

A Study on Innovation, Technology and Sustainability of MSME's

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ABSTRACT

"SMEs are recognized as vital drivers of economic growth, fostering equitable development, and offering innovative solutions for sustainability. They play a pivotal role in creating employment opportunities, supporting industrialization in underdeveloped rural areas, and contributing to the equitable distribution of national income and wealth. However, surviving in the evolving global market demands not only enhanced productivity but also sustained growth through continuous innovation. Business sustainability necessitates self-assessment to identify areas for improvement, capitalize on strengths, and generate ideas for future organizational development. In India, SMEs, while crucial to the economy, often encounter challenges that lead to closures or unsustainable operations. Numerous studies highlight factors such as poor management, lack of innovative approaches, and short-termism as contributors to these difficulties. Therefore, the primary objective of this paper is to explore approaches that foster a better understanding of sustainable models, enhancing innovation and ensuring the longevity of SMEs."

KEYWORDS: Sustainability, Innovation, MSME'S, Economic Growth, Development

INTRODUCTION

"Small and Medium Enterprises (SMEs) play a crucial role in driving economic growth by not only fostering economic activities but also promoting equitable development, offering employment opportunities, and requiring lower capital investments. They also contribute significantly to bridging the rural-urban divide in India. Despite their importance, SMEs in India, like their global counterparts, encounter various challenges. To thrive in the global market, SMEs must enhance productivity and adopt innovative approaches.

The survival, growth, and sustainability of SMEs hinge on their ability to be innovative. Business sustainability entails self-assessment to pinpoint areas for improvement, leverage strengths, and identify prospects for future organizational development. Unfortunately, many Indian SMEs face substantial difficulties and risk closure due to issues like poor management and a shortsighted approach.

Therefore, the core aim of this chapter is to investigate whether embracing sustainable models can empower SMEs to innovate and flourish. The discussion will center around different sustainable concepts prevalent in the knowledge world, emphasizing the need for and significance of sustainable and innovative approaches for ongoing success. The study seeks to answer key questions: What constitutes innovation for SMEs? How can innovation in SMEs ensure growth and sustainability? And, what are the essential

elements in sustainability initiatives for firms, as well as the critical channels for augmenting a firm's innovation activities in response to its external environment?"

THERIOTICAL BACKGROUND

"India, a rapidly growing emerging economy, has established itself as a prominent center for knowledge-intensive IT services and the IT industry. Despite this, recent economic growth has decelerated, and poverty remains a significant challenge. Recognizing the importance of innovation in socio-economic development, India has implemented strategic plans such as the 'Decade of Innovations 2010-20' and the 12th Five-Year Plan (2012-17) to strengthen its science and technology capabilities and address social challenges.

To combat poverty and foster inclusive development, various initiatives have been launched, including the Inclusive Innovation Fund (IIF). The IIF, with an ambitious target of mobilizing USD 3.2 billion (INR 50 billion), supports enterprises that develop innovative solutions for the 'bottom 500 million' in India. Additionally, the National Innovation Foundation, established in 2000, focuses on supporting grassroots innovators.

Energy shortage poses a challenge for Indian SMEs, as economic growth is directly linked to the increase in energy demand, leading to a heightened reliance on coal imports. In response, the National Action Plan on Climate Change outlines policies promoting renewable energy and energy conservation. National schemes like the National Solar Mission, National Mission for Enhanced Energy Efficiency, and National Mission for Sustainable Agriculture aim to replace energy sources with solar and other renewable alternatives. The government also provides subsidies for various forms of renewable energy, emphasizing environmental technology and the greening of existing manufacturing facilities."

MEANING OF INNOVATION

"Innovation is a process that introduces novelty either in the execution of a task or the creation of an entirely new product or service. It can manifest as a new entity or a revolutionary method of performing an existing task, encompassing both tangible and intangible aspects. The Organization for Economic Cooperation and Development (OECD) defines innovation as the implementation of a new or significantly improved product, process, marketing method, or organizational method in business practices, workplace organization, or external relations (OECD, 2005). Innovation plays a strategic role in society by contributing to growth, creating opportunities, generating jobs, and addressing social and environmental challenges (Eurostat, 2005).

Furthermore, innovation is crucial at every stage of development and involves various dimensions, including technical or non-technical sources, novelty criteria, types such as product or process innovation, and impact, whether radical or incremental. The notion of what constitutes innovation and the role of policies have evolved over the past decades due to these dimensions (OECD, 2012a). Multiple entities contribute to the innovation landscape, with firms, especially SMEs, serving as the primary loci where innovation occurs. Public entities, owing to their size and engagement with various stakeholders, often champion social innovation by seeking new solutions to societal problems (Baporikar, 2017c). Universities and public research institutes, being hubs for creativity and the generation of new ideas, play a significant role in the innovation ecosystem, contributing to education, training, and knowledge transfer (Baporikar, 2016; 2014a).

However, innovation is influenced by various factors, including access to finance, the availability of a skilled workforce, market conditions, competition, and intellectual property rights. Linkages, networks, and clusters within economic systems are equally crucial, adding complexity to policy settings and potentially leading to inconsistencies and redundancies (OECD, 2010a). Innovation processes vary across sectors and technological areas, involving differences in development, technological change rates, linkages, knowledge access, organizational structures, and institutional factors (OECD, 2012a)."

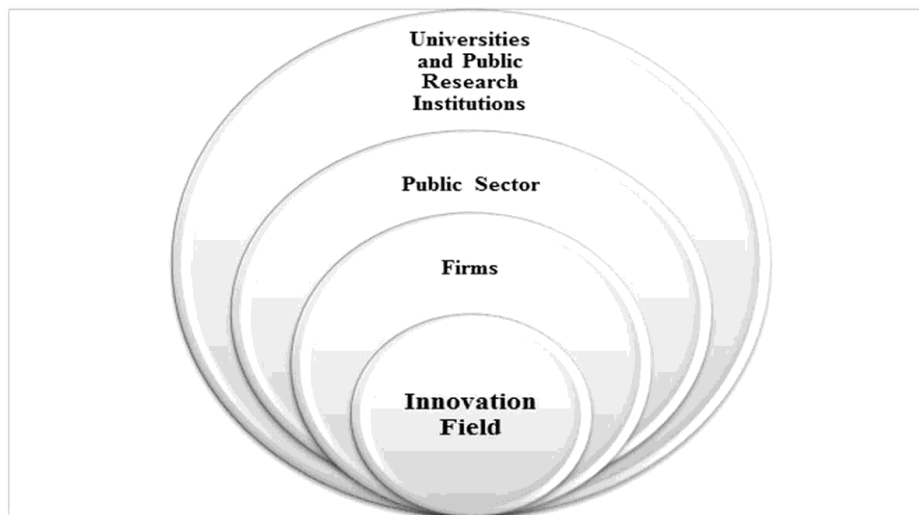


Figure 1. Players in the Innovation Field Self-Developed

ORIGIN OF INNOVATION

"Innovation serves as the cornerstone through which entrepreneurial economies distinguish themselves (Drucker, 1985). Schumpeter (1934) identified five common sources of innovation: the introduction of a new or improved product, a new method of production, entry into a new market, the acquisition of new raw materials or semi-finished goods, and the reorganization of any industry. Entrepreneurs play a pivotal role in driving the innovation process (Freeman and Soete, 1997). According to the OECD (2004), innovation is defined as the introduction of new or improved processes, products, or services based on new scientific or technical knowledge and/or organizational know-how.

Various scholars offer different perspectives on innovation, considering it as the realization of new products, services, production processes, marketing techniques, or organizational structures. It may also involve aspects such as new technology, intellectual property, and business or physical change (Mazzarol & Reboud, 2008; Sundbo, 1998; Damanpour, Szabat & Evans, 1989; Aiken & Hage, 1971; Daft, 1982; Zaltman, Duncan & Holbek, 1973).

The term 'innovation' finds its roots in the Latin words 'innovatio,' meaning to renew or make something new (Norman, 2008). However, the augmentation of innovation in an economy often relies on a system of specialization, where large, mature enterprises can acquire innovative and successful SMEs (Lindholm, 1994). This concept, proposed by researchers like Williamson (1975), Jacobson (1984), Granstrand & Sjölander (1990), and Lindholm (1990), connects societal input to innovation within the external environment of a firm.

Early studies suggested that short-term growth results from capital investment, while long-term growth is associated with exogenous technological change (Corley, Michie, & Oughton, 2002). Schultz (1959)

attributed higher productivity to investment in capital and knowledge-related factors. Romer (1986) hypothesized that R&D leads to the creation of knowledge, which directly impacts technological change."

SMALL AND MEDIUM ENTERPRISES IN INDIA

"Previously known as small and medium enterprises, the Micro, Small and Medium Enterprises (MSMEs) sector has evolved into a highly vibrant and dynamic component of the Indian economy over the past five decades. The intricate business environment has underscored the crucial role of strategic planning and execution (Baporikar, 2014c). The impact of globalization is inevitable for SMEs as they strive to excel in every aspect to compete in global markets. A 2011 survey conducted by the Asian Productivity Council emphasizes that leveraging business excellence models provides substantial operational and financial advantages to organizations (Asian Productivity Council Report 2011).

As per the MSME Act of 2006, the classifications are as follows:

A micro-enterprise has an investment in equipment not exceeding Rs. 10 lakh.

A small enterprise has an investment in equipment exceeding Rs. 10 lakh but not exceeding Rs. 2 crore.

A medium enterprise has an investment in equipment exceeding Rs. 2 crore but not exceeding Rs. 5 crore.

According to FICCI-MSME (2012), the Indian SME market is valued at \$5 billion. The performance of SMEs relies significantly on the interaction of various factors within a collective system of knowledge, encompassing both new and existing knowledge, as well as the technologies utilized (Baporikar, 2014c). These factors include governance mechanisms, institutions, and the individuals within them. However, due to their fragmented nature, many SMEs struggle to organize effectively, leading to challenges such as high procurement costs and inefficient supply chains. Economic reforms and technological innovations have impacted the SME sector in India (Baporikar, 2014a; 2014b). Negative factors affecting SME performance include the failure to formulate strategic plans, a lack of market research, challenges in finding trustworthy business partners and reliable suppliers, inadequate financial management skills, and difficulties in recognizing and exploiting market opportunities (Hazlina, 2009).

SMEs in India encounter various challenges, including issues related to obtaining timely credit, limited access to equity capital, challenges in supplying to government departments, procurement of raw materials, problems in storage, designing, packaging, and product display. Additionally, they face challenges related to inadequate infrastructure, limited access to modern technology, difficulties in securing skilled labor, complexities of labor laws, and challenges associated with direct and indirect taxation, as highlighted in the Report of the Prime Minister's Task Force (2010)."

GENESIS OF SUSTAINABILITY

According to the World Commission on Environment and Development (1987), the Brundtland Report defined sustainable development as meeting the needs of the present without compromising the ability of future generations to meet their own needs. Entrepreneurship, social entrepreneurship, corporate entrepreneurship and responsible entrepreneurship have studied the relationship between entrepreneurship and sustainable development with the aim of maximizing positive impacts while minimizing negative impacts on people and the environment (Cardus, 2012).

Sustainability opportunities are complex, as are "wicked" challenges, and each potential customer requires a different strategy (Lans, Blok & Wesselink, 2014). Sustainability is defined by Lazos-Ruiz, Moreno-

Casasola, and Gallant (2013) as the wise use of natural resources, a regional approach to rural development, business management by local organizations, and sustainability-oriented entrepreneurship. Research on green entrepreneurship, a form of sustainable entrepreneurship, was conducted by O'Neill and Gibbs (2013), who emphasized the niche importance of green entrepreneurs. As large companies become more environmentally conscious, niche companies are forced to find ways to differentiate themselves by developing new or unique products. Social sustainability is defined by the ISO 26000 Standard on Social Responsibility (ISO, 2011), which covers human rights, business practices, ethical business conduct, customer support, health and safety, and community development.

Sustainability appears to be a huge trend in revolutionary business (Lubin & Esty, 2010). Companies should prioritize sustainability and allocate significant funds to promote sustainability initiatives. Despite the difficulties, there are significant economic benefits (EIU, 2008). Sustainability advocacy, sustainability leadership and advocacy, strategic management linkages, public promotion of sustainability initiatives, effective management and coordination of sustainability initiatives, dissemination of sustainability-driven leadership and alignment of messages and metrics are essential organizational components to achieve. Supporting sustainability initiatives.

Sustainability efforts must be tracked and guided through performance assessment tools, and companies must regularly deliver on sustainability promises. Although this is changing, public awareness of environmentally friendly goods and services remains a problem. Many people view sustainability as an expensive undertaking and a “luxury” that requires careful balance (Natural Marketing Institute, 2008). In particular, healthcare organizations must carefully manage their reputation and impact on public perception of sustainability (Wang, Turner, & Stoneman, 1996)..

FIRM ELEMENTS TO SUPPORT SUSTAINABILITY INITIATIVES

"Sustainability stands as the latest business megatrend that is reshaping the competitive landscape across various industries (Lubin & Esty, 2010). Organizations must embrace sustainability as a core value and allocate substantial resources to support these efforts, considering the significant financial benefits that can arise from such initiatives (EIU, 2008). However, certain key organizational elements are essential to effectively support sustainability initiatives:

Advocacy for Sustainability:

Organizations must actively advocate for sustainability.

Champion to Lead and Advocate Sustainability:

Appointing a dedicated champion to lead and advocate sustainability within the organization is crucial.

Strategic Management Linkage:

Sustainability efforts should be linked with strategic management to ensure alignment with overall organizational goals.

Public Promotion of Sustainability Initiatives:

Promoting sustainability initiatives publicly enhances the organization's brand and reputation. Research suggests that intangible assets, such as reputation, can provide a more enduring competitive advantage, supporting long-term success (Fombrun, 1996).

Effective Management and Coordination:

Efficiently managing and coordinating sustainability initiatives is vital. These efforts not only attract but also retain top talent within the organization (Gallagher, 2012).

Variety of Means to Propagate Sustainability-Driven Leadership:

Organizations should adopt diverse methods to propagate sustainability-driven leadership, tailored to their specific needs and culture (Baporikar, 2017b; 2014a).

Alignment of Message and Metrics:

The organization's messaging about sustainability and the associated metrics must align. Performance measurement systems should actively monitor and guide sustainability activities. Walking the talk is crucial for firms to uphold their commitments.

Regular Tracking of Key Sustainability Performance Indicators:

Organizations need to regularly track various key sustainability performance indicators to assess their progress.

Despite these efforts, there exists a quandary in the public perception of environmentally friendly products and services. While some studies suggest a historic perception of inferior quality or effectiveness compared to conventional products (Wong, Turner, & Stoneman, 1996), this perception is gradually evolving. Simultaneously, sustainability is sometimes viewed as a costly endeavor, more akin to a 'luxury' (Natural Marketing Institute, 2008). Managing the reputational effects and public perceptions surrounding sustainability presents a delicate balancing act, especially in industries like healthcare."

INNOVATION FOR SUSTAINABILITY

Innovation is essential when solving environmental problems in many ways. Traditional growth models highlight the importance of technological progress and knowledge acquisition in achieving long-term growth and minimize the negative effects of diminishing returns to capital. In addition, creation of new businesses, introduction of innovative market products and job creation are closely related to innovation (Baporikar, 2014a; 2014b).

Entrepreneurs play a vital role in addressing social concerns especially related to startups. New firms are more apt to operate outside dominant models than established firms, which are constrained by the use of pre-existing goods, technology and organizational structures (Baumol, 2002; Veuglers, 2009). Over the past 10 years, environmental business entrepreneurs have made significant contributions, demonstrating that this resilience applies to environmental concerns. Because entrepreneurs in a variety of industries can use sophisticated business strategies and products that support environmental protection, this contribution is difficult to determine. About 25% of European SMEs claim to have invested a significant amount in eco-innovation in the last five years (European Union, 2011). According to Gayo et al. (2010), senior entrepreneurship gives people an opportunity to be involved, give back to society and improve their quality of life. However, the average size and growth rate of firms founded by older people is modest, suggesting that they often do not achieve high growth or innovative efforts (OECD/EU, 2012).

To solve environmental problems through innovation, public policy is needed. Critical measures include strengthening the regulatory framework, expanding access to finance, and developing complementary supply-side and demand-side policies. Research focused on microcredit growth has yielded a variety of

findings, with success moderated by variables such as gender and decision-making autonomy (Banerjee et al., 2009; Crepon et al., 2011; Dupas and Robinson, 2009). There is growing recognition of the role innovation can play in addressing environmental issues, including greenhouse gas emissions and climate change (Baburikar, 2017a). Global problems such as the consequences of greenhouse gas emissions require innovative solutions that benefit all countries. A shift to clean energy, for example, will have a major impact on climate change. The Energy Technology Prospects published by the IEA (2008) provide a way to achieve a 50% reduction in CO₂ emissions through innovative measures in several sectors. Manufacturing companies have put more effort into sustainable manufacturing in recent years, integrating pollution control and considering the life cycles of their products as well as wider impacts (OECD, 2008). Social inequalities can also be reduced through innovative goods and services. Affordable and simple versions of existing products may help bridge the gap between living standards among different income levels. For example, low-cost cars, computers and pedal-powered washing machines are designed to provide lower-class consumers with access to the benefits of these goods (OECD, 2013). To solve social problems, social innovation – the search for new solutions to social problems – is necessary (Nichols, 2006). While earlier the focus was on the non-profit sector, now the business and government sectors are adopting the concept of social innovation. Programs promoting social innovation are now widespread thanks to their application (OECD, 2010b). Many creative entrepreneurs have helped reduce social exclusion and inequality; Examples can be found in OECD publications (OECD, 2010a, 2012a). Furthermore, Teressen et al. (2009) The Global Entrepreneurship Monitor (GEM) dataset provides insights into social entrepreneurial activity in several countries by comparing them across borders and assessing the size and nature of social entrepreneurial activity. Studies show that the rate of entrepreneurship increases along with a decline in the poverty rate (Sliwinski, 2012), and continued self-employment is effective in moving people up the income distribution in the United States (Holtz-Eakin et al., 2000). . However, for low-skilled people, especially women, the benefits of self-employment are less than the benefits of paid work (Löfström, 2008).

SOLUTIONS AND RECOMMENDATIONS

According to Salgo (1993), learning is the process of expanding one's knowledge of the external world and oneself. Individuals seek purpose in their jobs and sustainability provides an effective way to strengthen relationships between companies, workers and communities (Baporikar, 2017a). It is essential for SMEs to incorporate sustainability concerns into their management strategies and thinking. To do this, more companies need to create an ethical compass that guides their operations (Sullivan, 2009). Hard law not only brings about radical reforms in society's use of natural resources, but companies also play a prominent role in this regard (Rosenberg, 2015). Business strategy and sustainability will become more aligned in the coming years as senior leadership continues to focus on the changing needs of consumers, workers and stakeholders (Baporikar, 2017d). It is important to remember that sustainability increases rather than reduces the driving challenge. Entrepreneurial innovation may help solve social and economic problems by promoting sustainability and innovation (OECD, 2010b; 2012b).

However, enabling this requires some recommendations:

Formalizing the Informal Sector: Creating and developing innovative enterprises can lead to reductions in the informal sector in various ways.

Encouraging Green Growth: Green growth involves fostering economic growth and development while minimizing the violation of natural assets. Policies promoting green growth aim to reduce resource use per unit of value added incrementally or maintain stable or declining resource use and environmental impacts while the overall economy grows. Environmental pressures have increased in many areas despite economic growth, especially in non-OECD countries (OECD, 2010).

Promoting Green Innovation: Recent OECD analysis indicates that without intensified policy action, global greenhouse gas (GHG) emissions are likely to increase. Addressing other environmental and social challenges, such as water availability, toxic product disposal, and biodiversity, is equally crucial.

Enhancing Worldwide Cooperation: Setting global standards, whether in environmental and energy technologies, regulations on industrial production, trade policies, or technology directives, requires essential global cooperation.

Adopting Technologies: Technologies like ICT, Mechatronics, and Biotechnologies have the potential to improve green growth (Baporikar, 2017b). Therefore, SMEs must strive to adopt these technologies where opportunities exist.

By promoting green growth and encouraging green innovation, there is an increased potential to address economic and environmental challenges while opening up new sources of growth (OECD, 2011).

FUTURE RESEARCH DIRECTIONS

Historically, SME performance has predominantly centered on financial indicators, often neglecting non-financial parameters. Therefore, there is a need for further research on non-financial aspects such as SME structure, firm age, firm size, and their impact on innovation. Sector-specific studies on SMEs and their innovation models also require additional investigation. Examining how variations in business sectors and the geographical location of firms influence SME performance can contribute valuable insights to projecting and exploring the cluster approach to regional development. Investigating innovativeness as a component of competitive strategies is an area worthy of exploration. Research aimed at constructing SME performance models with a focus on the external environment of the firm is another promising avenue. Additionally, there is a gap in studies exploring the connections between entrepreneurial investments and socio-economic mobility, a factor that enhances the economy's ability to innovate and achieve sustainability.

XI CONCLUSION

A strong business environment that encourages investment in technology and knowledge-based capital is essential to policies that promote innovation. To support the development, market expansion and scalability of innovative firms, this environment must enable the exploration of new concepts, technologies and business models (OECD, 2015). Critical issues include addressing new issues, creating an appropriate framework, investing in knowledge-based capital, implementing innovation-related tax laws, financing innovation, and recognizing the importance of global value chains. Investment strategies are gaining great importance especially in the face of growing importance of knowledge-based assets. SMEs in India have a bright future if they embrace the concepts of innovation and sustainability.

Sustainable entrepreneurship is the process of discovering and starting a new business venture, planning and monitoring the resources needed, and evaluating the potential risks and rewards of the business. This process should consider the economic, psychological, social and environmental impacts of finding,

creating and exploiting opportunities to create future products and services. It is impossible to protect and ensure sustainable development processes without cooperation with innovation.

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