

MANAGING CHANGE: AN EXPERIMENTATION IN A WOOL TEXTILE COMPANY

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ÖZET

Rekabet ortamının yükseldiği bir çevre değişikliğinde firmaların, kendilerini başarıya götürmesine rağmen, izlemekte oldukları stratejileri gözden geçirme kapasiteye ve iradeye sahip olmaları gerekir. Yarışta önde olmak gelecekte de önde olmanın garantisi değildir. Oysa değişim çok zahmetli bir süreç olup güçlü liderlik gerektirmektedir. Çünkü strateji değişikliği beraberinde kurumun yapılanmasında, yönetim sisteminde, stilinde ve çalışanların becerilerinde ve hatta kurum kültüründe değişimi gerektirmektedir. Bu yazının amacı ülkenin Avrupa Birliği ile Gümrük Birliğine katılması ile rekabet açısından ortaya çıkacak değişikliklere karşı yazarın yönetimini üstlendiği tekstil firmasında yürüttüğü değişim süreci tecrübesini okuyucu ile paylaşmaktır. Bu süreç ile sağlanan kantitatif sonuçlar sunulmaktadır.

Anahtar kelimeler: strateji, değişimi, değişimin yönetilmesi, kalite destekli verimlilik artışı.

DEĞİŞİMİ YONETMEK: BİR YÜNLÜ TEKSTİL İŞLETMESİNDEKİ DENEYİMLER

ABSTRACT

To survive in a highly competitive environment, companies must have the capacity and will to challenge their present strategies, even if those strategies have already led them to success. Being ahead of the race does not guarantee future success. However, such changes can be very painful, and require real leadership. This is because this necessitates changes in corporate structure, system, and management style, and new concepts in staff skills and even in the corporate culture. Clearly defined objectives are required, based on a shared vision and a leadership that is persistent, patient and consistent. The article intends to share the experiences of the writer as he implemented a process of change, in order to meet the challenges coming from a drastic transformation of the competitive environment, as the country was preparing for entry into customs union with the European Union. The results are also quantitatively summarized.

Keywords: Strategy changes, managing changes, quality pushed productivity gains.

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1. INTRODUCTION

Before January 1980, the Turkish economy was pursuing a strategy which is commonly known as import substitution. In a highly protected environment, substantial incentives were offered to manufacturing industries by the government. Various tax incentives and subsidized credits were granted to investors. Manufactured goods were protected from import through various types of trade barriers. The aim of the strategy was to consolidate local manufacturing capacity so industry would have sufficient competitive power to survive when Turkey eventually entered into custom union with the E.U. The case under discussion in this article covers the management of changes necessary to survive in the new era, which was characterized by a dramatically tenser competitive environment. Quantitative results attained from these changes are discussed.

2. STRUCTURE OF THE TURKISH MANUFACTURING INDUSTRY

Right up until the 1980's, Turkish manufacturing industries were highly protected by the state formed monopoly, or at best oligopoly, in their related sectors. As price fixing for manufactured goods was based on the formula: $Price = Cost + Profit$, it was not even clear whether the establishments were adding any real value to the country's economy. In the absence of global competition, pricing was determined on the basis of monopolistic realities. The total demand/price relationship and total manufacturing cost versus capacity were taken into consideration in order to formulate a profit/demand relationship. From this final relationship, the sales volume which maximizes overall profit can be derived, as shown in Figure 1 below.

Despite protection from foreign competition, the textile industry was nevertheless experiencing relatively higher competition than most other industries because of the existence of more fragmented suppliers. Internal competition was stiff enough to necessitate the pursuit of sound strategies on the part of the suppliers, in order to gain a better share of the local market.

As experienced globally by all industries organized and managed by traditional mass production concepts, the Turkish textile industries were also organized and managed by the same concepts.

3. MASS PRODUCTION

One of the characteristics of mass production is to give priority to the utilization of maximum capacity. If necessary, extra labor force and buffer inventory may be utilized. The concept was developed and implemented by Henry Ford in 1913, and was refined using the techniques developed by Taylor (1911).

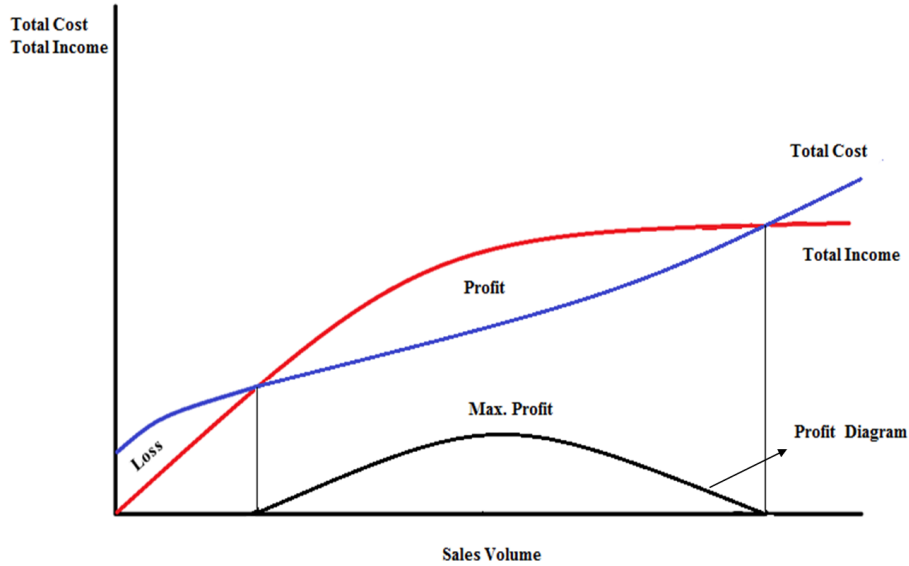


Figure 1. Capacity Optimization for a Monopolistic Market

The application of mass production techniques led to the *Second Industrial Revolution*, together with the development of economy of scale. Economy of scale implies that the unit cost of production is reduced as the capacity of the manufacturing facility increases. This saving on manufacturing costs becomes especially evident in the chemical industries. The main barrier for benefitting from the economy of scale is obviously market demand.

Companies following global marketing strategies had no difficulty in surmounting this barrier. Companies focusing on only domestic markets were the ones to lose and needed state protection from foreign competition. Unfortunately the Turkish manufacturing industry required this type of protection right up until the country entered into customs union with the E.U. (European Union) in 1996.

Another shortcoming of the Turkish manufacturing industry was its widespread vertically-integrated structure. Instead of horizontally expanding the capacity of what the company best produced, scarce financial resources were shared among all loops of the vertically-integrated manufacturing chain. Thus, small-sized and vertically-integrated manufacturing units were formed, which experienced cost disadvantages.

The vertically-integrated structure of the Turkish manufacturing industries was the result of the economic development policies pursued by various governments (prior to the well-known 24th January 1980 government decrees); namely import

substitution. As mentioned earlier, cost did not matter in an environment where competition from global suppliers was lacking.

In the western world, ‘focused factories’ were suggested by Skinner (1974) for the gaining of better competitive power. Focused factories have the advantage of simplicity and economy of scale and all the advantages for a cost-based competition. However, this has the disadvantage of inflexibility for the product variety the market requires. Even so, the market situation may dictate the addition of new types of products. However, the addition of new items to the production plans will of necessity increase costs, due to losses incurred by more set-ups, sophisticated production planning and other administrative workloads. Yet additional product variety will also reduce costs, due to higher utilization of plant capacity. Thus one can cite the optimum number of product varieties for a conventional production system, as demonstrated by the diagram Figure 2 below.

To overcome this disadvantage, the industry concentrated on developing a modular approach during the design stage of product development. A modular approach makes it possible to increase the variety of products, all assembled from a relatively fewer number of intermediate products, thus making possible a greater variety of products at a relatively reduced cost.

In Japan there was a different approach to manufacturing. Thanks to the studies and methods developed by Shingeo (1985), it was made possible to reduce set-up times to minutes, so that the cost of variety becomes negligible (Figure 3).

4. MANAGING CHANGE AT A TURKISH WOOL TEXTILE COMPANY

The company was formed in 1956 to produce woolen and worsted fabric. With government incentives, it moved to a new location, expanding its production capacity and adding a garment-making unit to its production plan. It had vertically integrated operations; starting from raw wool, and ending in the retail distribution of finished garments. As with nearly all manufacturing companies in the country, it was geared mainly to the domestic market. For purposes of prestige, some export of mohair fabric was made, at a substantially lower price than that applied in the domestic market.

However, there were a number of public and private producers of woolen and worsted fabrics in the country. The company had a share of about 15% of the domestic market. Despite being protected from global competition through high custom barriers, there was appreciable competition in the domestic market. To gain a higher share of the domestic market during the 1980’s, the company pursued an interrelated marketing and manufacturing strategy based on the company’s key competences.

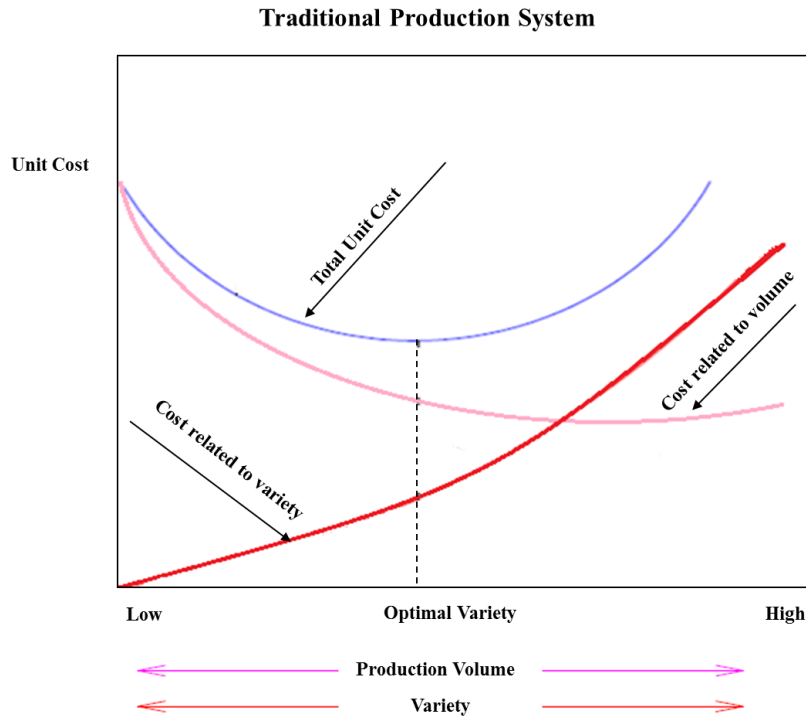


Figure 2. Optimum Variety in Conventional Manufacturing

5. KEY COMPETENCES OF THE COMPANY

The company had gained a reputation as the best quality fabric and garment producer in the country. This image had been gained by extensive advertising and working with most well-known wholesale distributors. ‘Made from XXX Fabric’ added prestige to garments made by various apparel producers. This image was fortified by supplying the market with variety, fashionability and quality. Its garment operations under the brand name of ZZZ represented the most prestigious trade-mark in the country, adding value to the company’s fabric’s trade-mark. All this created the opportunity for the company to apply a much higher price than its nearest competitor.

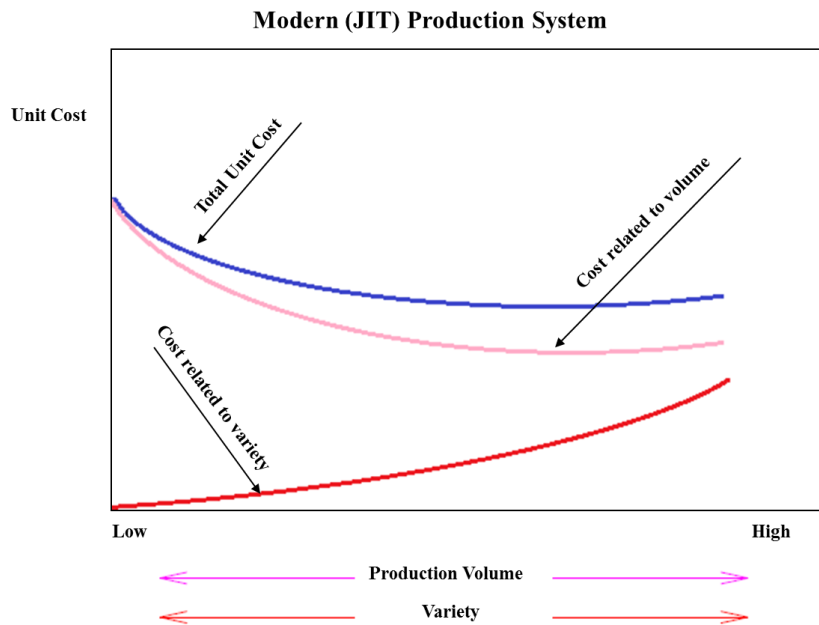


Figure 3. Optimum Variety in Lean Manufacturing

To meet the domestic market demand for its products, the company engineered a 7 days per week, 3 shift work regime, thus extending working days to 330 days/year; instead of the 280 days/year which was the conventional practice at that time. To achieve this, week was considered as 8 days; 6 days for working and 2 days for the weekly holiday. 4 separate groups of work force were formed. While 3 groups engaged in daily work, the fourth group safeguarded the continuity of operations each day. Thus it was possible to increase production capacity by about 17%, with the addition of some direct labour force.

As a result of this practice, enough cost saving was made from the economy of extra production to cover the extra cost of the smaller production runs necessitated by greater product variety. The company chose to enter into the market with a wide range of fabric designs, which meant shorter production runs during manufacturing. Furthermore, for better quality apprehension by the market, any additional cost incurred by using a higher quality of raw material was always overlooked, since the company could invoice a 30-35% higher price for its product, compared to its competitors. This advantage allowed them to pursue a strategy which involved an increased variety of product that was welcomed by its customers.

With customs union with the E.U. on the horizon and the customs tax on imported woolen and worsted fabrics continually reduced, it was necessary for the company to prepare for a radical change in the way it was doing business. In addition, wage

demands from trade unions were in the multiples of current inflation. Thus the prospects were that the cost of manufacturing was to accelerate, which made it even more urgent to take action for change. Change was necessary to increase the variety and quality of products, and shorten the delivery time, while carrying out the cost reductions necessary to compete with imported fabrics and the increasing penetration into export markets. With the existing strategy, this mission could not be accomplished. A new approach was necessary. In the search for a new strategy, the BCG (Boston Consultant Group) study made in the U.S.A came to our attention.

6. THE TEXTILE AND APPAREL INDUSTRY AND THE QUICK RESPONSE SUPPLY CHAIN

As a result of intense competition from developing countries, the US textile and apparel industry faced crises from the early 1980's onwards. Under the leadership of Roger Milliken (of Milliken Corporation), an association was formed to handle the marketing needs of the industry, which was experiencing strong competition from foreign suppliers. The mission statement of this association was this:

'The Crafted With Pride In U.S.A. Council, Inc. (CWP) is a committed force of U.S. cotton growers, labor organizations, fabric distributors and manufactures of man-made fibers, fabric, apparel and home fashions whose mission is to convince consumers, retailers and apparel manufactures of the value of purchasing and producing U.S. made products (Hunter, 1990).

Thus they formed CWP in 1984, which engaged the Boston Consulting Group (BCG), to search for a viable strategy to counter this foreign threat. The first finding of the BCG study was that the longer lead times associated with imported merchandise decrease the accuracy of the buyer's sales forecasts, and the result is either greater forced markdowns, in the case of over-supply, or the substitution of lower margin goods, should supplies run out. At the end of the BCG study, a quick response chain formation among all parties (starting from raw material supplier and ending at retail distribution) was proposed to counter this threat. It was noted that since the U.S. market was the largest market in the world, the fact that U.S. manufacturers were nearest to that market should provide an excellent opportunity to beat the rival foreign suppliers. The idea was to shorten the supply chain pipeline and to squeeze time requirements in all stages of the process. This idea has soon inspired and been adopted by many companies not only in the U.S., but worldwide (Blackburn, and Irwin, 1991).

In search for a viable strategy for the new era, the management of the company also learnt a lot from the Japanese approach to quality management (Deming, 1986; Pascale and Athos, 1986), It was realized that with the existing management style, organization structure, information systems, human resource skill and management, and the way the work is done, it was not possible to develop and apply a sound strategy for attaining the goals as defined above. In order to bring about all these necessary changes, small group discussions were initiated, from top management

down to supervisor level. Emphasis was laid on the increased competition that would come from customs union with the E.U., together with the enormous wage rises demanded by trade unions, after the restrictions on industrial action imposed by military rule had come to an end.

7. NEW OBJECTIVES

To address these new challenges, the company had to improve on its weak points and strengthen its key competences. The objectives were to be based on a continuous reduction of cost, while increasing the variety and quality of products, and shortening the lead time of manufacturing. Conventional wisdom and manufacturing approach tell us that those four objectives cannot be attained at the same time. However Japanese management techniques have shown that provided a sound strategy is formulated for quality management (Blackburn, and Irwin, 1991; Crosby, 1979), it is indeed possible to end up with reduced cost and shorter delivery time. A reduced set-up time and the adoption of a modular approach to product design can provide product variety without noticeable cost rise.

These objectives were discussed initially among top and middle managers and eventually with supervisors. Brain storming sessions were held to get suggestions as to how to proceed. As a result of these consultations the following objectives were decided as shown in Table 1:

Table 1. New Objectives

	Present	5 Years Later	10 Years Later
Inventory turn-over	2.77	5.5	10
Per hour/worker production	100	200	400
Lead time (weeks)	15	5	3
First quality (%)	90	97	99.5
Meter run/design	300	200	150

These objectives assume the existing technology will be maintained during the first 3 years, giving way to a gradual upgrade through capital investment. After setting objectives, discussions were arranged to find out how all these objectives could be attained at one and the same time. The measures to be taken are summarized below:

1. A philosophy of right first time should be adopted. Instead of allowing bad quality to progress through the rest of the manufacturing process, methods should be engineered to spot the mistake at the origin and take immediate corrective action, even if it means initially lower capacity utilization. Statistical techniques should be

adopted to keep the process under constant control. Staff should undergo training to collect data, analyze it and derive conclusions. Instead of spending time and energy correcting mistakes, staff should use statistical techniques to take proactive measures to prevent such mistakes from happening.

2. Workers should be authorized to spot mistakes and if necessary stop the production line until corrective action is taken.

3. Staff should be trained to take part in team works, task forces or project groups, spot problems and use appropriate techniques to solve them as a team.

4. An individual suggestion mechanism should be established to facilitate the flow of information from operators to the management staff. Valuable suggestions should be rewarded.

5 A change of mindset should be established through reeducation so that instead of resisting new ideas, workers should welcome and seek out ways to put them into practice.

6. Continually challenging existing methods and discovering operational waste, and removing them from the system, making 'continuous improvement' a way of life.

8. ACHIEVEMENTS AND DISCUSSION

As a result of a series of training programs covering top and middle managers and supervisors over the course of a year, many useful suggestions were made by the people actually doing the jobs.

1. The production of quality at every stage of the process gave rise to a reduction of 90% on work load for the quality assurance department which carried out mending work on finished fabric before dispatching to the customer. This saving on work load not only reduced the cost but also reduced the lead time.
2. Instead of making dyed yarn beforehand, based on projections made on past statistics, measures were taken to produce only undyed yarn in large lots and dye as the final fabric order was made. Thus each colored yarn is produced as required, avoiding the accumulation of unnecessary inventory. The necessary modifications on bobbin dyeing machines were made to make it possible to dye in smaller lots. The production of natural colored yarn in large lots increases productivity and reduces cost, which more than covers the extra outlay incurred by smaller lot sizes in bobbin dyeing.
3. Production planning practices were changed to reduce overall inventory and thus raise the inventory turnover, in line with the objectives of the new operational strategy. A wide variety of fabric design is produced in small pieces (for example: 15x30 square cm) on mechanical looms. The warping was prepared with 10 different parallel separate zones. Using different weft yarns it was possible to get hundreds of different designs on one piece of fabric. After the standard finishing treatment, the final designs were sent to the customers for their approval.

4. On receiving the order, the planning department would go through the existing yarn stocks and make the necessary assignment for that particular order. Some colored yarns would be already available, others not. Usually the non-available colored yarns would be in too small a quantity to fit even the smallest size bobbin dyeing machine. In such cases, these yarn orders were kept in a waiting list until enough requirements for the same yarns had accumulated to fill an available dyeing machine. The aim of this method was to dye the yarn in quantities required by outstanding orders only. This approach made it possible to reduce yarn stocks from over 400 tons (mainly colored yarn) down to less than 100 tons (mainly raw yarn).

By adopting a similar approach for other sections of the vertically integrated plant, it was possible to double the stock turnover within 3 years.

This result was attained thanks to modifications made on existing bobbin dyeing machines and winders. Modifications on the bobbin dyeing machines made it possible to dye the yarn in fractions of their full capacity. Modification on the winders made it possible to produce the soft bobbins suited to bobbin dyeing. This modification saved capital investment in soft winders, which turn the hard-wound bobbins produced by automatic winders to soft bobbins suitable to for dyeing. It also saved a lot of energy and labor force. These modifications were suggested and carried out by the relevant operators.

The spinning of non-dyed tops, instead of yarn from large lots of dyed tops, raised productivity of workers many fold as a result of less frequent yarn breaks during the spinning. This is because the dyeing of tops damages the fibers and reduces their strength.

The following data shows the productivity improvements achieved in different departments of the manufacturing plant. There was no capital investment made during the period these achievements were made. They were the product of the change process undertaken and its effect on human assets of the company alone.

Table 2. Annual Average Production (per man-hour).

	Unit	1989	1990	1991	2 Years Production Increase (%)
SCOURING	Kg	30.50	39.89	42.65	39.83
TOPS	Kg	9.57	10.85	12.64	32.13
WORSTED YARN	Km	91.14	98.58	114.71	25.86
WOOLEN YARN	Km	12.81	13.37	20.16	57.32
WEAVING	1000 WEFT	11.19	14.18	15.94	42.49
FINISHING	Mt	11.95	14.57	17.97	50.46

CONCLUSIONS

Necessity is the mother of invention, as the English saying goes. When threats are real and strong, the environment is ripe for change. The important thing is to realize the challenge and put forward a viable strategy, with the full engagement of all staff under the leadership of the CEO of the company. The change should be supported by extensive training programs.

Today, Turkey is facing new challenges once again: the middle income trap. Liberal economic policies have made it possible to raise the per capita income from around 3000 U.S. dollars to 10.000 U.S. dollars approximately. However in recent years, this trend appears to have reached a plateau. To overcome this stagnation, new strategy formulations are necessary.

The hundredth anniversary vision creates an opportunity for companies to adopt new strategies. This requires the effective management of change. In this paper the writer intended to share his past experience in developing new strategies to face the challenge created by the entry to customs union with the E.U. on one hand, and the high wage rises stemming from labor union demands on the other.

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