DIGITAL GREEN

A Report on the Regional Consultation

at

IBS Ahmedabad, July 14th & 15th, 2023

on

MSEs adoption of Digital Technologies for Environmental Sustainability

Introduction

The first regional consultation on the Digital Green project was held at IBS Ahmedabad on July 14th and 15th, 2023. It was attended by representatives from Micro and Small Enterprises (MSEs) and IBS Ahmedabad students. The event started with a welcome address by the IBS Ahmedabad Director, Dr. Vivek Ranga. Ms.Mandvi Kulshreshtha Program Adviser, FES India, updated the audience about FES and its activities. This was followed by an update on the Centre of Excellence for Digital Transformation (CEDT) by Dr.Sanjay Fuloria. Prof Shailendra Singh Bisht spoke about the methodology of the Digital Green project. Dr. Nishant Mukesh Agrawal presented the findings of the pre project work completed by the IBS Ahmedabad students.The primary objective of this regional consultation was to explore and discuss the transformative role of digital technologies in making micro and small enterprises (MSE) more sustainable and environmentally friendly. The key stakeholders viz. the MSE representatives deliberated on the topic and provided deep insights.

Methodology

To arrive at the list of MSEs to be approached, IBS Ahmedabad students used a novel approach. They visited the DMart and Reliance Smart outlets in Ahmedabad to look at the products on display and thereby finding and shortlisting names of the MSEs. Then they approached some of these organizations.

On the day of the event, a fish bowl was conducted with the students as they had interacted with the MSEs. They assumed the role of MSEs. Later personal interviews were conducted with MSE representatives at the IBS Ahmedabad campus. These interviews were followed by field visits to select MSE premises.

The Participants at IBS Ahmedabad

An Interview in Progress

The Organizing Team at IBS Ahmedabad

NET ZERO Framework
We believe that the MSEs adoption of digital technologies for environmental sustainability could be seen through the lens of **NET ZERO**. Of course, the phrase is well known in the sustainability world as the goal for ensuring that we do not take anything extra from the environment and ensure that our non-renewable inputs are matched through recycling and/or use of renewable energy sources.

Our NET ZERO framework looks at two parts of the phenomenon- Tools and Impact. In sure Gandhian traditions, the means are as important as the ends. For us, the three tools relate to digital transformation initiatives, assessing environmental impact and then using digital technologies to mitigate any adverse impact of MSEs production process. The NET for us also implies NETWORK of Digital Technology service providers, Sustainability experts and Enablers including governmental and non-governmental organizations. ZERO implies ZERO impact of our production processes on the environment through focus on workforce, machines, material and waste management.

N - Digital Transformation: Promoting the adoption and integration of digital technologies within micro and small enterprises to enhance their operational efficiency, productivity, and sustainability. This involves leveraging technologies such as cloud computing, data analytics, artificial intelligence, and automation to drive digital transformation in various aspects of business operations including the following-

Enhanced Market Access: Platforms provide wider market reach and connect food processors with consumers and businesses.

Streamlined Supply Chain: Platforms optimize the supply chain, reducing inefficiencies and improving logistics for food processors.

Data-driven Insights: Platforms leverage data analytics to provide valuable insights to food processors, enabling informed decision-making and product innovation.

Collaborative Ecosystem: Platforms facilitate collaborative ecosystems while facilitating partnerships and knowledge sharing within the food processing industry.

E - Environmental Impact Assessment: Lot of participants expressed the need for utilizing digital tools and data analytics to assess and quantify the environmental impact of processes within micro and small enterprises. This involves conducting life cycle assessments, carbon footprint calculations, and other environmental impact assessments to identify areas for improvement and develop sustainable strategies. We believe that Micro and small enterprises in India can leverage digital technologies to drive environmental impact assessment.

T - Technology-enabled Sustainability Solutions: Finally, we recommend leveraging digital technologies to develop innovative solutions that address environmental sustainability challenges faced by micro and small enterprises. This can include the development of mobile applications, online platforms, and software tools specifically designed to support sustainable practices, resource management, and environmental monitoring.

The impact could be seen in four important areas that includes Human Resources, Plant

& Machinery, Raw material and waste management.

Z - Zero Carbon Workforce: Promoting sustainable commuting practices, telecommuting, and digital collaboration tools to minimize the carbon footprint associated with the transportation of employees. Digital technologies can facilitate remote work and virtual meetings, reducing the need for travel.

E - Efficient Machine Utilization: Utilizing digital technologies for machine monitoring, predictive maintenance, and optimization of machine usage. This helps ensure machines are operating at their peak efficiency, reducing energy consumption and extending their lifespan. Using smart meters for energy usage can also help in efficient use of the plant and machinery.

R - Resource-efficient Material Sourcing: Leveraging digital platforms and data analytics to source materials sustainably, considering factors such as carbon footprint, eco-friendliness, and responsible sourcing. This encourages the use of renewable and recycled materials while minimizing waste generation.

O - Optimal Waste Management: Implementing digital solutions for waste tracking, sorting, and recycling within micro and small enterprises. This involves using digital platforms to monitor waste generation, optimize waste management processes, and promote recycling and upcycling initiatives.

Chhaswala uses an ERP system for all its processes. They are not focusing so much on sustainability aspects.

Flourish use state-of-the-art milking technology. This technology has been imported from Sweden. The system is devised in such a way that it is bio secure and without any human touch. This system is christened as Clean Milk Production (CMP). They claim conforming to green policies and environment friendly initiatives. They support a non-profit organization called NIDF (National Institute of Dairy Farming). The stated objective of this organization is to help develop modern dairy farm practices and to encourage entrepreneurship amongst local farmers. They are persuaded to start micro dairy farms.

Certificates being distributed.

Findings

Mr. Deepak, who is a manufacturer for Mongini's in the Ahmedabad region, spoke about using software for the ordering process, invoice generation process, and for tracking the deliveries. This is a third party software which has improved efficiency. A challenge he faces is with retailers who are at far flung locations who can't access the software. Data is obtained from them using WhatsApp. His company is conscious about sustainability issues. They are using sensors to reduce wastage. He made an interesting comment "If waste is not produced, I don't have to do waste management." One challenge they face is the transportation of waste. They have fiddled with the idea of using solar panels for all their electricity needs, as it will reduce their energy bills considerably. They do use sensors for reducing electricity consumption but the challenge they are facing is lack of subsidies by the state government, and availability of space to install solar units. He believed residential building owners get subsidies for using solar panels. However, the same is not extended to MSEs by the state government. According to him the upfront investment is too high for a company of his size to focus on sustainability issues.

Mr. Kaushalya Varshney, who is in-charge of a firm manufacturing beverages, also spoke about the various ways in which his company is using digital technologies. They are using an ERP software for their process which is automated to a large extent. They too face the problem of lack of connectivity at places distant from their head office in Surat. In such cases, they use smartphones to communicate and update the ERP software as soon as possible. It may not be real time but is fast enough to avoid any delays. He is not worried about job losses due to automation as he is reasonably sure there would be enough supervisory roles for the employees. On the sustainability front, they have a mechanism for solid waste management wherein they pay a third party to collect their solid waste to process it further.

Mr. Kishen, the Quality Assurance Manager at Windson Organic Private Limited talked about adoption of digital technologies at the company. Currently, procurement of raw material, processing, till sales of finished product is digitalized. In terms of sustainability, raw material is procured only from units with organic and fair-trade certification to ascertain quality of the finished product. This also ensures responsible agricultural practices from their suppliers. As their products are sold in national and international markets, they have been actively conscious about adherence to certain quality assurance norms and practices. Use of AI and IOT for full conversion to digital processing is still being explored. It would mean sharing sensitive data with technology developers and might create challenges related to privacy and use of data.

A senior HR manager at Satvam Nutrifoods spoke about the use of an ERP package for their processes. They also use sensors in their factory to avoid wastage of raw materials and electricity. As they are slowly getting into exports, they need to show improvement in sustainability initiatives. All the organic waste is buried underground whereas solid waste is disposed off as per protocol. The manufacturing unit runs on 100% solar energy.

Amba
foods

Taste the Purity

The only technology that Amba Foods uses is machines for bottling. The rest of the work is done manually. Solar panels are used for reducing their carbon footprint. They have a long way to go in using digital technologies for sustainability initiatives.

Zydus Wellness

Zydus Wellness uses automation in its manufacturing process. Automated filling and packaging machines, robotic arms for handling materials, and computerized systems for inventory management and process control are used. On the sustainability front, they use energy-efficient equipment, waste management systems, and recycling systems.

Conclusion and Recommendations

There is some talk about digital technologies and sustainability distinctly, but the awareness about the connection between the two seems to be missing. At the MSE level, the high upfront costs involved in procuring high end IOT devices like sensors, energy meters, expensive ERP packages, solar panels or waste recycling solutions are a deterrent. If some home-grown cheaper solutions are provided then there could be a significant jump in efforts to use digital technologies for sustainable manufacturing. Here are some recommendations:

1. Supportive government policies like subsidies for installing solar panels for MSE setups could enhance the sustainability initiatives.
2. Generating awareness about software that can track raw material levels in real-time using IOT enabled smart containers.
3. Cameras with image recognition software can inspect the production output. If an output is defective, the software can automatically flag it for removal. Resultantly, minimize food wastage.

4. IoT devices in delivery trucks can monitor conditions like temperature and humidity to ensure safe transportation of products.
5. Software can analyze customer feedback and sales data to identify popular features or common complaints. This can inform changes to the manufacturing processes.
6. Generating awareness about combustion, incineration, composting, recycling, waste to energy (recovery), and vermiculture of the waste.
7. Efforts have to be made at the owner or management level to prepare sustainability vision and consequent guidelines. At MSEs, top-down approach is crucial in absence of a state-led mandate on sustainability measures for manufacturing.