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Productivity Improvement of SME Garment Manufacturing Industry: Case Study

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Abstract: Enhancing the productivity of the garment manufacturing SMEs is mandatory in order to make the garment manufacturing SMEs competitive. Unfortunately; it still has a domain of low productivity. This study is aimed to identify the factors that influence productivity in correspond to increase the productivity of garment manufacturing SMEs. The general objective of this research is to develop a productivity improvement method that supports garment manufacturing small and medium enterprises (SMEs) to enhance their productivity by identifying the possible productivity factors and selecting the intervention areas. To achieve this objective, a literature survey has been conducted to get empirical knowledge. The existing productivity measurement and improvement practices, and productivity factors of the garment SMEs have been assessed. Primary and secondary data were collected from garment manufacturing SMEs by using a well-structured questionnaire, interviews and personal observation at the manufacturing site. From the thesis working capital, business network, sourcing, supply chain responsiveness, supply of raw material, wage/minimum wage, working condition, product quality, technology, health and safety, production efficiency, motivation, business regulation and restriction are productivity factors identified that affect garment manufacturing SMEs productivity. Since, all the productivity factors identified do not have equal impact on productivity of the garment manufacturing SMEs. In addition, the resources are limited to solve all the problems associated with productivity factor. Therefore, deciding the intervention areas which are potential for productivity improvement is very important. The intervention areas identified are related human, capital, material and process. This requires organized and sustainable productivity improvement method to solve the problems associated with productivity. Therefore, a PIM based on this requirement has been developed. This research concludes by proposing a conceptual frame work for productivity improvement of the garment SMEs along with the implementation steps for the frame work.

Keywords: SMEs, Garment, Productivity, Productivity Improvement Method (PIM)

1. Introduction

The Ethiopian Government has defined the textile and garment sector as a top priority sector in the industrial development package of the country. This is because textile and clothing market is always demanded next to food commodities [9]. The sector also utilizes more labor which is available abundantly at low cost in the country. The garment sector has a large potential for creating employment opportunities. The sector has strong vertical linkages with the textile industry that has the potential to increase the development of agriculture [6].

According to Ethiopia MOI, SMEs in Ethiopia are considered to be important members within the supply chain and are established in almost all major sectors in Ethiopian industry including Agro processing and pharmaceuticals, Construction, chemicals & jewellers, Textiles& garments, Leather & leather goods and Metals& wood works. Among the sectors described above textiles and garments are prioritized sector because of high contribution to GDP, since it is labour-intensive industries, it is one of priority sector for export and it is one among the four specific economic sub-sectors that are identified in the industrial development strategy of Ethiopia. Among the sectors garment producing SMEs are selected for this study because textile is a huge sophisticated industry which needs huge capital [6].

Since enhancing the productivity of the garment

manufacturing SMEs is mandatory in order to make the garment manufacturing SMEs competitive [3, 7]. While recognizing the centrality of garment manufacturing SMEs in charting the development trajectory of an economy the full potential of SMEs have not been adequately utilized in Ethiopia. The small business sector in Ethiopia appears to be fraught with a number of policies, regulations, laws, rules and related challenges that stifle its rapid growth and development as a means of overcoming poverty and unemployment [11, 1].

Among the several challenges and obstacles that deter SMEs from further expanding their businesses and affect their competitiveness this study focus on productivity related problems on garment manufacturing SMEs in Addis Ababa city administration.

The general objective of the research is to develop a productivity improvement method that supports garment manufacturing small and medium enterprises (SMEs) to enhance their productivity by identifying the possible productivity factors and selecting the intervention areas. The research provide overall picture on how productivity is enhanced by analysing the existing productivity improvement practice of the garment manufacturing SMEs and identifying the intervention areas, areas that need improvement in order to enhance productivity of the firms, and developing productivity improvement method (PIM) and finally conclusions and recommendations are drawn.

1.1. Concept of Productivity

Productivity is commonly defined as a ratio of a volume measure of output to a volume measure of input use or in other words, how much of output which is obtained from a given set of inputs. Productivity is a technical concept which measures the efficiency from the used factors of production. Higher productivity is likely to improve profitability and enhance a firm's competitiveness relative to its rivals [2].

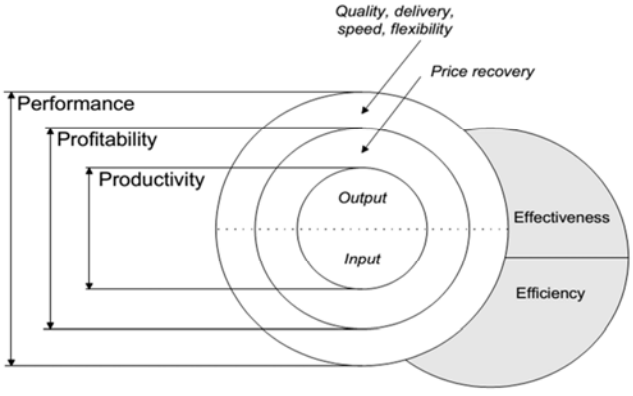

Figure 1. *Therelationship between Performance, profitability and productivity, the Triple-P Model [4].*

1.2. Productivity Factors

Identifying the possible productivity factors is one the basic element for productivity improvement. Productivity factors can either boost or hinder productivity [4].

1.3. Productivity Measurement

Productivity measurement systems analyze performance based on actual outputs and inputs in different time periods. The productivity measurement system can be viewed as a variance analysis of the actual costs incurred in successive periods. The most commonly used productivity indicators are partial productivity, total factor productivity, multifactor productivity and total productivity but these are direct measurements based on tangible outputs and inputs. Today productivity ranges from direct measurements to indirect measurements that are not based on tangible outputs and inputs like rates of turnover, absenteeism, and customer satisfaction, disruption in work flow, morale, loyalty and job satisfaction [10, 8].

1.4. Productivity Analysis

Productivity analysis is a powerful systematic methodology to measure system performance, system efficiency, system effectiveness, resource utilization and profitability. Productivity analysis helps decision makers to identify the driving factors of productivity, adopt the appropriate action and monitor its consequences [4].

2. Methods

The analysis in this study, with the purpose of in-depth analysis a purposive sample basis on selected garment manufacturing SMEs found at two cluster site is used.

The data source in this study is based on both the primary and secondary data. Scientific articles and books are used for understanding of problem, finding the solution and developing a productivity improvement method. Primary data was collected though questionnaires, interviews and observations, while secondary data is collected from company's documents and their online resources.

Questionnaires were designed based on problems identified in root cause analysis and brainstorming, from literature and are reviewed and standardized. Data collection and analysis methods show quantitative characteristics as well as purely qualitative ones. By doing so, the qualitative data is supported by quantitative data originating from the factual SMEs data. Structured questionnaires issued to collect data in the first phase followed up with interviews and observation in the second phase to conduct an in-depth investigation into the research problem. Secondary data's are also used in the study from different secondary data source for the selected garment manufacturing small and medium enterprises (SMEs).

The next decision in the framework of this research is to investigate the existing productivity improvement practice of the firms. Having analyzed the existing productivity improvement system, its shortfalls are identified. Based on identified shortfalls intervention areas for productivity improvement are identified and a solution has been proposed. Finally productivity improvement method is proposed to improve SMEs productivity.

3. Results and Discussion

Ineffective management is the most significant factors that have strong impact a on the less productivity followed by Outdated system, Inadequate Monetary and non-Monetary rewards, Unsafe working conditions and the insufficient and ineffective coworkers [8].

Shortage of raw materials, absenteeism, machine malfunction, unexpected WIP, defective products, frequent changeover in production schedule, production shutdown caused by political action and power supply problem are contributor to low productivity [13].

Ethiopian garment industries have low productivity, and one of major factors is poor skill of workers. Workers skills are characterized as medium complex and further training should be given to increase the skill of the workers to more complex and flexible designs. Moreover production managers and supervisors are not trained enough in order to properly manage the process and unable to balance efficiently the production lines with constant supplying of fabrics and accessories. Furthermore, utilization of available resources, fabrics, machines, workforces is not satisfactory [14].

Productivity improvements can also be understood at different levels. The productivity of individuals may be reflected in employment rates, wage rates, the stability of employment, job satisfaction or employability across jobs or industries. The productivity of enterprises, in addition to output per worker, may be measured in terms of market share and export performance [12].

The environment created by the government in terms of wages framework, taxation, licensing, opportunities, technological support and infrastructure pave the road to success or failure for the SMEs. Depending on the regulatory frameworks put in place by the government, can easily crush or promote small business economy [15].

Efforts must be taken to industries and workers, work together to improve productivity and working conditions. Poor working conditions can lead to a number of productivity problems, such as worker injuries, production errors, poor quality products, absenteeism, lack of machine maintenance, haphazard inventory systems [5].

3.1. Productivity Factors Analysis

3.1.1. Production Factor

The major production factor identified that affect productivity of SMEs considered in this study are spare parts supply, technology, quality and production efficiency.

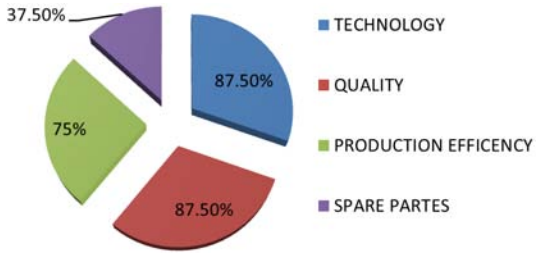

Figure 2. *Pie Chart illustrating production factors that affect productivity.*

3.1.2. Human Resource Factor

The major human resource factors that affect productivity of SMEs considered in this study work are motivation of employs, human resource performance, health and safety of employs, wage and working conditions.

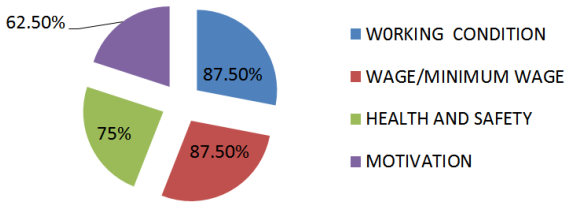

Figure 3. *Pie Chart illustrating human resource factors that affect productivity.*

3.1.3. Business Environment Factors

The major business environment factors that affect productivity of SMEs considered in this study work are working capital, business regulation and restriction and business networks.

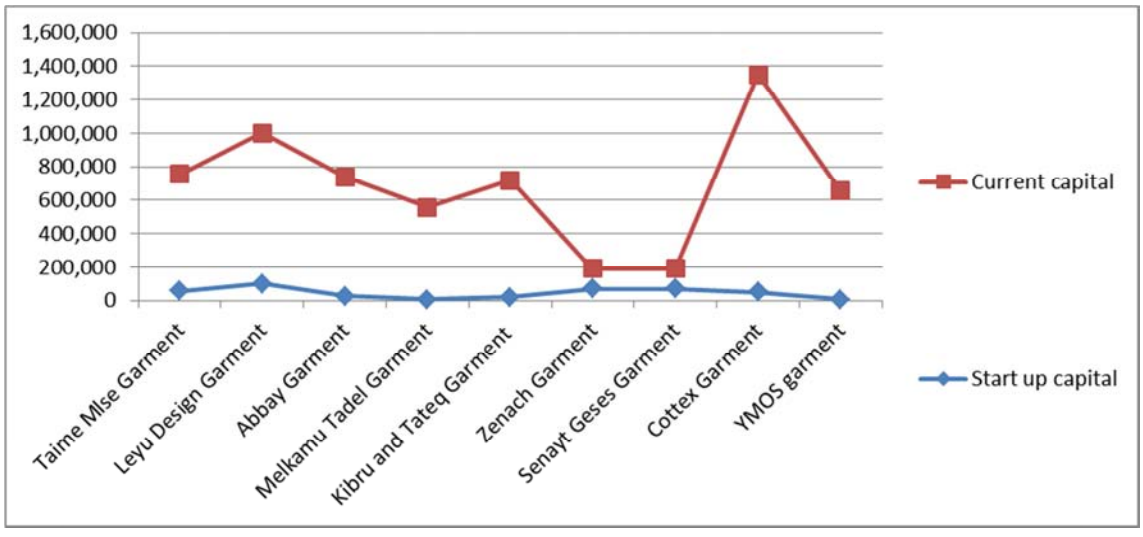

Figure 4. *Line Chart illustrating financial growth of SMEs in birr.*

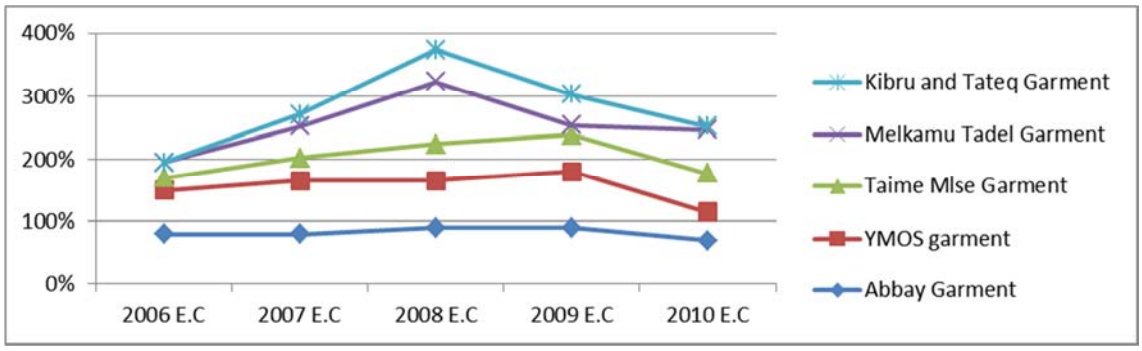

Figure 5. *Line chart illustratingSales % in birr.*

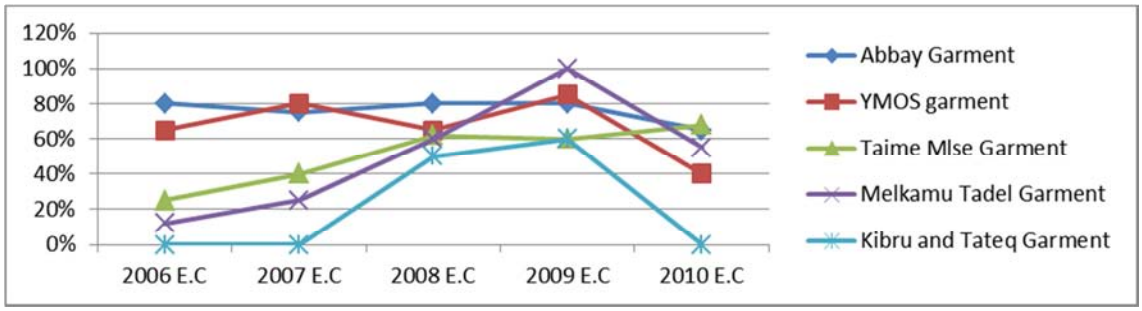

Figure 6. *Line chart illustratingProfit % in birr.*

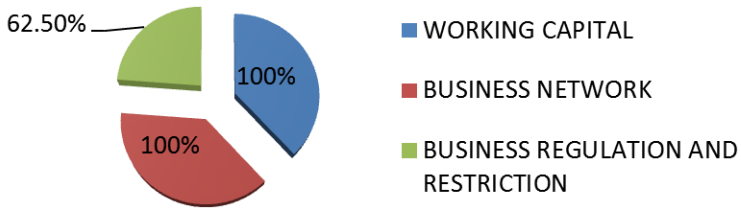

Figure 7. *Pie Chart illustrating business resource factors that affect productivity.*

3.1.4. Quality Infrastructure Factor

The major quality infrastructure factors that affect productivity of SMEs considered in this study work are working standardization, certification and metrology institutions service delivered.

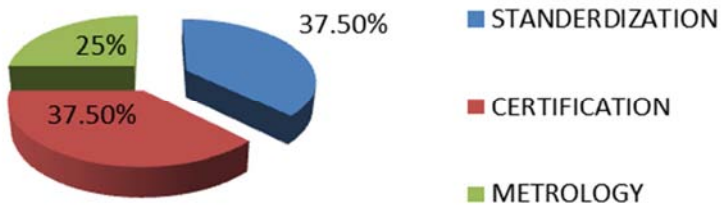

Figure 8. *Pie Chart illustrating quality infrastructure factors that affect productivity.*

3.1.5. Supply Chain Factor

The major supply chain factors that affect productivity of SMEs considered in this study work are sourcing, supply chain responsiveness and supply of raw material.

Figure 9. *Pie Chart illustrating supply chain factors that affect productivity.*

3.2. Comparison of Factors

Even though, all the production, human resource, business environment, quality infrastructure and supply chain factors affect productivity of garment manufacturing SMEs, this does not necessarily mean that all factors have equal impact.

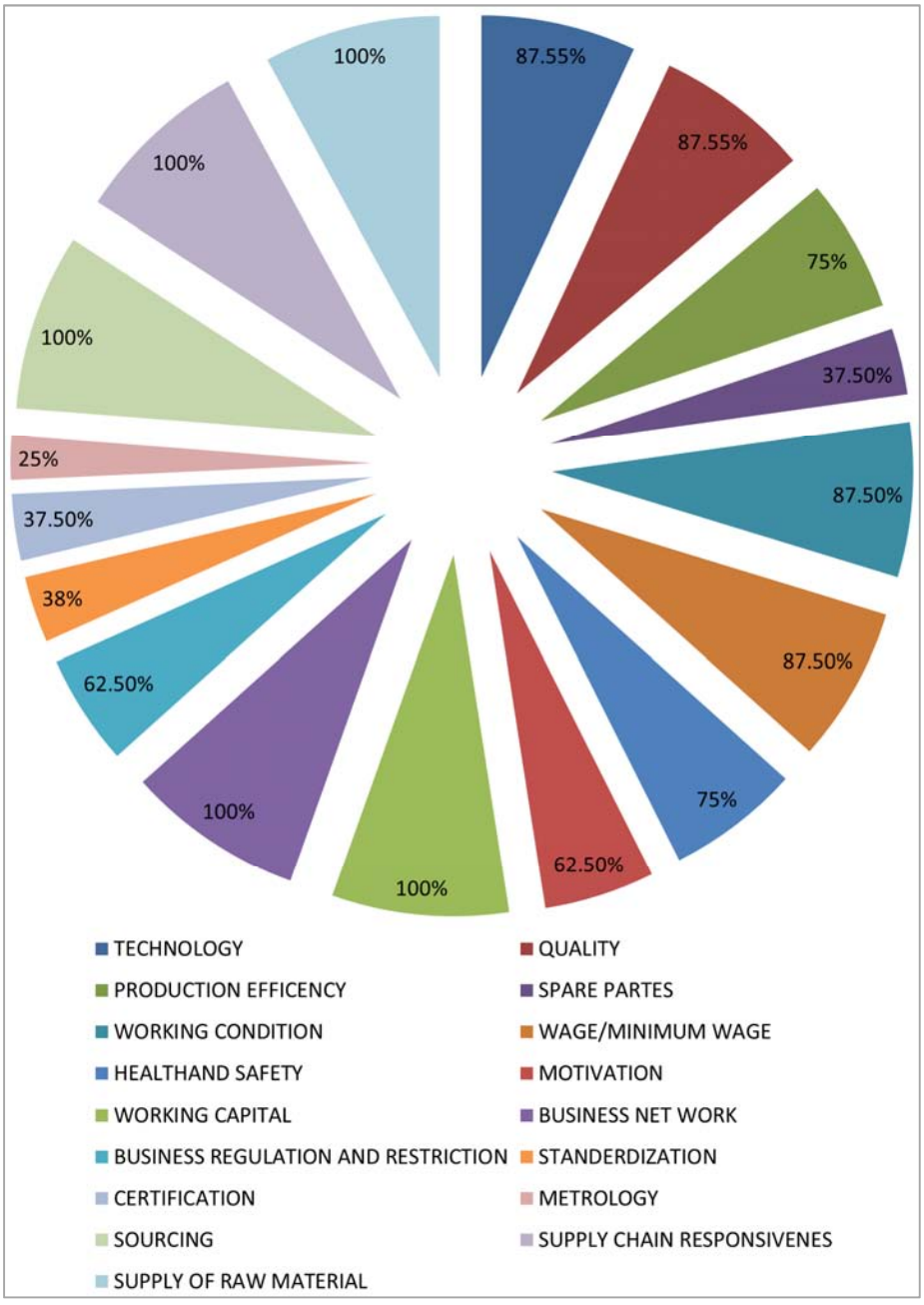

Figure 10. *Pie Chart illustrating factors affecting productivity of SME.*

3.3. Identification of Intervention Area

Since all the productivity factors do not have equal impact on productivity of the garment manufacturing SMEs. In addition, the resources are limited to solve all the problems associated with productivity factor. Therefore, deciding the intervention areas which are potential for productivity improvement is very important. To decide the intervention areas the productivity factors are located in the four fields based on resource requirement, respondent's information provided and the impact on productivity. The current status of productivity factor has been used to estimate the effort required and impact on productivity.

As shown in Figure 10 above, there are four fields namely, low effort-low impact, low effort-high impact, high effort-low impact and high effort-high impact. The low effort-high impact is most preferred field whereas the high effort-low impact is least preferred field. Low effort- low impact and high effort -high impact could be preferred fields.

Figure 11. *Intervention areas using four fields.*

3.4. Productivity Improvement Method (PIM)

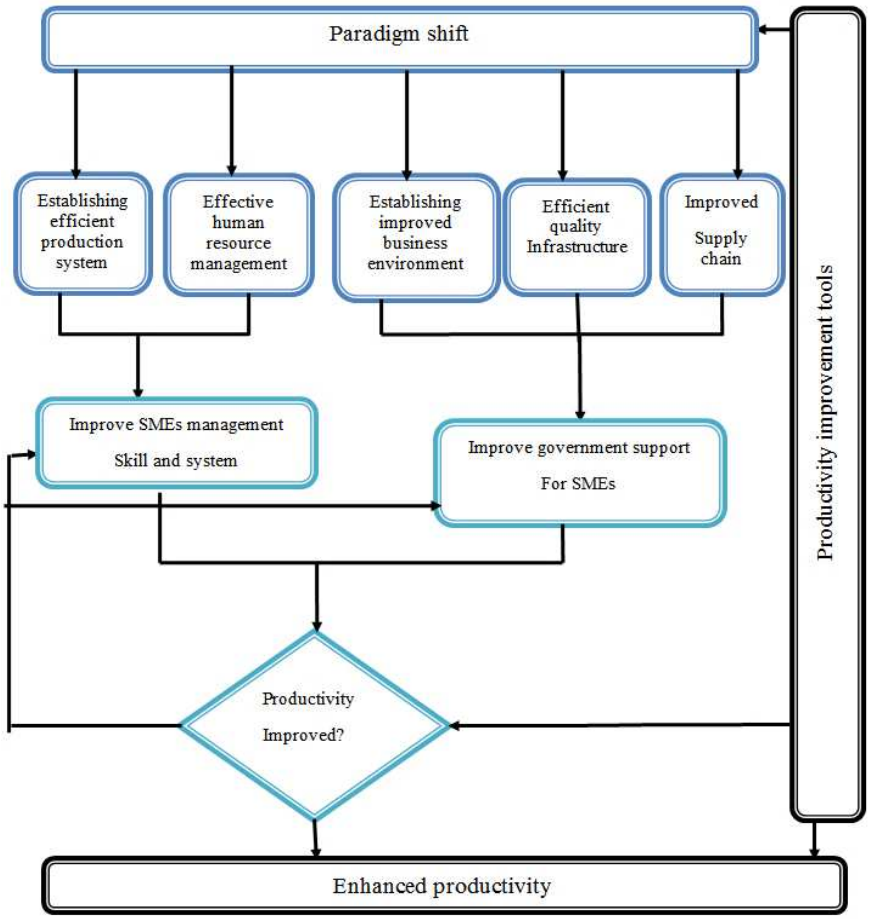

Figure 12. *Productivity improvement model for garment enterprises.*

3.5. Implementation of Productivity Improvement Method

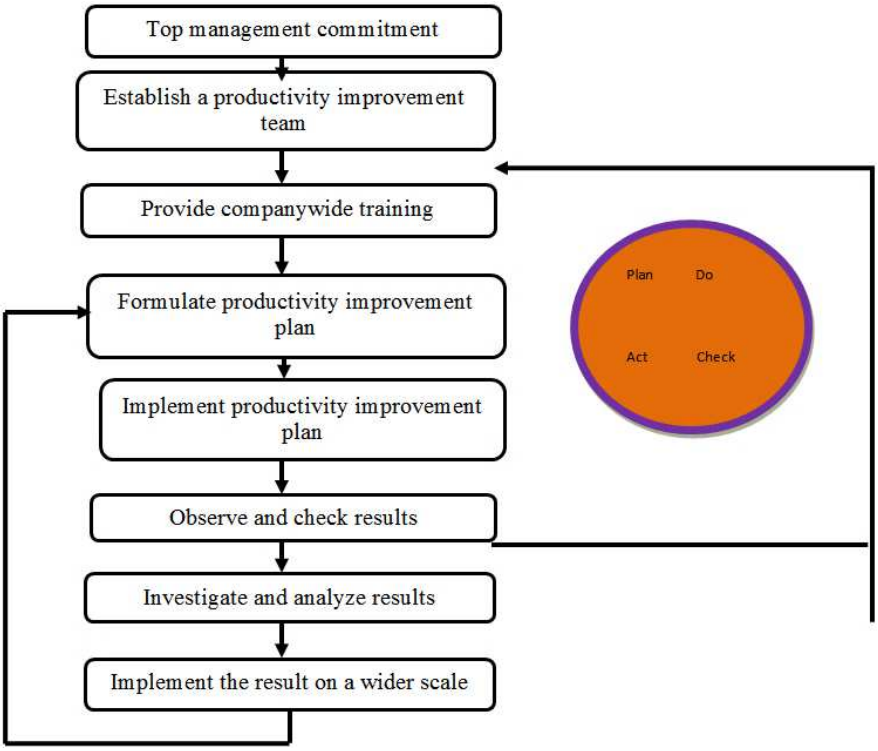

Figure 13. *Productivity improvement implementation model for garment enterprises.*

4. Conclusion

The productivity factors are multidimensional ranges from human to capital to material to method to control to process to product factors. But all these factors do not have equal effect on productivity. And the resources are limited to solve all the problems associated with the productivity factors. Therefore, deciding the intervention areas which are potential for productivity improvement is very important.

It can be concluded from the research that there are different productivity factors that are hindering the productivity improvement of the garment SMEs, where the factors can be categorized as potential for productivity improvement at low effort and large effort. Therefore, improving production efficiency, motivation of employees, human resource performance, health and safety of employees, business regulation and restriction, marketing linkage, management skill and knowledge, training and technical support, and productivity measurement are potential for productivity improvement at low effort. Whereas improving access to technology, quality, wage /minimum wage, working capital, working condition, business network, sourcing, supply of raw material, supply chain responsiveness, attitude and infrastructure are potential for productivity improvement at large effort.

Currently garment SMEs uses disorganized and reactive problem solving approach. Lack of understanding where to start productivity improvement, lack of identifying critical success factors, lack of addressing the possible productivity factors, lack of defining, measuring and analyzing productivity indicators (except capital productivity), and lack of identifying the intervention areas for productivity improvement are the main reasons for not applying organized and sustainable productivity improvement.

Therefore, the research identifies intervention areas for productivity improvement based on identified intervention area a PIM is developed. The developed PIM consists six major potential areas for productivity improvement that address all the intervention areas identified. These are: paradigm shift, management commitment, supply chain improvement, intensive education and training, continuous improvement and improved government support.

Though, various governmental bodies designed various programs aimed at developing SMEs. Most of the programs were not given the appropriate backing and as such the impact of the programs could not be felt in the productivity of SMEs. This is mainly because of the fact that these programs or policies are not effectively implemented in line with their intended objectives owing to various reasons. According to the findings, the reason ranges from lack of visible commitment of governmental bodies to lack of regular integration between the garment SMEs and the concerned bodies of the government.

Implementing the PIM can improve partial and total productivity by enhancing effective utilization resources like human, capital, material, energy and miscellaneous inputs; it can improve quality by minimizing rates of rejection, rework and scrap; it can increase capacity by increasing human hour utilization and machine hour utilization; it can also increase

both internal and external customer satisfaction; and it can reduce cost by minimizing waste of resources.

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