

# A STUDY ON SUSTAINABILITY-ORIENTED INNOVATIONS (SOI) IN SELECT SMES AT VIJAYAWADA

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***Abstract:** Sustainable oriented innovation has gained significance in present competitive world. Much of the research in the last decade confined itself to sustainable oriented innovation in the large firms, but now innovation practices are integrated to Small and Medium Enterprises (SME) at product, process and organizational levels. The sustainability behavior of the SME is firm specific. Innovation is one of the key avenues for sustainability for SMEs. The sustainability through innovation leads to the economic development of the SMEs. Numbers of factors facilitate sustainability through innovation. They are Equity and Liabilities, Industry knowledge, Intellectual Property Rights (Capabilities), Networks and R&D cooperation and Reputation. The interaction with external actors like customers, authorities and research institutes can increase the innovative capacity of SMEs for sustainability oriented innovation. This paper aims at exploring various factors that are influencing sustainability oriented innovation along with also various drivers leading towards innovation and the management practices.*

***Keywords:** Drivers, economic development, Innovation, Sustainability, Small and medium enterprises.*

## 1. INTRODUCTION

Globalization and liberalization had led the SMEs led to the global competition. SMEs need to be more creative and innovative in the market to improve their sustainability (Fernando, 2014). SMEs had been recognized as the growth engines for the economic development in most of the countries. In spite of scarcity of resources (Rothwell and Dodgson, 1991; Biondi, Iraldo and Meredith, 2002; Parker et al. 2009; European Commission, 2007; Lepoutre and Heene, 2006), SMEs are flexible and more adaptable they are innovative than the large firms. Hence the sustainable products and services are expected more from the SMEs than the large firms (HALME, 2013). Manufacturing SMEs involve in innovation to meet the environmental regulations and to achieve environmental competitiveness which impacts on the labor productivity in sustainability (Woo, 2014). SMEs are usually involved in sustainability innovation with a variety of combination of different sources like equity, research and development cooperation, networks, industry

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knowledge and reputation (Halme, 2014). SMEs sustainable innovation is seen in three dimensions like economical, environmental and social dimensions (Klewitz J. H., 2014). The sustainability is the key driver for the innovations in SMEs. Many factors effect on the sustainability innovation in SMEs like the firm age, size and activity (Santolaria, 2011). Today's competitive world make the companies to be more innovative by creating more ideas and creating them all in to the innovative products and processes (Gumilar, 2011).

Hi-Tech SMEs continuously innovate for creating and developing sustainability. Due to the small size, ready to adapt to any change gives more possibility for development. The collaborative network (Bos-Brouwers, 2009; Halila, 2007; Hansen et al., 2002; Mazzanti & Zoboli, 2009; Pesonen, 2001; Rothenberg & Becker, 2004, Gärdström & Norrthon, 1994; Jenkins, 2009; Lefebvre et al., 2001; Noci & Verganti, 1999; Pesonen, 2001, Tilley, 1999)) which includes the government, programmes by state and central government organizations, research organizations, industrial clusters, various alliances with different organizations trade associations, public private partnerships, value chain partners, NGOs, and multinational companies promotes the sustainability (Lelah, 2012), (Stankiewicz, 2012), (O'Rafferty, 2010). The practical implementation of the sustainability innovation is also tested in many countries like Australia in which the results have declared that the sustainability can be achieved with the state and central government support (Howgrave-Graham, 2011). Through the innovation the SMEs can build more sustainable products, process and practices that benefits the firms and the society (Richard Adams, 2012).

The main objective of the innovation in SMEs is to promote Research, Development & Innovation environment for SMEs, including through the establishment and facilitation of a range of support services, with the aim of strengthening the innovation capacity of SMEs and creating value on the market and/or into society, inclusive and sustainable growth.

Source: <https://ec.europa.eu/programmes/horizon2020/en/h2020-section/innovation-smes>.

## 2. DEFINITION

Arthur D. Little (2004) defined 'sustainability-driven' innovation as 'the creation of new market space, products and services or processes driven by social, environmental or sustainability issues.'

Source: <http://www.katerva.net/about/sustainable-innovation>.

The commercial introduction of a new (or improved) product (service), product-service system, or pure service which – based on a traceable (qualitative or quantitative) comparative analysis – leads to environmental and/or social benefits over the prior version's physical life-cycle ("from cradle to grave") (Erik G. Hansen, 2013).

### **3. SUSTAINABILITY ORIENTED INNOVATION**

Sustainability-oriented innovations are new or enhanced or advancement or improvement of products, services or processes that reduces the negative environmental and social impact with continuous increase of the success of the company (Schaltegger & Wagner, 2008, 2010; Wüstenhagen et al. 2008). To be innovative means to provide organizational and technical advancements that can be sold successfully in the marketplace (Schaltegger & Wagner, 2010). As sustainability oriented innovations considers the whole physical life-cycle of products and services, both product and process innovation are relevant (Hansen et al., 2009; Paramanathan et al., 2004; Wagner, 2009). Sustainability oriented innovations involves both incremental innovation and radical innovations such as entirely new business models (Hansen et al., 2009; Paramanathan et al., 2004). According to Starik and Rands(1995) sustainability oriented innovation involves five components like (1) Environmentally sound, socially just, economically sound, culturally acceptable and managerially sound (Wüstenhagen, 2008). Innovations are perceived to play a paramount role in the area of corporate sustainability (Hart and Milstein 2003; Hockerts and Morsing 2008), and, going even further, the business case of sustainability-oriented innovation activities is increasingly acknowledged (Hockerts and Wüstenhagen 2010).

### **4. LITERATURE REVIEW**

The sharing of culture and values make to open the opportunities among the employees, customers, suppliers and business partners for opening the opportunities and enhancing the innovation and sustainability (Iturrioz, 2015). The corporate social responsibility and the environment management tools like the social audits, indicators, and management systems involves in the diffusion of innovation and sustainability in SMEs (Johnson, 2015). SMEs with the help of the stake holders they can maintain the competitive advantage (Igartua, 2010). Sustainable,well-conceived and well managed innovation networks can give clear benefits to the SMEs (Iturrioz C. A., 2015). SMEs incorporate environmental, social and long-term economic support in the business operations. SMEs allow the local communities to facilitate sustainable development; innovation and economic development. SMEs are significant regional development agents (Salimzadeh, 2015). With the help of the sustainability oriented innovations the SMEs can occupy the niche market, maintains the resource scarcity and improves the quality. The organizational structures, capabilities and interaction with the business, regulatory and knowledge network facilitate the strategic oriented innovations in SMEs (Klewitz, 2015). Sustainability in SMEs, improves the provision of business support and knowledge transfer activities, where a more environmental and economic benefits occurs from implementing sustainable improvements (Oxborrow, 2013). Competitive strategies, innovation, quality and responsibility are a part of the management procedures

and the supply network system in sustainable innovation processes (Ciasullo, 2013). Business models can create new knowledge and generate solutions which can inform systems related policy and practices, enhancing international regional stability and sustainability (Howe, 2012). The small firm's ability on managerial style, communication between the firms and their customers, business planning, market research, promotion and firm culture makes the for sustainability and growth (Parry, 2012). The SMEs plays a key role in industry transformation and in sustainable supply chains (Johanna Klewitz, 2014). Sustainability is the key driver for innovation (Eva Diedrichs, 2013), (Jesilevska, 2013). Sustainable innovations aim at the improvement of technological processes and to lower costs of production (Bos-Brouwers, 2010). SME alliance also makes feasibility for sustainability (Rezgui, 2010). The sustainability oriented innovations are noticed particularly at traditional foods manufacturing industries of SMEs (Rosa, 2009). Information systems researchers had failed in promoting the business practices of SMEs in environmental sustainability of information and communication technology (Elliot, 2009). The technology diffusion from the universities is one of main source for building the innovative capabilities for SMEs to give competitive advantage in the national priority (Phaho, 2008). The sustainability oriented innovations are seen in SMEs of manufacturing industries (Dalrymple, 2008), (Waldorf, 2006). There is a link between the sustainable development of SMEs and strategy setting with corporate foresight (Will, 2008). The SMEs of advanced manufacturing industries must give competitive advantage, efficient and responsive to customer demand (Thomas, 2007). Sustainability oriented innovations are seen in SMEs of chemical industry also (Venselaar, 2006), (Morris, 2009). Response to external pressures (customer demands & supply chain pressure) and anticipation of regulatory changes, Capability and competencies. SOI of process innovation in SMEs facilitates Economic benefits (Biondi et al., 2002; Bianci & Noci, 1998), Response to external pressures (customer demands and other downstream supply chain pressure) (Biondi, 2002) and anticipation of regulatory changes (Lee & Klassen, 2008), Capabilities and competencies (Chen, 2008a). Practices of process innovation facilitates Eco-efficiency (Suh et al., 2005), Cleaner production (Gombault & Versteeg, 1999; Hitchens et al., 2003), Adoption of new technologies (Blay-Palmer & Donald, 2006; Clement & Hansen, 2003), Pollution prevention/recycling/waste management/resource efficiency (Hitchens et al., 2003; Lefebvre et al., 2001).

## 5. DRIVERS AND BARRIERS FOR SOI

Walker et al. (2008) concluded that the key drivers for sustainability oriented innovation are voluntary engagement, stakeholders, legislation, resources, motivation and knowledge and the barriers for SOI are characteristics, resource availability and the owner managers personal motivation and knowledge of

environmental innovation. From the government views there are two main like communication and means to engage SMEs. Del Brio & Junquera (2003). SME peculiarities require specific actions, with reference to policy initiatives, to promote SOI in SMEs. Resource scarcity may leads to the innovation (Hoegl et al. 2009; Gibbert et al. 2007). But not all innovations are emerged out of the resource scarcity. Industry knowledge, Intellectual property rights, interaction with the customers, previous experience in the business, stake holders interest, networks and collaborations, product development phases, access to finance are the key drivers for sustainable innovation in SMEs. Science and technology (Parrilli, 2012), government regulations, business opportunities, transition of business mission and orientation towards corporate social responsibility (Tello, 2008), sustainability must be incorporated in to the company's strategy (Ciasullo M. V., 2013), the awareness about the sustainability, use of information and communication technology, design process and business strategy (Hernandez-Pardo, 2013), several programs (Cescau, 2008) implemented by the company, collaborations with networks (Carlsen, 2008) act as a driver for innovation in sme. High rate of scarcity, rising prices of raw materials, interaction with the customers and need for survival (Crabbe, 2013) are the factors which facilitate the innovation for sustainability. Technology is a key driver for innovation and sustainable business growth (Phaal, 2004).

Along with the drivers the manager must be aware of the barriers and must be well managed by the SMEs (Becker, 2008).The structural and the cultural barriers can be overcome by the activities of governments, firms, and consumers (LAUKKANEN, 2014).The risk related barriers are usually seen in automobile industries (Wiedmann, 2011). Expanding local focus to legitimize action on a broader front, for example by actively disclosing impact and working with the public on risks and benefits (Dearing, 2009). SOIs give competitive advantage for the SMEs (ZAJKOWSKA, 2015).

## **OBJECTIVES**

To study the type of innovation followed in majority of selected SMEs as a part of sustainability strategy.

To find out the factors influenced in the decision making of innovation practices.

To evaluate the result of innovation in terms of its contribution towards sustainability.

## **7. RESEARCH METHODOLOGY**

**Research Design:** It is a descriptive research design.

**Population:** The population for the study includes the small and medium scale industries in the Vijayawada region. There are around 300 SME units in the region.

**Sampling Unit:** Each SME unit is a sampling unit.

**Sample Size:** A sample size of 51, amounting to 33 per cent of the population, is considered. The promoter of the SME's is the respondent for the conduct of the study.

**Sampling method:** Simple random sampling.

**Research Instrument:** A questionnaire designed specifically for this study is used for collection of primary data.

**Data Collection:** Primary data was collected using survey method from the SMEs in Vijayawada region. The survey was respondent administered. Secondary data was collected from Vijayawada Industrial Estate Manufacturer's Association, Automobile Technician's Association, The Andhra Pradesh State Manufacturer's Association, Vijayawada and other published sources.

**Data Tabulation& Analysis:** Data is tabulated using IBM SPSS 20.

## 8. PILOT STUDY

A pilot study was conducted initially with a sample size of 30 to validate the research instrument. The data collected was checked for its reliability. The questionnaire was appropriately modified, where necessary, based on the feedback received from respondents during pilot study. The questionnaire so finalized was used for collection of primary data.

## 9. DATA COLLECTION & ANALYSIS

Enterprises in India are classified into micro, small and medium based on the investment in plant and machinery. Further, these enterprises are present in manufacturing and services sector. While the classification in manufacturing sector is based on the investment in plant & machinery, in services sector it is based on the investment in equipment. The classification of enterprises according to the MSME Act, 2006 is as follows:

<i>Enterprise</i>	<i>Manufacturing Sector</i>	<i>Service Sector</i>
	<i>Investment in Plant &amp; Machinery</i>	<i>Investment in Equipment</i>
Micro	Does not exceed twenty five lakh rupees.	Does not exceed ten lakh rupees.
Small	More than twenty five lakh rupees but does not exceed five crore rupees.	More than ten lakh rupees but does not exceed two crore rupees.
Medium	More than five crore rupees but does not exceed ten core rupees.	More than two crore rupees but does not exceed five core rupees.

## 10. ANALYSIS & FINDINGS

### Type of Innovation

		<b>Type of the unit</b>			
		<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cumulative Percent</i>
Valid	Manufacturing Unit	20	39.2	39.2	39.2
	Service unit	31	60.8	60.8	100.0
	Total	51	100.0	100.0	

The above table shows that there are 39% of manufacturing SME units and 60.8% of service SME units.

		<b>Type of the innovations followed</b>			
		<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cumulative Percent</i>
Valid	Product innovation	28	54.9	54.9	54.9
	Process innovation	20	39.2	39.2	94.1
	Organizational innovation	3	5.9	5.9	100.0
	Total	51	100.0	100.0	

		<b>Behavior of the firm towards sustainable innovation</b>			
		<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cumulative Percent</i>
Valid	Resistant	2	3.9	3.9	3.9
	Reactive	30	58.8	58.8	62.7
	innovation based to sustainability rooted	19	37.3	37.3	100.0
	Total	51	100.0	100.0	

There are nearly 4% of the SME units which are resistant to the process of innovation for sustainability. 58% of the SME units are reactive and 37% of them are innovation based sustainability rooted.

		<b>Select the innovation activity for sustainability for your organization</b>			
		<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cumulative Percent</i>
Valid	Customer oriented	17	33.3	33.3	33.3
	Design and service concept oriented	15	29.4	29.4	62.7
	R&D department	7	13.7	13.7	76.5
	Patents	2	3.9	3.9	80.4

	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cumulative Percent</i>
Innovation management system	2	3.9	3.9	84.3
Incremental process improvements	8	15.7	15.7	100.0
Total	51	100.0	100.0	

The innovation activities are carried at different aspects of the organization. 33% of them are customer oriented, 29% of them are design and service concept oriented, 13% of them are having R&D department, only 4% of them are involved with patents and innovation management system, 15% of them are incremental process improvements.

### Factors for Innovation

#### Factors driving the organization towards innovation

	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cumulative Percent</i>
Company strategy	5	9.8	9.8	9.8
Availability of resources	19	37.3	37.3	47.1
Market demand	8	15.7	15.7	62.7
Customer influence	16	31.4	31.4	94.1
Leadership	3	5.9	5.9	100.0
Total	51	100.0	100.0	

There are many factors in the organization which drives for innovation. The main factors are 9% of them are company strategy, 37% of them are based on the availability of resources, 15% of them are market demand, 31% of them customer influence and only 6% of them are based on the leadership.

#### How do you use sustainability as a key innovation driver

	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cumulative Percent</i>
Sustainability goal as a innovation driver in products and process	26	51.0	51.0	51.0
Regularly include sustainability concerns in our design and innovation process	13	25.5	25.5	76.5
Do not connect to innovation and sustainability	4	7.8	7.8	84.3
Occasionally find sustainability innovation in improving business.	4	7.8	7.8	92.2
Sustainability goal as a key innovation driver in designing products and services	4	7.8	7.8	100.0
Total	51	100.0	100.0	

The above table shows that 51% of the SMEs are using sustainability goal as a innovation driver in products and process, 25% of them regularly include sustainability concerns in our design and innovation process, only 7.8% of them do not connect to innovation and sustainability and are using sustainability goal as a key innovation driver in designing products and services.

**Explain the reason for your company to adapt sustainability oriented innovation**

	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cumulative Percent</i>
Senior management interest	10	19.6	19.6	19.6
Company policy or strategy	23	45.1	45.1	64.7
Valid Clear business case/cost saving opportunities	9	17.6	17.6	82.4
Acquisition or retention of customers	8	15.7	15.7	98.0
Risk minimization	1	2.0	2.0	100.0
Total	51	100.0	100.0	

There are many reasons for adapting the innovation in the organization. Some of the reasons are 19% of them are at the senior management interest, 45% of them are for company policy or strategy, 17% of them are for clear business case/ cost saving opportunities, 15% of them are for acquisition or retention of customers and only 2% of them are for risk minimization.

**Factors for sustainable innovation**

	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cumulative Percent</i>
Increased emphasis on long term perspectives	26	51.0	51.0	51.0
Economic sustainability of the organization	22	43.1	43.1	94.1
Valid Corporate social responsibility issues	1	2.0	2.0	96.1
Environmental issues	1	2.0	2.0	98.0
Customer health and well being	1	2.0	2.0	100.0
Total	51	100.0	100.0	

Around 51% of them are based on the increased emphasis on long term perspectives, 43% of them are economic sustainability, only 2% of them are corporate social responsibility issues, environmental issues and customer health and well being.

SMEs communicates sustainability goals and policies in many ways. 49% of them communicate through company website, around 4% of them through sustainability report, around 10% of them communicate through the statements made on the packaging or in advertising through social media, 2% of them communicate through the certification seals or labels on product packaging/part of service and 35% of them communicate through the performance evaluations.

**How does your company communicate sustainability goals and policies to your customers and stake holders**

	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cumulative Percent</i>
Company web site	25	49.0	49.0	49.0
Sustainability report	2	3.9	3.9	52.9
Statements made on packaging or in advertising social media	5	9.8	9.8	62.7
Valid Certification seals or labels on product packaging/part of service	1	2.0	2.0	64.7
Performance evaluations	18	35.3	35.3	100.0
Total	51	100.0	100.0	

**What extent the resources are used for sustainable innovation in the organization**

	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cumulative Percent</i>
Very effective	12	23.5	23.5	23.5
Effective	13	25.5	25.5	49.0
Valid Slightly effective	24	47.1	47.1	96.1
Not effective at all	2	3.9	3.9	100.0
Total	51	100.0	100.0	

The resources used for sustainable innovation in the organization are firm specific. Based on the data collection 23% of them are very effective, 25% of them are effective, 47% of them are slightly effective and nearly 4% of them are not effective at all.

**Management commitment towards the sustainable innovation**

	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cumulative Percent</i>
There is no openness and appreciation for unique ideas and opinions	2	3.9	3.9	3.9
The management urge employees to continually expand their understanding of business trends and emerging issues	21	41.2	41.2	45.1
Valid They make employees to vigorously engage themselves with our customers interest, needs and motivation	25	49.0	49.0	94.1
They encourage employees to choose the best path to accomplish their goals	3	5.9	5.9	100.0
Total	51	100.0	100.0	

The extent of commitment of management towards the sustainable innovation is as follows. Only 4% of SMEs are having no openness and appreciation for unique ideas and opinions, 41% of them are like management urge employees to continually expand their understanding of business trends and emerging issues, 49% of them are making employees vigorously engage themselves with our customers interest, needs and motivation and only 6% of them are encouraging employees to choose the best path to accomplish their goals.

## Support

### Which of the following educational/training and technical assistance opportunities would your company be interested in pursuing

	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cumulative Percent</i>
Energy efficiency	12	23.5	23.5	23.5
Development of sustainability metrics	2	3.9	3.9	27.5
life cycle assessment	1	2.0	2.0	29.4
Valid corporate social responsibility	9	17.6	17.6	47.1
water foot printing/conservation	1	2.0	2.0	49.0
consumer engagement	26	51.0	51.0	100.0
Total	51	100.0	100.0	

There are many sources which support the training/educational and technical assistance opportunities that the company is interested. The energy efficiency is around 23%, development of sustainability metrics is around 4%, life cycle assessment and water foot printing/conservation area around 2%, corporate social responsibility is around 18% and consumer engagement is around 51%.

### Sustainability innovation is in collaboration with which of the following

	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cumulative Percent</i>
Government/Policy makers	14	27.5	27.5	27.5
Industry associations	26	51.0	51.0	78.4
Valid Competitors	3	5.9	5.9	84.3
Customers	5	9.8	9.8	94.1
Suppliers	3	5.9	5.9	100.0
Total	51	100.0	100.0	

The sustainable innovation is in collaboration with many organizations like 27.5% with government/policy makers, 51% with industry associations, 6% with competitors, nearly 10% of customers and 6% of suppliers.

## Problems

### Primary challenges of the organization

		<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cumulative Percent</i>
Valid	Innovating to achieve the competitive differentiation	14	27.5	27.5	27.5
	Reducing cost and increasing efficiency	14	27.5	27.5	54.9
	Profitability acquiring and retaining customers	23	45.1	45.1	100.0
	Total	51	100.0	100.0	

There are many challenges for sustainability oriented innovation in which 27.5% of them are innovating to achieve the competitive differentiation and reducing cost and increasing efficiency and 45% of them are profitability acquiring and retaining customers.

### Obstacles found in the process of innovation sustainability

		<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cumulative Percent</i>
Valid	Opposition from the executives/top management	3	5.9	5.9	5.9
	Difficulty quantifying intangible effects of sustainability strategies	10	19.6	19.6	25.5
	Difficulty in predicting customer response to sustainability strategies	23	45.1	45.1	70.6
	Lack of individual financial incentives for considering sustainability	8	15.7	15.7	86.3
	Difficulty in quantifying sustainability related risk	5	9.8	9.8	96.1
	Competing priorities	1	2.0	2.0	98.0
	Uncertainty about future	1	2.0	2.0	100.0
	Total	51	100.0	100.0	

There are many obstacles found in the process of innovation sustainability. Around 6% of them are opposition from the executives/top management, nearly 20% of them are difficulty in quantifying intangible effects of sustainability strategies, 45% of them are difficulty in predicting customer response to sustainability strategies, 15.7% of them are lack of individual financial incentives for considering sustainability, nearly 10% of them are difficulty in quantifying sustainability related risk, only 2% of them are competing priorities and uncertainty about future.

**Benefits**

**Greatest benefits for your organization in sustainability**

	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cumulative Percent</i>
Access to new markets	7	13.7	13.7	13.7
Better innovation of business models, processes, products, service offerings	15	29.4	29.4	43.1
Enhanced investor relations	4	7.8	7.8	51.0
Improved brand reputation	4	7.8	7.8	58.8
Valid Improved perceptions of how well company is managed	3	5.9	5.9	64.7
Improved regulatory compliance	7	13.7	13.7	78.4
Increased competitive advantage	3	5.9	5.9	84.3
Increased margins or market share	8	15.7	15.7	100.0
Total	51	100.0	100.0	

There are many benefits through the sustainability oriented innovation to SMEs. They are like around 14% of them are able to access to new markets, 30% of them are having Better innovation of business, nearly 8% of them are enhanced investor relations and improved brand reputation, 6% of them are increased competitive advantage and around 16% of them are increased margins or market share.

**Which of the following factors are changed as a result of sustainable innovation**

	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cumulative Percent</i>
Resource scarcity	10	19.6	19.6	19.6
Owners demand for more profit	6	11.8	11.8	31.4
Customers willing to pay a premium for sustainable offering	4	7.8	7.8	39.2
Valid Meeting demands of the existing employees	1	2.0	2.0	41.2
Customers prefer sustainable products/services	26	51.0	51.0	92.2
Competitors increasing commitment to sustainable innovation	4	7.8	7.8	100.0
Total	51	100.0	100.0	

There are many factors which facilitates for the sustainability oriented innovations in SMEs. They are like nearly 20% of them are resource scarcity, 12% of them are owners demand for more profit, around 8% of them are customers willing to pay a premium for sustainable offering, only 2% of them are meeting demands

of the existing employees, 51% of them are in which customers prefer sustainable products/services, nearly 8% of them are Competitors increasing commitment to sustainable innovation.

**What is the present status of the sustainability on the agenda  
of your organizations top management**

	<i>Frequency</i>	<i>Percent</i>	<i>Valid Percent</i>	<i>Cumulative Percent</i>
Core strategic consideration	11	21.6	21.6	21.6
permanent agenda	12	23.5	23.5	45.1
Valid Temporary but not core	26	51.0	51.0	96.1
Never considered	2	3.9	3.9	100.0
Total	51	100.0	100.0	

The present status of the sustainability on the agenda of different organizations top management are nearly 22% of them had considered as the core strategic consideration, 45% of them considered as the permanent agenda, 51% of them are temporary but not core and nearly 4% of them are never considered.

### Findings

1. From the analysis it was found that it was found 54.9% of respondents are using the product innovation, were as 39% are using process innovation.
2. Analysis revealed that availability of resources is the prime factor for innovation practices of SMEs.
3. It was also found that even though all organizations under study are earning good returns, emphasis on long term perspective is leading for sustainable innovation practices of SMEs.
4. It was found that sustainability innovation is contributing for majority of SMEs in many ways, especially in terms of increased customer satisfaction, opportunities to explore new markets, increase their financial returns, etc.
5. In most of the SMEs the management is involving employees vigorously and engage them with creative thinking and innovative practices.
6. Most of the SMEs are in collaboration with the industry associations and the government organizations.
7. Predicting the customer responses to sustainability oriented innovation is the major challenge that most of the SME are facing for sustainability oriented innovation.

## CONCLUSION

The present study contributes to the involvement of the sustainability oriented innovation within SMEs, combining the types of the SMEs, factors, support, benefits and challenges.

In conclusion, the SMEs are firm specific with the innovation. The degree or the extent of the sustainability through the innovation cannot be explained with the selected SMEs. But in particular the degree to which SMEs are able to overcome and compensate disadvantages through the successful sustainable innovation within the SMEs. The long term focus and the access to new market are major outcomes for the sustainability innovation.

## IMPLICATIONS FOR FURTHER RESEARCH

The sustainability concept and innovation are to be more connected. The external and internal factors are mutually affecting the process of sustainability oriented innovation. The extent of their impact on innovation is not tested in this research. So, further research work can focus on this aspect. The extent of the sustainability oriented innovation in SMEs is not determined with the present selected SMEs. The further research carried on this aspects may prove?

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