CHAPTER 8

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8.1 INTRODUCTION

As the fundamental target is of this thesis is to determine the propelled assembling Technologies utilized by the assembling commercial enterprises and surrogate pairings of variables for the appropriation of AMT. The study is centered around the examination of diverse AMT practices, wellsprings of data bolster, saw advantages of the execution and the types of AMT executed by Indian fabricating commercial ventures. The investigation has been performed by item and industry to segregate contrasts because of the focused markets in which the business dwells.

The accompanying segment reiterates the propelled assembling innovations and exhibitions of assembling commercial enterprises. It is then trailed by contextual investigation to examine marvel profoundly inside the point of view of their regular connection and last yet not the minimum, a diagram of the section gives an all encompassing perspective of the thesis.

8.2 SUMMARY OF THE WORK DONE

With the presence of various propelled assembling advances, more and

More capacities or assignments are performed by hardware rather than human work. By and large, commercial ventures inside the same segment go over a typical arrangement of innovative open doors. Be that as it may, it is detectable that innovative contrasts exist among the commercial ventures.
Actually, a test of AMT studies frequently discloses that commercial enterprises with a specific assembling methodology will put resources into particular sort of AMT that can help them to attain to their expected assembling execution. The information have been gathered from four parts of producing businesses. The dominant part of respondents are from car segments, took after by methodology divisions, electrical & hardware areas and modern apparatus and gear parts.

Respondents were asked for to pick a reaction on five point likert scale; moored toward one side with slightest essential justifying a score 1 and the other by most critical justifying a score of 5. Most importantly to figure out the relationship for every variable which are included in assembling commercial enterprises, then further test their need to be done on variables created to see whether they are regularly dispersed to make important derivations. After which the speculations testing have been performed by testing the level of congruity between the variables. The assembling techniques of Indian assembling businesses are subject to distinctive divisions.

The various advanced manufacturing strategies can be described as:

- The study corroborates that quality is considered as important for any industry. There is a strong conformity between the four sectors in providing quality products which are reliable and offer high performance in order to compete effectively in the market. It is perceptible that the cost is considered as the least competitive priority by all industries.

- All manufacturing industries emphasize on almost the same competitive strengths. All sectors relied on quality, responsiveness, flexibility, advanced manufacturing technologies, product customization, information technology, sales and marketing,
manufacturing functions and innovativeness.

- All sectors emphasize to implement the automation in manufacturing Industries. In all sectors, development and implementation is an important factor. Different automation steps vary according to the sector it has been applied to.

The measurement of advanced manufacturing technologies is derived from its level of investment.

The various advanced manufacturing technologies can be described as:

- The very same way is considered as ADT among the various which have been surveyed in the process of the industries surveyed is CAD. Computed aided designing is the most popular technology and GT is the least favorable technology for manufacturing industries.

In hardware commercial ventures the first inclination is given to advancement & usage took after by arranging, segment, first inclination is given to improvement & usage took after by arranging, innovation appraisal, cost, idea, preparing and post advancement. In hardware businesses, first inclination is given to arranging took after by idea improvement, cost, innovation evaluation, advancement & execution, preparing and post development. In hardware commercial ventures the first inclination is given to advancement & usage took after by arranging.

the relationship for every variable which are included in assembling commercial enterprises, then further test their need to be done on variables created to see whether they are regularly dispersed to make important innovation appraisal, cost, idea, preparing and post advancement. In hardware businesses, first inclination is given to
arranging took after by idea improvement, cost, innovation evaluation, advancement & execution, preparing and post development. In hardware commercial ventures the first inclination is given to advancement & usage took after by arranging.

In process industries the investments have been made in flexible manufacturing and CNC are almost same, followed by NC/DNC. Except the automobile industries, all other industries have invested less on robotics technology.

- The automobile industries have invested more in MRP followed by MRPII,ERP and ABC analysis. Electronics industries have invested more in MRP followed by MRPII,ERP and ABC analysis. Machinery industries have invested more in MRPII followed by MRP,ERP and ABC analysis. Process industries have invested more in ERP followed by MRP,MRPII and ABC analysis.

- The the relationship for every variable which are included in assembling commercial enterprises, then further test their need to be done on variables created to see whether they are regularly dispersed to make important

- Automobile industries have invested the maximum on TQM followed by BPR,SPC and JIT. Electronics industries have invested the maximum on TQM followed by SPC,BPR and JIT. Machinery industries have invested the maximum on TQM followed by SPC,JIT and BPR. Process industries have invested the maximum on TQM followed by SPC,JIT and BPR.

- Automobile industries have invested the maximum on kaizen followed by management training, recycling and bench marking. Electronics
industries have invested the maximum on management training followed by, recycling, benchmarking and kaizen.

- Machinery industries have invested the maximum on kaizen followed by management training, recycling and benchmarking. Process industries have invested the maximum on kaizen followed by recycling, management training, and benchmarking.

The manufacturing performance is affected by using advanced manufacturing Technologies in manufacturing industries. Manufacturing industries performance measurement by adoption of advanced management technology can be arranged into four separate variables, for example, expanding expense adequacy, advancement group based duty, division and enhanced nature of working.

In automobile, electronics and process industries, owing to the adoption of advanced management systems, cost effectiveness has expanded taken after by improvement group responsibility, gauge manufactured division and enhanced nature of working.

The interest in AMT speaks to a vital choice, the estimation of which increments in a focused domain and business sector vulnerabilities. Respondents were requested that rate the business proficiency in term of gainfulness, plant effectiveness, item administration and business execution on a 1 to 5 point level scale, where 1 demonstrates lower proficient, 3 shows normal and 5 shows well above productive.

It is watched that owing to appropriation of cutting edge fabricating innovations, the variables, for example, gainfulness, proficiency, item administration, market exhibitions have moved forward. It is reasoned that proficiency upgrade of assembling commercial ventures happens through advanced manufacturing technologies.
The various valuable improvements incorporated in the case studies can be summarized as:

- Industry A: Process Improvement by Advanced Technologies
- Industry B: Efficiency Improvement by Advanced Design
- Industry C: Productivity Improvement by Advanced Cutting Tool Technology
- Industry D: Process and Efficiency Improvement by implementing Kaizen and Advanced Training Techniques

Advanced manufacturing technologies are not implemented by the industry due to essential issue of progress, absence of seeing by administrators, capacity to oversee robotization and absence of base offices.

Respondents were requested that concur or differ from the above explanations behind assembling commercial ventures on a 1 to 5 point level scale, where 1 shows all out difference and 5 demonstrates absolute assention. The most significant reason for advanced manufacturing technologies not being implemented or adopted in manufacturing industries is the basic problem of change. The other reasons for not adapting advanced manufacturing technologies are different in different sectors.

8.3 CONTRIBUTION OF THE RESEARCH

This thesis has endeavored to fill some of the gaps in the contemporary research on advanced manufacturing technologies, especially in Indian context. An extensive multi sector survey of Indian manufacturing industries on AMT has been conducted.
The study speaks to that AMT of most commercial ventures is centered around enhancing item and methodology quality and conveying items on time. Quality is the most critical focused need for the Indian fabricating commercial ventures. The relationship for every variable which are included in assembling commercial enterprises, then further test their need to be done on variables created to see whether they are regularly dispersed to make important Real Contributions of the examination can be highlighted as:

- A comprehensive bibliography has been prepared and literature has been classified accordingly.

- Sector wise competitive priority and advanced manufacturing technologies have been identified.

- Indian industries are emphasizing more on investment in AMT.

- Manufacturing contributes to competitive success.

- AMT is not limited to a few key verdicts about technology, capacity, etc. but it is defined by the total pattern of verdict across the full range of manufacturing systems.

- The relationship for every variable which are included in assembling commercial enterprises, then further test their need to be done on variables created to see whether they are regularly dispersed to make important.

- It is observed that Indian manufacturing industries are giving the least preference to advanced material handling technology.

**8.4 IMPLICATION OF THE STUDY**

AMT is frequently measured utilizing the degree of utilization, or the level of speculation. The
Study utilizes the estimation of AMT got from its level of venture. The mean score of each of the six classifications is inferred by taking the normal of its venture score.

This estimation is utilized owing to the way that all AMTs can be coordinated to attain to their capacity to encourage endeavor wide fuse. Therefore, this study gives a various estimation alternative to AMT as far as its level of venture.

The study gives a superior comprehension of the AMT dissemination in the Indian fabricating area that creates broadened items. The most essential ramifications of the impacts for assembling businesses are that AMT interest in assembling offices is well worth seeking after.

The general perception is that most of the businesses that have high speculations on AMT attained to higher execution.

It hence gets to be evident that the administration group and undoubtedly every one of those included in the vital verdicts of the assembling commercial ventures, build up a substantially more refined discerning of what AMT is, and that the effective usage of an AMT obliges a thought of the levels of speculation of AMTs, i.e. how the levels of speculation of every AMT improve the assembling exhibitions.

This exploration tosses light on the effect of Advanced Manufacturing Technologies in Indian Manufacturing commercial enterprises. Measurements teaches that various commercial ventures subsists, which are utilizing distinctive manifestations of Advanced Manufacturing Technologies. "Propelled Manufacturing Technology" is a bland term, delineating a get together of assembling innovations, which joins both degree and scale
capacities in an assembling situation. Propelled assembling innovation is extensively characterized by recognized creators in their wordings.

A spread of weights either locally or all inclusive urge producers to end up extra dexterous, responsive and flexible inside the occasion that they needed to survive. It demonstrated that to possess a productive result from AMT speculation, the structure, society, operational method and human asset got the chance to be sorted out and incorporated fittingly with each other to stay faraway from plausible obstructions or issues. Companies that work in creating AMT, new industrialized nations face heaps of instabilities once wandering into the stylish world markets. Arranged structure will be utilized as a proposal for administrators and financial specialists in lifting up their AMT execution framework in this manner, it completely was vital for fabricates to possess the adaptability to fight owing to the globalization inside and out parts of item creating like item varieties, work, business sector experience and so forth. These encased hugely amplified rivalry and globalization of generation procedure they served to position weight on a decent arrangement of worth components like style, item advancement recurrence, and customization and conveyance responsiveness.

The ascent in every handiness and change of AMT option unveil real open doors not only for up substitution advancement however conjointly for radical choices.

These opportunities have not been done before and do in routes in which weren't feasible past. Changes in correspondence and association connected with AMT execution are indicated to end in bigger fulfillment with the innovation and AMT selections appear to be a key condition for long run forcefulness. During the time spent globalization, the association may need to take after the occasions of the world and a standout amongst the most vital of these is the data innovation application in association which has a unique part in the height of the association. Data innovation makes an open door for
association representatives that wherever they are can be associated with association and does their assignments.

Monetary execution as a standout amongst the most critical parts of an appraisal of the association is a dread for some analysts and administrators of the association advancement. Then again, data innovation as a standout amongst the most vital levers of advancement in late decades thinks that its place being developed arrangements.

On the other hand, a few AMT comes neglect to satisfy the desires of their adopters and expanding indications of issue started to develop that directed that the translation of potential favorable circumstances into genuine game changer wasn't constantly as clear as dialect a check for a new piece of equipment.

In a few cases not exclusively AMT speculations are condemned for not yielding the predetermined results, however conjointly a few scientists discovered a negative commitment of AMTs to the firm execution. The scientists completed that the connection in the middle of AMTs and firm execution contains a propelled relationship and subsequently the connection is impacted by option considers, some manageable and a couple not manageable.

These conditions give pleasant difficulties to organizations, which may have an impact on organization key bearings and modify business and creating ways. In a try to get by underneath such conditions, firms zone unit giving a vital part to delivering, from only supporting elevating approaches to tuning in a genuine part in fortifying an organization's business sector position. The powerful execution of cutting edge creating innovation is considered to beat this turbulent and antagonistic environment.

This highlight is an imperative determination especially for little and medium size firms inside which need body and lacking level of mean staff and designs
and don't appear to be mindful to the courses that inside which AMT may be helpful for them.

In this way, applying and receiving new advances demonstrated that there unit zone more extensive issues that should be thought-about. Administration of organizations that region unit considering the reception of AMT got the opportunity to recognize, see and location these issues in order to beat or evade the issues of past establishments. They need realizing what the structure and vital elements zone unit that make a firm extra aggressive and adjustment exploitation AMT in rising its execution and whether AMT's effect on organization execution extra affirmed if identified with a perfect structure style and human power and administration rehearses.

Attributable to high value and moderate-to high hazard concerned in AMT venture, its subsequently indispensable for any association to comprehend extra with respect to these components. For the most part, the researched elements may be named mechanical, structure and interior/outside. This study may be a venture in clearing the because of give a synopsis and directing in AMT reception furthermore the right blend of key and crucial segments that outcomes in compelling utilization of AMT in improving organization execution.

Aggressiveness has made associations to make a proceeding with endeavor to enhance producing. These changes incorporate addressing the needs of client, expanding volumes of yield, enhancing item quality and lessening item costs. For an assembling organization, Advanced Manufacturing Technology (AMT) is the answer. AMT, as per , as any new strategy which, when received is liable to oblige a change in assembling practice, as well as in administration frameworks and producer's way to deal with the configuration and generation building of the item. These advances can enhance quality through accentuation on nature of outline and can influence cost through accentuation on worth building.
The little and medium scale commercial ventures assume a critical part in both created and creating nation economies. They are frequently the vehicles that encourage the conception and extension of substantial scale commercial ventures. In the created economies, they are seen as impressions of entrepreneurial soul, generators of occupation and potential wellsprings of expanding aggregate funds in the economy. SMIs/SMEs are the backbone of present day economies.

The requirement for them to stay focused and create astounding yields are essential at the national livelihood level as well as at the industry level where SMEs are often suppliers of goods and services to larger organizations. Dimensions of non-price challenge such as increasing demands for variety and customization of products and services, better and more customized design, more rapid new product introduction, high quality, fast and reliable delivery and an overall high level of responsiveness against price challenges are forcing firms to recognize that the current highly competitive environment demands that they find ways of resolving these apparent contradictions.

A method for managing these expanding difficulties is to utilize propelled assembling innovation. Appropriately executed this enhanced ability brings about more prominent clients fulfillment and lower assembling working expenses, that these assembling advancements can possibly enhance creation execution drastically and make basic business open doors for organizations equipped for effectively actualizing and overseeing them.

AMTs can likewise give particular preferences in expense and methodology initiative. In spite of the fact that AMTs can help makers contend under these circumstances they regularly force authoritative difficulties. Unpredictability, dynamism, and vulnerability have gotten to be prevailing qualities of late rivalry designs which brought about an interest expanded business with more multifaceted items. In the worldwide business environment, innovation is one
of the remarkable components for staying focused. Assembling inexorably has been affected by re-meaning of intensity and advanced to stay informed concerning the most recent business requests and emerged advancements.

This examination investigates in explaining with the wordings to be utilized inside the postulation, i.e. AMT (Advanced Manufacturing Technology). Terms utilized by the analyst have been painstakingly characterized, keeping in mind the end goal to create a reasonable and an operational meaning of variables utilized as a part of the postulation. In this way this section assembles an establishment of variables utilized as a part of the proposition with a specific end goal to define the limits of the study.

It likewise looks at existing original works inside the scope of various writings that are applicable to this proposal, which basically incorporates AMT execution, key administration, innovation, and generation operation administration.

This Research examines the exploration approach that has been taken, i.e. the exploration strategy and the establishment behind selecting the system, rather than other conceivable methods of study that could have been taken after.

Extensively it manages the overview, the advancement of the poll, organization of surveys, reactions got, profile of respondents and dependability and legitimacy of the survey, speculations testing and contextual investigation. Usage of Advanced assembling innovation speaks to the distinct insights of the businesses who partook in this study.

This gives crucial data of different commercial enterprises, for example, their attributes, degree of AMT reception, their assembling innovation and assembling execution as to their assembling abilities. These variables have been examined with the sort of their related industry.
This examination further investigates the overview information and investigations the focused need, aggressive quality, level of interest in cutting edge fabricating advancements and the exhibitions of assembling businesses. It likewise gives a definite consequence of measurable techniques included in directing speculations testing, and result in light of other various methodologies.

The examination portrays the contextual analyses grew after the observational investigation of diverse divisions. In this section, the perceptions have been made of the existing processes, methods in the industry and lastly, the reason behind the implementation of Advanced Manufacturing Technology, with various innovative processes and proposed methods.

The exploration results demonstrate a brief recap of profiles of different organizations that have been incorporated in this review. It then talks about the discriminating achievement variables and a system for usage of Advanced Manufacturing Technology, based upon the perceptions gained from the review and contextual investigations.

This exploration additionally highlights the conclusions and ramifications of the examination. It audits the goal of the examination and gives a rundown of the discoveries of the exploration. It additionally talks about the suggestions for examination, arrangement and practices, which likewise incorporates recommendations. The section closes with a discourse in regards to the constraints of the study and gives a few proposals to future exploration, mulling over with some last considerations on the commitment of the postulation altogether.

In addition, by comprehension the AMTs, directors are better ready to plan the arrangement and execution process. In this exploration, an overview of Indian
assembling commercial ventures has been done to study different AMT issues. Four fundamental divisions have been included in the overview which are car, electrical and hardware, machine instruments and procedure division.

All divisions accentuated on quality as aggressive need. The biggest gatherings of reviewed commercial enterprises i.e. vehicles businesses have the most elevated amount of interest in ADT, AMcT, APT and AMS yet it has the least interest in cutting edge material taking care of frameworks. Interestingly, transform commercial ventures have put slightest in APT, AMHS and AMS.

The level of speculation on cutting edge producing innovations by diverse area is variable the overview information and investigations the focused need, aggressive quality, level of interest in cutting edge fabricating advancements and the exhibitions of assembling businesses. It likewise gives a definite consequence of measurable techniques included in directing speculations testing, and result in light of other various methodologies. The examination portrays the contextual analyses grew after the observational investigation of diverse divisions. In this section, the perceptions have been made of the existing processes, methods in the industry and lastly, the reason behind the implementation of Advanced Manufacturing Technology, with various innovative processes and proposed methods. The exploration results demonstrate a brief recap of profiles of different organizations that have been incorporated in this review. It then talks about the discriminating achievement variables and a system for usage of Advanced Manufacturing Technology, based upon the perceptions gained from the review and contextual investigations. This exploration additionally highlights the conclusions and ramifications of the examination. It audits the goal of the examination and gives a rundown of the discoveries of the exploration. It additionally talks about the suggestions for examination, arrangement and practices, which likewise incorporates recommendations. The section closes with a discourse in regards to the constraints of the study and gives a few proposals to future
exploration, mulling over with some last considerations on the commitment of
the postulation altogether. It is presumed that proficiency improvement of
assembling commercial ventures can be achieved through cutting edge
producing innovations.

Once the commercial ventures have chosen the assembling method, chiefs
will have the capacity to distinguish the proper levels of interest in AMT to
achieve the planned exhibitions.

Propelled assembling innovation presents huge planned to increment both
viability and proficiency of the assembling attempt. It is capable to impact
vital abilities crosswise over assembling commercial enterprises and grants
businesses to contend on a larger amount of client prerequisites. Later on, it
will be essential for assembling supervisors or executives to understand how
the innovation functions and recognize when to utilize a specific innovation.

Government associations and other financing bodies ought to hold on and
grow the monetary bolster offered to commercial enterprises who wish to seek
after interest in AMT. Government associations ought to gravely investigate
making all the more subsidizing open doors or budgetary aid to upgrade the
commercial enterprises, Manufacturing skills through manufactruring
technologies.

8.5 SUGGESTIONS FOR FUTURE WORK

The study is focused on AMT diffusion in manufacturing industries that
produce distinct products. It looks at how an industry prefers to invest and
manage its AMT in relation to its manufacturing strategy. The four major
manufacturing sector industries (automobile, electrical & electronics,
machinery and process) have been included in this study. Responses of the
questionnaire have been received from almost all parts of the country. This
study has some suggestions, which future researchers could consider. The
Suggestions are as follows:

- The performance measurement used for the study is self evaluated and based on supposed performance which limits the objectivity of performance measures.

- This study is focused on four manufacturing sector industries (automobile, electrical & electronics, machinery and process), other sectors can be included.

- The study disregards the learning effect, owing to the duration the Industries have implemented the part of AMT.

- It does not permit the assessment of performance impact of AMT implementation over time.

The investigation has proposed a few potential outcomes for future examination. There are two primary territories where future exploration could be performed. The primary is concerning the strategy picked for the AMT examination. The second is as for the way of the information decided to dissect.

Both of these zones offer various conceivable outcomes for future exploration and the advancement of this subject range in the writing. This is just genuine that if the time of usage of the innovation or business practice is known, the effect of the execution can be all the more promptly separated.

Another path in which to take a gander at development measures would be to utilize a longitudinal dataset. The decision of individual variables to incorporate would rely on upon the size, class or industry picked.

The utilization of a more Detailed, maybe industry particular, study would likewise consider results that are more nitty gritty. On the off chance that a
more particular review is created then there would be a more noteworthy plausibility to utilize industry sub-classes and to manage the more pervasive advancements and practices that happen in the industries.

8.6 CONCLUSION

In conclusion, this study has fulfilled its goal and expectations initially set for the study. The basis of advanced manufacturing technologies is the concept of making dynamic changes in the manufacturing structure, so as to create competitive advantage and avoid a static non response to the change.

“Advanced manufacturing technologies” concept is addressed directly by providing a strategic framework in manufacturing into which the individual decision about AMT can be properly addressed.

The findings in this study reaffirm the importance of the infrastructure in the software (management tools), in a sense that an industry employs to select and control the performance of its hardware (technical tools). These systems should be designed to encourage the continual adaption and improvement of an industry talent base.