



ORGANIZATION OF THE PROMINENT TYPES OF INNOVATION, ENTREPRENEURSHIP, OR METHODS OF PRODUCTION WITHIN LOW-TECHNOLOGY ORGANIZATIONS

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ABSTRACT

In seven conventional industrial industries throughout the European Union, this study aims to analyze the impact of external organization collaboration on innovations that are technically possible, non-technologically feasible, and economically viable. Researchers in this research polled a cross-section of SMEs to get their take on things. According to the empirical method, it is possible for these four types of innovation to work in tandem with one another. Collaborating companies are more likely to generate fresh ideas and large profits, according to studies. It has been shown that all indicators of innovation performance improve as the number of cooperative ties grows. The study's author came to the conclusions that innovation assistance programs should be demand-driven and that the most effective strategy for boosting innovation performance was a portfolio approach to cooperation.

Keywords: *Imagination, uniqueness, edge in competition, and PME Equipment*

1. INTRODUCTION

Despite the rapid evolution of the global financial landscape, developments in technology emerged as the primary factor impacting company strategies (Alfawareh et al., 2021). To remain competitive and keep their present market share in today's global economy, businesses need to be nimble enough to react to shifting internal and external factors. To survive, companies had to be creative in all areas of their operations, from management to marketing to goods. They hoped that by thinking of new technologies, they may have an advantage over their competitors. Things that fall under the umbrella term "innovation" include novel approaches, products, methods, advertising campaigns, organizational structures, ideologies, and a seemingly endless list of other



things. Companies could get a competitive advantage and increase their bottom line with these and similar sorts. This article primarily focuses on product innovation since goods and services have always been essential to companies and because consumers are usually seen as a company's most asset. The focus on creativity and innovation as firms attempt to improve their internal and external surroundings is one of the characteristics of this decade that experts have investigated. Many different innovations were used by businesses across the economy in their various activities. Prior to delving into that, the researcher was also seeking to provide a comprehensive definition of innovation and creativity. The term "innovation" may mean different things to different individuals. This may be the first commercial use of a concept or the introduction of an improved product or procedure. Creativity and innovation go hand in hand; the former explains how one comes up with fresh, unexpected solutions to problems, while the latter explains how one really implements these solutions. The term "invention" was one of many that the researcher came across; the others were "innovation" and "invention," which both mean being innovative (Alsafadi et al., 2020).

2. BACKGROUND OF THE STUDY

The exponential rise of new information and the intensity of business competitiveness have defined technological progress in the modern period. A diverse economy can weather storms because products, techniques, technology, and connections are all subject to constant change. Innovation and new knowledge generation are often studied through the lens of the biotechnology and ICT sectors, which rely heavily on R&D. People used to believe that tech businesses were the ones



really driving things like GDP growth, job creation, and productivity gains. Since low-tech businesses were not critical to the expansion and innovation of the economy, policymakers ignored them, according to this group of writers. Authors of the study claimed that low-tech companies did not have the autonomy to conduct their own research and development, as stated in the OECD report. Internally, they did not invest enough in R&D and did not have enough money, people, or resources to do a good job. The researchers may safely assume that the phrase "innovation in low-tech industries" did not belong there. It was expected that low-tech enterprises would have less interest in research pertaining to innovation, according to Hirsch-Kreinsen et al. The title search term "low-tech industry" returned only 111 items from five databases. Constant technical developments brought about by minor but major changes in goods and processes have allowed low-tech businesses to endure and even contribute to the economic growth and trade success of industrialized countries, according to the authors. In many domains, continuous improvement reigned supreme since it facilitated informal collaboration among businesses and did not need costly expenditures in research and development. Most researchers who have concentrated on low-tech companies have advocated for a more inclusive definition of innovation, one that does not limit itself to state-of-the-art technology or revolutionary research and development, as both types of enterprises contributed to innovation. The goal of this piece is to expand upon the ideas mentioned before to provide a better picture of the processes involved in innovation in low-tech sectors and the unique skills that drive it. The ESTI is a low-tech business in industrialized countries, and they had planned this by researching it. Previous research on low-tech sectors, survey data, and in-depth interviews with a Swedish specialist and a small business owner/manager form the basis of this study (Areiqat et al., 2019).



3. PURPOSE OF THE RESEARCH

Finding out more about the many forms of innovation and entrepreneurship common in low-tech sectors, as well as their production processes, was the primary goal of the research. Discovering essential methods that promote competitiveness and sustainability required analyzing the genesis of innovation in environments defined by small technological breakthroughs. The secondary goal of the research was to find out how low-tech industries may grow and adapt via the combination of entrepreneurial tactics and manufacturing processes.

4. LITERATURE REVIEW

Companies in China that are at the forefront of innovation and have an entrepreneurial spirit deserve more credit for the country's economic success (Kakouris, 2021). In the forty years since China's reform and opening, the country has nurtured an abundance of courageous and inventive entrepreneurs. Creating an atmosphere that encourages innovation and laying the groundwork for a dramatic change in the economy, these individuals have played a crucial role in the country's economic success. The proprietors of forward-thinking Chinese businesses were making great strides to solidify their company's position as the foundation of innovation. Recently, businesses have taken a more active role in innovation, integrating their supply chains, and demonstrating competitive competence in the market. To stay ahead of the competition, entrepreneurs constantly innovate and produce new technologies that can be sold on the market. In addition, they are fast to



react to changes in the market, which allows them to create innovative products and services. Chinese businesses have become more conscious of the market and more competitive because of the persistent concentration of internal and external resources and an entrepreneurial mindset. This was the case even though Chinese businesses lagged far behind their Western competitors in terms of investment, human resources, and technical sophistication. This has inspired Chinese businesses to develop cutting-edge goods and services that outperform their rivals in every category, including quality, price, and efficiency. While the economy was booming, they imported whole sets of developed technologies, sped up the process of commercializing and localizing foreign ideas, and did a lot more. Chinese entrepreneurs sped up China's transition into a global manufacturing powerhouse by creating jobs, expanding access to global markets, and meeting the technology demands of the local market. During a fresh wave of industrial expansion, they boldly sought out foreign markets and new technologies, raced to the top of their sector, and infused creativity and energy. They did this to take advantage of the strategic opportunities that the paradigm shift brought forth. In the end, they were able to accomplish cross-cyclical development, usher in new technological paradigms, foster an abundance of creative minds, and empower their employees to innovate autonomously. Companies, with their can-do attitude and eye for innovation, have been trailblazers in many areas, including technology, industry, and the pursuit of premium output and high value addition. This is how things have worked for a long time. Increased global competitiveness, societal advancement, and economic expansion have all followed from this (Cassick, 2021).

5. RESEARCH QUESTIONS



- What is the role of Innovation culture in low-technology industries?

6. RESEARCH METHODOLOGY:

6.1 Research design:

The SPSS version 25 was used for the quantitative data analysis. A 95% confidence interval and odds ratio were used to determine the strength and direction of the statistical association. A criterion of statistical significance was established by the researchers at $p < 0.05$. To identify the most important aspects of the data, a descriptive analysis was used. When analyzing results from polls, surveys, and questionnaires, or when manipulating current statistical data using computational tools, quantitative methods with a mathematical, numerical, or statistical focus are often used.

6.2 Sampling:

Research participants filled out questionnaires to provide information for the research. Using the Rao-soft programme, researchers determined that there were 731 people in the research population, so researchers sent out 915 questionnaires. The researchers got 886 back, and they excluded 29 due to incompleteness, so the researchers ended up with a sample size of 857.

6.3 Data and Measurement:

For this study, questionnaires served as the main tool for gathering information. Part A consisted of researchers asking for basic demographic information; Part B employed a 5-point Likert scale

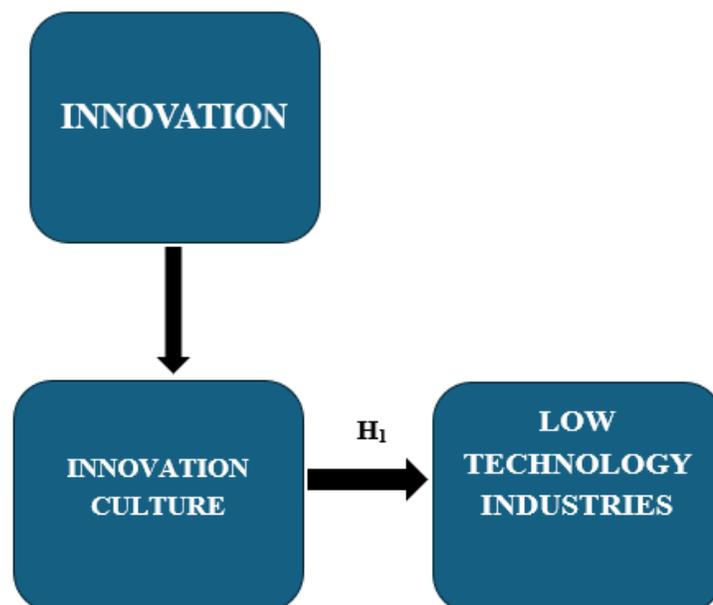


to assess various aspects of the physical and internet channels. For the secondary data, researchers relied on a plethora of different sources, most notably online databases.

6.4 Statistical Software: The statistical analysis was conducted using SPSS 25 and MS-Excel.

6.5 Statistical Tools: To grasp the fundamental character of the data, descriptive analysis was used. The researcher is required to analyze the data using ANOVA.

7. CONCEPTUAL FRAMEWORK





8. RESULT

- **Factor Analysis**

One typical use of Factor Analysis (FA) is to verify the existence of latent components in observable data. When there are not easily observable visual or diagnostic markers, it is common practice to utilise regression coefficients to produce ratings. In FA, models are essential for success. Finding mistakes, intrusions, and obvious connections are the aims of modelling. One way to assess datasets produced by multiple regression studies is with the use of the Kaiser-Meyer-Olkin (KMO) Test. They verify that the model and sample variables are representative. According to the numbers, there is data duplication. When the proportions are less, the data is easier to understand. For KMO, the output is a number between zero and one. If the KMO value is between 0.8 and 1, then the sample size should be enough. These are the permissible boundaries, according to Kaiser: The following are the acceptance criteria set by Kaiser:

A pitiful 0.050 to 0.059, below average 0.60 to 0.69

Middle grades often fall within the range of 0.70-0.79.

With a quality point score ranging from 0.80 to 0.89.

They marvel at the range of 0.90 to 1.00.

Table1: KMO and Bartlett's Test

Testing for KMO and Bartlett's

Sampling Adequacy Measured by Kaiser-Meyer-Olkin .970

The results of Bartlett's test of sphericity are as follows: approx. chi-square



df=190

sig.=.000

This establishes the validity of assertions made only for the purpose of sampling. To ensure the relevance of the correlation matrices, researchers used Bartlett's Test of Sphericity. Kaiser-Meyer-Olkin states that a result of 0.970 indicates that the sample is adequate. The p-value is 0.00, as per Bartlett's sphericity test. A favorable result from Bartlett's sphericity test indicates that the correlation matrix is not an identity matrix.

Table: KMO and Bartlett's

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.970
Bartlett's Test of Sphericity	Approx. Chi-Square	3252.968
	df	190
	Sig.	.000

Applying Bartlett's Test of Sphericity provided further confirmation of the correlation matrices' overall significance. Kaiser-Meyer-Olkin sampling adequacy is 0.970. A p-value of 0.00 was discovered by researchers using Bartlett's sphericity test. The researchers know the correlation matrix isn't a correlation matrix since Bartlett's sphericity test produced a significant result.



❖ INDEPENDENT VARIABLE

- **Innovation**

From ideas to commodities to services, the term "innovation" encompasses a wide range of pursuits that lead to novel and useful goods and services. Innovation might take the form of new technology, better techniques, or even just different ways of looking at old issues. Changing long-held ways of thinking to fit the requirements of novel situations was fundamental to creativity. From little tweaks to current solutions to huge societal or industrial revolutions, innovation may have far-reaching consequences. Innovation would often be spurred by the confluence of opportunities and requirements. Every civilization has been impacted by the cultural, economic, and environmental upheavals that have happened throughout history. Businesses and individuals are driven to innovate in response to these types of challenges, and although these inventions may not solve the issues at hand, they may improve people's lives in little ways. To see how innovation may shake up established norms and open new markets, consider how the proliferation of digital technologies has altered the nature of communication and impacted sectors as diverse as retail and education. To maintain a competitive edge, businesses must constantly innovate. When it comes to responding to shifts in the market, companies that encourage innovation are often the most agile. To achieve this goal, it is essential to support R&D financially and cultivate an atmosphere that welcomes and rewards creative expression. Organizational success is more common in companies where employees are encouraged to think creatively, work together, and take calculated risks. New



goods and services that address customers' changing wants may be born out of this culture. Numerous non-technological areas saw innovation, including healthcare, education, and manufacturing, among many others. Innovations in telemedicine and wearable health equipment, for example, have made healthcare more accessible and personalized for individuals. Online learning platforms have expanded, providing students with easier and more personalized access to course resources. Traditional industries, such as agriculture, have found solutions to problems with food security and environmental stewardship because of innovations in sustainable practices and agricultural methodology. The invention process relies heavily on collaboration. More thorough and efficient answers were often the result of multidisciplinary teams' diverse viewpoints. It is possible to foster an environment that is friendly to innovation if public organizations, private companies, and government agencies collaborate. Working together in this way makes it easier to share information, resources, and skills, which quickens the process of coming up with and implementing new ideas. Creativity has numerous advantages, but getting there isn't always a picnic. Resistance to change, excessive red tape, and a lack of funding are all potential obstacles that organizations may encounter. Organizations may also be hesitant to try out novel approaches when it comes to testing out creative ideas. Many companies may find it difficult to find a happy medium between stability and innovation. Taking too many risks without adequate management could lead to failure, while failing to innovate enough might lead to stagnation (Shatnawi et al., 2022).

❖ **FACTOR**

- **Innovation Culture**



Creativity, exploration, and the relentless pursuit of new ideas, products, services, and processes are hallmarks of an innovation culture, which is defined as an organizational environment and mentality. A culture like this view's failure not as an end but as an opportunity to learn and grow, and it encourages its members to try new things and welcomes change. Strong innovation cultures in the workplace encourage people to question established practices, come up with creative solutions to issues, and think outside the box. The responsibility of leadership in fostering an environment of trust, transparency, and cooperation is fundamental to an innovation culture. Leaders in these types of businesses model the behavior they want to see from their employees by encouraging them to take risks, praising creative solutions, and giving their teams the freedom and authority to try new things. In their pursuit of innovation, they relentlessly dismantle barriers, promote cooperation across departments, and commemorate achievements big and small. The ability to think creatively and solve problems from many angles is fostered in this kind of culture by encouraging a wide range of viewpoints. In addition, a customer-centric approach is a key component of an innovation culture, which guarantees that market demands and preferences inform the development of novel ideas and solutions. The text highlights the need to be up to date with the latest knowledge, being flexible, and embracing new trends and technology. Organizations may boost their competitiveness, operational efficiency, and growth prospects by cultivating a positive and innovative work environment. Maintaining a level of relevance, agility, and vision in the face of a world that is always evolving requires a continuous dedication to innovation, rather than a one-time effort (Shi et al., 2020).

❖ DEPENDENT VARIABLE



- **Low Technology Industries**

Many people may participate in these industries because of the ease with which they produce goods and use the technology that is available to them. Particularly in areas without sufficient technological infrastructure, they have a major impact on the world economy. Human labor was crucial in low-tech sectors. Due to the abundance of employment opportunities in these fields, low-income and rural residents were particularly well-served. Craftsmanship and local knowledge were among the many traditional talents that workers would pass down from generation to generation. The rapid response time to changes in demand and market circumstances is a hallmark of many low-tech sectors, which depend on human labor instead of automation. This will allow them to cater to the wide range of demands from their clientele. Manufacturing textiles, preparing food, building with wood, and producing agricultural goods were among the many industries that did not depend on sophisticated technology. Traditional garment production, for example, often makes use of hand assembly and basic stitching techniques in the textile and clothing industries. Instead of concentrating on mass manufacturing, this company makes one-of-a-kind, handcrafted goods for niche markets. Using materials and processes that are not harmful to the environment is a top priority in traditional food processing techniques like canning and artisanal baking. When they create structures, skilled artisans in many parts of the world still use tools and methods that have been around for ages. The importance of low-tech enterprises extends well beyond their monetary value. People are more likely to be able to escape poverty and make a difference in their communities when they have work. As a result of rising customer demand for eco-friendly practices, a number of these sectors are putting sustainability first by reducing waste and making better use of local resources. Also, as is common in low-tech sectors, communities may hold on to



their identity by holding on to cultural assets and traditional skills. As a cultural trait, it brings suppliers and consumers closer together, which benefits both parties and helps small companies thrive. The fact is, nevertheless, that low-tech companies nonetheless face certain obstacles. With global competition heating up, low-cost imports are posing a danger to the survival of indigenous enterprises. Companies in these sectors face stiff competition from companies offering similar or even better goods at cheaper costs without compromising on innovation or quality. Because their profit margins are frequently unstable, low-tech businesses may have a hard time securing financing for growth or upgrading. Innovation and advancement might be stymied by this restriction. Furthermore, certain sectors may struggle to find enough qualified employees to meet the evolving needs of their customers (Thukral, 2021).

- **Relationship between Innovation Culture and Low Technology Industries**

In low-tech businesses, where being competitive and efficient is more about using imagination, resourcefulness, and incremental changes than about focusing on high-tech developments, an innovation culture is crucial. In these fields, a culture of innovation encourages workers and managers to think outside the box when it comes to solving problems for customers by making better use of current resources. Without state-of-the-art breakthroughs, low-tech businesses may nevertheless react to market changes and stay relevant using this technique. In low-tech sectors, a strong innovation culture encourages workers at all levels to think creatively, share ideas, and work together to solve problems in a way that improves operations. By highlighting the significance of streamlining processes, reusing assets, and discovering more intelligent methods to provide value, it prioritizes practical inventiveness over technical complexity. It is essential for leaders to provide



an environment that is safe for experimenting, where measured risks are tolerated, and where innovation is valued and appreciated, regardless of its size. Even low-tech sectors may overcome obstacles like limited resources, unpredictable consumer demand, and technologically superior rivals with the help of an innovative culture. These sectors may maintain their market dominance and develop distinctive value propositions by encouraging a growth mentality and concentrating innovation efforts on the consumer. In the end, low-tech sectors may prosper in a changing economy because of innovation culture, which turns limits into possibilities (Wu et al., 2020).

According to the above discussion, the researcher proposed the following hypothesis to analyze the link between knowledge management and the effective management of tacit knowledge.

- *H₀₁: There is no significant relationship between Innovation Culture and Low Technology Industries.*
- *H₁: There is a significant relationship between Innovation Culture and Low Technology Industries.*

Table 2: H₁ ANOVA Test

ANOVA					
Sum					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	40128.964	153	5655.517	978.530	.000
Within Groups	456.687	703	5.356		
Total	40585.651	856			

The results will be noteworthy in this research. F=978.530, with a p-value of .000 (below the .05 alpha threshold), reaching statistical significance. Thus, it follows that, "*H₁: There is a significant*



relationship between Innovation Culture and Low Technology Industries” is accepted and the null hypothesis is rejected.

9. DISCUSSION

It looks at a lot of the creativity, entrepreneurialism, and manufacturing techniques that were prevalent in low-tech industries. While these industries rely on fundamental technology and traditional production practices, they nonetheless manage to show off their innovative side by making great use of what researchers already have. To meet the criteria of long-term durability in low-tech items, businesses often depend on local experience and in-house knowledge. Traditional production methods in these areas relied heavily on manual labor and clung to bygone days of technology. New materials, more efficiency, and better supply chain management were helping an increasing number of businesses remain competitive. These companies are in a better position to respond to changes in the market because they are actively engaging with the community and collaborating with local groups, which stimulates more innovation. The fact that innovation may occur in non-technological contexts is shown even by low-tech companies. These fields were critical to the survival of cultural practices and economies because they depended on adapting to change while maintaining an intimate knowledge of their surrounding environment.

10. CONCLUSION:

Studies on innovation, entrepreneurship, and manufacturing processes have shown that the low-tech sector greatly values adaptability and creativity. These industries demonstrate that innovation



may come in all shapes and sizes, from little adjustments to large-scale ideas that improve product quality and durability, despite the prevalence of manual processes and established methods. Local talents and knowledge are relied upon by entrepreneurs of low-tech firms to fulfill the ever-changing requirements of their clientele. To top it all off, they promote a development attitude via collaboration and civic involvement. Lastly, this analysis highlights the importance of low-tech firms in supporting economies and conserving cultural norms, proving that innovation wasn't confined to tech corporations (Wu et al., 2018).

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