching Fund program.

4. Data Analysis

This process is designed to investigate patterns, trends, and relationships that may emerge from the data that has been collected during the study, and provides a basis for drawing informative conclusions and implications.

Once data has been collected from various instruments, the initial step in data analysis involves organizing and structuring the data. This includes processing information to ensure the accuracy, integrity, and availability of data necessary for advanced analysis. In this case, the initial steps may include data cleansing and compiling the data in a processable format.

Once the data is prepared, various analysis methods can be applied according to the nature of the data collected. For quantitative data, statistical analysis may involve the use of techniques such as regression analysis, hypothesis testing, and statistical modeling. On the other hand, for qualitative data, approaches such as content analysis or thematic analysis might be used to identify emerging patterns and themes.

This data analysis process also includes exploring significant findings and understanding the implications of research results on research questions. At this stage, the study looks for patterns that may emerge from the data, looks at relationships between variables, and looks for answers to research questions.

Furthermore, the results of the data analysis will be interpreted and translated into findings that can be understood contextually. These results are then used to compile a coherent and informative narrative about the success of the Matching Fund program in supporting MSME business development in sustainable villages.

The last step of data analysis is to compile the findings into a report or research manuscript. This involves systematically presenting findings, often with visual support such as tables or graphs, to give readers a clear and in-depth understanding of the program's contribution to research objectives.

Overall, the data analysis in this study aims to explore a deeper understanding of the success of the Matching Fund program. Using a careful approach and appropriate methodology, the analysis is expected to provide valuable insights to support the development of policies and best practices in supporting local economic growth in sustainable villages.

Result and Discussion

Development of a Learning Curriculum Based on Startup 4.0 MSMES

Developing a Learning Curriculum Based on MSME Startup 4.0 is an important component of this study which aims to design a relevant and effective curriculum to help MSMEs adopt the Startup 4.0 design. Identification of needs is the initial stage in the curriculum development process, this is very important to ensure that the resulting curriculum will be in accordance with the real needs of MSMEs (Cosme et al., 2019). The following is an in-depth explanation of the curriculum development process.

1. Identify the needs of MSMEs: One of the first steps in needs analysis is to conduct a survey of MSMEs operating in various sectors and regions. This survey will include questions about their understanding of the startup 4.0 concept, the level of technological skills they possess, and the barriers they face in adopting new technologies. This analysis will include an understanding of the extent to which MSMEs understand and master the latest technology related to startup 4.0 design. This includes an understanding of cloud computing, Internet of Things (IoT), data analysis, cybersecurity, and others. Before starting the curriculum development process, the first step is to understand the needs of good MSMEs in adopting the startup 4.0 draft. Secondary data such as statistical reports, market research, and case studies about MSMEs that have successfully adopted

startup 4.0 technology, can also be used to support analysis needs. Analysis needs to be carried out to identify possible obstacles faced by MSMEs in adopting startup 4.0 design, such as limited funds, skilled human resources, or inadequate infrastructure technology.

2. Determining learning materials: After the needs of MSMEs have been identified, the next step is to determine the learning materials that will be included in the curriculum. Technology: Understand the latest technology relevant to startup 4.0, including the Internet of Things (IoT), artificial intelligence (AI), data analysis, and cyber security. Innovation: Encourage innovative thinking, product development and innovation strategies that can help MSMEs compete in a rapidly changing market. Marketing: Understand digital marketing strategies, social media, online consumer behavior analysis, and use of e-commerce platforms. Apart from surveys, in-depth interviews with MSME owners can provide deeper insight into the challenges and opportunities they face. This can include information regarding their specific needs in adopting startup 4.0 technology.
3. Determining Teaching Methods: Effective teaching methods must be chosen to deliver learning material to MSMEs. Lectures and Presentations: Lecture sessions and presentations to provide a conceptual understanding of technology, innovation and digital marketing. Practical Training: Practical training sessions where MSMEs can try to directly apply the concepts they learn in their business. Case Studies: Using real case studies To understand concepts and strategies in a real business context. Business Simulation: Online business simulation that allows MSMEs to test their strategies and make decisions in a safe environment. Involving experienced industry experts and experts in tech 4.0 startups can also help in identifying relevant needs. They can provide an overview of industry trends and skills needed by MSMEs.
4. Development of Learning Materials: Learning materials must be developed carefully. Creation of Learning Modules: Materials must be designed in the form of modules that can be accessed online or in printed form. This module should include text material, videos, exercises, and additional resources. Making Learning Videos: Making learning videos that illustrate the concept of startup 4.0 and provide practical examples. Drafting Business Case: Developing a relevant business case to understand how the startup 4.0 concept can be applied in real situations.

Needs analysis is an important basis in developing a learning curriculum based on MSME startup 4.0. This ensures that the designed curriculum will be relevant, effective and in line with the real needs of MSMEs, helping them overcome challenges in adopting startup 4.0 design, and in turn, contribute to economic growth and innovation in Indonesia (Liu & Pásztor, 2022). Curriculum development is a key step in designing a comprehensive learning approach for MSMEs (Micro, Small and Medium Enterprises) based on startup 4.0. The curriculum development process must consider various aspects of startup 4.0, including technology, innovation and digital marketing, to suit the latest needs and developments in the business world (Potvin et al., 2021). By paying attention to the steps above, developing a startup 4.0-based MSME learning curriculum can be carried out comprehensively and effectively. A well-crafted curriculum will help MSMEs understand, adopt and integrate the startup 4.0 concept in their business, thereby increasing their competitiveness and innovation capabilities in facing an ever-changing market (Sun et al., 2022). In this context, the learning curriculum is not just a series of materials, but is a comprehensive guide that equips MSMEs with a deep understanding of the concept of Startup 4.0. It provides a foundation for business owners and MSME employees to understand the essence of digital innovation, device connectivity, and the application of the latest technology in daily operations (Muhamad et al., 2012; Shao et al., 2019;

Syaiful Romadhon et al., 2019). The main benefit of developing this curriculum is the increase in the competitiveness of MSMEs (Bezanilla et al., 2019). By understanding the design principles of Startup 4.0, MSMEs can optimize their operational efficiency, improve the quality of products and services, and respond to market changes more quickly. It's not just about keeping up with technology trends, but also about creating a culture of innovation that drives long-term growth. In addition, this curriculum provides opportunities for MSMEs to acquire critical digital skills in managing and integrating technology (Parsons & Sarju, 2023). Business owners and employees will be equipped with the tools and knowledge to use artificial intelligence, data analytics, and other digital solutions to improve their business performance. This not only benefits them individually but also brings a positive impact on the level of efficiency and productivity of the organization (Belwal et al., 2020).

Implementation Curriculum

A complete description of the curriculum learning that has been carried out developed for Startup 4.0-based MSMEs (Micro, Small and Medium Enterprises) will cover various aspects such as structure, learning materials, teaching methods, and goals to be achieved. Below is a detailed description of the following Curriculum Name: "MSME Startup 4.0 Based Learning: Increasing Innovation and Competitive Business Strength". Curriculum Objectives: This curriculum is designed to achieve several main objectives, including:

1. Increasing MSMEs' understanding of startup 4.0 concepts and applications. Startup 4.0 includes the use of the latest digital technologies such as artificial intelligence (AI), Internet of Things (IoT), data analytics, and analytics intelligence to create new products or services, or improve business processes. The concept includes closer integration and connection between various devices and systems, enabling more efficient data exchange and improving responsiveness to market changes. Startup 4.0 uses big data to analyze market patterns, customer behavior, and business trends, so that MSMEs can make smarter and more responsive decisions.
2. Develop the necessary technology skills to adopt startup 4.0 technology. The development of technology skills to adopt Startup 4.0 technology requires commitment, time, and perseverance. By combining concept understanding, technical skills, and practical experience, individuals or organizations can improve their ability to face challenges and take advantage of opportunities in this digital age. Many MSMEs may face financial limitations to adopt new technologies. Solutions can involve collaborative approaches, for example, industry consortia or cooperation with financial institutions. The concept of Startup 4.0 allows MSMEs to more quickly adapt to market and customer changes, allowing them to compete better in the midst of increasingly fierce competition. The use of technology allows MSMEs to market their products or services globally, opening up new opportunities and increasing competitiveness.
3. Encourage innovative thinking and product development that is relevant to the startup 4.0 era. Startup 4.0 is a key step to ensure that companies or individuals can remain competitive and responsive to changes in an ever-changing business environment. The role of the leader in setting an example and supporting new ideas is crucial. Leaders who promote innovation will motivate teams to think more creatively. Focus on a deep understanding of customer needs and wants. Use research methods such as interviews, surveys, and observations to identify problems and opportunities that can be solved through innovation. Implement iterative development methods that allow rapid changes based on market feedback.

4. Teaches effective digital marketing strategies to reach more audiences. The teaching of effective digital marketing strategies aims to provide an in-depth understanding of how to reach a wider audience through digital platforms. It involves a set of concepts and skills covering different aspects of online marketing. In this context, participants learn to identify target markets, understand online consumer behavior, and use digital marketing tools to build a strong online presence. This training provides insight into basic digital marketing strategies, including online market research and competitor analysis. Participants learn to identify the needs and preferences of potential customers, as well as understand how competition operates in the digital environment. Focus is placed on understanding concepts such as SEO (Search Engine Optimization) to increase online visibility, ensuring that content and websites can be easily found by search engines. It involves an in-depth understanding of keywords, site structure, and other factors that affect ranking in search results.
5. Providing practical support in integrating startup 4.0 design into daily business operations. Providing practical support in integrating Startup 4.0 design into day-to-day business operations is a crucial step to ensure that organizations can harness the full potential of these innovative technologies and concepts. It involves a thorough effort to incorporate the design elements of Startup 4.0 into every aspect of a company's operations. The support team will work closely with management and employees to align understanding of Startup 4.0 design principles. This involves socializing about digital innovation, device connectivity, and the utilization of technologies such as artificial intelligence, Internet of Things (IoT), and data analytics to improve efficiency and responsiveness. Further practical support includes the integration of the latest technology into existing business processes. This may involve implementing new software or technology updates that enable more efficient operations, real-time data monitoring, and smarter decision making. This implementation must be tailored to the specific needs and goals of each part of the business.
6. Helping MSMEs increase their competitiveness in increasingly growing market competition.

Helping Micro, Small and Medium Enterprises (MSMEs) improve their competitiveness in an increasingly competitive market is a comprehensive effort to strengthen their business position in the midst of intense competition. It involves a series of measures and support designed to enable MSMEs to not only survive, but also thrive in an era where technological changes and market trends are taking place at a rapid pace. MSME empowerment involves training employees and business owners to improve the skills needed in modern business management. It involves learning technical, management, and marketing skills that are appropriate to the demands of today's market. Providing access to financing and financial support is also a crucial part of helping MSMEs improve competitiveness. This could involve facilitating access to loans, training on financial management, or even the provision of venture capital for the development of strategic projects.

Curriculum Structure: This curriculum consists of a series of learning modules structured sequentially. Each module will cover key topics relevant to the startup 4.0 draft. The following is the general structure of the curriculum:

Module 1: Introduction to Startup Draft 4.0

- Basic understanding of startup draft 4.0.
- The difference between startup 4.0 and traditional business plans.
- Key technology trends in startup 4.0.

Module 2: The Beginning of Technology 4.0

- Internet of Things (IoT) and its applications in business.
- Artificial Intelligence (AI) and machine learning.
- Analyze Data to make more informed decisions.
- Cyber security and data protection.

Module 3: Innovation and Product Development

- The importance of innovation in business.
- Methods To design innovative products.
- Implement market research to identify innovation opportunities.

Module 4: Digital Marketing

- marketing and social media.
- Content marketing strategy.
- Use of e-commerce platforms and online sales opportunities.

Module 5: Integration of Startup 4.0 Concepts in Business

- Change organizational culture to support innovation.
- Change management and adaptation of new technology.
- Case study of MSMEs that successfully adopted startup 4.0.

Teaching Methods: This curriculum will be delivered through various teaching methods which include:

- Lectures and Presentations: To provide conceptual understanding.
- Practical Training: To make it easier for MSMEs to try directly to apply the concepts they have learned.
- Case Study: To understand how the startup 4.0 draft can be applied in real business situations.
- Uses of Learning Videos: To describe complex concepts.
- Business Simulations: Use online business simulations that allow MSMEs to test strategies in a safe environment.
- Meetings: Meet with experienced mentors in startup 4.0 to provide advice and guidance.

The materials and teaching approaches that have been developed must be tried out on a group of small MSMEs to identify potential problems and necessary improvements. The teaching team or instructor who will provide training must be given training first to properly understand the learning material, teaching methods used, and curriculum objectives (Bridgstock et al., 2019). Training or class schedules must be prepared carefully to ensure that all MSME participants can attend training sessions according to the predetermined schedule (Leksono et al., 2021). This may involve in-person training sessions, online courses, or a combination of both, depending on the learning plan that has been designed (Sukiman et al., 2021). The list of participants must be well managed, and information related to each participant, such as the initial level of understanding of the startup 4.0 draft and the goals to be achieved, must be recorded so that teaching can be more focused. During training sessions, instructors must present the material clearly and easily understood. This includes the use of learning modules, videos, case studies, and other predetermined teaching methods. As per the planned teaching method, practical training should be provided to the participants so that they can apply the learned concepts in their own business. Instructors and mentors should provide support and guidance throughout this process. Implementation and evaluation are key steps in operating a

learning curriculum based on MSME startup 4.0 (Baticulon et al., 2021; Dlamini et al., 2023; Nora et al., 2021). In addition to training, mentoring and support should be provided to participants. This may involve individual consultation sessions with a mentor, online discussion forums, or group meetings to share experiences (Basuki et al., 2023).

Evaluation of Curriculum Effectiveness

Once the curriculum is launched, continuous evaluation must be carried out to measure its effectiveness. Implementation Data Collection: Record data about MSME participation, level of understanding, and real impact on their business. Feedback from Participants: Collect feedback from MSMEs who have followed the curriculum to get input regarding their experiences and suggestions for improvement. Evaluation results and feedback will be used to improve and develop the curriculum on an ongoing basis. The curriculum must be updated according to the latest developments in startup 4.0. Participants should be given the opportunity to provide feedback about their experiences during the training and using the startup 4.0 draft in their business. Surveys and interviews can be used to gather this feedback. Evaluation must be carried out to measure the extent to which participants have achieved the specified learning objectives. These possibilities involve exams, assignments, or projects that require participants to apply the startup 4.0 draft in real business situations. Data collected during implementation must be carefully analyzed. This involves comparing initial and final results of participants, identifying trends, and evaluating the extent to which the curriculum influences MSME businesses. By following these steps, the development of a learning curriculum based on MSME startup 4.0 can be implemented effectively and efficiently, and its effectiveness can be measured objectively through appropriate evaluation. This will help MSMEs better adopt the startup 4.0 plan and increase their competitiveness in an ever-changing market (Hidayati & Wuryandari, 2012).

The results of the analysis of MSME needs in adopting the startup 4.0 design are the core of planning and developing an effective learning curriculum. By understanding the needs of MSMEs well, we can design an appropriate and relevant curriculum to help them face the challenges and opportunities associated with startup 4.0 design. The following are some of the results of the analysis of possible needs that arise:

1. Different Levels of Understanding: Many MSMEs still have limited understanding of the startup 4.0 draft. Some may have heard about technologies like IoT and artificial intelligence, but they may not know how to integrate them into their business. Some MSMEs may have adopted a number of aspects of startup 4.0 technology, but they do not fully understand its potential. There are differences in understanding between different MSMEs, especially regarding certain technologies and their application in their industries.
2. Limited Technology Skills: Many MSMEs face limitations in terms of technological skills. They May Not have an internal team that understands 4.0 tech startups or Don't have their own access to technical requirements Resources. Skills in data analysis, software development and cyber security may be lacking among MSMEs.
3. Financial Constraints: Most MSMEs have budget constraints, making it difficult to adopt expensive technology or carry out significant innovation. Implementation of technology costs and employee training can be a serious obstacle.
4. Data Security and Privacy: MSMEs may be concerned about data security and privacy issues currently adopting startup 4.0 technology. They need to understand methods of protecting their customer and operational data.
5. Limited Human Resources: Some MSMEs may not have enough human resources to manage

change and project new technologies. They need help identifying and recruiting the right talent.

6. Goals of Various Businesses: MSMEs can have different business objectives when adopting startup 4.0. Some may be interested in improving operational efficiency, while others may want to create innovative products or services that can generate new revenue.
7. Readiness of various technologies: The level of technological readiness of MSMEs varies. Some Possibilities Already have adequate technological infrastructure, while others may need to start early.
8. Challenge Various Businesses: MSMEs in different business sectors may face different challenges when adopting startup 4.0 plans. For example, a manufacturing business itself may require different technology from a retail business.
9. Limited Innovation: Perhaps many MSMEs do not understand how to develop innovative products or services. They need guidance in terms of innovation and product development.
10. Difficulty Adapting: MSMEs may find it difficult to adapt to the rapid changes in technology and ongoing business.
11. Globalization Pressure: Globalization pressure can be an encouragement for several MSMEs to adopt startup 4.0 technology to be able to compete in an increasingly competitive global market.
12. Impact of COVID-19: The COVID-19 pandemic has increased awareness of the importance of technology in running a business. Many MSMEs that previously might not have considered technology now consider it a necessity.
13. Regulations and Compliance: MSMEs need to understand the regulations and requirements related to the law regarding the use of technology, especially in terms of data privacy and cyber security.

The results of this MSME needs analysis provide important insights into the challenges and opportunities faced by MSMEs in adopting the startup 4.0 design. The learning curriculum developed must be designed to address these needs and constraints effectively so that MSMEs can obtain maximum benefits from technological change and innovation (Dewi et al., 2019; Lau & Lee, 2021; Seifan et al., 2020). Evaluation will be carried out continuously throughout the curriculum, including exams, assignments, project practice, and presentations. The aim is to measure participants' understanding, their ability to apply startup 4.0 design to their business, as well as identifiable business developments. Thus, this evaluation will include a written exam, business case analysis, project report, and presentation. During the curriculum, participants will get support and mentoring from instructors and mentors who are experienced in startup 4.0. Individual and group meetings will be scheduled to provide guidance and answers to participants' questions (Widarti et al., 2020). At the end of the curriculum, participants will receive an evaluation report containing their achievements in this curriculum. They will also receive a certificate in recognition of their participation and achievements in the MSME 4.0-based curriculum startup. This curriculum is designed to provide a comprehensive practical approach and focuses on the application of startup design 4.0. The aim is to equip MSMEs with the knowledge, skills and support necessary to successfully adopt and apply technology and innovation in their businesses. With this curriculum, it is hoped that MSMEs will become more competitive, innovative and ready to face future challenges in an ever-changing business world (Wang et al., 2020).

Conclusion

Developing a learning curriculum based on MSME startup 4.0 has great significance in facing the challenges and opportunities in the digital economy era. Curriculum This helps increase the competitiveness of MSMEs in an increasingly competitive market by enabling them to adopt the latest technology and innovation. MSMEs follow a curriculum that develops these technological skills needed to implement the startup 4.0 plan in their operations. Adoption of startup design 4.0 stimulates innovative thinking and product development relevant to the digital era. MSMEs describe progress in their digital marketing strategies, creating new opportunities to reach customers. Some MSMEs report increased revenue, while others understand the importance of data security. This curriculum development provides important tools for MSMEs to understand, adopt and integrate startup 4.0 technology in their business. Adoption of startup 4.0 plans by MSMEs has the potential to make a significant contribution to national economic growth through increasing income and employment. This curriculum encourages sustainable innovation in the MSME sector, thereby enabling them to compete at the global level. MSMEs following this curriculum become more aware of technology and the latest developments in the digital world. Implications from the study. This can trigger improvements in education and training policies that support MSMEs in facing the startup 4.0 era. The development of a learning curriculum based on MSME startup 4.0 is a strategic step to strengthen and advance the MSME sector in Indonesia. With the knowledge, skills and support provided through the curriculum, MSMEs can play a more active role in national economic growth and compete at the global level.

Limitations

One of the main limitations is the limitations on sample scale and geographic coverage. The study is limited to a specific number of villages or regions, so the results may not fully represent the diversity of situations that may arise across different geographical or socio-economic contexts. Therefore, the results of the study may not be generally applicable widely. In addition, limited research time can also be a limitation. In situations where matching fund programs take longer to make a significant impact, research may not be able to capture long-term changes or measurable results over a short period of time. It is also important to remember that subjective perceptions and interpretations of participants and stakeholders can influence research results. Limitations in understanding local contexts and the dynamics of relationships between stakeholders can limit comprehensive interpretations. Based on these limitations, future research directions may include increasing sample scale and geographic coverage to produce more representative findings in general. Further research may also consider a more in-depth case study approach to understand the more complex context and dynamics of the Matching Fund program at the village level.

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