[**D018 - Diploma in Procurement and Supply Management**](http://portal.onlineresourcecenter.nl/prolearn/public/studentnotes)

**Assignment no 4.**

**: Module 4**

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**ASSIGNMENTS 4.**

ASSIGNMENTS

1. What is Value chain analysis and what its main elements?

Value chain analysis is a strategy tool used to analyze internal firm activities. Its goal is to recognize, which activities are the most valuable (i.e. are the source of **cost** or differentiation advantage) to the firm and which ones could be improved to provide competitive advantage.

The elements of value chain analysis is split into primary and support activities

Primary activities are those that are related with production, while support activities are those that provide the background necessary for the effectiveness and efficiency of the firm, such as [human resource management](http://www.coursework4you.co.uk/sprthrm.htm). The primary and secondary activities of the firm are as follow,

**Primary activities**  
The primary activities (Porter, 1985) of the company include the following:   
• Inbound logistics  
These are the activities concerned with receiving the materials from suppliers, storing these externally sourced materials, and handling them within the firm.   
• [Operations](http://www.coursework4you.co.uk/sprtopem.htm)   
These are the activities related to the production of products and services. This area can be split into more departments in certain companies. For example, the operations in case of a hotel would include reception, room service etc.   
• Outbound [logistics](http://www.coursework4you.co.uk/sprtopem5.htm)   
These are all the activities concerned with distributing the final product and/or service to the customers. For example, in case of a hotel this activity would entail the ways of bringing customers to the hotel.   
• Marketing and sales   
This functional area essentially analyses the needs and wants of customers and is responsible for creating awareness among the target audience of the company about the firm’s products and services. Companies make use of [marketing communications](http://www.coursework4you.co.uk/sprtmrk40.htm) tools like [advertising](http://www.coursework4you.co.uk/sprtmrk45.htm), [sales promotions](http://www.coursework4you.co.uk/sprtmrk26.htm) etc. to attract customers to their products.   
• Service  
There is often a need to provide services like pre-installation or after-sales service before or after the sale of the product or service.

**Support activities**  
The support activities of a company include the following:   
• Procurement   
This function is responsible for purchasing the materials that are necessary for the company’s operations. An efficient procurement department should be able to obtain the highest quality goods at the lowest prices.   
• [Human Resource Management](http://www.coursework4you.co.uk/sprthrm.htm)   
This is a function concerned with [recruiting](http://www.coursework4you.co.uk/sprthrm18.htm), [training](http://www.coursework4you.co.uk/sprthrm10.htm), motivating and [rewarding](http://www.coursework4you.co.uk/sprthrm8.htm) the workforce of the company. Human resources are increasingly becoming an important way of attaining sustainable competitive advantage.   
• Technology Development   
This is an area that is concerned with technological innovation, training and knowledge that is crucial for most companies today in order to survive.   
• Firm Infrastructure   
This includes planning and control systems, such as finance, accounting, and corporate strategy etc.

1. What are the seven variables which production personnel‘s should zero in?

A list of seven common variable that production personnel’s should zero in used on automated plant floors as follow:

1. Count (Good or Bad)  
   An essential factory floor metric relates to the amount of product produced. The count (good or bad) typically refers to either the amount of product produced since the last machine changeover or the production sum for the entire shift or week. Many companies will compare individual worker and shift output to invoke a competitive spirit among employees.
2. Reject Ratio  
   Production processes occasionally produce scrap, which is measured in terms of reject ratio. Minimizing scrap helps organizations meet profitability goals so it is important to track whether or not the amount being produced is within tolerable limits.
3. Rate  
   Machines and processes produce goods at variable rates. When speeds differ, slow rates typically result in dropped profits while faster speeds affect quality control. This is why it is important for operating speeds to remain consistent.

4. Target  
many organizations display target values for output, rate and quality. This KPI helps motivate employees to meet specific performance targets.

5. TaktTime  
Takt time is the amount of time, or cycle time, for the completion of a task. This could be the time it takes to produce a product, but it more likely relates to the cycle time of specific operations. By displaying this KPI, manufacturers can quickly determine where the constraints or bottlenecks are within a process.

6. Overall Equipment Effectiveness (OEE)  
OEE is a metric that multiplies availability by performance and quality to determine resource utilization. Production managers want OEE values to increase because this indicates more efficient utilization of available personnel and machinery.

7. Downtime  
whether the result of a breakdown or simply a machine changeover, downtime is considered one of the most important KPI metrics to track. When machines are not operating, money isn’t being made so reducing downtime is an easy way to increase profitability. Organizations that track downtime typically require operators to enter a “reason code” via keypad, pushbutton or bar code scanner so that the most common reasons can be reviewed at a later time.

1. What is Just in Time management system? Is JIT utopia? Can it be made to work? What is its philosophic approach in terms of Batch size?

JIT is a positive cost-cutting inventory management strategy, although it can also lead to stock outs. The goal of JIT is to improve a company's return on investment by reducing non-essential costs.

Some competing inventory management systems exist, including short-cycle manufacturing (SCM), continuous-flow manufacturing (CFM) and demand-flow manufacturing (DFM).

The JIT [inventory system](https://www.thebalancesmb.com/choosing-periodic-or-perpetual-inventory-system-392936) represents a shift away from the older "just-in-case" strategy, in which producers carried much larger inventories of stock and raw goods, in case they needed to produce more units because of higher demand.

JIT is utopia onside of decreasing costs by keeping only enough inventory on hand to meet immediate production needs. Thus, in order to effectively employ JIT a company must accurately forecast demand. JIT's encouragement of planning, simplification, and standardization is aimed at reducing carrying costs by eliminating the expense of housing idle materials and lower the costs of defective products, wasted space, extra equipment, overtime, [warranty](http://www.investinganswers.com/node/5919) repair, and scrap. JIT also speeds the production process, thereby eliminating long lead times and improving delivery performance, hence make everything perfect.

Yes JIT can be put to work because,

JIT, has probably received more attention in a short time than any other new manufacturing technique. The main reason is that JIT gets the credit for much of Japan’s manufacturing success.

Despite the extensive publicity and interest, few companies have implemented JIT in their manufacturing operations. If JIT provides all the benefits claimed for it, why have so few factories adopted it?

JIT’s widespread publicity has been a mixed blessing. The popular press, and even some technical articles, focus on the easily observable differences from batch production systems but ignore some of the more important but subtle features of JIT. Writers rarely get very far past the lower inventory costs attributable to JIT and seldom describe how the technique can improve the entire manufacturing process. Managers who have read only a little on JIT rarely understand how it can help their operations. Usually they focus on the fact that, in the end, JIT increases a company’s ROI.

More important than the reduction of inventory and greater ROI are the improvements in manufacturing that result from operating with low inventories. JIT removes the security blanket of high inventory and thus exposes related operating problems. These are problems that need to be faced and solved—and therein JIT can be seen to create hurdles of its own.

Converting to JIT means a big change—in the culture of a company as well as in its manufacturing operations. Established routines and rules become obsolete. Where backup inventories were once considered to be insurance against unexpected shortages or delays, they are now viewed as evidence of lack-luster planning or controls, even of laziness. Large production batches can no longer be viewed as beneficial because they help amortize setup costs. JIT forces the elimination of the waste inherent in long setups.

Few manufacturing organizations are very flexible, either in their operations or in the minds of their creators. A typical operation is like a huge steamship, for which a rapid change in course is difficult. Most factories have been making similar products using similar processes for many years; their managers are comfortable with what they know. In this environment, change comes slowly. This inflexibility combined with misperceptions of JIT keep a lot of executives from using JIT. They excuse themselves by saying: “I know JIT has done a lot for others, but our plant, and our processes, even our people, are different. In our situation, JIT won’t work.”

Since misperceptions create a roadblock to implementation of this valuable management technique, let’s look at them first.

its philosophic approach in terms of Batch size

Just in Time (JIT) is a Japan grown management philosophy, which has been applied in practice since the early 1970s. It has been widely implemented in both supply and manufacturing industries as a survival strategy against global market competition with remarkable success. JIT as a management philosophy, rather than another production technique. It is a collection of concepts and techniques for improving productivity. Monden Y. (1993) defines JIT as “producing the necessary items, in the necessary quantity at the necessary time.” Here I would add the necessary quality to have a complete definition. The primary objective of JIT is to eliminate waste which Toyota President, Shoichiro Toyoda has referred to as “ anything other than the minimum amount of equipment, materials, parts, space, and worker’s time, which are absolutely essential to add value to the product.” In effect JIT attempts to minimize ordering costs and inventory holding costs and at the same time produce high quality and variety of products to meet consumer taste and demand with minimum delay possible.

The West with its own home grown traditional philosophy of mass production characterized with narrowly skilled professionals to design products, semi-skilled and unskilled workers to tender expensive, single-purpose machines, build- up safety inventory to avoid stock outs and the use of Economic Order Quantity (EOQ) concept, it has been rapidly adapting JIT in many of her industries. This global adaptation, as it inevitably spreads beyond the auto industry, will change everything in almost every industry, choice of customers, the nature of work, the fortune of companies, and, ultimately the fate of nations.

However, the implementation of a JIT system is not an easy venture. It is indeed a task that cannot be undertaken lightly. It is expensive and difficulty in terms of management and effort, and both in terms of the initial implementation and in terms of continuing effort required to run the system over time. It raises a lot of issues and difficulties especially in small and medium companies. Because of limitations these companies face, which include limited staffing, and material resources, reduced bargaining power with customers, suppliers and financial institutions they can hardly implement all JIT components with ease

1. How can computers aid in development, analysis and Forecasting?

Computers can aid in development in many ways, At a time of slowed growth and continued volatility, many countries are looking for policies that will stimulate growth and create new jobs. [Information communications technology](http://www.weforum.org/gitr) (ICT) is not only one of the fastest growing industries – directly creating millions of jobs – but it is also an important enabler of innovation and development.

The number of mobile subscriptions (6.8 billion) is [approaching global population figures](http://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2013.pdf), with 40% of people in the world already online. In this new environment, the competitiveness of economies depends on their ability to leverage new technologies. Here are the five common economic effects of ICT.

**1. Direct job creation**

The ICT sector is, and is expected to remain, one of the largest employers. In the US alone, computer and information technology jobs are expected to grow by 22% up to 2020, creating 758,800 [new jobs](http://www.bls.gov/ooh/About/Projections-Overview.htm). In Australia, building and running the new super-fast National Broadband Network will support 25,000 [jobs](http://www.minister.dbcde.gov.au/media/media_releases/2009/022) annually. Naturally, the growth in different segments is uneven. In the US, for each job in the high-tech industry,[five additional jobs](http://www.ifn.se/wfiles/wp/wp914.pdf), on average, are created in other sectors. In 2013, the global tech market will grow by [8%](http://blogs.forrester.com/andrew_bartels/12-01-06-forresters_latest_global_it_market_forecast_shows_slower_growth_of_5_in_2012_with_better_growth_in_), creating jobs, salaries and a widening range of services and products.

**2. Contribution to GDP growth**

Findings from various countries confirm the positive effect of ICT on growth. For example, a 10% increase in broadband penetration is associated with a [1.4% increase](http://broadbandtoolkit.org/1.3) in GDP growth in emerging markets. In China, this number can reach 2.5%. The doubling of mobile data use caused by the increase in 3G connections boosts GDP per capita growth rate [by 0.5%](http://www.gsma.com/publicpolicy/wp-content/uploads/2012/11/gsma-deloitte-impact-mobile-telephony-economic-growth.pdf) globally. The Internet accounts for[3.4%](http://www.mckinsey.com/features/sizing_the_internet_economy) of overall GDP in some economies. Most of this effect is driven by e-commerce – people advertising and selling goods online.

**3. Emergence of new services and industries**

Numerous public services have become available online and through mobile phones. The transition to cloud computing is one of the key trends for modernization. The government of [Moldova](http://www.egov.md/index.php/en/communication/news/item/89-the-moldovan-government-employs-cloud-computing-technology#.UVHcMRyyC9s) is one of the first countries in Eastern Europe and Central Asia to shift its government IT infrastructure into the cloud and launch mobile and e-services for citizens and businesses. ICT has enabled the emergence of a completely new sector: the app industry. [Research](http://www.rhsmith.umd.edu/digits/pdfs_docs/research/2011/AppEconomyImpact091911.pdf) shows that Facebook apps alone created over 182,000 jobs in 2011, and that the aggregate value of the Facebook app economy exceeds $$12 billion.

**4. Workforce transformation**

New “micro work” platforms, developed by companies like o Desk, Amazon and Samasource, help to divide tasks into small components that can then be outsourced to contract workers. The contractors are often based in emerging economies. Micro work platforms allow entrepreneurs to significantly cut costs and get access to qualified workers. In 2012, [o Desk](https://www.odesk.com/blog/2012/07/visualizations-of-odesk-oconomy/) alone had over 3 million registered contractors who performed 1.5 million tasks. This trend had spillover effects on other industries, such as online payment systems. ICT has also contributed to the rise of entrepreneurship, making it much easier for self-starters to access best practices, legal and regulatory information, marketing and investment resources.

**5. Business innovation**

In OECD countries, more than [95% of businesses](http://www.oecd.org/sti/ieconomy/internet-economy-outlook-2012-highlights.pdf) have an online presence. The Internet provides them with new ways of reaching out to customers and competing for market share. Over the past few years, social media has established itself as a powerful marketing tool. ICT tools employed within companies help to streamline business processes and improve efficiency. The unprecedented explosion of connected devices throughout the world has created new ways for businesses to serve their customers.

On other side of computer analysis

Today, researchers increasingly use computer assisted qualitative data analysis (CAQDAS) packages to assist them. The advantage of software is that it allows far more efficient and effective work processes: It saves you time and can help you to gain deeper insights into your data that you might have missed otherwise. Qualitative data analysis (QDA) software is used in many academic fields, such as sociology, psychology, political science, medicine, and educational science, and it is also a popular tool for businesses and market researchers.

Computer assisted data analysis software, such as MAXQDA, serves to provide insights into qualitative data sets without suggesting interpretations. Based on a content analysis, the researcher can draw conclusions about the respective object of research (e.g. interview data). Software tools for qualitative data allow for easy sorting, structuring, and analyzing of large amounts of text or other data and facilitate the management of the resulting interpretations and evaluations.

Qualitative data analysis (QDA) relies on various methods for systematizing, organizing, and analyzing non-numeric data, such as those used in Grounded Theory, qualitative content analysis, mixed methods analysis, group discussions, discourse analysis, case and field studies. Whatever approach a researcher chooses, the computer assisted data analysis package should support and facilitate the process of sorting, structuring, and analyzing data material.

In addition to the traditional use of textual data, there is a trend toward the inclusion and analysis of image files, audio and video materials, and social media data. Sophisticated computer assisted data analysis software allows for importing and transcribing these recordings directly in the program. In addition, QDA software, such as MAXQDA, supports the entire analytic process by visualizing relationships and providing overviews. It also permits the addition of notes (so-called [memos](https://www.maxqda.com/help-max18/memos/about-memos)), which help other researchers understand the various analytical steps. By using automatic processes to visualize data material, QDA software supports the researcher’s steps towards gaining critical insight.

Computers can also aid in forecasting, As a general rule forecasters start with an analytical framework containing equations representing both aggregate demand and aggregate supply.

Using modern econometric techniques, each equation is ‘fitted’ to the historical data to obtain parameter es­timates (such as the M PC, the shapes of the money- demand equations, the growth of potential GNP, etc.). Additionally, at each stage of the forecasting exercise modellers use their own judgment and ex­perience to assess whether the results are reasonable.

Finally, the whole model is put together and run as a system of equations. In small models there are one or two dozen equations. Today, large systems forecast from a few hundred to 10,000 variables.

Af­ter specifying the exogenous and policy variables (such as population, government spending and tax rates, monetary policy, etc.), the system of simul­taneous equations can project important economic variables into the future.

1. Describe the role of supporting computerized system in book keeping, processing and delivering of orders from customers?

Computerized bookkeeping removes many of the paper "books" that are used to record the financial transactions of a business entity; instead, relational databases are used today, but typically, these still enforce the norms of bookkeeping methodology including the [single-entry](https://en.wikipedia.org/wiki/Single-entry_bookkeeping_system) and [double-entry](https://en.wikipedia.org/wiki/Double-entry_bookkeeping_system) bookkeeping systems. [CPAs](https://en.wikipedia.org/wiki/Certified_Public_Accountant) supervise the internal controls for computerized bookkeeping systems, which serve to minimize errors in documenting the numerous activities a business entity may initiate or complete over an accounting period.

While computerized system in processing include **Input devices** which take information from the user of the computer system, convert it into electrical signals and transmit it to the processor. The primary function of input devices is to allow humans to interact with the computer system. For instance a [mouse](https://en.wikipedia.org/wiki/computer_mouse) allows the user to control the movement of the pointer (a common element in user interface design).

**Output devices** take data from the computer system and convert it to a form that can be read by humans. For instance a [monitor](https://en.wikipedia.org/wiki/computer_monitor) creates a visual electronic display to output information created by the processor to the user.

**Processing devices** are the components responsible for the processing of information within the computer system. This includes devices such as the CPU, [memory](https://en.wikipedia.org/wiki/computer_memory) and [mother board](https://en.wikipedia.org/wiki/motherboard).

**Storage devices** are components which allow data to be stored within a computer system. This includes devices such as hard disk drives and [compact disk](https://en.wikipedia.org/wiki/compact_disk) drives.

And when it comes to role of supporting computerized system in delivery of orders from customers, businesses rely on well-structured ordering systems to make their business and location work, online ordering systems are revolutionizing the economy. With the ability for costumers to take over the ordering process themselves via websites and apps, you can save money, perform smoother services, and increase your revenue.

The results businesses gain from switching to online ordering systems is powerful, so online ordering has offer business with,

**1. Thoroughly Integrated POS Systems**

Because very few systems are uniform across all chain restaurant locations, many franchise struggle with implementing new promotions into their POS systems. Online ordering can help alleviate this issue, as many online ordering systems are situated above the POS, they can easily integrate themselves into multiple POS providers at once. For franchised restaurant locations, and other widespread businesses, this is an amazing feature.

**2. Larger Average Check Sizes**

One of the most frustrating things about ordering food is the long lines, wait times, and constantly being on-hold. Thankfully, online ordering systems allow you to cut down on this frustration, providing your costumers with the convenience of instant ordering. With the extra time for leads and sales, your ability to gain more revenue is significantly boosted. On average, clients tend to experience at least 25% of a jump in their average check sizes after integrating self-service ordering at their business. Additionally, the broad marketing campaigns that are unlocked, and the customer analytics to be gained, are highly beneficial. According to a recent study by the Cornell University’s School of Hotel Administration, almost all hotels surveyed experienced “[considerable increases in order frequency](http://scholarship.sha.cornell.edu/chrpubs/73/),” after implementing online ordering systems.

**3. Increased Throughput**

Self-service ordering systems allow businesses to become ubiquitous with their POS systems. When going online, the ability for a customer to order is available at virtually any location where they have phone signal or Wi-Fi connection. Additionally, you will be able to increase the amount of customers you can process, without the need to hire more employees, making your potential for revenue skyrocket! Given the options you can provide for order preferences, you can also unlock the ability for customers to place orders far in advance, giving you a great idea of what your business traffic will look like on any given day.

**4. Better Marketing ROI**

Recently, the professionals over at BIA/Kelsey performed a study examining how people search for local businesses and restaurants. The study shows that [97% of customers use the Internet as their primary tool when looking for the perfect store, or place to eat](http://www.biakelsey.com/Company/Press-Releases/100310-Nearly-All-Consumers-Now-Use-Online-Media-to-Shop-Locally.asp). When providing an online ordering system, you are opening up your brand to many advantageous ways to grab the attention of your customers, including: SEM, SEO, Facebook Ads, Social Media Platforms, and more. With the advent of online ordering, you also allow the customer to skip the awkward browsing phase, and immediately put them in the position of being at a virtual “order counter.”

**5. Fewer Misunderstandings**

Some of the largest frustrations business owners, customers, and employees deal with is miscommunication. Especially at restaurants, the potential for accidentally messing up a costumer’s order is quite large. To guarantee you cut down on these mishaps as much as possible, online ordering systems are perhaps your greatest tool. With online ordering systems, your lines will never be busy, communication issues will be taken down to a minimum, and you can allow more clients to reach out to you during peak business hours. Additionally, without the need to have an employee painstakingly try and communicate custom options to your customers, your clients can easily make their needs clear, and see all their options laid out in front of them clearly.

1. What is flexible manufacturing system? Can use of computers facilitate it and why?

 A **flexible manufacturing system** (**FMS**) is a manufacturing system in which there is some amount of [flexibility](https://en.wikipedia.org/wiki/Flexibility_(engineering)) that allows the system to react in case of changes, whether predicted or unpredicted. This flexibility is generally considered to fall into two categories, which both contain numerous subcategories.

The first category, *routing flexibility*, covers the system's ability to be changed to produce new product types, and ability to change the order of operations executed on a part. The second category is called *machine flexibility*, which consists of the ability to use multiple [machines](https://en.wikipedia.org/wiki/Machine) to perform the same operation on a part, as well as the system's ability to absorb large-scale changes, such as in volume, capacity, or capability.

Most **FMS** consist of three main systems. The work machines which are often automated CNC machines are connected by a [material handling](https://en.wikipedia.org/wiki/Material_handling) system to optimize parts flow and the central control computer which controls material movements and machine flow.

The main advantages of an FMS is its high flexibility in managing manufacturing resources like time and effort in order to manufacture a new product. The best application of an FMS is found in the production of small sets of products like those from a [mass production](https://en.wikipedia.org/wiki/Mass_production).

Yes,

Computer can facilitate the use of computers because,

In recent years, flexible manufacturing system as a response to market demands has been proposed to increase product diversity, optimum utilization of machines and periods of short-term products. The development of computer systems has provided the ability to build machines with high functionality and the necessary flexibility to perform various operations. However, due to the complexity and the random nature of these problems, deterministic algorithms are not highly accurate and efficient enough. In this paper, computer simulation models are used to optimize flexible manufacturing system FMS). The objectives of this paper are included: the optimal time served in each unit, the optimal number of servers in each unit, and the optimum number of domestic transportation fleet based on type. At the first step, source-destination traffic matrix is presented for development, including: service time and traffic volume are used. The computational results show the accuracy and efficiency of using simulation tools in these problems

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| 1. HORNGREN, (Horngren et al., 2002:23)   Just-in-time Production System. | Horngren refers stated that the essence of JIT philosophy is to eliminate waste. Managers try to (1) reduce the time that products spend in the production process and (2) eliminate the time that products spend on activities that do not add value |
| 1. Ghamdi, S. M. Al (2005), The Use of Strategic Planning Tools and Techniques in Saudi Arabia: An Empirical study, International Journal of Management, Vol. 22, No. 3, p. 376-395. | Ghambi argued that using strategic planning techniques enhances a manager's analytical skills. An effective planning approach seeks to learn by examining the past[38]and links the future through planning techniques[39]. Navigating turbulent environment requires a strategic compass which relies on the use of analytical tools. ... |