

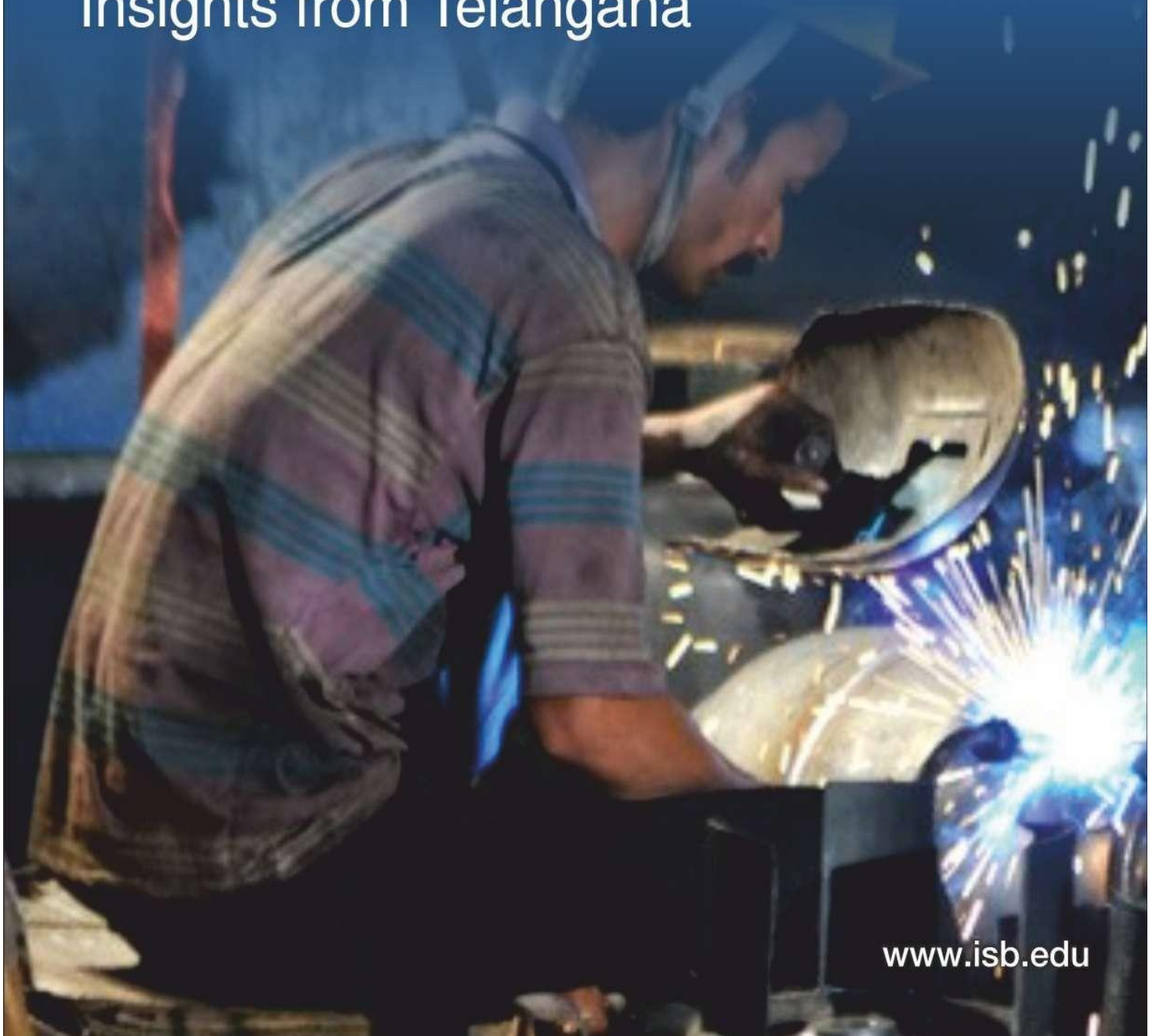


Confederation of Indian Industry

A Report on

MSME's Challenges in India

Insights from Telangana



www.isb.edu

The Research Team

- Professor Chandan Chowdhury, Principal Investigator
- Professor Pratap Sundar, Academic Director
- Colonel Rajiv Bhargava, Senior Associate Director, Project Management
- Kaveri Kala, Postdoctoral Researcher
- Matrika Shukla, Research Associate
- Aastha Singh, Research Associate
- Anurag Sobti, Research Associate

About CII

CII is a non-government, not-for-profit, industry-led and industry-managed organisation with around 9,000 members from the private and public sectors, including SMEs and MNCs, and an indirect membership of over 300,000 enterprises from 286 national and regional sectoral industry bodies.

For more than 125 years, CII has shaped India's development journey and works proactively to transform Indian Industry's engagement in national development. CII charts change by working closely with the Government on policy issues, interfacing with thought leaders, and enhancing industry efficiency, competitiveness, and business opportunities through specialised services and strategic global linkages. It also provides a platform for consensus-building and networking on key issues.

Extending its agenda beyond business, CII assists the industry in identifying and executing corporate citizenship programmes. Partnerships with civil society organisations carry forward corporate initiatives for integrated and inclusive development across diverse domains, including affirmative action, livelihoods, diversity management, skill development, empowerment of women, and sustainable development, to name a few.

As India strategises for the next 25 years to India@100, the industry must scale the competitiveness ladder to drive growth. It must also internalise the tenets of sustainability and climate action and accelerate its globalisation journey for leadership in a changing world. The role played by the Indian industry will be central to the country's progress and success as a nation. CII, with the Theme for 2023-24 as 'Towards a Competitive and Sustainable India@100: Growth, Inclusiveness, Globalisation, Building Trust', has prioritised six action themes that will catalyse the country's journey towards the vision of India@100.

With 65 offices, including 10 Centres of Excellence in India and eight overseas offices in Australia, Egypt, Germany, Indonesia, Singapore, UAE, UK, and the USA, as well as institutional partnerships with 350 counterpart organisations in 133 countries, CII serves as a reference point for Indian industry and the international business community.

The Confederation of Indian Industry (CII) in Telangana plays a pivotal role in the region's economic and industrial development, catalysing business growth and advocating for pro-business policies. Established as part of the national CII network, the Telangana chapter promotes industry-led development with a keen eye on sustainability, inclusiveness, and technological advancement.

Confederation of Indian Industry

The Mantosh Sondhi Centre

23, Institutional Area, Lodi Road, New Delhi - 110 003 (India)

T: 91 11 45771000

About the Indian School of Business

The Vision

The Indian School of Business (ISB) evolved from needing a world-class business school in Asia. The founders, some of the best minds from the corporate and academic worlds, anticipated the leadership needs of the emerging Asian economies. They recognised that the rapidly changing business landscape would require young leaders who understand the developing economies and present a global perspective.

ISB is committed to creating such leaders through innovative programmes, outstanding faculty and thought leadership. Funded entirely by private corporations, foundations, and individuals worldwide who believe in its vision, the ISB is a not-for-profit organisation.

Global Ranking

The Indian School of Business (ISB) is ranked 31st globally and first in India in the 2024 Financial Times (FT) Global MBA Ranking. It is a significant improvement from its 39th global ranking in 2023. The FT Business School Rankings are globally recognised benchmarks for MBA programs.

The Indian School of Business is the 100th school in the world to have accreditations from the AMBA, the EFMD Quality Improvement System (EQUIS), and the Association to Advance Collegiate Schools of Business (AACSB). Accreditations represent the highest standard of achievement in post-graduate business education. Its rigorous assessment criteria ensure that only the highest-calibre programmes, which demonstrate the best standards in teaching, curriculum, and student interaction, achieve accreditation.

In addition to Executive Education for building leadership capacity in the industry, the school offers various programs: (1) the Post-Graduate Program in Management (PGP), (2) Post Graduate Program in Management for Senior Executives (PGPMAX), and (3) the Post Graduate Program in Management for Working Professionals (PGPpro) as a part of the same suite. The Management Program for Family Business (MFAB) caters to the next generation of family business owners.

ISB conducts through its institutes and centers Advanced Management Programs (AMPs):
(1)

Advanced Management Program in Operations and Supply Chain, (2) Advanced Management Program for Infrastructure, (3) Advanced Management Program for Healthcare, (4) Advanced Management Program for Public Policy, and (5) Advanced Management Program for Business Analytics.

These programs bring holistic business learning within the context of specific industries or functions. Each long-duration program has a highly competitive selection process that

evaluates candidates regarding their domain expertise, workplace achievements, and learning orientation.

Faculty at ISB

Over the years, ISB has evolved into a hub for meaningful exchange between business leaders and academia. The school attracts some of the most excellent faculty from leading business schools and has become a knowledge centre for practical understanding of emerging economies. Participants learn from both the innovative management research of the faculty as well as from the extensive experience of fellow learners.

The Munjal Institute for Global Manufacturing

The Munjal Institute for Global Manufacturing (MIGM) at ISB represents a pioneering collaboration between ISB and the visionary founders of the Mohali campus. Its mission is to elevate the standard of manufacturing not only in India but also on a global scale through the principles of operational excellence and innovation. The MIGM does a lot of research on topics like MSMEs, the Future of Skills, making India a big center for skills globally, Industry 4.0/Industry 5.0, and how to get more women into the workforce. ISB has two campuses in India, one in Hyderabad (Telangana) and the other in Mohali (Punjab). The institute also conducts Advanced Management Program in Operations and Supply Chain. The curriculum is designed to cater to the needs of organizations in the manufacturing and operations ecosystem.

Foreword by Mr C Shekar Reddy, Chairman, CII Telangana

In Telangana, MSMEs play a pivotal role in the economy, driving job creation and industrial growth. Second only to agriculture, the MSME sector is a key source of employment, innovation, and socio-economic progress, spanning diverse industries from food and pharmaceuticals to fabrication and services.

Despite government ambitions to boost MSME contribution to GDP to 40% and exports to 60%, the sector faces significant challenges. Export rates have declined from 49.77% in 2018-19 to 43.6% in 2022-23, while GDP contribution remains around 30%, falling short of the targeted 40%.

The CII Telangana Chapter is committed to providing data-driven insights to policymakers and supporting MSMEs in a transformative journey. Our collaboration with ISB to release a research report on "MSME Challenges: Insights from Telangana" is particularly significant.

This initiative stemmed from the influx of government policies and programs aimed at bolstering the growth and resilience of MSMEs. This report thoroughly explores the myriad challenges and opportunities arising from these initiatives, providing insights into the adaptive strategies and innovations shaping the future of MSMEs in the state.

The study uncovers the key barriers to growth faced by MSMEs, such as limited access to technology, constrained market reach, and the complexities of navigating regulatory environments and awareness of MSME schemes and the latest developments in the area of sustainability. It underscores the significant impact of government initiatives on the sector, stressing the importance of a collaborative approach to policy implementation and support mechanisms. Through comprehensive research and stakeholder consultations, the recommendations of this report aim to create a strategic framework for both government and industry. These recommendations offer actionable strategies designed to enhance the development and sustainability of MSMEs in Telangana.

This report serves as a call to action, urging all stakeholders to join forces in harnessing the potential of MSMEs as a catalyst for economic growth and social development in Telangana. It invites stakeholders to capitalize on the surge in government initiatives as a foundation for cultivating a more inclusive, innovative, and vibrant MSME ecosystem. I believe the report's findings will provide valuable insights for addressing areas needing attention.

As we look to the future, the development of MSMEs in Telangana is not merely an economic imperative but a collective endeavor to ensure the prosperity and well-being of our state. Together, we can reshape the MSME landscape, establishing it as a model of resilience, innovation, and growth for the entire country.

Mr. C Shekar Reddy

Chairman CII Telangana and Chairman & Managing Director, CSR Estates Limit

Foreword by Sunil Kant Munjal, Chairman, Hero Enterprise

This study on Micro, Small, and Medium Enterprises across the industrially vibrant state of Telangana by ISB's Munjal Institute for Global Manufacturing (MIGM) and the Confederation of Indian Industry (CII) seeks to be informative, illuminative, and prescriptive. It tries to understand the MSME sector more intuitively, gauges how it functions on the ground, and articulates ways in which it might power India's growth story.

MSMEs make up a substantial portion of the state's industrial units; they are a critical part of Telangana's economic framework, a state renowned for its entrepreneurial spirit and innovative prowess. They contribute significantly to employment, manufacturing output and exports, account for a substantial portion of jobs, and add immensely to the state's GDP. These enterprises nevertheless face myriad challenges that range from accessing finance to getting footholds in overseas markets, and from tech upgradation to navigating the complex regulatory environment. Many such challenges have been acknowledged and attempts have been made to address them across multiple levels of government.

Yet to truly understand the reality on the ground and the efficacy of these initiatives, ISB's MIGM and CII felt the need for a wider perspective, a deeper dive, and a detailed examination of the operating landscape. This report has therefore been developed after extensive consultations with multiple stakeholders. It draws upon comprehensive research and analysis to illuminate the sector's challenges and the impact of government policies. It takes a closer look at the importance and relevance of sustainability, digital transformation, finance issues -- and how addressing them might help MSMEs grow consistently and withstand business cycles better.

Healthy and resilient MSMEs can sustain Telangana and India's economic growth over this decade and the next; the report offers actionable insights and recommendations that can make this possible. It should serve as a useful resource for policymakers, industry leaders, and entrepreneurs alike.

Sunil Kant Munjal

Chairman, Munjal Institute for Global Manufacturing, ISB

Chairman, Hero Enterprise

Foreword by Prof. Madan Pillutla, Dean, Indian School of Business (ISB)

As we prepare to unveil "MSME's Challenges: Insights from Telangana," a report by the Indian School of Business, we do so with a sense of purpose and anticipation. This work will be released on March 2, 2024, by Shri Batti Vikramarka Mallu, the Hon'ble Deputy Chief Minister and Minister for Finance & Planning, Energy, Government of Telangana, at the Confederation of Indian Industry (CII) Telangana Chapter's Annual Summit. It represents a year-long journey of data collection and analysis that have led to useful discoveries about Telangana's Micro, Small, and Medium Enterprises (MSMEs).

This report focuses on the many challenges that MSMEs face. The research team at the Munjal Institute for Global Manufacturing at ISB conducted a thorough survey, asking 188 questions to MSME founders and senior management.

As we share this report with you, our government, industry, academia, and beyond stakeholders, we are reminded of the importance of working together and making data-backed decisions. We hope that "MSME's Challenges: Insights from Telangana" will spark meaningful discussions, drive policy changes, and inspire strategic actions to support the growth and sustainability of MSMEs in our region.

On behalf of the Indian School of Business, I want to express my sincere gratitude to CII's Telangana Chapter and everyone who contributed to this report – our dedicated research team, the MSMEs who shared their experiences, and our partners in government and industry. Together, we have taken a step toward understanding and addressing the challenges MSMEs face.

Prof. Madan Pillutla

Dean, Indian School of Business

Contents

List of Figures	12
List of Tables	17
Foreword	18
1. Background	20
1.1 Motivation for the Study	21
1.2 Objectives of the Study.....	23
2. Survey Methodology	26
2.1 Operational Details of the Companies Surveyed	36
2.2 Financial Details of the Companies Surveyed	37
3. Challenges for MSMEs: Insights from Telangana	40
3.1 Barriers to selling globally for MSMEs	42
3.2 Management issues faced by MSMEs.....	43
3.3 Skill development issues in MSMEs	44
3.4 Barriers to the expansion of MSMEs	45
4. Digital Footprints.....	49
4.1 Digital Infrastructure	49
4.1.1 Market Access	49
4.1.2 Digital Literacy in MSMEs	50
4.1.3 Trends in Deployment of Technology.....	50
4.1.4 Prominent Areas for Digital Applications in MSMEs	54
4.1.5 Reasons for not adopting Technology.....	55
4.1.6 Motivation for adopting Technology	56
4.2 Supplier – customer Collaboration and Sensorization Strategy	57
4.2.1 Supplier – customer Collaboration	57
4.2.2: Sensorization Strategies	63
4.3 Digital Maturity.....	66
4.4 Future of skills and familiarity with emerging technologies.....	70
5. Innovation Culture in MSMEs.....	74
5.1 New Product Development by MSMEs	74
5.2 Filing and Acquisition of Patents and Quality Improvement	75
5.3 Collaboration with Start-Ups.....	77
5.4 Digital Technology Adoption and AI Tools	78
5.5 Utilization of Government Infrastructure for Innovation (such as tool room) by MSMEs.....	80
5.6 Impact of COVID on Innovation for MSMEs.....	81
5.7 Encouraging an Innovation Culture.....	84
5.8 Strategies for Business Development.....	86

6. Sustainability Status of MSMEs	90
6.1 Emphasis on Sustainability in MSME of India	90
6.2 Changes in Global Sustainability Compliance and Implications on India	90
6.3 Definitions of Scope 1, 2, and 3 Emissions	91
6.4 Impact of Sustainability Requirements on Telangana	92
6.5 Three Dimensions of Sustainability	93
6.6 Insights from Telangana	94
6.6.1 Social Sustainability	94
6.6.2 Environmental Sustainability	95
6.6.3 Economic Sustainability	96
6.6.4 Material Yield	97
6.6.5 Material Scrap	98
6.6.6 Non-Renewable Materials in All Products	99
6.6.7 Biodegradable Materials	100
6.6.8 Weights of Recycled, Reconditioned or Reused Materials in All products	100
6.6.9 Safe Disposal of Hazardous and Toxic Waste	101
6.6.10 Robust Reverse Logistics	102
6.6.11 Recycled Water	102
6.6.12 Rainwater Harvesting	103
6.6.13 Rainwater Harvesting Profile	103
6.6.14 Harmful Chemicals	104
6.6.15 Measuring Carbon Footprint	104
6.6.16 Percentage of Renewable Energy Used	105
6.6.17 Percentage of Land Used as Biodiversity	105
6.6.18 Product as a Service (PaaS) Strategy for Sustainability	106
6.6.19 Green Building Certification	106
6.6.20 Sustainability Vision and Mission	107
6.6.21 Measurement of Sustainability Initiative	107
6.6.22 Sustainability Development Goals	108
6.6.23 ZED Certification	108
6.6.24 Employees Dedicated to Environmental Goals	109
6.6.25 Environmental Policies	109
6.6.26 Environmental Policies	110
6.6.27 Employee Awareness about Environmental Strategy	110
6.6.28 Environmental Management System	111
6.6.29 Greenhouse gas emissions	111
6.6.30 Co-Generation Boiler for Electricity Generation	112

6.6.31	Energy Audits	112
6.6.32	Ambient Air Quality	113
6.6.33	Environmental Compliance Penalty	113
6.7	Recommendations	114
7.	Entrepreneurs and Entrepreneurship: Insights from MSMEs.....	117
7.1	Entrepreneur Demographics.....	117
7.2	Motivation for Entrepreneurship.....	118
7.3	Challenges Faced by Entrepreneurs	120
7.4	Circumstances Leading to Entrepreneurship (Female Respondents Only)	123
7.5	Utilisation of Women Entrepreneurs Hub Scheme (Female Respondents Only)	123
8.	Status of Implementation of MSME Schemes: A Reality Check	125
8.1	Awareness and Utilization of MSME Schemes in Telangana.....	130
8.2	Perceptions on Government Reforms.....	142
8.3	Loan Availment and Financial Metrics	146
8.4	Evaluation of Government Initiatives at both the Central and State level	149
8.4.1	Awareness of State Level Export Promotion Committee	151
8.4.2	Major benefits of "Telangana State Logistics Policy 2021-26" since its inception.....	152
8.4.3	Projects under the TS-iPass Initiative.....	153
8.4.4	Telangana State GlobalLinker.....	154
8.4.5	Impact of recent changes in the Prime Minister's Employment Generation Programme' (PMEGP)	155
8.4.6	Outreach of the Telangana MSME Green Industrial Park in Dandumalkapur	156
8.4.7	Training under Industry body FTCCI and Amazon's Memorandum of Understanding	157
8.4.8	Major impact of 'Credit Guarantee Scheme for Subordinate Debt'	158
8.5	Leverage of Central MSME Schemes and its clusters	159
8.5.1.	Leverage of Central MSME Scheme	159
8.5.2	Leverage of Central MSME Scheme Related to Innovation.....	161
8.5.3	Leverage of Central MSME Scheme Related to Technology.....	162
8.5.4	Leverage of Central MSME Scheme related to Skilling	163
8.5.5	Leverage of Central MSME Scheme Related to Women.....	165
8.5.6.	Leverage of Central MSME Scheme related to SC/ST/Specially Abled/Minorities/EWS	166
8.5.7.	Leverage of Central MSME Scheme related to Green/Sustainability.....	167
8.5.8.	Leverage of Central MSME Scheme related to Entrepreneurs/Entrepreneurship.....	168
9.	Major Findings	172
9.1	Digital Footprints	172
9.2	Entrepreneurship.....	173

9.3 Sustainability	173
9.4 MSME Schemes.....	174
10. Recommendations.....	177
10.1 Recommendations to the Policymakers.....	177
10.2 Recommendations to the MSMEs	179
References	181
Appendix.....	183

List of Figures

FIGURE 1.1: SHARE OF MSMEs IN INDIAN GDP.....	22
FIGURE 1.2: MSMEs CONTRIBUTION TO EXPORT	22
FIGURE 1.3: DISTRIBUTION OF MSMEs IN TELANGANA	24
FIGURE 3.1: BARRIERS TO INNOVATION FACED BY THE INDIAN SMALL AND MEDIUM FIRMS (%) BASED ON ADBI WORKING PAPER AUTHORS' CALCULATION FROM THE INDIAN NATIONAL INNOVATION SURVEY, 2014.....	41
FIGURE 3.2: BARRIERS FACED TO SELL GLOBALLY	43
FIGURE 3.3: MANAGEMENT ISSUES FACED BY MSMEs	44
FIGURE 3.4: SKILL DEVELOPMENT ISSUES TO MSMEs.....	45
FIGURE 3.5: BARRIERS TO GROWTH FOR MSMEs	46
FIGURE 4.1: MARKET ACCESS.....	49
FIGURE 4.2: DIGITAL LITERACY DISTRIBUTION IN MSMEs.....	50
FIGURE 4.3: TOOLS TO TRACK BUSINESS FLOW IN MSMEs	51
FIGURE 4.4: ERP SYSTEM USAGE IN MSMEs	51
FIGURE 4.5: DIGITAL PAYMENTS IN MSMEs.....	52
FIGURE 4.6: DATA ENTRY PORTAL AT THE PLANT.....	52
FIGURE 4.7: DIGITAL STATUS OF PRODUCTION PLANNING	53
FIGURE 4.8: CYBERSECURITY STATUS	53
FIGURE 4.9: GOVERNMENT DIGITAL SERVICES ADOPTION.....	54
FIGURE 4.10: SOCIAL MEDIA SITES USED FOR PROMOTION.....	54
FIGURE 4.11: AREAS PROMINENT FOR DIGITAL APPLICATIONS IN MSMEs	55
FIGURE 4.12: REASONS FOR NOT ADOPTING IT	56
FIGURE 4.13: MOTIVATION FOR ADOPTING TECHNOLOGY	57

FIGURE 4.14: CONVEYING PRODUCTION, DISPATCH, AND DELIVERY INFORMATION.....	58
FIGURE 4.15: SHARE OF REVENUE FROM GOVERNMENT SECTOR.....	59
FIGURE 4.16: CHALLENGING COLLECTION SECTORS.....	59
FIGURE 4.17: KIND OF MIS SHARED WITH CUSTOMER	60
FIGURE 4.18: AVAILABILITY OF SUPPLIER INTERFACE.....	60
FIGURE 4.19: COMMUNICATION STRATEGIES: NOTIFYING CUSTOMERS OF EXPANDED CAPACITY	61
FIGURE 4.20: SUPPLIER'S DASHBOARD VISIBILITY STATUS	61
FIGURE 4.21: MMOG/LE READINESS REPORT	62
FIGURE 4.22: BUSINESS CHALLENGES	62
FIGURE 4.23: MACHINES-INDUSTRY 4.0 READINESS.....	64
FIGURE 4.24: MATERIAL HANDLING EQUIPMENT-INDUSTRY 4.0 READINESS.....	64
FIGURE 4.25: UTILITIES-INDUSTRY 4.0 READINESS	65
FIGURE 4.26: AVAILABILITY OF SENSORS PER PLANT/FACTORY.....	65
FIGURE 4.27: AVAILABILITY OF IOT PLATFORM.....	66
FIGURE 4.28: EFFECTIVE CUSTOMER COLLABORATION DASHBOARD	66
FIGURE 4.29: : SCHEMATIC PRESENTATION OF THE CONCEPT OF "BEGINNERS", "FASHIONISTAS", "CONSERVATIVES" AND "DIGITAL MASTERS"	67
FIGURE 4.30: SCHEMATIC PRESENTATION OF THE CONCEPT OF "BEGINNERS," "FASHIONISTAS," "CONSERVATIVES," AND "DIGITAL MASTERS."	69
FIGURE 5.1: NEW PRODUCT DEVELOPMENT BY MSMEs.....	75
FIGURE 5.2: PATENT FILED BY MSMEs.....	76
FIGURE 5.3: PATENT ACQUISITION STATUS	76
FIGURE 5.4: QUALITY IMPROVEMENT THROUGH INNOVATION	77
FIGURE 5.5: AVERAGE NUMBER OF MONTHLY IMPROVEMENTS	77
FIGURE 5.6: STARTUP PARTNERSHIPS FOR BUSINESS MODEL INNOVATION	78
FIGURE 5.7: DIGITAL TECHNOLOGY ADOPTION FOR ENHANCING SUPPLY CHAIN RESILIENCE AND EFFICIENCY	79
FIGURE 5.8: USAGE OF SOFTWARE PLATFORM	79
FIGURE 5.9: ADOPTION OF AI PLATFORMS	80
FIGURE 5.10: UTILIZATION OF GOVERNMENT INFRASTRUCTURE FOR INNOVATION.....	81
FIGURE 5.11: IMPACT OF COVID-19 ON BUSINESS PROCESSES IMPROVEMENT	82
FIGURE 5.12: POST PANDEMIC EFFICIENCY IMPROVEMENT	83
FIGURE 5.13: POST PANDEMIC REVENUE INCREASED	83
FIGURE 5.14: POST PANDEMIC PROFIT INCREASED.....	84

FIGURE 5.15: POST PANDEMIC CASH POSITION IMPROVEMENT STATUS	84
FIGURE 5.16: STRATEGIES TO ENCOURAGE STAFF	86
FIGURE 5.17: STRATEGIES FOR BUSINESS DEVELOPMENT	88
FIGURE 6.1: FIFTEEN CATEGORIES OF SCOPE 3 EMISSIONS.....	92
FIGURE 6.2 SURVEY RESPONSE TO THE QUESTION ON FACTORS AFFECTING SOCIAL SUSTAINABILITY	95
FIGURE 6.3 SURVEY RESPONSE TO THE QUESTION ON FACTORS AFFECTING ENVIRONMENTAL SUSTAINABILITY.	96
FIGURE 6.4 SURVEY RESPONSE TO THE QUESTION ON FACTORS AFFECTING ECONOMIC SUSTAINABILITY	97
FIGURE 6.5 SURVEY RESPONSE TO THE QUESTION ON MATERIAL YIELD RATIOS IN THE ENTERPRISE.....	98
FIGURE 6.6 SURVEY RESPONSE TO THE QUESTION ON THE PERCENTAGE OF SCRAP REUSED AND RECYCLED IN THE ENTERPRISE	99
FIGURE 6.7 SURVEY RESPONSE TO THE QUESTION ON THE PERCENTAGE OF NON-RENEWABLE MATERIALS IN THEIR PRODUCTS IN THE ENTERPRISE.....	100
FIGURE 6.8 SURVEY RESPONSE TO THE QUESTION ON THE PERCENTAGE OF BIODEGRADABLE MATERIALS IN THEIR PRODUCTS IN THE ENTERPRISE.....	100
FIGURE 6.9 SURVEY RESPONSE TO THE QUESTION ON THE PERCENTAGE OF RECYCLED, RECONDITIONED, AND REUSED MATERIALS IN THEIR PRODUCTS IN THE ENTERPRISE	101
FIGURE 6.10 SURVEY RESPONSE TO THE QUESTION ON A ROBUST SYSTEM OF HAZARDOUS/TOXIC WASTE DISPOSAL	101
FIGURE 6.11 SURVEY RESPONSE TO THE QUESTION ON ROBUST REVERSE LOGISTICS TO COLLECT USED PRODUCTS AT END-OF-LIFE.	102
FIGURE 6.12 SURVEY RESPONSE TO THE QUESTION ON THE PERCENTAGE OF RECYCLED WATER USED	103
FIGURE 6.13 SURVEY RESPONSE TO THE QUESTION ON THE RAINWATER HARVESTING PRACTICES.....	103
FIGURE 6.14 SURVEY RESPONSE TO THE QUESTION ON THE AMOUNT OF RAINWATER HARVESTED	104
FIGURE 6.15 SURVEY RESPONSE TO THE QUESTION ON EMISSION OF GREENHOUSE GASES INTO THE ATMOSPHERE	104
FIGURE 6.16 SURVEY RESPONSE TO THE QUESTION ON MEASUREMENT OF CARBON FOOTPRINT	105
FIGURE 6.17 SURVEY RESPONSE TO THE QUESTION ON MEASUREMENT OF CARBON FOOTPRINT	105
FIGURE 6.18 SURVEY RESPONSE TO THE QUESTION ON THE MEASUREMENT OF LAND COVERED WITH PLANTS TO PROMOTE BIODIVERSITY	106
FIGURE 6.19 SURVEY RESPONSE TO THE QUESTION ON PRODUCT AS A SERVICE (PAAS) STRATEGY FOR SUSTAINABILITY.....	106
FIGURE 6.20 SURVEY RESPONSE TO THE QUESTION ON GREEN BUILDING CERTIFICATION	107
FIGURE 6.21 SURVEY RESPONSE TO THE QUESTION ON GREEN BUILDING CERTIFICATION	107
FIGURE 6.22 SURVEY RESPONSE TO THE QUESTION ON GREEN BUILDING CERTIFICATION	107
FIGURE 6.23 SURVEY RESPONSE TO THE QUESTION ON SUSTAINABILITY DEVELOPMENT GOALS	108
FIGURE 6.24 SURVEY RESPONSE TO THE QUESTION ON ZED CERTIFICATION	108

FIGURE 6.25 SURVEY RESPONSE TO THE QUESTION ON EMPLOYEES RESPONSIBLE FOR COORDINATING ENVIRONMENTAL GOALS.	109
FIGURE 6.26 SURVEY RESPONSE TO THE QUESTION ON ENVIRONMENTAL POLICIES GUIDING LONG-TERM DECISION-MAKING.....	109
FIGURE 6.27 SURVEY RESPONSE TO THE QUESTION ON TOPICS OF ENVIRONMENTAL POLICY	110
FIGURE 6.28 SURVEY RESPONSE TO THE QUESTION ON TOPICS OF ENVIRONMENTAL IMPACT	110
FIGURE 6.29 SURVEY RESPONSE TO THE QUESTION ON TOPICS OF EMPLOYEE AWARENESS	111
FIGURE 6.30 SURVEY RESPONSE TO THE QUESTION ON EMS VERIFICATION	111
FIGURE 6.31 SURVEY RESPONSE TO THE QUESTION ON MEASURING GREENHOUSE GAS EMISSIONS	112
FIGURE 6.32 SURVEY RESPONSE TO THE QUESTION ON Co-GENERATION BOILER FOR GENERATING ELECTRICITY/STEAM	112
FIGURE 6.33 SURVEY RESPONSE TO THE QUESTION ON ENERGY AUDITS.....	112
FIGURE 6.34 SURVEY RESPONSE TO THE QUESTION ON ENERGY AUDITS BY A THIRD-PARTY	113
FIGURE 6.35 SURVEY RESPONSE TO THE QUESTION ON MONITORING AMBIENT AIR QUALITY	113
FIGURE 6.36 SURVEY RESPONSE TO THE QUESTION ON ENVIRONMENTAL COMPLIANCE PENALTY	113
FIGURE 7.1: DISTRIBUTION OF ENTREPRENEURS.....	117
FIGURE 7.2: GENDER OF THE RESPONDENTS WHO ARE ENTREPRENEURS	118
FIGURE 7.3: MAJOR FACTOR OF MOTIVATION AS AN ENTREPRENEUR.....	119
FIGURE 7.4: MAJOR CHALLENGES FACED AS AN ENTREPRENEUR.....	121
FIGURE 8.1: TOTAL NUMBER OF MSME SCHEMES STUDIED WITH RESPECT TO CENTRAL AND STATE/UT GOVERNMENT	126
FIGURE 8.2: CENTRAL AND STATE/UT GOVERNMENT SCHEMES DIVIDED INTO SEVEN CLUSTERS	129
FIGURE 8.3: AWARENESS AND UTILIZATION OF T-IDEA (TELANGANA STATE INDUSTRIAL DEVELOPMENT AND ENTREPRENEUR ADVANCEMENT) INCENTIVE SCHEME, 2014	132
FIGURE 8.4: AWARENESS AND UTILIZATION OF T-PRIDE (TELANGANA STATE PROGRAM FOR RAPID INCUBATION OF DALIT ENTREPRENEURS) SCHEME	132
FIGURE 8.5: AWARENESS AND UTILIZATION OF TELANGANA STATE INDUSTRIAL PROJECT APPROVAL AND SELF-CERTIFICATION SYSTEM (TS-IPASS) SCHEME	133
FIGURE 8.6: AWARENESS AND UTILIZATION OF CM ST ENTREPRENEURSHIP & INNOVATION (CMSTEI) SCHEME ...	133
FIGURE 8.7: AWARENESS AND UTILIZATION OF TELANGANA SCHEDULED TRIBES COOPERATIVE FINANCE CORPORATION LTD (TRICOR) SCHEME	134
FIGURE 8.8: AWARENESS AND UTILIZATION OF SELF-EMPLOYMENT SCHEME	134
FIGURE 8.9: AWARENESS AND UTILIZATION OF PAVALA VADDI SCHEME	135
FIGURE 8.10: AWARENESS AND UTILIZATION OF LAND PURCHASE SCHEME.....	135
FIGURE 8.11: AWARENESS AND UTILIZATION OF BANK LINKED SCHEMES	136
FIGURE 8.12: AWARENESS AND UTILIZATION OF DRIVER EMPOWERMENT PROGRAMME SCHEME.....	136

FIGURE 8.13: AWARENESS AND UTILIZATION OF TELANGANA FIBER GRID OR T-FIBER SCHEME	137
FIGURE 8.14: AWARENESS AND UTILIZATION OF WE HUB - WOMEN ENTREPRENEURS HUB SCHEME.....	137
FIGURE 8.15: AWARENESS AND UTILIZATION OF SUVIDHA INCUBATION SCHEME	138
FIGURE 8.16: AWARENESS AND UTILIZATION OF TELANGANA STATE INNOVATION CELL (TSIC) SCHEME	138
FIGURE 8.17: AWARENESS AND UTILIZATION OF T-HUB (TECHNOLOGY HUB) SCHEME.....	139
FIGURE 8.18: AWARENESS AND UTILIZATION OF T-FUND (TELANGANA INNOVATION FUND) SCHEME.....	139
FIGURE 8.19: AWARENESS AND UTILIZATION OF T-SEED SCHEME	140
FIGURE 8.20: AWARENESS AND UTILIZATION OF 'COMMON FISCAL INCENTIVES FOR ALL COMPANIES' SCHEME	140
FIGURE 8.21: AWARENESS AND UTILIZATION OF 'INCENTIVES FOR INCUBATORS' SCHEME	141
FIGURE 8.22: AWARENESS AND UTILIZATION OF "NETHANNAKU CHEYUTHA" SCHEME	141
FIGURE 8.23: UTILIZATION OF ANY OTHER STATE/UT MSME SCHEME BY THE MSMEs IN TELANGANA	142
FIGURE 8.24: DISTRIBUTION OF WHETHER CURRENT LEVEL OF MSME REFORMS ENCOURAGE INDIGENIZATION INITIATIVES IN MANUFACTURING	143
FIGURE 8.25: DISTRIBUTION OF WHETHER GOVERNMENT'S CURRENT LEVEL OF MSME REFORMS ENCOURAGE INDIAN COMPANIES TO BUY PRODUCTS OR SERVICES FROM MSMEs.....	144
FIGURE 8.26: DISTRIBUTION OF WHETHER THE CURRENT LEVEL OF REFORMS BY THE GOVERNMENT SHIFT CUSTOMER BEHAVIOUR INTO BUYING MORE DOMESTIC PRODUCTS.....	145
FIGURE 8.27: AVAILMENT OF LOAN OFFERS ANNOUNCED BY THE GOVERNMENT (STATE OR CENTRAL).....	147
FIGURE 8.28: DISTRIBUTION OF AVAILMENT OF LOAN OFFERS ANNOUNCED BY THE GOVERNMENT WITH RESPECT TO RESPONDENT'S DEBT-TO-EQUITY RATIO.....	147
FIGURE 8.29: GOVERNMENT INITIATIVES THAT ARE USEFUL TO YOUR ORGANIZATION (SELECT ALL THE OPTIONS THAT APPLY).....	150
FIGURE 8.30: AWARENESS OF STATE LEVEL EXPORT PROMOTION COMMITTEE(SLEPC) AND ITS BENEFITS	152
FIGURE 8.31: MAJOR BENEFITS OF "TELANGANA STATE LOGISTICS POLICY 2021-26" SINCE ITS INCEPTION	153
FIGURE 8.32: APPLYING FOR PROJECTS UNDER THE TS-iPASS INITIATIVE THAT ENDED IN MARCH 31, 2022	154
FIGURE 8.33: LEVERAGING THE 'TELANGANA STATE GLOBALLINKER PLATFORM'.....	155
FIGURE 8.34: IMPACT OF RECENT CHANGES IN THE 'PRIME MINISTER'S EMPLOYMENT GENERATION PROGRAMME' (PMEGP)	156
FIGURE 8.35: INTEREST IN BEING A PART OF THE TELANGANA MSME GREEN INDUSTRIAL PARK IN DANDUMALKAPUR	157
FIGURE 8.36: TRAINING UNDER INDUSTRY BODY FTCCI AND AMAZON'S MEMORANDUM OF UNDERSTANDING FOR ADOPTION OF E-COMMERCE.....	158
FIGURE 8.37: MAJOR IMPACT OF THE 'CREDIT GUARANTEE SCHEME FOR SUBORDINATE DEBT' ON THE TELANGANA INDUSTRIES	159
FIGURE 8.38: LEVERAGE OF MSME SCHEMES LAUNCHED BY THE CENTRAL GOVERNMENT.....	160
FIGURE 8.39: LEVERAGE OF CENTRAL MSME SCHEMES RELATED TO INNOVATION BY MSMEs OF TELANGANA.....	161

FIGURE 8.40: LEVERAGE OF CENTRAL MSME SCHEMES RELATED TO TECHNOLOGY BY MSMEs OF TELANGANA ..	163
FIGURE 8.41: LEVERAGE OF CENTRAL MSME SCHEMES RELATED TO SKILLING BY MSMEs OF TELANGANA	164
FIGURE 8.42: LEVERAGE OF CENTRAL MSME SCHEMES RELATED TO WOMEN BY MSMEs OF TELANGANA.....	165
FIGURE 8.43: LEVERAGE OF CENTRAL MSME SCHEMES RELATED TO SC/ST/SPECIALLY-ABLED/MINORITIES/EWS BY MSMEs OF TELANGANA.....	167
FIGURE 8.44: LEVERAGE OF CENTRAL MSME SCHEMES RELATED TO GREEN/SUSTAINABILITY BY MSMEs OF TELANGANA.....	168
FIGURE 8.45: LEVERAGE OF CENTRAL MSME SCHEMES RELATED TO ENTREPRENEURS/ENTREPRENEURSHIP BY MSMEs OF TELANGANA	169

List of Tables

TABLE 1.1: MSMEs REGISTERED ON THE UDYAM REGISTRATION (UR) PORTAL IN INDIA AS OF 31ST JANUARY 2024	21
TABLE 1.2: CHANGE IN THE NUMBER OF MSMEs IN THE PSU STUDY	23
TABLE 2.1: OPERATIONAL DETAILS OF COMPANIES SURVEYED	36
TABLE 2.2: FINANCIAL DETAILS OF THE COMPANIES SURVEYED	37
TABLE 4.1: FUTURE READINESS OF THE MSMEs	71
TABLE 6.1: STATE-WISE NUMBER OF MICRO, SMALL AND MEDIUM ENTERPRISES (MSMEs) REGISTERED ON UDYAM REGISTRATION PORTAL IN INDIA.	93
TABLE 7.1: DISTRIBUTION OF MAJOR FACTORS OF MOTIVATION AS AN ENTREPRENEUR BY GENDER.....	119
TABLE 7.2: DISTRIBUTION OF SIGNIFICANT CHALLENGES FACED BY AN ENTREPRENEUR BY THEIR GENDER ..	122
TABLE 8.1: TOTAL NUMBER OF MSME SCHEMES STUDIED WITH RESPECT TO CENTRAL AND STATE/UT GOVERNMENT	125
TABLE 8.2: TOTAL NUMBER OF MSME SCHEMES STUDIED WITH RESPECT TO EACH STATE/UT.....	126
TABLE 8.3: CENTRAL AND STATE/UT GOVERNMENT SCHEMES DIVIDED INTO SEVEN CLUSTERS	128
TABLE 8.4: DISTRIBUTION OF WHETHER GOVERNMENT'S CURRENT LEVEL OF MSME REFORMS ENCOURAGE INDIAN COMPANIES TO BUY PRODUCTS OR SERVICES FROM MSMEs.....	144
TABLE 8.5: REASONS FOR NOT AVAILING LOAN OFFERS ANNOUNCED BY THE GOVERNMENT	148
TABLE 8.6: OTHER MEASURES GOVERNMENT SHOULD TAKE TO ENSURE GROWTH IN THE MSME SECTOR IN THE LONG TERM	151

Foreword

Over the years, MSME sector has emerged as a highly vibrant and dynamic sector of the Indian economy. MSMEs contribute to approximately 30% of the Country's GDP, 36% of the manufacturing output and 43.6% of exports. MSMEs provide the largest share of employment after agriculture and hence, the development of MSME sector can contribute enormously to the socio-economic development of the country.

Recognizing the transformative potential of MSMEs, Telangana has strategically positioned the development of this sector as a catalyst for job creation and regional equilibrium. The MSME sector in Telangana manufactures a variety of products with a high concentration of Micro and Small units belonging in the Sectors of food, mineral and building materials, drugs and pharmaceuticals, fabricated materials, trading and service sector. Telangana has identified development of MSMEs as a catalyst for job creation and balanced regional development.

Indian School of Business and CII Telangana chapter embarked on this study to assess the current state of MSME in Telangana. The study explored the challenges faced by MSMEs, sustainability, Government support to MSMEs and innovation strategies followed by MSMEs in the state of Telangana.

The report identifies some of the interesting facts about the key barriers for MSME's, digital technology up-gradation status, innovation culture at MSMEs, multifarious implementation of policies and regulations to promote development of MSME's in the state. The study is an outcome of both primary and secondary research.

Based on detailed survey findings from the industry leaders and elaborate review of government reports and website data, the recommendations are laid out for Government and policymakers for providing a roadmap for the development of MSMEs in the State of Telangana. A concerted effort of both Government and industry will promote the emergence of an inclusive ecosystem to develop vibrant MSME sector.

Chandan Chowdhury

Indian School of Business

BACKGROUND

1. Background

Micro, Small, and Medium Enterprises (MSMEs) form the backbone of India's economy, contributing significantly to employment generation, GDP growth, exports, and fostering entrepreneurship across the country. The MSME sector in India stands at a remarkable 63.88 million enterprises, as reported in the annual report of the MSME Ministry for 2021-22. This sector plays a pivotal role in propelling India's GDP growth, employing 40% of the country's workforce, summing up to 110.98 million individuals.

MSMEs contributed 29.2% to GDP in the FY 2021-22. Over the last 12 years, MSME's contribution to GDP remains steady in the range of 29.2 to 30.5%. MSME's contribution to export has declined from 49.77% in 2019-20 to 43.6% in 2022-23.

The government aspires to increase MSME's GDP contribution to 40% and exports to 60%. In view of this, the Government has taken several recent initiatives to support MSMEs in the country, including:

- Rs. 5 lakh crore Emergency Credit Line Guarantee Scheme (ECLGS) for businesses, including MSMEs.
- Rs. 50,000 crore equity infusion through MSME Self-Reliant India Fund.
- Newly revised criteria for the classification of MSMEs.
- No global tenders for procurement up to Rs. 200 crores.
- Launching an online Portal, "Champions," in June 2020 to cover many aspects of governance, including grievance redress and handholding of MSMEs.
- Inclusion of Retail and Wholesale trades as MSMEs w.e.f. 02nd July, 2021.
- Non-tax benefits extended for three years in case of an upward change in the status of MSMEs.
- Roll out of Raising and Accelerating MSME Performance (RAMP) program with an outlay of Rs. 6,000 crores over five years.
- Launch of Udyam Assist Platform (UAP) on 11.01.2023 to bring the Informal Micro Enterprises (IMEs) under the formal ambit for availing the benefit under Priority Sector Lending (PSL).

The total number of MSMEs registered in India and Telangana is shown in the table below. It is seen from the Table 1.1 that the share of micro-enterprises is approximately similar, at 97%, in both the India and Telangana levels.

Table 1.1: MSMEs registered on the Udyam Registration (UR) Portal in India as of 31st January 2024

MSMEs registered on the Udyam Registration (UR) Portal in India as of 31st January 2024				
	Micro	Small	Medium	Total
India	22149248	598123	54963	22802334
India in %	97.1%	2.623%	0.241%	
Telangana	761724	23061	2596	787381
Telangana in %	96.741%	2.929%	0.241%	

Telangana is estimated to be home to about 2.6 million MSMEs, of which 56% are in rural areas and 44% in urban areas^[1]. All the MSMEs in Telangana are yet to register on the Udyam portal.

1.1 Motivation for the Study

Despite being a critical component of India's economy, the micro, small, and medium enterprises (MSMEs) sector is facing significant challenges that hinder its growth and sustainability. These challenges encompass a wide array of issues, ranging from limited access to finance and infrastructure deficiencies to regulatory burdens, market access constraints, skill shortages, technology adoption barriers, supply chain disruptions, and environmental sustainability concerns. One of the major initiatives taken by Government to address these challenges was to change the definition of MSMEs. This change in definition was significant as it increased the investment threshold for micro and small enterprises, allowing more businesses to qualify for the benefits and incentives available to MSMEs. It also simplified the classification process by eliminating the distinction between manufacturing and service sectors, making it easier for businesses to determine their eligibility under the MSME category.

However, a steady decrease in the share of MSMEs in Indian GDP and exports was observed. Figures 1.1 and 1.2 present a grim picture of the data related to the contribution of GDP and exports. It can be seen that there was a decreasing trend in the contribution even

when the definition was changed, and a lot of companies that were not MSMEs earlier came under that category.

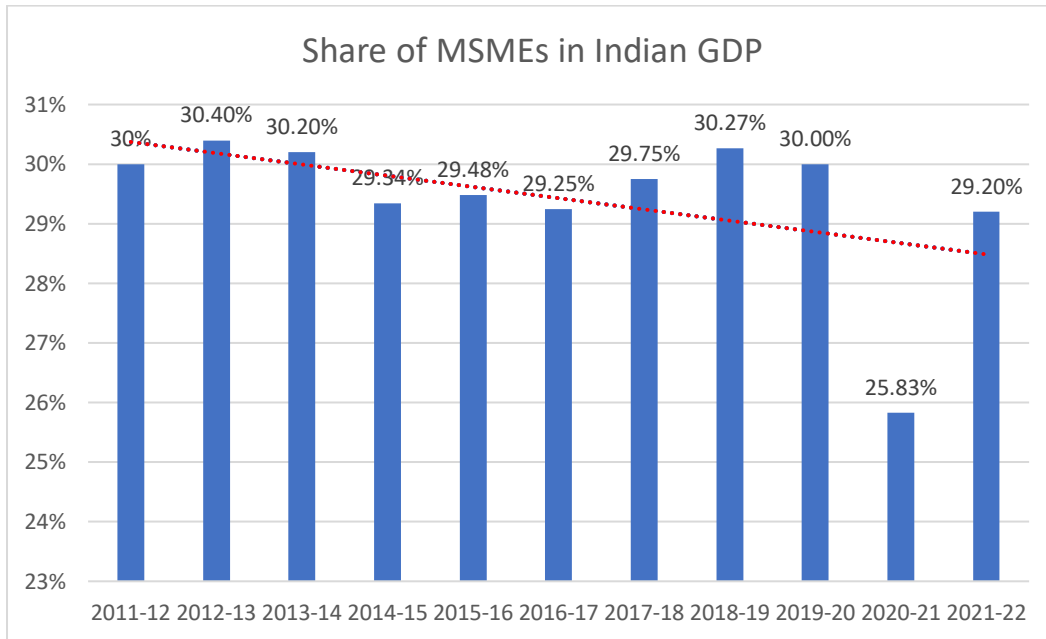


Figure 1.1: Share of MSMEs in Indian GDP

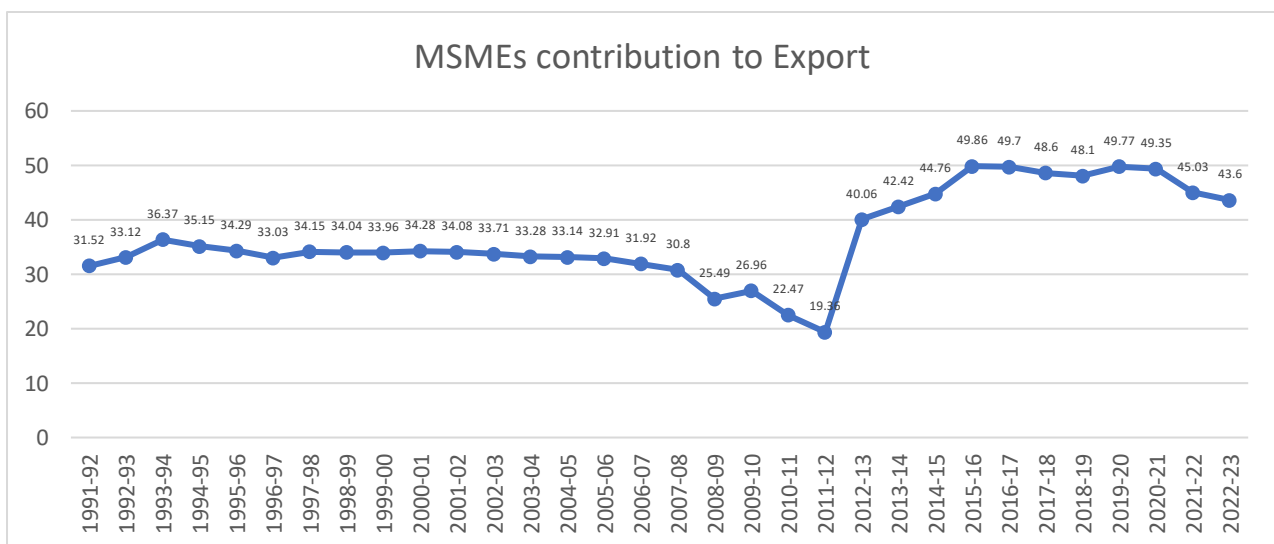


Figure 1.2: MSMEs Contribution to Export

This trend is indeed worrisome, and therefore, it is one of the primary motivations for undertaking an extensive study on MSMEs. To validate this point further, we would like to report some of the findings from our previous study. We conducted a recent study with a

PSU (name anonymised) and its 133 suppliers. We noticed that there has been a tremendous increase in the number of MSMEs since the definition has been changed. For instance, there has been an increase of 14 companies in micro and 75 companies in the small industries sector.

Further, there has been a decline in medium and large industries. Medium industries went from 24 to 20, while large industries went from 95 to 10—the results from the study are presented in Table 1.2.

Table 1.2: Change in the number of MSMEs in the PSU Study

Nos	OLD	NEW	Change
Micro	0	14	+14
Small	14	89	+75
Medium	24	20	-4
Large	95	10	-85

Percentage	OLD	NEW	Change %
Micro	0	10.5	10.5
Small	10.5	66.9	56.4
Medium	18.0	15.0	-3.0
Large	71.4	7.5	-63.9

Thus, there is a need for PAN India to study the status of MSMEs in India and the challenges they have been facing for decades. However, before a full-fledged pan-India study, it is necessary to understand the challenges and other aspects of MSMEs at the state level. Therefore, this report is the natural outcome of the ISB and the CII Telangana collaboration. The objectives of the study are presented in the following sub-section.

1.2 Objectives of the Study

Against this backdrop, as mentioned earlier, we have undertaken a study of MSMEs in Telangana. Figure 1.4 presents the distribution of the micro, small and medium enterprises registered in Telangana.

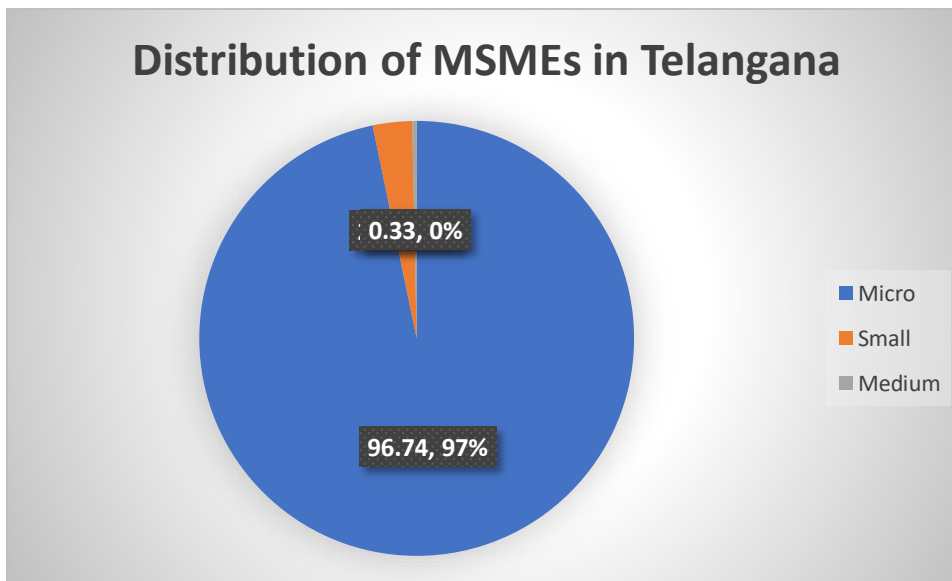


Figure 1.3: Distribution of MSMEs in Telangana

This study aims to collect primary data from the MSMEs' senior leadership (founders and MDs) to identify the challenges and intervention strategies. This report can guide the government, MSMEs, and policymakers and help them design a robust framework for improving MSMEs. In this report, we have broadly explored the following essential aspects related to MSME:

- The status of MSME based on old and new definitions of MSME
- The challenges faced by the MSME
- The current status of the digital infrastructure to transform business and collaboration with various members of the value chain
- The sustainability quotient of the MSMEs
- The innovation culture
- The reach and impact of the government support and schemes for MSMEs

SURVEY METHODOLOGY

2. Survey Methodology

To comprehensively understand the landscape of Micro, Small, and Medium Enterprises (MSMEs), we have embarked on a detailed investigation focusing on the MSME sector in Telangana. Our research methodology integrates various components to ensure a robust examination of the MSME sector in Telangana. We formulated an extensive questionnaire comprising 188 questions. We administered the survey (see the Appendix) among 48 companies to get insights about MSMEs. The completion rate was about 79.16 percent. The survey was designed with the help of literature available on MSMEs and industry experts. It was conducted only among the senior leadership of the MSMEs to establish the authenticity of the data. The survey strategically addressed the following pivotal areas:

- I. **General Information:** This section is the foundational segment designed to gather participants' essential demographic and organizational data. It encapsulates diverse inquiries aimed at understanding the profile, structure, and operational landscape of Micro, Small, and Medium Enterprises (MSMEs) in Telangana.
 - a) **Purpose and Relevance of Questions:** Each question in this section has been meticulously crafted to fulfill specific objectives aligned with the overarching goal of the study. For instance, inquiries regarding the respondent's gender, company name, and role within the organization provide essential context and aid in segmenting and analyzing the collected data effectively. Additionally, questions related to the company's founding gender, industry sector, and geographical spread offer valuable insights into the region's diversity and distribution of MSMEs.
 - b) **Options and Flexibility:** To ensure inclusivity and accommodate varying circumstances, the survey offers a range of response options. This flexibility enables participants to provide accurate and nuanced information about their unique situations. For instance, options for company size cater to both the new and old definitions of MSMEs, allowing for a comprehensive comparison of how the changes have impacted MSMEs. Furthermore, the inclusion of optional questions respects the privacy and preferences of respondents, for instance, the respondent's name, fostering greater engagement and participation.
 - c) **Implications and Actionability:** The data collected through the General Information section serves as the bedrock upon which subsequent analyses and recommendations are built. By understanding the demographic composition, organizational structures, and operational dynamics of MSMEs in Telangana, stakeholders can identify prevalent challenges, pinpoint

opportunities for intervention, and tailor support mechanisms to address specific needs effectively.

- d) **Display Logic:** It allowed us to control the visibility of survey questions or blocks based on certain conditions. It enabled us to create a more dynamic and tailored survey experience for respondents by showing or hiding specific content based on their responses or other criteria. For instance, the questions related to export were only visible to respondents who marked yes regarding materials/ services being exported.

II. **Digital infrastructure:** The Digital Infrastructure section of the survey delves into the technological landscape of Micro, Small, and Medium Enterprises (MSMEs) in Telangana. It encompasses inquiries to understand the extent of digital adoption, the utilization of various digital tools and platforms, cybersecurity measures, and the motivations behind embracing technology. This section plays a pivotal role in assessing MSMEs' digital readiness and capabilities, which are essential for informed policy-making and targeted interventions.

- a) **Tracking Business Flow and ERP Systems:** The digital infrastructure section begins by probing how businesses track their operations and the prevalence of Enterprise Resource Planning (ERP) systems. Responses to these questions provide insights into the level of automation and the sophistication of digital infrastructure employed by MSMEs in managing their workflows and resources.
- b) **Digital Literacy and Payment Systems:** Furthermore, the survey explores the digital literacy of employees and the adoption of digital payment systems within organizations. These aspects are crucial indicators of the readiness to leverage digital technologies for internal operations and customer transactions.
- c) **Production and Planning Automation:** A significant focus is placed on the automation of production and planning processes, shedding light on the degree of sophistication in operational management. Understanding the level of automation enables a deeper understanding of efficiency, resource allocation, and adaptability to market dynamics.
- d) **Cybersecurity Measures and Digital Applications:** Additionally, the survey investigates the presence of cybersecurity measures, the deployment of digital applications across various business functions, and the factors influencing technology adoption. These inquiries

provide valuable insights into the preparedness of MSMEs to mitigate digital risks and harness technology for competitive advantage.

- e) **Motivation for Technology Adoption and Market Reach:** Moreover, motivations for technology adoption and channels used to reach markets are explored to understand the strategic imperatives driving digital investments and market engagement dynamics in the digital age.
- f) **Government Initiatives and Social Media Presence:** Lastly, the survey assesses the utilization of government digital platforms and the use of social media for product promotion, reflecting the integration of MSMEs into the broader digital ecosystem and their efforts to leverage digital channels for business growth.

III. **Supplier-customer collaboration:** This section delves into the dynamics of interaction between MSMEs and their customers, focusing on communication channels, operational strategies, and challenges faced in the procurement and payment processes. This section aims to provide valuable insights into the complexities of supplier-customer relationships, which are essential for enhancing efficiency, fostering trust, and improving overall business outcomes.

- a) **Communication and Information Sharing:** The section begins by examining how the production, dispatch, and delivery information are conveyed to customers, highlighting the diverse communication methods employed by MSMEs. Additionally, it investigates the type of Management Information System (MIS) shared with customers, shedding light on the transparency and collaboration in operational processes.
- b) **Revenue Sources and Collection Challenges:** Further, the survey explores the revenue share from the government sector and the challenges encountered in collections across different sectors. Understanding revenue diversification and collection dynamics provides crucial insights into market exposure and financial stability.
- c) **Supplier Interface and Capacity Communication:** The section also assesses the existence of a supplier interface and the strategies implemented for communicating excess or expanded capacity to customers. These inquiries illuminate the degree of integration, responsiveness, and adaptability in supplier-customer relationships.
- d) **Operational Strategies and Challenges:** The survey delves into operational strategies such as Lean Manufacturing and Pull-based production, providing insights into production

dynamics and customer-centric approaches. Additionally, it identifies the top business challenges MSMEs face, ranging from cash flow management to supplier dependencies.

- e) **Financial Metrics and Payment Processes:** Furthermore, the survey collects data on various financial metrics, including average monthly sales, accounts receivable, inventory value, cost of sales, and accounts payable. Additionally, it explores the utilization of financial services such as Bill Discounting and bank loans based on customer orders, reflecting the financial strategies adopted by MSMEs to manage liquidity and facilitate growth.
- f) **Grievance Redressal and GST Filing:** Lastly, the survey evaluates the mechanisms for raising grievances with customers, their redressal, and the challenges associated with GST filing and reconciliation. These inquiries provide insights into the efficacy of conflict resolution mechanisms and the regulatory compliance burden MSMEs face.

IV. **Sensorization strategy:** The Sensorization Strategy section of the survey focuses on assessing the readiness of MSMEs to adopt Industry 4.0 technologies, particularly sensor-based systems, to enhance operational efficiency, data-driven decision-making, and interconnectivity across manufacturing processes.

- a) **Industry 4.0 Readiness:** The section begins by evaluating the Industry 4.0 readiness of machines, material handling equipment, utilities, and other assets within MSMEs. The survey provides insights into the technological infrastructure supporting smart manufacturing initiatives by gauging the deployment of IoTs and sensors capable of data exchange over the internet.
- b) **Sensor Deployment:** Furthermore, the survey examines the extent of sensor deployment within MSMEs, capturing the diversity of sensors utilized for monitoring various parameters such as temperature, pressure, flow, vibration, humidity, and more. Understanding the scale of sensorization per plant or factory offers valuable insights into the level of data granularity and monitoring capabilities adopted by MSMEs.
- c) **IoT Platform Adoption:** Moreover, the survey investigates the presence of IoT platforms within organizations, highlighting the technological framework facilitating device connectivity, data aggregation, and cloud-based analytics. The existence of an IoT platform signifies the organization's commitment to harnessing real-time data for operational insights and predictive maintenance.
- d) **Customer Collaboration Dashboard:** Lastly, the survey explores the existence of dashboards for effective collaboration with customers, reflecting the organization's efforts to

enhance transparency, communication, and data sharing with external stakeholders. These dashboards are pivotal tools for facilitating real-time information exchange, addressing customer queries, and strengthening partnerships.

- V. **Digital maturity:** The Digital Maturity section of the survey aims to assess MSMEs' digital capabilities and leadership readiness in embracing digital transformation. It evaluates the organization's utilization of digital technologies, leadership vision, organizational culture, skill development, and collaborative efforts across functional areas.
- a) **Assessment of Digital Capabilities:** This subsection evaluates the extent to which MSMEs are leveraging digital technologies to enhance customer understanding, marketing strategies, sales channels, customer service delivery, operational processes, and decision-making. It examines the organization's adoption of digital channels, automation of core processes, integration of operational and customer data, utilization of analytics, and innovation in product/service offerings.
 - b) **Assessment of Leadership Capabilities:** In this subsection, the survey assesses the leadership capabilities within MSMEs to drive digital transformation effectively. It examines senior executives' vision for the digital future, alignment of vision among senior executives and middle managers, inclusivity in digital transformation conversations, promotion of cultural changes, investment in digital skills, coordination of digital initiatives, clarity in roles and responsibilities, establishment of key performance indicators, collaboration between IT and business leaders, and alignment of IT unit's performance with company needs.
- VI. **Sustainability:** The Sustainability section of the survey evaluates the social, environmental, and economic sustainability practices adopted by MSMEs. It encompasses various aspects, including social responsibility, environmental conservation, economic development, resource efficiency, waste management, and regulatory compliance.
- a) **Social Sustainability Assessment:** This subsection assesses the organization's commitment to promoting fair treatment of workers, compliance with labor laws, community support, diversity and inclusion, ethical business practices, transparency, accountability, CSR activities, and employee engagement in social initiatives.
 - b) **Environmental Sustainability Assessment:** In this subsection, the survey evaluates the organization's efforts towards environmental sustainability. It covers compliance with environmental regulations, adoption of energy-efficient technologies, use of renewable

energy sources, waste management, water conservation, sustainable transportation, eco-friendly materials, green supply chain management, and environmental reporting.

- c) **Economic Sustainability Assessment:** This subsection focuses on the organization's economic sustainability practices. It includes financial management, revenue diversification, customer relationship management, marketing strategies, innovation, workforce development, partnerships, risk management, market analysis, cost reduction, funding sources, and efficiency improvement.
- d) **Environmental Impact Evaluation:** The survey investigates various aspects of environmental impact, including material yield ratios, scrap recycling percentages, and the use of non-renewable materials. It examines initiatives related to waste management, water conservation, and emission reduction, as well as efforts to measure and mitigate the organization's carbon footprint. Additionally, the survey assesses practices such as rainwater harvesting, biodiversity preservation, and the implementation of circular economy models.
- e) **Sustainable Practices Implementation:** In this section, the survey explores the implementation of sustainable practices, including product-as-a-service strategies, green building certifications, and alignment with sustainability vision and mission statements. It examines the development of environmental policies, identifying significant environmental impacts, and the creation of awareness among employees. Furthermore, the survey evaluates the verification of environmental management systems, energy audits, and ambient air quality monitoring.

VII. **MSME schemes:** The MSME Schemes section of the survey assesses the utilization and impact of various government schemes designed to support Micro, Small, and Medium Enterprises (MSMEs). It covers a wide range of initiatives launched by the government, focusing on aspects such as finance, infrastructure, skill development, technology adoption, innovation, and sustainability.

- a) **Assessment of Telangana MSME Schemes:** This subsection evaluates the awareness and utilization of MSME schemes specifically launched by the State Government of Telangana. It assesses the impact of schemes like T-IDEA, TS-iPASS, CMSTIE, and others on the growth and development of MSMEs in the region. Respondents provide feedback on the usefulness of these schemes based on their experience.

- b) **Utilization of Other State/UT MSME Schemes:** Here, respondents indicate whether they are leveraging MSME schemes offered by other states or union territories. They have the opportunity to share their views on the effectiveness of these schemes and their impact on business operations.
- c) **Government Reforms and Indigenization Initiatives:** This part of the survey explores the potential impact of current MSME reforms on indigenization initiatives in manufacturing. Respondents predict whether these reforms will encourage companies to explore indigenous suppliers, buy products/services from MSMEs, and shift customer behavior towards domestic products.
- d) **Government Loan Offers and Fiscal Incentives:** The survey assesses the uptake of government loan offers and fiscal incentives among MSMEs. It also delves into the debt-to-equity ratio of businesses and explores the reasons behind not availing government loans.
- e) **Feedback on Government Initiatives:** Respondents share their opinions on various government initiatives, such as changes in MSME definitions, emergency working capital facilities, e-Marketplace establishment, EPF contribution reduction, and others. They also suggest additional measures to support long-term growth in the MSME sector.
- f) **Awareness of Committees and Policies:** This section evaluates awareness of committees like the State Level Export Promotion Committee (SLEPC) and policies like the Telangana State Logistics Policy 2021-26. Respondents provide insights into the benefits and impact of these initiatives on their businesses.

VIII. **Innovation culture:** The Innovation Culture section of the survey focuses on assessing the innovation practices and culture within organizations, particularly Micro, Small, and Medium Enterprises (MSMEs). It explores various aspects such as product development, patents, collaboration with startups, adoption of digital technologies, response to COVID-19, staff engagement in innovation, and the use of software platforms to foster innovation.

- a) **Product Development and Patents:** This subsection examines whether companies have developed new products or lines of business services since establishment and whether they have filed for patents. It also inquires whether the company has received any patents.
- b) **Innovation and Collaboration:** The survey delves into whether companies have significantly improved their product/processes/services through innovation in recent years and whether they collaborate with startups for innovation initiatives or business model innovation.

- c) **Adoption of Digital Technologies and AI Platforms:** Respondents are asked to identify digital technologies that can help MSMEs innovate and improve their supply chain efficiency. Additionally, they are questioned about their use of AI platforms like CHATGPT and are prompted to provide examples of their use cases.
- d) **Utilization of Government Infrastructure and COVID-19 Impact:** This part of the survey investigates whether companies utilize government tool rooms or other common infrastructure for innovation or new product development. It also assesses whether companies have improved their business processes, efficiency, revenue, profit, and cash position after the pandemic.
- e) **Staff Engagement and Software Platforms:** Respondents are asked about measures taken to encourage staff to generate new ideas and innovate, such as suggestion boxes, rewards, workshops, and brainstorming sessions. Additionally, they are questioned about the use of software platforms to promote an innovation culture within the company.
- f) **Monthly Improvements and Support Needs:** The survey assesses the average number of monthly improvements implemented by organizations and identifies the top support needs required to take their businesses to the next level. Respondents select support options such as access to export markets, brand development, business strategy development, financial management, and others.

IX. **Entrepreneur and Entrepreneurship:** The Entrepreneur and Entrepreneurship section of the survey focuses on understanding the demographics, motivations, challenges, and experiences of entrepreneurs, with a particular emphasis on women entrepreneurs. It explores factors such as motivation for entrepreneurship, challenges faced, circumstances leading to entrepreneurship, and the utilization of government schemes to support entrepreneurs, such as the Women Entrepreneurs Hub (WE Hub).

- **Entrepreneur Demographics:** This subsection starts by identifying whether the respondent is an entrepreneur and, if so, their gender. The next set of questions is gender-based and neutral, depending on the kind of scheme or issues we want to identify.
- **Motivation for Entrepreneurship:** Respondents are asked about their major factors of motivation as entrepreneurs, with options including creating economic value for society and jobs, career goals, economic independence, and others.
- **Challenges Faced by Entrepreneurs:** This part of the survey investigates the major challenges entrepreneurs face, such as arranging finance, gender discrimination,

complexities in getting government approval, lack of skilled employees, and problems in marketing and selling.

- **Circumstances Leading to Entrepreneurship (Female Respondents Only):** Female respondents are asked about the circumstances under which they became entrepreneurs, including whether it was due to seeing an opportunity through need assessment, being forced by circumstances, family pressure, or other reasons.
- **Utilization of Women Entrepreneurs Hub Scheme:** Respondents are questioned about whether they have leveraged the Women Entrepreneurs Hub scheme and, if so, the major benefits they have received from it, such as access to capital, mentors, infrastructure, support services, and venture capital pitch events.
- **Reasons for Not Applying to WE Hub Scheme:** Those who have not applied to the WE Hub scheme are asked to select reasons for their non-participation, such as lack of awareness of the scheme, unfavorable government policies, lengthy procedures, or personal and political influences.

X. **Future of skills and familiarity with technology:** The "Future of Skills and Familiarity with Emerging Technologies" section of the survey aims to assess the level of familiarity and competency of respondents' teams with various emerging technologies. This section explores the extent to which teams are aware of, familiar with, or proficient in utilizing technologies that are shaping the future of various industries.

- a) **Technologies Assessed:** The section evaluates the familiarity of respondents' teams with a wide range of emerging technologies, including:
- a. Cloud computing
 - b. Internet of Things (IoT)
 - c. Industrial Internet of Things (IIoT)
 - d. Edge computing
 - e. Artificial Intelligence (AI)
 - f. Machine Learning
 - g. Big data
 - h. Integration of IT and OT (Operational technology)
 - i. Microgrid technologies
 - j. Smart Grid technologies

- k. Blockchain
- l. Conversational tools (Chatbot)
- m. Cybersecurity
- n. Advanced analytics
- o. Robotics
- p. Virtual reality
- q. Augmented reality
- r. Mixed reality
- s. 5G network
- t. Financial Technology (Fintech)
- u. Green technologies
- v. Quantum computing
- w. Robotics Process Automation (RPA)
- x. Digital twin
- y. 3D design

b) **Scoring System:** For each technology listed, respondents are asked to rate their team's familiarity or competency level using a scale ranging from "My team is not aware of " (1) to "My team has applied the technology" (5). This allows for a nuanced understanding of the MSMEs' level of engagement with each technology.

The data collected from this survey will serve as a valuable resource for policymakers, industry stakeholders, and researchers alike. By identifying challenges, opportunities, and areas of improvement, we aim to contribute to developing targeted strategies that promote the growth, resilience, and sustainability of MSMEs in Telangana.

With the Government of India targeting a substantial increase from 29.2% (2021-22) to 40% in the contribution of MSMEs to GDP and exports from 43.6% to 60% by 2030, our study is poised to generate data-driven insights that will drive significant innovation and transformation within the MSME sector. As India strives towards its ambitious goal of a five trillion-dollar economy by 2025, it becomes increasingly crucial to understand the nuances of the MSME landscape and develop targeted strategies for sustainable growth.

2.1 Operational Details of the Companies Surveyed

We analysed the 22 companies with diverse profiles. Table 2.1 presents the operational details of the companies surveyed.

Table 2.1: Operational Details of Companies Surveyed

Variable	Categories	Frequency
Major Sector	Manufacturing	23
	Servies	5
	Both	7
	EPC	1
Geographical Spread	Domestic	20
	International	2
	Both	12
Marketing Model	Govt and Private	1
	Cater to other companies as a supplier partner (B2B)	20
	Direct access to the retail market (B2C)	2
	Both (B2C and B2B)	10
	Vendor for reliance	1
Total Number of Employees	Less than 10	3
	11-50	11
	51-100	7
	101-200	6
	201-500	3
	501-1000	1
Certification Status (BIS)	Certified	6
	Not certified	26
Certification Status (ISO)	Certified	20

	Not certified	4
Company Establishment Status	2 – 5 years	2
	5 – 10 years	6
	10 – 20 years	7
	20 – 30 years	8
	30 – 50 years	10
	More than 50 years	2

2.2 Financial Details of the Companies Surveyed

We have also analysed the financial details to have a clear view about the growth and expansion of the companies. Table 2.2 presents the financial details of the companies surveyed.

Table 2.2: Financial Details of the Companies Surveyed

Variable	Categories	Frequency
Annual Turnover	Upto 5	13
	5-10	3
	10-25	4
	25-50	7
	50-75	3
	75-100	1
	250-500	1
	500-1000	1
Capital Investment	Upto 1	5
	1-5	11
	5-10	6
	10-25	5
	25-50	2
	50-100	1

Number of plants/ factories	1	19
	1-3	10
	We don't have factories only facilities to execute	2
Status of Revenue Generated	Declined	8
	Steady	4
	Marginally Increased	13
	Significantly increased	7
Status of Profit generated	Declined	11
	Steady	5
	Marginally Increased	10
	Significantly increased	5
	Not yet profitable	1
Status of Cash position	Declined	9
	Steady	12
	Marginally Increased	8
	Significantly increased	4
Status of Market Share	Declined	6
	Steady	14
	Marginally Increased	9
	Significantly increased	2
	Multiplied	1
	Not Applicable	1
Credit Ranking	Yes	15
	No	17

CHALLENGES FOR MSMES: INSIGHTS FROM TELANGANA

3.Challenges for MSMEs: Insights from Telangana

MSMEs in India face several challenges that impede their growth and sustainability. Some of these challenges affecting the performance of MSMEs include:

- a) **Credit Gap and Informal Financing** – The most significant challenge is the credit gap of Rs 20 lakh crore, which forces many micro-entrepreneurs to rely on informal sources of credit, resulting in higher interest rates and increased liability. Moreover, 27% of entrepreneurs report difficulty in timely repayment of loans. Improving financing for MSMEs is crucial to keep them viable and stimulate growth ^[1]. We will also report our findings on credit rankings in this report.
- b) **Infrastructure Challenges** – Lack of infrastructure increases operational costs for MSMEs and decreases their competitiveness in the market. Supply chain issues and the rise in raw material prices due to increased transportation costs are also a concern for MSMEs. Around 57% of entrepreneurs surveyed by the Bharatiya Yuva Shakti Trust reported such issues leading to disruptions in their business ^[1].
- c) **Lack of Formalisation** – MSMEs lack the benefits of formalisation. Although the Ministry of MSMEs estimates a total of 633.9 lakh MSMEs in India, as of 30th March 2022, only 79,84,801 businesses registered on the Udham portal for MSME registration, which is approximately 12.4% of the total businesses. Many MSMEs are in the informal sector, operating without proper registration, and financial records. The lack of formalisation creates bottlenecks in terms of technological development, business expansion, and procurement of labour and raw materials ^[1].
- d) **Talent Shortage:** MSMEs in India often face difficulties finding and retaining skilled employees, mainly due to the lack of appropriate training and development initiatives. MSMEs should invest in training and development programs to ensure their employees possess the necessary skills and knowledge to thrive in a competitive business landscape ^[2].
- e) **Policy Discrimination:** Many MSMEs face policy discrimination that could severely impact their growth across sectors if lobbying by MSME associations is not strong enough ^[2].
- f) **Impact of Fluctuating Raw Material Prices:** Since January 2023, the cost of raw materials, which had stabilised in 2022, has been on the rise. For example, pig iron that was priced at Rs 47,040 per tonne in November has now climbed to approximately Rs 50,000, after reaching a peak of Rs 65,150 last March. Other raw materials such as casting, steel,

aluminium, and copper have also been experiencing a significant increase in their prices. This surge in raw material prices has become a significant challenge for MSMEs, leading to lower profit margins and negatively impacting their businesses [3].

- g) **Lack of Innovation:** The significance of the MSME sector underscores the need to maintain the competitiveness of MSMEs in India, domestically and internationally. Innovation is a key factor in determining the competitiveness of SMEs. Developing economies like India face significant challenges in this area due to limited government resources for fostering innovation support mechanisms. As a result, innovative concepts like cluster development are frequently underutilised or neglected [4]. In our survey, we have a complete section dedicated to innovation.

	Innovative Small Firms	Innovative Medium Firms
Financial		
Finance from own enterprise	87	89
Finance from outside source	69	70
Innovation cost	75	77
People and skills		
Availability of skilled labor	89	86
Management/People	38	46
Information		
Technology information	76	87
Information on markets	76	87
Government		
Government policy	68	74
Meeting government regulatory requirements	68	74
Infrastructure		
Availability of infrastructure/test labs within enterprise	48	58
Available facility sharing of test labs/research labs	35	45
Market		
New opportunities to enter niche market	50	58
Protection barriers for new products/processes	50	57
Uncertain demand of innovative goods/services	53	57

Figure 3.1: Barriers to innovation faced by the Indian Small and Medium firms (%) based on ADBI working paper authors' calculation from the Indian National Innovation Survey, 2014

Source: <https://thinkasia.org/bitstream/handle/11540/6625/adbiwp588.pdf?sequence=1>

- h) **Marketing and Managerial Problems** - The lack of management skills discourages the growth of the MSME sector, and without the right marketing strategies, sales cannot flourish, nor can a customer-friendly environment be created. The absence of professionalism and knowledge of market trends can also hinder the progress of MSMEs. Poor product promotion and limited knowledge in production and branding also pose challenges for MSMEs, leading

to stiff competition with other sectors and large-scale industries ^[5]. We will be reporting our findings on this.

- i) **Lack of awareness about MSME Schemes:** The government, international organisations, and large companies invest billions of dollars each year in schemes for the benefit of MSMEs. However, there seems to be a low level of awareness among MSMEs in India regarding the national and international opportunities available to them. As a result, many do not utilise the schemes designed for their benefit ^[6]. We have a detailed section on this.

The Indian central and state governments have introduced various schemes and programs to assist MSMEs. These efforts aim to provide financial and technical aid, enhance market access, and stimulate entrepreneurship and innovation. In the forthcoming sections, we will delve into the details of MSME schemes. We will report the primary challenges the MSMEs face as indicated in survey responses.

3.1 Barriers to selling globally for MSMEs

We have conducted a similar study for Andhra Pradesh to understand the barriers to selling globally for MSMEs. These barriers were identified with the help of industry experts. In our earlier study, access to finance, government regulations and lack of government support were the primary barriers to sell globally.

In the current survey for Telangana, we have added an additional barrier, “competition from China,” based on the insights from the industry leaders. The top four primary barriers came out to be: 1) lack of awareness about government schemes (we have elaborated on this

aspect in detail in section 8), 2) competition from large firms, 3) competition from China (both 2 and 3 being equal in frequency) and 4) access to finance.

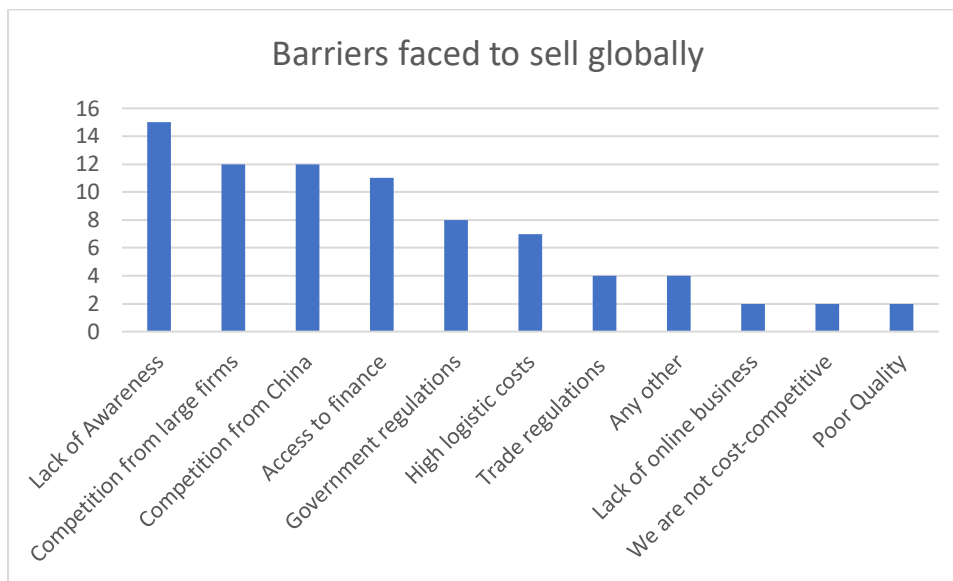


Figure 3.2: Barriers faced to sell globally

3.2 Management issues faced by MSMEs

MSMEs grapple with diverse management challenges. MSMEs face hurdles in scaling operations, from limited capital and market volatility access to inadequate infrastructural support. Workforce management, technological integration, and regulatory compliance further compound their struggles. To capture the correct managerial picture of MSMEs we have provided the following options for management issues in the survey:

- Availability of Infrastructure
- Challenges in procuring raw materials
- Difficulty in access to finance
- Hiring and retaining talent
- High logistic costs (both inbound and outbound logistics costs)
- High outbound logistics cost
- Intense Competition
- Lack of digital technology (limited footprint of digital technology)
- Lack of growth mindset
- Lack of digital mindset

- Managing cash
- Non-availability of skilled workforce
- Sales and Marketing
- Securing a loan from the bank for expansion and growth
- Securing a loan from the bank to support working capital requirements
- Tariff imposed by the government on the imported raw materials

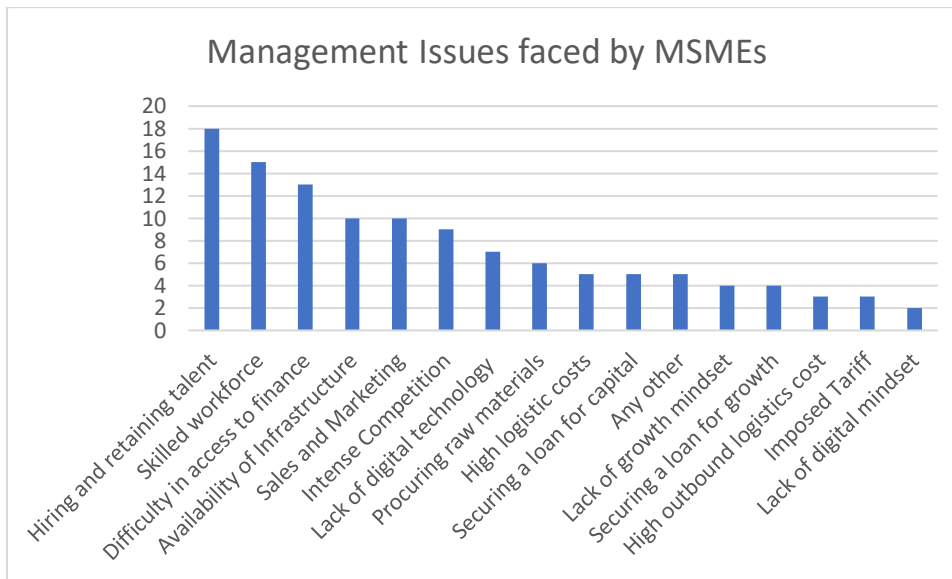


Figure 3.3: Management issues faced by MSMEs

It was observed that the top three managerial issues in MSMEs are: 1) hiring and retaining talent, 2) unavailability of skilled workforce, and 3) difficulty in access to finance.

3.3 Skill development issues in MSMEs

Skill development poses a significant challenge for MSMEs, often due to limited resources and access to training programs. The dynamic nature of industries demands constant upskilling, yet MSMEs struggle to provide comprehensive training opportunities. Addressing this requires tailored training initiatives, collaboration with educational institutions, and leveraging digital platforms for accessible learning. To understand the problem, we provided the following options in our survey to explore the skill development issues in MSMEs:

- High cost of imparting professional training
- Inadequate training infrastructure
- Lack of efficient trainers
- Lack of trained workers
- Lack of industry-academia collaboration in internship programs to develop industry-ready skilled professionals
- Lack of learning culture
- Poaching of workers trained by your company
- The unwillingness of employees to upskill

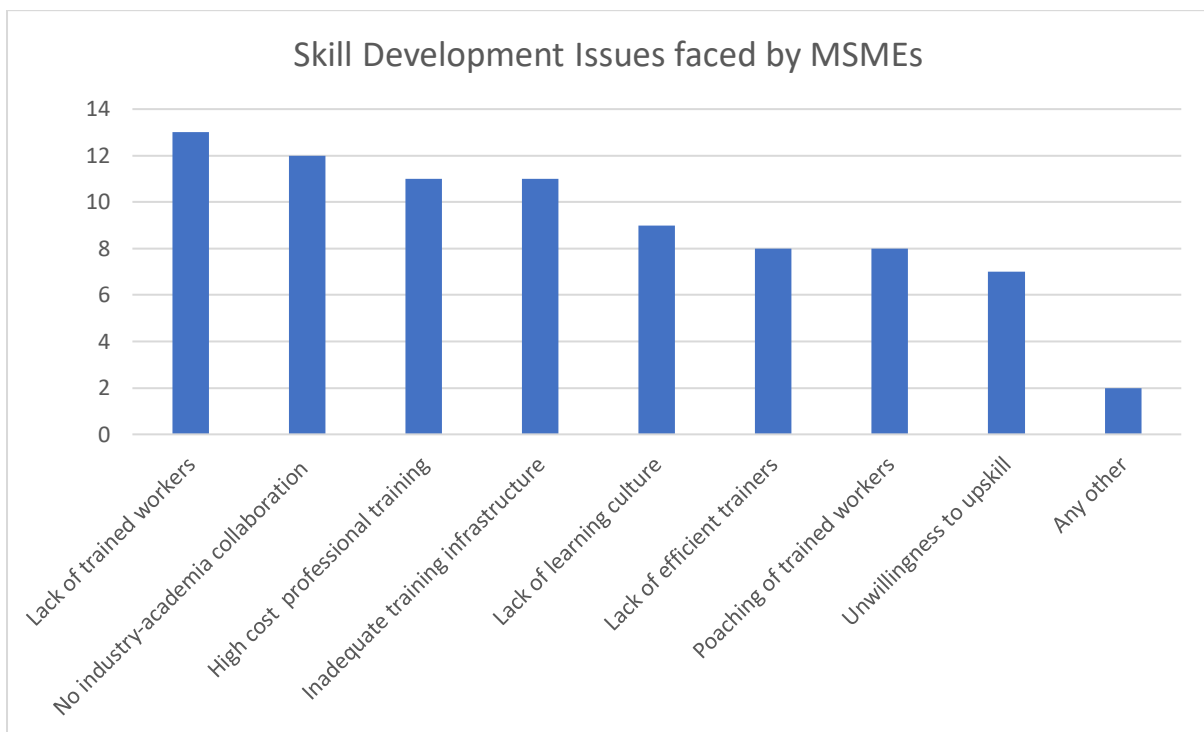


Figure 3.4: Skill Development Issues to MSMEs

It was observed that the top three skill development issues are: 1) Lack of trained workers, 2) limited industry-academia collaboration, and 3) high cost of professional training.

3.4 Barriers to the expansion of MSMEs

A few expansion hurdles for MSMEs include limited access to funding, market penetration challenges, and regulatory complexities. Scalability is hindered by resource constraints,

uncertain market conditions, and difficulties in adapting to changing consumer demands.

We have identified the following reasons for the barriers to expansion of MSMEs:

- Non-availability of bank loans for expansion
- Shortage of working capital for effectively running operations
- Inability to access the global market
- No economies of scale due to low production capacity
- Lack of skilled workforce
- Lack of Government support
- Comfortable with the current scale of operations, do not see value in scaling up

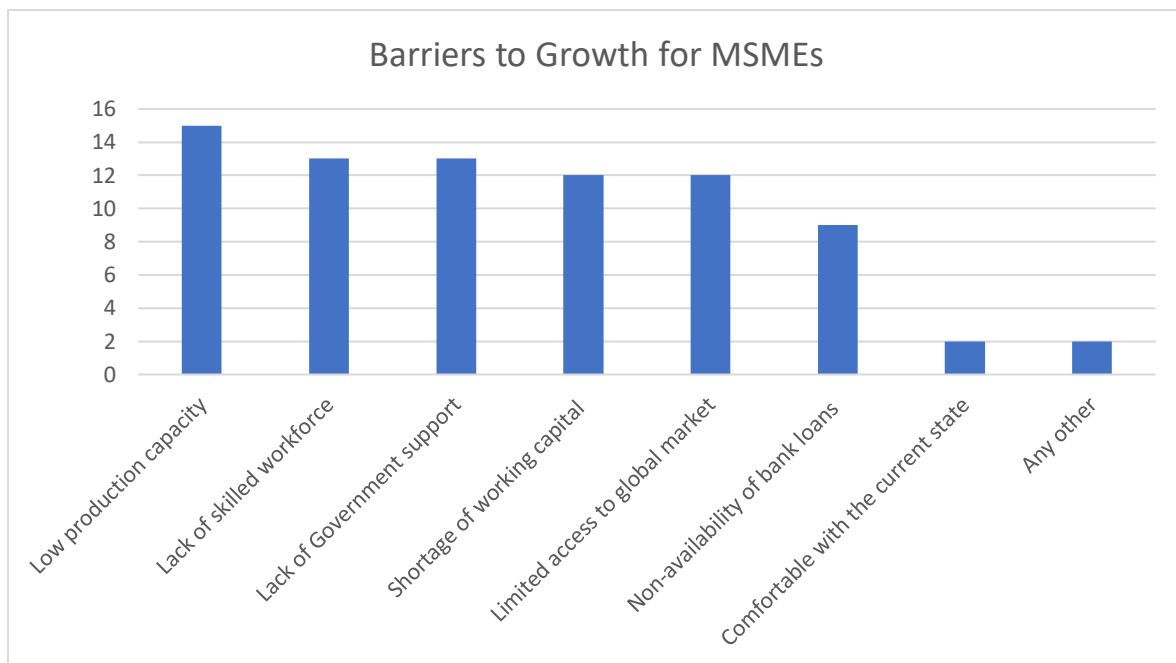


Figure 3.5: Barriers to Growth for MSMEs

It was observed that the top three hurdles for the growth and expansion for MSMEs are: 1) No economies of scale due to low production capacity, 2) lack of skilled workforce, and 3) lack of government support. Figure 3.5 presents the barriers to growth for MSMEs.

Key Insights: Challenges for MSMEs

- Challenges faced by MSMEs are deeply intertwined with the availability and proficiency of a skilled workforce.
- There is a lack of government support and awareness about various schemes available in the MSME ecosystem.
- MSMEs face formidable competition from Chinese manufacturers when attempting to sell their products abroad. Chinese companies often offer lower prices due to economies of scale, government subsidies, and lower production costs. This competition can squeeze profit margins for MSMEs and make it challenging to penetrate international markets.

DIGITAL FOOTPRINTS

4. Digital Footprints

This section presents the status of digital infrastructure, supplier-customer collaboration, sensorization, digital maturity, and future readiness of MSMEs.

4.1 Digital Infrastructure

This section is dedicated to understanding the digital footprints of MSMEs in Telangana. We obtained 36 responses from the MSME founders on questions related to digital maturity. We collected data on various aspects such as market access, digital literacy, digital platforms available for payment, and ERP status.

4.1.1 Market Access

Forbes.com predicts that by 2040, 95 percent of all purchases will be made online ^[1]. MSMEs reach out to markets through three channels: offline, their own e-commerce platform, and third-party e-commerce platforms (such as Amazon, Flipkart). Most of the MSMEs (17 in this case) reach out to their customers through online and offline sales. However, even after great emphasis on digital technology, it is seen that many MSMEs still leverage offline channels. Figure 4.1 presents the same.

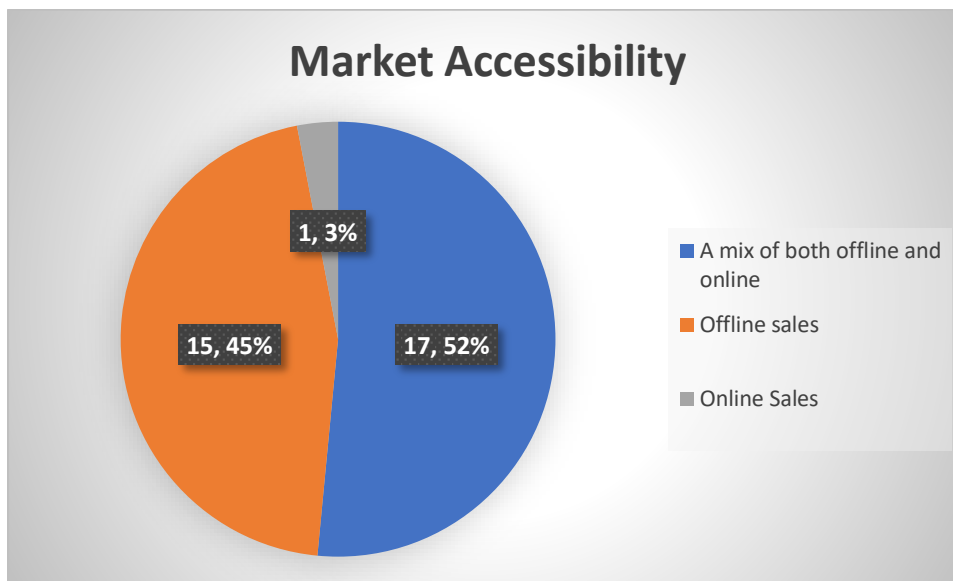


Figure 4.1: Market Access

4.1.2 Digital Literacy in MSMEs

In our study, we have defined a digitally literate employee as someone with basic knowledge of e-commerce, ERP systems, digital technologies, etc. Our research shows that lack of digital literacy is a significant issue for MSMEs. The majority (22) of the respondents felt that fewer than 25% of their employees were digitally literate. Refer to figure 4.2, which provides information on the level of digital literacy in MSMEs.

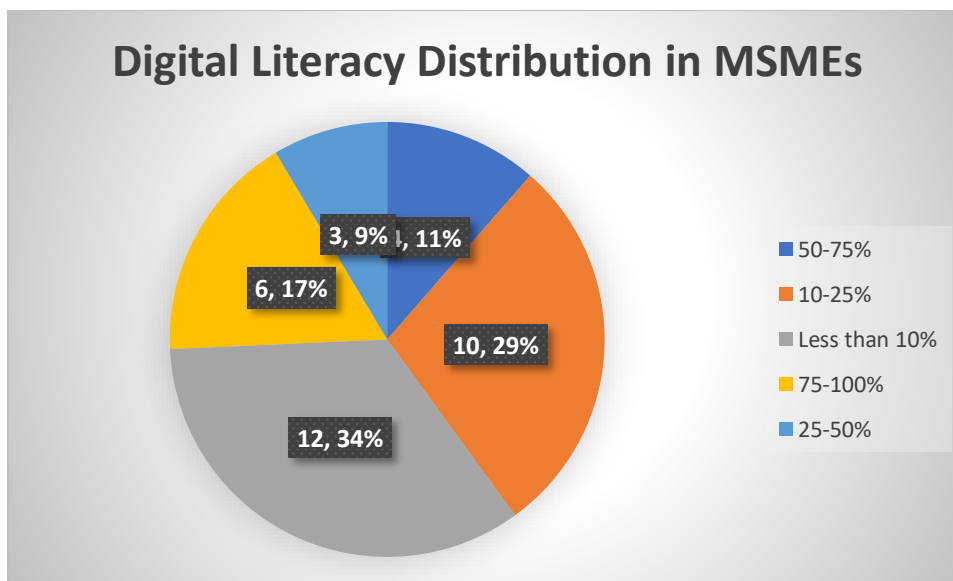


Figure 4.2: Digital Literacy Distribution in MSMEs

4.1.3 Trends in Deployment of Technology

We had the following set of questions administered among the founders to understand their status of deployment of several technologies:

- How do MSMEs track their business flows?
- Do you use an ERP system to manage your business?
- Do MSMEs use digital payment systems?
- How do you enter data at the plant?
- Do you have proper systems for cyber security in place?
- Do you use any digital platform made by the Government?
- Which social- media platform do you use for promotion?

It is observed that most MSMEs (12) track business flow through the software Tally while others do it through a manual process (5) or manual process with the help of any tool. Figure 4.3 presents how MSMEs track their business flows.

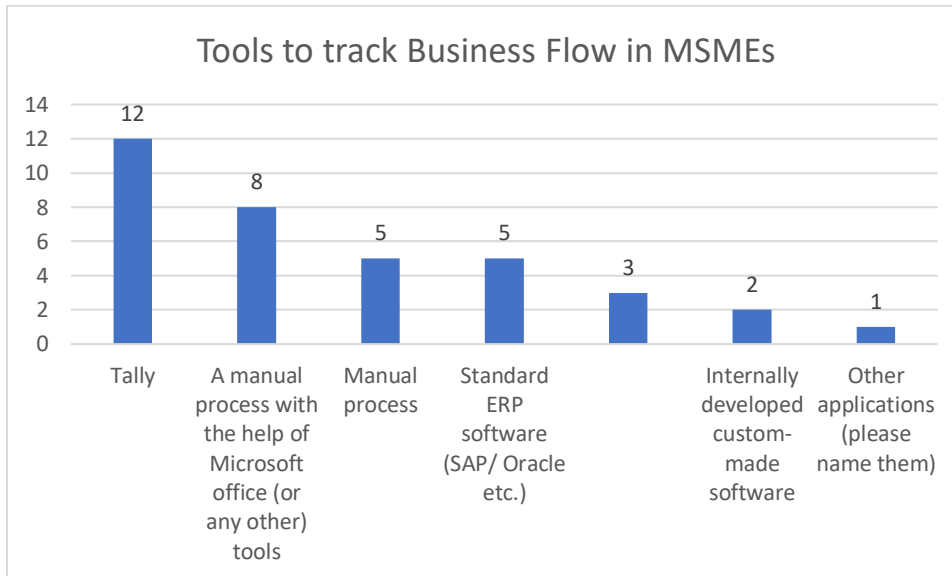


Figure 4.3: Tools to track Business Flow in MSMEs

Most of the MSMEs (21) do not have ERP systems to manage their enterprises. Figure 4.4 presents the same.

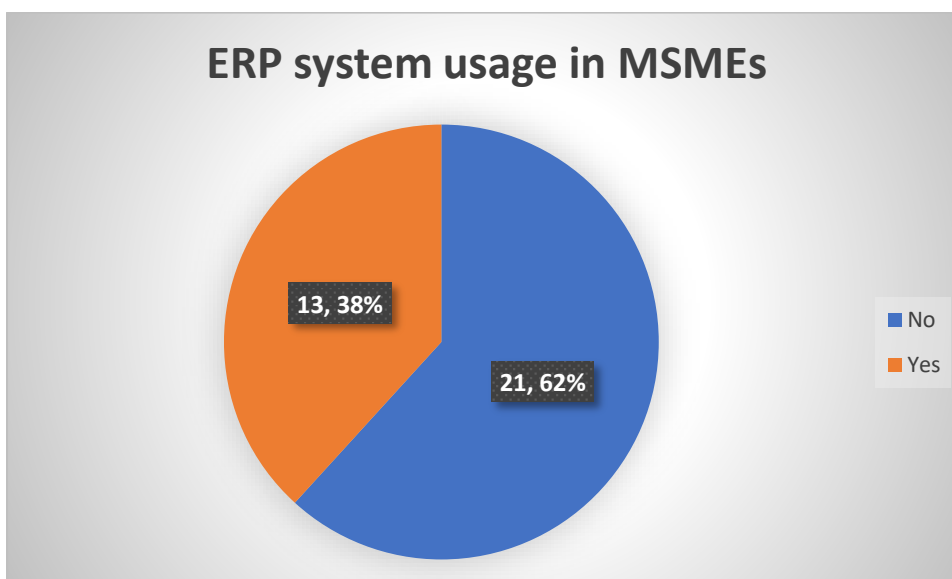


Figure 4.4: ERP system usage in MSMEs

Digital payment systems are popular among MSMEs. Most of the respondents (33) used digital payment systems (mobile banking, digital banking etc.). Only one MSME did not use any digital payment tools. Figure 4.5 presents the same.

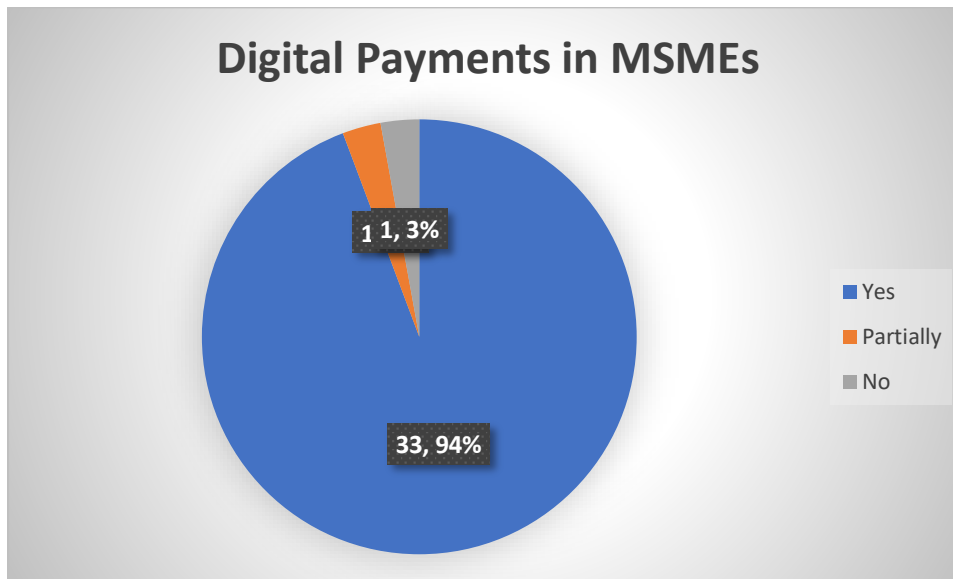


Figure 4.5: Digital Payments in MSMEs

The status of the data entry portal of the plant is not updated. Most of the MSMEs (16) enter data manually. Figure 4.6 presents the same.

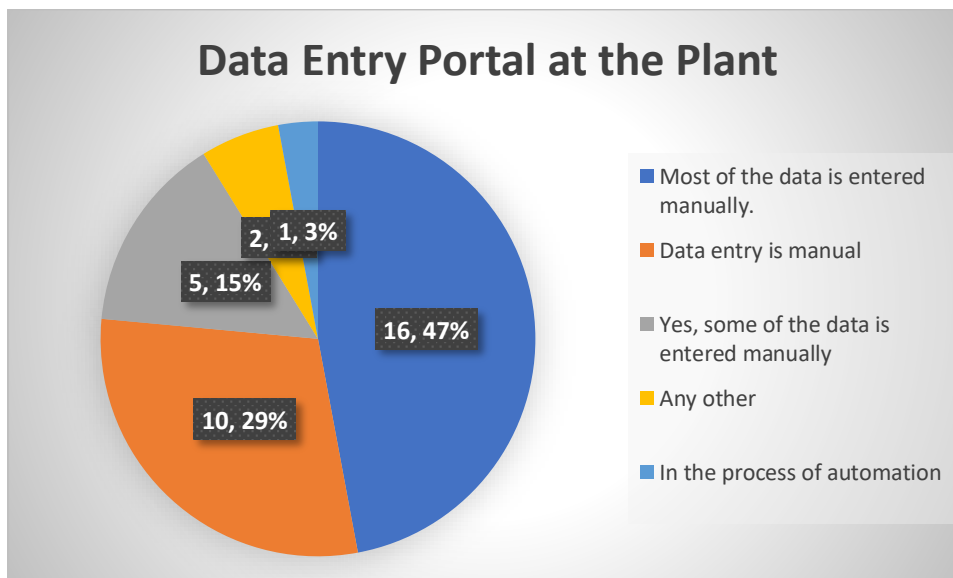


Figure 4.6: Data Entry Portal at the Plant

Similarly, the digital status of production planning is also not current. Most MSMEs (15) are doing production planning manually. Figure 4.7 presents the same.

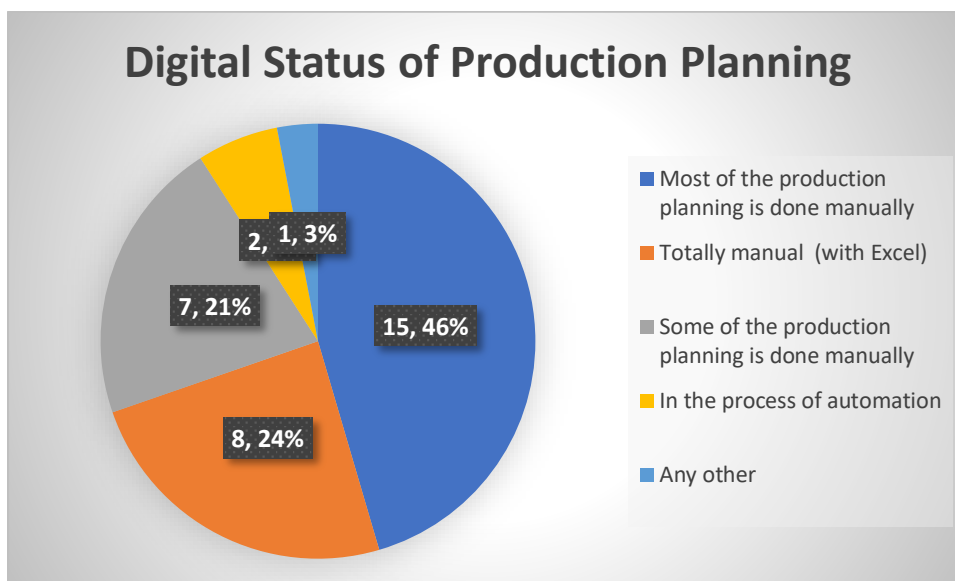


Figure 4.7: Digital Status of Production Planning

Most MSMEs do not have cyber security systems in place. In the survey, 21 MSMEs stated that they don't have cyber security systems. Figure 4.8 presents the same.

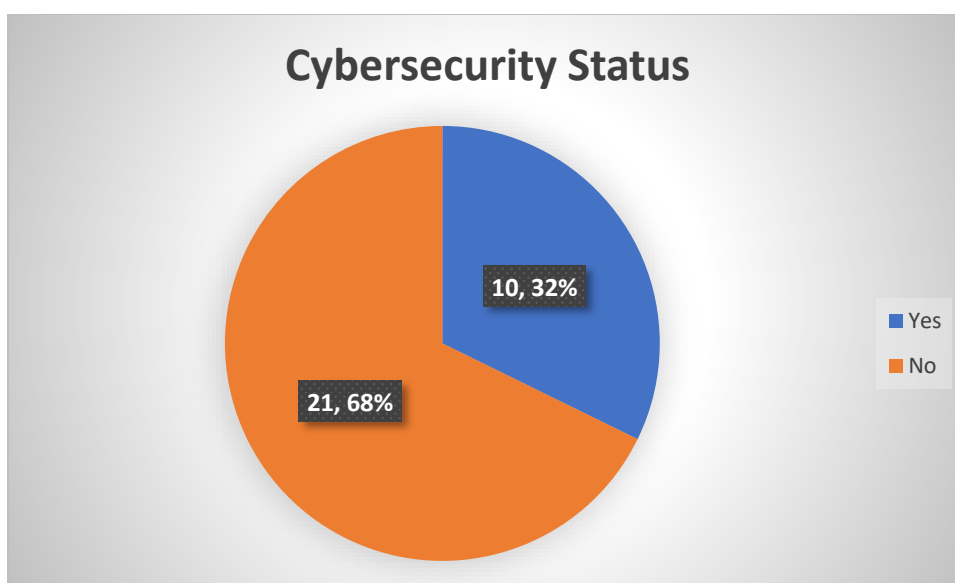


Figure 4.8: Cybersecurity Status

Most of the MSMEs in our survey are registered on Udyog Aadhar/ Udyam provided by the government. Figure 4.9 presents the same.

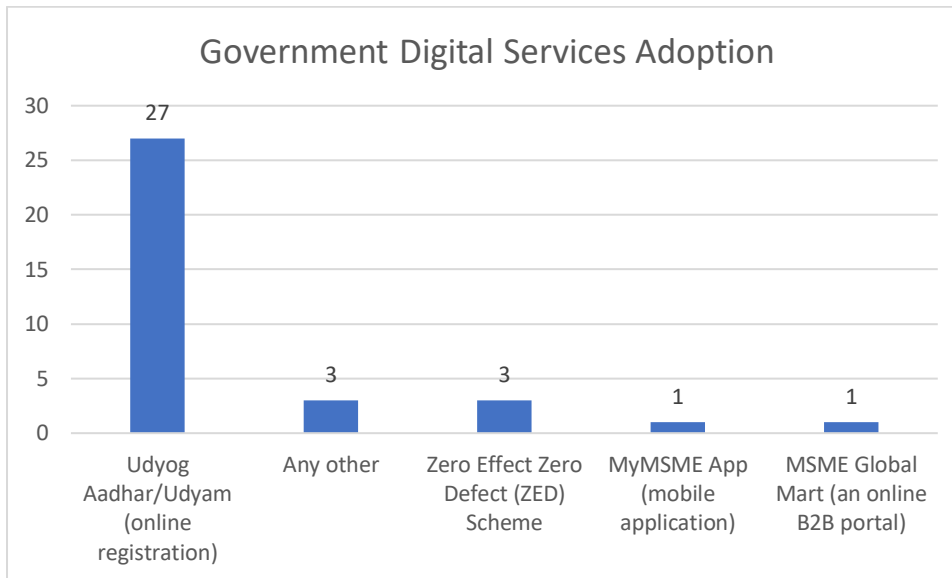


Figure 4.9: Government Digital Services Adoption

Most MSMEs use LinkedIn (13) or Whatsapp (10) to promote their products and services. Some also use sites like IndiaMart and other google websites. Figure 4.10 presents the same.

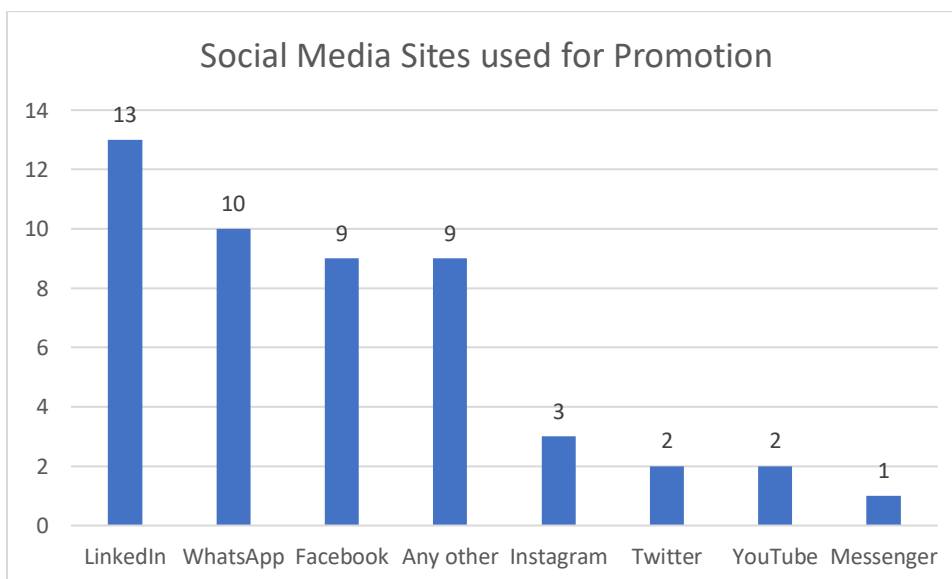


Figure 4.10: Social Media Sites used for Promotion

4.1.4 Prominent Areas for Digital Applications in MSMEs

The top three primary areas for digital applications in MSMEs include accounts (payable and receivable), planning and control, production and inventory monitoring. These areas are indeed crucial for digital applications in MSMEs. Implementing digital accounts payable and

receivable solutions can streamline financial transactions, enhance accuracy, and improve cash flow management. Similarly, digital tools for planning and control facilitate better decision-making by providing real-time insights into business operations. Moreover, digital production and inventory monitoring applications optimize resource allocation, minimize wastage, and ensure efficient inventory management, thereby increasing productivity and competitiveness for MSMEs. Refer to figure 4.11 to understand the primary areas for digital applications in MSMEs.

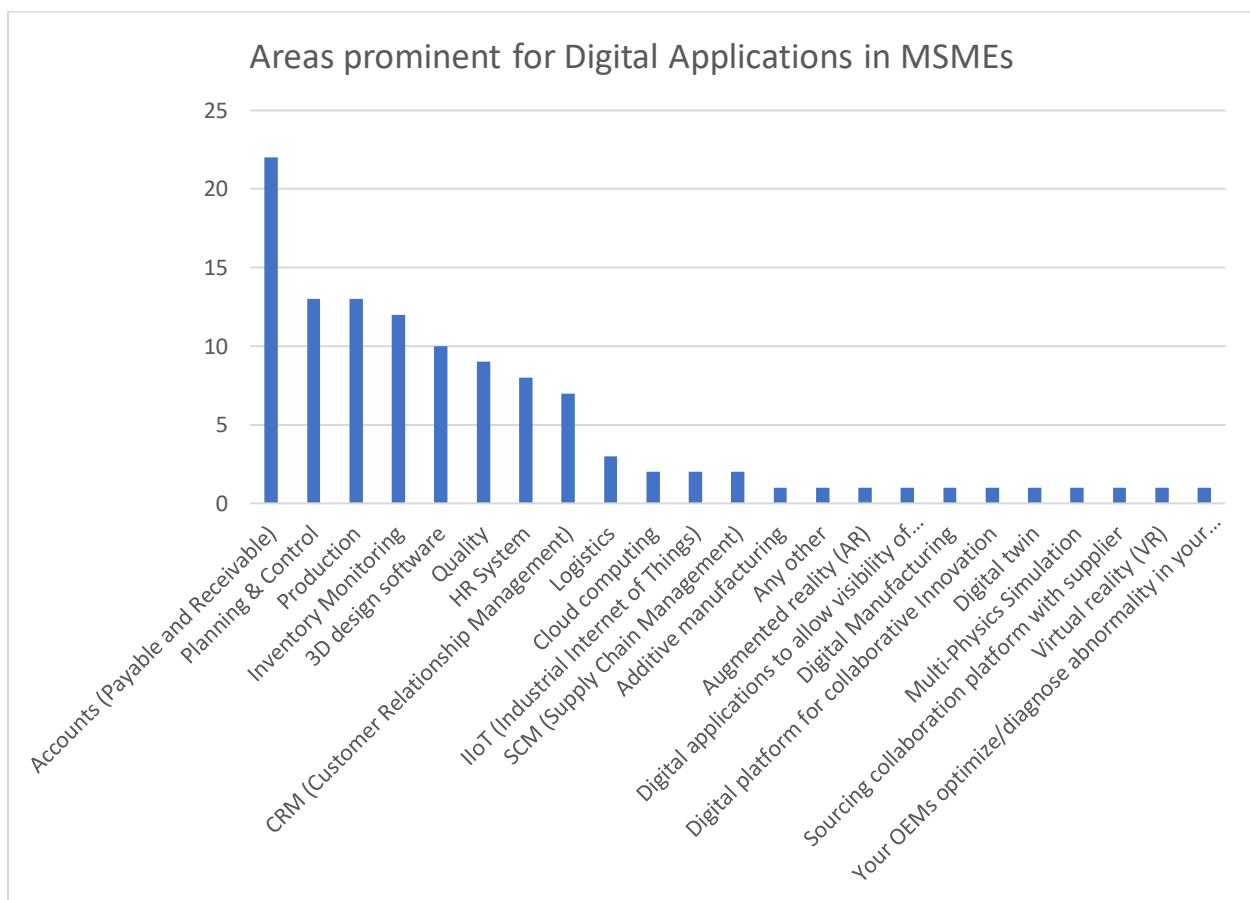


Figure 4.11: Areas prominent for Digital Applications in MSMEs

4.1.5 Reasons for not adopting Technology

The top three reasons for MSMEs not to adopt technology are: 1) high cost, 2) lack of qualified staff, and 3) lack of service providers. Addressing these barriers requires a concerted effort from various stakeholders, including governments, industry associations, educational institutions, and technology providers. Initiatives such as subsidized technology programs, skills development initiatives, and efforts to expand the availability of technology services in underserved areas can help to overcome these obstacles and enable more

MSMEs to harness the benefits of technology. Refer to figure 4.12 to understand why MSMEs do not adopt technology.

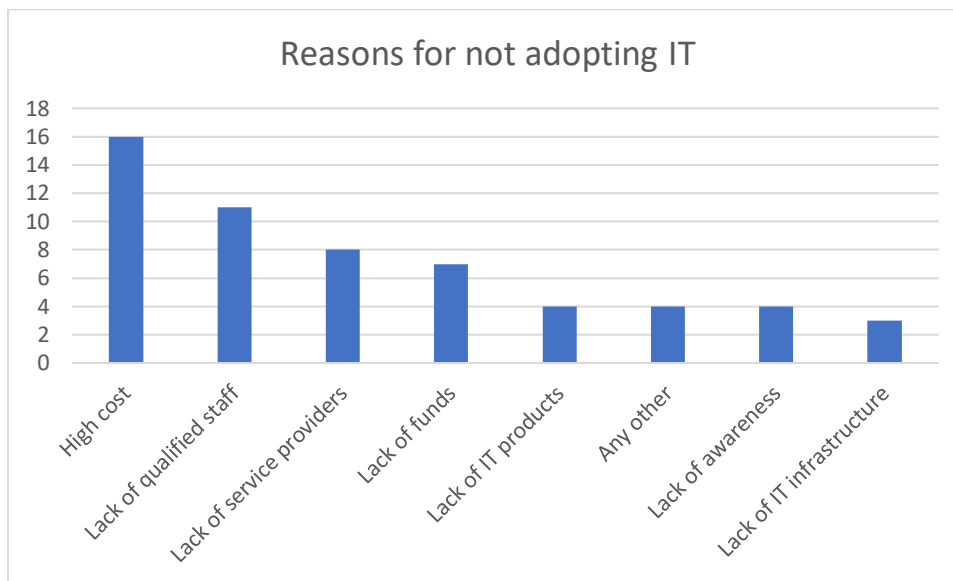


Figure 4.12: Reasons for not adopting IT

4.1.6 Motivation for adopting Technology

The top three motivational factors for MSMEs to adopt technology are: 1) enhancing productivity, 2) enhancing customer support abilities, and 3) enhancing profits. For MSMEs, embracing technology offers a trifecta of compelling reasons. Firstly, the prospect of enhancing productivity stands as a cornerstone. Technology enables streamlined processes, task automation, and heightened efficiency, empowering MSMEs to achieve more with limited resources. Secondly, there's the allure of bolstering customer support capabilities. Through technology, MSMEs can engage customers across various channels, deliver swift responses, tailor interactions, and provide convenient self-service options, all elevating customer satisfaction and fostering loyalty. Finally, the promise of enhancing profits looms large. By leveraging technology to optimize operations, penetrate new markets, boost sales, and trim costs, MSMEs can fortify their financial foundations and pave the way for sustainable growth. Refer to figure 4.13 to understand the motivation for adopting technologies in MSMEs.

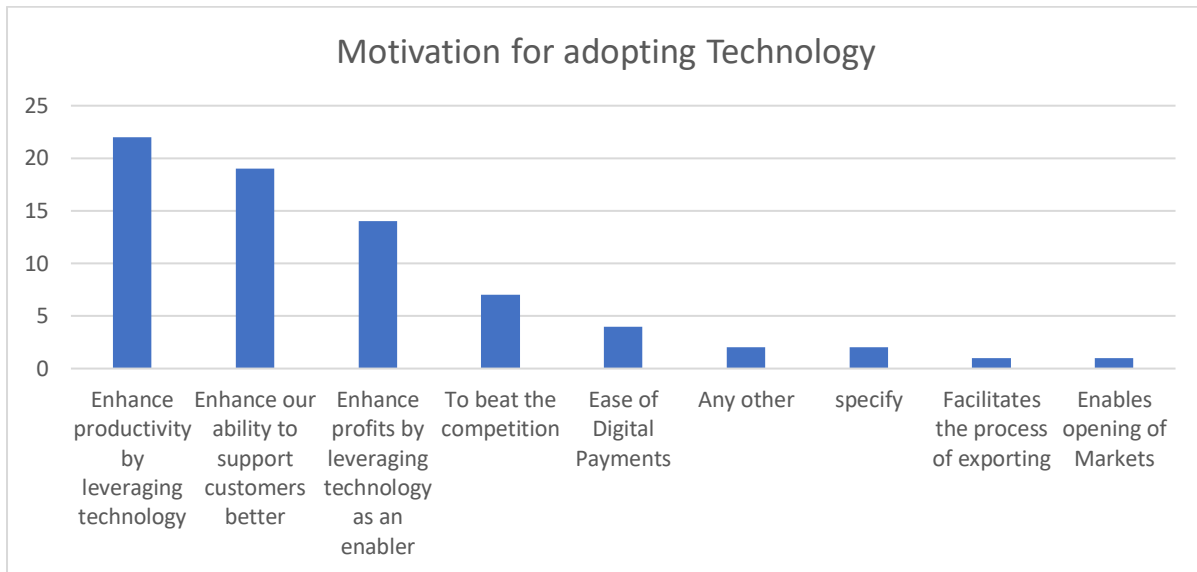


Figure 4.13: Motivation for adopting Technology

4.2 Supplier – customer Collaboration and Sensorization Strategy

Supplier-customer collaboration in MSMEs fosters mutually beneficial relationships and drives business success. By engaging in collaborative efforts, MSMEs can enhance supply chain efficiency, improve product quality, reduce lead times, and mitigate risks. Effective communication and information sharing between suppliers and customers enable MSMEs to understand market demands better, anticipate changes, and respond swiftly to challenges. Moreover, collaboration facilitates innovation, allowing MSMEs to co-create new products or services tailored to customer needs.

4.2.1 Supplier – customer Collaboration

This section presents the questions that explore the status of supplier – customer collaboration and sensorization strategies. We ask the following questions to understand the supplier-customer collaboration:

- How is the production, dispatch, and delivery information conveyed to your customer?
- What is the share of your revenue from the government sector?
- Collection from which sector is more challenging?
- What kind of MIS (Management Information System) is shared with your customer?
- Do you have a supplier interface (your supplier)?
- How do you communicate excess capacity/ new expanded capacity to your customer?

- What strategy do you implement for production (e.g., Lean Manufacturing)?
- Do your suppliers have visibility to your dashboard regarding inventory level/delivery status?
- Are you MMOG/LE (<https://www.aiag.org>) (Materials Management Operations Guideline/ Logistics Evaluation, the global standard for evaluating supply chain management processes against industry best practices) compliant?
- What are the top 3 business challenges?

It is observed that the majority (28) of the MSMEs send e-mails to convey production, dispatch, and delivery information. The second and third preferences are the use of WhatsApp and manual calls. Figure 4.14 presents the same.

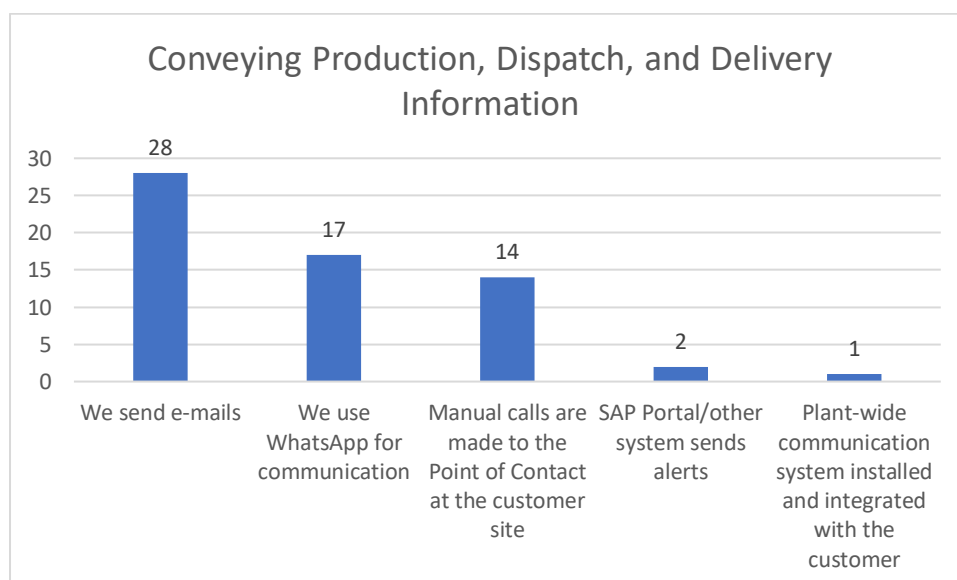


Figure 4.14: Conveying Production, Dispatch, and Delivery Information

In a majority of cases, the share of revenue that MSMEs generate from the government sector is less than 10 % of their total revenue. Figure 4.15 presents the same.

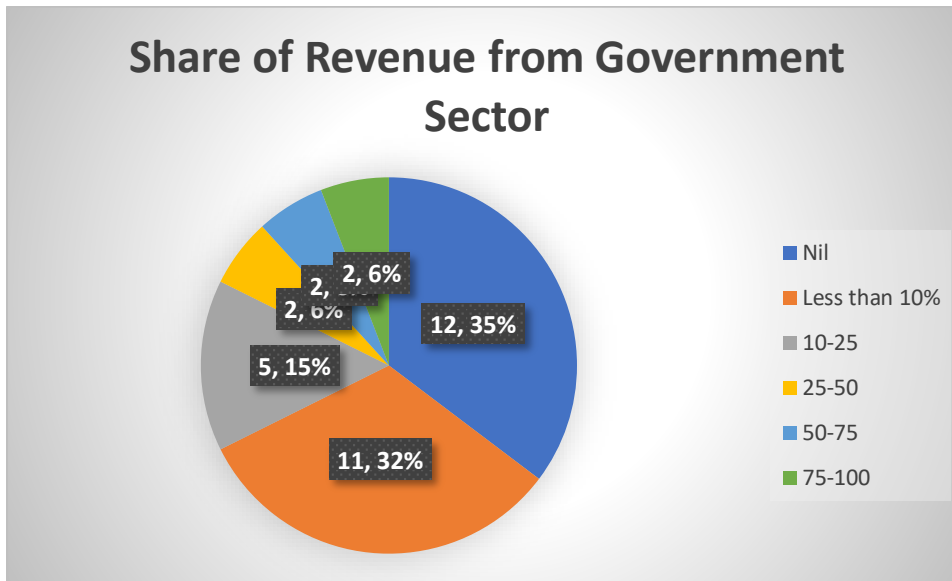


Figure 4.15: Share of Revenue from Government Sector

It was also observed that collections from state government enterprises are the most challenging and are closely followed by corporate customers. Figure 4.16 presents the same.

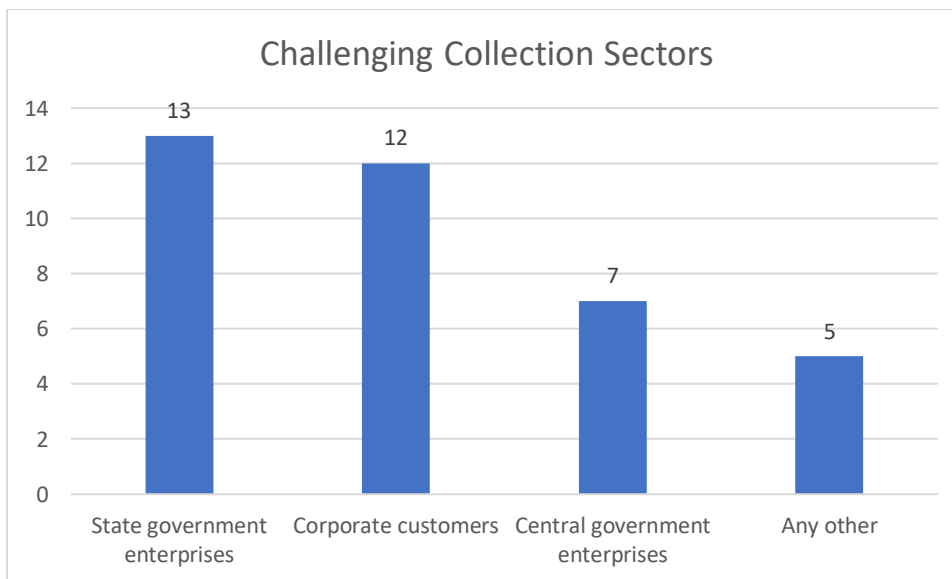


Figure 4.16: Challenging Collection Sectors

It was also observed that the dispatch status and the financial reports are the most shared type of MIS with the customers. Figure 4.17 presents the same.

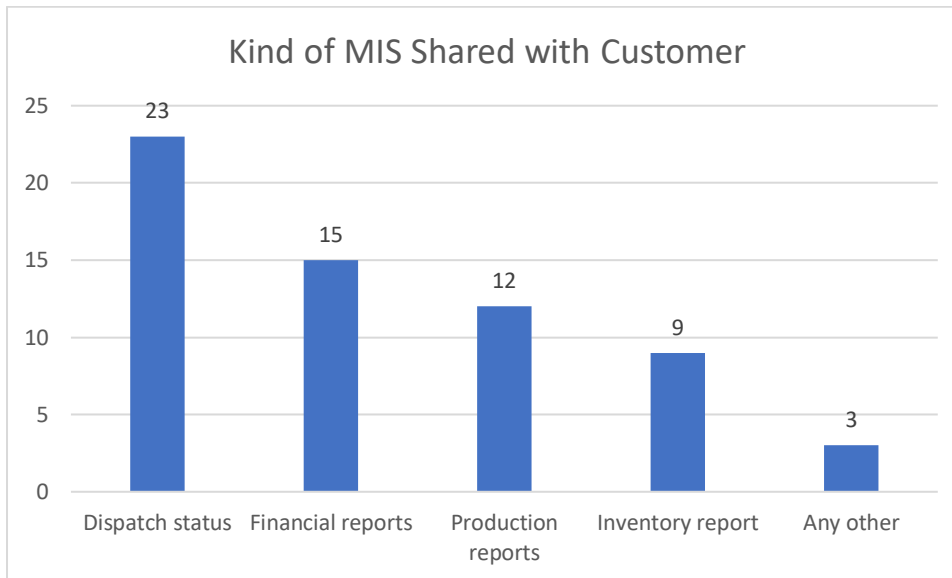


Figure 4.17: Kind of MIS Shared with Customer

Most of the MSMEs (20) do not have supplier interfaces. It is an important necessity and should be present in the MSMEs. Figure 4.18 presents the same.

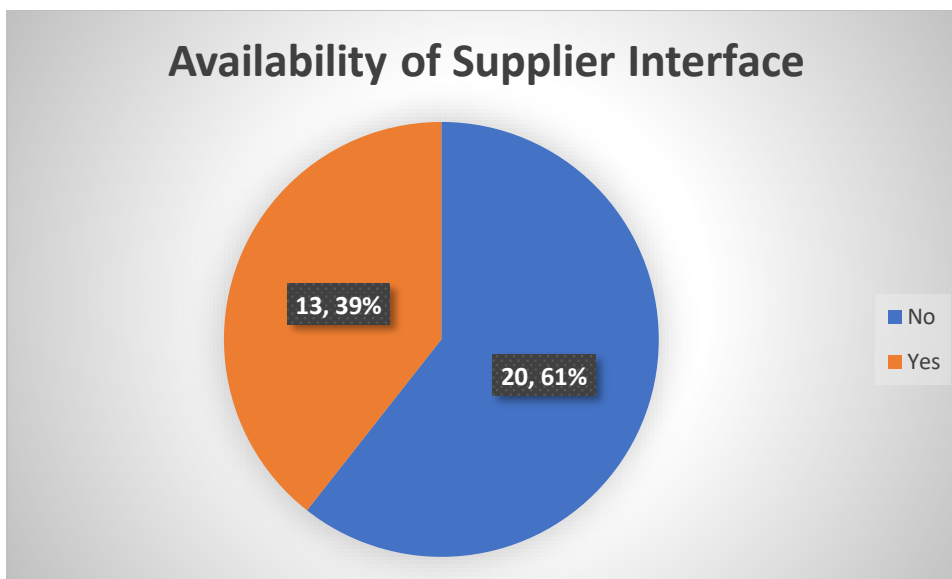


Figure 4.18: Availability of Supplier Interface

We asked the MSMEs about their communication strategies for notifying the customers of expanded capacity. It was observed that either the customers are contacted manually or they are not contacted at all. Figure 4.19 presents the same.

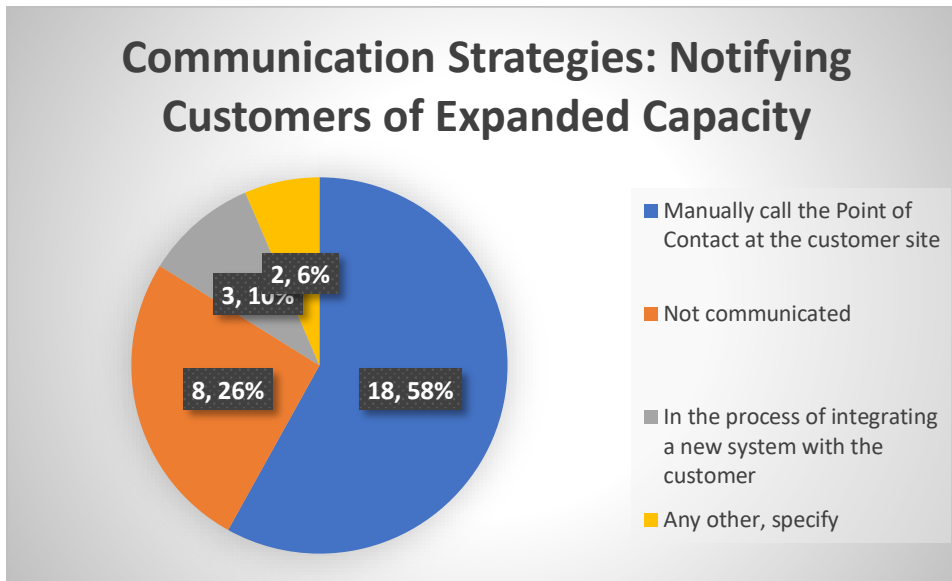


Figure 4.19: Communication Strategies: Notifying Customers of Expanded Capacity

It was also seen that majority of the MSMEs do not have supplier dashboard visibility status. It highlights the grim picture of the supplier-customer collaboration. It is presented in figure 4.20.

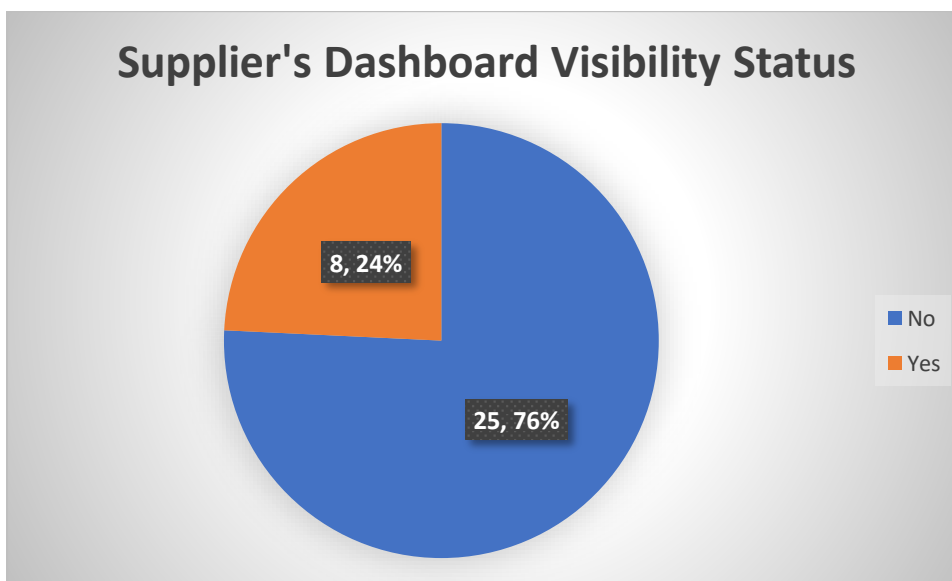


Figure 4.20: Supplier's Dashboard Visibility Status

In addition to the absence of supplier dashboard, most of the MSMEs are unaware of MMOG/LE (Materials Management Operations Guideline/ Logistics Evaluation, the global standard for evaluating supply chain management processes against industry best practices). Figure 4.21 presents the same.

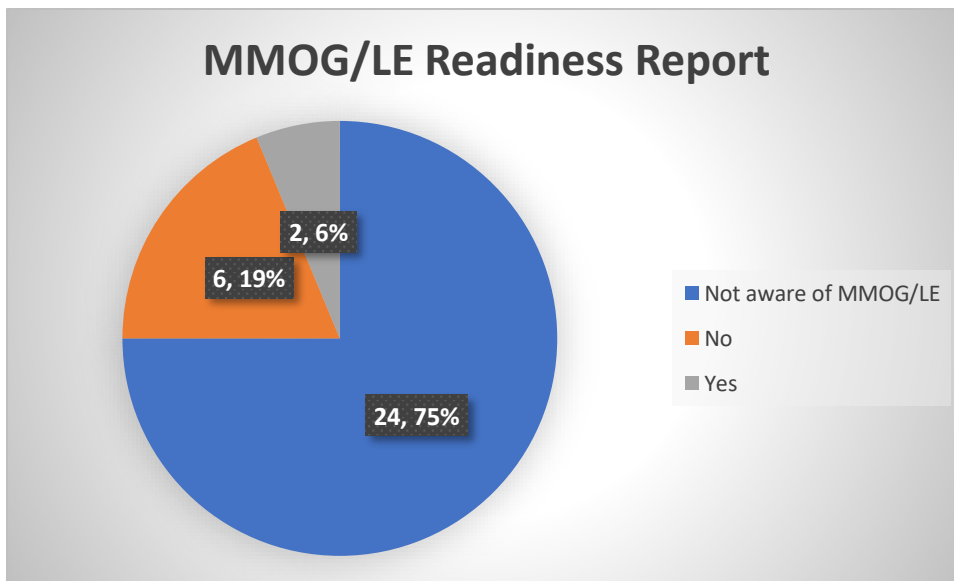


Figure 4.21: MMOG/LE Readiness Report

When we asked the respondents about the challenges they face in maintaining the supplier-customer collaboration, the top three challenges are: 1) Securing order, 2) cash for working capital, and 3) collection (accounts receivables). Refer to Figure 4.22 to understand the business challenges faced by MSMEs.



Figure 4.22: Business Challenges

4.2.2: Sensorization Strategies

Sensorization strategies in MSMEs involve integrating sensor technology into various aspects of their operations to gather real-time data, improve efficiency, enhance decision-making processes, and drive innovation. We have designed the following questions to understand the sensorization status of the MSMEs:

- Are your machines (Ex. CNC Machines, Robots, etc.) Industry 4.0 ready (IoT/sensors are deployed on the machines that can receive or send the signal over the internet) with compatibility to data exchange?
- Is your material handling equipment (conveyor belts, forklift trucks, etc.) Industry 4.0 (IoT/sensors are deployed on the machines that can receive or send the signal over the internet) ready with compatibility to data exchange?
- Are your utilities (compressors, chillers, etc.) and other assets Industry 4.0 ready to be compatible with data exchange?
- How many sensors do you have per plant/factory (for instance, thermostat for measuring temperature, pressure gauges for measuring pressure, flow meter for measuring flow, vibration meters for measuring vibration levels, humidity sensors, flame sensors, noise sensors, leak detectors, etc.)?
- An IoT (Internet of Things) platform is a technology that enables the automation and management of connected devices. It connects your different types of hardware and pushes the data to the cloud. Do you have an IoT platform?
- Does your organization have any dashboard for effective collaboration with your customers?

When asked whether the machines, material handling equipment, and utilities are compatible with Industry 4.0, most respondents denied that. Therefore, it can be concluded that the status of the sensorization strategies is not at an updated level. Figures 4.23, 4.24, and 4.25 present the same.

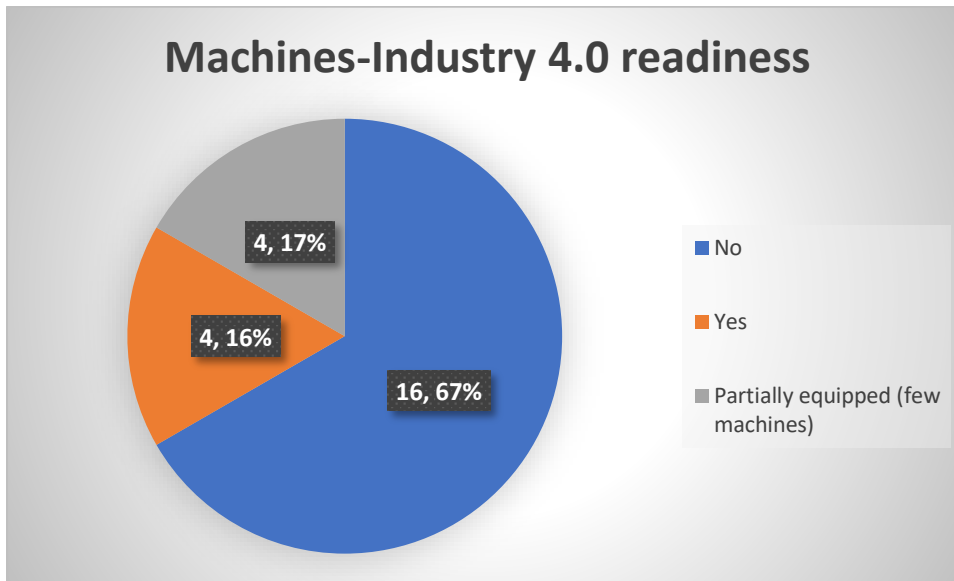


Figure 4.23: Machines-Industry 4.0 readiness

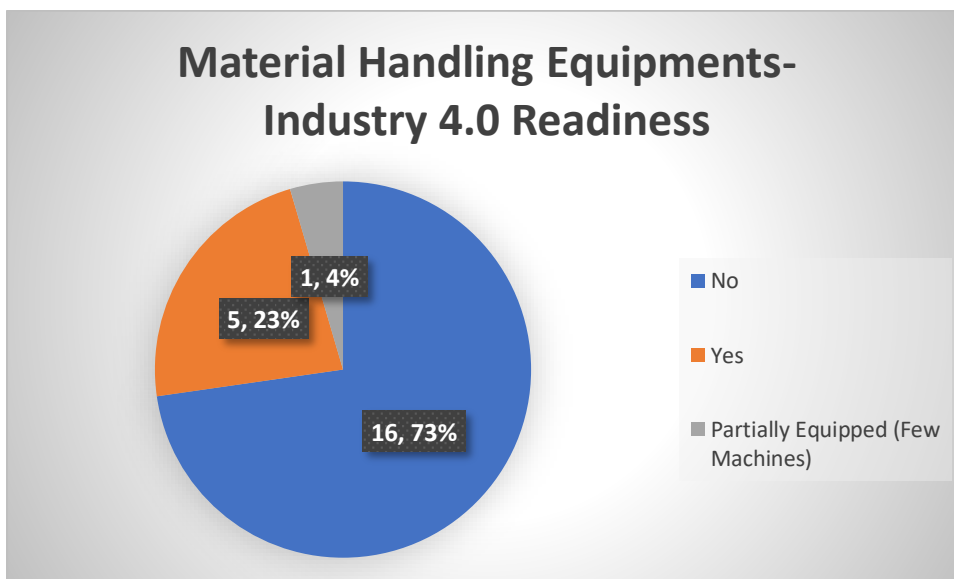


Figure 4.24: Material Handling Equipment-Industry 4.0 Readiness

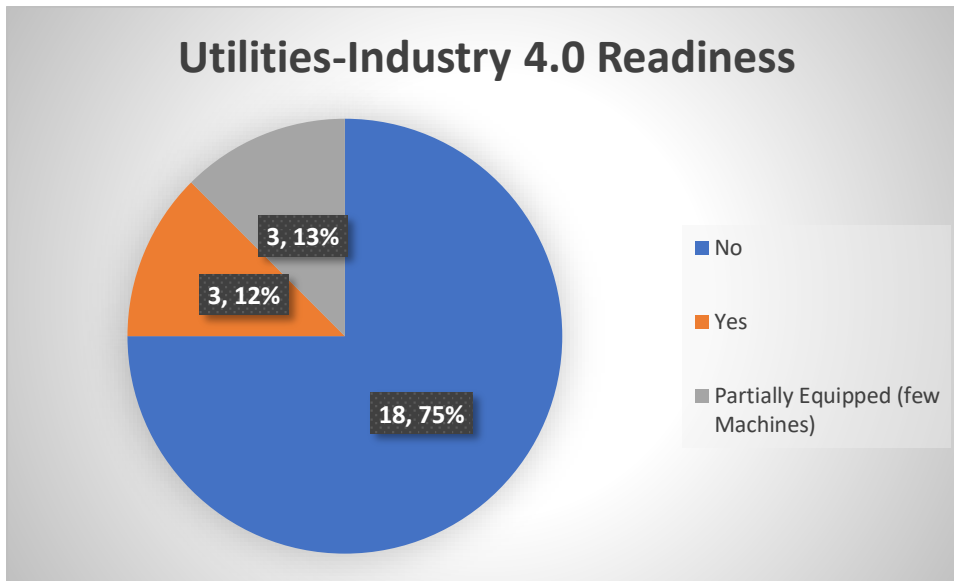


Figure 4.25: Utilities-Industry 4.0 Readiness

It was also observed that most MSMEs have less than 100 sensors per plant. Also, most of the MSMEs do not even have IoT platforms or any dashboards for collaboration. Figures 4.26, 4.27, and 4.28 present the same.

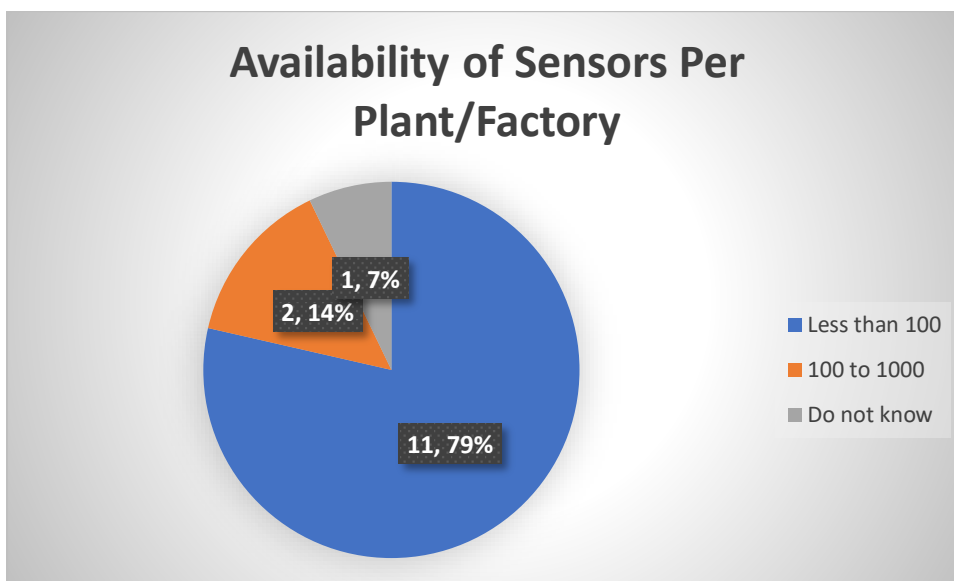


Figure 4.26: Availability of Sensors Per Plant/Factory

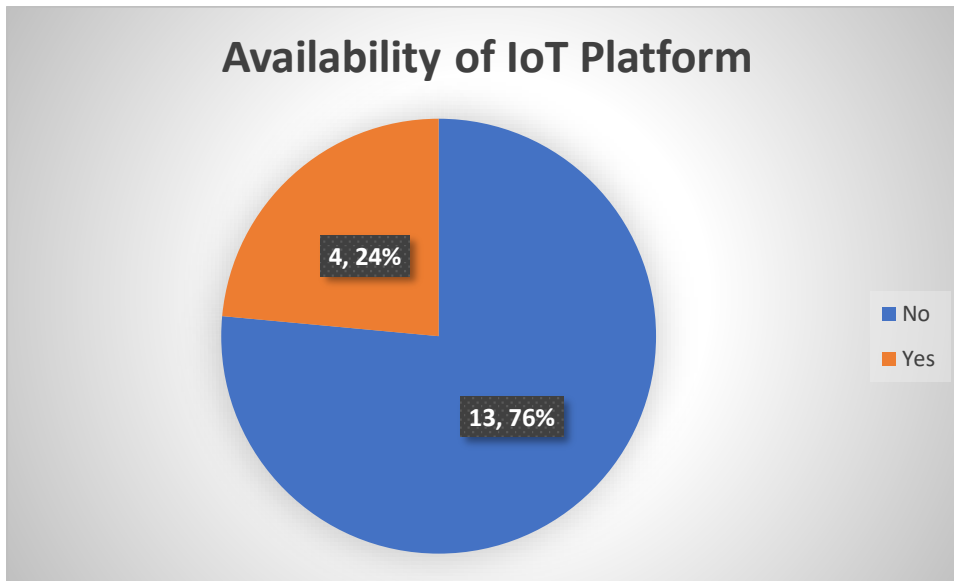


Figure 4.27: Availability of IoT Platform

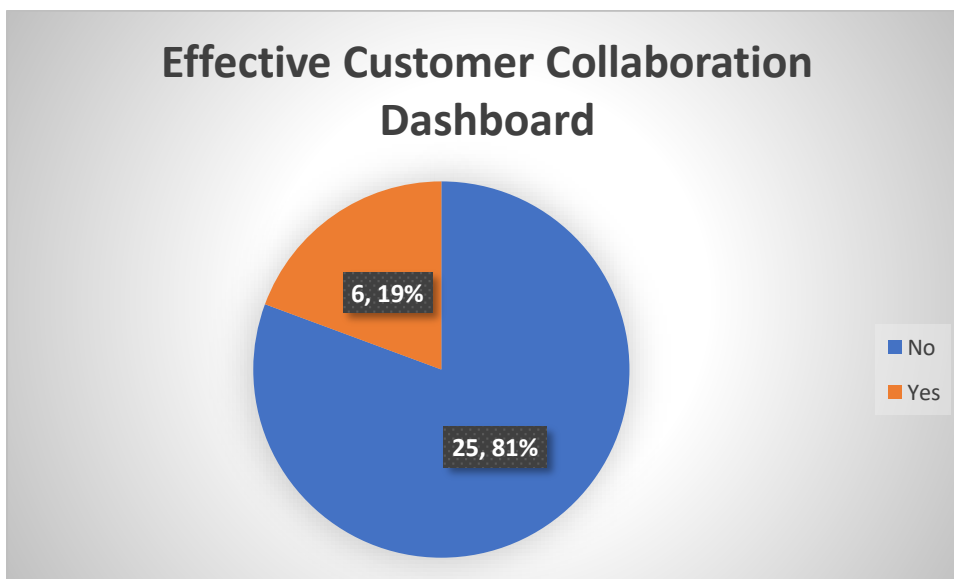


Figure 4.28: Effective Customer Collaboration Dashboard

4.3 Digital Maturity

The concept of digital maturity has been discussed in reference [2] . The authors introduce the following concepts:

- ✓ Digital leadership
- ✓ Digital capability
- ✓ Digital maturity

We have schematically depicted the concept in Figure 4.29.

- ✓ Impact of "Digital Maturity" on an organization's revenue, profit and marketcap
- ✓ How does digital maturity impact RoI and profit from investment in digital transformation?
- ✓ Understand the footprint of different business and digital applications for possible digital-led business transformation.

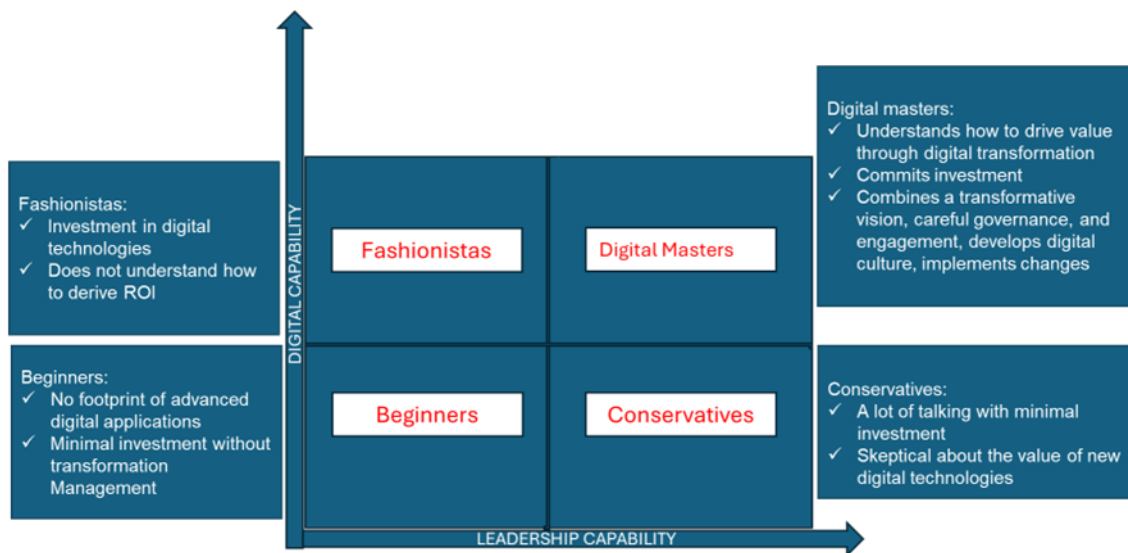


Figure 4.29: : Schematic Presentation of the Concept of "Beginners", "Fashionistas", "Conservatives" and "Digital Masters"

We collected data from the leadership team on 10 attributes each to assess their organizations' "digital Leadership" and "Digital Capability".

Assessment of Digital Capabilities: We asked the leaders/respondents to assess the following ten statements and rate them as per the below:

Strongly agree: 7 points

Disagree: 6 points

Somewhat agree: 5 points

Neutral: 4 points

Somewhat agree: 3 points

Agree: 2 points

Strongly disagree: 1 point

- 1) We are using digital technologies (such as analytics, social media, mobile, and embedded devices) to understand our customers better

- 2) We use digital channels (such as online, social media, and mobile) for marketing our products and services
- 3) We sell our products and services through digital channels
- 4) We use digital channels to provide customer services
- 5) Technology is allowing us to link customer-facing and operational processes in new ways
- 6) Our core processes are automated
- 7) We have an integrated view of key operational and customer information
- 8) We use analytics to make better operational decisions
- 9) We use digital technologies to increase the performance or add value to our existing products and services
- 10) We have launched new business models based on digital technologies

Thus, since we have 10 attributes, the best case scenario is a maximum of 70 points ($10 \times 7 = 70$).

Assessment of Leadership Capabilities: Similar to "Digital Capabilities", we asked the leaders/respondents to assess the following ten statements in the context of their organization and rate them as per the below:

Strongly agree: 7 points

Disagree: 6 points

Somewhat agree: 5 points

Neutral: 4 points

Somewhat agree: 3 points

Agree: 2 points

Strongly disagree: 1 point

- 1) Senior executives have a transformative vision of the digital future of our company
- 2) Senior executives and middle managers share a common vision of digital transformation
- 3) There are possibilities for everyone in the company to take part in the conversation around digital transformation
- 4) The company is promoting the necessary culture changes for digital transformation
- 5) The company is investing in the necessary digital skills
- 6) Digital initiatives are coordinated across silos such as functions or regions
- 7) Roles and responsibilities for governing digital initiatives are clearly defined
- 8) Digital initiatives are assessed through a common set of key performance indicators

- 9) IT and business leaders work together as partners
- 10) The IT unit's performance meets the needs of the company

Here also, since we have 10 attributes, the best case scenario is a maximum of 70 points ($10 \times 7 = 70$).

Status of “Digital Maturity” of MSMEs in Telangana: We have schematically depicted the status of MSMEs in Figure 4.3.2

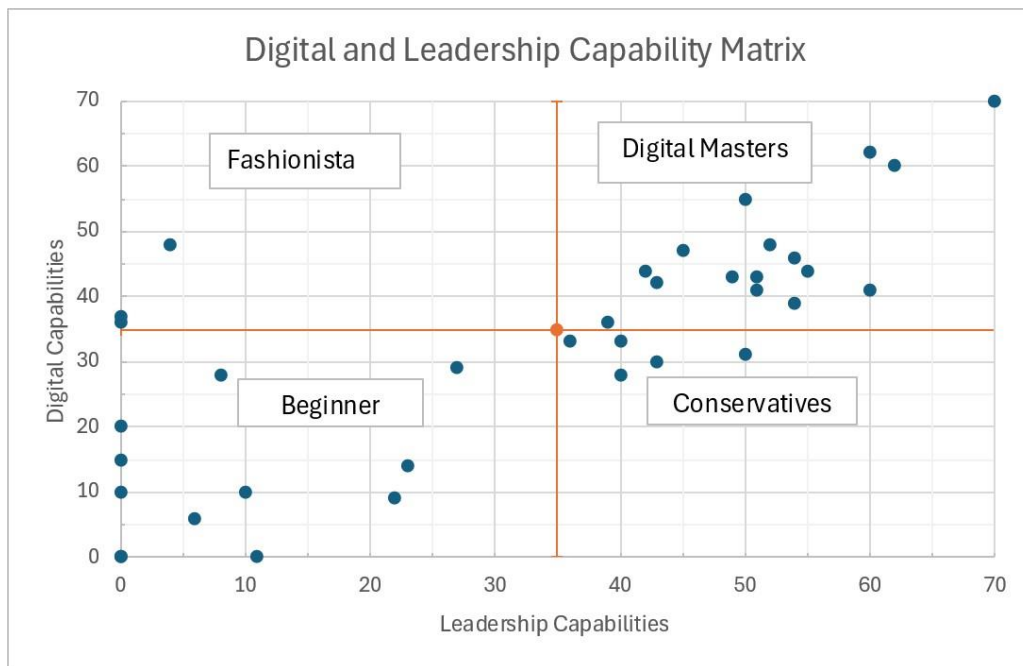


Figure 4.30: Schematic presentation of the concept of "Beginners," "Fashionistas," "Conservatives," and "Digital Masters."

“Digital Maturity” of MSMEs in Telangana: Perception Versus Reality:

Several MSMEs in Telangana qualified for "Digital Master" status. Our general study in India, even in large organizations, indicates that management generally rates their digital footprint and leadership capabilities more based on their aspirations than their ground-level realities. We did not want to rely on respondents' "subjective assessment"; we collected data on 68 attributes related to digital infrastructure and digital footprint. By analyzing these data, we could validate and conclude that none of Telangana's MSMEs qualify for the "Digital Master" status.

Our findings have practical significance since studies have shown that "digital Masters" can positively impact their revenue, profit and marketcap (in the case of listed companies) and derive significant RoI from investment in digital technologies. MSMEs can not afford to make

investments without RoI. Hence, their endeavour should be to have a high rating both on account of "Leadership Capability" (softer aspect) and "Digital Leadership" (digital applications and software).

Key Insights: Digital Footprints

- The digital infrastructure of MSMEs needs massive improvement
- Majority of the MSMEs have only a handful of digitally literate employees
- Only a few MSMEs have deployed basic infrastructure like ERP systems
- Most of the processes in MSMEs are manual
- Most of the digital masters overestimated their digital proficiency
- MSMEs need to enhance their digital footprint
- There is a wide gap between the "subjective" assessment of "Digital Maturity" versus ground-level reality
- MSMEs need to understand the concept of digital maturity and ensure RoI from investment in "digital transformation" projects, positively impacting their revenue and profit. SMEs need to leverage cutting-edge tools for efficiency, innovation, and competitive advantage. MSMEs should also study Government schemes designed for supporting digitalization in MSMEs.
- Top leaders of MSMEs need to appreciate the use of technology and develop a digital mindset (understanding opportunities created by emerging technologies, prioritizing improvement initiatives to derive business benefits, and creating a digital mindset among all employees in the organization). Telangana is a hub for technology startups, and MSMEs must leverage this ecosystem.

4.4 Future of skills and familiarity with emerging technologies

Technology will disrupt the way business is conducted. The future of skills and familiarity with emerging technologies in MSMEs is paramount for their continued relevance and competitiveness in an increasingly digital world. As technology evolves rapidly, MSMEs must invest in upskilling their workforce to adapt to these changes effectively. This includes fostering a culture of continuous learning and innovation within their organizations. By

equipping employees with the necessary skills and knowledge to leverage emerging technologies such as artificial intelligence, blockchain, and the Internet of Things, MSMEs can unlock new opportunities for efficiency gains, product innovation, and market expansion. To understand where the MSMEs stand right on the horizon of future of skills, we have developed a combination of technologies and Likert scale matrix. We have analysed 25 technologies against 5-point Likert scale. Table 4.1 presents the results of the future readiness of MSMEs.

Table 4.1: Future Readiness of the MSMEs

	My team is not aware of	My team is familiar with	My team has moderate knowledge	My team has a high level of competence	My team has applied the technology
Cloud computing	13	9	4	5	0
IoT	12	8	3	4	0
IIoT	19	4	1	2	1
Edge computing	20	3	2	1	0
AI	13	8	3	2	0
Machine Learning	12	8	3	2	0
Big data	17	6	1	1	0
Integration of IT and OT (Operational technology)	15	7	4	0	0
Microgrid technologies	20	5	0	1	0
Smart Grid technologies	20	5	0	1	0
Blockchain	22	2	2	0	0
Conversational tools (Chatbot)	19	4	3	0	0
Cybersecurity	14	8	4	0	0
Advanced analytics	19	3	4	0	0
Robotics	14	6	4	1	1
Virtual reality	16	6	4	0	0
Augmented reality	18	5	3	0	0
Mixed reality	19	4	2	0	0
5G network	6	12	4	4	0
Fintech	17	4	2	1	0

Green technologies	9	9	5	1	0
Quantum computing	19	4	1	0	0
RPA (Robotics Process Automation)	15	4	4	1	0
Digital twin	17	3	4	1	0
3D design	7	9	6	3	2

We observed that several technologies, such as blockchain, are not commonly used in MSMEs, highlighting a gap in adoption despite their prevalence in other industries. Many other emerging technologies, including edge computing, mixed reality, advanced analytics, IIoT, and conversational tools, remain largely uncommon among MSMEs. This indicates a potential missed opportunity for these businesses to leverage cutting-edge tools for efficiency, innovation, and competitive advantage.

However, it is noted that MSMEs have made notable progress in areas such as 5G, green technologies, and cloud computing. While this progress is commendable, it is recognized that it falls short of the current standard of digitalization. To address this gap, MSMEs must dedicate more resources and effort to embracing and integrating these technologies into their operations. This requires a concerted focus on building digital capabilities, fostering a culture of innovation, and investing in training and infrastructure to harness emerging technologies' transformative potential fully.

Top leaders of MSMEs need to appreciate the use of technology and develop a digital mindset (understanding opportunities created by emerging technologies, prioritizing improvement initiatives to derive business benefits, and creating a digital mindset among all employees in the organization). Telangana is a hub for technology startups, and MSMEs must leverage this ecosystem.

INNOVATION CULTURE IN MSMES

5. Innovation Culture in MSMEs

MSMEs face specific distinct challenges because of their very nature. One of the biggest challenges is the stiff competition from two sources: more significant and established players in the market and imports. MSMEs must innovate; either introduce a product or a service to fill the void created by more prominent players or reduce costs and streamline processes to enable them to be on a more level playing field against these players ^[1].

Innovation Strategies for MSMEs: If India's MSMEs need to go to the next level of growth, innovation culture will be vital. We wanted to determine the prevailing practices concerning an innovation culture in the MSMEs. We administered our survey to gather data from MSMEs on some of the following aspects:

- If the company has developed any new product since its inception
- If the company has recently improved the quality of its process/product through innovation
- If the company has filed for any patent
- If MSMEs can collaborate with startups to develop a new business model through innovation to emerge stronger from the Coronavirus outbreak
- What digital strategy can best help MSMEs innovate/disrupt their supply chains?
- How do companies encourage their staff to generate ideas and innovate?
- If companies use any software platform to promote an innovation culture

5.1 New Product Development by MSMEs

MSMEs can significantly contribute to the “Atma Nirbhar Bharat” (self-reliant India) campaign by creating new products and services that align with customers’ changing needs and demands. We wanted to know if MSMEs have developed new products since their inception. In our study, 75% (24) of the MSMEs responded by stating that they have developed new products. Figure 5.1 shows the new product development initiatives at MSMEs.

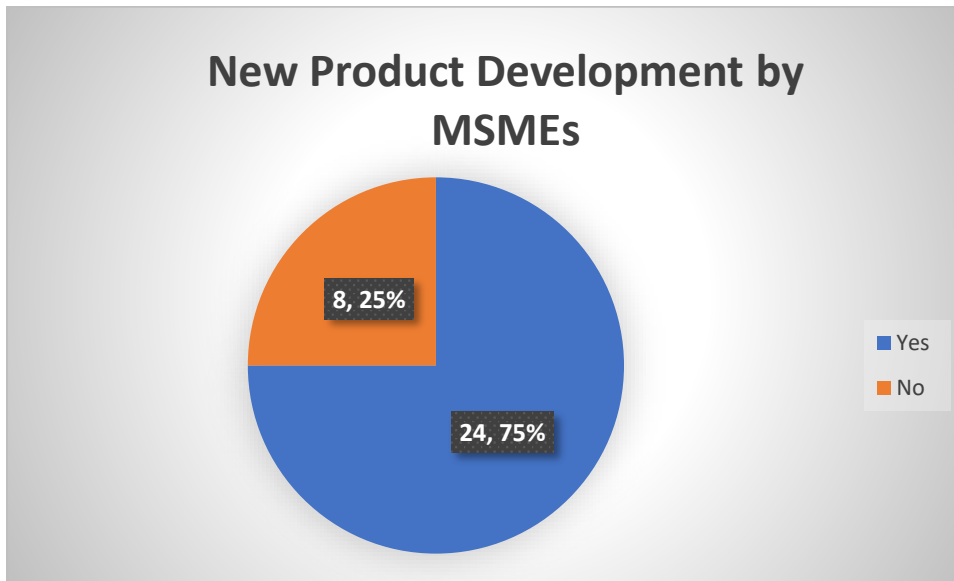


Figure 5.1: New Product Development by MSMEs

5.2 Filing and Acquisition of Patents and Quality Improvement

A measure of innovation in companies is the number of patents filed and acquitted by them. We wanted to understand if companies have filed and acquitted the patents. Nine companies responded to our patent filing question, and eight on acquisition status out of 32. It means that less than 30 % of the companies were able to complete their patents. It is interesting to note that only some of the companies that developed new products were able to file patents. Similarly, it is also observed that the majority (27) of the MSMEs have improved their quality through innovation. It is evident, patenting processes need attention in MSMEs. Figures 5.2, 5.3, and 5.4 show the information on patents and quality improvement status of MSMEs in our study.

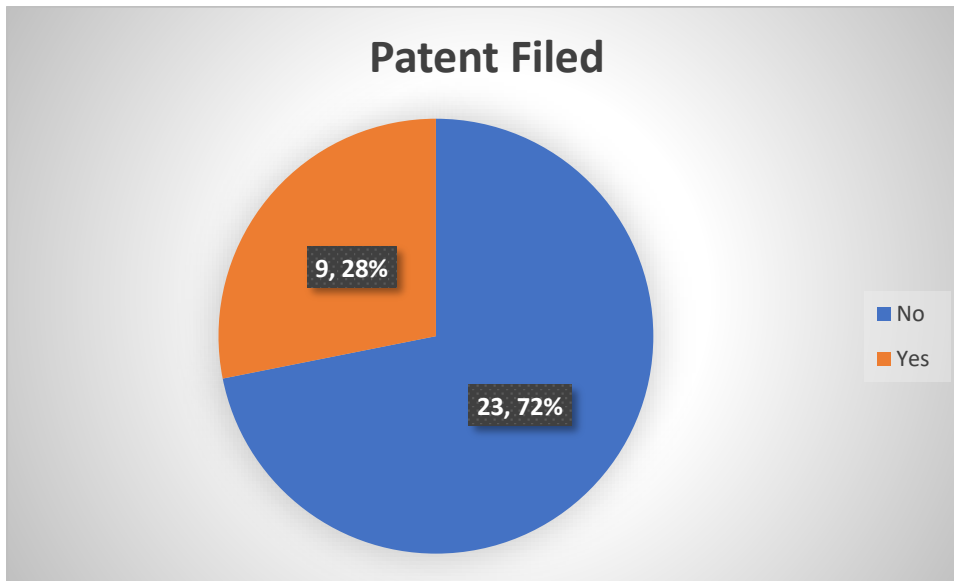


Figure 5.2: Patent Filed by MSMEs

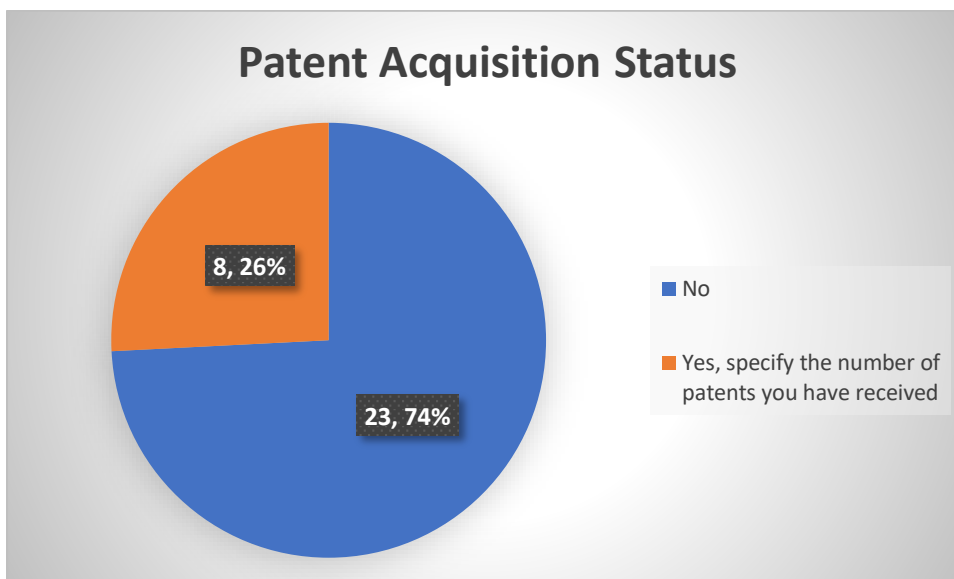


Figure 5.3: Patent Acquisition Status

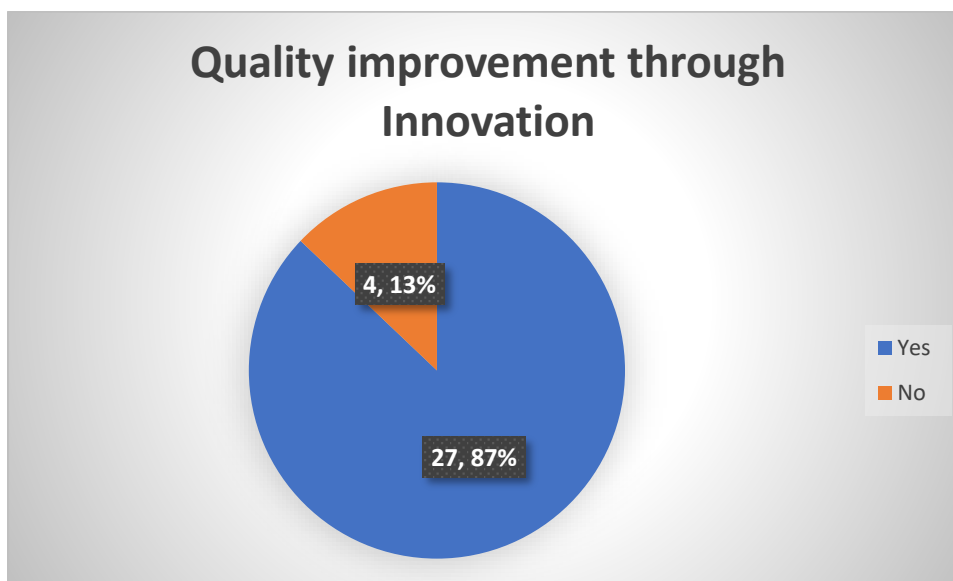


Figure 5.4: Quality improvement through Innovation

It is further noted that the majority of the MSMEs (21) have limited improvements in their processes in a month. This again highlights the need to pay attention to strategies related to innovation. Figure 5.5 presents the same.

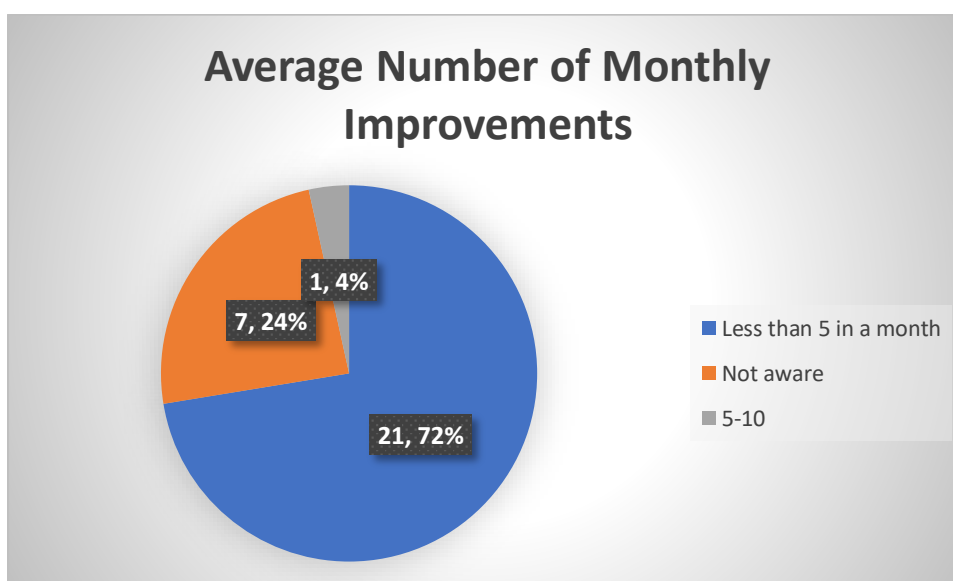


Figure 5.5: Average Number of Monthly Improvements

5.3 Collaboration with Start-Ups

The findings underscore the recognition among a notable portion of MSMEs that innovation extends beyond products and processes to encompass business models. It is noted that 12

out of 32 MSMEs have expressed interest in collaborating with startups to drive innovation in their business models. Collaborating with startups can bring fresh perspectives, technological expertise, and agility to MSMEs, facilitating the exploration of novel business models that are better aligned with changing market dynamics and customer needs. Therefore, different approaches should be put in place to encourage collaboration with startups. Figure 5.6 shows MSMEs status in collaboration with startups to innovate business models.

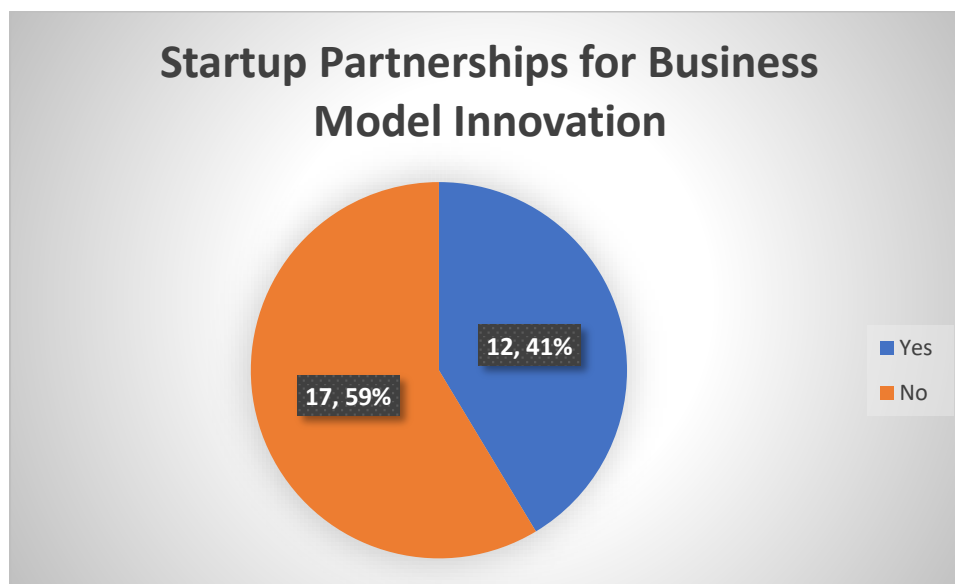


Figure 5.6: Startup Partnerships for Business Model Innovation

5.4 Digital Technology Adoption and AI Tools

We asked the respondents which digital technology can help MSMEs innovate their supply chains, among various options like 3D Design, 3D Printing, Internet of Things (IoT), Artificial Intelligence and Machine Learning (AI/ML), and virtual reality-based design. We observed that the majority of the MSMEs stated that 3D design is the best digital technology to help them innovate their supply chain. The second-best technology reported is the Internet of Things (IoT). This is shown in Figure 5.7.

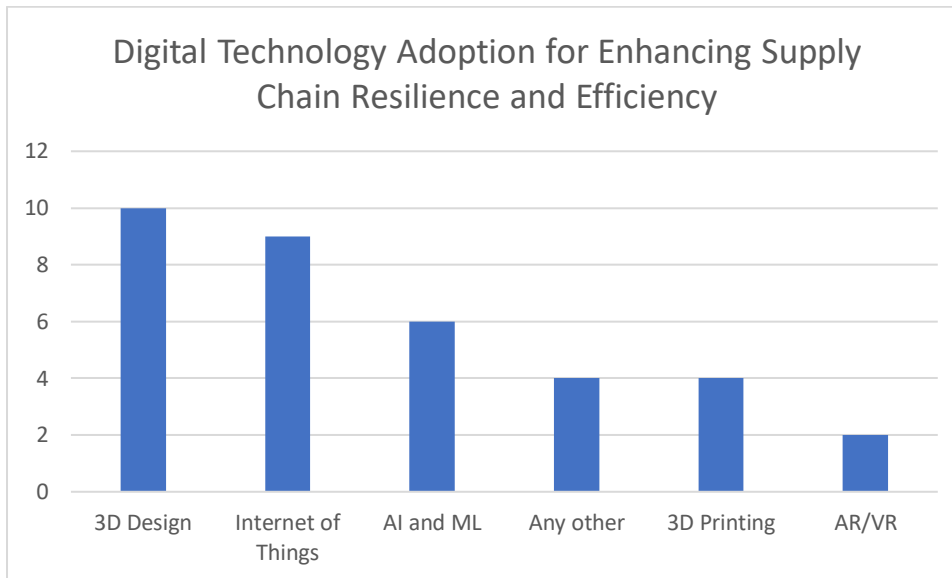


Figure 5.7: Digital Technology Adoption for Enhancing Supply Chain Resilience and Efficiency

Many MSMEs often refrain from utilizing software platforms due to various factors. These may include concerns about initial investment costs, perceived complexities in implementation and integration with existing systems, limited awareness about available software solutions tailored to their specific needs, and a preference for traditional manual processes. We have further validated these statements with our survey findings. A majority (24) of MSMEs do not use any software platform, and a few are unaware of them. Figure 5.8 shows the distribution of software usage by MSMEs.

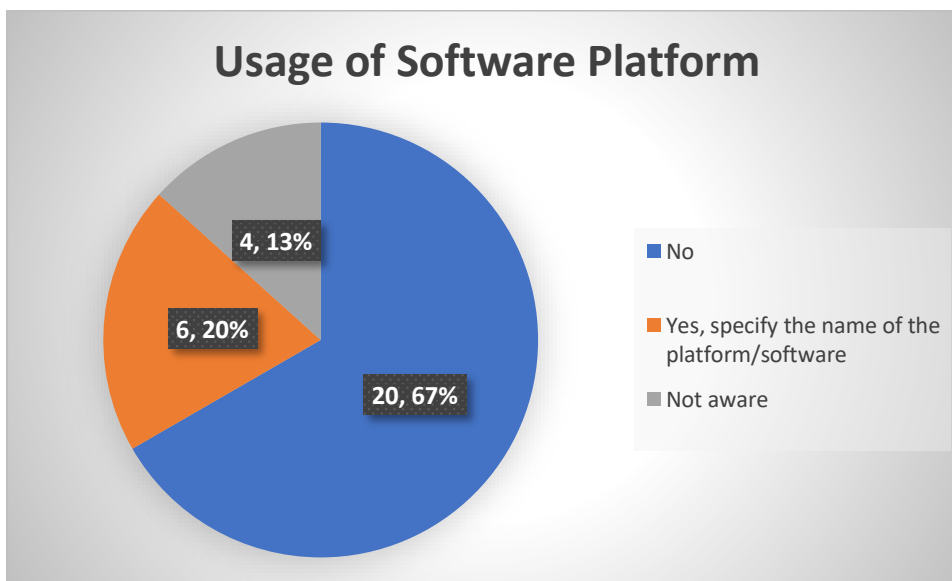


Figure 5.8: Usage of Software Platform

AI platforms like Chatgpt will transform the way business is conducted. For instance, the following areas will extensively leverage the AI platforms:

- Digital marketing
- Content Development: AI will almost eliminate the role of content developer. On the other hand, demand for skill professionals who can validate content will increase.
- Advertisement and media campaign
- Online marketing
- Development of computer programs

Our study at Telangana reveals that only 2 out of 32 extensively use AI platforms like Chatgpt. MSMEs need to leverage AI platforms extensively to enhance their global competitiveness. The tasks generally include language improvement, drafting agreements, and mail correcting. Figure 5.9 shows the status of the adoption of AI platforms in MSMEs.

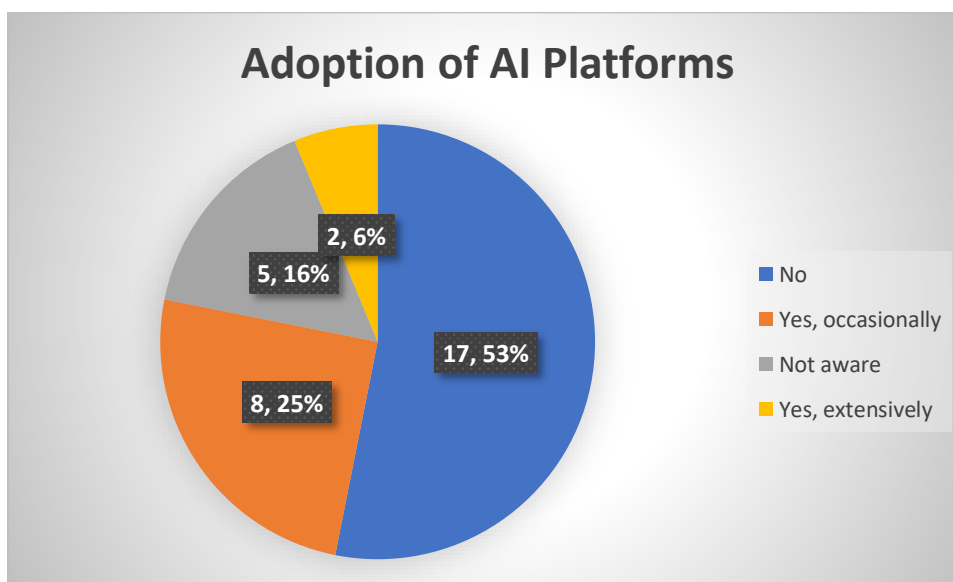


Figure 5.9: Adoption of AI Platforms

5.5 Utilization of Government Infrastructure for Innovation (such as tool room) by MSMEs

In our study, 20 MSMEs denied using any government infrastructure provided for innovation. The reasons for this could be a lack of awareness (which we have discussed in detail in section 8), complex procedures, funding constraints, and perceived mismatches with needs that hinder MSMEs' utilization of government innovation infrastructure. This necessitates improved communication and streamlined support mechanisms for enhanced accessibility

and effectiveness. Figure 5.10 shows the status of utilization of government status by MSMEs.

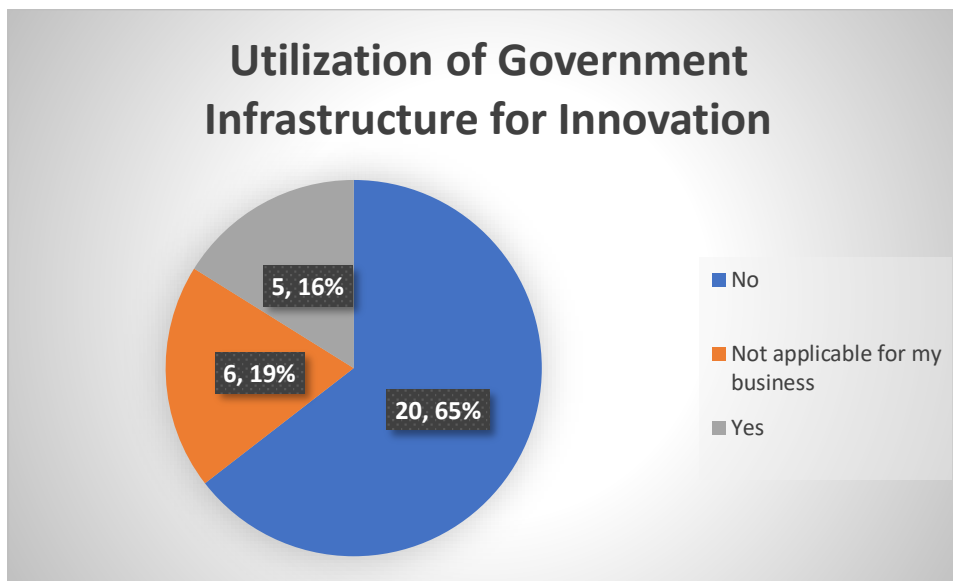


Figure 5.10: Utilization of Government Infrastructure for Innovation

5.6 Impact of COVID on Innovation for MSMEs

The COVID-19 pandemic compelled MSMEs to innovate rapidly in response to unprecedented challenges. With lockdowns and restrictions disrupting traditional business models, MSMEs had to pivot quickly to survive, leading to the adoption of remote work arrangements, digitalization of operations, and implementation of contactless services. We framed questions to understand the impact of COVID-19 on the innovation capabilities of MSMEs. We asked the respondents to specify the status of improvement concerning the following aspects:

- Has COVID-19 forced you to improve your business processes?

- Are your business processes (mode of client engagement, delivery, planning, etc.) more efficient than your pre-pandemic processes?
- Is your current revenue more than the pre-pandemic revenue?
- Is your current profit more than the pre-pandemic profit?
- Is your current cash position better than the pre-pandemic situation?

It was observed that most MSMEs have improved after COVID-19. Figure 5.11 presents the impact of COVID-19 on MSMEs' businesses.

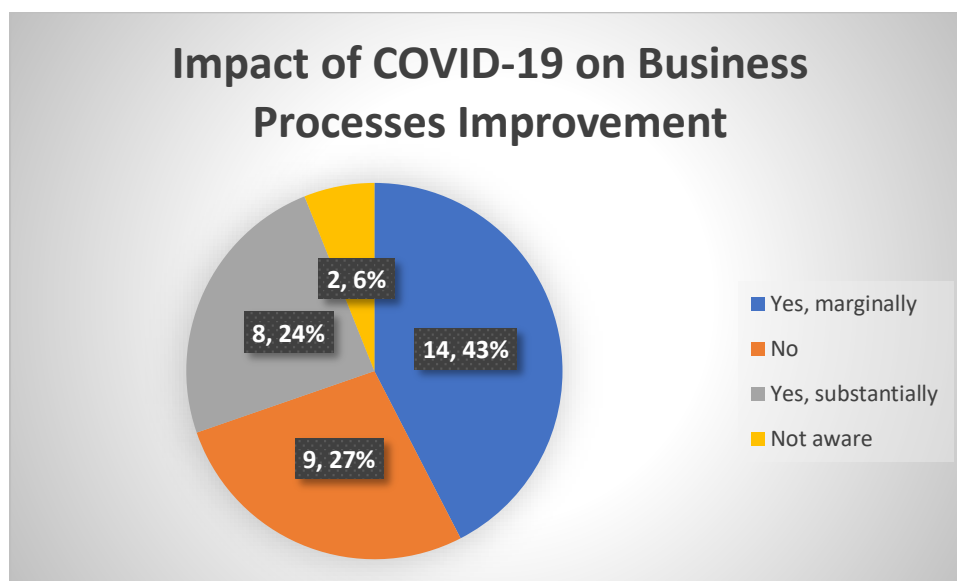


Figure 5.11: Impact of COVID-19 on Business Processes Improvement

It can also be seen that most MSMEs (17) have enhanced their efficiency post pandemic. Figure 5.12 reflects the same.

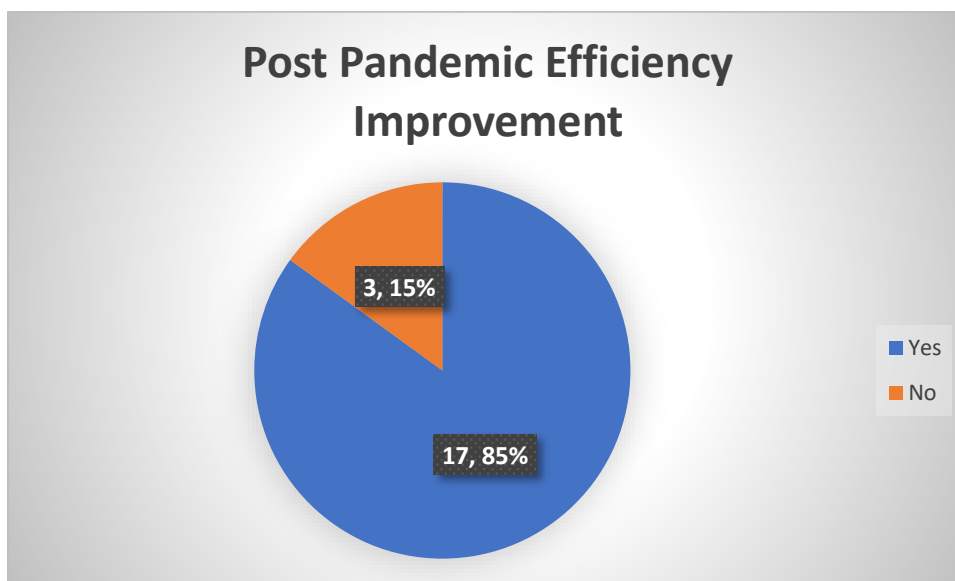


Figure 5.12: Post Pandemic Efficiency Improvement

Not surprisingly, the innovation done to deal with the pandemic reflected in the MSMEs' revenue as well. The majority of the MSMEs' revenue increased post-pandemic. Figure 5.13 is the same.

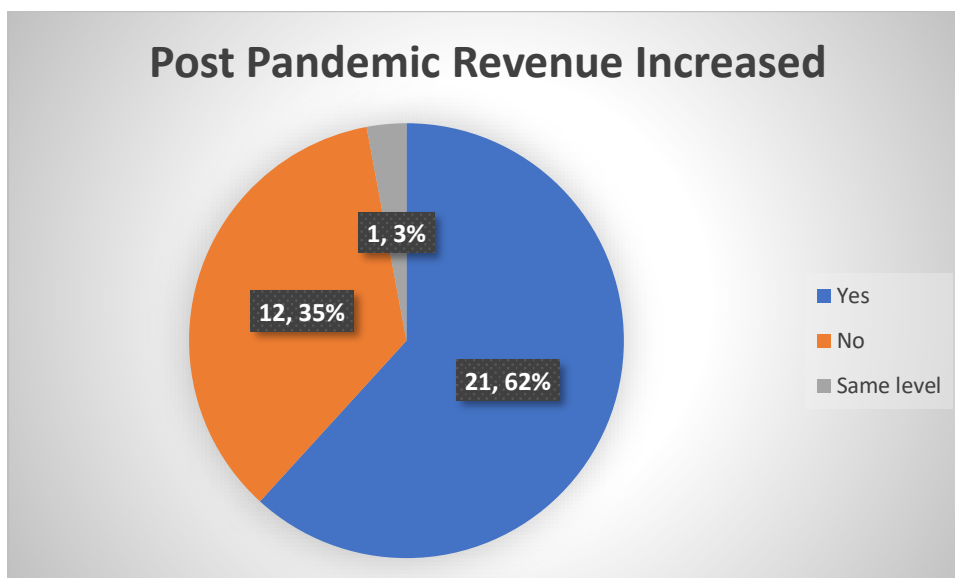


Figure 5.13: Post Pandemic Revenue Increased

In contrast to the above findings, the MSMEs' profit and cash position did not improve. Figures 5.14 and 5.15 present these findings pictorially.

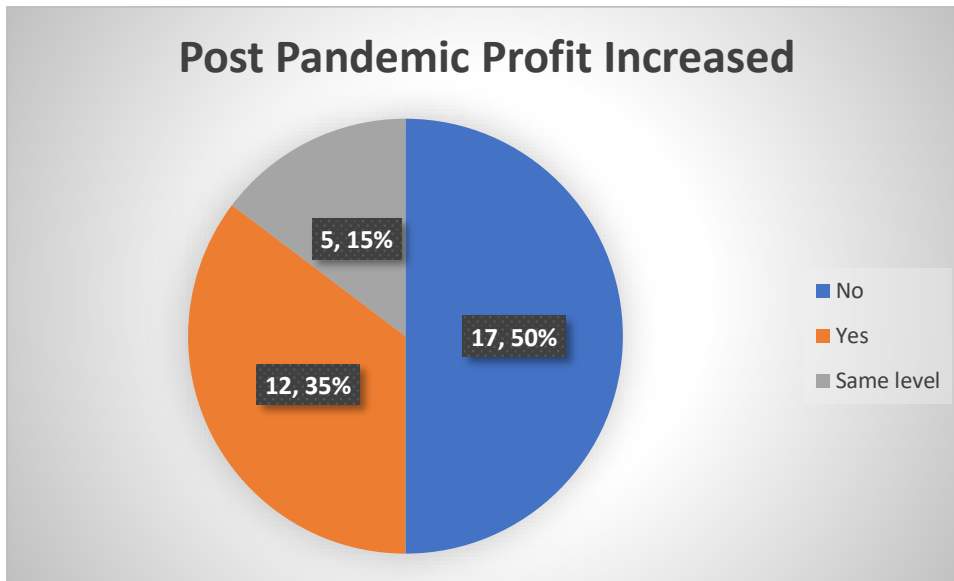


Figure 5.14: Post Pandemic Profit Increased

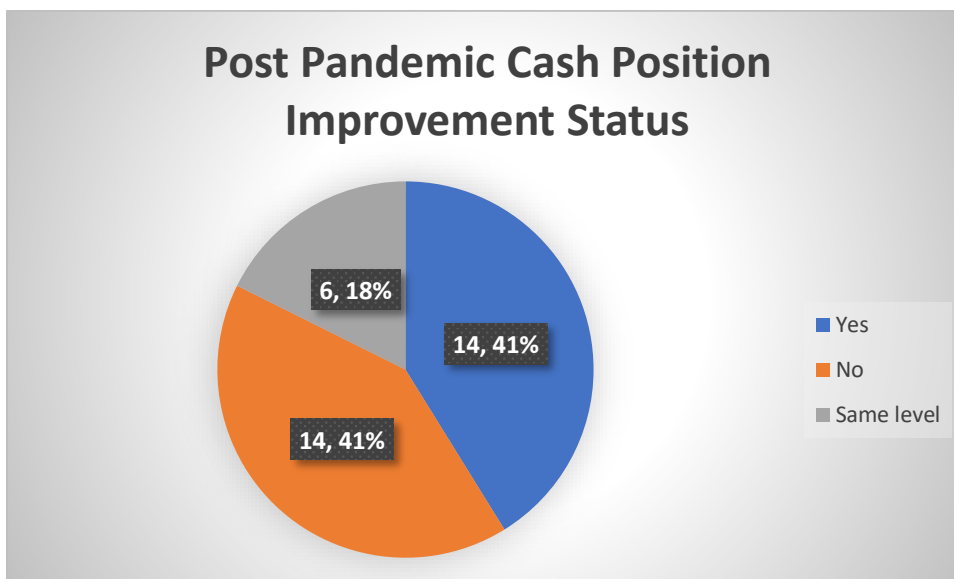


Figure 5.15: Post Pandemic Cash Position Improvement Status

5.7 Encouraging an Innovation Culture

Innovation culture is an important aspect that helps companies to generate new ideas and implement new solutions. To understand how companies encourage their staff to generate ideas and innovate, we provided them with the following options, asking them to select as many as applicable:

- Have a suggestion box
- Reward staff for suggestions
- Get out of your office and talk to staff
- Through creativity/innovation workshops for staff
- Structured brainstorming sessions
- Periodic offsites
- We have no structured measures in place
- Any other, specify (1 of them suggested that it would be not possible to encourage staff)

In response to how companies encourage their staff to generate new ideas and innovate, “Rewarding staff for suggestions” was the most popular answer, with 11 MSMEs responding that way. It is also observed that the same number of MSMEs (11) do not have any structured measures to achieve that. Therefore, it is suggested that MSMEs establish formal innovation processes, provide training, promote open communication, recognize and reward innovation, lead by example, and encourage cross-functional collaboration to foster a culture of innovation within MSMEs. Figure 5.16 shows the measures taken by MSMEs to generate ideas and innovate.

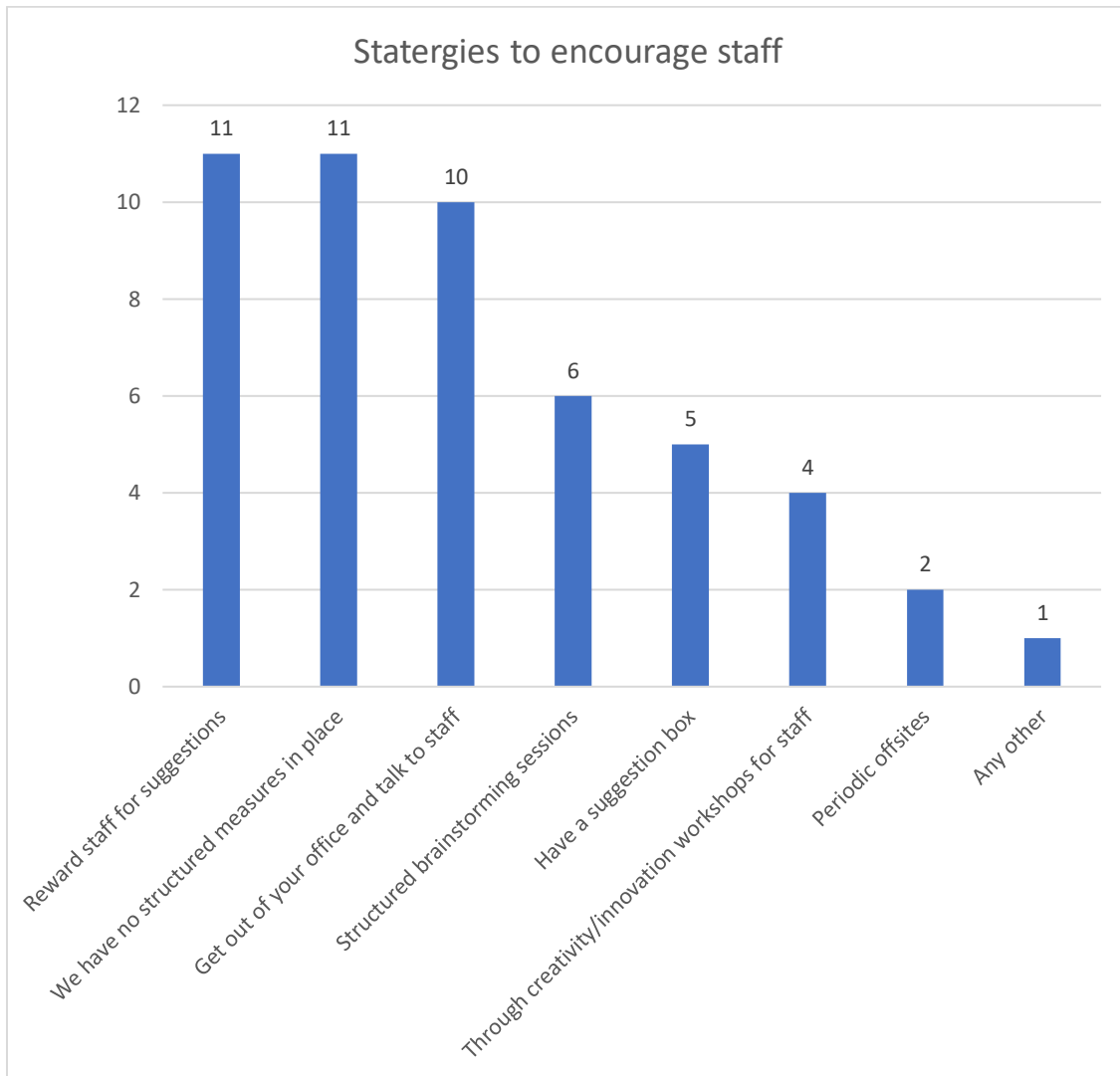


Figure 5.16: Strategies to encourage staff

5.8 Strategies for Business Development

MSMEs in our country have the challenge of scaling up. Understanding the kind of support MSMEs need to scale up is essential. We gave a list of areas for management intervention where MSMEs may need help and asked them to select as many as applicable:

- Access to the export market
- Brand development
- Business strategy development
- Enhancing quality and standards
- Financial management
- Human capital development
- Intellectual property development
- Loan at an affordable interest rate for expansion
- Product innovation
- Process innovation
- Productivity improvement
- Service Excellence
- Support for enabling eCommerce
- Technology innovation

According to the survey results from MSMEs, the top three strategies identified for success are: 1) Business strategy development, emphasizing the importance of strategic planning and market positioning; 2) Technology innovation, highlighting the significance of leveraging technological advancements for competitiveness and growth; and 3) Human capital development, underscoring the value of investing in employee skills, training, and talent management to drive organizational success and adaptability in dynamic business environments. Figure 5.17 presents the strategies essential for business development.

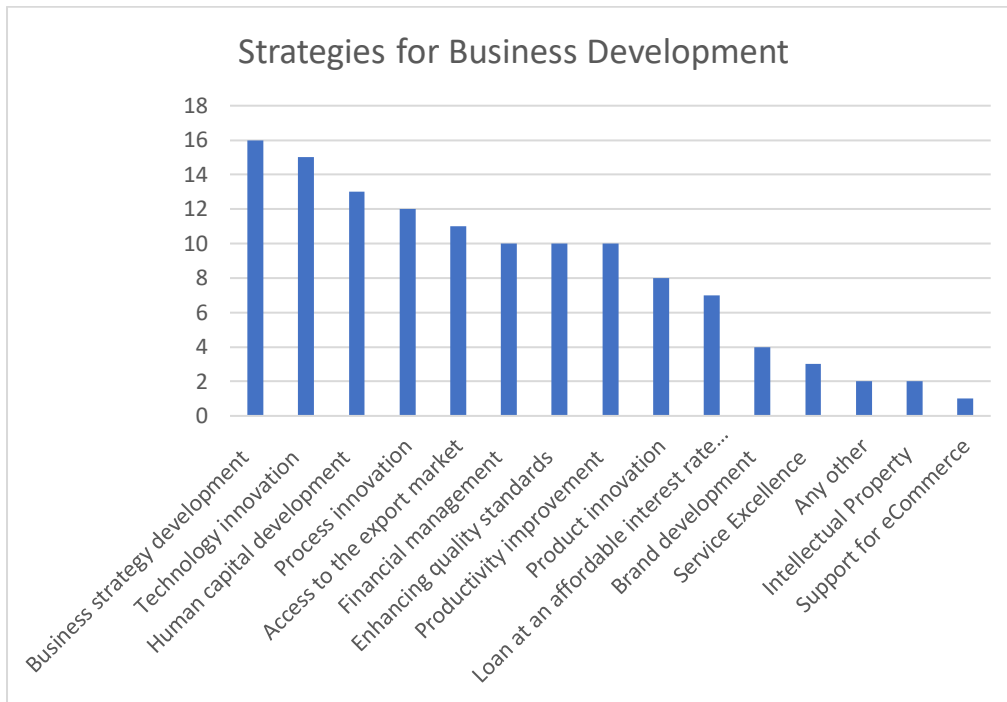


Figure 5.17: Strategies for Business Development

Key Insights: Innovation Culture in MSMEs

- MSMEs new product development culture will be extremely important for India's 'Atma-Nirbhar Bharat' campaign.
- Though new products and services are being developed however very few patents are filed and acquitted.
- MSMEs should collaborate with startup ecosystem to accelerate their innovation initiative and develop new business models.
- Though the efficiency and revenue have increased for most of the MSMEs, the profit and cash position status declined post pandemic.

SUSTAINABILITY STATUS OF MSMES

6. Sustainability Status of MSMEs

6.1 Emphasis on Sustainability in MSME of India

By the end of the fiscal year 2023 last March, India was estimated to have 75 million micro, small, and medium enterprises. The sector has contributed approximately 30% to the country's GDP, comprising 43.6% of merchandise exports and accounting for close to 110 million jobs.

MSMEs play a significant role in booming trade and commerce across various sectors in India and are energy-intensive industries. The manufacturing sector has many polluting activities and negative environmental impacts despite their insignificant individual environmental footprints ^[2]. The collective energy use of MSMEs in India amounts to 50 million tonnes of oil equivalent (Mtoe) annually ^[1]. It has become imperative to monitor energy consumption to reduce greenhouse gas emissions. Programs like “Zero Defect Zero Effect” (ZED) are being encouraged to promote sustainable manufacturing. With the potential to reduce wastage, increase productivity, and optimize the use of resources, ZED certification in the MSME Champion scheme aims to promote the competitiveness of an MSME through assessment, handholding, and managerial and technological intervention ^[3]. Business Responsibility and Sustainability Reporting by enterprises becomes crucial to fostering business relations aligned with global ESG practices ^[4].

6.2 Changes in Global Sustainability Compliance and Implications on India

To ensure responsible reporting, the European Union recently changed its reporting mandates for enterprises that qualify their criteria. The previous Non-Financial Reporting Directive, NFRD, has been proposed to be replaced by CSRD (Corporate Sustainability Reporting Directive), that are expected to affect 50,000 entities currently required to report on environmental, sustainable, and governance (ESG) activities under NFRD ^[7]. The criteria

that may affect the MSMEs in India exporting to EU-based companies with the following characteristics ^[10].

- a) EU-based large undertakings, regardless of listed status.
- b) A large undertaking has two of the three following characteristics on consecutive balance sheet dates:
 - i. An annual net turnover exceeding €50 million (INR 450 Crores)
 - ii. A balance sheet (assets) exceeding €25 million (INR 225 Crores)
 - iii. At least 250 employees on average throughout the year

With the expansion of sustainable reporting frameworks, small and medium-sized enterprises (MSMEs) may face new requirements for disclosing non-financial information. The European Green Deal, which encompasses a set of regulations and principles designed to transition towards a more modern, resource-efficient, and competitive economy, promotes the development of green investment markets and fosters increased public accountability ^[6] ^[9].

The Corporate Sustainability and Responsibility Directive (CSRD) will mandate companies to provide evidence for their initial emissions levels and their objectives for reducing emissions. The CSRD mandates a “double materiality” check considering both the impact and financial materiality within its general disclosures. Until they transition entirely to the CSRD mandate, companies will need to compute their Scope 1, 2, and 3 emissions and make projections outlining their strategies for emission reduction ^[6].

6.3 Definitions of Scope 1, 2, and 3 Emissions

Scope 1 emissions pertain to the direct greenhouse gas (GHG) emissions produced by a company, such as those emanating from its operational activities like running boilers and vehicles ^[8].

Scope 2 emissions, on the other hand, encompass the indirect emissions generated by the company, such as those stemming from the production of electricity or energy purchased for heating and cooling buildings ^[8].

Scope 3 emissions, which pose a greater challenge, include all emissions associated not with the company's direct operations but with its broader value chain. This includes emissions linked to purchasing products from suppliers and emissions generated by customers' use of the company's products. Scope 3 emissions are pivotal to the end product

(or service), but they are not under the direct control of the producer, contrary to scope 1 and 2 emissions. Scope 3 emissions typically represent a significant portion of a company's overall emissions profile [8].

The upstream and downstream emissions are further divided into 15 categories to comprehensively cover the global supply chain's emissions. Scope 1 and 2 emissions for Indian MSMEs supplying to businesses in the EU will be contributors to the Scope 3 emissions of the EU clients. This creates an added responsibility on the MSMEs for education regarding carbon footprint and getting ZED certifications for creating strong business collaborations with businesses that aim to reduce their scope 3 emissions in upstream and downstream operations.

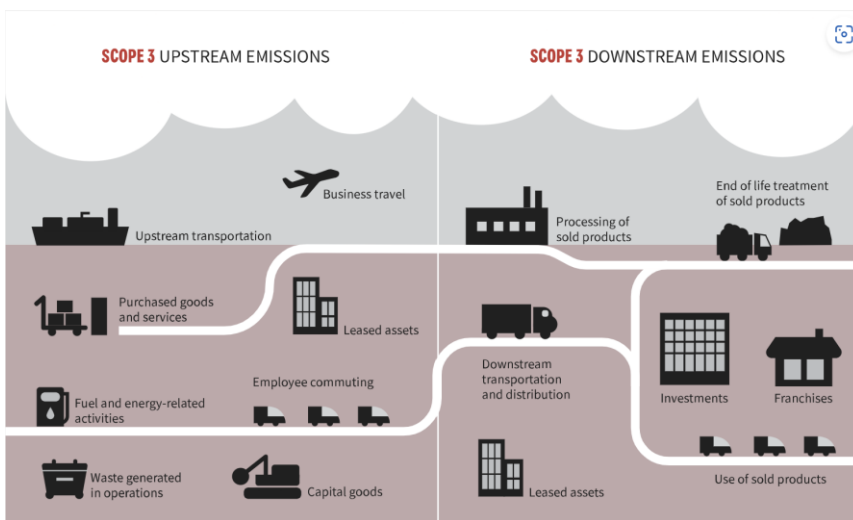


Figure 6.1: Fifteen Categories of Scope 3 Emissions

Source: [How To Comply With EU's CSRD Carbon Accounting Rules \(oliverwyman.com\)](https://www.oliverwyman.com/insights/articlespublications/how-to-comply-with-eu-csrd-carbon-accounting-rules/)

Retrieved: 26th February, 2024.

The government's emphasis on the increase in MSME contribution to the export from India from 48% to 60% will require these MSMEs to meet the CSRD requirements for enterprises with businesses in the EU.

6.4 Impact of Sustainability Requirements on Telangana

As of 31st January 2024, Telangana has 787,381 MSMEs registered on the Udyam MSME Registration Portal in India, while there are 22,802,334 MSMEs registered nationally. Telangana ranks 11th in all the states and union territories based on the country's total

number of registered MSMEs. 96.7% of those registered in Telangana are micro-scaled, 2.9% are small, and 0.3% are medium-scaled enterprises. The government of Telangana has an ambitious goal to enhance the MSME's contribution to exports. They must ensure that Scope 1 and Scope 2 emissions by MSMEs are sufficiently low to promote business with large Indian and overseas companies. The Scope 1 and Scope 2 emissions will become Scope 3 emissions for their customers.

Table 6.1: State-wise Number of Micro, Small and Medium Enterprises (MSMEs) Registered on Udyam Registration Portal in India.

State-wise Number of Micro, Small and Medium Enterprises (MSMEs) Registered on Udyam Registration (UR) Portal in India (As of 31.01.2024)				
States/UTs	India	% of Total	Telangana	% of Total
Medium	54,963	0.2%	2,596	0.3%
Small	598,123	2.6%	23,061	2.9%
Micro	22,149,248	97.1%	761,724	96.7%
Total	22,802,334	100.0%	787,381	100.0%

Source: [State Wise Udyam Registration \(msme.gov.in\)](https://msme.gov.in) Retrieved: 31st January, 2024.

To further encourage ZED certification for MSMEs to manage their Scope 1 and 2 emissions, the Ministry of MSME, financial institutions, and the states in India offer many incentives. Telangana has offered discount schemes in freight rates for parcels in the zonal railways ^[5].

The broader aspects of sustainability in businesses cover multiple dimensions. MSMEs can leverage these concepts to invest in practices that help them achieve a reduction in carbon footprint within the expected timelines. Achieving the Gold Standard certification shows commitment to environmental sustainability and endorsement of ethical business practices, providing MSMEs with a competitive edge in the evolving carbon landscape.

6.5 Three Dimensions of Sustainability

Sustainability can be practiced on three dimensions, social, environmental, and economic, focusing on people, planet, and profit.

First, social sustainability involves the identification and management of business impacts on people, encompassing both positive and negative aspects. Organizations aiming for

social sustainability recognize the importance of contributing to the well-being of communities, employees, and society at large. Positive impacts may include creating job opportunities, fostering diversity and inclusion, and supporting local development initiatives.

Second, environmental sustainability is characterized by responsible interaction with the environment to prevent the depletion or degradation of natural resources, ensuring long-term environmental quality. Several factors are crucial for achieving environmental sustainability. These could be resource conservation, energy efficiency, biodiversity, and water conservation.

Third, economic sustainability entails adopting practices that foster the long-term economic development of a company while simultaneously managing its environmental, social, and cultural impacts. Several factors are crucial for achieving economic sustainability within an organization. A few are financial stability and resilience, ethical business practices, long-term investments, and responsible supply chain management.

6.6 Insights from Telangana

The Indian School of Business conducted a survey in collaboration with CII (Confederation of Indian Industries) among the MSMEs representatives in Telangana. This section consists of the 38 questions from the sustainability block in the survey. 37 complete responses were analyzed for 35 questions related to policies and decisions impacting the sustainability matrix of the MSMEs.

6.6.1 Social Sustainability

Social sustainability is about identifying and managing business impacts, both positive and negative, on people. Based on the survey responses, 28 of 33 answered “Fair treatment of workers including fair wages and safe working conditions,” making it the highest in terms of the number of responses from industry leaders like founders, MDs, and chairmen. Their second preference is “Compliance with labor laws and regulations,” with 21 out of 33 responses, followed by “Ethical business practices and a commitment to reducing environmental impact,” with 16 responses. Four respondents did not answer this question. It, thus, becomes crucial for MSMEs to comply with new regulations in a changing policy landscape.



Figure 6.2 Survey response to the question on factors affecting social sustainability

6.6.2 Environmental Sustainability

Environmental sustainability is defined as responsible interaction with the environment to avoid depletion or degradation of natural resources and allow for long-term environmental quality. A total of 21 out of 30 respondents chose “Adoption of energy-efficient technologies and practices such as LED lighting and energy-efficient appliances” as their initiatives to enable environmental sustainability in their enterprises. The second highest response was “Compliance with environmental regulations and laws,” with 19 responses. “Implementing a waste management program to reduce and recycle waste” is third in order.

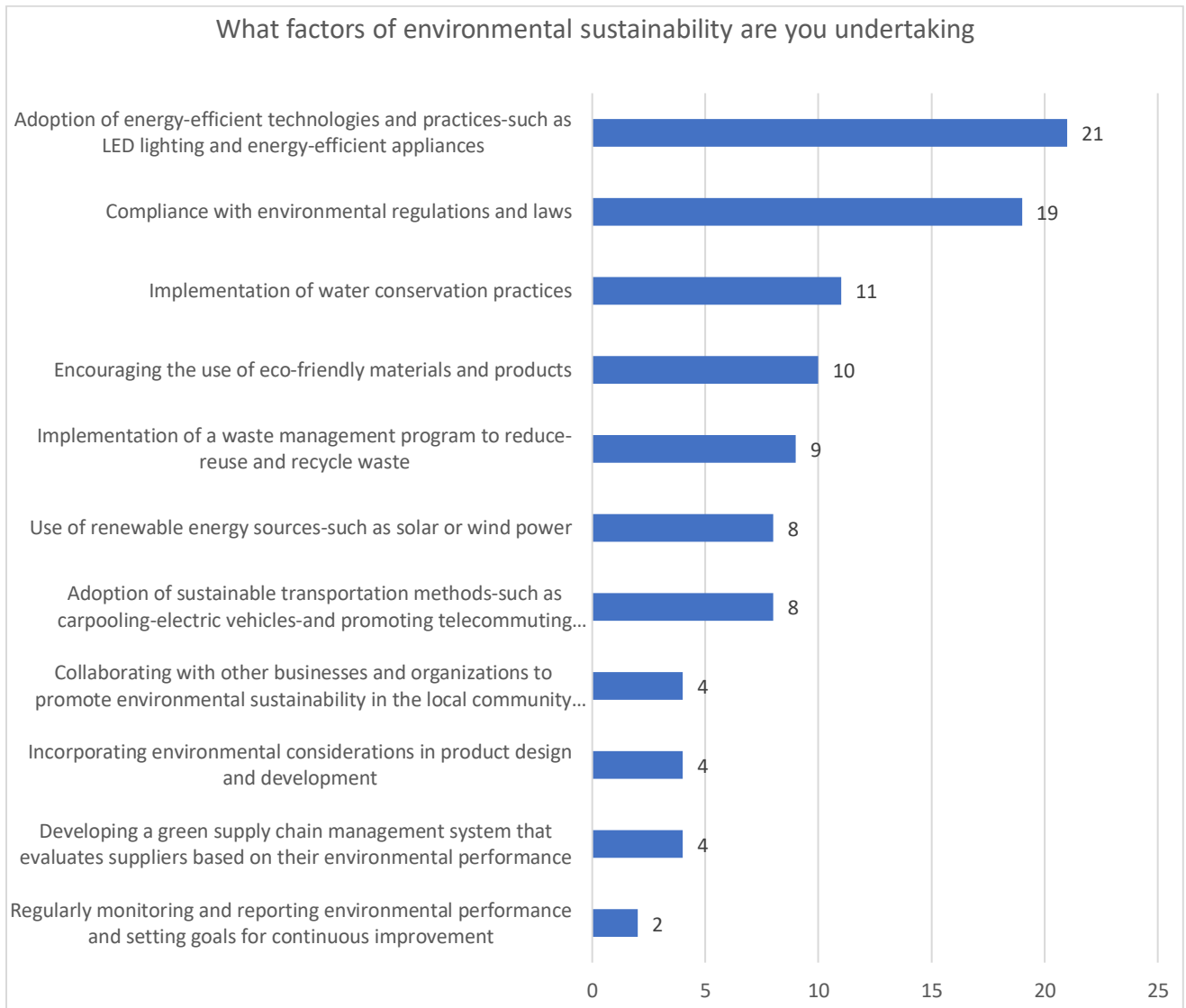


Figure 6.3 Survey response to the question on factors affecting environmental sustainability.

6.6.3 Economic Sustainability

Economic sustainability refers to practices designed to create the long-term economic development of a company or nation while also managing the environmental-social-and cultural aspects of its activities.

The respondents in the survey answered to the factors that are being practiced in their enterprises that help in establishing economic sustainability. The highest responses were received for “Continuously looking for opportunities to improve efficiencies and reduce cost” has 18 responses. The second in order is “Building a strong customer base through excellent customer service and building strong relationships with suppliers,” which got 15 responses. “Continuously researching and developing new products or services to stay competitive in

the market” got 12 out of 29 checks, making it third in the order. However, “investing in marketing to increase brand awareness and attract new customers” and “Managing risks by implementing risk management strategies and diversifying investments” received the least number of responses at 3.

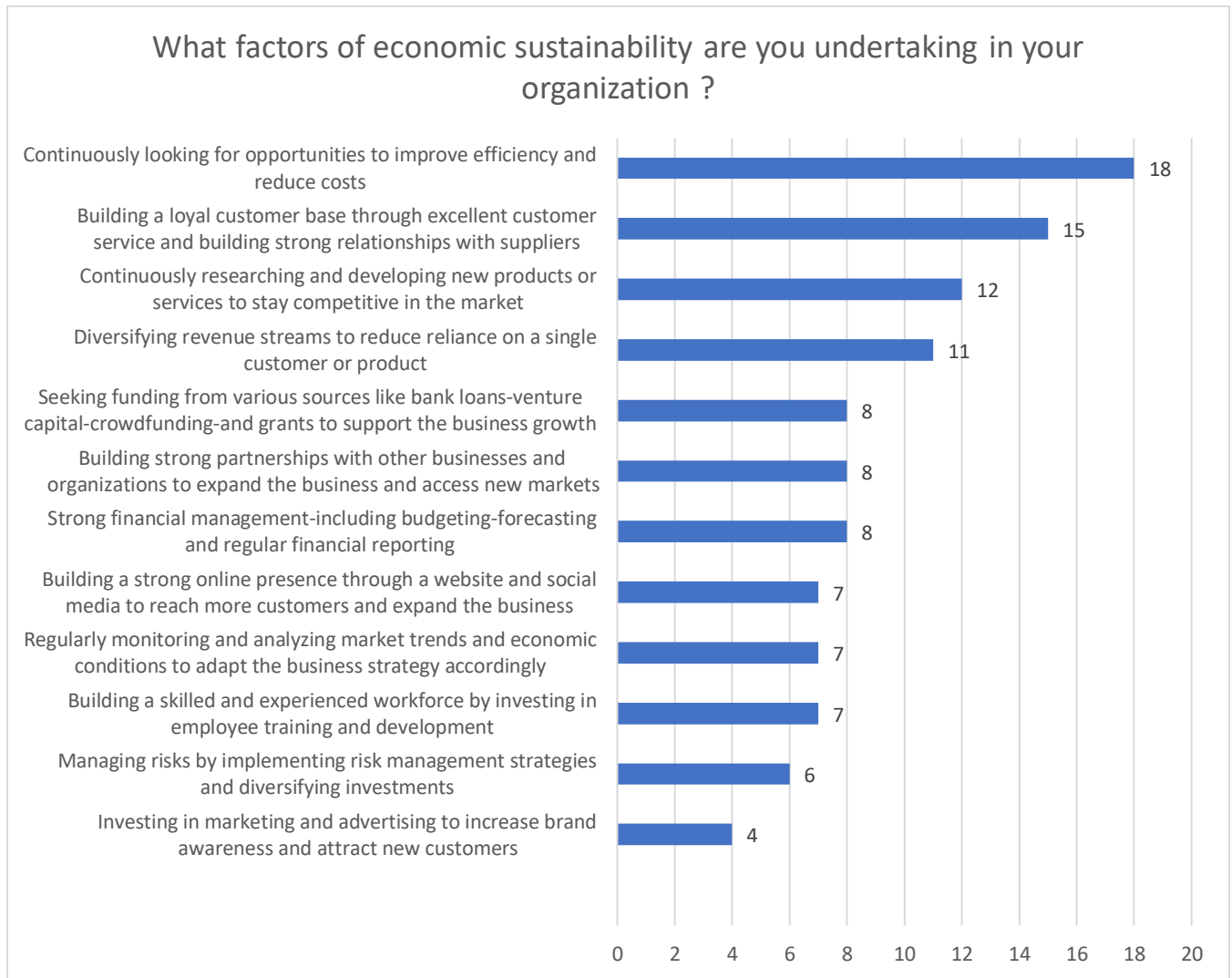


Figure 6.4 Survey response to the question on factors affecting economic sustainability

6.6.4 Material Yield

The material yield is defined as the following:

Overall material yield = (Total weight of all end products (without packaging) (Kgs or tons))/(Total weight of all raw materials (Kgs or Tons))

The responses in the survey showed that 12 out of 28 respondents are not aware of the material yield in their enterprise. 4 mentioned it to be in the range of 5:1 and 10:1, and the

other 4 mentioned it to be exactly 5:1, i.e., that the weight of the raw material is five times more than the final product. 10 did not answer this question.

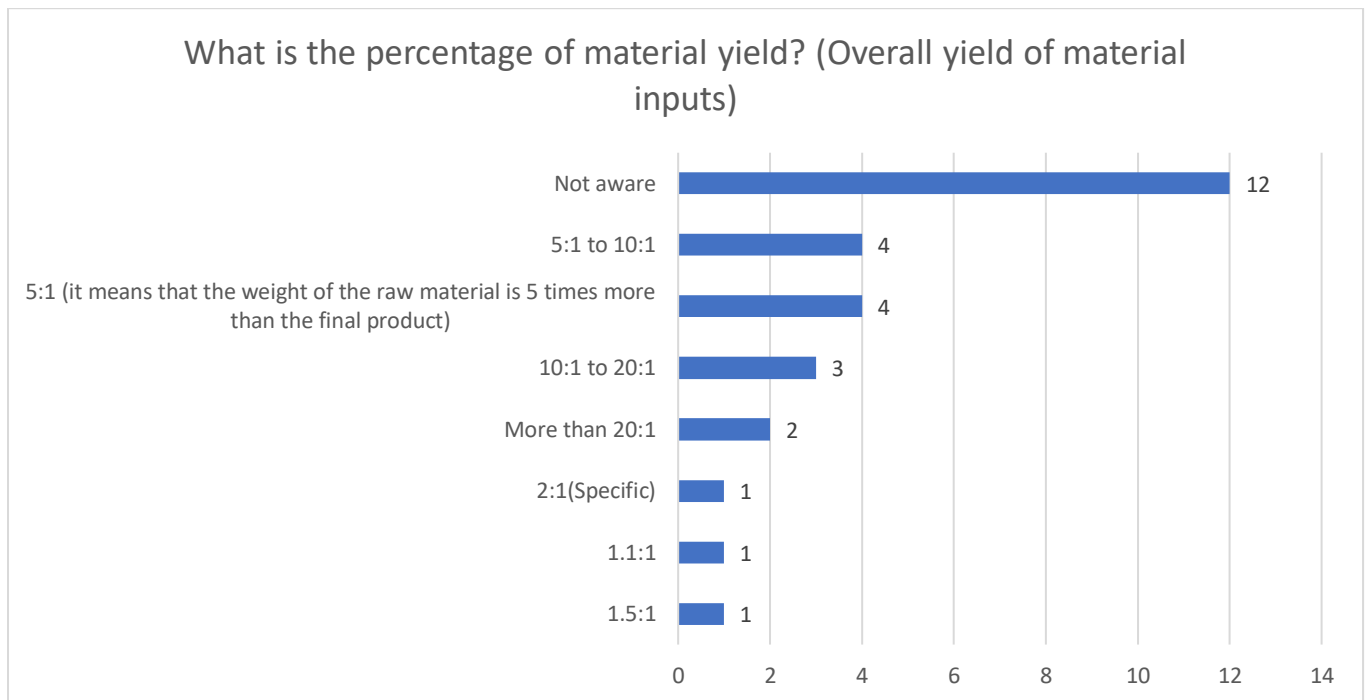


Figure 6.5 Survey response to the question on material yield ratios in the enterprise

6.6.5 Material Scrap

The overall scrap recovered, recycled or upcycled is defined as the following:

Overall scrap recovered, recycled, or upcycled = (Total weight of all scrap recycled (Kgs or Tons))/(Total weight of scrap (Kgs or Tons))

Seven respondents mentioned that 100% of their scrap is getting recycled or reused, or upcycled, which highlights the success of some enterprises in adopting circular models. While six mention that less than 25% is getting recycled, the other seven responses are also “Not aware” of the respondents, signifying a growing need for the senior leadership to look into the amount of scrap being reutilized in their businesses' circular economy.

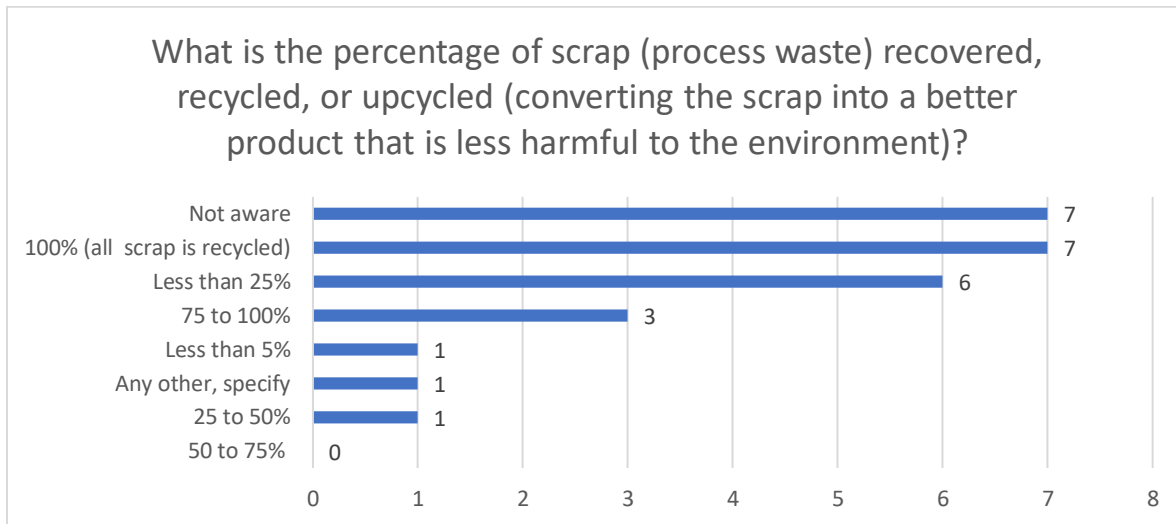


Figure 6.6 Survey response to the question on the percentage of scrap reused and recycled in the enterprise

6.6.6 Non-Renewable Materials in All Products

Non-renewable materials are metals extracted from mines, processed and supplied to manufacturing companies. The calculation for the percentage by weight of non-renewable materials is given below:

Percentage by weight of non-renewable materials in all products (Total weight of all non-renewable materials in all products (Kgs or tons))/(Total weight of all products (Kgs or Tons))

The majority of the respondents, 19 of 28, in the survey, answered “Not Aware” of the % of non-renewable materials in all products. However, there was a low number of respondents in each category, “Less than 25%” and “100%,” showing a relatively lower number of people aware of the amounts of metals that are being used in their products.

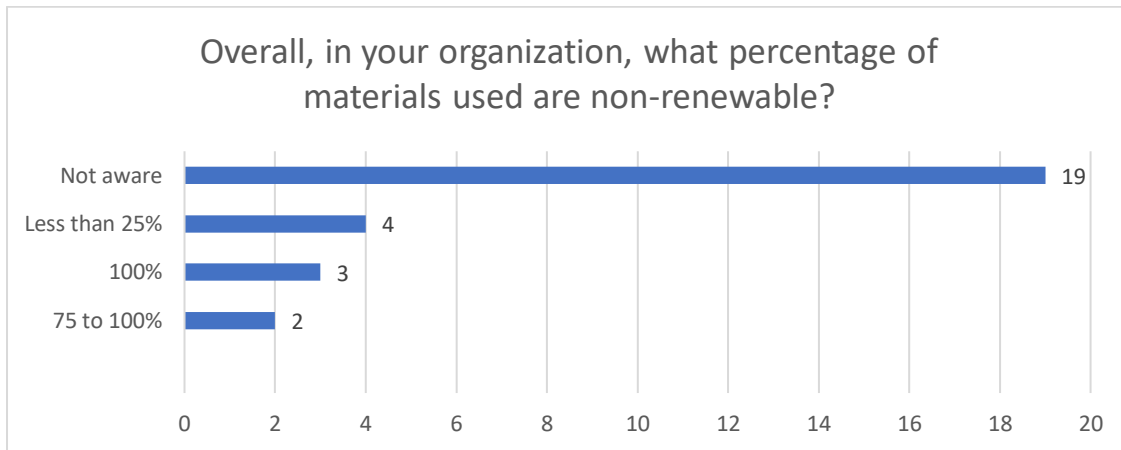


Figure 6.7 Survey response to the question on the percentage of non-renewable materials in their products in the enterprise

6.6.7 Biodegradable Materials

Biodegradable materials get decomposed by bacteria and other organisms in the environment. The respondents were asked to answer what percentage of the materials by weight used in their organization were biodegradable.

With 29 responses, 16 said that they were “Not Aware,” while nine said “Less than 25%”.

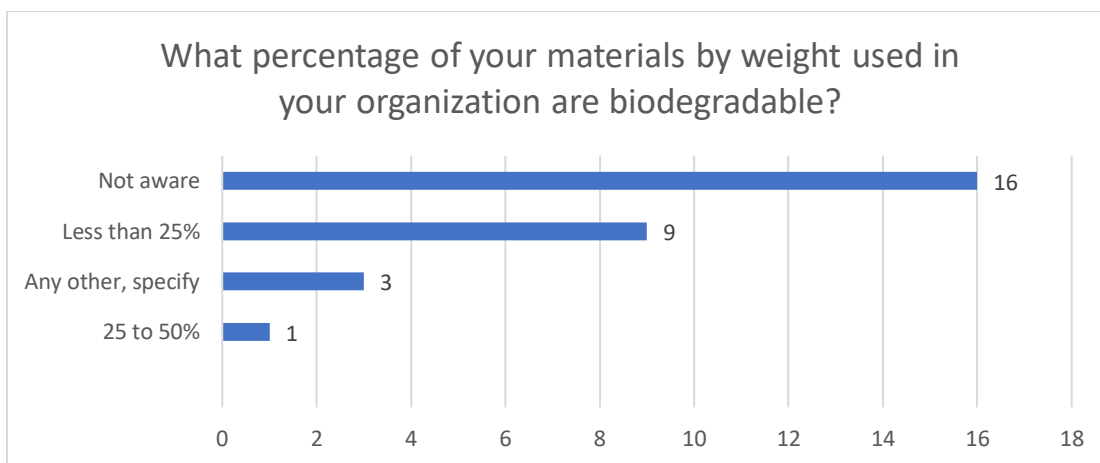


Figure 6.8 Survey response to the question on the percentage of biodegradable materials in their products in the enterprise

6.6.8 Weights of Recycled, Reconditioned or Reused Materials in All products

The weight of materials recycled, reconditioned, reused are defined as the below calculation:
 Percentage by weight of recycled, reconditioned, reused components or materials in all products = (Total weight of all recycled, reconditioned, reused components or materials (Kgs or Tons))/(Total weight of all products (Kgs or Tons))

Most of the respondents, 18 out of 35, said they were “Not Aware.” While five said that it is below 25%, and one said it cannot be recycled.

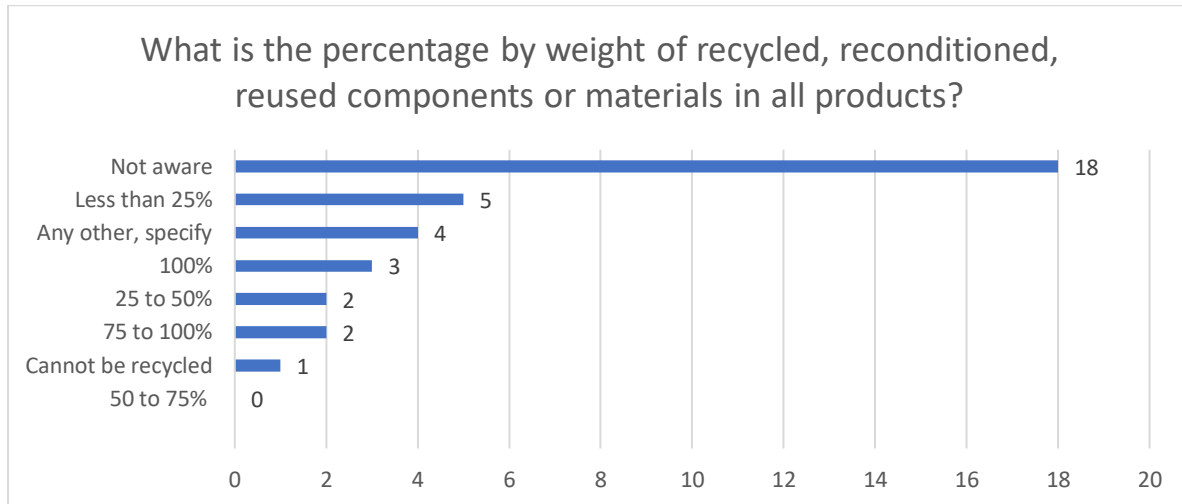


Figure 6.9 Survey response to the question on the percentage of recycled, reconditioned, and reused materials in their products in the enterprise

6.6.9 Safe Disposal of Hazardous and Toxic Waste

The respondents were asked if they have a robust system to dispose of any hazardous and toxic waste safely without damaging the environment.

A majority of respondents (15 of 33) responded positively while 13 said No. This shows a mixed state of hazardous waste disposal in Telangana MSMEs, which requires urgent action.

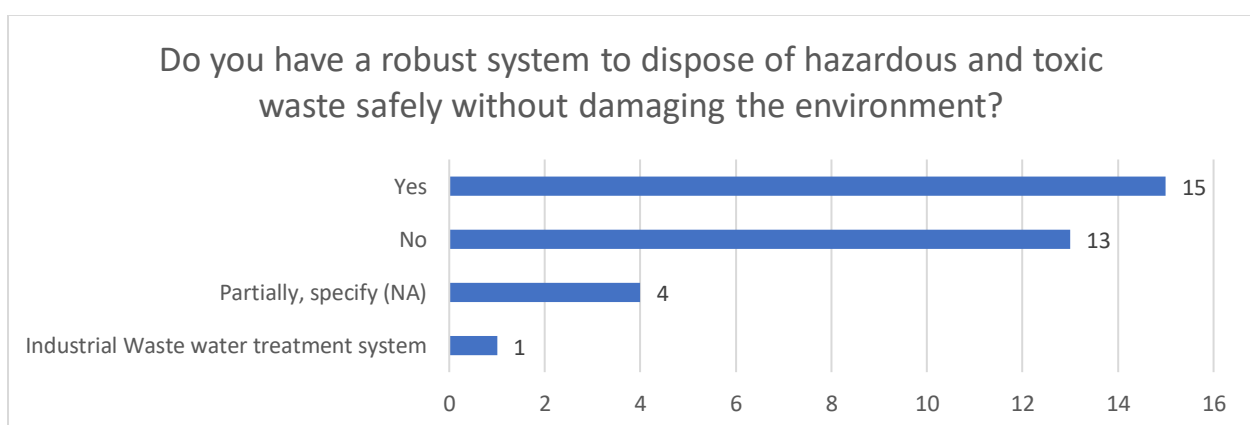


Figure 6.10 Survey response to the question on a robust system of hazardous/toxic waste disposal

6.6.10 Robust Reverse Logistics

The respondents were asked if they have a robust reverse logistics to collect used products at the end-of-life on the line of circular economy.

Most respondents 22 out of 31, said that they do not have such models in place while on a positive note eight said yes. This is significant as eight have shown to have established logistics to collect used products.

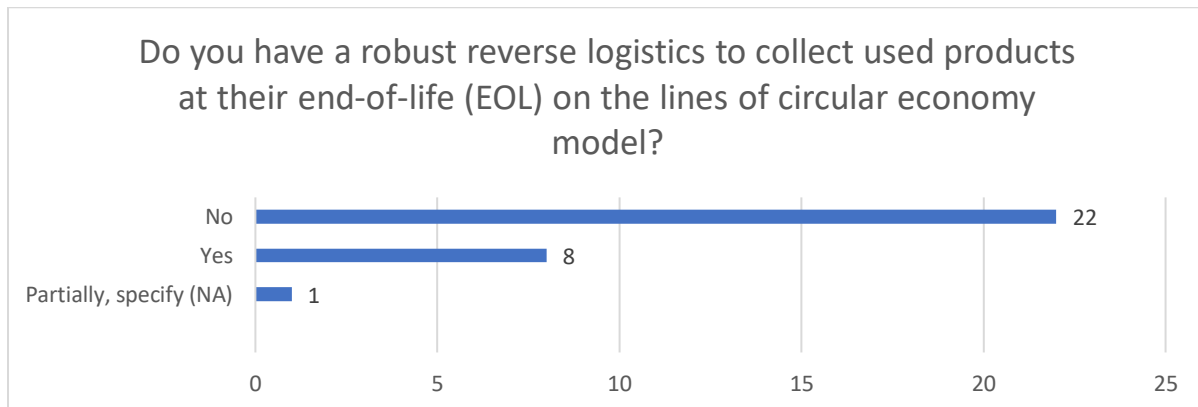


Figure 6.11 Survey response to the question on robust reverse logistics to collect used products at end-of-life.

6.6.11 Recycled Water

The respondents were asked if they were aware of the percentage of recycled water used in their business. The calculation for the same is below:

Percentage by recycled water = (Total volume of recycled water (Liters))/(Total volume of water consumed (Liters))

Out of 30 responses, 12 mentioned that less than 25% of the water they use is getting recycled. Nine mentioned that they are unaware of the percentage, while three mentioned that it is 25-50%.

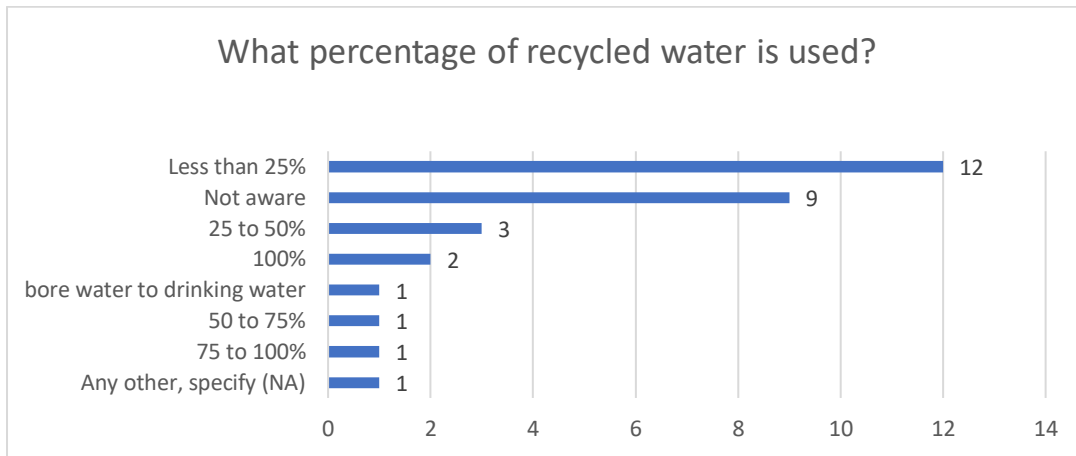


Figure 6.12 Survey response to the question on the percentage of recycled water used

6.6.12 Rainwater Harvesting

The respondents were asked if they are aware of any rainwater harvesting practices in place at their organizations.

21 out of 35 respondents said yes while 13 said no. This signifies the awareness of rainwater harvesting practices in MSMEs in Telangana, which is extremely crucial due to recent weather changes and phenomena like floods and El Nino effecting business continuity.

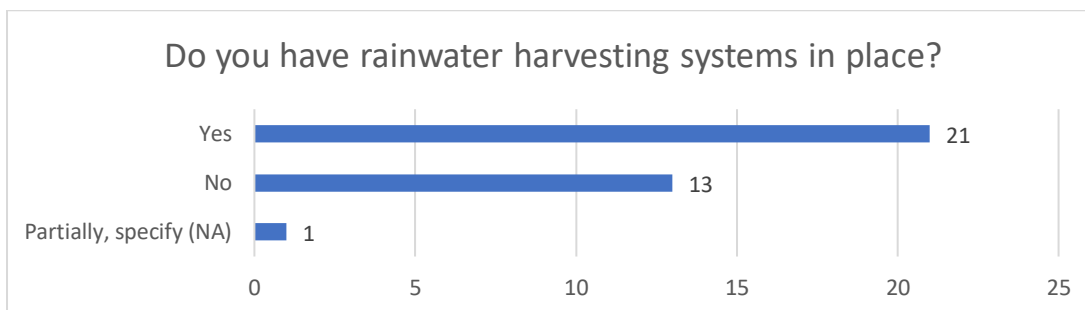


Figure 6.13 Survey response to the question on the rainwater harvesting practices

6.6.13 Rainwater Harvesting Profile

The 16 respondents who answered yes to the earlier question were then asked about the quantity of water harvested.

The rainwater harvesting profile shows that eight out of 21 are unaware of the quantity, but five said it is in the 100-500 kilolitres range. This is a positive sign as it highlights MSMEs' potential to save water and commitment to the environment.

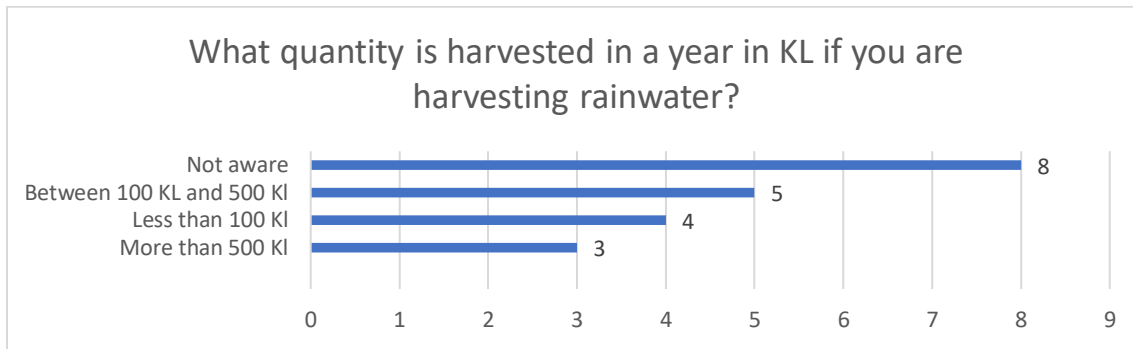


Figure 6.14 Survey response to the question on the amount of rainwater harvested

6.6.14 Harmful Chemicals

The respondents were asked if they emit any kind of harmful chemicals like greenhouse gases, carbon dioxide, methane, nitrous oxides, etc, into the atmosphere. 31 out of 33 responses said that they don't emit toxic gases. While two said, they do in some of their processes, and one said yes. This is extremely crucial as MSME enterprises need to be aware of the amounts of greenhouse gas emissions in their processes, which later become Scope 3 for many of their customers.

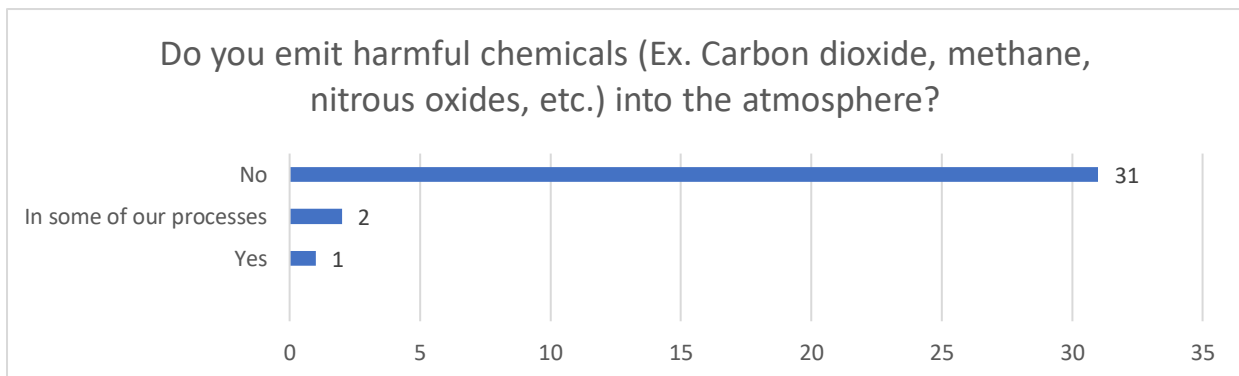


Figure 6.15 Survey response to the question on emission of greenhouse gases into the atmosphere

6.6.15 Measuring Carbon Footprint

The respondents were asked if they measure their carbon footprint. 27 of the 33 respondents said that they do not. It is recommended that MSMEs in India be aware of their carbon footprints in order to claim a ZED certification which broadens their avenues for industry partnership aligned with the SDGs.

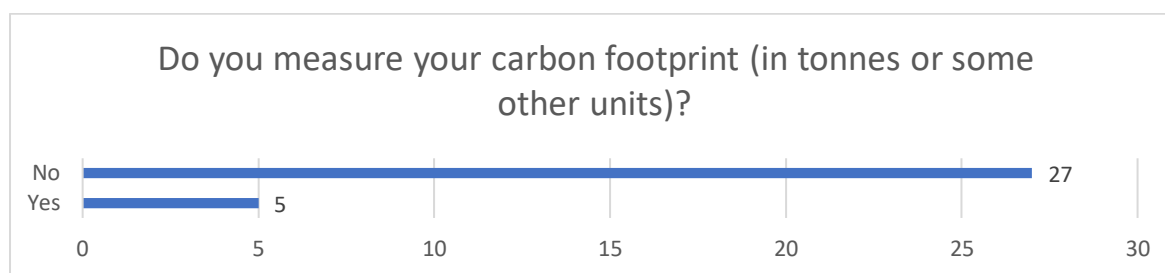


Figure 6.16 Survey response to the question on measurement of carbon footprint

Five who responded yes to this question were then asked to mention their carbon footprint in tonnes. Four left the question blank; one mentioned 0.62 grams per hour.

6.6.16 Percentage of Renewable Energy Used

The respondents were asked to mention the percentage of renewable energy used in the form of solar, wind, or hydel energies.

18 out of 31 respondents said they use less than 25% of renewable energy. This is a crucial insight into the transition capabilities of MSMEs towards renewable energy in the coming times.

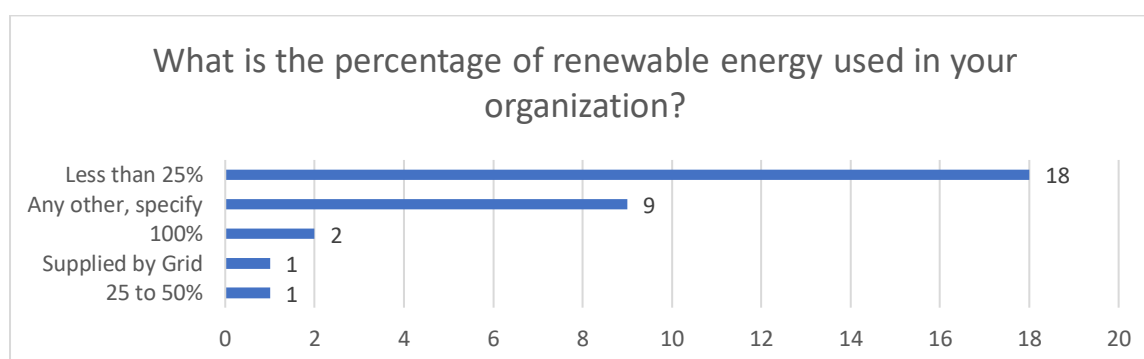


Figure 6.17 Survey response to the question on measurement of carbon footprint

6.6.17 Percentage of Land Used as Biodiversity

The respondents were asked about the percentage of land used as biodiversity. The calculation for the same is given below:

Percentage by land cover for biodiversity = (Total area of plants and trees (Square meters))/(Total area of the facilities (Square meters))

12 respondents out of 32 said that less than 20% of their land is covered with plants, while nine said that around 20-30% of their land has green cover. Four responses mentioned NA when asked to specify apart from the categories.

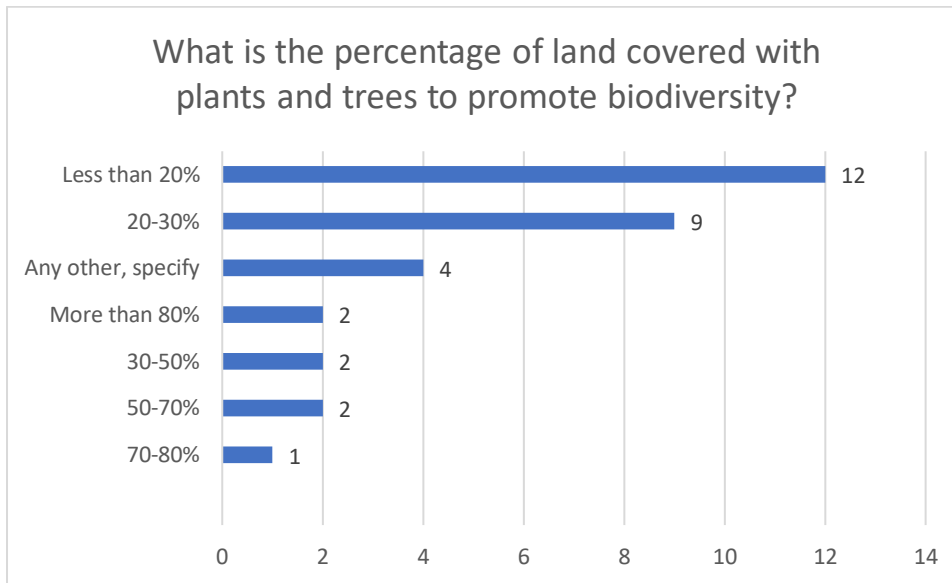


Figure 6.18 Survey response to the question on the measurement of land covered with plants to promote biodiversity

6.6.18 Product as a Service (PaaS) Strategy for Sustainability

The respondents were asked if they use PaaS(Product as a Service) Strategy for sustainability in their businesses. 22 responded as No and seven responded as Yes. The concept needs to be popularised amongst the community.



Figure 6.19 Survey response to the question on Product as a Service (PaaS) Strategy for Sustainability

6.6.19 Green Building Certification

The respondents were asked if they have taken a green building certification for their business offices or factories. 30 out of the 35 responses said No, three said Yes, and one mentioned that they were unaware of the certification when asked to specify. Such certifications are important and their implementation should be encouraged.

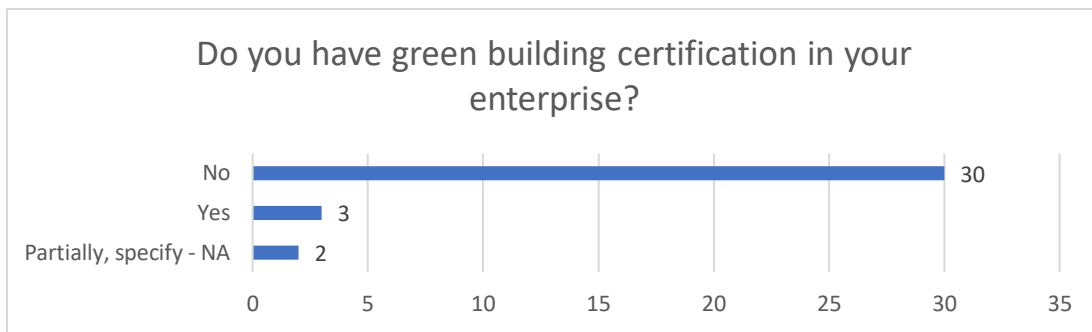


Figure 6.20 Survey response to the question on Green Building Certification

6.6.20 Sustainability Vision and Mission

The respondents were asked if they had a sustainability vision and mission. 20 out of 33 respondents said No, while 13 said Yes. This signifies to be an area that requires attention.



Figure 6.21 Survey response to the question on Green Building Certification

6.6.21 Measurement of Sustainability Initiative

The respondents were asked if they had sustainability programs. While 26 out of 33 respondents said No, seven said Yes. This reiterates the need for attention, as seen in the Sustainability Vision and Mission.

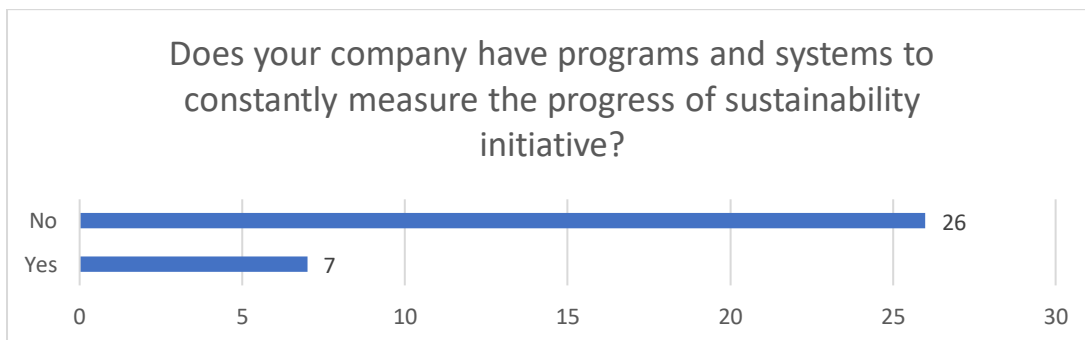


Figure 6.22 Survey response to the question on Green Building Certification

6.6.22 Sustainability Development Goals

The respondents were asked which of the Sustainability Goals out of 17 their organization was addressing. All 23 respondents have mentioned No. This is another area of focus as alignment to the SDGs has been the primary focus since the United Nations members provided this sustainability blueprint in 2015, almost a decade ago.

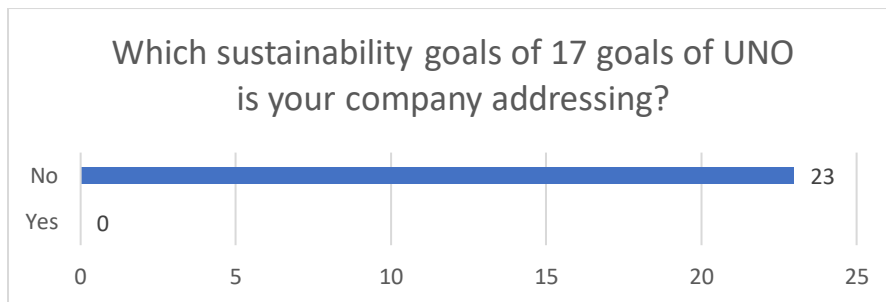


Figure 6.23 Survey response to the question on Sustainability Development Goals

6.6.23 ZED Certification

SMEs are now expected to operate with zero defects and zero adverse environmental impact (ZED). Many governments globally are trying to support SMEs in obtaining ZED certification.

The respondents were asked if they were ZED certified. 26 respondents said they were not certified, and one said they were certified. This is an insight into the current status of ZED certifications. ZED certifications are a starting step for MSMEs to practice more sustainable practices in their business, eventually leading to business expansion efficiencies.

Concurrently, as mentioned on the ZED website of the Ministry of MSMEs of the Government of India, of 2,67,855 MSMEs registered, only 1,65,634 are bronze certified, 439 are silver certified, and 493 are gold certified. The benefits of ZED certification need more awareness among MSMEs, not just in Telangana but at a national level as well ^[5].

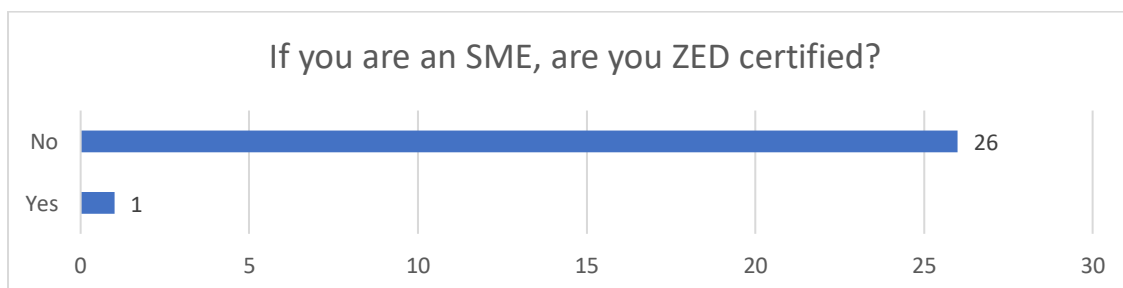


Figure 6.24 Survey response to the question on ZED Certification

6.6.24 Employees Dedicated to Environmental Goals

Respondents were asked if any employee/executive is responsible for coordinating environmental goals. 20 of the 34 said No, and 14 said Yes. The commitment is encouraging but needs more awareness.

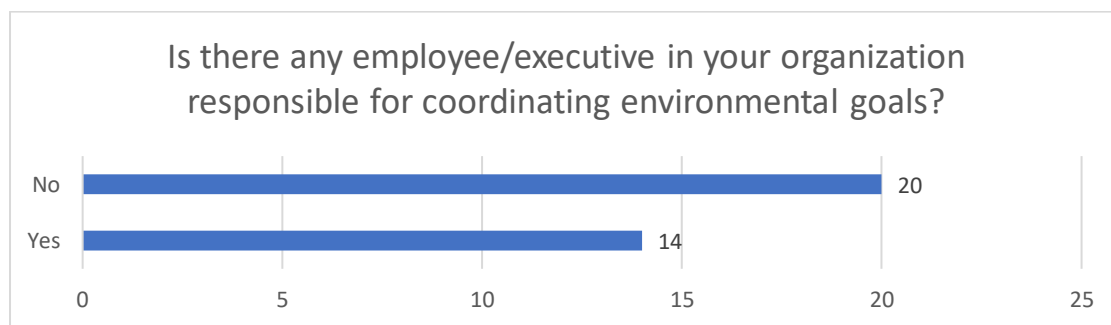


Figure 6.25 Survey response to the question on employees responsible for coordinating environmental goals.

6.6.25 Environmental Policies

Respondents were asked if any environmental policy guides their long-term decision-making. 29 out of 35 said No and six said Yes. It is recommended that MSMEs should incorporate environmental policy guidelines in their strategic decision-making.

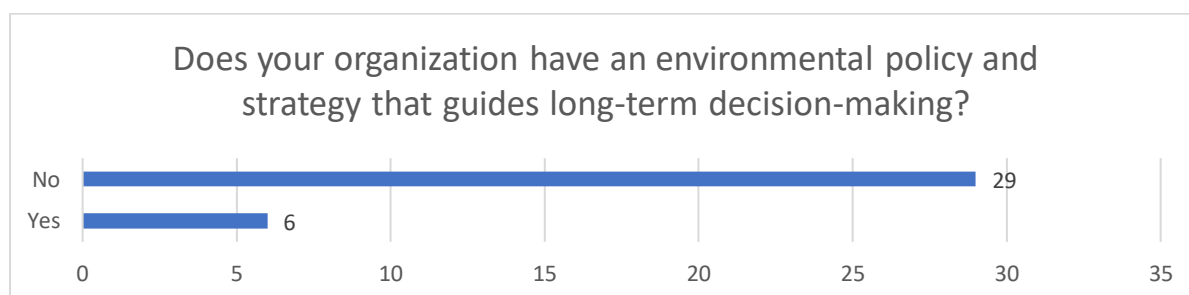


Figure 6.26 Survey response to the question on environmental policies guiding long-term decision-making.

The ones who answered Yes were further asked to fill in the topic of the policy. Four of six mentioned energy, three mentioned air, and the second mentioned chemical management and water. This shows that most of the MSMEs that leverage environmental policies focus on the energy sector, followed by air. The current government has many new initiatives in the energy sector that can directly impact MSMEs, like generating electric vehicles to leverage energy storage policies in Telangana.

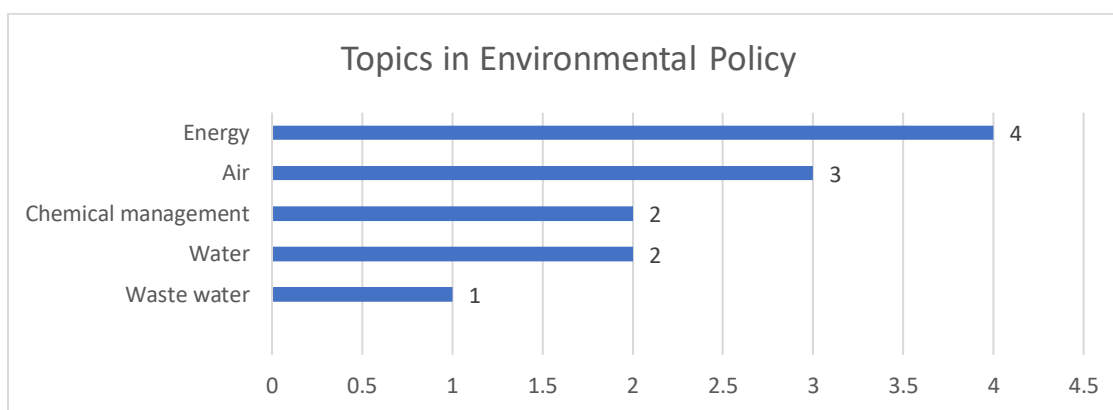


Figure 6.27 Survey response to the question on topics of environmental policy

6.6.26 Environmental Policies

Respondents were asked if they have identified any significant environmental impact of their organization. Out of 31 respondents, 14 said No, ten mentioned partially and seven mentioned yes. This highlights that the MSMEs need more education programs for the team to be skilled to understand the importance of identifying environmental impacts of their organization.

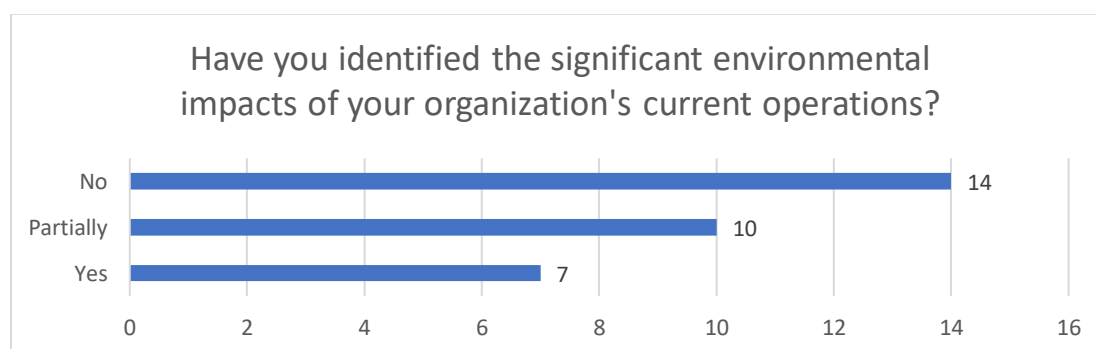


Figure 6.28 Survey response to the question on topics of environmental impact

6.6.27 Employee Awareness about Environmental Strategy

Respondents were asked if they have generated awareness among the employees for environmental strategy of their organization.

Out of the 31 respondents, 13 mentioned Yes while 11 mentioned partially. 24 of 31 respondents have answered that the employees in their organization are aware of the environmental strategies of their MSMEs. This is a big step in the direction of MSMEs to sensitize their employees and keep them updated regarding the company's plans. However, seven out of 31 mentioned that they do not create any awareness.



Figure 6.29 Survey response to the question on topics of employee awareness

6.6.28 Environmental Management System

Respondents were asked if their Environmental Management System (EMS) was verified through international standards by a 3rd party verifying body (for instance, ISO 14001).

Out of the 28 responses, 20 said No and 8 said Yes. International standards of such verification help attract international business opportunities for such MSMEs and can be a significant factor that can help such organizations increase their contribution to national exports.

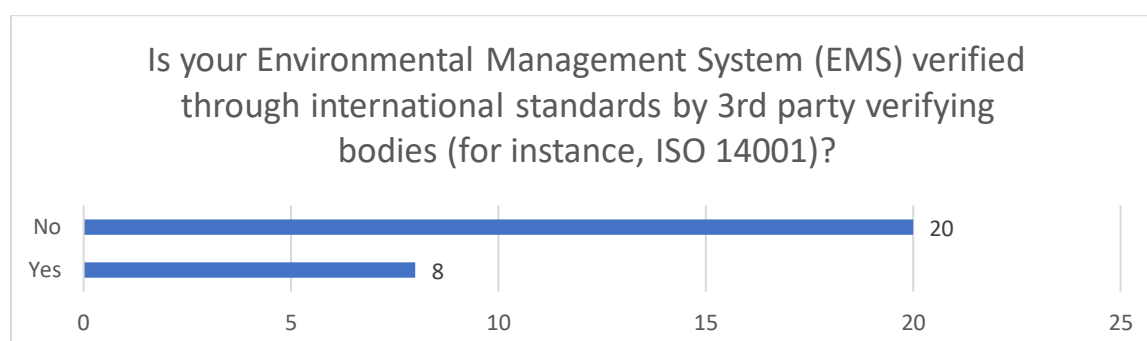


Figure 6.30 Survey response to the question on EMS verification

6.6.29 Greenhouse gas emissions

Respondents were asked if they measure their greenhouse gas emissions from all their sources. 24 out of 29 said No while four said Yes. This reflects the current state of MSMEs in the country, where the majority of them do not measure their emissions from all sources.

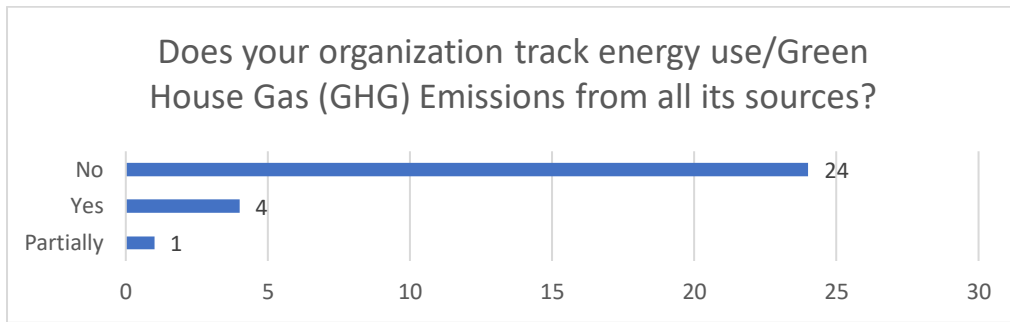


Figure 6.31 Survey response to the question on Measuring Greenhouse gas Emissions

6.6.30 Co-Generation Boiler for Electricity Generation

Respondents were asked if they use a co-generation boiler for recovering combustion gases and transforming them into thermal energy through steam and power.

23 out of 26 respondents said No to using a co-generation boiler, while three said Yes. 11 respondents did not answer this question.

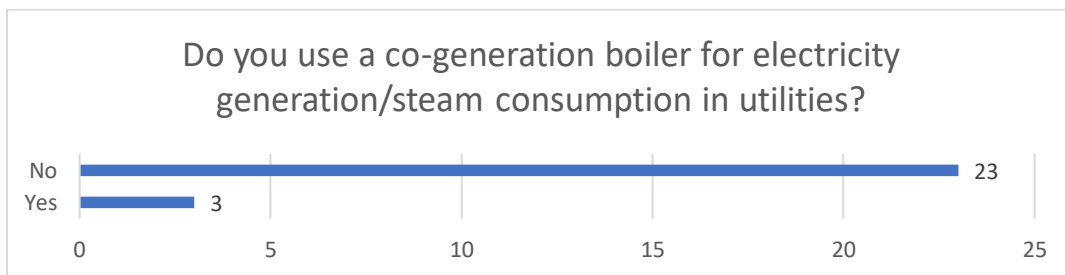


Figure 6.32 Survey response to the question on Co-generation Boiler for generating electricity/steam

6.6.31 Energy Audits

Respondents were asked if they do any energy audits for their organization.

20 out of 30 respondents said no. While ten said yes. Energy audits are a key insight to the organization to identify avenues for energy efficiency.

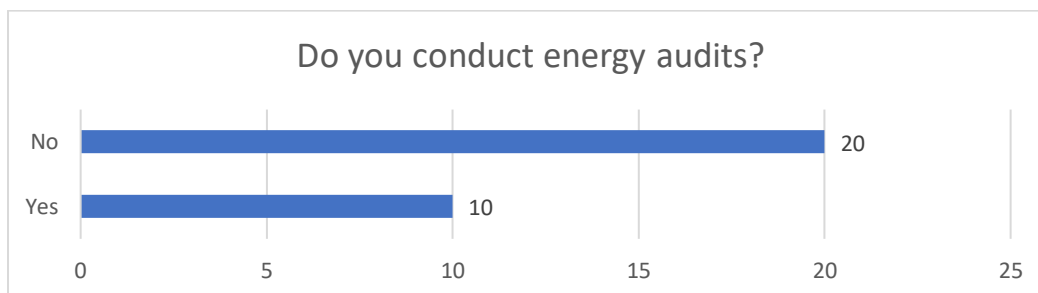


Figure 6.33 Survey response to the question on Energy Audits

The 10 respondents who answered Yes were further queried if the audits are verified through 3rd party energy auditors. 5 out of 9 mentioned Yes, while four mentioned No.

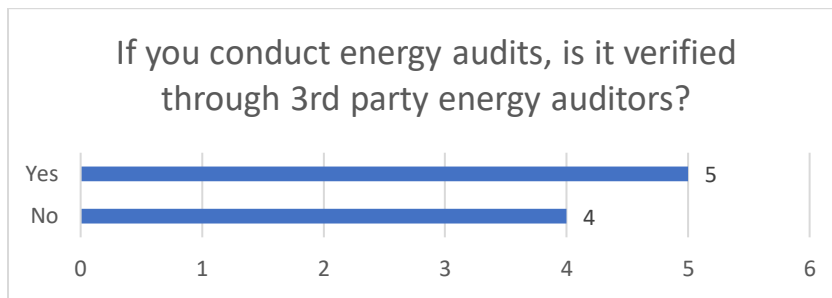


Figure 6.34 Survey response to the question on Energy Audits by a third-party

6.6.32 Ambient Air Quality

Respondents were asked if they monitor ambient air quality. 24 of 32 said No, while eight said Yes.

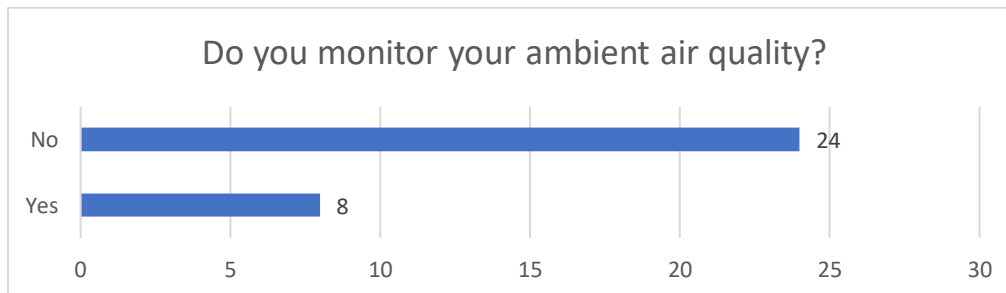


Figure 6.35 Survey response to the question on Monitoring ambient air quality

6.6.33 Environmental Compliance Penalty

Respondents were asked if they ever faced any environmental compliance penalties in the last three financial years. 30 out of 32 said No while two said Yes. Environment audits should become the norm to ensure compliance.

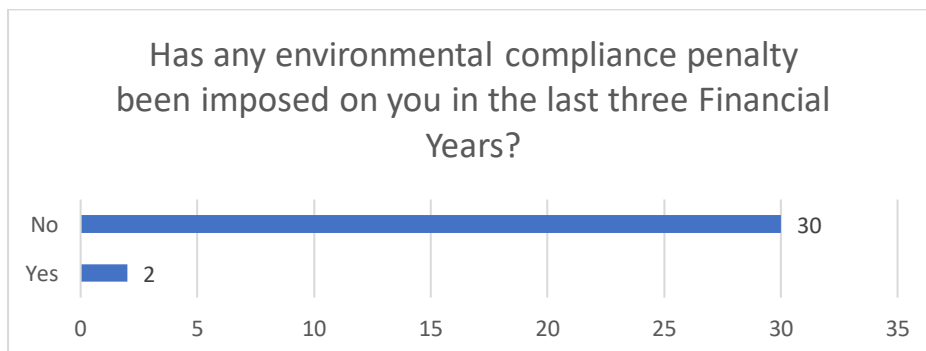


Figure 6.36 Survey response to the question on Environmental Compliance Penalty

6.7 Recommendations for MSME Schemes

Based on the responses received, we recommend MSMEs should diligently follow the following principles to enhance their sustainability practices for business growth:

- a) Design products and processes on green, lean, and circular economy principles.
- b) Recycle and reuse all materials, water, and other resources.
- c) Maintain good air quality and productive land use.
- d) Conduct frequent energy audits.
- e) Design products and processes that run on renewable energy.
- f) Measure CO₂ and GHG emissions and track the reductions over the years.
- g) Obtain ZED (Zero Effect and Defect) certification.
- h) Implement an environmental management system.
- i) Obtain green building certification.
- j) Promote biodiversity.

To achieve the aspirations of enhancing the MSMEs' contribution to the national exports from 48% to 60%, it is crucial that each MSME, especially Micro (that constitutes 97% of the total MSMEs registered nationally as of 31st January 2024), scale up to the next level by:

- a) Enhancing production
- b) Leveraging Market Access
- c) Commitment to Sustainability
- d) Leveraging Digital Technology

Key Insights: Sustainability Status of MSMEs

- To maintain social sustainability in their organizations, MSMEs in Telangana prefer having fair treatment of workers, including fair wages and safe working conditions.
- Majority of the MSMEs enable environmental sustainability by adopting energy-efficient technologies and practices such as LED lighting and energy-efficient practices.
- MSMEs show a predilection towards continuously looking for opportunities to improve efficiency and reduce costs to establish economic sustainability in their firms.
- MSMEs prefer to invest resources in continuously researching and developing new products and excellent customer services to stay competitive in the market rather than
- A broader adherence to with labour and environmental laws and regulations.
- With respect to the questions regarding practices that help the MSMEs reduce their Scope 1 and 2 emissions, the majority of the MSMEs replied as “Not Aware”. This shows that the MSMEs need to be educated regarding robust reverse logistics, carbon footprint, product as a service (PaaS).
- The MSMEs need to be educated about Sustainability Development Goals green building certification, and ZED certifications as these will help in establishing industry collaboration with global organizations that prioritize sustainable practices in their supply chains.

ENTREPRENEURS AND ENTREPRENEURSHIP: INSIGHTS FROM TELANGANA

7. Entrepreneurs and Entrepreneurship: Insights from MSMEs

The Entrepreneur and Entrepreneurship section of the survey delves into entrepreneurs' demographics, motivations, challenges, and experiences. It explores factors such as motivation for entrepreneurship, challenges, circumstances leading to entrepreneurship, and utilisation of government schemes like the Women Entrepreneurs Hub (WE Hub). Through this analysis, we aim to provide insights to support the development of policies and initiatives conducive to entrepreneurial growth, particularly among women.

7.1 Entrepreneur Demographics

Figure 7.1 shows that out of 36 respondents, 31 are entrepreneurs. Out of these 31 entrepreneurs, 27 are male, two are female, and two respondents did not answer this question, as represented by the pie chart in Figure 7.2.

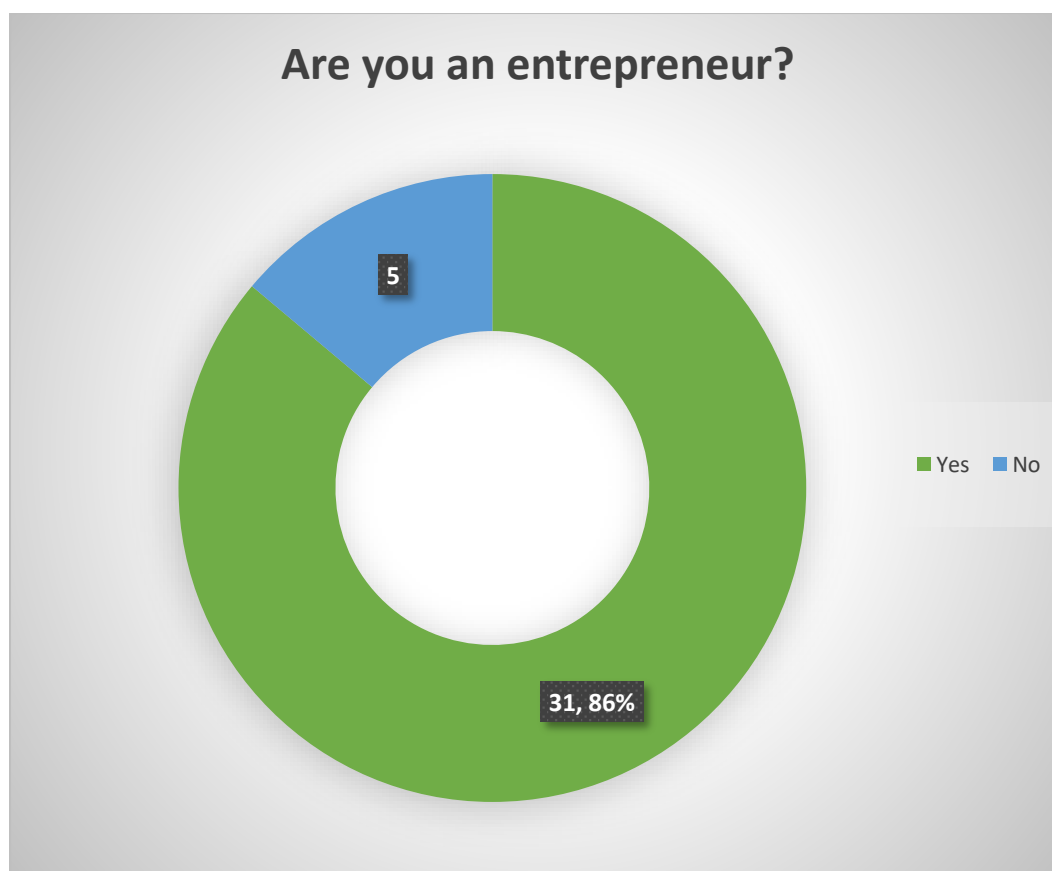


Figure 7.1: Distribution of Entrepreneurs

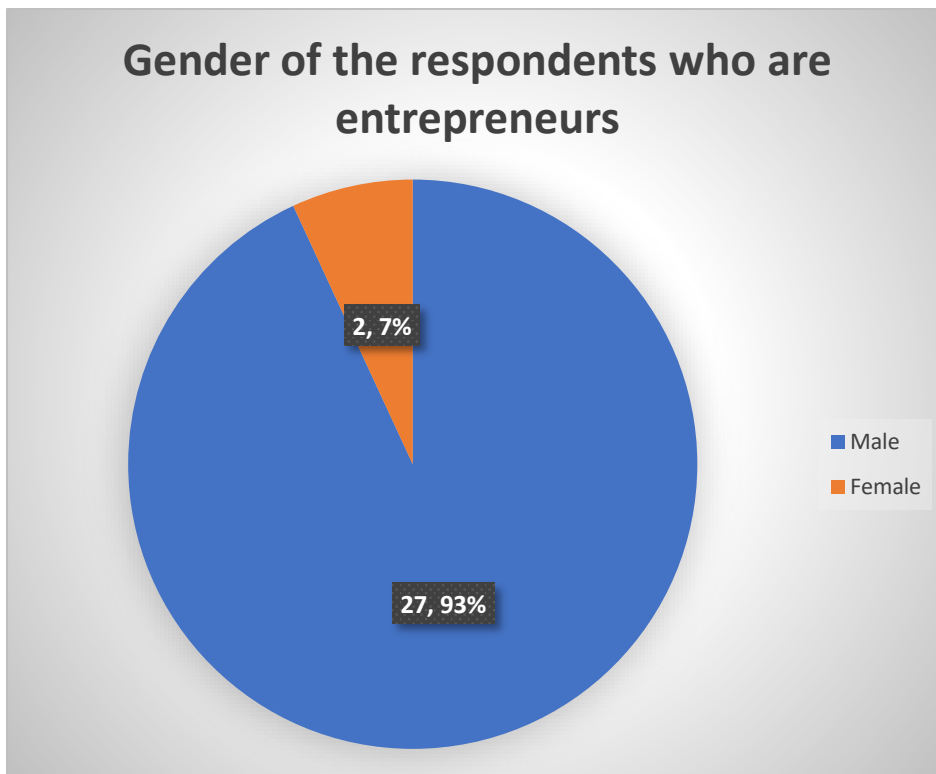


Figure 7.2: Gender of the respondents who are entrepreneurs

7.2 Motivation for Entrepreneurship

Figure 7.3 shows that the top three factors of motivation for entrepreneurs belonging to Telangana are:

- Create economic value for society and jobs
- Family background (I come from a business family)
- Self-satisfaction

The above emphasizes societal impact and individual fulfilment as driving forces in entrepreneurship.

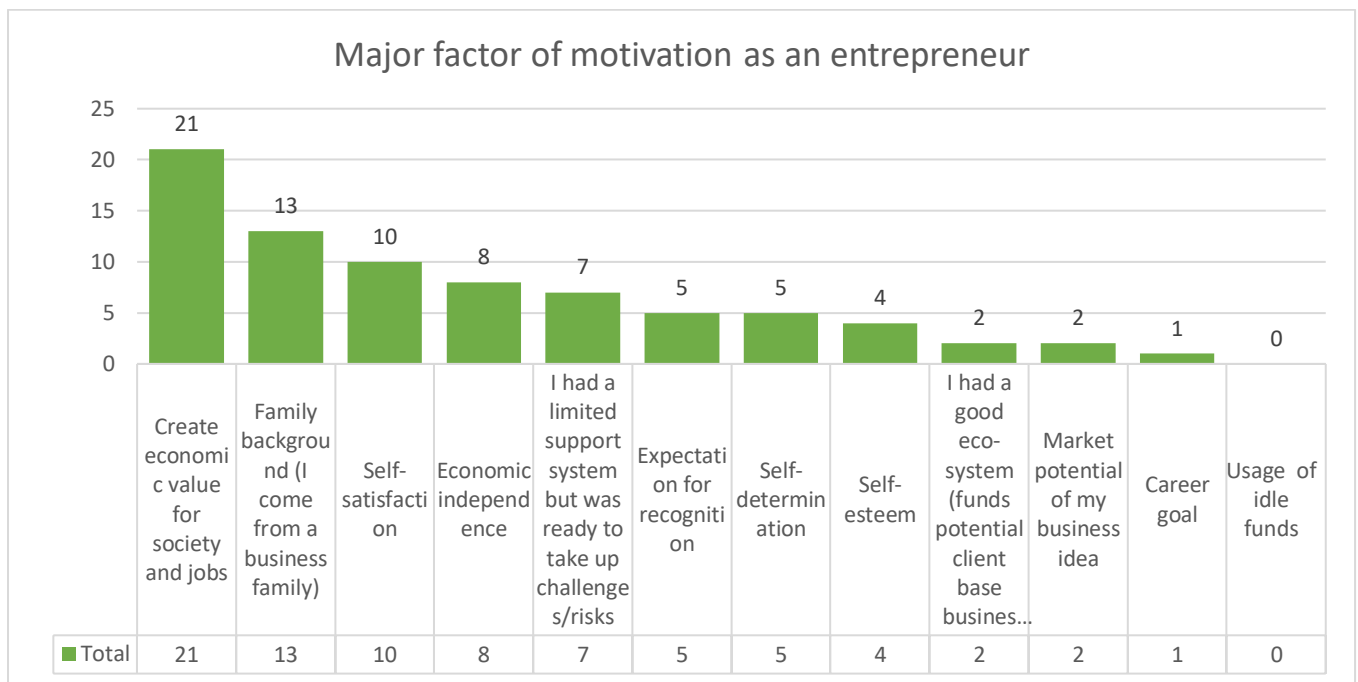


Figure 7.3: Major factor of motivation as an entrepreneur

Table 7.1 shows that the top three factors of motivation for women entrepreneurs are:

- Create economic value for society and jobs
- Family background (business family)
- Expectation for recognition

For male entrepreneurs, the top two significant factors of motivation are the same as those of females. Still, the third factor is self-satisfaction, emphasising personal fulfilment and autonomy in their entrepreneurial endeavours. Female entrepreneurs' focus on expectation for recognition as compared to males suggests a desire for acknowledgement and validation in their entrepreneurial pursuits.

Table 7.1: Distribution of major factors of motivation as an entrepreneur by gender

Major factor of motivation as an entrepreneur	Female	Male	Total
Create economic value for society and jobs	2	19	21
Family background (I come from a business family)	1	12	13

Self-satisfaction	0	10	10
Economic independence	0	8	8
I had a limited support system but was ready to take up challenges/risks	0	7	7
Expectation for recognition	1	4	5
Self-determination	0	5	5
Self-esteem	0	4	4
I had an excellent eco-system (funds potential client base business partners, relevant suppliers network, etc.) to start an entrepreneurial venture	0	2	2
Market potential of my business idea	0	2	2
Career goal	0	1	1
Usage of idle funds	0	0	0

7.3 Challenges Faced by Entrepreneurs

Figure 7.4 shows that the major challenges faced by entrepreneurs from Telangana are:

- Arranging finance at all stages of business
- Lack of skilled employees
- Corruption
- Complexities in getting government approval
- A problem in marketing and selling

It accentuates the multifaceted obstacles hindering entrepreneurial growth in Telangana, calling for targeted strategies to address these systemic issues.

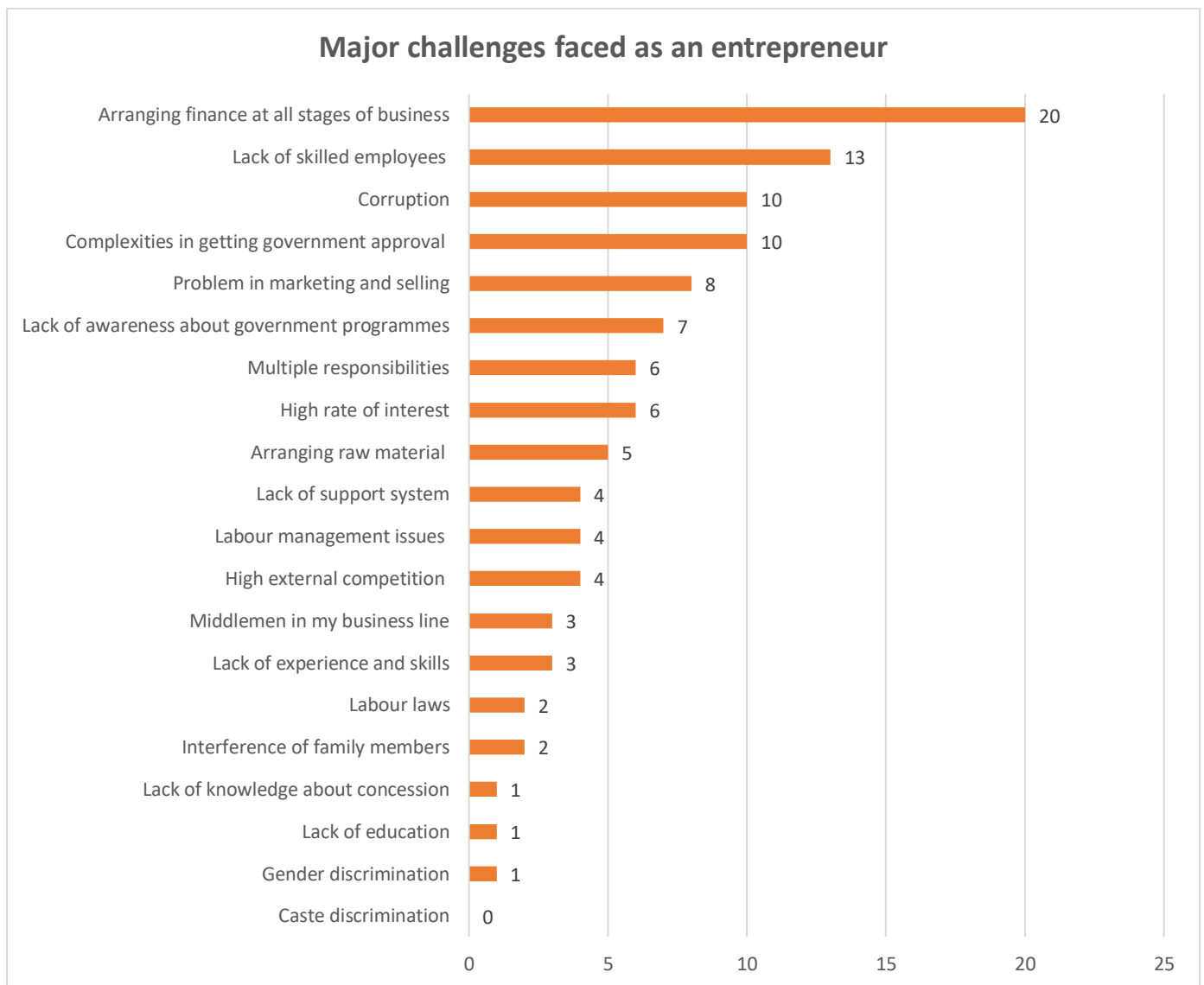


Figure 7.4: Major challenges faced as an entrepreneur

Table 7.2 shows that the major challenges faced by women entrepreneurs of Telangana comprise of:

- Arranging finance at all stages of business(2)
- Lack of awareness about government programmes(2)
- Lack of skilled employees(1)
- A problem in marketing and selling(1)
- Multiple responsibilities(1)
- Interference of family members(1)
- Gender discrimination(1)

It showcases the need to improve awareness about government programmes and arrange finances at all stages of business. Moreover, issues such as the scarcity of skilled employees, marketing and selling difficulties, as well as juggling multiple responsibilities while contending with family interference and gender discrimination underscore the multifaceted barriers hindering women's entrepreneurial pursuits.

Table 7.2: Distribution of significant challenges faced by an entrepreneur by their gender

Major challenges faced as an entrepreneur	Female	Male	Total
Arranging finance at all stages of business	2	18	20
Lack of skilled employees	1	12	13
Complexities in getting government approval	0	10	10
Corruption	0	10	10
A problem in marketing and selling	1	7	8
Lack of awareness about government programmes	2	5	7
High rate of interest	0	6	6
Multiple responsibilities	1	5	6
Arranging raw material	0	5	5
High external competition	0	4	4
Labour management issues	0	4	4
Lack of support system	0	4	4
Lack of experience and skills	0	3	3
Middlemen in my business line	0	3	3
Interference of family members	1	1	2
Labour laws	0	2	2
Gender discrimination	1	0	1
Lack of education	0	1	1
Lack of knowledge about concession	0	1	1
Caste discrimination	0	0	0

7.4 Circumstances Leading to Entrepreneurship (Female Respondents Only)

Within the pool of female entrepreneurs surveyed, only one of the two respondents indicated that they embarked on their entrepreneurial venture after recognising an opportunity through need assessment. The other respondent did not answer this question.

7.5 Utilisation of Women Entrepreneurs Hub Scheme (Female Respondents Only)

Both the female entrepreneurs denied leveraging the WE Hub Scheme. Notably, one respondent cited unfavourable government policies toward her industry, encompassing Aerospace & Defence, Automobile and Auto Components, Engineering and Capital Goods, including castings, foundry, Ferro-alloys, and other metallurgical industries, as the reason for non-participation. This underscores the importance of diversifying the WE Hub Scheme to address industry-specific challenges and ensure inclusivity.

Key Insights: Entrepreneurs from Telangana

- Entrepreneurs in Telangana are primarily motivated by creating economic value for society and jobs, drawing inspiration from familial backgrounds, and seeking personal satisfaction and recognition.
- Female entrepreneurs show a particular interest in recognition, suggesting a desire for acknowledgment in their entrepreneurial endeavors.
- The major challenges faced by entrepreneurs in Telangana include arranging finance, a lack of skilled employees, complexities in getting government approval, corruption, and difficulties in marketing and selling, indicating systemic barriers to entrepreneurial growth.
- Women entrepreneurs encounter additional challenges such as family interference, gender discrimination, and juggling multiple responsibilities, highlighting the need for targeted support mechanisms.
- Among female entrepreneurs, one respondent stated that her decision to embark on entrepreneurial venture was driven by recognizing opportunities through need assessment.
- Both the female entrepreneurs have denied leveraging WE Hub Scheme, with one respondent citing unfavorable government policies toward her industry as a barrier to participation, indicating the necessity for diversifying the scheme to address industry-specific challenges and ensure inclusivity.

STATUS OF IMPLEMENTATION OF MSMES SCHEMES: A REALITY CHECK

8. Status of Implementation of MSME Schemes: A Reality Check

Telangana, being one of India's fastest-growing states in India, recording 14.9% Gross State Domestic Product (GSDP) growth in 2018-19, relies significantly on its MSME ecosystem^[1]. Recognizing the importance of the MSME sector, the state government of Telangana has launched numerous initiatives to support its growth, including schemes like T-IDEA, T-PRIDE, TS-iPASS, and CMST Entrepreneurship and Innovation (CMSTEI) Scheme.

In compiling the comprehensive list of MSME schemes launched by both the Central and State/UT Governments, we have catalogued a total of 767 initiatives. Among these, 306 schemes have been spearheaded by the Central Government, while 461 have been meticulously developed by various State and Union Territory administrations. This exhaustive compilation summarized in Table 8.1 and Figure 8.1 underscores the concerted efforts to bolster MSMEs nationwide, reflecting a commitment to fostering economic vitality and entrepreneurship across the country.

Table 8.1: Total number of MSME Schemes studied with respect to Central and State/UT Government

SCHEME TYPE	TOTAL NUMBER OF MSME SCHEMES
Central Government	306
State/UT Government	461
Total	767

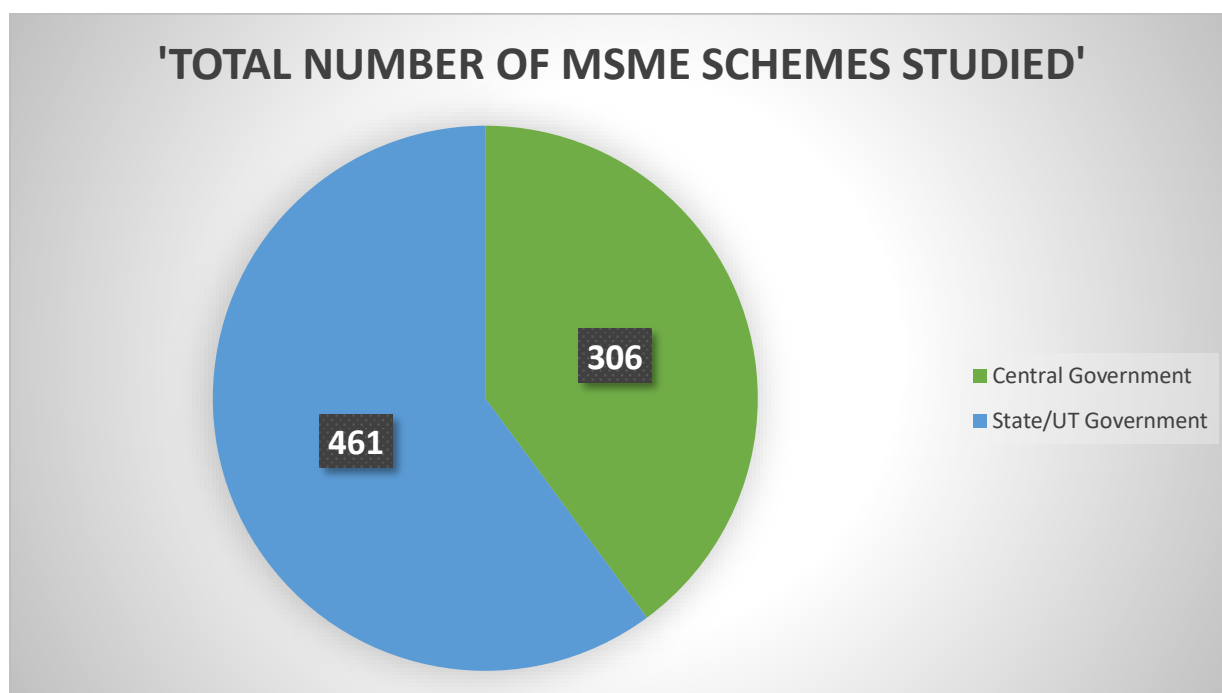


Figure 8.1: Total number of MSME Schemes studied with respect to Central and State/UT Government

Table 8.2 presents a thorough overview of the number of MSME schemes we studied across various States and Union Territories (UTs) in India. It outlines the number of schemes promoted by each State/UT government alongside those initiated by the Central Government, along with the total count of MSME schemes in each region. This data highlights the diverse efforts undertaken at both central and regional levels to support and promote MSMEs, reflecting a concerted national strategy aimed at fostering entrepreneurship, economic growth, and job creation across the country.

Table 8.2: Total number of MSME Schemes studied with respect to each State/UT

States/UTs	Number of MSME Schemes promoted by the State/UT	Number of MSME Schemes promoted by the Central Government	Total Number of MSME Schemes
Andaman and Nicobar Islands	14	266	280
Andhra Pradesh	5	259	264
Arunachal Pradesh	2	280	282

Assam	8	281	289
Bihar	7	259	266
Chandigarh	4	258	262
Chhattisgarh	6	258	264
Dadra and Nagar Haveli and Daman and Diu	26	258	284
Delhi	14	264	278
Goa	12	258	270
Gujarat	10	258	268
Haryana	8	259	267
Himachal Pradesh	6	258	264
Jammu and Kashmir	15	263	278
Jharkhand	6	259	265
Karnataka	30	258	288
Kerala	30	258	288
Ladakh	0	259	259
Lakshadweep	0	266	266
Madhya Pradesh	17	258	275
Maharashtra	8	258	266
Manipur	9	280	289
Meghalaya	15	282	297
Mizoram	17	282	299
Nagaland	7	282	289
Odisha	7	258	265
Puducherry	32	258	290
Punjab	12	264	276
Rajasthan	23	258	281
Sikkim	2	282	284
Tamil Nadu	13	259	272
Telangana	20	258	278
Tripura	15	282	297

Uttar Pradesh	24	259	283
Uttarakhand	33	258	291
West Bengal	4	259	263
TOTAL	461		

Table 8.3 delineates various clusters of MSME schemes categorized by their respective focus areas and the number of initiatives undertaken by both the Central and State/UT governments. From bolstering innovation and technology adoption to promoting skilling and empowering women entrepreneurs, these clusters represented in Figure 8.2 reflect a comprehensive effort to address diverse aspects of MSME development, fostering inclusive growth and sustainability across the sector.

Table 8.3: Central and State/UT Government schemes divided into seven clusters

Cluster Name	Number of Central Government MSME Schemes	Number of State Government/UT MSME Schemes	Total
Innovation	9	14	23
Technology	49	27	76
Skilling	36	28	64
Women	17	28	45
SC/ST/Specially-Abled/Minorities/EWS	33	33	66
Green/Sustainable	13	27	40
Entrepreneurs/Entrepreneurship	36	64	100

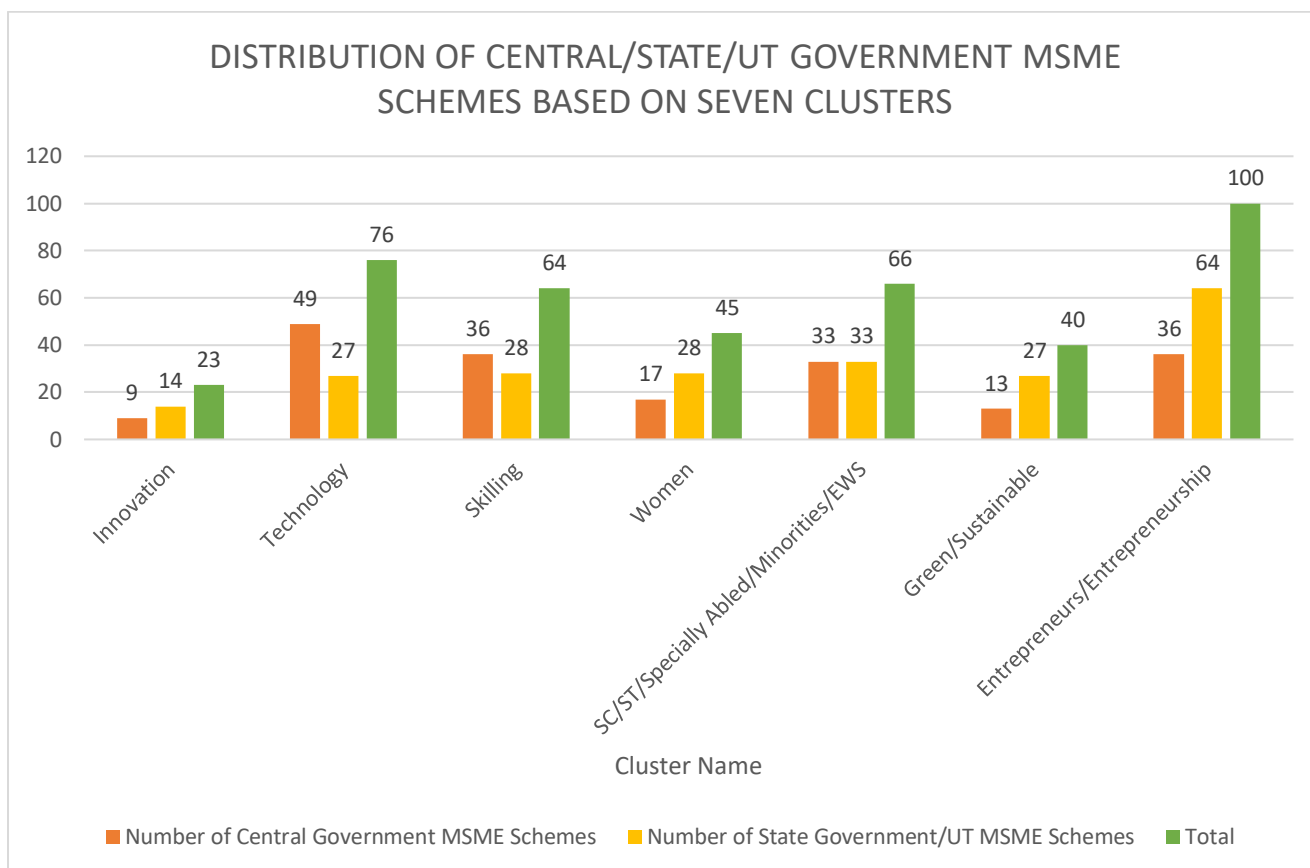


Figure 8.2: Central and State/UT government schemes divided into seven clusters

To comprehensively understand Telangana's MSME ecosystem and assess recent government initiatives, we have studied the following aspects:

- a. Awareness and Utilization of MSME Schemes in Telangana:
 - Assessing awareness levels and utilization of various MSME schemes launched by the State Government of Telangana.
 - Gathering feedback on the effectiveness of specific schemes such as T-IDEA, T-PRIDE, TS-iPASS, CM ST Entrepreneurship & Innovation, etc.
- b. Perceptions on Government Reforms:
 - Gauging opinions on whether current government reforms encourage indigenization initiatives in manufacturing.
 - Assessing if the reforms promote sourcing from MSMEs and shift customer behavior towards domestic products.
- c. Loan Availment and Financial Metrics:
 - Determining whether MSMEs have availed loan offers announced by the government and understanding the debt-to-equity ratio of these businesses.

- Exploring reasons for not availing loan offers and the financial standing of MSMEs.
- d. Evaluation of Government Initiatives at both the Central and State level:
 - Gathering feedback on the usefulness of various government initiatives such as changes in MSME definition, emergency working capital facility, payment of MSME dues, etc.
 - Identifying additional measures suggested by MSMEs for long-term sectoral growth.
 - Assessing awareness of committees like the State Level Export Promotion Committee (SLEPC) and their benefits.
 - Understanding perceptions of policies like the Telangana State Logistics Policy and their impact on businesses.
 - Investigating participation in flagship initiatives like TS-iPASS and assessing their impact.
 - Evaluating participation in digital networking platforms like Telangana State GlobalLinker and training programs by industry bodies.
 - Understanding the impact of central government schemes, such as the Credit Guarantee Scheme for Subordinate Debt, on Telangana industries.
- e. Leverage of Central MSME Schemes divided into seven clusters:
 - Assessing whether MSMEs are leveraging central government schemes related to innovation, technology, skilling, women empowerment, SC/ST/Specially-Abled/Minorities/EWS, green/sustainability initiatives, and entrepreneurship.

8.1 Awareness and Utilization of MSME Schemes in Telangana

In our ongoing efforts to assess the efficacy of various business support mechanisms, we have undertaken an evaluation of the impact of 20 MSME schemes initiated by the State Government of Telangana, namely:

- i) T-IDEA (Telangana State Industrial Development and Entrepreneur Advancement) Incentive Scheme, 2014
- ii) T-PRIDE (Telangana State Program for Rapid Incubation of Dalit Entrepreneurs)
- iii) Telangana State Industrial Project Approval and Self-Certification System (TS-iPASS)
- iv) CM ST Entrepreneurship & Innovation (CMSTEI) Scheme
- v) Telangana Scheduled Tribes Cooperative Finance Corporation Ltd (TRICOR)
- vi) Self-Employment Scheme
- vii) Pavala Vaddi Scheme
- viii) Land Purchase Scheme
- ix) Bank Linked Schemes

- x) Driver Empowerment Programme
- xi) Telangana Fiber Grid or T-Fiber
- xii) WE Hub - Women Entrepreneurs Hub
- xiii) Suvidha Incubation
- xiv) Telangana State Innovation Cell (herein referred to as TSIC)
- xv) T-Hub (Technology Hub)
- xvi) T-Fund (Telangana Innovation Fund)
- xvii) T-SEED
- xviii) Common Fiscal Incentives For All Companies
- xix) Incentives for Incubators
- xx) The Telangana Handloom Weavers Thrift Fund Saving and Security Scheme (THWTFSSS)
“Nethannaku Cheyutha”

Figures 8.3 to 8.22 give very clear insights into each scheme’s awareness and utilization among the MSMEs in Telangana. It is quite interesting to note that majority of the respondents are unaware of these 20 schemes we have listed. Governments, both at the central and state level, must take initiatives to create awareness about the MSME schemes and its associated benefits.

Figure 8.23 gives an overview of whether MSMEs in Telangana are making use of any other schemes launched by the other State/UT Governments of India. While one respondent did mention using a scheme from other State/UT government, they chose not to specify the name of the scheme.

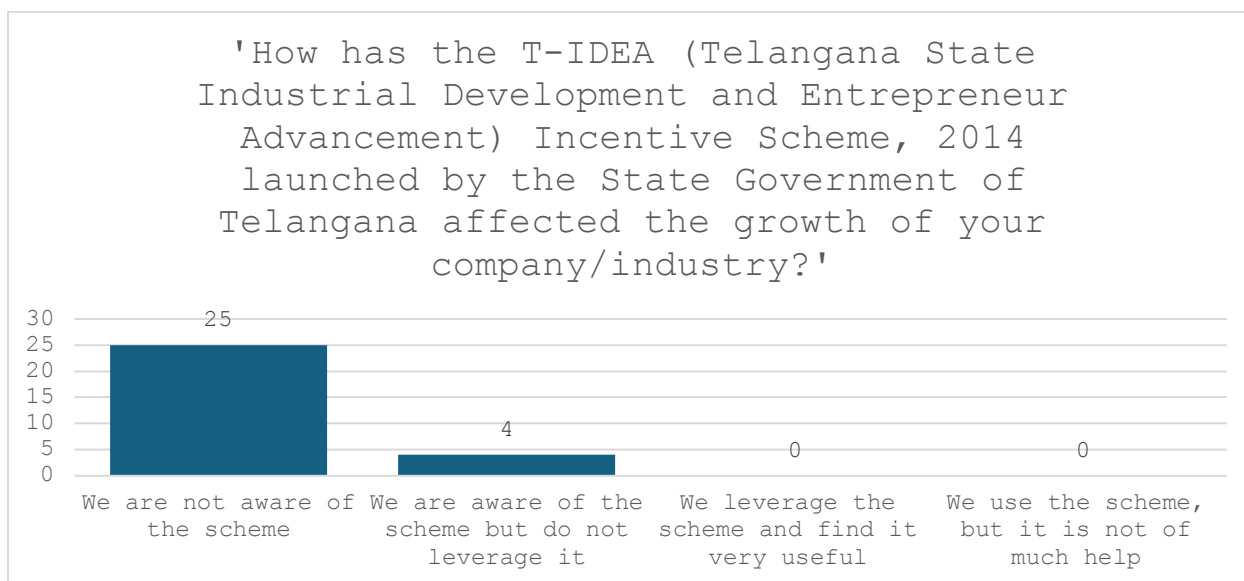


Figure 8.3: Awareness and utilization of T-IDEA (Telangana State Industrial Development and Entrepreneur Advancement) Incentive Scheme, 2014

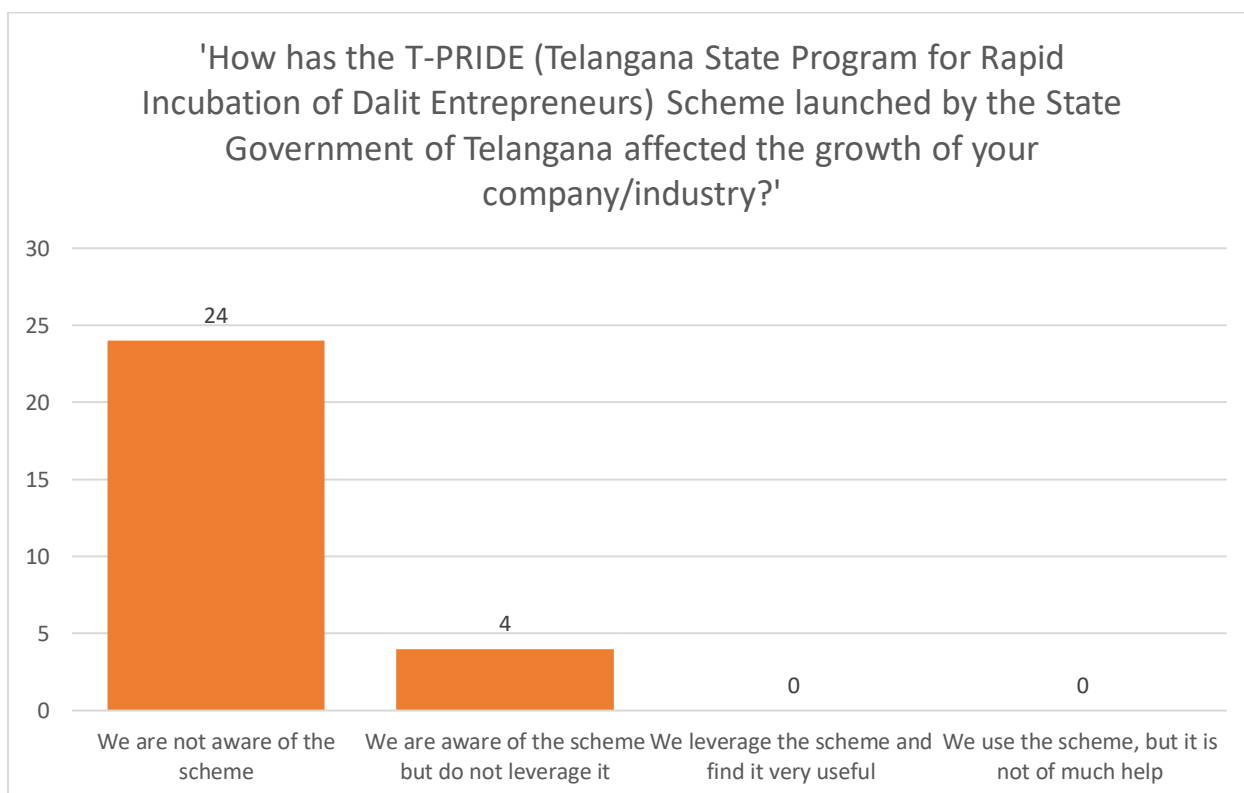


Figure 8.4: Awareness and utilization of T-PRIDE (Telangana State Program for Rapid Incubation of Dalit Entrepreneurs) Scheme

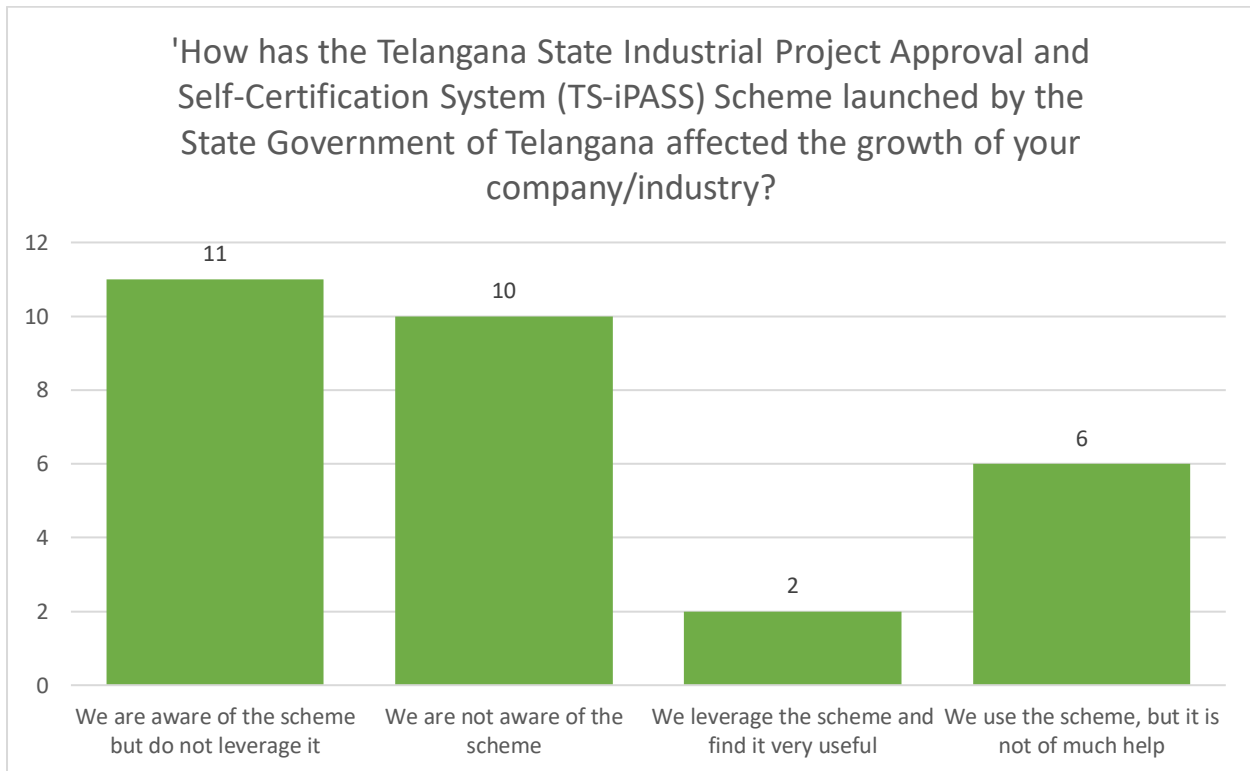


Figure 8.5: Awareness and utilization of Telangana State Industrial Project Approval and Self-Certification System (TS-iPASS) Scheme

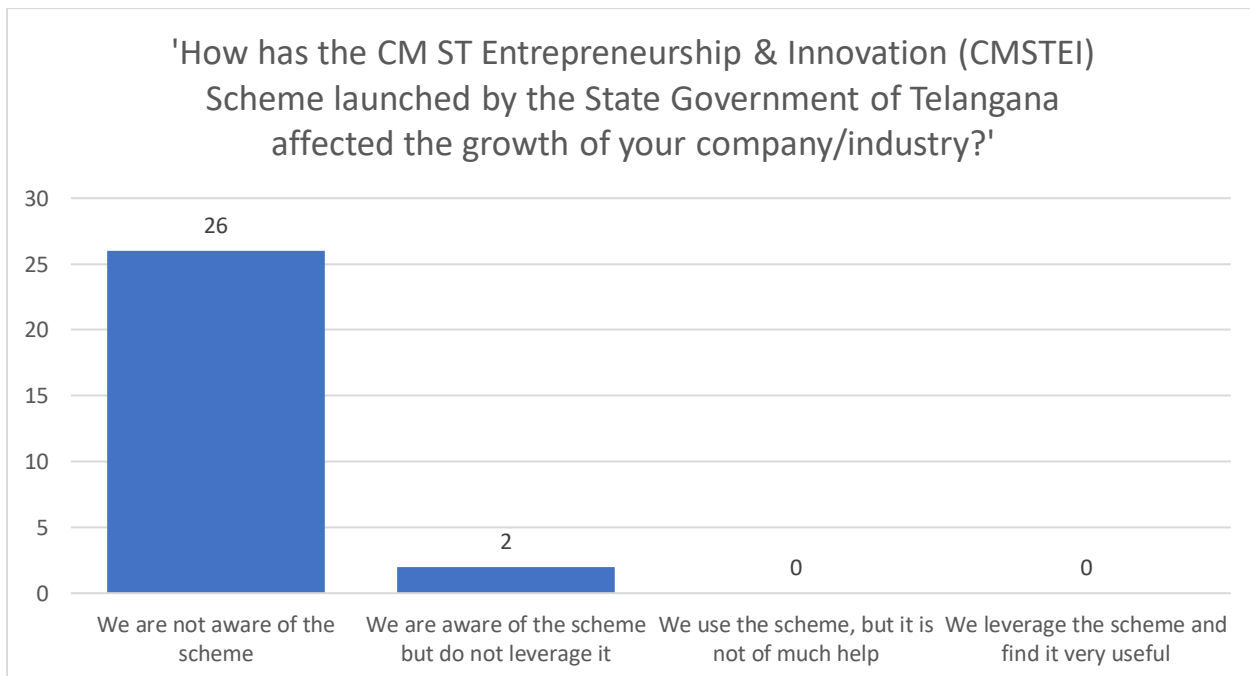


Figure 8.6: Awareness and utilization of CM ST Entrepreneurship & Innovation (CMSTEI) Scheme

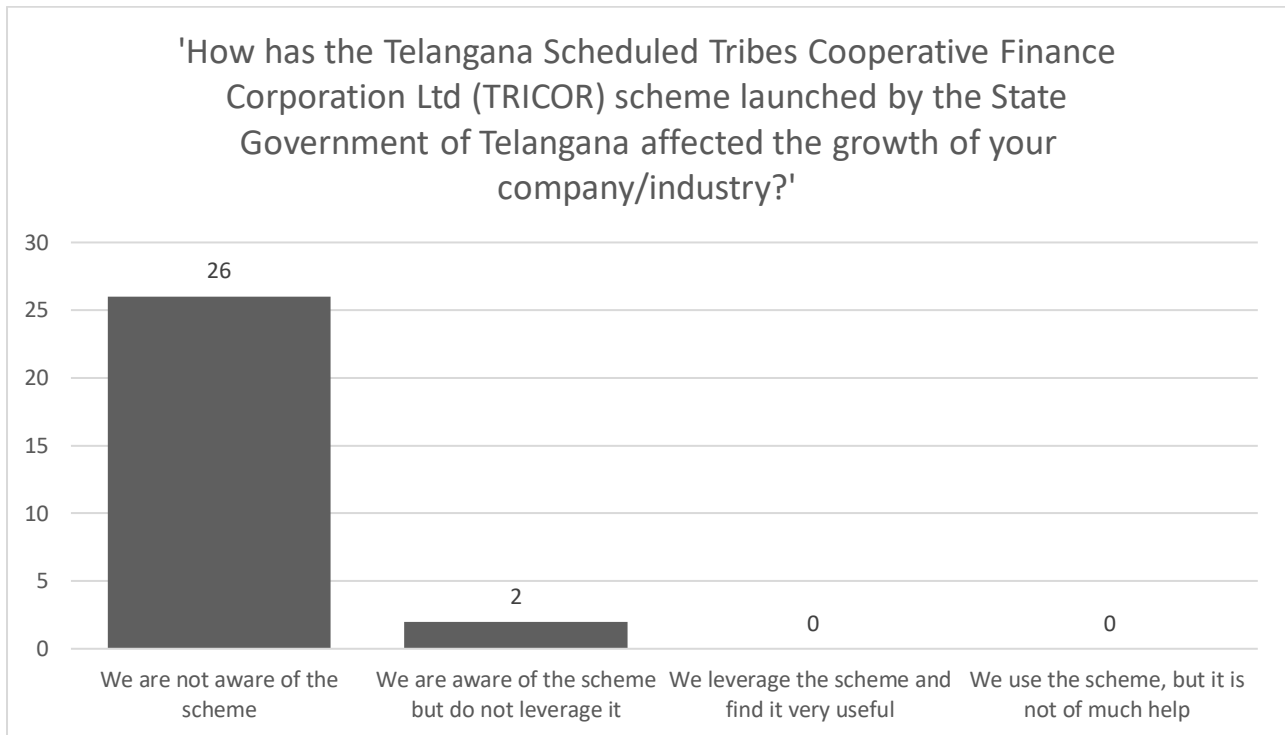


Figure 8.7: Awareness and utilization of Telangana Scheduled Tribes Cooperative Finance Corporation Ltd (TRICOR) Scheme

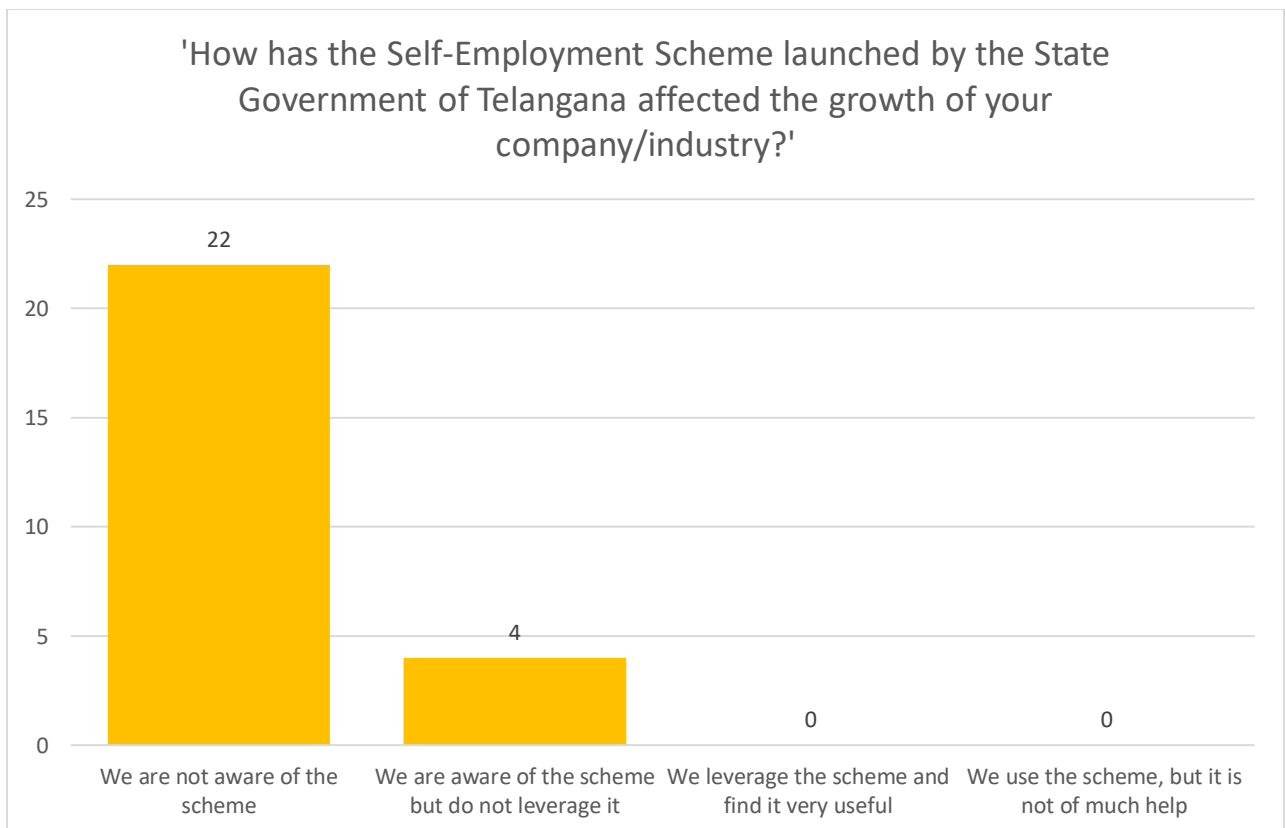


Figure 8.8: Awareness and utilization of Self-Employment Scheme

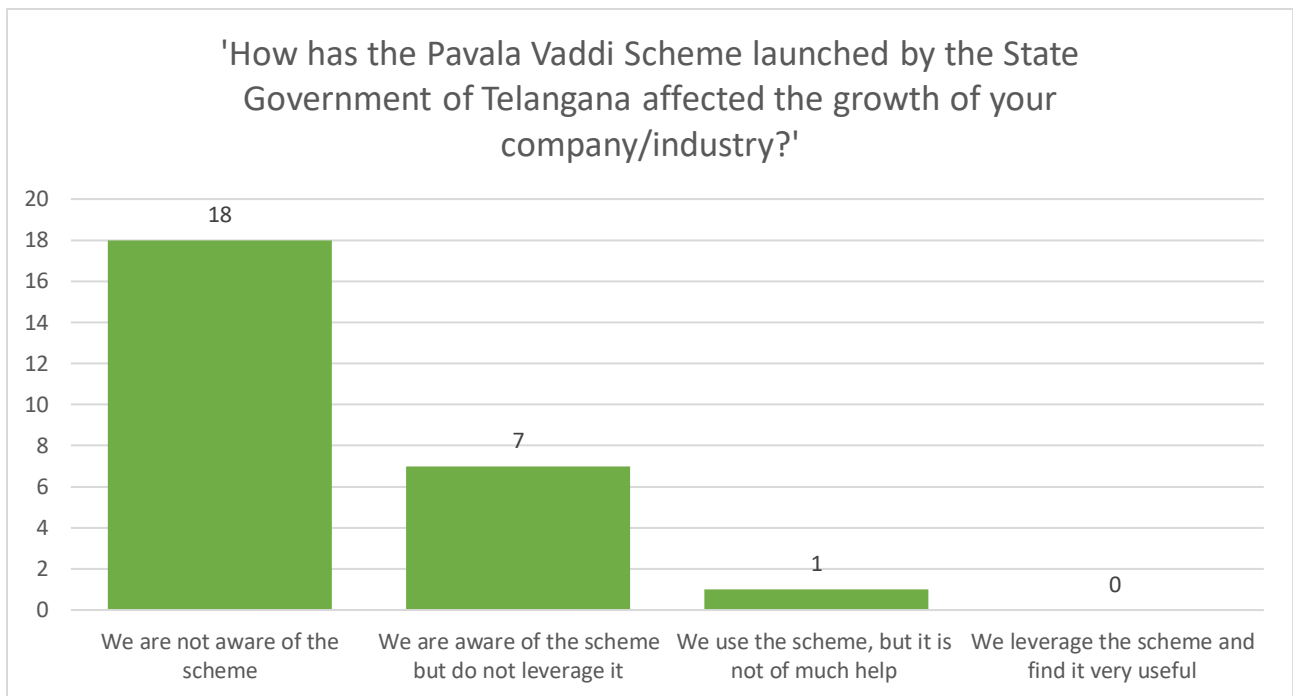


Figure 8.9: Awareness and utilization of Pavala Vaddi Scheme

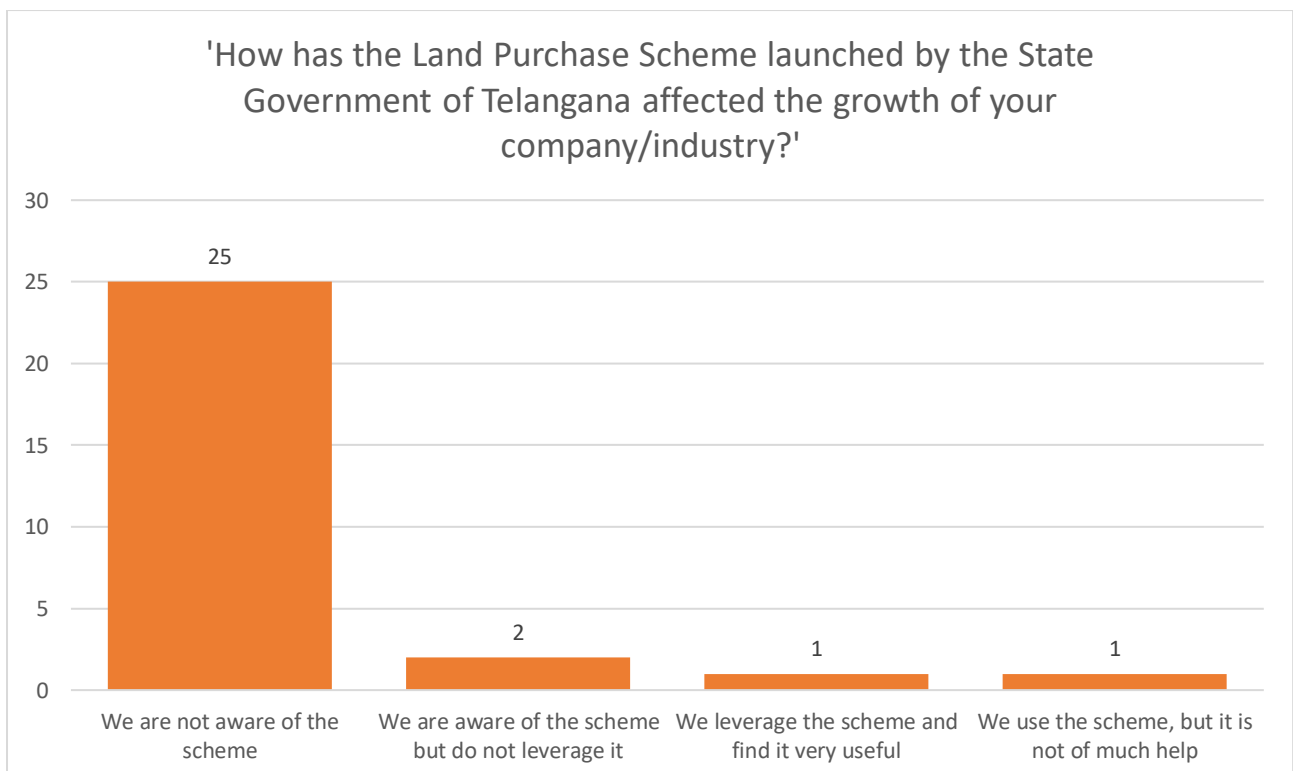


Figure 8.10: Awareness and utilization of Land Purchase Scheme

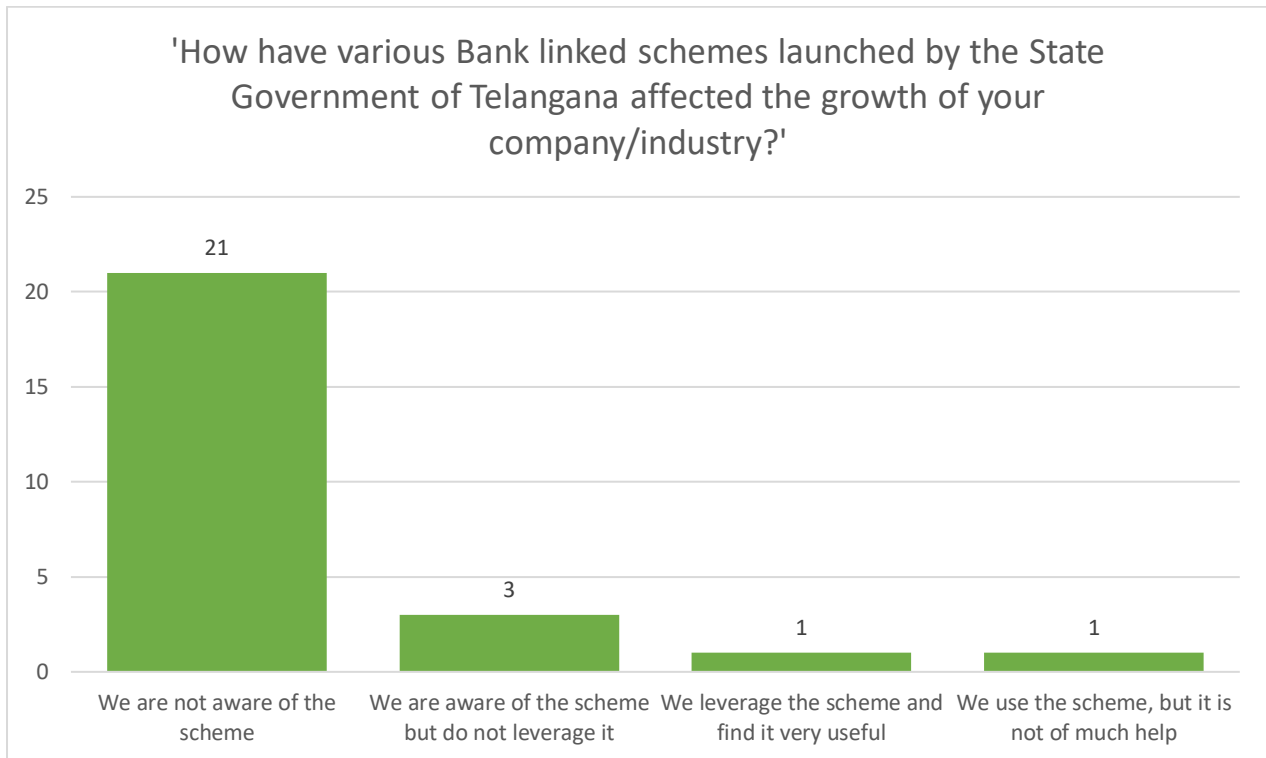


Figure 8.11: Awareness and utilization of Bank Linked Schemes

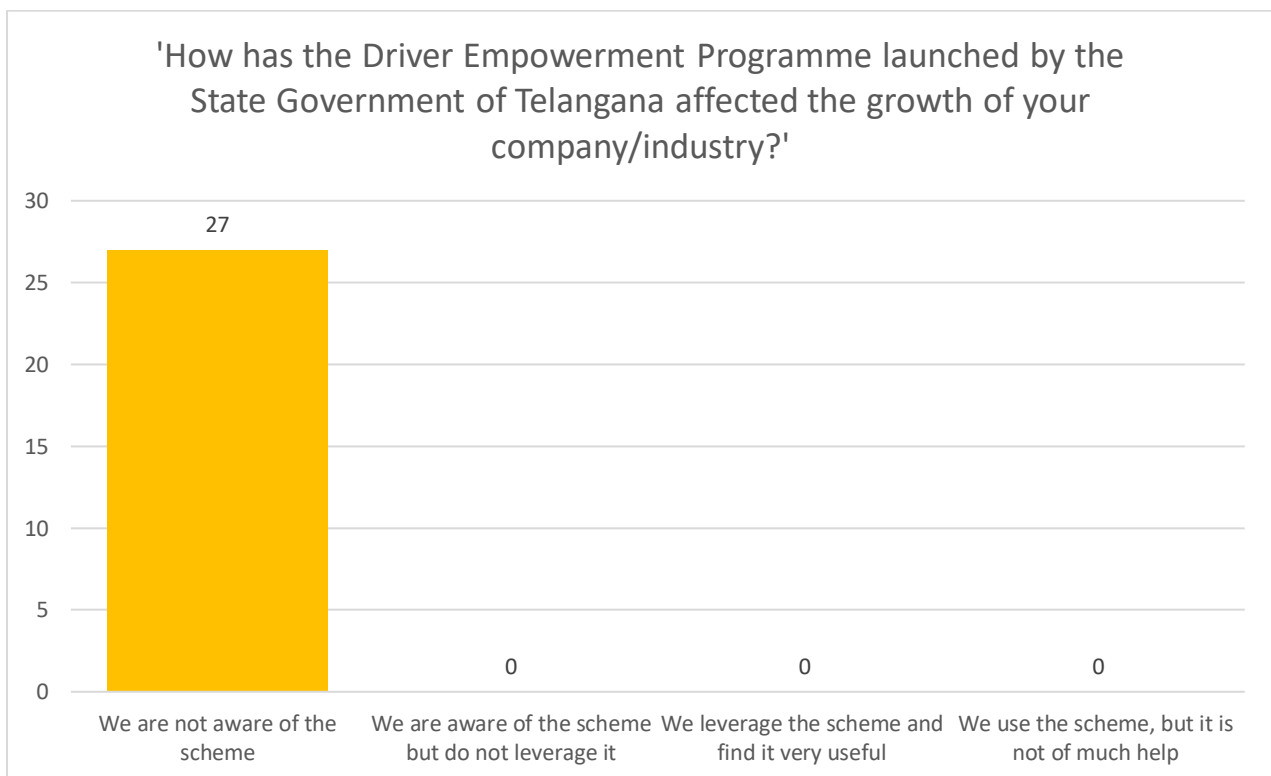


Figure 8.12: Awareness and utilization of Driver Empowerment Programme Scheme

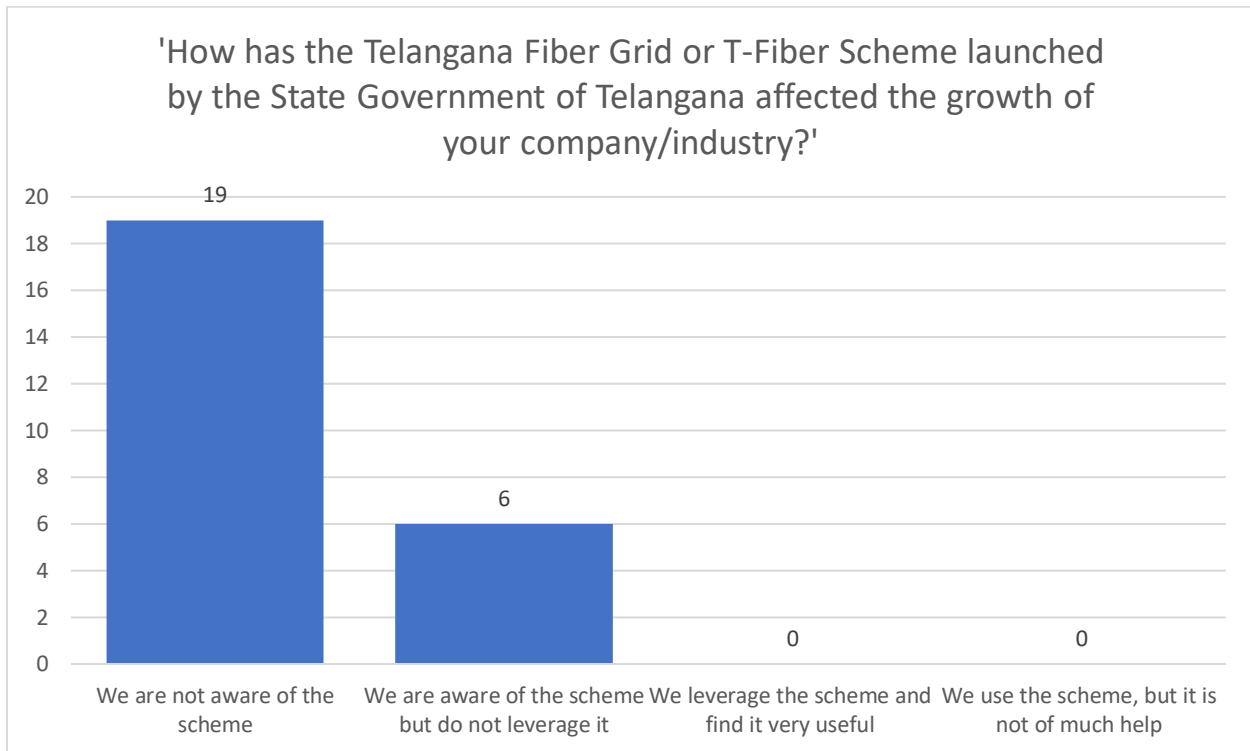


Figure 8.13: Awareness and utilization of Telangana Fiber Grid or T-Fiber Scheme

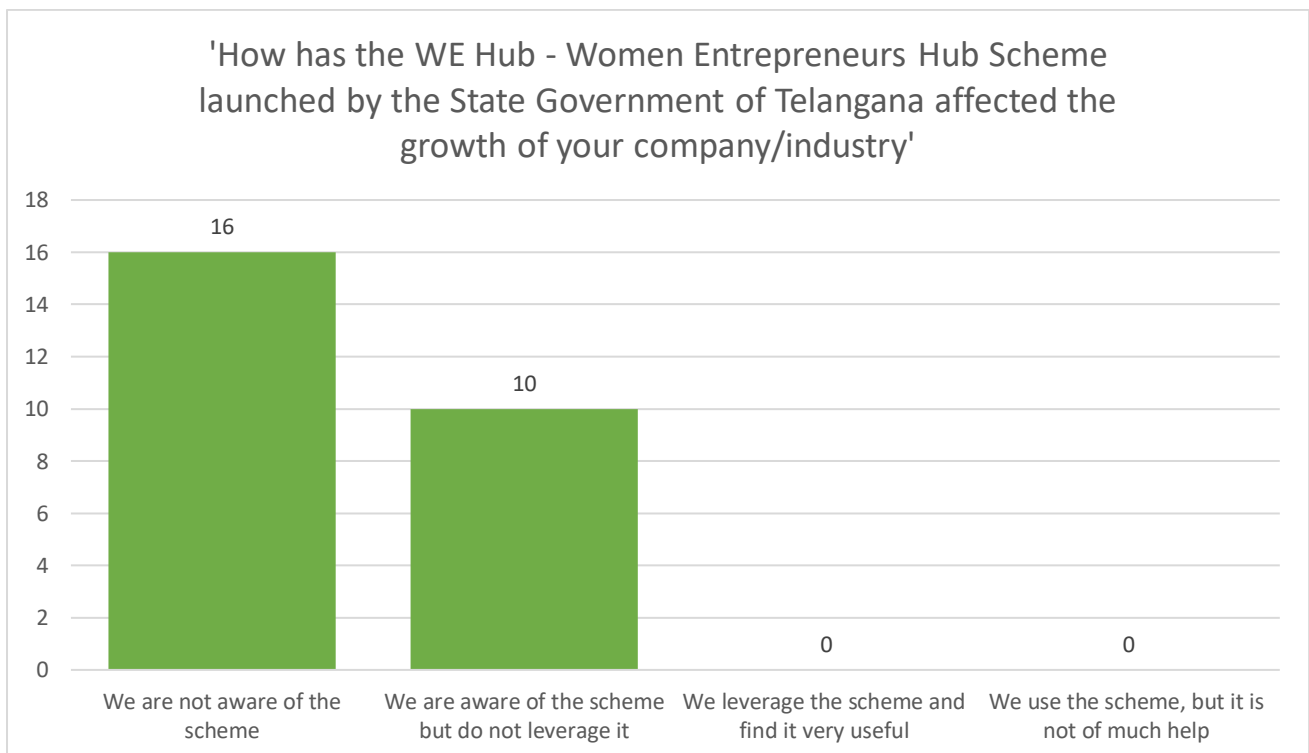


Figure 8.14: Awareness and utilization of WE Hub - Women Entrepreneurs Hub Scheme

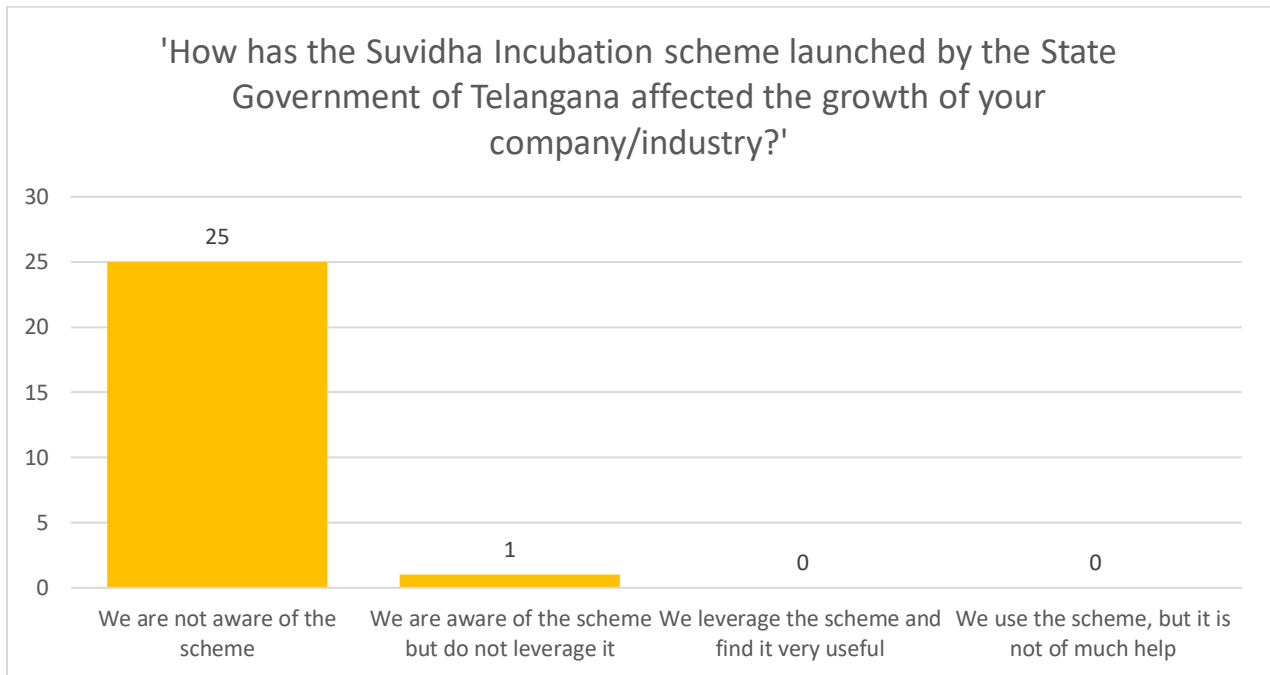


Figure 8.15: Awareness and utilization of Suvidha Incubation Scheme

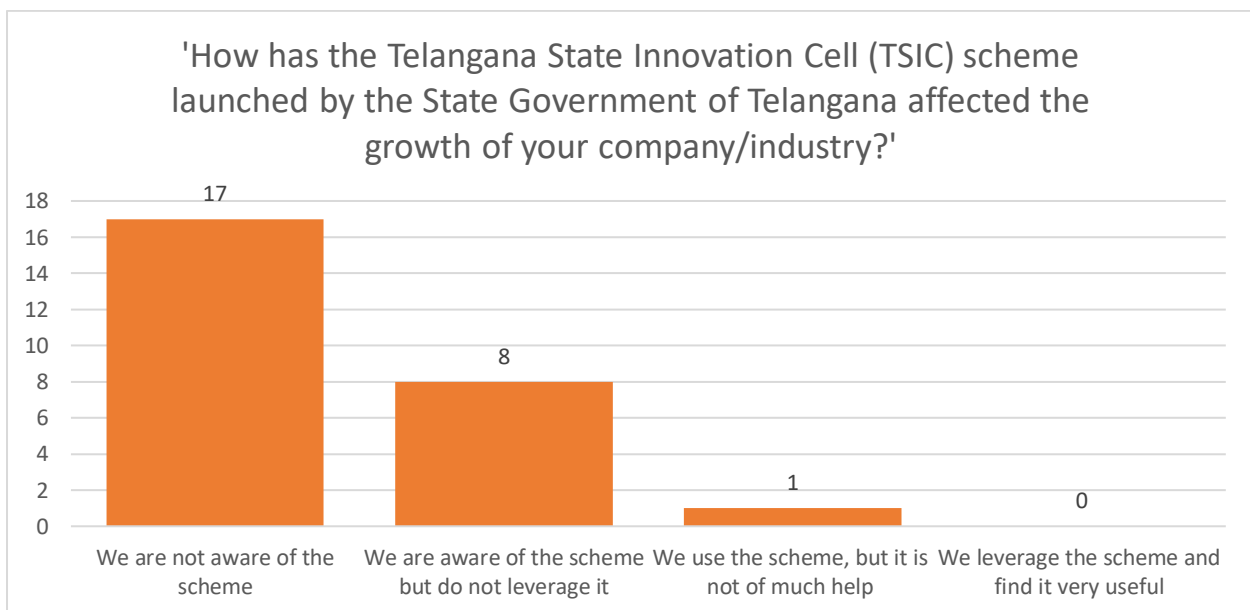


Figure 8.16: Awareness and utilization of Telangana State Innovation Cell (TSIC) Scheme

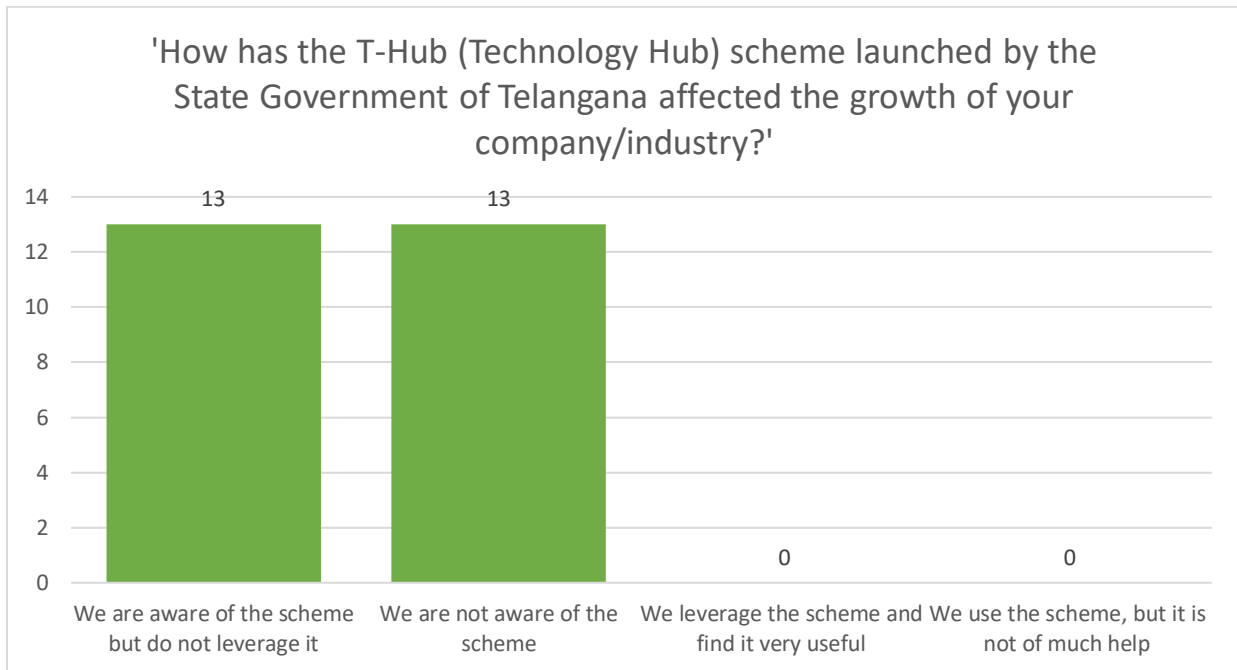


Figure 8.17: Awareness and utilization of T-Hub (Technology Hub) Scheme

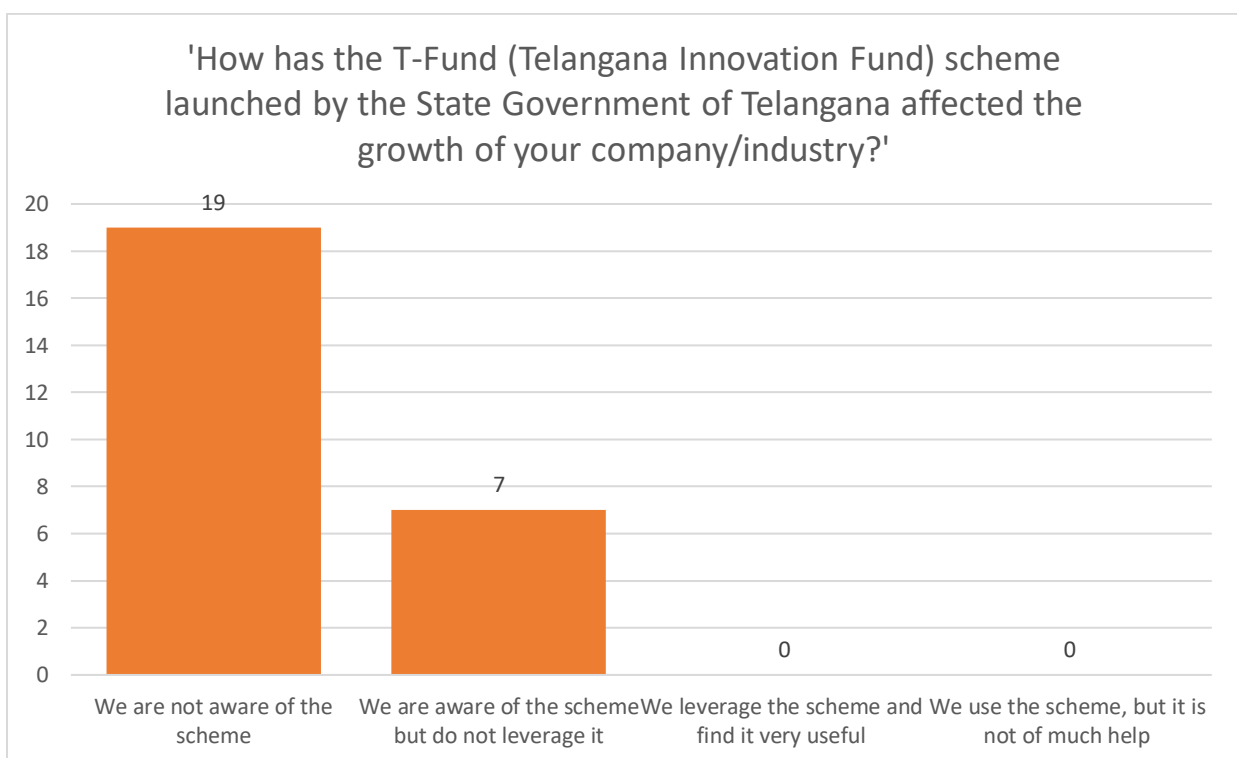


Figure 8.18: Awareness and utilization of T-Fund (Telangana Innovation Fund) Scheme

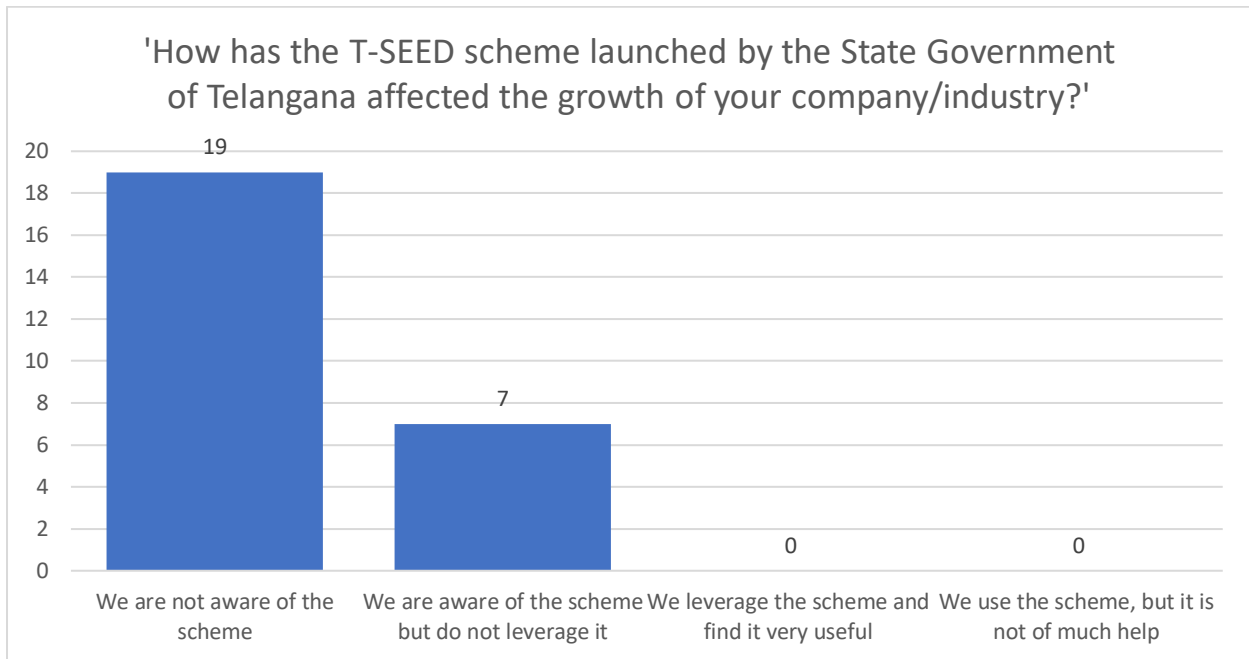


Figure 8.19: Awareness and utilization of T-SEED Scheme

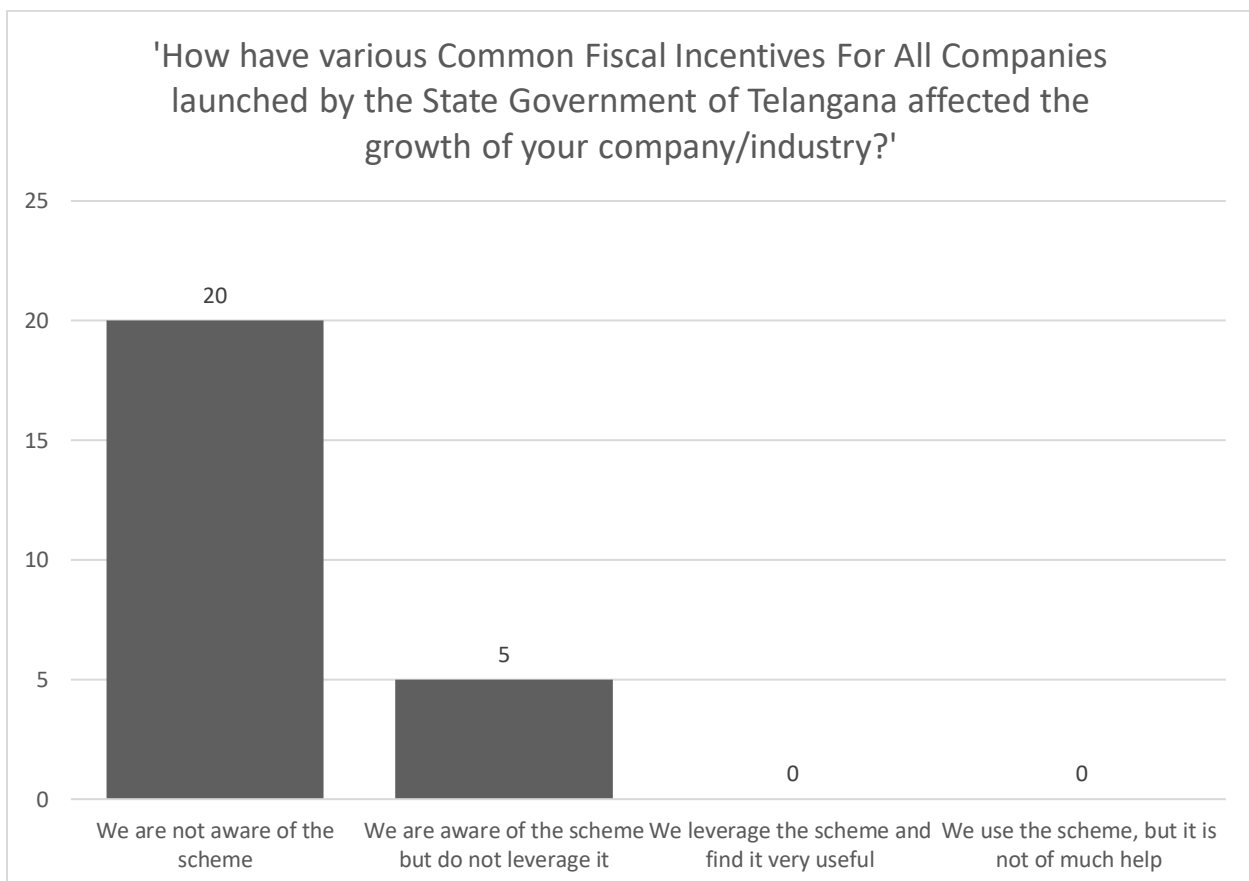


Figure 8.20: Awareness and utilization of 'Common Fiscal Incentives For All Companies' Scheme

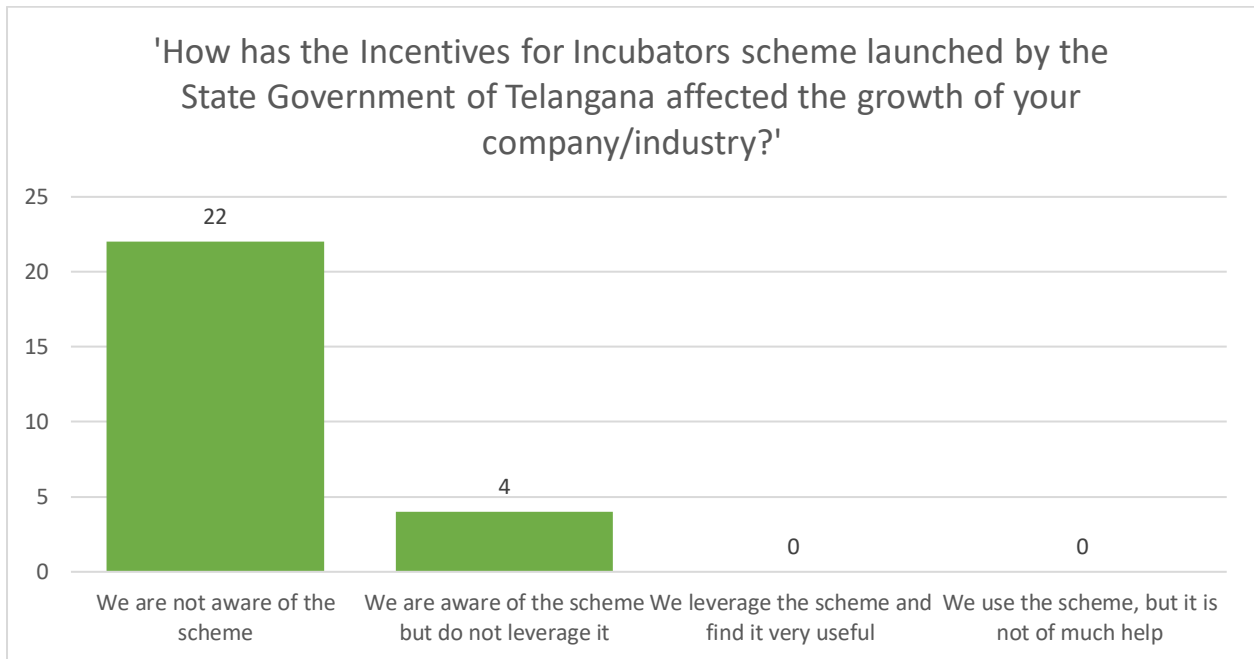


Figure 8.21: Awareness and utilization of 'Incentives for Incubators' Scheme

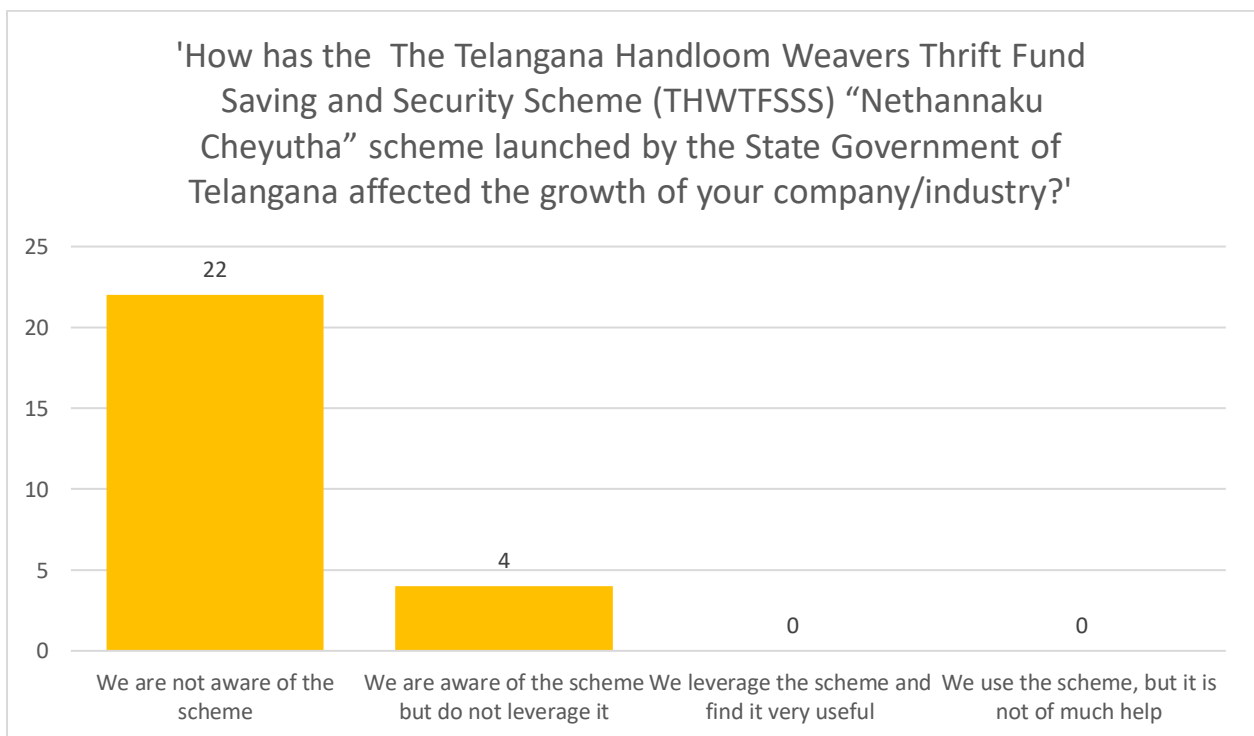


Figure 8.22: Awareness and utilization of "Nethannaku Cheyutha" Scheme

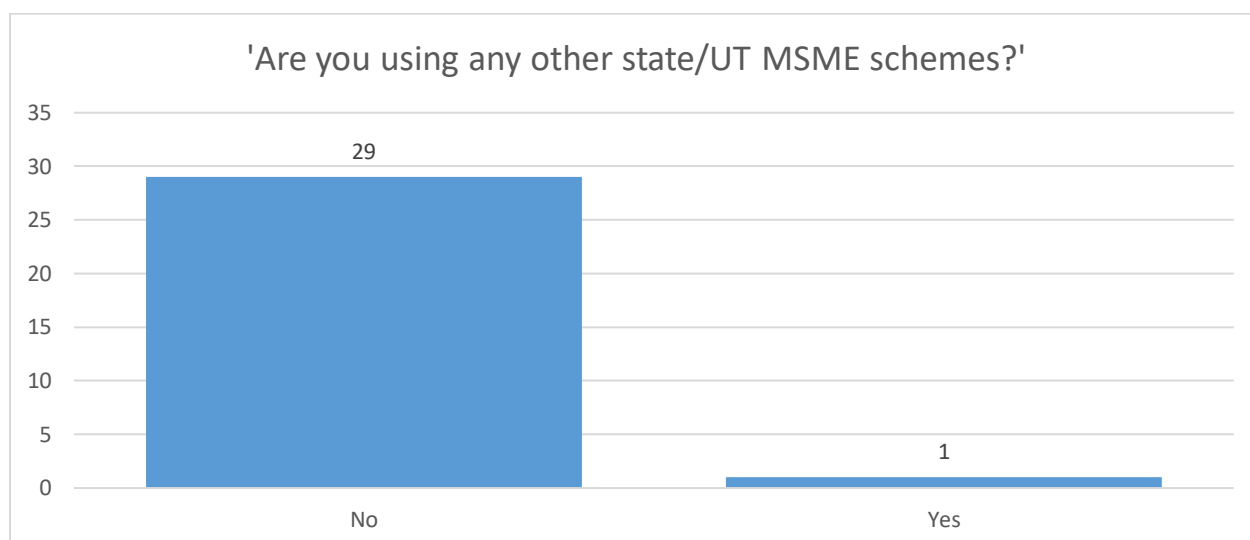


Figure 8.23: Utilization of any other State/UT MSME Scheme by the MSMEs in Telangana

Key insights: Awareness and Utilization of MSME Schemes in Telangana

- Majority of the respondents are unaware of the 20 prominent schemes launched by the State Government of Telangana that were selected for this study.
- A considerable number of MSMEs in our survey, although aware of these 20 schemes, are not effectively capitalizing on them, pointing to untapped opportunities for growth and development.
- 2 out of 29 respondents leverage the Telangana State Industrial Project Approval and Self-Certification System (TS-iPASS) Scheme and find it very useful while 6 out of the remaining 27 leverage it but do not find it beneficial, highlighting potential areas for improvement.
- An intriguing discovery is the complete lack of awareness among all 27 respondents regarding the Driver Empowerment Programme, underscoring the need for enhanced communication and outreach strategies to ensure wider participation and uptake of such initiatives.
- While 1 out of 30 respondents did mention using a scheme from other State/UT government, they chose not to specify the name of the scheme. All the remaining 29 specified that they are not utilizing any schemes launched by other State/UT Governments.

8.2 Perceptions on Government Reforms

Amidst the ongoing wave of MSME reforms introduced by central and state governments, a pivotal question emerges for the MSME sector: Can these reforms cultivate an environment

supportive of exploring indigenization initiatives in manufacturing? This inquiry delves into how governmental policies might influence the procurement strategies of MSMEs, specifically their interactions with indigenous suppliers.

It is evident from Figure 8.24 that there is a significant proportion of respondents (10 out of 28) who anticipate that many companies will indeed switch to indigenous suppliers in response to the current level of MSME reforms by the government. A notable portion of respondents (12 out of 28) foresee some companies turning to indigenous suppliers. Conversely, a smaller proportion (6 out of 28) anticipate that things will remain the same, implying a degree of skepticism regarding the transformative potential of the current reforms on procurement practices.

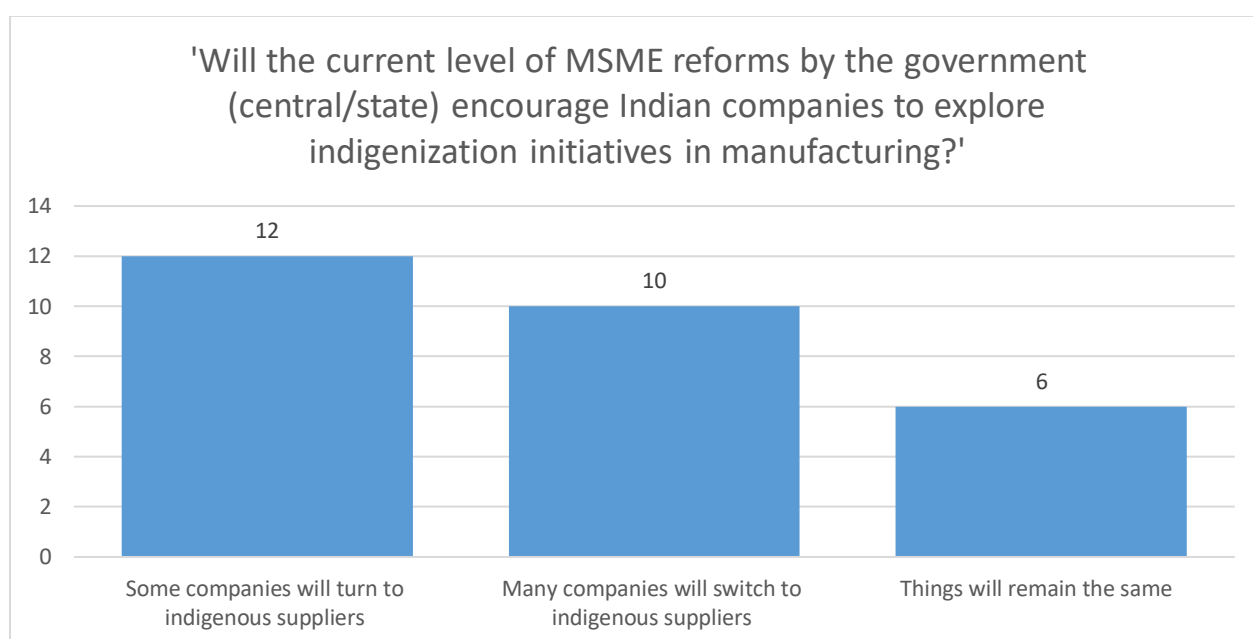


Figure 8.24: Distribution of whether current level of MSME reforms encourage indigenization initiatives in manufacturing

Figure 8.25 shows that most respondents (15 out of 30) are unable to provide a comment on whether the government's current MSME reforms will encourage Indian companies to purchase products or services from MSMEs. Among those who did respond, 9 out of 30 express doubt that these reforms will lead to increased purchases from MSMEs, while only 6 out of 30 believe that the reforms will indeed encourage such behaviour.

'Will the government's current level of MSME reforms encourage Indian companies to buy products or services from MSMEs?'



Figure 8.25: Distribution of whether Government's current level of MSME reforms encourage Indian companies to buy products or services from MSMEs

Table 8.4 suggests that respondents perceive the government's MSME reforms as instrumental in encouraging Indian companies to buy products or services from MSMEs, driven by factors such as ease of procurement, and confidence in national initiatives like Atmanirbhar Bharat and Make in India. Moreover, the concept of LD charges repayment (Land Development charges), exemplified as a tangible benefit, further reinforces respondents' endorsement of these reforms.

Table 8.4: Distribution of whether Government's current level of MSME reforms encourage Indian companies to buy products or services from MSMEs

Will the government's current level of MSME reforms encourage Indian companies to buy products or services from MSMEs?
Ease of procurement
Confidence in make in India
LD charges repayment is one example
Athmanibhar Bharat and Make in India

Figure 8.26 highlights that 18 out of 33 respondents are unsure whether the reforms will lead to a significant shift in consumer preferences towards domestic products. On the other hand, a substantial minority (10 out of 33) are optimistic, believing that the reforms will indeed

encourage customers to buy more domestic products. However, a smaller number of respondents (5 out of 33) hold a pessimistic view, indicating skepticism about the potential impact of the reforms on consumer behavior.

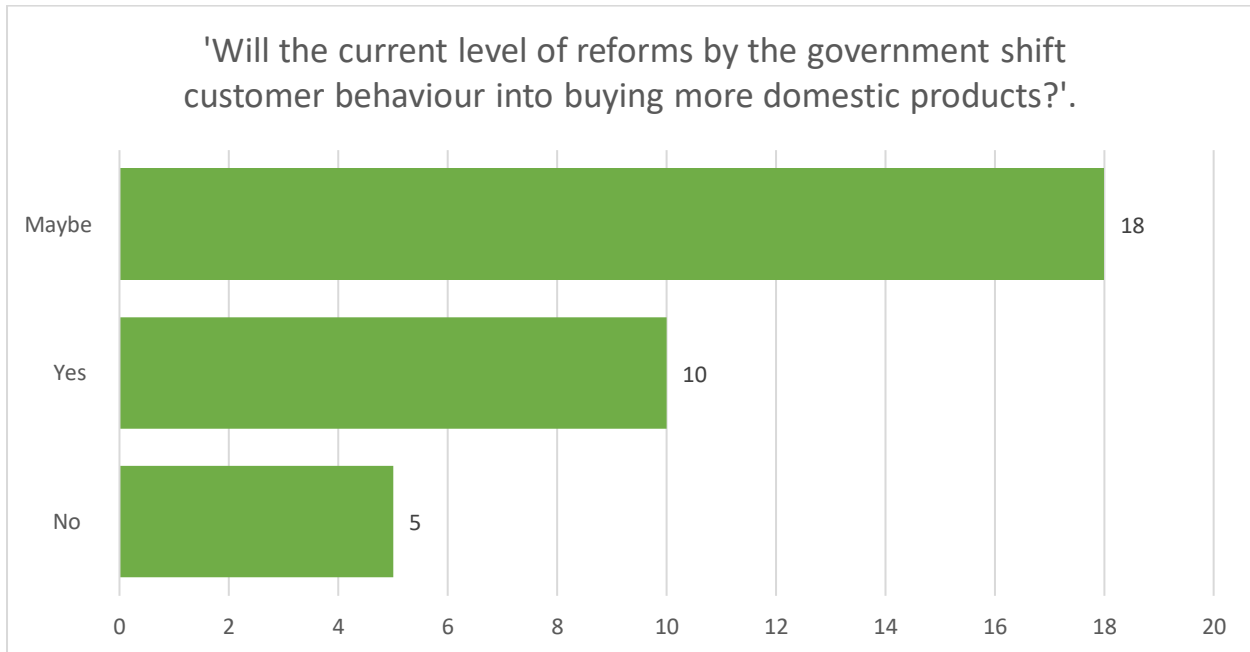


Figure 8.26: Distribution of whether the current level of reforms by the government shift customer behaviour into buying more domestic products

Key insights: Perceptions on Government Reforms

- 10 out of 28 respondents foresee many companies switching to indigenous suppliers due to current MSME reforms.
- 12 out of 28 respondents anticipate some companies turning to indigenous suppliers.
- 6 out of 28 respondents express skepticism, suggesting that procurement practices may remain unchanged.
- 15 out of 30 respondents are unsure if MSME reforms will increase purchases from MSMEs.
- 9 out of 30 respondents doubt the reforms will lead to increased purchases from MSMEs.
- Only 6 out of 30 respondents believe the reforms will encourage increased purchases from MSMEs.
- 3 out of 6 believers in increased purchases from MSMEs state their reasons as ease of procurement and confidence in national initiatives like Atmanirbhar Bharat and Make in India. LD charges repayment cited as tangible benefit reinforcing support for reforms.

8.3 Loan Availment and Financial Metrics

Figure 8.27 shows that 26 out of 33 respondents have not availed themselves of any loan offers announced by the government (state or central). Conversely, a smaller proportion, 7 out of 33 respondents, indicate that they have indeed taken advantage of such loan offers. This insight highlights a potential gap between the availability of government-backed loan schemes and their uptake by respondents, indicating potential areas for further analysis regarding the accessibility, awareness, or effectiveness of these loan programs.

'Have you availed of any loan offers announced by the government (state or central)?'

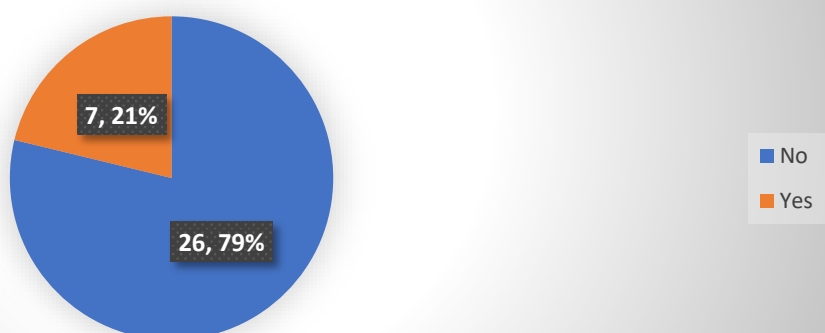


Figure 8.27: Availment of Loan Offers announced by the government (State or Central)

Figure 8.28 indicates that among MSMEs surveyed, the majority with no debt, 10 out of 12 respondents, have not availed themselves of any loan offers announced by the government. This indicates that MSMEs without existing debt may be less inclined to seek additional financing through government loan schemes.

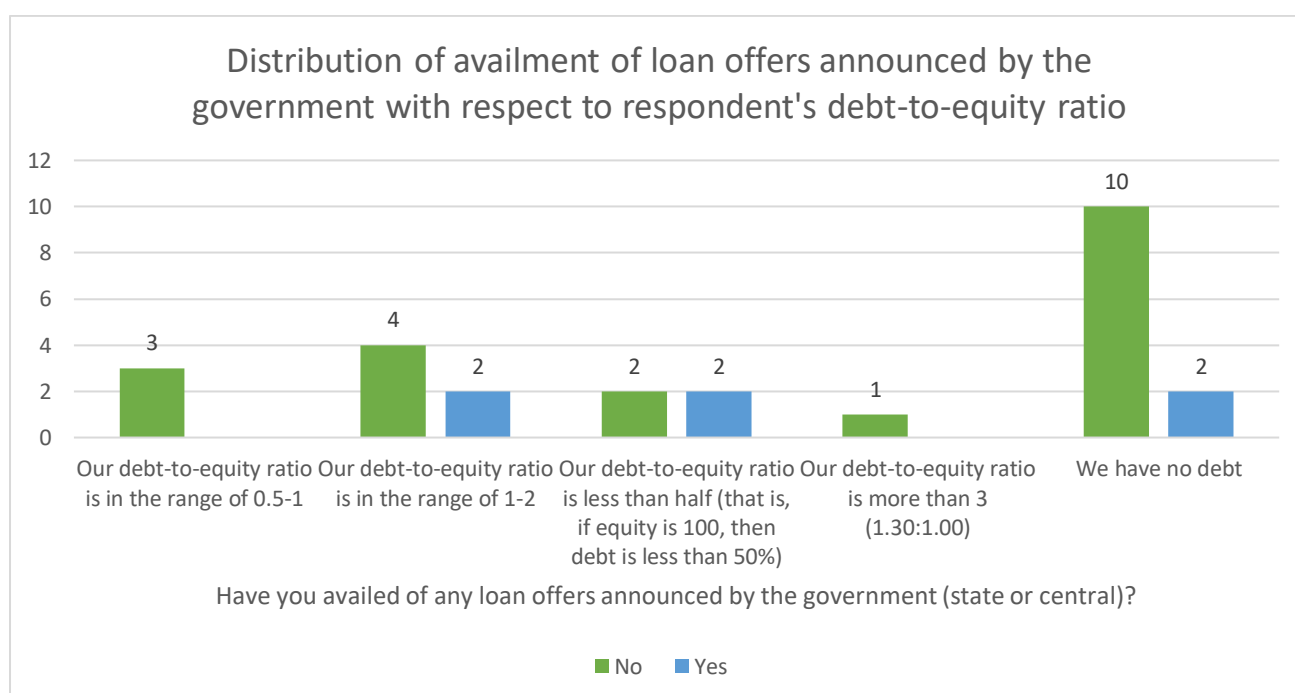


Figure 8.28: Distribution of availment of loan offers announced by the government with respect to respondent's debt-to-equity ratio

Table 8.5 represents the reasons why respondents have not availed loan offers announced by the government. Lack of awareness about loan offers among respondents highlights the need for improved dissemination of information about government financing programs. Concerns about bureaucratic hurdles within banks and strategic timing for loan utilization suggest barriers and considerations influencing MSMEs' decisions regarding external financing.

There is a need for closer collaboration between government agencies and financial institutions to bridge the gap between loan availability and uptake, ensuring that MSMEs have access to the financing they need to thrive and grow.

Table 8.5: Reasons for not availing loan offers announced by the government

If you have not availed of any loan offers, specify reasons, if any
Not aware of those offers
Banks are too beurocratic.
Waiting to avail loans and incentives after stabilizing our business model
Self-funded
Not aware

Key insights: Loan Availment and Financial Metrics

- Only 7 out of 33 respondents have availed themselves of government-backed loan schemes, indicating a significant gap between availability and uptake.
- MSMEs without existing debt are less likely to seek additional financing through government loan schemes indicating that the presence of debt might influence MSMEs' decisions regarding external financing options.
- Lack of awareness seems to be a key factor contributing to the low uptake of government loan offers. This suggests a need for improved dissemination of information about these programs.
- Apart from awareness, there are other factors such as administrative complexities and timing considerations that influence MSMEs' decisions regarding loans.
- There is a need for closer collaboration between government agencies and financial institutions to bridge the gap between loan availability and uptake, ensuring that MSMEs have access to the financing they need to thrive and grow.

8.4 Evaluation of Government Initiatives at both the Central and State level

We listed ten government initiatives for the respondents to check how useful each one of them has been:

- a) Change of MSME definition
- b) Emergency Working Capital Facility
- c) Equity support through Rs. 10000 crores Funds of Fund
- d) Subordinate Debts for Non-performing assets
- e) Payment of MSME dues by Central Public Sector Enterprises in 45 days
- f) Restriction on Global tenders up to Rs. 200 crores
- g) Establishment of e-Marketplace
- h) Interest Subvention for MUDRA-Shishu Loans
- i) Reduction of EPF contribution
- j) Any other, specify

Figure 8.29 highlights that among the various government initiatives listed for respondents to assess their usefulness, the most beneficial initiatives are those directly addressing cash flow and liquidity challenges, as evidenced by the high ratings for initiatives such as the "Payment of MSME dues by Central Public Sector Enterprises in 45 days"(12 responses) and the "Emergency Working Capital Facility"(9 responses).

Conversely, initiatives focusing on structural or long-term support, such as "Subordinate Debts for Non-performing assets"(0 responses) received lower ratings, suggesting that immediate financial relief measures are prioritized over initiatives with longer-term impacts. This underscores the importance of tailoring government support programs to address the immediate needs and challenges faced by MSMEs, particularly in times of economic uncertainty.

4 respondents chose to specify other government initiatives that are useful to them. Out of these 4, one mentioned 'Infrastructure - Land Allotment' and the other mentioned 'fund based non-fund-based limits from banks' as useful government initiatives for their organizations. However, the remaining two said they have not used or did not find any other government initiatives useful.

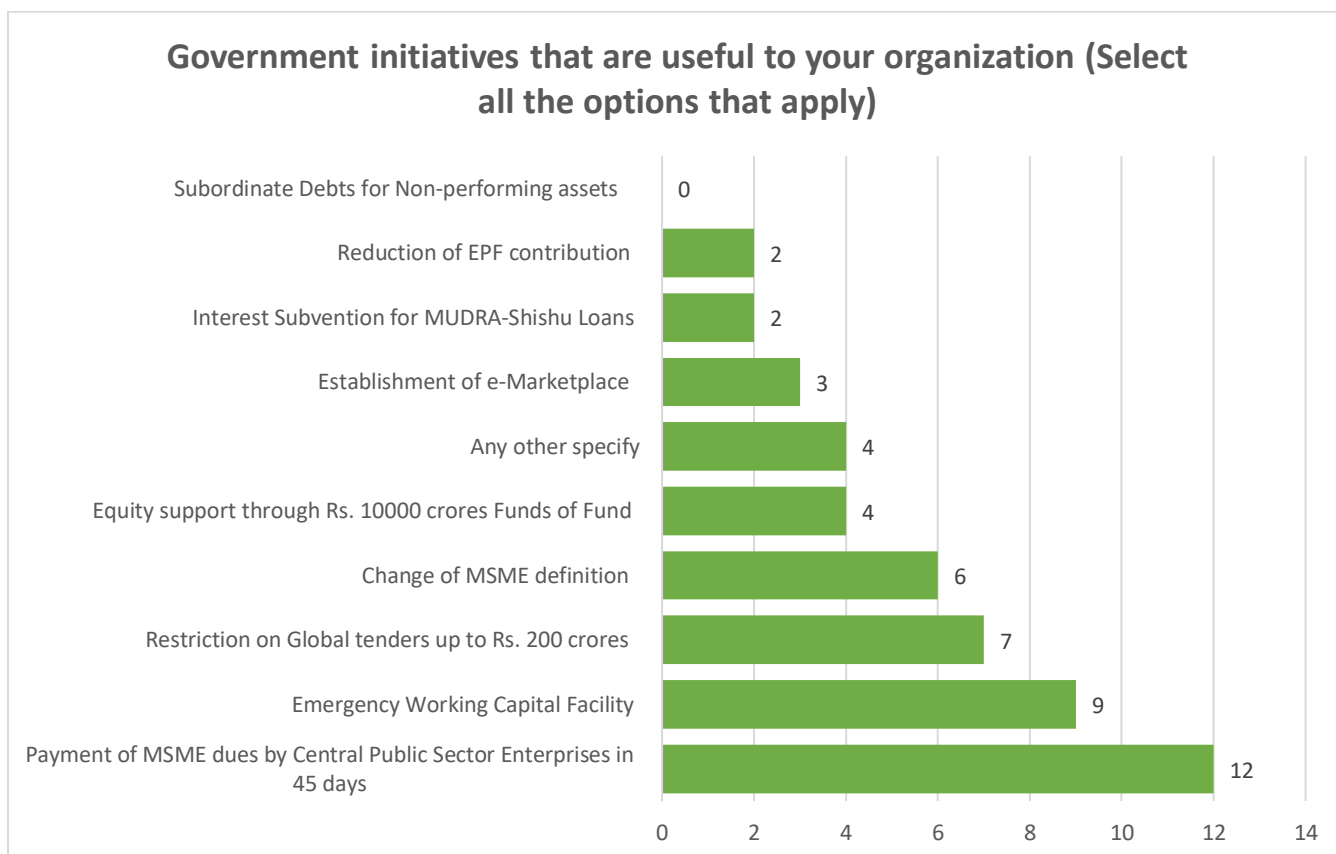


Figure 8.29: Government initiatives that are useful to your organization (Select all the options that apply)

Table 8.6 summarizes all the other measures that respondents think government should take to ensure growth in the MSME sector in the long term. The need for tailored norms to safeguard micro enterprises from being overshadowed by larger industries, emphasizing the need for separate regulations to foster their growth. Respondents have also stressed on the necessity of supportive policies like tax cuts on procurements from MSME, ban on Chinese semi-finished goods, technological integration through Industry 4.0, and access to government benefits to facilitate MSME scaling and competitiveness in the long term. One respondent also advocates for proactive measures such as mandatory procurement from MSMEs by both public and private sectors, along with enforcing timely payment regulations to bolster MSME viability.

Table 8.6: Other measures government should take to ensure growth in the MSME sector in the long term

What other measures do you think the government should take to ensure growth in the MSME sector in the long term? (Please be specific)
guide in scaling up
Ease of doing business
Should have a separate Norms for micro enterprises, Bringing the industry into 300cr into makes is killing of micro enterprises
To encourage MSMEs all PSUs should place orders on MSMEs with specific %, instead of giving majority % orders on large scale Industries
Ensure all Private companies are also forced to pay bills within 45 days. If not do not let them take it as an expense for IT calculation. State govt should provide more marketing support.
TIMELY FUNDING
Tax cuts on procurements from MSME, ban on Chinese semi-finished goods
EASY TO AVAIL GOVERNMENT BENEFITS
Industry 4.0 policy is a must to ensure MSMEs grow using cutting-edge technology

8.4.1 Awareness of State Level Export Promotion Committee

The Government of Telangana has constituted a committee called “State Level Export Promotion Committee” (SLEPC) under the “Assistance to States for Developing Export Infrastructure and Allied Activities” (ASIDE) Scheme of the Government of India for creating appropriate infrastructure for the development and growth of exports.

Figure 8.30 shows that 23 out of 29 respondents are not aware of SLEPC, suggesting a significant gap in knowledge about this resource among the surveyed population. 3 respondents have not applied but plan to apply for SLEPC benefits which indicates some interest or intention among a small portion of the surveyed population to explore the opportunities provided by SLEPC.

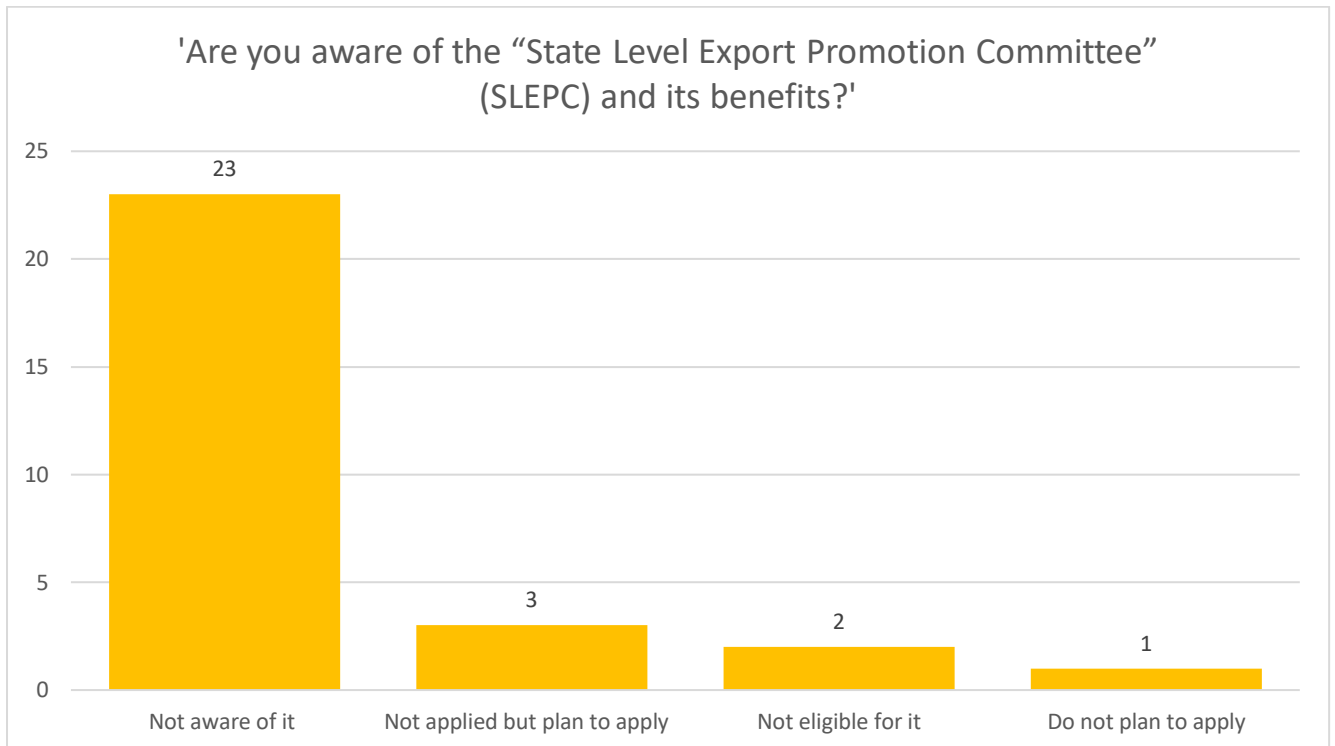


Figure 8.30: Awareness of State Level Export Promotion Committee(SLEPC) and its benefits

8.4.2 Major benefits of "Telangana State Logistics Policy 2021-26" since its inception

Figure 8.31 shows that an overwhelming majority of respondents (26 out of 29) are not aware of the 'Telangana State Logistics Policy 2021-26', indicating a significant gap in knowledge about its existence and potential benefits among the surveyed population. Despite the low awareness, a few respondents (3 out of 29) identified potential benefits of the policy as the development of robust infrastructure and improvement in the availability of skilled workforce.

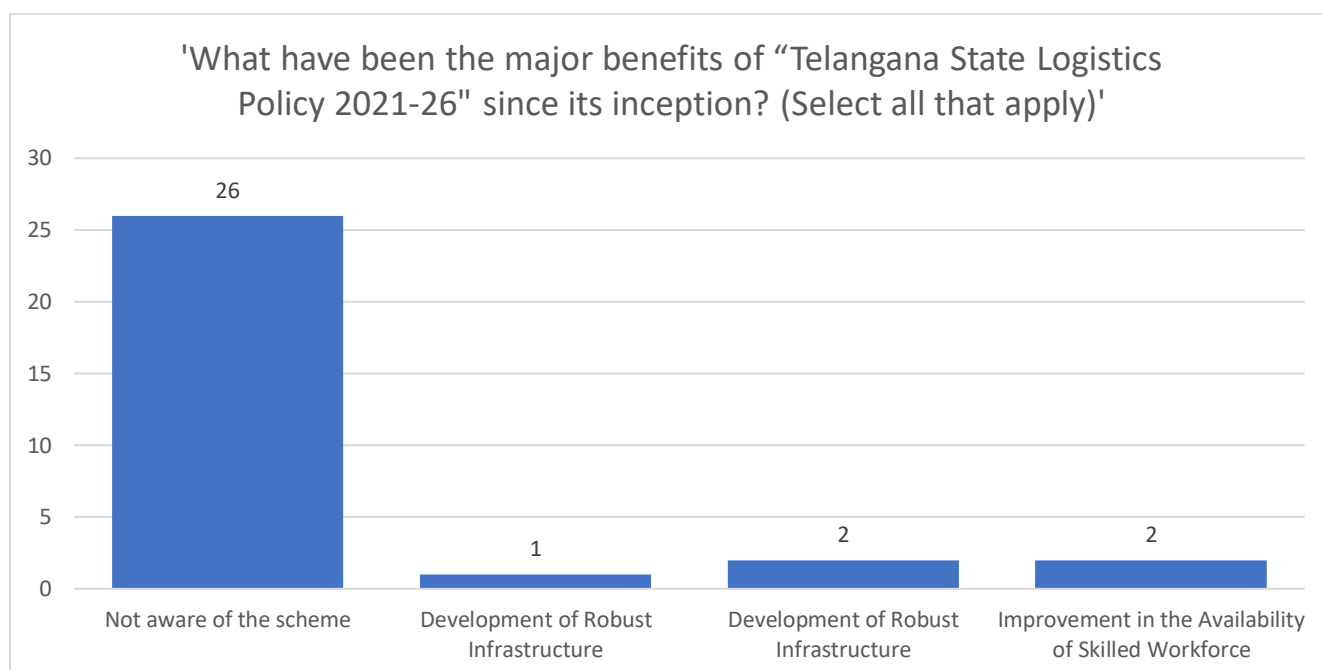


Figure 8.31: Major benefits of “Telangana State Logistics Policy 2021-26” since its inception

8.4.3 Projects under the TS-iPASS Initiative

Telangana approved 3,938 projects with investments totalling ₹17,867 crore under its flagship TS-iPASS initiative for industries during the fiscal year that ended March 31, 2022. However, according to Figure 8.32, 14 out of 33 respondents are not aware of the TS-iPASS initiative. Only 6 respondents applied for the program. Despite some level of awareness, a significant portion of respondents (13 out of 33) did not apply for any projects under this initiative. This suggests potential barriers or challenges that may have deterred participation in the program.

Respondents who participated in the TS-iPASS initiative primarily applied for projects related to industrial incentives and the expansion of their industries. This aligns with the objectives of TS-iPASS to facilitate industrial expansion and promote economic growth in the state. While respondents specified the type of projects they applied for, there is no mention of the funding received.

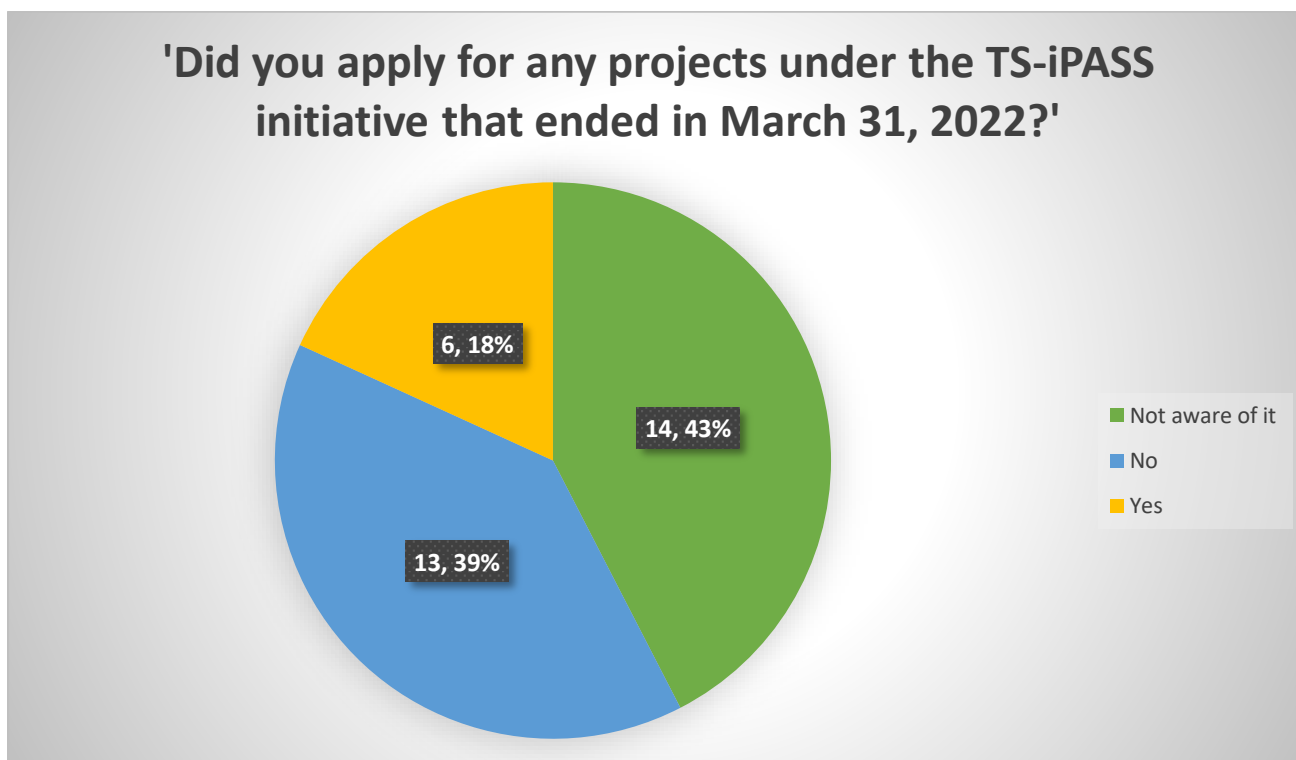


Figure 8.32: Applying for projects under the TS-iPASS initiative that ended in March 31, 2022

8.4.4 Telangana State GlobalLinker

Telangana State GlobalLinker is a digital networking platform that helps MSMEs contact global buyers and sellers and get appraised about opportunities in the sector.

According to figure 8.33, a minority of respondents (5 out of 29) reported using the Telangana State GlobalLinker platform, either occasionally or as a member. However, 14 out of 29 respondents are not aware of this platform, indicating a significant gap in knowledge about this resource. By addressing barriers to utilization and highlighting the benefits of the platform, more businesses may be encouraged to leverage its resources for networking, collaboration, and growth opportunities.

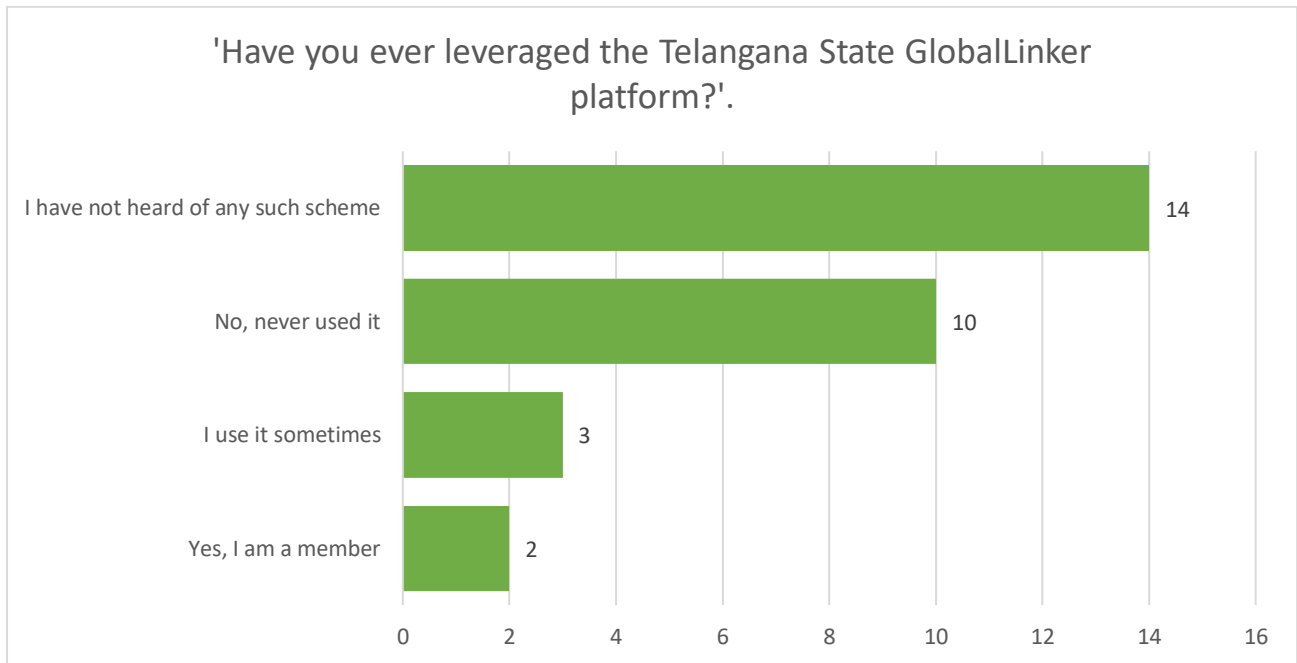


Figure 8.33: Leveraging the 'Telangana State GlobalLinker Platform'

8.4.5 Impact of recent changes in the Prime Minister's Employment Generation Programme' (PMEGP)

Recent changes in the 'Prime Minister's Employment Generation Programme' (PMEGP) include an increase in the maximum project cost to Rs 50 lakh (from Rs 25 lakh) for the manufacturing sector and Rs 20 lakh (from Rs 10 lakh) in the service sector.

Figure 8.34 gives an overview of the impact of these changes. 7 out of 32 respondents are unsure whether recent changes in the PMEGP have positively impacted their company. Among the respondents who have participated in the PMEGP, a small number (2 out of 32) reported that recent changes have positively impacted their company, while a slightly larger number (6 out of 32) stated that they have not experienced any positive impact. These findings highlight the need for enhanced awareness and evaluation of the PMEGP among companies, particularly regarding recent changes and their potential benefits.

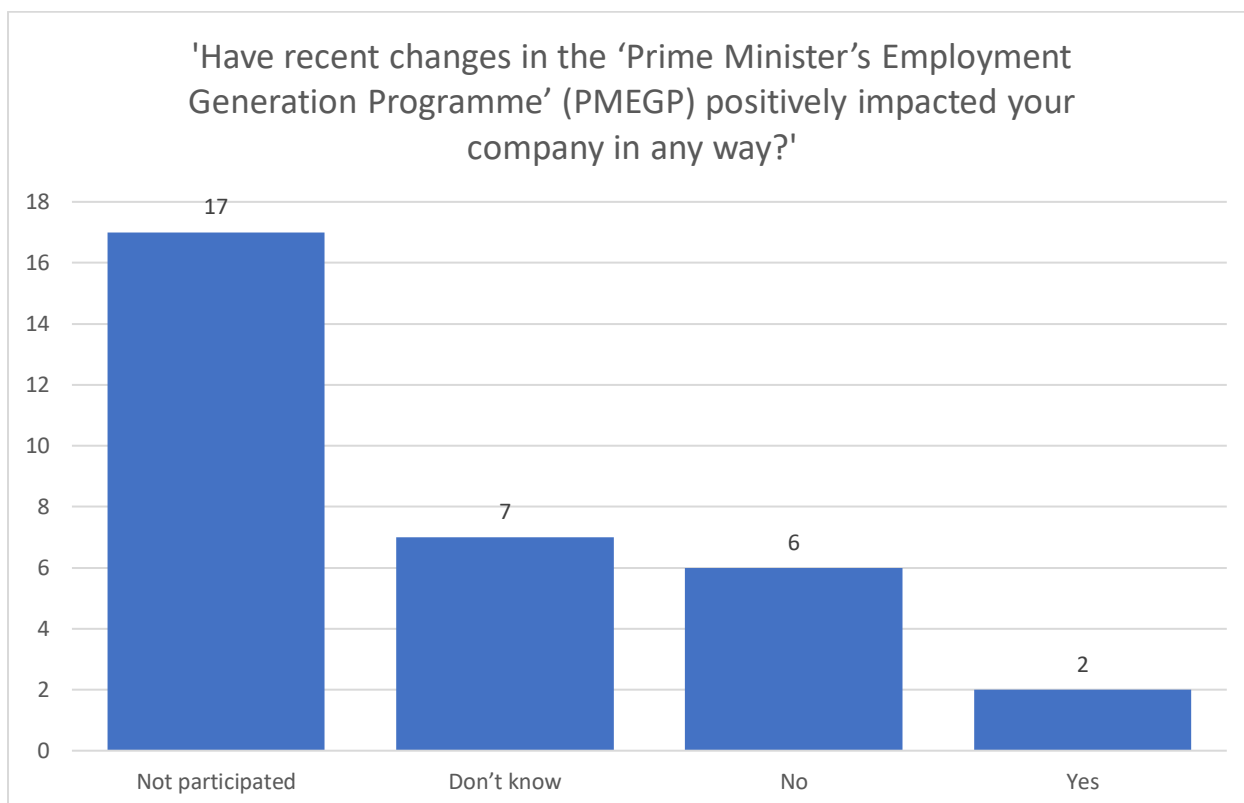


Figure 8.34: Impact of recent changes in the 'Prime Minister's Employment Generation Programme' (PMEGP)

8.4.6 Outreach of the Telangana MSME Green Industrial Park in Dandumalkapur

The Telangana MSME Green Industrial Park in Dandumalkapur is being set up to facilitate the establishment of 589 MSME units to promote employment opportunities, particularly to rural youth and residents, through skill development centres. Moreover, under the 'walk to work' concept, an industrial township is being constructed to help accommodate employees and entrepreneurs working in the Green Industrial Park.

Figure 8.35 indicates a balanced response from MSMEs regarding their interest in being part of the Telangana MSME Green Industrial Park in Dandumalkapur, with an equal number of respondents expressing 'Yes' (11), 'No' (11), and 'Maybe' (10). This suggests a mixed perception among MSMEs regarding the attractiveness of the industrial park as a community to join.

Proximity and location concerns emerge as key factors influencing respondents' decisions on participation in the Telangana MSME Green Industrial Park. Industry-specific needs, such

as those of the aerospace sector, are another reason why one of the respondents does not prefer getting involved in the industrial park.

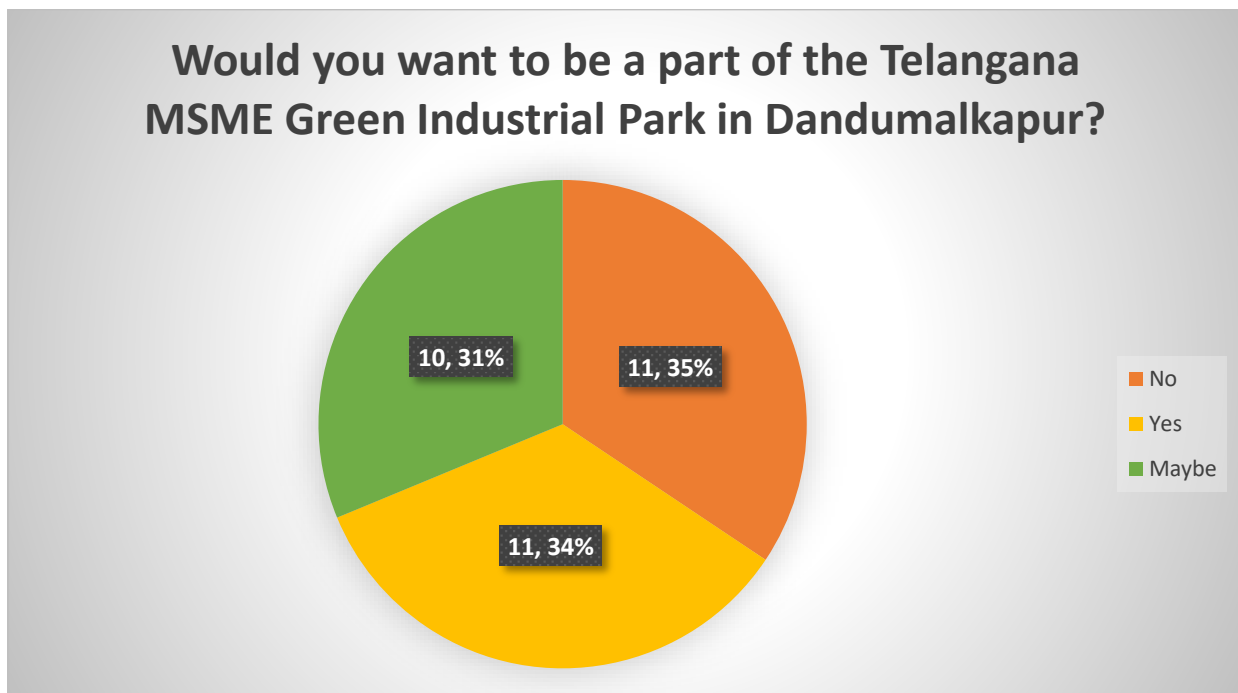


Figure 8.35: Interest in being a part of the Telangana MSME Green Industrial Park in Dandumalkapur

8.4.7 Training under Industry body FTCCI and Amazon's Memorandum of Understanding

Industry body FTCCI and Amazon have signed a Memorandum of Understanding to enable e-commerce adoption by its MSME members in Telangana State.

Figure 8.36 shows that limited awareness exists among surveyed companies regarding the e-commerce training initiative by FTCCI and Amazon, with 12 out of 29 respondents unaware of the program. Despite awareness, a significant proportion (17 out of 29) have not participated, suggesting potential barriers hindering engagement that require attention for increased adoption of e-commerce practices.

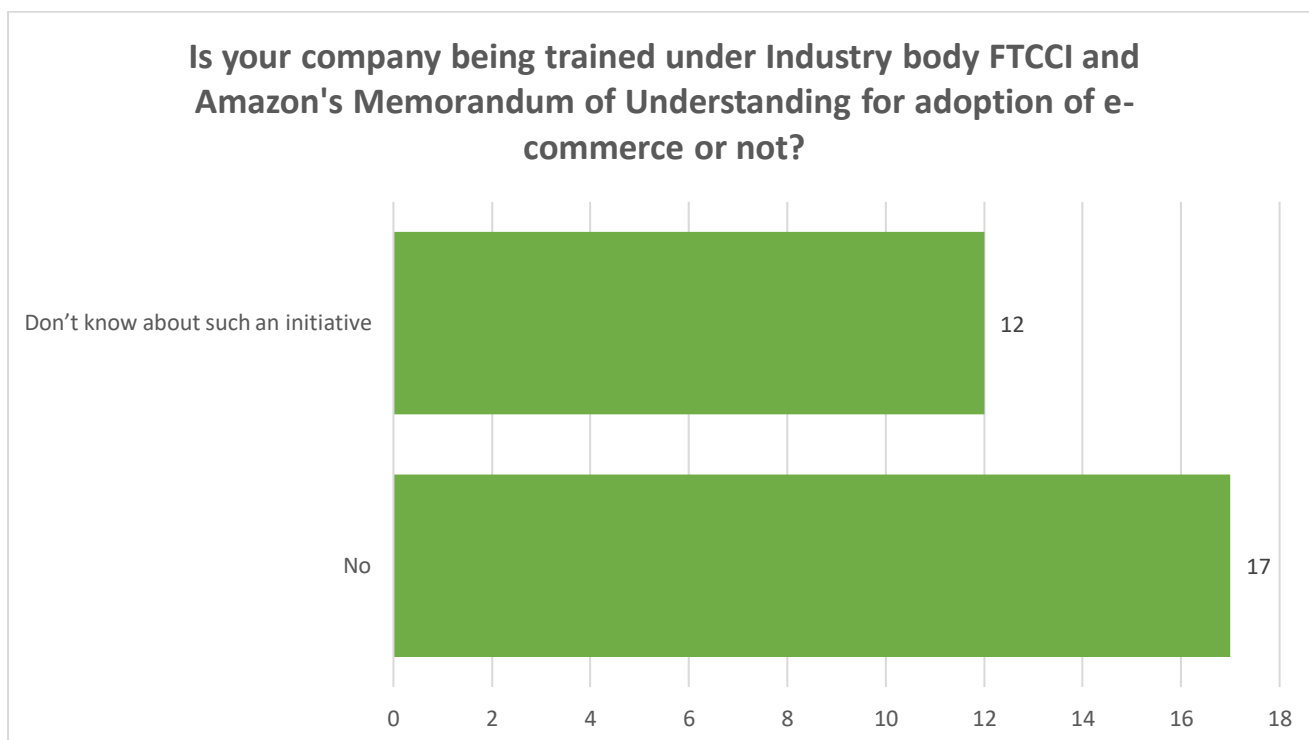


Figure 8.36: Training under Industry body FTCCI and Amazon's Memorandum of Understanding for adoption of e-commerce

8.4.8 Major impact of 'Credit Guarantee Scheme for Subordinate Debt'

Ministry of Micro, Small and Medium Enterprises has framed a Scheme called the "Credit Guarantee Scheme for Subordinate Debt" for providing guarantees in respect of credit facilities extended by eligible and registered scheduled commercial banks to borrowers in Micro, Small and Medium Enterprises (MSMEs).

Figure 8.37 shows that the majority of respondents (19 out of 23) lack awareness of any impact resulting from the 'Credit Guarantee Scheme for Subordinate Debt' in Telangana industries. However, a small number (2 out of 23 each) recognize its positive impact on credit additionality and the revival of distressed MSMEs, suggesting potential benefits amidst limited awareness.

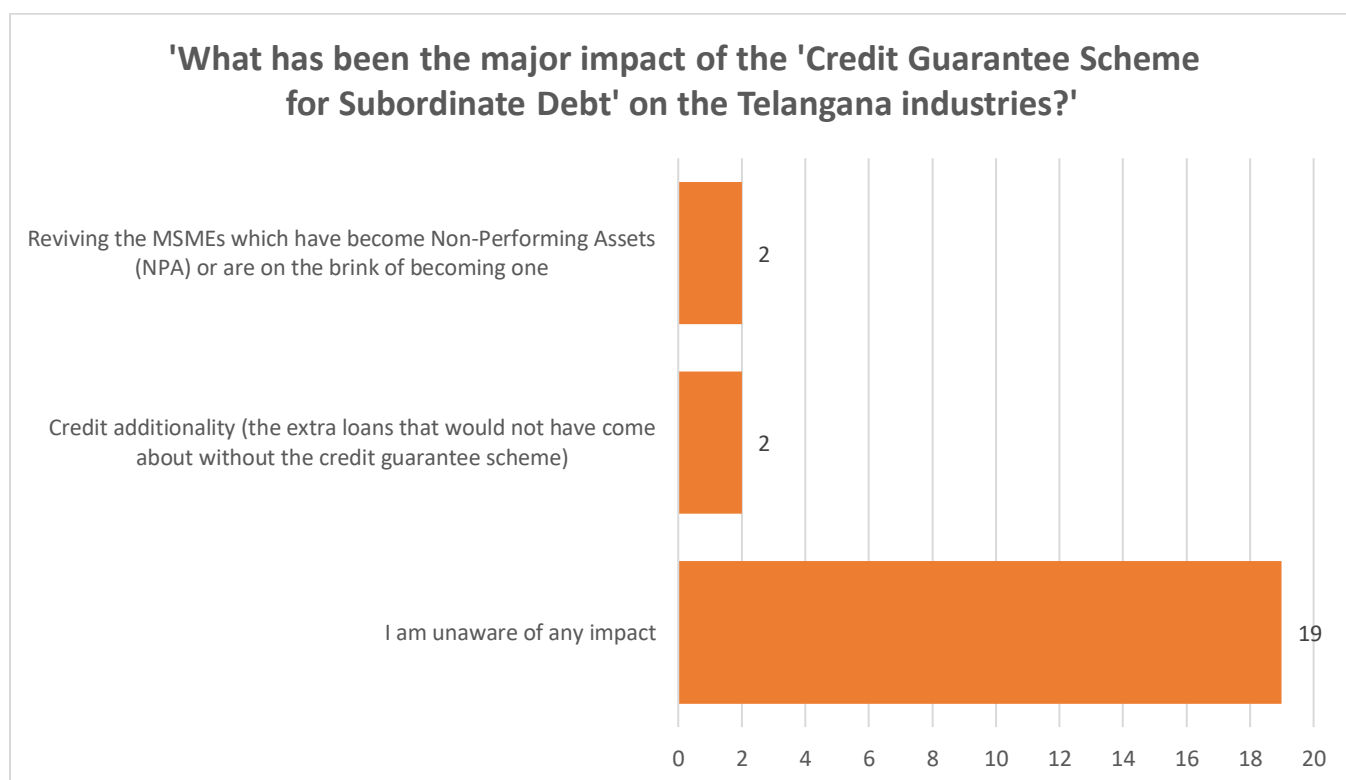


Figure 8.37: Major impact of the 'Credit Guarantee Scheme for Subordinate Debt' on the Telangana industries

8.5 Leverage of Central MSME Schemes and its clusters

The Government of Telangana has access to 258 MSME Schemes launched by the Central Government of India according to our compilation of MSME Schemes. We specifically curated 8 questions related to the Central Government MSME Schemes applicable to Telangana enquiring whether the respondents are leveraging any of the Central Government schemes. Furthermore, we have categorized these Central schemes into seven distinct sub-sections: innovation, technology, skilling, women empowerment, SC/ST/Specially-Abled/Minorities/EWS support, green/sustainability initiatives, and entrepreneurship, to help us get a better idea about the schemes being utilized in Telangana related to these topics.

8.5.1. Leverage of Central MSME Scheme

Figure 8.38 shows that the majority of respondents (26 out of 28) have not been leveraging any MSME schemes promoted by the central government. 2 out of 28 respondents are leveraging Central MSME Schemes. However, only 1 respondent who is the founder of a micro-enterprise operating in both manufacturing and services that caters to Renewable Energy and Solar Parks, mentioned using CGTMSE Scheme, to support its operations and

growth. Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE), jointly set up by the Ministry of Micro, Small & Medium Enterprises (MSME), Government of India and Small Industries Development Bank of India (SIDBI), catalyses flow of institutional credit to Micro & Small Enterprises (MSEs). It was launched to strengthen the credit delivery system and to facilitate flow of credit to the MSE sector, create access to finance for the unserved, under-served and underprivileged, making the availability of finance from conventional lenders to new-generation entrepreneurs.[1]

The high number of respondents not leveraging any Central MSME scheme may indicate potential barriers such as lack of awareness, complexity of application processes, or perceived benefits.

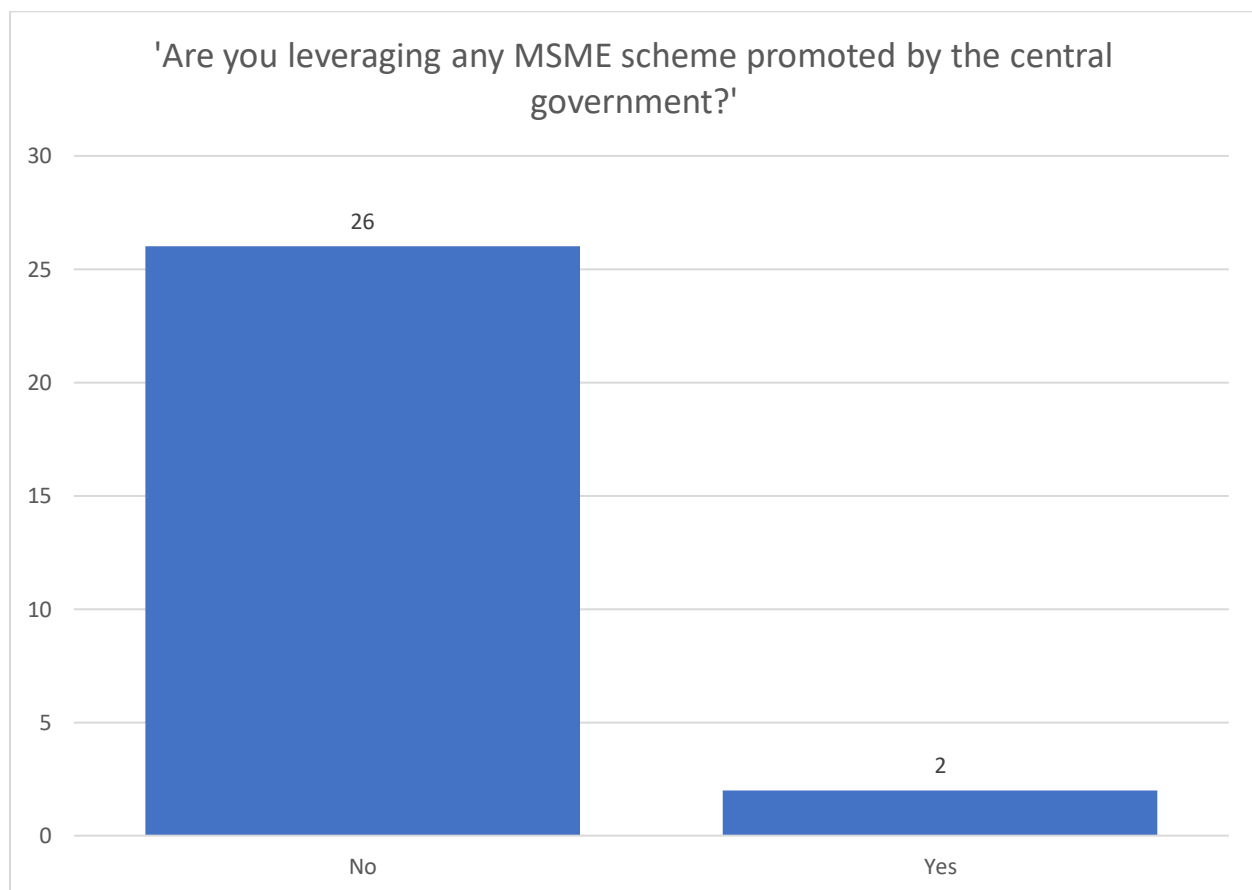


Figure 8.38: Leverage of MSME Schemes launched by the Central Government

Key insights: Leverage of Central MSME Scheme

- Among 28 respondents, 26 are not utilizing any Central MSME Scheme.
- 2 out of 28 respondents are using some MSME Scheme launched by the Central Government.
- A sole respondent, the founder of a micro-enterprise specializing in Renewable Energy and Solar Parks, has mentioned that his company leverages the CGTMSE scheme.

8.5.2 Leverage of Central MSME Scheme Related to Innovation

Figure 8.39 shows that 15 out of 29 respondents are not leveraging any central MSME schemes related to innovation. This suggests a potential gap in adopting government-supported initiatives to foster innovation within MSMEs. However, a notable portion of respondents (13 out of 29) indicated being unaware of any MSME schemes related to innovation. These insights highlight the need for efforts to enhance awareness and uptake of central MSME schemes to promote innovation among Telangana's MSMEs. One respondent agreed to leverage a scheme related to innovation but did not disclose the name of the scheme.

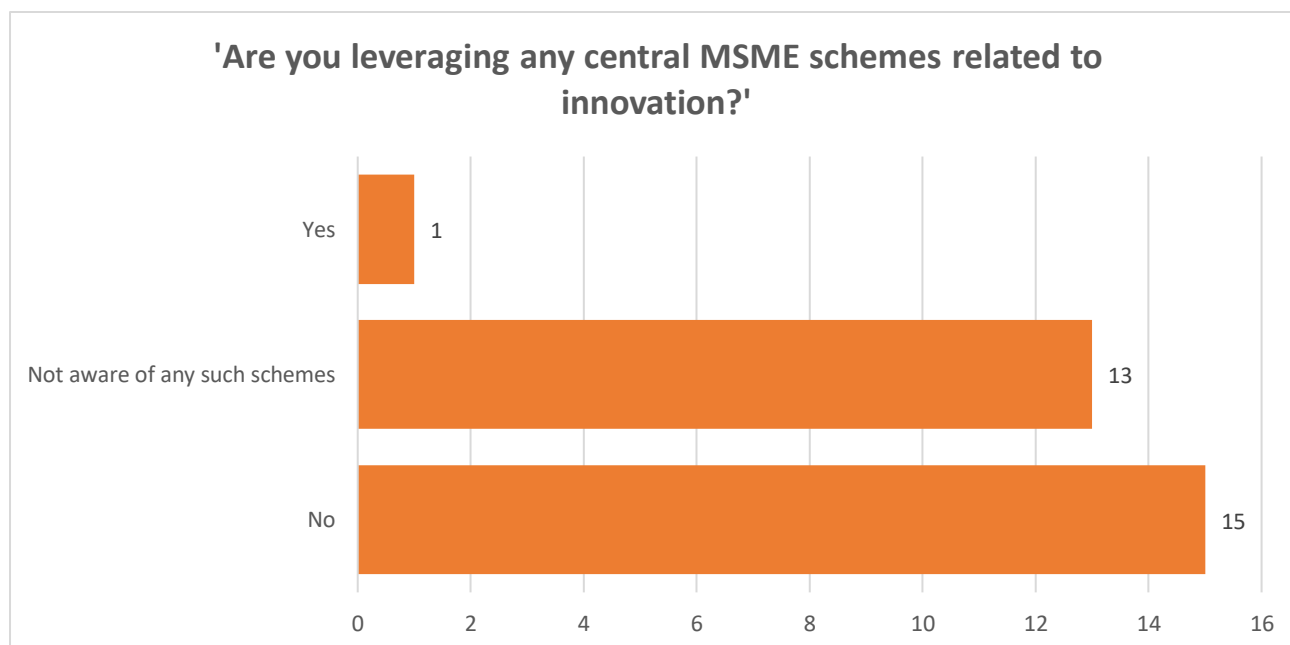


Figure 8.39: Leverage of Central MSME Schemes related to innovation by MSMEs of Telangana

Key insights: Leverage of Central MSME Schemes related to Innovation

- Among 29 respondents, 15 are not utilizing any Central MSME Schemes related to innovation.
- 13 respondents out of 29 are not aware of Central MSME Schemes related to innovation.
- 1 out of 29 respondents is using an MSME scheme launched by the Central Government but did not mention the name of the scheme.

8.5.3 Leverage of Central MSME Scheme Related to Technology

In Figure 8.40, it is evident that 15 out of 29 respondents are not utilizing any central MSME schemes related to technology. This observation highlights a notable gap in the adoption of government-supported initiatives intended to promote technological advancement within MSMEs. However, a notable portion of respondents (14 out of 29) indicated being unaware of any MSME schemes related to technology. These insights highlight the need for efforts to enhance awareness and uptake of central MSME schemes aimed at promoting technological advancement among the MSMEs of Telangana.

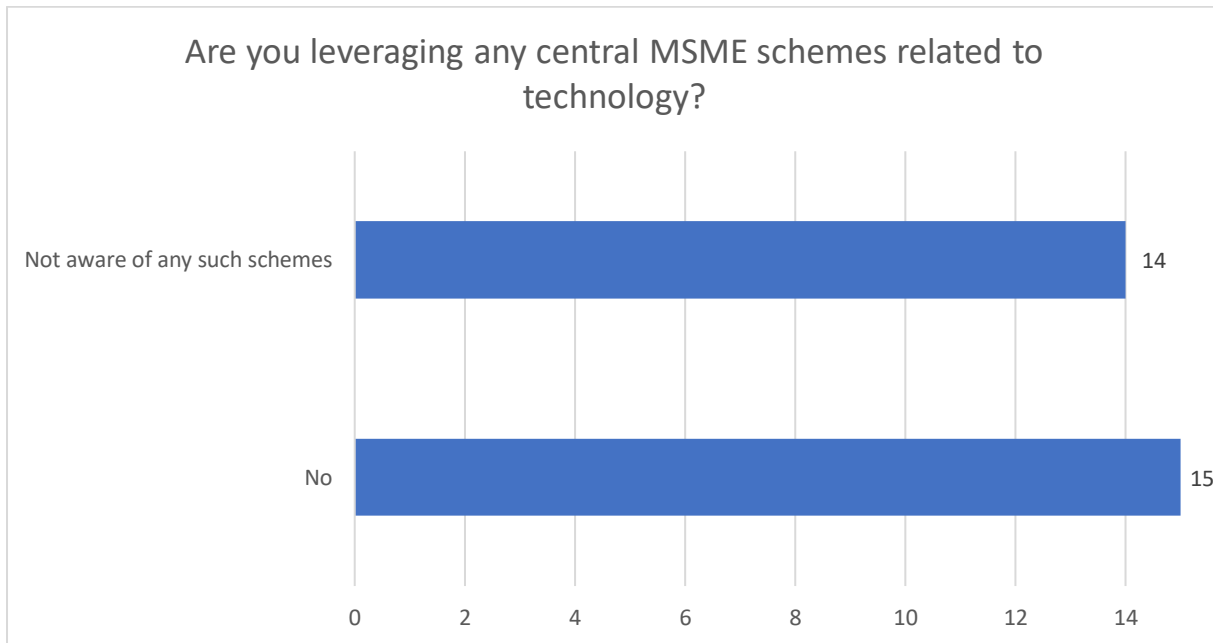


Figure 8.40: Leverage of Central MSME Schemes related to technology by MSMEs of Telangana

Key insights: Leverage of Central MSME Schemes related to Technology

- 8 out of 37 respondents did not answer this question.
- Among 29 respondents, 15 are not utilizing any Central MSME Schemes related to technology.
- 14 respondents out of 29 are not aware of any Central MSME Schemes related to technology.

8.5.4 Leverage of Central MSME Scheme related to Skilling

In Figure 8.41, it is evident that 16 out of 29 respondents are not utilizing any central MSME schemes related to skilling. This observation highlights a notable gap in the adoption of government-supported initiatives intended to promote skill development among workers within MSMEs. However, a significant portion of respondents (13 out of 29) indicated being unaware of any MSME schemes related to skilling. These insights underscore the

importance of efforts to enhance awareness and uptake of central MSME schemes aimed at fostering skill development within the MSMEs of Telangana.

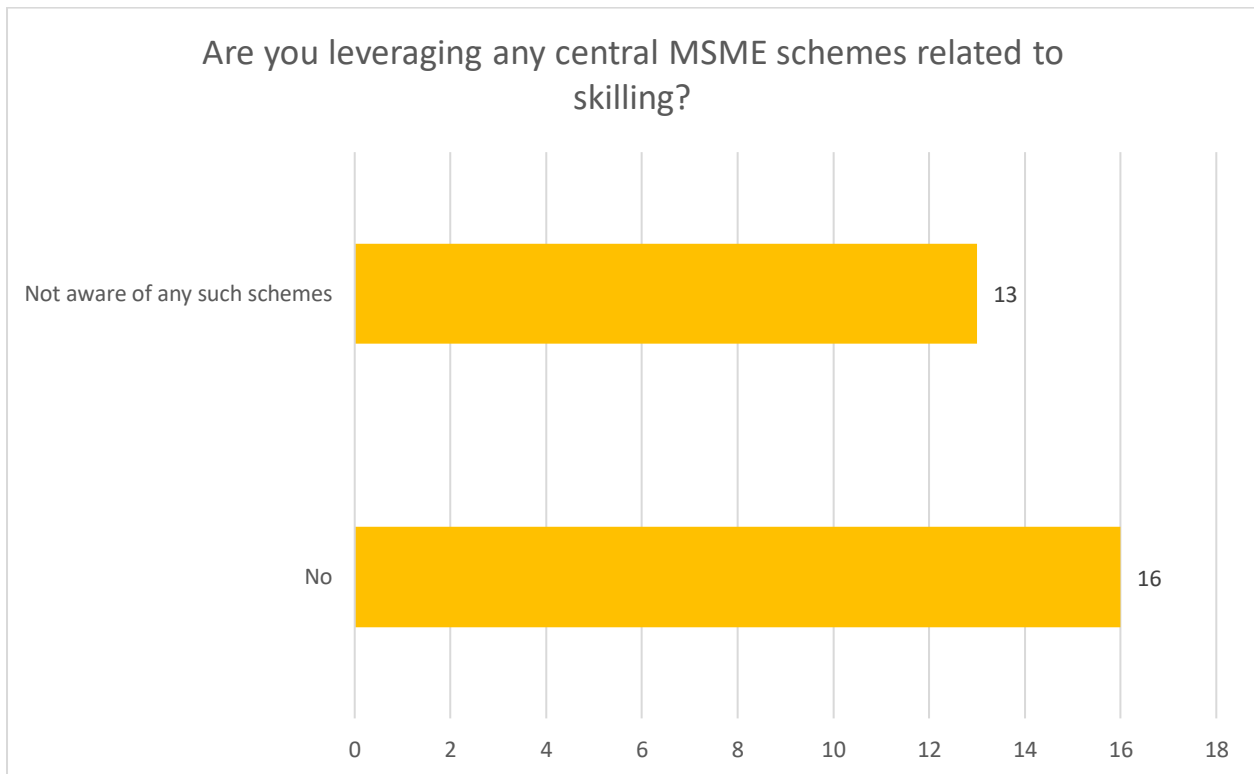


Figure 8.41: Leverage of Central MSME Schemes related to skilling by MSMEs of Telangana

Key insights: Leverage of Central MSME Schemes related to Skilling

- 8 out of 37 respondents did not answer this question.
- Among 29 respondents, 16 are not utilizing any Central MSME Schemes related to skilling.
- 13 respondents out of 29 are not aware of any Central MSME Schemes related to skilling.

8.5.5 Leverage of Central MSME Scheme Related to Women

In Figure 8.42, it is evident that 18 out of 29 respondents are not leveraging any central MSME schemes related to women. This observation highlights a notable gap in the adoption of government-supported initiatives intended to promote empowerment and support for women within MSMEs. However, a significant portion of respondents (11 out of 29) indicated being unaware of any MSME schemes related to women. These insights underscore the need for efforts to enhance awareness and uptake of central MSME schemes aimed at promoting women's empowerment and participation in the MSME sector of Telangana.

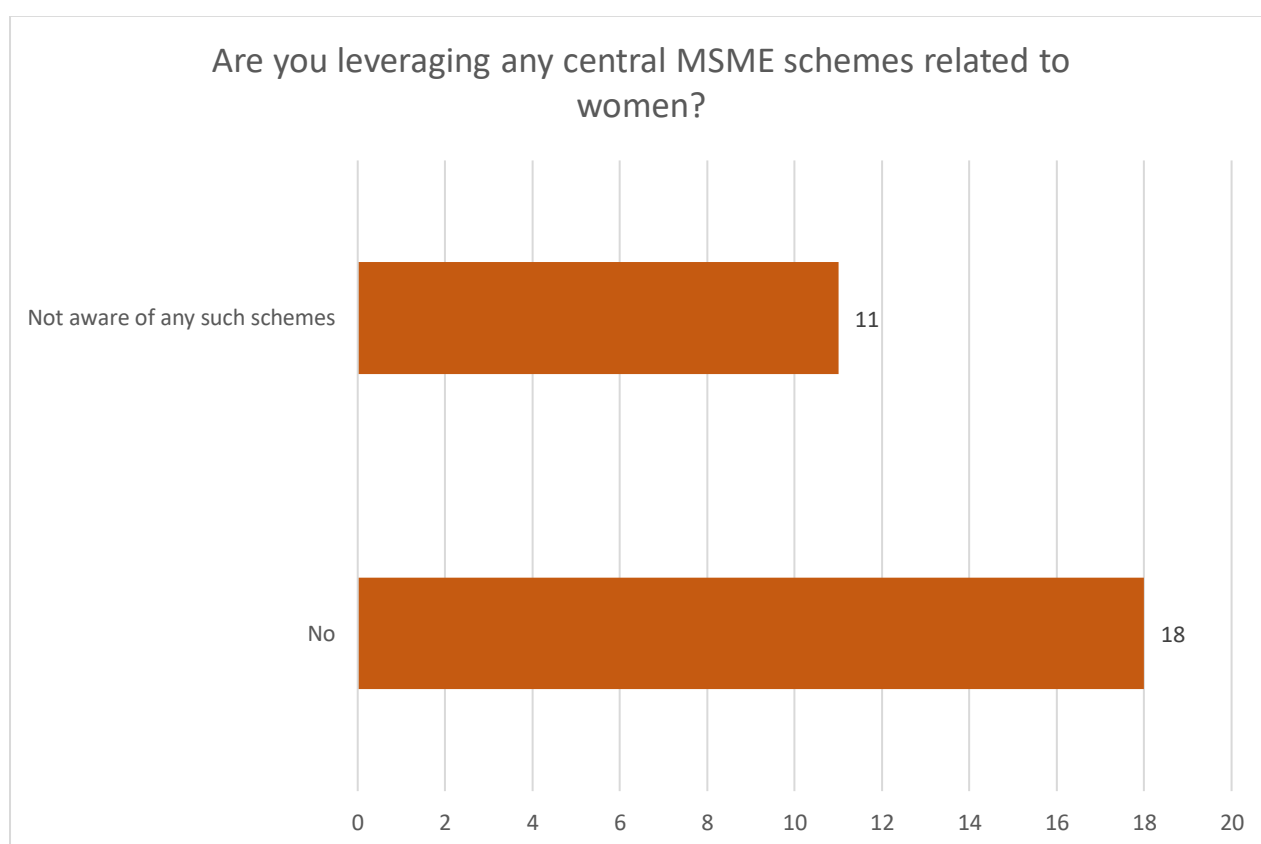


Figure 8.42: Leverage of Central MSME Schemes related to women by MSMEs of Telangana

Key insights: Leverage of Central MSME Schemes related to Women

- 8 out of 37 respondents did not answer this question.
- Among 29 respondents, 18 are not utilizing any Central MSME Schemes related to women.
- 11 respondents out of 29 are not aware of any Central MSME Schemes related to women.

8.5.6. Leverage of Central MSME Scheme related to SC/ST/Specially Abled/Minorities/EWS

In Figure 8.43, it is evident that 20 out of 28 respondents are not utilizing any central MSME schemes related to SC/ST/Specially Abled/Minorities/EWS. This observation highlights a significant gap in the adoption of government-supported initiatives intended to promote empowerment and support for these marginalized groups within MSMEs. However, a small portion of respondents (8 out of 28) indicated being unaware of any MSME schemes related to these demographics. These insights underscore the need for efforts to enhance awareness and uptake of central MSME schemes aimed at promoting inclusion and support for SC/ST/Specially-Abled/Minorities/EWS communities within the MSME sector of Telangana.

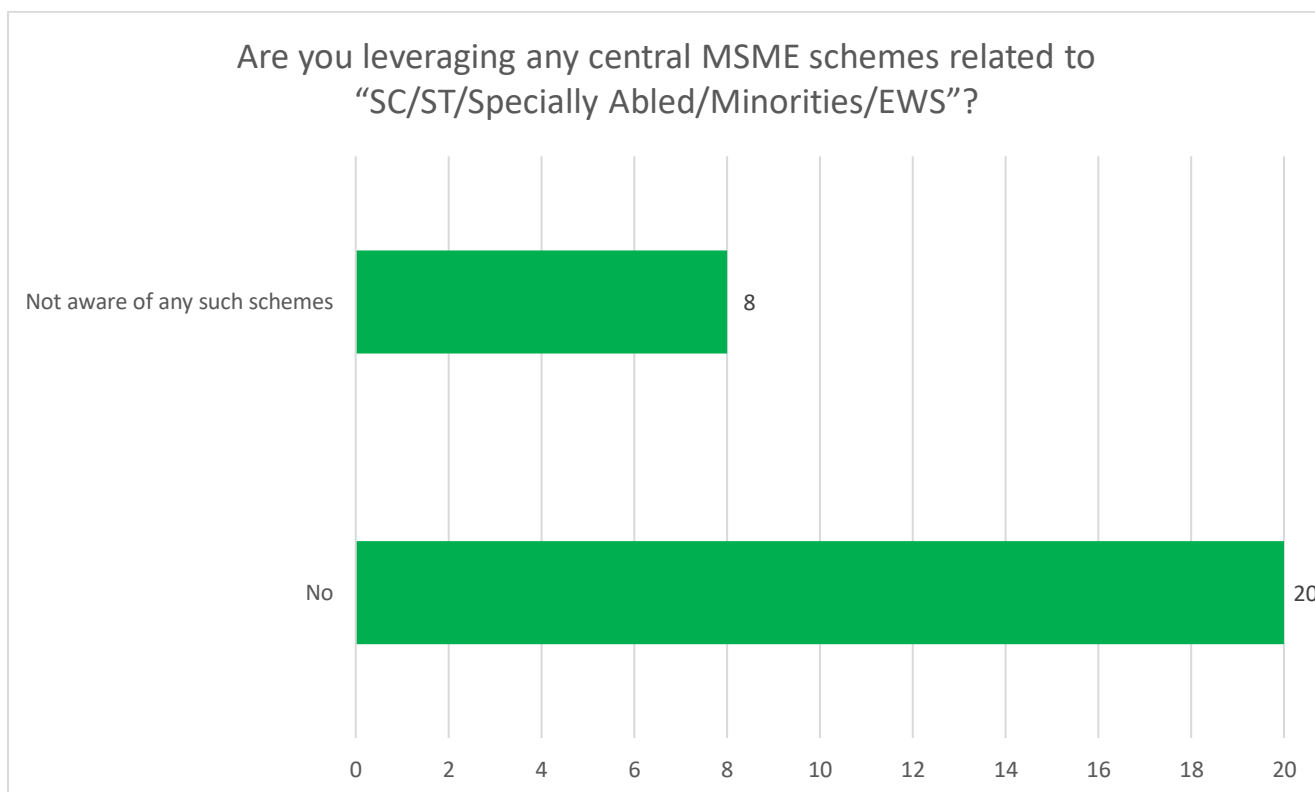


Figure 8.43: Leverage of Central MSME Schemes related to SC/ST/Specially-Abled/Minorities/EWS by MSMEs of Telangana

Key insights: Leverage of Central MSME Schemes related to SC/ST/Specially-Abled/Minorities/EWS

- 9 out of 37 respondents did not answer this question.
- Among 28 respondents, 20 are not utilizing any Central MSME Schemes related to SC/ST/Specially-Abled/Minorities/EWS.
- 8 respondents out of 28 are not aware of any Central MSME Schemes related to SC/ST/Specially-Abled/Minorities/EWS.

8.5.7. Leverage of Central MSME Scheme related to Green/Sustainability

In Figure 8.44, it is evident that 17 out of 26 respondents are not leveraging any central MSME schemes related to green/sustainability initiatives. This observation highlights a significant gap in the adoption of government-supported initiatives intended to promote environmental sustainability within MSMEs. However, a small portion of respondents (9 out of 26) indicated being unaware of any MSME schemes related to green/sustainability. These insights underscore the need for efforts to enhance awareness and uptake of central MSME

schemes aimed at promoting environmental consciousness and sustainable practices within the MSME sector of Telangana.

Key insights: Leverage of Central MSME Schemes related to Green/Sustainability

- 11 out of 37 respondents did not answer this question.
- Among 26 respondents, 17 are not utilizing any Central MSME Schemes related to SC/ST/Specially-Abled/Minorities/EWS.
- 9 respondents out of 26 are not aware of any Central MSME Schemes related to SC/ST/Specially-Abled/Minorities/EWS.

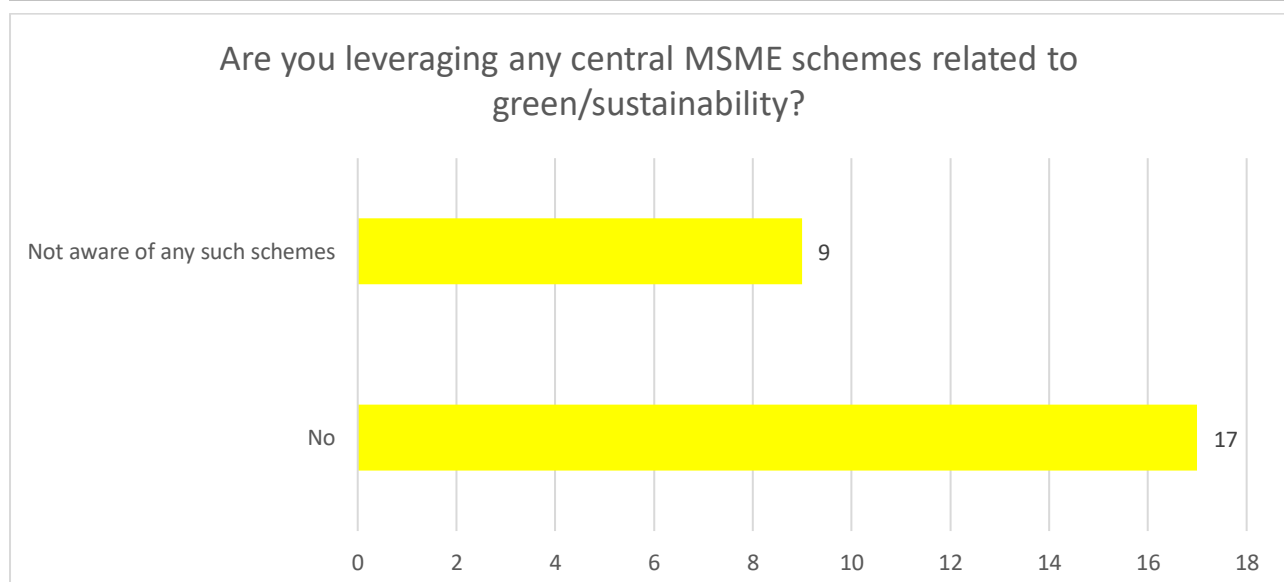


Figure 8.44: Leverage of Central MSME Schemes related to Green/Sustainability by MSMEs of Telangana

8.5.8. Leverage of Central MSME Scheme related to Entrepreneurs/Entrepreneurship

In Figure 8.45, it is evident that 15 out of 27 respondents are not utilizing any central MSME schemes related to entrepreneurs/entrepreneurship. This observation highlights a notable gap in the adoption of government-supported initiatives intended to promote entrepreneurship and support for entrepreneurs within MSMEs. However, a significant portion of respondents (12 out of 27) indicated being unaware of any MSME schemes

related to entrepreneurs/entrepreneurship. These insights underscore the need for efforts to enhance awareness and uptake of central MSME schemes aimed at fostering entrepreneurship and providing support to entrepreneurs within the MSME sector of Telangana.

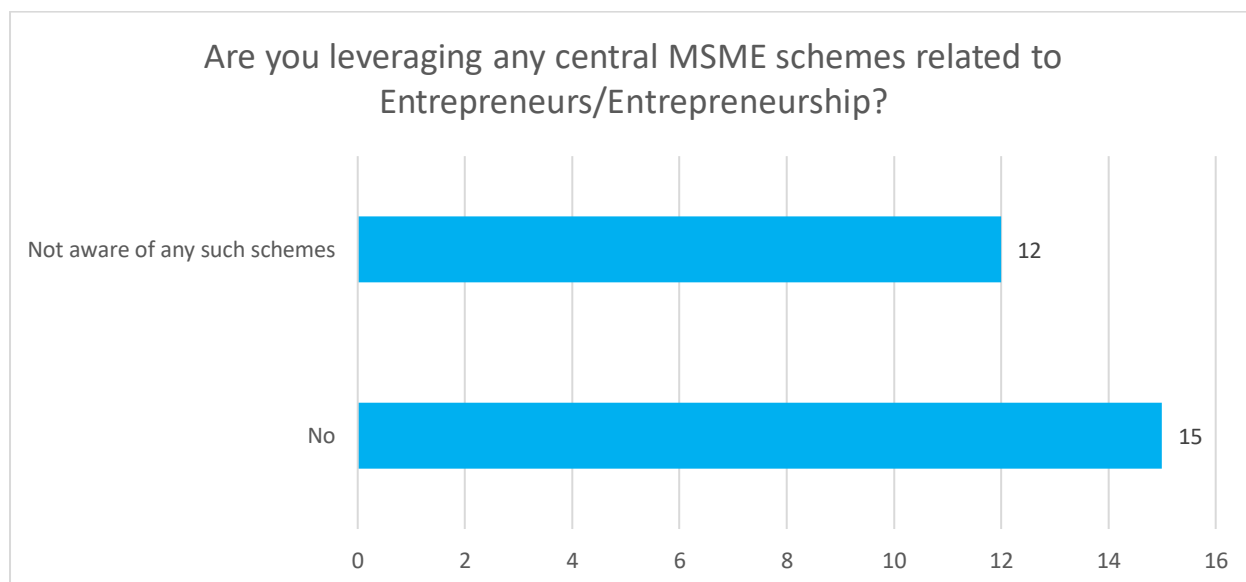


Figure 8.45: Leverage of Central MSME Schemes related to Entrepreneurs/Entrepreneurship by MSMEs of Telangana

Key insights: Leverage of Central MSME Schemes related to Green/Sustainability

- 10 out of 37 respondents did not answer this question.
- Among 27 respondents, 15 are not utilizing any Central MSME Schemes related to Entrepreneurs/Entrepreneurship.
- 12 respondents out of 27 are not aware of any Central MSME Schemes related to Entrepreneurs/Entrepreneurship.

Recommendations for MSME Schemes

1. Launch extensive awareness campaigns targeting MSMEs in Telangana to ensure they are well-informed about the prominent schemes offered by the State Government. Utilize various communication channels such as workshops, seminars, social media, and industry publications.

2. Develop a centralized platform or website where MSMEs can easily access information about available schemes, eligibility criteria, application procedures, and benefits. Ensure regular updates and easy navigation for a better user experience.
3. Conduct detailed assessments of the various schemes like TS-iPASS, Credit Guarantee Scheme for Subordinate Debt, Telangana State Industrial Policy 2015" (T-IDEA), and Prime Minister's Employment Generation Programme to identify areas for improvement based on feedback from users. Tailor support services such as capacity-building workshops and advisory services to address the specific needs of MSMEs utilizing this scheme.
4. Collaborate with stakeholders to understand industry-specific needs and highlight unique opportunities while promoting initiatives like the e-commerce training program by FTCCI and Amazon through targeted marketing campaigns and strategic partnerships.
5. Develop initiatives to increase awareness and usage of the Telangana State GlobalLinker platform among MSMEs. Provide training sessions, webinars, and tutorials to showcase the platform's features and benefits for networking, collaboration, and business growth.
6. Foster collaboration between Telangana and other States/UTs to share best practices and promote the adoption of successful schemes. Encourage MSMEs to explore opportunities beyond state boundaries and leverage schemes offered by other governments.
7. Offer financial literacy programs and workshops to MSMEs to increase their understanding of government-backed loan schemes. Empower them with knowledge about the benefits, eligibility criteria, and application process to encourage uptake.
8. Educate MSMEs about the various Central Government MSME schemes available to them and their potential benefits. Highlight success stories and case studies to demonstrate the impact of leveraging these schemes.

MAJOR FINDINGS

9. Major Findings

Most Indian MSMEs suffer from three fundamental business ailments: low productivity, lack of market access, and hurdles in scaling up. MSMEs of Telangana are no exception. We identified that to overcome these problems, MSMEs need to focus on becoming "future-ready" by embracing digitization & IIoT, getting certified in "Zero defect, zero effect" (ZED), adopting sustainability practices, and upskilling the employees.

Our surveys established that MSME operations need to be digitalized and automated for better productivity and quality. Good quality data analytics can provide an edge to better and faster decision-making, leading to best business practices and significant cost savings. Industry 4.0 technologies will free the management from routine tasks, and the operations teams can focus more on improvising processes, introducing innovation in key areas, and enhancing product portfolios.

9.1 Digital Footprints

1. MSMEs face formidable competition from Chinese manufacturers when attempting to sell their products abroad. Chinese companies often offer lower prices due to economies of scale, government subsidies, and lower production costs. This competition can squeeze profit margins for MSMEs and make it challenging to penetrate international markets.
2. Challenges faced by MSMEs are deeply intertwined with the availability and proficiency of a skilled workforce. One of the biggest obstacles in skill development is hiring a trained workforce. It is also observed that there is no industry-academia collaboration for solving problems related to skill development.
3. Many individuals who considered themselves digital masters actually overestimated their proficiency. When their skills were assessed using specific questions, it became clear that their self-perception didn't align with their actual abilities. Those findings are listed below:
 - a. The current digital infrastructure of MSMEs needs improvement.
 - b. The majority of the MSMEs have only a handful of digitally literate employees
 - c. Only a few MSMEs have well-developed ERP systems.
 - d. Most of the processes in MSMEs are manual.

- e. Most MSMEs do not have cybersecurity, IoT platforms, and dashboards for the supplied interface.
4. MSMEs have made notable progress in areas such as 5G, green technologies, and cloud computing.
5. Certain technologies, such as blockchain, are not commonly utilized in MSMEs, highlighting a gap in adoption despite their prevalence in other industries. Many other emerging technologies, including microgrid, smart grid, edge computing, quantum computing, mixed reality, advanced analytics, IIoT, and conversational tools, remain uncommon among MSMEs.
6. Though MSMEs are developing new products and services, very few patents are filed and acquitted.
7. Despite a post-pandemic increase in efficiency and revenue, MSMEs' profit and cash status have declined.

9.2 Entrepreneurship

1. Entrepreneurs in Telangana are primarily motivated by the desire to create economic value for society. They draw inspiration from familial backgrounds and seek personal satisfaction and recognition.
2. The major challenges faced by entrepreneurs in Telangana include arranging finance, a lack of skilled employees, complexities in getting government approval, corruption, and difficulties in marketing and selling, indicating systemic barriers to entrepreneurial growth.
3. Women entrepreneurs encounter additional challenges such as family interference, gender discrimination, and juggling multiple responsibilities, highlighting the need for targeted support mechanisms.
4. The female entrepreneurs who responded to the survey have not leveraged the WE Hub Scheme. One respondent cited unfavorable government policies toward her industry as a barrier to participation, indicating the necessity for diversifying the scheme to address industry-specific challenges and ensure inclusivity.

9.3 Sustainability

1. To maintain social sustainability in their organizations, MSMEs in Telangana prefer having fair treatment of workers, including fair wages and safe working conditions.

2. The majority of the MSMEs enable environmental sustainability by adopting energy-efficient technologies and practices such as LED lighting and energy-efficient practices.
3. MSMEs prefer continuously looking for opportunities to improve efficiency and reduce costs to establish economic sustainability in their firms.
4. MSMEs prefer to invest resources in continuously researching and developing new products and customer services to stay competitive.
5. Adherence to labor and environmental laws and regulations was observed in most of the responses throughout the questions.
6. MSMEs remained unaware of practices that will help them to reduce their Scope 1 and Scope 2 emissions. Thus, MSMEs need education in robust reverse logistics, carbon footprint, and product as a service (PaaS).
7. Many MSMEs are unaware of their organization's environmental impacts and the SDGs with which their firm is aligned. The MSMEs need to be educated about Sustainability Development Goals, green building certification, and ZED certifications.

9.4 MSME Schemes

1. The majority of the respondents are unaware of the 20 prominent schemes (mentioned in our survey) launched by the Government of Telangana, indicating a significant knowledge gap.
2. Respondents lack awareness regarding the Driver Empowerment Programme, underscoring the need for enhanced communication and outreach strategies to ensure broader participation and uptake of such initiatives.
3. Many MSMEs, despite being aware, are not effectively utilizing schemes such as the Telangana State Industrial Project Approval, Self-Certification System (TS-iPASS), and Technology Hub (T-Hub), suggesting untapped opportunities for growth and development.
4. There is a mix of anticipation regarding the impact of current MSME reforms on procurement practices, with some foreseeing a shift to indigenous suppliers while others express skepticism.
5. There is a need for clearer communication about the benefits of reforms, such as the potential increase in purchases from MSMEs.
6. There is a need for closer collaboration between government agencies and financial institutions to bridge the gap between loan availability and uptake, ensuring that MSMEs can access the financing they need to thrive and grow. We have the following observations:

- a. Low uptake of government-backed loan schemes is observed. Respondents have mentioned a lack of awareness and administrative complexities as the major factors contributing to the low uptake.
 - b. Debt-free MSMEs are less likely to seek additional financing through government loan schemes, indicating that the presence of debt might influence MSMEs' decisions regarding external financing options.
-
7. Limited awareness of government initiatives such as the State Level Export Promotion Committee, Telangana State Logistics Policy, and Telangana MSME Green Industrial Park indicates a need for improved communication strategies.
 8. A few respondents appreciated the potential benefits of the 'Telangana State Logistics Policy 2021-26'. They felt it would lead to the development of robust infrastructure and a skilled workforce.
 9. There is an urgent need to address barriers to the utilization of the Telangana State GlobalLinker platform and highlight the benefits of the platform so that more businesses may be encouraged to leverage its resources for networking, collaboration, and growth opportunities.
 10. Respondents who participated in the TS-iPASS initiative primarily applied for projects related to industrial incentives and the expansion of their industries. This aligns with the objectives of TS-iPASS to facilitate industrial expansion and promote economic growth in the state.
 11. A few respondents appreciated the 'Credit Guarantee Scheme for Subordinate Debt.' They felt it would lead to credit additionality and the revival of distressed MSMEs.
 12. Proximity and location concerns emerge as key factors influencing respondents' decisions on participation in the Telangana MSME Green Industrial Park.
 13. Low utilization and awareness of MSME schemes launched by the Central Government across various categories highlight the need for enhanced awareness and uptake efforts to promote innovation, technology, skill development, women's empowerment, inclusion, sustainability, and entrepreneurship within the MSME sector of Telangana.

RECOMMENDATIONS

10. Recommendations

To be the disruptive force they aspire to be, Indian MSMEs need to enhance productivity, scale up, and increase market access. Smart MSMEs will make the most of the Government initiatives and leverage technology to overcome traditional barriers to growth. Increasingly, the way forward is digitalization and automation of operations for better productivity and quality. Based on our interactions with MSMEs and the deep discussions with Industry Experts, we have the below recommendations:

10.1 Recommendations to the Policymakers

- 1) **Enhance Awareness and Access to Government Schemes:** We recommend the implementation of targeted awareness campaigns to educate MSMEs about available government schemes and support programs. A few measures could be:
 - a) Streamline application processes and assist MSMEs to facilitate easier access to these initiatives.
 - b) Launch extensive awareness campaigns targeting MSMEs in Telangana to ensure they are well informed about the prominent schemes offered by the State Government.
 - c) Utilize various communication channels such as workshops, seminars, social media, and industry publications.
 - d) Develop initiatives to enhance awareness and usage of the Telangana State GlobalLinker platform among MSMEs. Provide training sessions, webinars, and tutorials to showcase the platform's features and benefits for networking, collaboration, and business growth.
 - e) Highlight success stories and case studies to demonstrate the impact of leveraging these schemes.
- 2) **Strengthen Government Support:** We recommend the following measures:
 - a) Encourage policies and initiatives that prioritize the growth and development of MSMEs, including incentives for expansion, streamlined regulatory processes, and targeted support for key sectors.
 - b) Foster collaboration between Telangana and other States/UTs to share best practices and promote the adoption of successful schemes.
 - c) Encourage MSMEs to explore opportunities beyond state boundaries and leverage schemes offered by other governments.

- 3) **Strengthen Financial Support Mechanisms:** We recommend the following measures:
- a) Enhance access to finance for MSMEs by expanding loan facilities, providing subsidies or grants for capacity-building initiatives, and promoting alternative financing options such as venture capital or angel investment networks.
 - b) Offer MSMEs financial literacy programs and workshops to increase their understanding of government-backed loan schemes.
 - c) Empower MSMEs with knowledge about the benefits, eligibility criteria, and application process to encourage uptake.
 - d) Improve access to capital for entrepreneurs through government-backed loan programs, venture capital funds, and tailored financial literacy workshops.
- 4) **Invest in Talent Development:** We recommend developing comprehensive skill development programs tailored to the needs of MSMEs, focusing on technical and soft skills. This can be achieved through enhanced collaboration between industry and academia to bridge the skills gap and ensure a steady supply of trained workforce.
- 5) **Facilitate Market Access:** The government could support MSMEs in accessing global markets by assisting with market research, export promotion, and trade facilitation. It can also enable partnerships with international organizations and trade associations to explore new opportunities and overcome trade barriers.
- 6) **Enable Access to Information:** The study has identified that digital literacy is essential for employees of MSMEs to enhance productivity. Upskilling of employees needs to become a priority for owners of companies. They can be assisted by many government online platforms like DigiVidyapeeth and BharatSkills and private online platforms like Amazon and Google. Innovative Indian tech startups like Instamojo, Crediwatch, and Locus can help MSMEs adopt technology at meager costs.
- 7) **Assessment of MSME schemes:** There is a lack of awareness about government schemes amongst the MSMEs. It is recommended that the government conducts a detailed assessment of MSME schemes like TS-iPASS, Credit Guarantee Scheme for Subordinate Debt, Telangana State Industrial Policy 2015" (T-IDEA), and Prime Minister's Employment

Generation Programme to identify areas for improvement based on feedback from users. Provide data-driven tailored support services such as capacity-building workshops and advisory services to address the specific needs of MSMEs utilizing these schemes.

- 8) **Incentives for Women Entrepreneurs:** Women entrepreneurs experience gender discrimination at all steps of their entrepreneurial journey. The government can support them through the following:
 - a) Provide incentives like credit at favorable terms, gender-sensitive policies, and support services for work-life balance.
 - b) Enhance awareness of government support initiatives for women entrepreneurs, like the WE Hub Scheme, through targeted outreach and online resources.
- 9) **Simplified Approval Processes:** The government should facilitate business growth through smoother processes and simplified approval steps.

10.2 Recommendations to the MSMEs

- 1) **Collaboration and Networking:**
 - a) MSMEs should seek collaboration with industry experts and government agencies. This can address common challenges such as competition from large firms and global competitors like China. It will enable networking opportunities and knowledge-sharing platforms to exchange insights and best practices.
 - b) They should collaborate with stakeholders to understand industry-specific needs and highlight unique opportunities while promoting initiatives like the e-commerce training program by FTCCI and Amazon through targeted marketing campaigns and strategic partnerships.
- 2) **Digitalization and Innovation:** MSMEs should embrace digital technologies and innovation to enhance competitiveness and adaptability. They can provide incentives to their employees for technology adoption, offer training programs on digital tools and processes, and facilitate access to innovation hubs or incubation centers.

- 3) **Innovation as a Culture:** Our study shows that MSMEs in Telangana have a robust innovation culture, and they encourage their employees to innovate. It is an admirable quality that needs to be further strengthened. Innovation at the grassroots level can bring in higher efficiency and customer delight.
- 4) **Target to Reduce Scope 1 and 2 Emissions:** MSMEs must ensure that Scope 1 and Scope 2 emissions by MSMEs are sufficiently low to promote business with large Indian and overseas companies. The Scope 1 and Scope 2 emissions will become Scope 3 emissions for their customers. Due to the recent changes in sustainability compliance in the EU, disclosure of scope 3 emissions for enterprises has become a mandate for many firms. Based on the responses received, it is clear that MSMEs are not following sustainability practices for business growth. Adherence to the steps below will enable MSMEs to reduce their Scope 1 and 2 emissions and enhance opportunities for global trade:
- a. Ensure adherence to Sustainable Development Goals.
 - b. Design products and processes on green, lean, and circular economy principles.
 - c. Recycle and reuse all materials, water, and other resources.
 - d. Maintain good air quality and productive land use.
 - e. Conduct frequent energy audits.
 - f. Design products and processes that run on renewable energy.
 - g. Measure CO₂ and GHG emissions and track the reductions over the years.
 - h. Obtain ZED (Zero Effect and Defect) certification.
 - i. Implement an environmental management system.
 - j. Obtain green building certification.
 - k. Promote biodiversity.

References

Chapter 1: Background

- [1] <https://invest.telangana.gov.in/home2/#:~:text=of%20FMCG%20Sector-,MSME,11%2C487crore.>

Chapter 3: Challenges for MSMEs

- [1] <https://timesofindia.indiatimes.com/readersblog/biz-talk/budget-2023-whats-in-it-for-msmes-49575/>
- [2] <https://www.moneycontrol.com/news/business/big-challenges-that-await-smes-in-2023-and-the-strategies-to-overcome-them-10082311.html>
- [3] <https://www.dtnext.in/tamilnadu/2023/02/06/msme-in-distress-as-raw-materialprices-shoot-up-again>
- [4] <https://www.adb.org/sites/default/files/publication/189392/adbi-wp588.pdf>
- [5] <https://www.consultantsreview.com/news/identifying-the-business-challenges-faced-by-msmes-in-india-nwid-2228.html>
- [6] <https://www.financialexpress.com/industry/sme/msme-eodb-lack-of-awareness-about-govts-credit-schemes-is-the-biggest-problem-among-msmes-experts/2444253/>

Chapter 4: Digital Infrastructure

- [1] <https://www.forbes.com/sites/mikebugembe/2022/05/06/grow-or-die-the-new-reality-of-ecommerce/?sh=5270070a3fb1>
- [2] Leading Digital Turning Technology into Business Transformation by Westerman, George; Bonnet, Didier; McAfee, Andrew. Harward Business Review Press

Chapter 5: Innovation Culture in MSMEs

[1] Innovation: Changing the MSME landscape, 2011 Advisory, Tax & Regulatory Services in India | PwC India. <https://www.pwc.in/assets/pdfs/publications-2011/innovation-msme-2011.pdf>

Chapter 6: Sustainability Status of MSMEs

[1] <https://www.iea.org/data-and-statistics/data-product/world-energy-balances>

[2] Ndubisi, N. O., Zhai, X. (Amy), & Lai, K. hung. (2021). Small and medium manufacturing enterprises and Asia's sustainable economic development. International Journal of Production Economics, 233, 107971. <https://doi.org/10.1016/J.IJPE.2020.107971>

[3] <https://msme.gov.in/msme-annual-report-2022-23>

[4] https://www.sebi.gov.in/sebi_data/commondocs/may-2021/Business_responsibility_and_sustainability_reporting_by_listed_entitiesAnnexure2_p.PDF.

[5] <https://zed.msme.gov.in/benefitsincentives>

[6] CSRD reporting: What you need to know | Grant Thornton

[7] Non-financial Reporting Directive (europa.eu)

[8] What are scope 1, 2 and 3 emissions? | Deloitte UK

[9] Corporate Sustainability Reporting Directive (CSRD) explained | The Carbon Trust

[10] What is the Corporate Sustainability Reporting Directive (CSRD)? | IBM

Chapter 8: Status of Implementation of MSME Schemes: A Reality Check

[1] <https://invest.telangana.gov.in/economy-of-the-state/>

Appendix

Questionnaire administered at the research platform to assess the MSME challenges and the opportunities: Insights from Telangana. We have designed the questionnaire in a research platform with “display logic” to ensure that all the relevant questions appear to the respondent. For instance, if a company states that it is also into export, the subsequent questions related to export will be displayed to only such companies.

GENERAL INFORMATION

Q1 Name of the respondent (optional)

Q2 Gender ☐ Male
☐ Female
☐ Non-binary / third gender ☐ Prefer
not to say

Q3 Name of the company

Q4 What is the gender of the founder of your company?

☐ Male

☐ Female ☐ Others

☐ Prefer not to say ☐ I am not
aware of

Q5 What is the location/locations of your company?

Q6 What is your role in the organization?

☐ Founder

☐ Founder/MD/Chairman ☐ MD/CEO

(Not a founder) ☐ Senior Executives

☐ Middle Level

☐ Operational Level ☐ Any

other, specify

Q7 What type of organisation are you?

- ☐ Manufacturing
- ☐ Services
- ☐ Both manufacturing & services
- ☐ Trading
- ☐ Agriculture
- ☐ Retail
- ☐ Any other, specify.

Q8 Are you an MSME?

☐ Yes ☐ No

Q9 According to the new definition of MSMEs, what is the size of your business?

- ☐ Micro (annual turnover is less than INR 5 crore, investment is less than one crore) ☐ Small (annual turnover is less than INR 50 crore, investment is less than 10 crore)
- ☐ Medium (annual turnover is less than INR 250 crore, investment is less than 50 crore) ☐ Not an MSME
- ☐ Any other, specify

Q10 According to the old definition of MSMEs, what would be the size of your business?

- ☐ Micro (Manufacturing: investment does not exceed INR 25 lakhs, Services: investment does not exceed ten lakh rupees)
- ☐ Small (Manufacturing: Investment more than INR 25 lakhs but not exceeding INR 5 crores, Services: investment more than INR 10 lakh but not exceeding INR 2 crores)
- ☐ Medium (Manufacturing: Investment more than INR 5 crores but not exceeding INR 10 crores, Services: investment more than INR 2 crores but not exceeding INR 5 crores)

☐ Not an MSME

☐ Any other, specify

Q11 Which is your Industry/Sector? (Tick as many as applicable):

- ☐ Aerospace & Defence
- ☐ Agriculture
- ☐ Automobile and Auto Components
- ☐ Bio-medical devices
- ☐ Cellular communications
- ☐ Chemicals and Petrochemicals
- ☐ Consumer Durables

- ☐ Education
- ☐ Electronics
- ☐ Engineering and Capital Goods, including castings, foundry, and Ferro-alloys, and other metallurgical industries
- ☐ Fabrication (FAB) (Semiconductor manufacturing plant)
- ☐ Fast Moving Consumer Goods (FMCG)
- ☐ Food Processing
- ☐ Gems and Jewellery
- ☐ Glass and ceramics
- ☐ Green Technologies
- ☐ Handloom and Power loom
- ☐ Horticulture
- ☐ Information Technology
- ☐ Leather
- ☐ Life Sciences (e.g., Pharmaceuticals)
- ☐ Mining and Minerals
- ☐ Plastics and Polymers
- ☐ Poultry Farming
- ☐ Pulp & Paper
- ☐ Renewable Energy and Solar Parks
- ☐ Spices
- ☐ Textiles and Apparels
- ☐ Tourism
- ☐ Tractors and Farm Equipment
- ☐ Transportation/Logistic Hub/Inland Port/Container Depot
- ☐ Waste Management
- ☐ Wood-based Industries
- ☐ Any other, specify

Q12 Products and services that your organization offers

Q13 What is your marketing model?

- ☐ Direct access to the retail market (B2C)
- ☐ Cater to other companies as a supplier partner (B2B) ☐ Both (B2C and B2B)
- ☐ Any other, specify

Q14 How old is your company?

- ☐ Less than 1 year
- ☐ 1 - 2 years
- ☐ 2 - 5 years
- ☐ 5 - 10 years
- ☐ 10 - 20 years
- ☐ 20 - 30 years
- ☐ 30 - 50 years
- ☐ More than 50 years

Q15 What is the geographical spread of your business?

- ☐ Domestic Market
- ☐ International Market
- ☐ Both domestic and international Market

Q16 If you are also into export, what is the share of your export business?

- ☐ Below 10%
- ☐ 10-25%
- ☐ 25-50%
- ☐ 50-75%
- ☐ 75-100%

Q17 What barriers do you face to selling globally (select all the options that apply)?

- ☐ Access to finance
- ☐ Competition from large firms
- ☐ Competition from China
- ☐ Government regulations
- ☐ We do not have complete awareness of government schemes available to support MSME's export business (relevant only for MSMEs)
- ☐ Trade regulations (absence of free trade agreements with countries where you want to sell)
- ☐ High logistic costs
- ☐ Lack of infrastructure for online business
- ☐ Quality of our product and/ or services not up to the international standards (21)
- ☐ We are not cost-competitive
- ☐ Any other, specify

Q18 What are some of the management issues you are facing in your company? (Choose the top five challenges)

- ☐ Availability of Infrastructure
- ☐ Challenges in procuring raw materials
- ☐ Difficulty in access to finance
- ☐ Hiring and retaining talent
- ☐ High logistic costs (both inbound and outbound logistics costs)
- ☐ High outbound logistics cost
- ☐ Intense Competition
- ☐ Lack of digital technology (limited footprint of digital technology)
- ☐ Lack of growth mindset
- ☐ Lack of digital mindset
- ☐ Managing cash
- ☐ Non-availability of skilled workforce
- ☐ Sales and Marketing
- ☐ Securing a loan from the bank for expansion and growth
- ☐ Securing a loan from the bank to support working capital requirements
- ☐ Tariff imposed by the government on the imported raw materials, specify
- ☐ Any other, specify

Q19 What are some of the skill development issues your company is facing currently? (select the top three challenges)

- ☐ High cost of imparting professional training
- ☐ Inadequate training infrastructure
- ☐ Lack of efficient trainers
- ☐ Lack of trained workers
- ☐ Lack of industry-academia collaboration in internship programs to develop industry-ready skilled professionals
- ☐ Lack of learning culture
- ☐ Poaching of workers trained by your company
- ☐ The unwillingness of employees to upskill
- ☐ Any other, specify

Q20 What are some of the barriers to growth? (select the top three challenges)

- ☐ Non-availability of bank loans for expansion
- ☐ Shortage of working capital for effectively running operations
- ☐ Inability to access the global market.

- ☐ No economies of scale due to low production capacity
- ☐ Lack of skilled workforce
- ☐ Lack of Government support
- ☐ Comfortable with the current scale of operations, do not see value in scaling up
- ☐ Any other, specify

Q21 A credit rating is a quantified assessment of a borrower's creditworthiness in general terms or with respect to a financial obligation. Credit ratings not only improve the bargaining power of an organization with banks they also put them in a stronger position while negotiating terms with suppliers. Has your industry/company been rated for its credit?

O Yes O No

Q22 If your industry has been rated, which one of these credit rating agencies did you use?

- ☐ Credit Rating Information Services of India Limited (CRISIL)
- ☐ Investment Information and Credit Rating Agency of India (ICRA) Limited
- ☐ Brickwork Ratings India Private Limited
- ☐ Onicra Credit Rating Agency of India Ltd.
- ☐ Credit Analysis and Research (CARE) Limited
- ☐ Acuite Ratings & Research (earlier SMERA Ratings Limited)
- ☐ India Ratings and Research Pvt. Ltd.
- ☐ Infometrics Valuation and Rating Pvt. Ltd.
- ☐ Dun & Bradstreet(D&B)
- ☐ Any other, specify

Q23 What credit rating has been given to your company/industry? O MSE 1 Highest creditworthiness in relation to other MSEs O MSE 2 High creditworthiness in relation to other MSEs

O MSE 3 Good creditworthiness in relation to other MSEs

O MSE 4 Above average creditworthiness in relation to other MSEs O MSE 5 Average creditworthiness in relation to other MSEs

O MSE 6 Below Average creditworthiness in relation to other MSEs O MSE 7 Weak creditworthiness in relation to other MSEs

O MSE 8 Poor creditworthiness in relation to other MSEs

Q24 Assess this statement, “The primary inhibitor of the growth of our company is difficulty in securing loans from banks at a reasonable interest rate”, and select one of the following:

☐ Strongly disagree ☐

Disagree

☐ Somewhat disagree ☐ Neutral

☐ Somewhat agree ☐ Agree

☐ Strongly agree

☐ Can't make a comment

Q25 Total Number of Employees ☐ Less than or equal to 10 ☐ 11 to 50

☐ 51 to 100

☐ 101 to 200

☐ 201 to 500

☐ 501 to 1000

☐ 1001 to 2000

☐ 2001 to 5000

☐ 5001 to 10000

☐ 10001 to 20000

☐ If more than 20000, specify

Q26 What is the total number of employees in your organization?

☐ Total employee strength, specify _____

☐ Approximate number of male employees, specify _____

☐ Approximate number of female workforce, specify _____

Q27 Annual Turnover (approximately in INR crores) ☐ Upto 5

☐ 5 to 10

☐ 10 to 25

☐ 25 to 50

☐ 50 to 75

☐ 75 to 100

☐ 100 to 150

☐ 150 to 200

☐ 200 to 250

☐ 250 to 500

- ☐ 500 to 1000
- ☐ 1000 to 2000
- ☐ 2000 to 5000
- ☐ More than 5000, specify

Q28 What is the capital investment of your company (approximately in INR crores)?

- ☐ Upto 1
- ☐ 1 to 5
- ☐ 5 to 10
- ☐ 10 to 25
- ☐ 25 to 50
- ☐ 50 to 100
- ☐ 100 to 150
- ☐ 150 to 200
- ☐ 200 to 250
- ☐ 250 to 500
- ☐ 500 to 1000
- ☐ 1000 to 2000
- ☐ 2000 to 5000
- ☐ More than 5000

Q29 How many plants/factories do you have?

- ☐ 1
- ☐ 1-3
- ☐ 3-5
- ☐ 5-10
- ☐ 10-20
- ☐ More than 20
- ☐ We are a trader and do not have our factories
- ☐ We are a transporter/service provider and do not have any plants
- ☐ Any other, specify

Q30 Your revenue during the last five years has: ☐ Declined

- ☐ Steady
- ☐ Marginally increased
- ☐ Significantly increased
- ☐ Multiplied
- ☐ Any other, specify

- Q31 Your profit during the last five years has: ☐ Declined
☐ Steady
☐ Marginally increased ☐
Significantly increased ☐ Multiplied
☐ Any other, specify
- Q32 Your cash position during the last five years has: ☐ Declined
☐ Steady
☐ Marginally increased ☐
Significantly increased ☐ Multiplied
☐ Any other, specify
- Q33 Your market share during the last five years has: ☐ Declined
☐ Steady
☐ Marginally increased ☐
Significantly increased ☐ Multiplied
☐ Any other, specify

ADHERENCE TO STANDARDS

Q34 Are you certified by the Bureau of Indian Standards (BIS)?

☐ Yes, specify details of certification. ☐ No

Q35 What is the frequency of certification needed for your product lot? (for instance, products like gas cylinders need certification by BIS for every lot)

☐ Daily ☐ Weekly

☐ Fortnightly ☐ Monthly

☐ More than a month ☐ Any

other, specify ☐ Not relevant

Q36 Is your certification online?

☐ Yes ☐ No

Q37 If certification is online, then what is the total duration of the entire process of getting the certificate

☐ 1-3 days

☐ 4-7 days

☐ 7-15 days

☐ 15-30 days

☐ Others, specify

Q38 If 3rd party verification is done for BIS certification for your products, then how long does it take for the 3rd party to visit your premises?

☐ 1-3 days

☐ 4-7 days

☐ 7-15 days

☐ 15-30 days

☐ Any other, specify

Q39 After the physical inspection of your product/product lot, how long does it take to receive the certificate from BIS?

☐ 1-3 days

☐ 4-7 days

☐ 7-15 days

☐ 15-30 days

☐ Any other, specify

Q40 According to you, how is the process of BIS certification?

☐ Very complex ☐

Complex

☐ Simple

☐ Any other, specify

Q41 If you are referring to BIS, are there gaps/problems/major concerns?

☐ Yes, specify ☐ No

☐ Not aware of

Q42 Are you certified by any of the ISO or other standards, excluding BIS?

☐ Yes, specify details of all certification. ☐ No

Q43 If you are using international standards and not Indian standards, what are the major reasons?

☐ Customer expects compliance with international standards ☐ Gaps between the BIS and ISO standards

☐ Certification for BIS is a complex process ☐ Unfair practices in the BIS process

☐ Any other, specify

Q44 Do you have any specific suggestions to improve or popularize BIS in MSMEs?

☐ Yes, specify ☐ No

☐ Can't comment

DIGITALINFRASTRUCTURE

Q45 How do you track your business flow?

☐ Manual process

☐ A manual process with the help of Microsoft office (or any other) tools ☐ Internally developed custom-made software

☐ Tally

☐ Standard ERP software (SAP/ Oracle etc.) ☐ Other applications (please name them)

Q46 Do you have an ERP system?

☐ Yes ☐ No

Q47 If you have ERP, is it cloud-based or on-the-premise?

☐ On-Premise

☐ Hybrid (mix of on-premise and cloud) ☐ Cloud-based (public cloud)

☐ Cloud-based (private cloud)

Q48 How many of your employees are digitally literate (trained in computers, can use software applications)?

- ☐ Less than 10% ☐ 10-25%
☐ 25-50%
☐ 75-100%

Q49 Do you use digital payment systems (mobile banking, digital banking, etc.) in your company?

- ☐ Yes
☐ For some transactions ☐ No

Q50 Is data entered manually at the plant (Production, Rework, Quality, Equipment Downtime, etc.)?

- ☐ Data entry is fully automated (data capture is directly from the machine or controller with no human intervention)
☐ Yes, some of the data is entered manually (data capture is mostly from the machine/controller, but still, a few data points are entered manually in the application/software like ERP or MES (Manufacturing Execution System), capturing shop floor manufacturing & operations data or from IoT platform)
☐ Yes, most of the data is entered manually (we are using a log sheet to capture shop floor data)
☐ In the process of automation ☐ Data entry is manual
☐ Any other, specify

Q51 Is Production Planning done manually (with Excel)?

- ☐ No, the planning process is fully automated
☐ Yes, some of the production planning is done manually ☐ Yes, most of the production planning is done manually ☐ In the process of automation
☐ Totally manual (with Excel)
☐ Any other, specify Display This Question:

Q52 ☐ If the production planning process is fully automated, mention the name of the software tool used for the production planning process:

Q53 Do you have cybersecurity measures in place (firewall, etc.), and are they meeting any standards?

- ☐ Yes, specify
☐ No

- Q54 In what areas of your business have you already deployed digital applications? (select all that apply)
- ☐ Production, Planning & Control
 - ☐ Inventory Monitoring
 - ☐ HR System
 - ☐ Accounts (Payable and Receivable)
 - ☐ Quality
 - ☐ Logistics
 - ☐ CRM (Customer Relationship Management)
 - ☐ SCM (Supply Chain Management)
 - ☐ PLM (Product Life Cycle Management)
 - ☐ 3D design software
 - ☐ Digital Manufacturing
 - ☐ Multi-Physics Simulation
 - ☐ Sourcing collaboration platform with supplier
 - ☐ Digital platform for collaborative Innovation
 - ☐ Blockchain for traceability
 - ☐ Digital applications to allow visibility of manufacturing to supplier
 - ☐ Applications that allow customers to view real-time status of manufacturing and delivery
 - ☐ eCommerce platform (own)
 - ☐ eCommerce platform (third party market places like Amazon)
 - ☐ Connected product/smart factory (in connected products IoTs are inserted/embedded, which provides information on the performance and or health of the product)
 - ☐ Your OEMs optimize/diagnose abnormality in your machines/processes remotely
 - ☐ Digital continuity across applications (seamless integration across different systems)
 - ☐ Digital twin
 - ☐ Advanced robotics
 - ☐ Additive manufacturing
 - ☐ Augmented reality (AR)
 - ☐ Virtual reality (VR)
 - ☐ IIoT (Industrial Internet of Things)
 - ☐ Cloud computing
 - ☐ Cyber security
 - ☐ Big data analytics (for applications such as customer sentiment analysis)
 - ☐ Any other, specify

Q55 What are the top three reasons for not adopting IT in your organization?

- ☐ Lack of funds
- ☐ Lack of IT infrastructure (for instance, lack of equipment, bandwidth, and power supply required to support the implementation of IT systems)
- ☐ Lack of qualified staff to implement IT systems
- ☐ High cost of implementation
- ☐ Management behavior: the management team is resistant to change or lacks understanding or appreciation for the value of IT
- ☐ Lack of awareness: a lack of knowledge or understanding about the benefits and potential applications of IT
- ☐ Lack of IT products: limited availability of suitable IT products or solutions that meet the specific needs or requirements of your industry
- ☐ Lack of service providers: a scarcity of reliable and competent service providers who can support the implementation and maintenance of IT solutions
- ☐ Any other, specify

Q56 What is your motivation for adopting technology? (select top three options)

- ☐ Enhance productivity by leveraging technology
- ☐ Enhance profits by leveraging technology as an enabler
- ☐ To beat the competition
- ☐ Facilitates the process of exporting
- ☐ Enables opening of Markets
- ☐ Pressures from customers to adopt technology
- ☐ Ease of Digital Payments
- ☐ Enhance our ability to support customers better
- ☐ Any other, specify

Q57 How do you reach out to the market?

☐ Offline sales ☐ Online

Sales

☐ A mix of both offline and online

Q58 If you sell your products/services online, what platform do you use?

- ☐ Own e-commerce
- ☐ Third-party e-commerce platform (like Amazon)
- ☐ A mix of our own online and 3rd party market places like Amazon, Flipkart
- ☐ ONDC (Open Network for Digital Commerce to support MSME)
- ☐ Any other, specify

Q59 Which of the following digital platforms/services created by the Government for MSMEs do you use? (select all the options that apply)

- ☐ Udyog Aadhar/Udyam (online registration)
- ☐ MyMSMEApp (mobile application)
- ☐ Zero Effect Zero Defect (ZED) Scheme
- ☐ MSME Global Mart (an online B2B portal)
- ☐ Any other, specify

Q60 Which social media sites do you use to promote your products online? (Choose all that are applicable).

- ☐ Facebook
- ☐ Twitter
- ☐ LinkedIn
- ☐ YouTube
- ☐ Messenger
- ☐ Instagram
- ☐ Pinterest
- ☐ Snapchat
- ☐ WhatsApp
- ☐ Skype
- ☐ Any other, specify

SUPPLIER-CUSTOMER COLLABORATION

Q61 How is the production, dispatch, and delivery information conveyed to your customer?

- ☐ Plant-wide communication system installed and integrated with the customer
- ☐ We send e-mails
- ☐ SAP Portal/other system sends alerts
- ☐ We use WhatsApp for communication
- ☐ Manual calls are made to the Point of Contact at the customer site

Q62 What is the share of your revenue from the government sector?

- ☐ Nil
- ☐ Less than 10% ☐ 10-25
- ☐ 25-50
- ☐ 50-75
- ☐ 75-100

Q63 Collection from which sector is more challenging? (tick as many as applicable)

- ☐ Corporate customers
- ☐ State government enterprises
- ☐ Central government enterprises
- ☐ Any other, specify

Q64 What kind of MIS (Management Information System) is shared with your customer? (select as many as applicable)

- ☐ Production reports
- ☐ Dispatch status
- ☐ Inventory report
- ☐ Financial reports (payments related)
- ☐ Any other, specify

Q65 Do you have a supplier interface (your supplier)?

☐ Yes ☐ No

Q66 How do you communicate excess capacity/ new expanded capacity to your customer?

- ☐ Not communicated
- ☐ Manually call the Point of Contact at the customer site
- ☐ Digital visibility has already been integrated with the customer
- ☐ In the process of integrating a new system with the customer
- ☐ Any other, specify

Q67 What strategy do you implement for production (e.g., Lean Manufacturing)?

- ☐ Push (make to stock)
- ☐ Pull (based on customer demand-make to order)
- ☐ A mix of push and pull
- ☐ Any other, specify

Q68 Do your suppliers have visibility to your dashboard regarding inventory level/delivery status?

☐ Yes ☐ No

Q69 Are you MMOG/LE (<https://www.aiag.org>) (Materials Management Operations Guideline/ Logistics Evaluation, the global standard for evaluating supply chain management processes against industry best practices) compliant?

- ☐ Yes ☐ No
- ☐ Not aware of MMOG/LE

Q70 What are the top 3 business challenges?

- ☐ Cash for working capital
- ☐ Securing order
- ☐ Delivery on time in full
- ☐ Delivery on quality
- ☐ Collection (accounts receivables)
- ☐ Monopoly Suppliers (difficult to replace existing suppliers)
- ☐ MSME Suppliers
- ☐ Any other, specify _____

Q71 How many different components (SKUs)/products do you deliver to your customers over a financial year?

- ☐ 1-5
- ☐ 5-10
- ☐ 10-50
- ☐ 50-100
- ☐ More than 100 ☐ Don't know
- ☐ Not applicable

Q72 Do any of your components/products come under Quality Assurance self-certification with your customers?

- ☐ Yes ☐ No
- ☐ Not applicable

Q73 How many invoices (average approximate number) do you raise on your customers over a financial year?

- ☐ 1-12
- ☐ 12-24
- ☐ 24-50
- ☐ More than 50 ☐ Do not know

Q74 Do you use the Bill Discounting facility for your payment from your customers?

- ☐ Yes ☐ No
- ☐ We are not familiar with the concept

Q75 Do you avail of bank loans based on the order received from your customers?

☐ Yes ☐ No

☐ Don't know

Q76 Do you believe that you, as a business, spend a considerable amount of time getting payments cleared from your customers?

☐ Yes ☐ No

Q77 Please give an approximate indication of the days you would spend in post-delivery payment follow-up per invoice (after the agreed payment schedule).

☐ Less than 15 days ☐ 15-30

days

☐ 30-60 days

☐ 60-90 days

☐ More than 90 days ☐ Don't

know

Q78 How do you rate delays in payment processing at your customer- end?

☐ Severe challenge – impacts my business ☐ Is a pain

area

☐ It is not a challenge

☐ Any other, please specify

Q79 What is your average monthly sales in INR lakhs?

Q80 What is your average accounts receivable at the end of the month in INR lakhs?

Q81 What is your average Inventory value at the end of the month in INR lakhs?

Q82 What is your average `Cost of sales in % (for instance, cost of sales is 60% of total sales)?

Q83 What is your average Accounts payable at the end of the month in INR lakhs?

Q84 Are you able to raise your grievances with your customers, if any?

☐ Yes ☐ No

Q85 Are the grievances redressed to your satisfaction?

☐ Yes

☐ Mostly redressed ☐ Partially redressed ☐ No

Q86 Are GST filing and reconciliation a big pain?

☐ Yes ☐ No

☐ Can't comment

SENSORIZATION STRATEGY

Q87 Are your machines (Ex. CNC Machines, Robots, etc.) Industry 4.0 ready (IoT/sensors are deployed on the machines which can receive or send the signal over the internet) with compatibility to data exchange?

☐ Yes ☐ No

☐ Partially equipped (few machines) ☐ Any other, specify

☐ Not applicable

Q88 Is your material handling equipment (conveyor belts, forklift trucks, etc.) Industry 4.0 (IoT/sensors are deployed on the machines which can receive or send the signal over the internet) ready with compatibility to data exchange?

☐ Yes ☐ No

☐ Partially Equipped (Few Machines) ☐ Not applicable

Q89 Are your utilities (compressors, chillers, etc.) and other assets Industry 4.0 ready with compatibility to data exchange?

☐ Yes ☐ No

☐ Partially Equipped (few Machines) ☐ Not applicable

Q90 Many companies have realized the importance of “sensorisation strategy” and, as a first step taking stock of the level of sensors available in their factories. How many sensors do you have per plant/factory (for instance, thermostat for measuring temperature, pressure gauges for measuring pressure, flow meter for measuring flow, vibration meters for measuring levels of vibration, humidity sensors, flame sensors, noise sensors, leak detectors, etc.)?

☐ Less than 100 ☐ 100 to 1000

☐ 1000 to 100000

☐ More than 100000 ☐ Do not know

☐ Not applicable

Q91 An IoT (Internet of Things) platform is a technology that enables the automation and management of connected devices. It connects your different types of hardware and pushes the data to the cloud. Do you have an IoT platform?

☐ Yes ☐ No

☐ Not applicable

Q92 Does your organization have any dashboard for effective collaboration with your customers?

☐ Yes ☐ No

DIGITAL MATURITY

Q93 Assessment of Digital Capabilities: Assess the following ten statements and rate them as per the topic below

	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
We are using digital technologies (such as analytics, social media, mobile, and embedded devices) to understand our customers better	☐	☐	☐	☐	☐	☐	☐
We use digital channels (such as online, social media, and mobile) for marketing our products and services	☐	☐	☐	☐	☐	☐	☐
We sell our products and services through digital channels	☐	☐	☐	☐	☐	☐	☐
We use digital channels to provide customer services	☐	☐	☐	☐	☐	☐	☐
Technology is allowing us to link customer-facing and operational processes in new ways	☐	☐	☐	☐	☐	☐	☐
Our core processes are automated	☐	☐	☐	☐	☐	☐	☐
We have an integrated view of key operational and customer information	☐	☐	☐	☐	☐	☐	☐
We use analytics to make better operational decisions	☐	☐	☐	☐	☐	☐	☐
We use digital technologies to increase the performance or add value to our existing products and services	☐	☐	☐	☐	☐	☐	☐
We have launched new business models based on digital technologies	☐	☐	☐	☐	☐	☐	☐

Q94 Assessment of Leadership Capabilities: Assess the following ten statements and rate them as per the topic below

	Strongly disagree	Disagree	Somewhat disagree	Neutral	Somewhat agree	Agree	Strongly agree
Senior executives have a transformative vision of the digital future of our company	☐	☐	☐	☐	☐	☐	☐
Senior executives and middle managers share a common vision of digital transformation	☐	☐	☐	☐	☐	☐	☐
There are possibilities for everyone in the company to take part in the conversation around digital transformation	☐	☐	☐	☐	☐	☐	☐
The company is promoting the necessary culture changes for digital transformation	☐	☐	☐	☐	☐	☐	☐
The company is investing in the necessary digital skills	☐	☐	☐	☐	☐	☐	☐
Digital initiatives are coordinated across silos such as functions or regions	☐	☐	☐	☐	☐	☐	☐
Roles and responsibilities for governing digital initiative are clearly defined	☐	☐	☐	☐	☐	☐	☐
Digital initiatives are assessed through a common set of key performance indicators	☐	☐	☐	☐	☐	☐	☐
IT and business leaders work together as partners	☐	☐	☐	☐	☐	☐	☐
The IT unit's performance meets the needs of the company	☐	☐	☐	☐	☐	☐	☐

SUSTAINABILITY

- Q95 Social sustainability is about identifying and managing business impacts, both positive and negative, on people. What factors of social sustainability are you undertaking in your organization? (Select all the options that apply)
- ☐ Fair treatment of workers, including fair wages and safe working conditions
 - ☐ Compliance with labor laws and regulations
 - ☐ Support for local communities through job creation and community development initiatives
 - ☐ Promotion of diversity and inclusion in the workplace
 - ☐ Ethical business practices and a commitment to reducing environmental impact
 - ☐ Transparency and accountability to stakeholders, including customers, employees, and suppliers
 - ☐ Corporate social responsibility (CSR) activities that benefit the communities in which they operate
 - ☐ Encouraging employee volunteerism, volunteer work and charitable activities to benefit the community
 - ☐ Encouraging employee participation in environmental and sustainability initiatives
 - ☐ Collaborating with other businesses and organizations to promote social sustainability in the local community and beyond.
 - ☐ Any other, specify
- Q96 Environmental sustainability is defined as responsible interaction with the environment to avoid depletion or degradation of natural resources and allow for long-term environmental quality. What factors of environmental sustainability are you undertaking in your organization? (Select all the options that apply)
- ☐ Compliance with environmental regulations and laws
 - ☐ Adoption of energy-efficient technologies and practices, such as LED lighting and energy-efficient appliances
 - ☐ Use of renewable energy sources, such as solar or wind power
 - ☐ Implementation of a waste management program to reduce, reuse and recycle waste
 - ☐ Implementation of water conservation practices
 - ☐ Adoption of sustainable transportation methods, such as carpooling, electric vehicles, and promoting telecommuting (the practice of working from home, making use of the internet, email, and the telephone)
 - ☐ Encouraging the use of eco-friendly materials and products
 - ☐ Developing a green supply chain management system that evaluates suppliers based on their environmental performance
 - ☐ Incorporating environmental considerations in product design and development
 - ☐ Regularly monitoring and reporting environmental performance and setting goals for continuous improvement

- ☐ Collaborating with other businesses and organizations to promote environmental sustainability in the local community and beyond
- ☐ Any other, specify

Q97 Economic sustainability refers to practices designed to create the long-term economic development of a company or nation while also managing the environmental, social, and cultural aspects of its activities. What factors of economic sustainability are you undertaking in your organization? (Select all the options that apply)

- ☐ Strong financial management, including budgeting, forecasting and regular financial reporting
- ☐ Diversifying revenue streams to reduce reliance on a single customer or product
- ☐ Building a loyal customer base through excellent customer service and building strong relationships with suppliers
- ☐ Investing in marketing and advertising to increase brand awareness and attract new customers
- ☐ Building a strong online presence through a website and social media to reach more customers and expand the business
- ☐ Continuously researching and developing new products or services to stay competitive in the market
- ☐ Building a skilled and experienced workforce by investing in employee training and development
- ☐ Building strong partnerships with other businesses and organizations to expand the business and access new markets
- ☐ Managing risks by implementing risk management strategies and diversifying investments
- ☐ Regularly monitoring and analyzing market trends and economic conditions to adapt the business strategy accordingly
- ☐ Continuously looking for opportunities to improve efficiency and reduce costs
- ☐ Seeking funding from various sources like bank loans, venture capital, crowdfunding, and grants to support the business growth
- ☐ Any other, specify

Q98 What is the percentage of material yield? (Overall yield of material inputs)

NOTE (Calculation): **Overall material yield**=(Total weight of all end products (without packaging) (Kgs or tons))/(Total weight of all raw materials (Kgs or Tons))

O 5:1 (it means that the weight of the raw material is 5 times more than the final product) O 5:1 to 10:1

- ☐ 10:1 to 20:1
- ☐ More than 20:1
- ☐ Any other, specify ☐ Not aware

Q99 What is the percentage of scrap (process waste) recovered, recycled, or upcycled (converting the scrap into a better product that is less harmful to the environment)?

NOTE (Calculation): **Overall scrap recovered, recycled, or upcycled**= (Total weight of all scrap recycled (Kgs or Tons))/(Total weight of scrap (Kgs or Tons))

- ☐ 100% (all scrap is recycled) ☐ 75 to 100%
- ☐ 50 to 75%
- ☐ 25 to 50%
- ☐ Less than 25%
- ☐ Any other, specify ☐ Not aware

Q100 Non-renewable materials are metals extracted from mines, processed and supplied to manufacturing companies. Overall, in your organization, what % of materials used are non- renewable?

NOTE (Calculation): **Percentage by weight of non-renewable materials in all products** (Total weight of all non-renewable materials in all products (Kgs or tons))/(Total weight of all products (Kgs or Tons))

- ☐ 100%
- ☐ 75 to 100%
- ☐ 50 to 75%
- ☐ 25 to 50%
- ☐ Less than 25%
- ☐ Any other, specify ☐ Not aware

Q101 What percentage of your materials by weight used in your organization are biodegradable? (Biodegradable materials get decomposed by bacteria and other organisms in the environment).

- ☐ 100%
- ☐ 75 to 100%
- ☐ 50 to 75%
- ☐ 25 to 50%
- ☐ Less than 25%
- ☐ Any other, specify ☐ Not aware

Q102 What is the percentage by weight of recycled, reconditioned, reused components or materials in all products?

NOTE (Calculation): **Percentage by weight of recycled, reconditioned, reused components or materials in all products** = (Total weight of all recycled, reconditioned, reused components or materials (Kgs or Tons))/(Total weight of all products (Kgs or Tons))

- ☐ 100%
- ☐ 75 to 100%
- ☐ 50 to 75%
- ☐ 25 to 50%
- ☐ Less than 25%
- ☐ Any other, specify ☐ Not aware

Q103 Do you have a robust system to dispose of hazardous and toxic waste safely without damaging the environment?

- ☐ Yes ☐ No
- ☐ Partially, specify

Q104 Do you have a robust reverse logistics to collect used products at their end-of-life (EOL) on the lines of circular economy model?

- ☐ Yes ☐ No
- ☐ Partially, specify

Q105 What percentage of recycled water is used?

NOTE (Calculation): **Percentage by recycled water** = (Total volume of recycled water (Liters))/(Total volume of water consumed (Liters))

- ☐ 100%
- ☐ 75 to 100%
- ☐ 50 to 75%
- ☐ 25 to 50%
- ☐ Less than 25%
- ☐ Any other, specify ☐ Not aware

Q106 Do you have rainwater harvesting systems in place?

☐ Yes ☐ No

☐ Partially, specify Display This Question:

Q107 What quantity is harvested in a year in KL if you are harvesting rainwater?

☐ Less than 100 KI

☐ Between 100 KL and 500 KI ☐ More than 500 KI

☐ Not aware

Q108 Do you emit harmful chemicals (Ex. Carbon dioxide, methane, nitrous oxides, etc.) into the atmosphere?

☐ Yes ☐ No

☐ In some of our processes

Q109 Do you measure your carbon footprint (in tonnes or some other units)?

☐ Yes ☐ No

Q110 What is your carbon footprint?

NOTE: The unit for a carbon footprint is tonnes (That is metric tonnes) of carbon dioxide equivalent (CO₂e). Carbon dioxide is the most common GHG emitted by human activities, but the CO₂e unit takes into account all other GHGs (like methane and nitrous oxide) as well, by putting them in terms of carbon dioxide.

☐ Yes, specify in tonnes

☐ We do not measure, can't comment

Q111 What is the percentage of renewable energy used in your organization?

NOTE: Renewable energy forms are wind, solar, and hydel energies. ☐ 100%

☐ 75 to 100%

☐ 50 to 75%

☐ 25 to 50%

☐ Less than 25%

☐ Any other, specify

Q112 What is the percentage of land covered with plants and trees to promote biodiversity?

NOTE (Calculation): **Percentage by land cover for biodiversity** = (Total area of plants and trees (Square meters))/(Total area of the facilities (Square meters))

- ☐ More than 80% ☐ 70-80%
- ☐ 50-70%
- ☐ 30-50%
- ☐ 20-30%
- ☐ Less than 20%
- ☐ Any other, specify

Q113 Does your company have “product as a service (PasS)” strategy for sustainability?

- ☐ Yes ☐ No
- ☐ Any other, specify

Q114 Do you have green building certification in your enterprise?

- ☐ Yes ☐ No
- ☐ Partially, specify

Q115 Does your company have “sustainability vision and mission” in place?

- ☐ Yes ☐ No

Q116 Does your company have programs and systems to constantly measure the progress of sustainability initiative?

- ☐ Yes ☐ No

Q117 Which sustainability goals of 17 goals of UNO is your company addressing?

NOTE: Reference to UN's sustainability goals <https://sdgs.un.org/goals>

- ☐ Yes, specify the goal ☐ No
- ☐ Any other, specify

Q118 SMEs are now expected to produce with zero defects and zero adverse environmental impact (ZED). Many governments globally are trying to support SMEs in obtaining ZED certification. If you are an SME, are you ZED certified?

- ☐ Yes ☐ No
- ☐ Not applicable (we are not an SME)

Q119 Is there any employee/executive in your organization responsible for coordinating environmental goals?

☐ Yes ☐ No

Q120 Does your organization have an environmental policy and strategy that guides long-term decision-making?

☐ Yes ☐ No

Q121 Please select all the topics covered in your environmental policy

- ☐ Energy
- ☐ Water
- ☐ Waste water
- ☐ Air
- ☐ Waste
- ☐ Chemical management
- ☐ Any other, specify

Q122 Have you identified the significant environmental impacts of your organization's current operations?

☐ Yes ☐ No

☐ Partially

Q123 Does your organization create awareness of the environmental strategy among employees?

☐ Yes ☐ No

☐ Partially

Q124 Is your Environmental Management System (EMS) verified through international standards by 3rd party verifying bodies (for instance, ISO 14001)?

☐ Yes ☐ No

☐ Don't know

Q125 Does your organization track energy use/Green House Gas (GHG) Emissions from all its sources?

☐ Yes ☐ No

☐ Partially

Q126 Do you use a co-generation boiler for electricity generation/steam consumption in utilities?

- ☐ Yes ☐ No
☐ Not applicable

Q127 Do you conduct energy audits?

- ☐ Yes ☐ No

Q128 If you conduct energy audits, is it verified through 3rd party energy auditors?

- ☐ Yes ☐ No

Q129 Do you monitor your ambient air quality?

- ☐ Yes ☐ No

Q130 Has any environmental compliance penalty been imposed on you in the last three Financial Years?

- ☐ Yes ☐ No

MSME SCHEMES

Q131 How have various MSME schemes launched by the State Government of Telangana affected the growth of your company/industry?

	We are not aware of the scheme	We are aware of the scheme but do not leverage it	We leverage the scheme and find it very useful	We use the scheme, but it is not of much help
T-IDEA (Telangana State Industrial Development and Entrepreneur Advancement) Incentive Scheme, 2014	☐	☐	☐	☐
T-PRIDE (Telangana State Program for Rapid Incubation of Dalit Entrepreneurs)	☐	☐	☐	☐
Telangana State Industrial Project Approval and Self-Certification System (TS-iPASS)	☐	☐	☐	☐
CM ST Entrepreneurship & Innovation (CMSTEI) Scheme	☐	☐	☐	☐
Telangana Scheduled Tribes Cooperative Finance Corporation Ltd (TRICOR)	☐	☐	☐	☐
Self Employment Scheme	☐	☐	☐	☐
Pavala Vaddi Scheme	☐	☐	☐	☐
Land Purchase Scheme	☐	☐	☐	☐
BANK LINKED SCHEMES	☐	☐	☐	☐
DRIVER EMPOWERMENT PROGRAMME	☐	☐	☐	☐
Telangana Fiber Grid or T-Fiber	☐	☐	☐	☐

WE Hub - Women Entrepreneurs Hub	☒	☐	☐	☐
----------------------------------	----------------------------------	-----------------------	-----------------------	-----------------------

	We are not aware of the scheme	We are aware of the scheme but do not leverage it	We leverage the scheme and find it very useful	We use the scheme, but it is not of much help
Suvidha Incubation	☐	☐	☐	☐
Telangana State Innovation Cell (herein referred to as TSIC)	☐	☐	☐	☐
T-Hub (Technology Hub)	☐	☐	☐	☐
T-Fund (Telangana Innovation Fund)	☐	☐	☐	☐
T-SEED	☐	☐	☐	☐
COMMON FISCAL INCENTIVES FOR ALL COMPANIES	☐	☐	☐	☐
Incentives for Incubators	☐	☐	☐	☐
The Telangana Handloom Weavers Thrift Fund Saving and Security Scheme (THWTFSSS) "Nethannaku Cheyutha"	☐	☐	☐	☐

Q132 Are you using any other state/UT MSME schemes?

☐ Yes, specify the name of the scheme ☐ No

Q133 Give your views about the scheme you mentioned (for instance, is the scheme useful and the reason)

Q134 Will the current level of MSME reforms by the government (central/state) encourage Indian companies to explore indigenization initiatives in manufacturing?

☐ Many companies will switch to indigenous suppliers ☐ Some companies will turn to indigenous suppliers ☐ Things will remain the same

Q135 Will the government's current level of MSME reforms encourage Indian companies to buy products or services from MSMEs?

☐ Yes, specify reasons if any ☐ No
☐ Can't comment

Q136 Will the current level of reforms by the government shift customer behavior into buying more domestic products?

☐ Yes
☐ Maybe ☐ No

Q137 Have you availed of any loan offers announced by the government (state or central)?

☐ Yes ☐ No

Q138 What is your debt-to-equity ratio?

☐ We have no debt
☐ Our debt-to-equity ratio is less than half (that is, if equity is 100, then debt is less than 50%) ☐ Our debt-to-equity ratio is in the range of 0.5-1
☐ Our debt-to-equity ratio is in the range of 1-2 ☐ Our debt-to-equity ratio is in the range of 2-3 ☐ Our debt-to-equity ratio is more than 3, specify

Q139 If you have not availed of any loan offers, specify reasons, if any

Q140 Which of the following initiatives by the government are useful to your organization? (Select all the options that apply)

- ☐ Change of MSME definition
- ☐ Emergency Working Capital Facility
- ☐ Equity support through Rs. 10000 crores Funds of Fund
- ☐ Subordinate Debts for Non-performing assets
- ☐ Payment of MSME dues by Central Public Sector Enterprises in 45 days
- ☐ Restriction on Global tenders up to Rs. 200 crores
- ☐ Establishment of e-Marketplace
- ☐ Interest Subvention for MUDRA-Shishu Loans
- ☐ Reduction of EPF contribution
- ☐ Any other specify

Q14 What other measures do you think the government should take to ensure growth in the MSME sector in the long term? (Please be specific)

Q142 The Government of Telangana has constituted a committee called "State Level Export Promotion Committee" (SLEPC) under the "Assistance to States for Developing Export Infrastructure and Allied Activities" (ASIDE) Scheme of the Government of India for creating appropriate infrastructure for the development and growth of exports. Are you aware of this Committee and its benefits?

☐ Not aware of it ☐ Not eligible for it

☐ Not applied but plan to apply ☐ Applied for its benefits

☐ Do not plan to apply; specify reasons, if any

Q143 The Government of Telangana has formulated the "Telangana State Logistics Policy 2021- 26" in conjunction with the "Telangana State Industrial Policy 2015" (T-IDEA). What have been the major benefits of this policy since its inception? (Select all that apply)

- ☐ Not aware of the scheme
- ☐ Development of Robust Infrastructure
- ☐ Improvement in the Quality of Services
- ☐ Increased Technology Penetration
- ☐ Improvement in the Availability of Skilled Workforce

Q144 Telangana approved 3,938 projects with investments totaling ₹17,867 crore under its flagship TS-iPASS initiative for industries during the fiscal year that ended March 31, 2022. Did you apply for this initiative?

- ☐ Not aware of it ☐ Yes
☐ No
☐ Applied but was rejected

Q145 If you have applied to the TS-iPASS initiative, state the kind of project you applied for and how much funding you received

Q146 Telangana State GlobalLinker is a digital networking platform that helps MSMEs contact global buyers and sellers and get appraised about opportunities in the sector. Have you ever leveraged this platform?

- ☐ I have not heard of any such scheme ☐ Yes, I am a member
☐ No, never used it ☐ I use it sometimes

Q147 Recent changes in the 'Prime Minister's Employment Generation Programme' (PMEGP) include an increase in the maximum project cost to Rs 50 lakh (from Rs 25 lakh) for the manufacturing sector and Rs 20 lakh (from Rs 10 lakh) in the service sector. Have these changes positively impacted your company in any way?

- ☐ Yes ☐ No
☐ Don't know
☐ Not participated

Q148 If you applied for the Prime Minister's Employment Generation Programme after the new changes were made, what has been the impact on your company?

Q149 The Telangana MSME Green Industrial Park in Dandumalkapur is being set up to facilitate the establishment of 589 MSME units to promote employment opportunities, particularly to rural youth and residents, through skill development centres. Moreover, under the 'walk to work' concept, an industrial township is being constructed to help accommodate employees and entrepreneurs working in the Green Industrial Park. Would you want to be a part of this community?

- ☐ Yes ☐ No
☐ Maybe
☐ Already a part of it

Q150 If you do not want to be a part of the Telangana MSME Green Industrial Park, please state why

Q151 Industry body FTCCI and Amazon have signed a Memorandum of Understanding to enable e-commerce adoption by its MSME members in Telangana State. Is your company being trained under this initiative or not?

- ☐ Yes ☐ No
☐ Don't know about such an initiative

Q152 What are the major constraints in improving the overall performance (enhancing turnover, improving margin) of your business? (Select all that apply)

- ☐ Lack of skilled workforce for manufacturing, services, marketing, etc
☐ Lack of funds
☐ Lack of adoption of modernization and the latest technology
☐ High cost of credit
☐ Inadequate infrastructure facilities, including power, water, roads, etc.
☐ Poor networking and connectivity
☐ Underutilization of existing resources
☐ Marketing for Finished Products
☐ Procurement of Raw Material
☐ Any other, specify

Q153 Ministry of Micro, Small and Medium Enterprises has framed a Scheme called the “Credit Guarantee Scheme for Subordinate Debt” for providing guarantees in respect of credit facilities extended by eligible and registered scheduled commercial banks to borrowers in Micro, Small and Medium Enterprises (MSMEs). What, according to you, has been the major impact of this scheme on the Telangana industries? (Please select one that you think has been the most impactful of all)

☐ I am unaware of any impact ☐ Financial sustainability

☐ Credit additionality (the extra loans that would not have come about without the credit guarantee scheme)

☐ Economic additionality (e.g., increases in profit and/or employment)

☐ Reviving the MSMEs which have become Non-Performing Assets (NPA) or are on the brink of becoming one

Q154 Are you leveraging any MSME scheme promoted by the central government?

☐ Yes, specify ☐ No

Q155 Are you leveraging any central MSME schemes related to innovation?

☐ Yes, specify ☐ No

☐ Not aware of any such schemes

Q156 Are you leveraging any central MSME schemes related to technology?

☐ Yes, specify ☐ No

☐ Not aware of any such schemes

Q157 Are you leveraging any central MSME schemes related to skilling?

☐ Yes, specify ☐ No

☐ Not aware of any such schemes

Q158 Are you leveraging any central MSME schemes related to women?

☐ Yes, specify ☐ No

☐ Not aware of any such schemes

Q159 Are you leveraging any central MSME schemes related to “SC/ST/Specially Abled/Minorities/EWS”?

☐ Yes, specify

☐ No

☐ Not aware of any such schemes

Q160 Are you leveraging any central MSME schemes related to green/sustainability?

☐ Yes, specify ☐ No

☐ Not aware of any such schemes

Q161 Are you leveraging any central MSME schemes related to Entrepreneurs/Entrepreneurship?

☐ Yes, specify ☐ No

☐ Not aware of any such schemes

GENERAL INFORMATION

Q162 Have you developed any new product or a new line of business service since your company was established?

☐ Yes ☐ No

Q163 Have you filed for any patents to date?

☐ Yes ☐ No

Q164 Has your company received any patents?

☐ Yes, specify the number of patents you have received ☐ No

Q165 In the recent period (say during the last three years), have you significantly improved the quality of your product/process/services through innovation?

☐ Yes ☐ No

Q166 Do you collaborate with startups for any innovation initiatives or business model innovation?

☐ Yes ☐ No

Q167 Which digital technologies listed below can best help MSMEs innovate/improve/make their supply chain more resilient and efficient? (tick as many as applicable)

☐ 3D Design

☐ 3D Printing

☐ Internet of Things

☐ AI and ML

☐ AR/VR

☐ Any other, specify

Q168 Do you use AI platforms like CHATGPT?

- ☐ Yes, extensively ☐ Yes, occasionally ☐ No ☐ Not aware

Q169 If you use AI Platforms like CHATGPT, specify examples of your use case.

Q170 Do you use the tool room or any other common infrastructure of the government for any of your innovation/new product development?

- ☐ Yes ☐ No ☐ Not applicable for my business

Q171 Has COVID-19 forced you to improve your business processes?

- ☐ Yes, substantially ☐ Yes, marginally ☐ No ☐ Not aware

Q172 Are your business processes (mode of client engagement, delivery, planning, etc.) more efficient than your pre-pandemic processes?

- ☐ Yes ☐ No

Q173 Is your current revenue more than the pre-pandemic revenue?

- ☐ Yes ☐ No ☐ Same level

Q174 Is your current profit more than the pre-pandemic profit?

- ☐ Yes ☐ No
☐ Same level

Q175 Is your current cash position better than the pre-pandemic situation?

- ☐ Yes ☐ No
☐ Same level

Q176 How do you encourage your staff to generate new ideas and innovate? (Tick all that are applicable)?

- ☐ Have a suggestion box
☐ Reward staff for suggestions
☐ Get out of your office and talk to staff
☐ Through creativity/innovation workshops for staff
☐ Structured brainstorming sessions
☐ Periodic offsites
☐ We have no structured measures in place
☐ Any other, specify

Q177 Do you use any software platform to promote innovation culture in your company (for instance, Microsoft Teams, VEEMA)

- ☐ Yes, specify the name of the platform/software ☐ No
☐ Not aware

Q178 What is the average number of monthly improvements you implement in your organization?

- ☐ Less than 5 in a month ☐ 5-10
☐ 11-20
☐ 21-30
☐ More than 30 ☐ Not aware

Q179 What support do you need to take your business to the next level? (tick only the top five support applicable to your business)

- ☐ Access to the export market
- ☐ Brand development
- ☐ Business strategy development
- ☐ Enhancing quality and standards
- ☐ Financial management
- ☐ Human capital development
- ☐ Intellectual property development
- ☐ Loan at an affordable interest rate for expansion
- ☐ Product innovation
- ☐ Process innovation
- ☐ Productivity improvement
- ☐ Service Excellence
- ☐ Support for enabling eCommerce
- ☐ Technology innovation
- ☐ Any other, specify

ENTREPRENEUR AND ENTREPRENEURSHIP

Q180 Are you an entrepreneur?

☐ Yes ☐ No

Q181 What is your gender?

☐ Male

☐ Female

☐ Prefer not to say ☐ Others

Q182 What is your major factor of motivation as an entrepreneur? (tick top three factors)

- ☐ Create economic value for society and jobs
- ☐ Career goal
- ☐ Economic independence
- ☐ Expectation for recognition
- ☐ Family background (I come from a business family)
- ☐ I had a good eco-system (funds, potential client base, business partners, relevant suppliers, network etc.) to start an entrepreneurial venture
- ☐ I had a limited support system but was ready to take up challenges/risks
- ☐ Market potential of my business idea
- ☐ Self-satisfaction
- ☐ Self-esteem
- ☐ Self-determination
- ☐ Usage of idle funds

Q183 What are some of the major challenges you faced as an entrepreneur? (Select all that apply)

- ☐ Arranging finance at all stages of business
- ☐ Arranging raw material
- ☐ Caste discrimination
- ☐ Corruption
- ☐ Complexities in getting government approval
- ☐ Gender discrimination
- ☐ High external competition
- ☐ High rate of interest
- ☐ Interference of family members
- ☐ Lack of education
- ☐ Lack of skilled employees
- ☐ Labour management issues
- ☐ Labour laws
- ☐ Lack of awareness about government programmes
- ☐ Lack of experience and skills
- ☐ Lack of support system
- ☐ Lack of knowledge about concession
- ☐ Multiple responsibilities
- ☐ Middlemen in my business line
- ☐ Problem in marketing and selling

Q184 What are the circumstances under which you became an entrepreneur?

- ☐ You saw an opportunity through a need assessment
- ☐ You were forced by circumstances as the only available option ☐ Family pressure
- ☐ Any other, specify

Q185 Women Entrepreneurs Hub is envisioned to create a supportive community for aspiring women entrepreneurs where they can interact with VCs for funding, connect with corporates for scaling up their business, get advice from mentors to fine-tune ideas, avoid costly mistakes, and march forward on the path to success with renewed confidence. Have you ever leveraged this scheme?

- ☐ Yes ☐ No
- ☐ Not aware of the scheme

Q186 What have been the major benefits of the WE Hub scheme to your industry/company? (Select all that apply)

- ☐ Access to capital
- ☐ Access to Mentors
- ☐ Access to Infrastructure
- ☐ Access to Support services
- ☐ Access to Venture Capital pitch events
- ☐ Guidance on Business Branding, Partnerships, and Marketing
- ☐ Legal and auxiliary services support
- ☐ Peer-peer/Founder's connections
- ☐ Pre-accelerator programs
- ☐ Strategic consulting

Q187 WE Hub is India's First state-led incubator for women entrepreneurs. If you have not applied for the WE Hub scheme, what could be the reason? (Please select as many as applicable)

- ☐ I was not aware of the scheme
- ☐ Government policies towards my industry are not favourable and encouraging
- ☐ Government assistance, incentives and subsidies are not easily available in time
- ☐ Lengthy and complicated procedure causes delay in availing the benefit of the scheme
- ☐ Personal and political influence prevail at high levels in getting assistance
- ☐ Benefits received under government schemes don't help with the growth of business
- ☐ Any other, specify _____

FUTURE OF SKILLS AND FAMILIARITY WITH EMERGING TECHNOLOGIES

Q188 How familiar is your team with the following technologies?

	My team is not aware of	My team is familiar with	My team has moderate knowledge	My team has a high level of competence	My team has applied the technology
Cloud computing	☐	☐	☐	☐	☐
IoT	☐	☐	☐	☐	☐
IIoT	☐	☐	☐	☐	☐
Edge computing	☐	☐	☐	☐	☐
AI	☐	☐	☐	☐	☐
Machine Learning	☐	☐	☐	☐	☐
Big data	☐	☐	☐	☐	☐
Integration of IT and OT (Operational technology)	☐	☐	☐	☐	☐
Microgrid technologies	☐	☐	☐	☐	☐
Smart Grid technologies	☐	☐	☐	☐	☐
Blockchain	☐	☐	☐	☐	☐
Conversational tools (Chatbot)	☐	☐	☐	☐	☐
Cybersecurity	☐	☐	☐	☐	☐
Advanced analytics	☐	☐	☐	☐	☐
Robotics	☐	☐	☐	☐	☐
Virtual reality	☐	☐	☐	☐	☐
Augmented reality	☐	☐	☐	☐	☐
Mixed reality	☐	☐	☐	☐	☐
5G network	☐	☐	☐	☐	☐
Fintech	☐	☐	☐	☐	☐
Green technologies	☐	☐	☐	☐	☐
Quantum computing	☐	☐	☐	☐	☐

RPA (Robotics Process Automation)	☐	☐	☐	☐	☐
Digital twin	☐	☐	☐	☐	☐
3D design	☐	☐	☐	☐	☐