# AN EMPIRICAL STUDY OF FACTORS INFLUENCING INDIVIDUAL WORK PERFORMANCE IN MANUFACTURING FIRM X.

**By**

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## ABSTRAK

Tujuan utama kajian ini dijalankan adalah untuk mengetahui faktor-faktor yang mempengaruhi prestasi pekerja bagi sebuah kilang pembuatan. Objektif kajian ini tertumpu kepada jumlah tahun pengalaman pekerja, fleksibiliti sistem, sokongan daripada sistem dan kerumitan sistem terhadap prestasi kerja seseorang pekerja dari Kilang Pembuatan X. Seramai 120 orang juruteknik dan *SNE (Salaried Non Exempt)* dari Kilang Pembuatan X terlibat sebagai responden kajian. Keputusan kajian ini menunjukkan bahawa pencapaian prestasi seseorang pekerja dipengaruhi oleh kerumitan dan kesesuaian sistem pembuatan. Secara keseluruhannnya, kajian ini mampu menunjukkan keputusan kepada penyelia kilang mengenai faktor-faktor yang dikenalpasti dapat mempengaruhi prestasi kerja bagi seseorang pekerja. Hasil kajian ini juga dapat dijadikan rujukan kepada para penyelia bagi memperbaiki dan meningkatkan lagi Kilang Pembuatan X.

## ABSTRACT

The aim of this research was to identify factors that are influencing individual work performance in one of the manufacturing firm. The objective of this study focus on the relationship between worker tenure, system flexibility, system support and system complexity towards individual work performance in Manufacturing Firm X. The sample consists of 120 manufacturing technicians and SNE (Salaried Non Exempt) from Manufacturing Firm X. The findings showed that manufacturing system flexibility and system complexity is influencing individual work performance. Overall, this study provides empirical data point to supervisors and managers about the employee work performance impacted due to identified factors. This study will assist supervisors and managers as a reference for improvement purpose in Manufacturing Firm X.

# Chapter 1

# INTRODUCTION

## 1.1 Introduction

More and more manufacturing firms are using individual work performance surveys to integrate their management effort and also productivity performance. The purpose of these surveys is to identify the factors that are influencing individual work performance in Manufacturing Firm X.

Many companies initiate organization wide culture change, training and knowledge management initiatives with the hope of improving corporate profitability. However, in comparison they often do little to help individuals in key roles and particular workgroups to improve their performance. If organization building knowledge into manufacturing system job support, this can be easier for individual or workgroup to excel at complex task (Colin, 2003).

Manufacturing firms adopt a new manufacturing system by reducing human intervention. However, at the beginning stage of implementation, human issues play a very significant role. Among the critical factors are employee co-operation, employee morale, employee motivation, employee relations, and manpower planning Sambasivarao and Deshmukh (1995).

In summary, changes of technology in products and process definitely have a major implication towards quality and production systems. If transition of the technology changes can be smoothly implemented, it will bring more advantages by reducing production cost, increase productivity and flexibility (Stevenson, 2002).

## 1.2 Background of Study

By increasing advances and new technology, many of the pressures from the manufacturing environment are turning manufacturing managersô attention to the virtues of developing a flexible manufacturing function. Flexibility has different meanings for different managers and several perfectly legitimate alternative paths exist towards flexible manufacturing. Perhaps, the most important dependent variable in industrial and organizational psychology is job performance (Borman, 2004).

Overall, adoption of flexible manufacturing systems has been one of the major topic that attracted the attention of production which mainly to cover on the unexpected changes and uncertainty of todayôs manufacturing issue.

## 1.3 Human Factor in Manufacturing System

According to Sambasivarao and Deshmukh (1995), human issues plays an important role in organization. The objective of manufacturing systems implementation will reduce human intervention. Adoption of manufacturing system must consider few issues which are indirectly affecting productivity such as:

- How does the manufacturing system influence workerôs performance?
- How does management decision to upgrade workerôs technical skills?
- What is the action taken should consider in order to motivate workersô that having the perception of losing the job once task get automated by manufacturing system?

From the study by the researcher, we can conclude that human factor is not the only determinant factor that influencing individual work performance, in order to achieve better individual work performance, manufacturing system also plays an important role.

### 1.4 Manufacturing Sector in Malaysia - Current

As shown in Table 1.1 ï there are total of thirteen industrial sector that contributed to Malaysia GDP (Growth Domestic Product) which are agriculture, forest, fisheries & poultry, mining, manufacturing, services, public services, business services & non-governmental, utilities, transportation, storage & communication, trading, hotel & restaurant, finance, insurance, property & business services, other services and bank payment services. Based on the three years data, manufacturing sector is the major contribution to GDP after services and business services. Out of the thirteen industrial sector, manufacturing sector is the top three in the list and there was a significant contribution from RM 67,250 million to RM 82,394 million and RM113,717 million in year 2000, 2005 and 2010 respectively. Besides that, manufacturing sector contributed 1.3% growth percentage in RMK-8 and its targeting increase to 2.1% growth percentage in RMK 9.

GDP is designed as a measure of market output with the diverse output of the various goods and services produced during a given period aggregated into a single number using market valuation. As showed in Table 1.1, GDP achieved 4.5% in RMK 8. This represent that Malaysia economy's average growth rate has been achieved 4.5% and trend increases in productivity growth or employment growth. With this growth rate it can cause inflation and lead the Malaysia Federal Reserve to increase the Federal Funds rate to tighten monetary policy in order to slow down growth and prevent a pickup in economy inflation.

Growth in manufacturing sector should be examined in the context of the overall growth of the economy, because, as a part of the economy itself, manufacturing is influenced by many factors example the advance the technological advances may have beneficial uses in organization which drive for corporate profit but it may caused corporate to lay off workers due to technology performance will take over human task in more efficient way.

Besides that, inefficient that resulting from market structures causing manufacturing firms may face high costs of achieving comparability when they are competing in the same sector. In this case, corporate will deep down on labor cost that involved in that particular country and compare with others country liked Vietnam which achieve the same task performance with cheaper labor cost. Focus on worker performance is important and understand the factors that influencing their work performance sure will help firm to improve their worker performance.

**Table 1.1** ***GDP Based on Industrial Sector***

| Sector | RM Million (Price at 1978) | | | Growth Contibution (%) | |
|---|---|---|---|---|---|
| | 2000 | 2005 | 2010 | RMK 8 Achievement | RMK 9 Target |
| Agriculture, Forest, Fisheries & Poultry | 18,662 | 21,585 | 27,518 | 0.3 | 0.4 |
| Mining | 15,385 | 17,504 | 20,675 | 0.2 | 0.2 |
| Manufacturing | 67,250 | 82,394 | 113,717 | 1.3 | 2.1 |
| Construction | 6,964 | 7,133 | 8,451 | 0.0 | 0.1 |
| Services | 113,408 | 152,205 | 208,086 | 3.4 | 3.8 |
| Public Services | 14,331 | 19,831 | 24,759 | 0.5 | 0.3 |
| Business Services & Non-Governmental | 99,077 | 132,374 | 183,327 | 2.9 | 3.4 |
| Utilities | 8,278 | 10,860 | 14,450 | 0.2 | 0.2 |
| Transportation, Storage & Communication | 16,858 | 23,163 | 31,984 | 0.5 | 0.6 |
| Trading, Hotel & Restaurant | 31,116 | 38,437 | 53,456 | 0.6 | 1.0 |
| Finance, Insurance, Property & Business Services | 26,755 | 39,568 | 55,385 | 1.1 | 1.1 |
| Other Services | 16,070 | 20,346 | 28,052 | 0.4 | 0.4 |
| Bank Payment Services | 15,832 | 23,876 | 32,707 | 0.7 | 0.6 |
| (+) Import duty | 4,721 | 5,083 | 5,556 | 0.0 | 0.0 |
| **GDP at Buyer Price** | **210,557** | **262,029** | **351,297** | 4.5 | 6.0 |

Source : Economy Planning Unit and Statistical Department

As presented in Table 1.2 as below, there are total of 7 sectors that invest by foreign direct investments in year 2007. Out of the seven sectors, electronics and electrical sectors recorded the highest foreign direct investment. Total invested RM13.7 billion or 45.97% among the 7 sectors.

FDI is consistent with a chain of comparative advantage based on country skilled-labor and industry skilled-labor intensity. The increasingly competitive environment for FDI, a fundamental challenge for investment in the developing world is to meet investor requirements and searching for the right sites to locate their projects. As mentioned, electronics and electrical sectors is the highest in Malaysia, besides logistic cost, government rules, economy growth and facilities readiness, worker performance is important for investor to consider and to compare before investment had been made.

**Table 1.2** ***Foreign Direct Investments by Major Sector in 2007***

| Sectors | Year 2007 RM (Billion) | Investment % |
|---|---|---|
| 1. Electronics and electrical products | 13.7 | 45.97% |
| 2. Petroleum products included petrochemicals | 5.3 | 17.79% |
| 3. Basic metal products | 4.9 | 16.44% |
| 4. Paper, printing and publishing | 1.8 | 6.04% |
| 5. Chemicals and chemical products | 1.6 | 5.37% |
| 6. Textile and textile products | 1.3 | 4.36% |
| 7. Machinery and equipment | 1.2 | 4.03% |
| Total | 29.8 | 100.00% |

http://www.mida.gov.my/

As a summary, since Manufacturing sector contributed a big share in Malaysia GDP and its achieved as a major investment been done by foreigner compared with other sectors, workers performance is important and adoption of manufacturing system characteristics are important not only to sustain its competitive advantage but also to encourage more foreign direct investment. Although all regions still lagged behind of global practices but it would be a benefit for us to focus on worker performance improvement to fulfill the industry standards if quality which to attract foreign direct investment in building their service operations in Malaysia.

## 1.5 Problem Statement

Employee work performance is essential for the success of the organization. If there is lack of focuses towards individual and also manufacturing system characteristics, definitely individual work performance will be impacted. Thus, this research attempts to explore the factors that are influencing individual work performance in Manufacturing X which impacting individual unable to meet output and causing firm unable to meet customer schedule.

As summarized by Farber (1999), Worker tenure at the current employer has actually declined in some countries, while it is not found that it has increased in any country. Part of the decline is due to a changed composition of workers and changed work patterns by age and gender. Whereby reported by Davis and Haltiwanger (1999), worker turnover rates of about 19 per cent for manufacturing industry in US. However, there is plenty of evidence that turnover is different between firms, industries, worker groups and in many other dimensions. Accordingly, the amount of firm-specific human capital is expected to be low. This may lead to lower returns to tenure compared with other countries and also expected to have a negative effect on work performance. Furthermore, greater flexibility gives faster access to new human capital and to taking over technology from other firms. It remains an empirical question whether this high flexibility has a contribution to worker performance or not.

Since there are limited empirical studies that have been conducted to assess factors that are influencing individual work performance, it is important to examine worker tenure and manufacturing system characteristics in order for organization for future planning and development.

Therefore, this study aims to focus on worker tenure and existing manufacturing system flexibility, system support and system complexity that are influencing individual work performance. If there is no study towards individual and manufacturing system characteristics, definitely individual work performance will be impacted.

## 1.6 Research Objectives

The objective of this research is to assess the key factors that affecting individual work performance in complex productivity task.

Therefore, the primary purposes are listed as below:

- To identify factors that are influencing individual work performance
- To examine the individual factor (work tenure) and manufacturing system characteristics that are affect individual work performance.

## 1.7 Research Questions

In seeking to achieve above objectives, this study is tenses the dimensions of worker tenure, manufacturing system flexibility, manufacturing system support and manufacturing system complexity attempt answering the following research questions:

1. What is the impact of worker tenure on individual work performance?
2. What is the impact of manufacturing system characteristics on individual work performance?

## 1.8 Significance of the Study

Survey will closely reflect a snapshot of factors influencing individual work performance that operating in Manufacturing Firm X. Thus, the data from the survey will determine the factors influencing worker tenure, manufacturing system flexibility, manufacturing system support and manufacturing system complexity towards individual work performance. Since high performing manufacturing organizations emphasize more on the employee aspects and others elements (Carlos, 2006).

This study provide a theoretical contribution to manufacturing firm in Malaysia and so far there is no study been done on individual work performance in Manufacturing firm X. With this study, it can provide a better view on how system flexibility and system complexity influencing individual work performance.

Besides theoretical contribution, this study also provides important managerial implications to organizations in their effort to improve individual work performance due to manufacturing system characteristic. Manager able to identified and understand whether worker tenure (length of time of experience in organization) and either all three manufacturing system will relevant in individual work performance.

Manager should be aware of the findings that worker tenure and system support are not the factors that influence worker performance. Therefore, manager may like to focus on system flexibility and system complexity, understand system structure which relevant to individual work performance and invest in system flexibility and system complexity to achieve higher individual work performance.

The greatness benefits of manufacturing system support are usually achieved with relatively homogenous groups of people undertaking similar tasks. Companies should be careful before investing in any fixed and inflexible tools that may be subject to rapid change. The reason is system support can represent a much more cost-effective way to improving understanding and increasing work performance (Colin, 2005).

Globalization has forces organizations to aim for globally competitiveness through the use if advanced technology and highlights the status of adoption flexible manufacturing systems have been undertaken. Without a proper strategic plan, the implementation of support tools may not be achieved. Such outcomes are not surprising. Organization fail to provide people with the practical support tools they need to perform a better job, in general it can be harmful. The Gartner research team did find that new and less experienced staff do in some cases benefit enormously (Thompson & Eisenfeld, 2000).

Therefore, this study is timely to provide managers and supervisors with the important the factors that are influencing individual performance as well as the outcome of the study. From this research, Manufacturing Firm X can place the right manufacturing system characteristics to improve its workerôs performance.

### 1.9 Organization of the Report

This report is divided into five chapters. Chapter 1 outline the background of the study, overview of manufacturing sector in Malaysia, problem statement, research objectives, research question and significance of the study. Chapter 2 will discuss the literature review on the major variables on worker tenure and manufacturing system characteristics follow by

the development of the theoretical framework. Chapter 3 discusses the research methodology which had been used in this research. Chapter 4, details of the research model with statistical analyses and hypotheses testing. Chapter 5 represents the final chapter of this study whereby it concludes with a discussion of the findings, implication and limitation of the study.

# Chapter 2

# LITERATURE REVIEW

## 2.1 Introduction

For better understanding of the present study, this chapter explains the underlying theory-contingency theory and summarizes the literature review gathered in the topic on worker tenure, manufacturing system characteristics and individual work performance. Manufacturing characteristics included manufacturing system flexibility; manufacturing support tools and manufacturing system complexity were selected as the dimensions to study the impact towards individual work performance. Factors influencing work performance are identified from the collection of literature survey and are discussed below.

## 2.2 Contingency Theory

Chen *et al*. (1992) propose a contingency theory based on the flexibility-uncertainty model (FUM) as a conceptual framework to facilitate the understanding of the interactions between environmental uncertainty and flexibility needs. In this study, environmental uncertainty is viewed from two perspectives: one associated with the marketing function, the other with manufacturing. Marketing-based flexibility, which consists of product, volume, mix and expansion flexibilities, is concerned with the capability to cope with dynamic market change. Manufacturing-based flexibility, on the other hand, includes machine, materials handling, process, labor, routing and programming flexibilities, and deals with the flexibility inherent within the manufacturing resource and the production management system that provides or supports the desired level of marketing-based flexibility.

As shown in Figure 2.1, the variety of change, the rate of change and the magnitude of change were addressed in this uncertainty model. Ability of the system includes diversity flexibility able to handler the variety of change whereby response flexibility able to cope with tate of change and volume flexibility is related to the magnitude of change. The former two flexibilities are concerned with the *capability* of a system to face change and the latter one with its *capacity* to deal with the magnitude or volume of change (James et al., 1997).

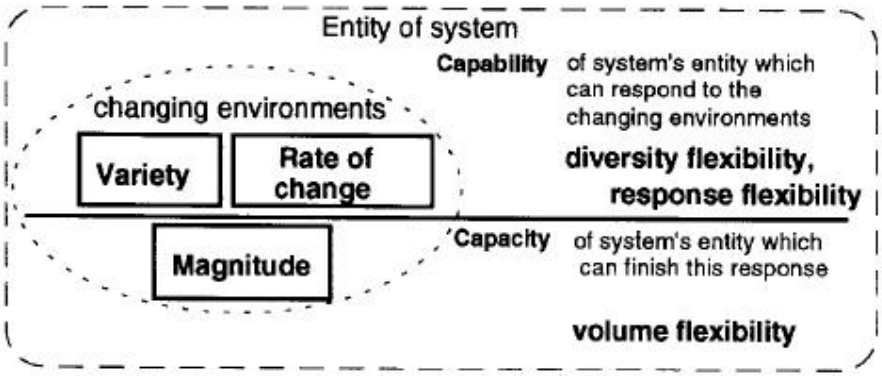



***Figure 2.1*** Flexibility indices of the systemôs entity

## 2.3 Individual Work Performance

Borman and Motowidlo (1993) identified two broad classes of employee behavior: task performance and contextual performance. Both types of behavior are presumed to contribute to organizational effectiveness, but in different ways (Kiker and Motowidlo, 1999). Quantity and quality of output were widely used task performance criteria to measure employee job performance in the ergonomic studies.

Measures of work performance are especially important in order to understand the effects of various interventions on occupational functioning. For many health conditions, the majority of associated costs are due to effects on performance at work, rather than absenteeism or medical care. Therefore, when absenteeism and medical resource use are reported for these conditions, they understate the full economic impact of illness and potential benefits of treatment. Of the total, 12-17 billion dollars of lost productivity attributed to migraine headaches in the US, 60 to 70 percent may be due to impaired performance while at work (Schwartz et al., 1997).

Based on the study from Peter (1997), poor productivity of construction craftsmen is one of the most daunting human resource problems in developing countries. This paper reports an investigation of the problems influencing craftsmen's productivity on 27 medium and high-rise building sites surveyed in Indonesia. Three main groups of craftsmen (93 bricklayers, 81 carpenters and 69 steel fixers) some 243 workers in total, participated in a comprehensive structured survey of production problems conducted over a 4-month period. The study instruments included craftsmen questionnaires and an activity sampling survey. Findings show that craftsmen in Indonesia spend on average 75% of their time working productively. One of the specific productivity problem been identified from the study is lack of manufacturing system support such as equipment and tools.

Contextual performance is defined as individual efforts that are not directly related to their main task function but are important because they shape the organizational, social, and psychological context that serves as the critical catalyst for task activities and processes (Werner, 2000).

Task performance is directly involved in producing goods. Quantity, and quality of output were using to measure employee job performance (Kiker & Motowidlo, 1999). The most important dependent variable in industrial and organizational psychology is job performance. For all of the main applications of this branch of psychology, such as employee training and job redesigning, the focus is almost always on improving job performance (Borman, 2004).

## 2.4 Worker Tenure

Worker tenure can be identified as workers' length of experience in organization (Kathryn & Edward, 2007). Based on the findings on a simple job such as windshield installation, there is a very steep learning curve in the first eight months on the job: output is 42 percent higher after eight months than it is initially. For older workers, after the first two years of tenure, performance declines with increased years of tenure. It would appear that ñlearningò on the job decreases. But since the type of work does not change, performance depreciates either because workers skills will be depreciate with their age. Even though the study are focuses on two types of people who are hired under the hourly pay regime and hired under piece rate pay regime. As shown in Figure 2.2, increase in worker tenure will increase in worker output for both type of hired in one year time frame.

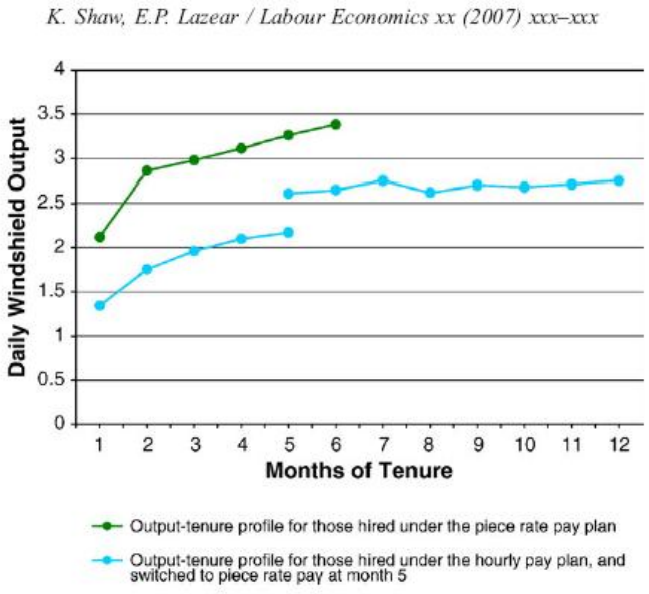



***Figure 2.2*** **Worker Daily Output and Months of Tenure**

The results of a one-way ANOVA show that overall job satisfaction is slightly related to tenure, but not statistically significant at the 0.05 level. Further analysis indicates that respondents with less than five years tenure are highly satisfied with co-workers and supervision followed by the work itself. Those with less than five years are least satisfied with pay and promotion. As far as the relationship between tenure and mean job performance is concerned, the results show that self-reported performance increases linearly with tenure; the only exception being the respondents own performance rating which increases linearly up to the 11-20 years group then declines for the 21 years group. The self-reported performance of males is higher in all facets of job performance than that of females. As for the relationship between job satisfaction and performance; the results show no significant relationship (Alf & Bassem, 2003).

Older workers are said to lack the energy of their younger counterparts, they are believed to be more resistant to change and they are seen as stagnant in their jobs. Another negative image identifies older workers as marking time until retirement while hanging on to accrued leave, company paid health care and pension contributions from employers. Organizations bent on downsizing and restructuring offer older workers incentives to retire early as they are also perceived, often incorrectly, as blocking career growth of young employees, lowering productivity and stifling innovation (Stein et al., 2000). Crow and Hartman (1995) focus on the importance of reducing dissatisfaction, as well as increasing satisfaction, in order to improve employee performance.

## 2.5 Manufacturing System Characteristics

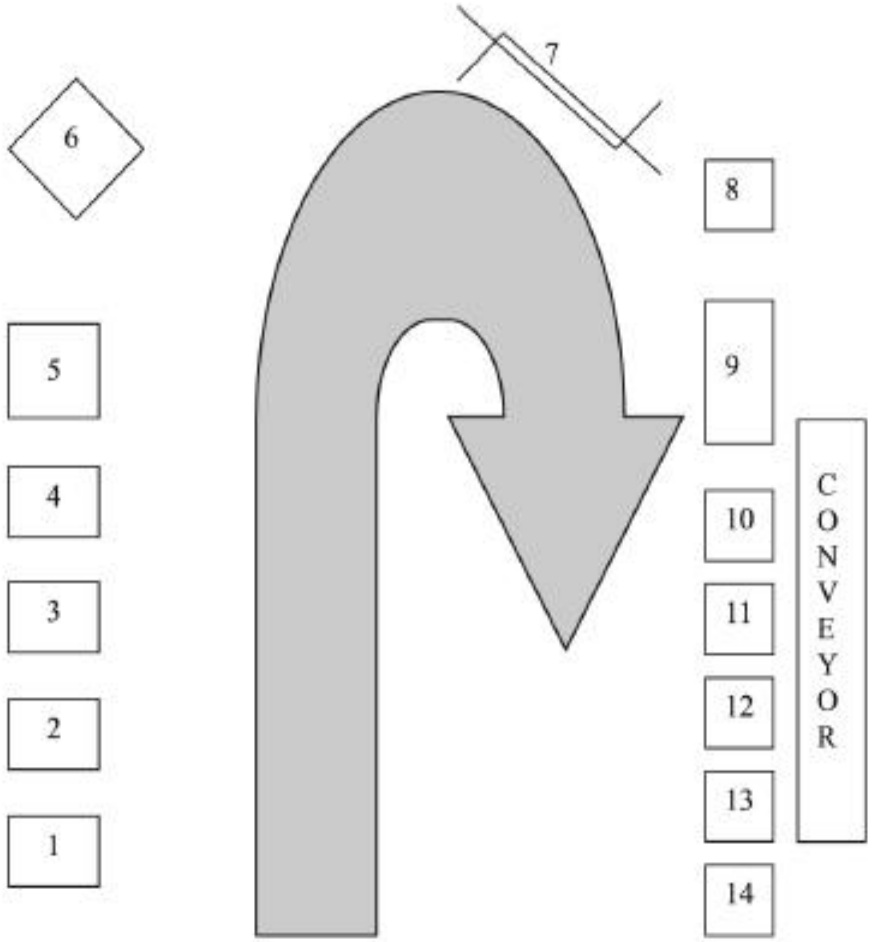
In todayôs very competitive and dynamic environments, it is critical for manufactures to improve their manufacturing performance. Manufacturing system become important characteristics. Manufacturing systems must be designed optimally by taking into account responsiveness and agility relates measures in order to improve effectiveness and performance in the organization (Adil, 2006).

### *2.5.1 Manufacturing System Flexibility*

System flexibility can be identified as a system which easily to cope with variations in design/adapt to changes (Rakesh at el., 2004). This competitive advantage can come in the form of the ability to supply customized products to customers (owing to the flexibility of the systems), in the reduced time to deliver new products, in reduced operating costs, in improved operating performance etc. These have become the cherished goals for Indian manufacturers. As far as management attitude towards technological change is concerned, the

focus of the new breed of managers has been on innovation and integration to provide strategic directions to their organizations. Flexible, because it can easily cope with variations in design, and integrated because it combines together many of the operations previously carried out manually on a conventional assembly line, which can now be done with one machine at one workstation (Rakesh at el., 2004).

The benefits to the company from the installation of the flexible integrated system are: In the new flexible system, several of the functions such as application of adhesive, pulling the upper evenly from all sides on the last, etc. are combined in one machine. The need for inspection is also greatly reduced. Figure 2.3 shows the typical layout of the new flexible system. It has two CNC machines, shown at serial No. 3 and 4, a CNC forepart lasting machine and a CNC back-part lasting machine. Materials handling is partly manual and partly through conveyors. The gains from the system improve in quality with (rate of rejections reduced from 2.5 percent to 1 percent) and the overall increase in productivity is 113 per cent (Rakesh at el., 2004).




**1-** Counter Forming
**2-** Insole Attaching
**3-** CNC Forepart Lasting Machine
**4-** CNC Backpart Lasting Machine
**5-** Heat Setter
**6-** Roughening
**7-** Drying Chamber
**8-** Sole Attaching
**9-** Chiller
**10-** Unlasting
**11-** Brushing
**12-** Socks Putting and Lacing
**13-** Final Inspection
**14-** Packing

***Figure 2.3*** **Typical layout of the new flexible system.**

Based on this model (Figure 2.4), a manufacturing enterprise experiences a variety of changes/pressures in its business environment which drives the enterprise to identify ``agility capabilities'' that need to be acquired or enhanced in order to take advantage of the changes. This in turn forces the enterprise to search for ways and tools to obtain/enhance the required capabilities. Obviously, different organizations will experience different sets of changes as well as different levels of pressures resulting from each change. Consequently, different combinations of capabilities will have to be obtained for different organizations (Z. Zhang & H. Sharifi, 2000).

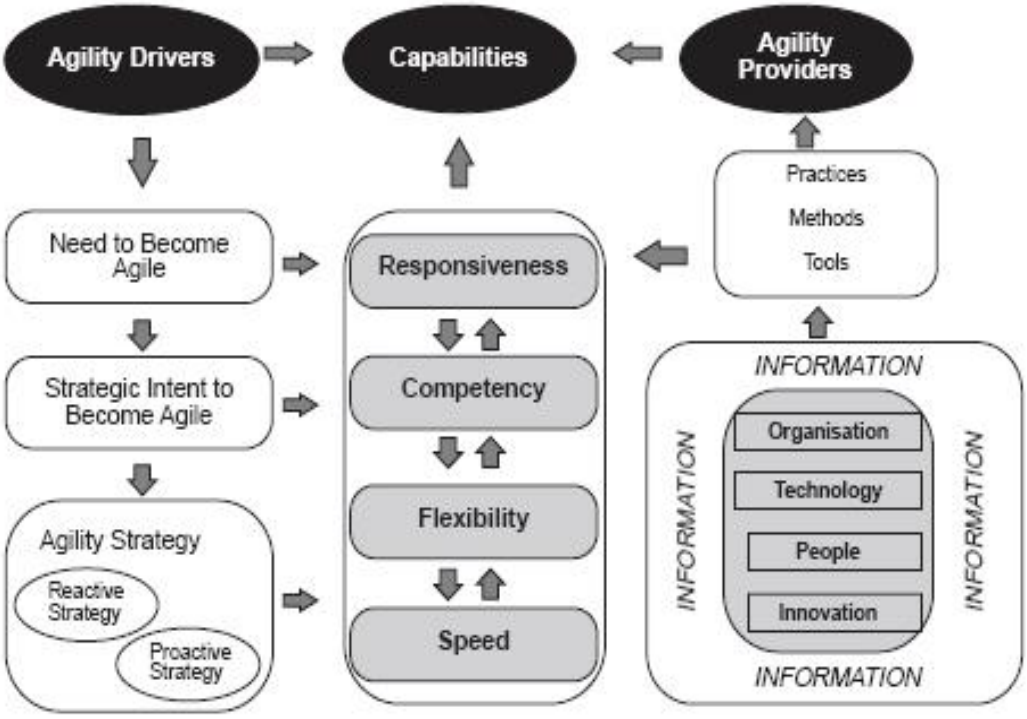



***Figure 2.4*** **The conceptual model for implementing agility**

Flexibility in manufacturing covers a wide spectrum of activities from strategic marketing flexibility to operational machine flexibility as follows (Swann, 1988):

1) Component flexibilities:
   - Machine flexibility refers to the various types of operation that the machine can perform without requiring a prohibitive effort in switching from one operation to another.
   - Material handling flexibility is the ability to move different part types efficiently for proper positioning and processing through the manufacturing facility it serves.
   - Operational flexibility of a part refers to its ability to be produced in different ways.
   - Labor flexibility is the ability of the workforce to perform a broad range of manufacturing tasks effectively.

2) System flexibilities:
   - Process flexibility of a manufacturing system relates to the set of part types that the system can produce without major set-ups.
   - Routing flexibility of a manufacturing system is its ability to produce a part by alternative routes through the system.
   - Product flexibility is the ease with which new parts can be added or substituted for existing parts.

As stated by David and Nicole (1995), flexibility is the ability of manufacturing system quickly to:

- change between existing parts;
- change the operation routes of components;
- change the operations required to process a component;
- change production volumes
- add new parts types
- add new process to the system

Designed of flexible manufacturing systems are state of the art production systems to emulate the flexibility of job shops while retaining the efficiency of dedicated production lines. Systems should be designed to increase productivity while meeting schedule demand with decreasing throughput time. Tempelemier and Kuhn (1993) define flexible manufacturing systems as: ñé a production system consisting of a set of identical and/or complementary numerically controlled machines, which are connected through an automated transportation system. Each process in an flexible manufacturing system is controlled by a dedicated computer (flexible manufacturing system cell computer)ò.

Parrish (1990) defines FMS as ``. . . a collection of production equipment logically organized under a host computer and physically connected by a central support system." The main impetus to switch from a traditional system to an FMS is to introduce flexibility in manufacturing operations so that a firm can compete more efficiently in the marketplace.

### *2.5.2 Manufacturing System Support*

System support can be in whatever format, graphics and etc to help for better understanding. By building knowledge into job support tools can make it easy for workgroup to handle the complex task (Colin, 2003). The pressures of increasing global competition caused by developments such as the passage of the General Agreement on Tariff and Trade in 1994, the World Trade Organization in 1995 and a multitude of other international trade agreements coupled with advances in information technology, industries worldwide face a new area of intense global competition. Manufacturers will have to achieve world-class status to compete effectively in global markets. To achieve business strategy effectively, support system is important for the formulation and implementation of manufacturing strategy and the proposed quality function deployment base model is easily apprehended, easy to be followed and leads to a good manufacturing strategy. It was also proved that the developed methodology integrates and manages information from diverse sources in the organization to develop executable plans and tasks for the manufacturing function (Issam & Wafa, 2006).

In the article written by (Coulson-Thomas, 2003), problems can be addressed by job support tools. Experience of users of tools in the important are of sales productivity, many sales teams are under constant pressure to win orders in a difficult economic environment, sometimes with reduced budgets. As a result the churn rates for sales force are often high. There are particular problems that a support tools be designed to solve the problems which enable the consistent application of best sales practice and ensure high standard of proposals. Other benefits included reduced error rates, higher win rates, greater customer orientation, fewer support staff and saving on recruitment and training cost. Such results are much better than those achieved by sales technology in general.

Research by the Gartner Group found that 75 per cent of sales application projects have been perceived by their users to have failed to meet expectations 12 months after deployment (Thompson & Eisenfeld, 2000a, b). The Gartner team found that sales often dip during a period of up to six months while new technology is being embedded, whereas users of specific sales support tools report rapid adoption and quick improvements in performance.

Manufacturing system support consisted technical and management support. On the other hand, high technology of manufacturing system implementation will bring environment changes as well as a wide range of changes in employee performance. Thus, a flexible system is a system which has fewer restrictions and more options to cope with the changing environment. How to integrate the restrictions and options is an important lesson in system flexibility management. Proposed innovation flexibility, demand (mix) flexibility, demand (volume) flexibility and deliver flexibility can be used as a guide to integrate the flexibility of entities into the total flexibility of the system (James et al., 1997).

Flexible manufacturing system implementation could also cause socio technical concerns to the management, ranging from the work organization to the training of employees Therefore, more training programs are needed to provide workers with the tools and direction necessary to keep a balance between human and technology aspects of the workplace (Chen et al., 1996).