

CHAPTER 85

ZED Implementation in Micro Enterprises: A Case Study

*Rashpal Singh Riat**

ABSTRACT

Importance of India's MSMEs are gauged from their 30% contribution in India's GVA (Gross Value Added), 45% share of the country's total exports and second only to agriculture in generating employment. Well aware of the facts, Government launched ZED certification scheme for MSMEs in 2016 with the mission of promoting the Zero Defect & Zero Effect culture in India. It was subsequently revamped in April 2022 to make it more attractive with simplified certification process. Purpose: Despite various incentives & benefits offered to ZED certified companies, interest for ZED Certification among MSMEs remains low. This article aims to provide the insights gained by studying ZED Certified Micro Enterprises in Pune region from adoption point of view. Design/Methodology/Approach: A qualitative study based on a) participant interview data, b) document review, c) gap analysis, and d) observations from site visits of the enterprises. Findings: The owner-managers of micro enterprises are grappling with the question of whether they will get enough customers and deliver enough products to become a viable business. Insufficient qualified staff level employees make ZED certification process baby of handholding consultant with little system knowledge transfer to enterprises.

Keywords: MSME; ZED; Micro enterprises; Case study.

1.0 Introduction

1.1 Background

MSMEs for long, have been identified as backbone of economic growth of country. With 30% contribution in India's GVA (Gross Value Added), 45% share of the country's total exports and second only to agriculture in generating employment proves it without any doubt. Fully aware of importance of small & medium enterprises in overall economic development of country, the challenges these companies are facing, Indian Government has come out with various technology upgradation schemes and financial support for them, such as Lean manufacturing competitiveness, Technology and Quality Upgradation Support, Credit Linked Capital Subsidy for Technology Upgradation.

**Senior Consultant, ZED, Boon Management Consultants Pvt Ltd., Thane, Maharashtra, India
(E-mail: rashpalsingh.riat@gmail.com)*

Government launched ZED certification scheme for MSMEs in 2016 with the mission of promoting the Zero Defect & Zero Effect culture in India. It was subsequently revamped in April 2020 to make it more attractive with simplified certification process and increased features.

Categorization of MSMEs

Definition of MSMEs in India as per MSMED act, 2006 revised in 2020 in terms of financial limits.		
1	Micro Enterprises	Rs. 1 Crore of investment and upto Rs. 5 Crore of turnover
2	Small Enterprises	Rs.10 Crore of investment and upto Rs. 50 Crore of turnover
3	Medium Enterprises	Rs.20 Crore of investment and upto Rs.250 Crore of turnover

All MSMEs registered with the Udyam registration portal of the Ministry of MSME are eligible to participate in the ZED scheme. Current Base is 5.93+ crore registered MSMEs.

1.2 ZED certification

ZED model developed for manufacturing sector and adopts best practices, to help the MSMEs adopt systems that would help them embark on the ZED journey while enhancing their competitiveness and sustainability. An organization applying for a particular certification level i.e., Bronze, Silver, & Gold under the MSME Sustainable (ZED) Scheme will be assessed on the performance-based parameters, as applicable:

- Certification Level 1: BRONZE (5 Parameters), Focuses on basic quality measures and regulatory compliance.
- Certification Level 2: SILVER (14 Parameters), Ensures MSMEs follow higher standards of production, waste management, and energy conservation.
- Certification Level 3: GOLD (20 Parameters), Recognizes MSMEs that adopt global best practices in manufacturing, automation, and sustainability.

1.3 Handholding mechanism

MSMEs often lack the necessary in-house expertise and skills to implement the quality & sustainability of ZED framework. Government has put in place strong Handholding support process and MSMEs can avail benefits of. There are 3 milestones to be achieved before going for final audit for certification and certified consultant guides the firm to put system in place. Whole certification process has 3 milestones namely:

- a) Milestone 1: Baseline Diagnostic Study and Handholding Action Plan
- b) Milestone 2 & 3: Implementation & Progress Review 1 & 2
- c) Completion of Handholding activity: The handholding process will be considered to be completed when all the identified activities as mentioned in the Implementation plan are complete.

1.4 Literature review

Challenges in implementing ZED requirements: Micro enterprises follow very simple management system, have informal relationships with customers, services providers, managed independently by owner and their personal characteristics such as values, attitude play important role in adapting new technologies. More than technology or cost barriers, it is softer issues which hamper the growth of lower-tier suppliers. While so much said about SMEs contribution to Indian economy, still relatively little is published regarding operational practices and successes in these types of shops.

According to Vivek Trivedi, Jigar Doshi, Pina Bhatt & Gaurav N Sutaria (2025), the ZED is a game-changer for India's MSME sector, but challenges like low awareness, financial constraints, and technical gaps hinder adoption. And recommend simplified certification processes, and sustained policy interventions are needed to maximize ZED's impact. *Manocher Djassem (2014)*, in his article suggests taking up projects that have low implementation costs and potentially quick turnaround times.

This will bring buy-in from owner as well from employees. they also reveal some barriers to adopting lean principles; including potential interruption in daily operations, Aleksandra Janeska-Iliev (2015), empirically examined number of factors responsible for growth of the small business. He concluded that providing a small business with more money does not automatically mean growth. Opportunities that come with employees' development is the component of growth that is missing in small businesses.

Neil Churchill (1987), presents 5 stages of small business growth in his article published in Harvard Business Review magazine. He narrates five stages of companies' life cycle. namely Existence, Survival, Success, Take off & Resource maturity. In Existence phase, the organization is a simple one—the owner does everything and directly supervises subordinates, who should be of at least average competence. Systems and formal planning are minimal to nonexistent. The company's strategy is simply to remain alive. The owner *is* the business, performs all the important tasks, and is the major supplier of energy, direction, and, with relatives and friends, capital. Next phase, Survival, the organization is still simple. The company may have a limited number of employees supervised by a sales manager or a general foreman. Neither of them makes major decisions independently but instead carries out the rather well-defined orders of the owner. Systems development is minimal. Formal planning is, at best, cash forecasting. The major goal is still survival, and the owner is still synonymous with the business. Above limited literature on micro enterprises give idea about their characteristics & the challenges.

2.0 Purpose

As per MSME web portal, 5.93 Crore registered MSMEs are eligible for ZED scheme. Despite various incentives & benefits offered to ZED certified companies, interest

for ZED Certification among MSMEs remains low. This article aims to provide the insights gained by studying ZED Certified Micro Enterprises in Pune region from adoption point of view.

3.0 Methodology

Case study methodology followed to gather real time data through observations, records of subject companies and semi-structured interview with owners & employees. The obtained information was combined with the experiences of the researchers. Evaluating data collected from 3 locations used to generalize of the results.

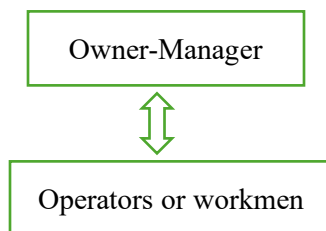
4.0 Findings of the Study, Conclusion and Recommendation

These 3 Micro Enterprises, have already achieved ZED silver certification in last few months. Companies employ specialized equipment and expertise to produce complex products and components. Their focus is on executing manufacturing process as specified by the client and built to exact specifications, down to micron ensuring the manufactured items matches client's vision. They do not provide design or engineering services. The client provides the production ready drawings, material specification and most of the cases client supply input materials too. Annual turnover of these companies is between 80 lacs to 120 lacs and strength varies between 6 to 10 people. All three participants described meeting customer requirement and a sense of community as being the most critical elements in their ability to sustain the business. All three owners appeared to have close customer relationships. Regular communications with customers, timely fulfilling their requirements contributes to strong relationships.

4.1 Key findings

No hierarchy, (Fig. 1) owner manager directly interacts with operators and spends most of the time with them.

Figure 1 Structure of typical Micro Enterprises



Resolves concerns, decisions on the spot. Workmen are multi skilled and do various jobs as per requirements such as receiving materials, operating machines, inspection, packaging, loading for transportation etc. It is not that owners don't employ qualified people (Engineering diploma holders, Graduates etc.) but they don't stay beyond few months. All 3 enterprises have similar way of working.

- *Sophisticated Equipment*: All 3 firms have similar equipment i.e. latest CNC & VMC machines as per the requirement of customers with few conventional machines for rough turning & non-critical jobs. Computerized Numerical Control or Vertical Machining Centre machines are programmable as per job requirement, very reliable, Safe, high precision and user friendly. Apart for indicating the status of job, it monitors the health of machines too. And enables user to take proactive actions. They hardly produce any waste.
- *Low volume and High Variety product*: On an average 10-15 set up changes per month take place on these machines.
- *Engagement of employees*. Team includes machinists, and veteran technicians who understand all machining aspects. Key experienced & skilled workmen have good number of years' service with the firm. In some cases owners have provided shelter for them & their family in the vicinity of firm as they are from other states or districts. They follow flexible working i.e. working in night or if required during holidays too.
- *Learning on the job*: Owner as well employees keep learning technically on the job as variety is high. They are involved in new programming, selection of tools, new measuring methods etc. Many a times expert person from client's organization also support setting up the process.
- *Less focus on documentation*: All 3 micro enterprises are ISO certified and display certificate on wall. Purpose is to establish credibility among clients and other business partners. Here competency overrides everything. "Do what clients want" is the mantra. Documentation is considered burden by employees as it does not impact immediate requirement of business.

4.2 Discussion and recommendation

Point 1: ZED is 4 in 1 approach (fig. 2) i.e. Safety, Environment, Quality & Energy, but tone down version for MSMEs. ISO 9001 is an internationally recognized standard for Quality Management Systems (QMS), ISO 14001 sets requirements for an Environmental Management System (EMS), ISO 45001 is the international standard for Occupational Health and Safety (OH&S) management systems.

ZED handholding consultant spends 14 days with them for Handholding. Wherein he interacts with employees, owner of the firm and transfer requisite knowledge pertaining

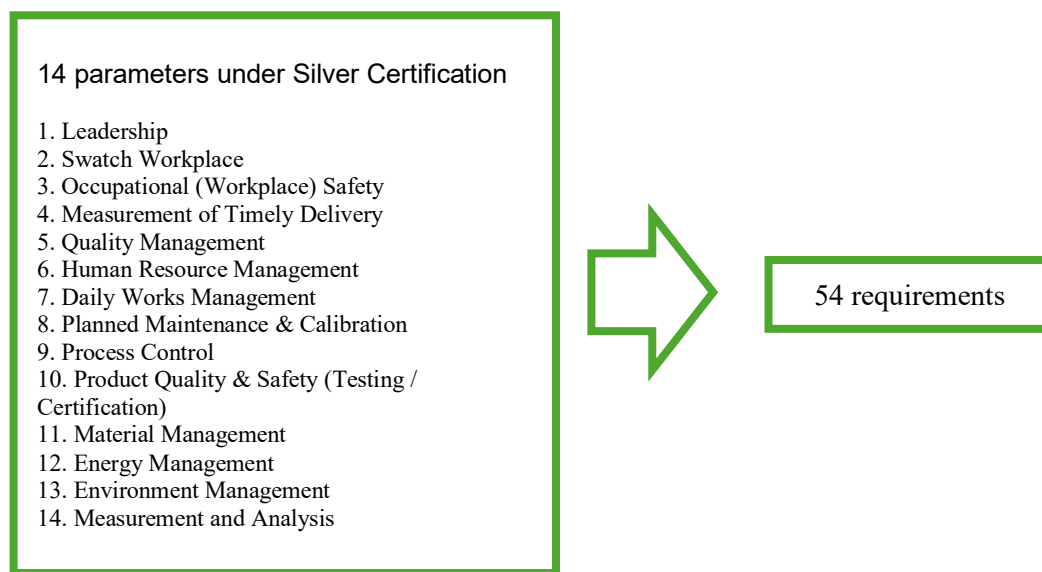
to 14 elements of ZED. This happens on piecemeal basis. Owners are reluctant to stop production time & again for training purpose. Implementation of new practice and sustaining it needs longer time.

Figure 2: ISO Systems & ZED Relationship

Sr. No.	ISO System	ZED requirement
1	ISO 45001-Occupational Health and Safety (OH&S) management systems,	Parameter 3 Occupational Safety
2	ISO 9001- Quality Management Systems QMS	Parameter 5 Quality Management Parameter 10 Product Quality & Safety
3	ISO 50001-Energy Management Systems.	Parameter 12 Energy Management
4	ISO 14001-Environmental Management System (EMS)	Parameter 13 Environment Management

Suggestion: As micro enterprises don't have staff person to carry on new practices such as data capturing, corrective & preventive actions (CAPA), frequent audits, skill upgradation etc. as per ZED certification requirements, handholding period should be extended till it becomes an integral, established part of overall working system.

Figure 3: ZED Silver Certification 14 Parameters



Point 2: ZED Performance parameters for silver certification are 14 with 54 independent requirements. (Fig. 3) Requirement of "Management Review" is mandatory

under 10 different performance parameters. One single procedure can cover all those requirements. Similarly single procedure can cover requirements of “Root Cause Analysis & Corrective and Preventive Action” asked by 9 different parameters. This is adaptation from ISO 9001 Quality Standard. Wherein Clause 9.3 addresses management review requirements, Clause 10.2 covers Problem solving, Corrective Action, improvements.

Suggestion: If done, this will bring down figure of 54 to 35 without disturbing the framework. It will have great psychological impact on small enterprises and reduces documentation burden.

Point 3: Owners of micro enterprises are relying on information passed on by word of mouth about ZED scheme.

Suggestion: They should be encouraged to visit MSME portal frequently (as and when time permits) to update himself on benefits scheme.

Point 4: Data analyzed by author himself of 10 days daily production report of one of the micro enterprises, reveals that they Quality, Safety, Delivery, Environment are not immediate concern. Naturally they are not motivated to work in these areas.

Suggestions: Reduction in requirements in these areas can be thought off, especially for micro enterprises.

Point 5: Reactive approach from owner-manager, which is quite obvious in starting phase as pointed out in literature. To move ahead, companies must consciously introduce planned structures that not only solve a current crisis but also fit the next phase of growth.

Suggestion: That requires considerable self-awareness on the part of owner as well as great interpersonal skills in persuading them that change is needed.

5.0 Limitation of Study

Author studied only three micro enterprises of same nature of business. The requirements of ZED are viewed and implemented very differently by organizations, depending upon such variables as their size, resources, business sector, maturity, and external requirements. Further studies are needed to disseminate the results of the ZED practices and challenges of introducing ZED culture in Micro Enterprises.

References

1. Vivek Trivedi, Dr. Jigar Doshi, Dr. Pina Bhatt, Gaurav N Sutaria (2025). Empowering India's Manufacturing Sector: The Role of ZED and MSMEs in Advancing Quality and Sustainability. Journal of Information Systems Engineering and Management, 10(47s).

2. Güzide Karakuş, Feridun Karakuş, Ozan Koçak (2021). Improvement Proposals for the Machining Production Process in the Environmentally Responsible Manufacturing Perspective. *European Journal of Sustainable Development* (2021), 10, 4, 317-328.
3. Zaher Abusaq 1, Sadaf Zahoor 2, Muhammad Salman Habib 2*, Mudassar Rehman 3, Jawad Mahmood 4, Mohammad Kanan 1* and Ray Tahir Mushtaq, (2023). Improving Energy Performance in Flexographic Printing Process through Lean and AI Techniques: A Case Study. <https://www.mdpi.com/journal/energies>
4. Dr. Manocher Djassemi (2014). Lean Adoption in Small Manufacturing Shops: Attributes and Challenges, *JTMAE*, Volume 30, Number 1, March 2014.
5. Rajiv Sharma (2012). Conceptual framework for improving business performance with lean manufacturing and successful human factors interventions—a case study, *International Journal for Quality research UDK*, Vol. 6, No. 3, 2012.
6. Arfan Bakhtiar, Aditya Nugraha, Hery Suliantoro, Darminto Pujotomo (2022). The effect of quality management system (ISO 9001) on operational performance of various organizations in Indonesia, Article: 2203304, Published online: 26 Apr 2022 <https://doi.org/10.1080/23311975.2023.2203304>
7. Susan Turner, Al Endres (2017). Strategies for Enhancing Small-Business Owners' Success Rates, *International Journal of Applied Management and Technology* 2017, Volume 16, Issue 1, Pages 34–49 ©Walden University, LLC, Minneapolis, MN DOI:10.5590/IJAMT.2017.16.1.03
8. Website for ZED Scheme <https://www.dcmsme.gov.in/>
9. Maria-Diana EGRI, Dumitrița-Ioana APĂFĂIAN, Liviu MARIAN (2023). Zero defects methods used in an automotive company, *Review of Management and Economic Engineering* Vol. 22, No. 3(89), September 2023, p. 217 - 225,
10. Ashwini Sharma, Neeraj kumar, Jitendra Panchal (2017). *IJETST*, Vol 4, issue 6, june 2017. Summit
11. <https://ficci.in>, Press release-11th Edition of FICCI-CMSME
12. Aleksandra Janeska-Iliev (2015). FACTORS AFFECTING GROWTH OF SMALL BUSINESS, *European Scientific Journal* October 2015 edition vol.11, No.28
13. Neil Churchill, Virginia Lewis (1987). 5 stages of small business growth, *Harvard Business Review*, January 1987

Micro Industry Data



Typical Micro Enterprise under one roof



Automated facility reduced monitoring burden

Study of Sample Data of production activity: Reference Daily report of micro enterprises

Month: Aug'25			
Safety issue: Nil			
Machine breakdown: Nil			
Date	OK parts	NOK (Setting + Reject)	Issue
27	1285	8	
	744	12	
24	1148	18	1. Power Failure
	981	0	2. Setting time
25	389	0	3. Drill breakage
	660	0	
23	783	22	
22	130	0	
	694	9	
20	657	14	
19	1049	4	
18	616	12	
19	1123	15	
20	473	14	
Total	10732	128	
Percent	0.012	1.193	Setting + Rejects

Data collection by author at root level