

**Systems Analysis and Design**  
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**Lecture - 2**

We ended with the operational requirement needs of a medical shop owner. What I have been talking about and what I am going to talk about in the future lectures, is taken from this book, which I wrote is called analysis and design of information system, published by printer hall. So, if you want to get the details. Then, all the details will be in this book. And all the chapters, I am going to be covering in this course.

To continue the next important part of information requirement of a shopkeeper, is what is known as tactical information. Tactical information is at a higher level, than what one requires for a day to day operation. Tactical information tells you, how to manage your shop better. And now how to increase your profitability of your shop. Now, in order to increase your profitability of a shop, you should really know, which are the items moving very fast, which are the items moving very slow.

So, what you do is the stocked items, which are being sold very rapidly. And also reorder them, at a higher level. When it goes little below, what you think is optimal level to have it. And if it is slow moving item, the amount you will reorder is small. And also you reorder it, at a much larger intervals. So, that you do not have desk stock, in your company or in your shop. The point is that, desk stock really shop, is really a is not producing an income to you.

It is only a cost, which you have paid already for the items to you bought. So, it is very important to make sure, that you do not have desk stock. It is called the inventory in the case where very large organization. You also would like to have an idea of which suppliers supply items to you, in a regular way and whenever you require. Because, most often we find that a lot of difference vendors, are willing to supply the same item.

Some of them are good in giving you, whenever you require, some of them delay and so on. So, if you keep account of the, what I would call the vendor quality index. Based on the vendor quality index, you can increase the amount of items you buy, from a good vendor. And reduce the amount of item you buy from a not so good vendor. Or eliminate certain vendors who are always late, or not giving you the right quality items.

So, the important to for a tactical manage management able to understand, who are the good suppliers, who are the bad suppliers. And adjust your requirements based on the suppliers index or the vendors index. Now, of course, one may ask why not go to the best vendor all the time. But, it turns out, that if you always go to a best vendor all the time, there is no competition.

Secondly, if suppose something happens to that vendors company, strike or something like that, then you are completely stuck. You do not have an alternate source of supply.

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**EXAMPLE OF INFORMATION NEEDED BY A SHOPKEEPER**

- Slow or fast moving items
- Reliable supplier of items
- Sales trends

Used to improve profitability of shop called  
Tactical information

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So, in most shops, as well as most companies make sure, that there are more than one vendor available. So that, there is a backup. And in order to every vendor happy, you do give certain amount of order to this vendor. And not star the vendor for a very long time. You also have to look at the sales trends. If your sales are not going up at a reasonable rate, which you expected. Then, you have to ask the question, why my sale is not going at the right direction.

It is going down, it may be because some other shop is opened nearby, or may be because our customers unhappy of what you have done. And are may be because, customers have to wait for a long time, to get items from your shop. So, you have to make sure, that you are able to detect these deficiencies, in your tactics of running the shop and take corrective action. So, primarily then, tactical information is to improve the profitability of your shop. Not necessarily just to keep track away day to day operations.

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**EXAMPLE OF INFORMATION NEEDED BY A SHOPKEEPER**

- Whether to stock different varieties of items
- Whether to diversify
- Whether to start a new branch in a different locality

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The next level or higher level of what I would call, the information required, is what is known as strategic information. Strategic information is a information, which is distinct information, based on what transpired earlier or based in the operational data. What I mean by, what transpired earlier is you create a certain kind of history, of what happened in the shop. Or in the organization, what happened in the organization who has certain period.

For instance, in case of a shop, suddenly if he starts saying that his sales is going down. It may be because of some other new shop which come nearby. So, then he has to take a strategic decision, whether to relocate the shop, a place where it is not as crowded. In terms of competition, or whether he has to improve his service, in a way which the other shop cannot serve. So, there is the strategic decision he has to take.

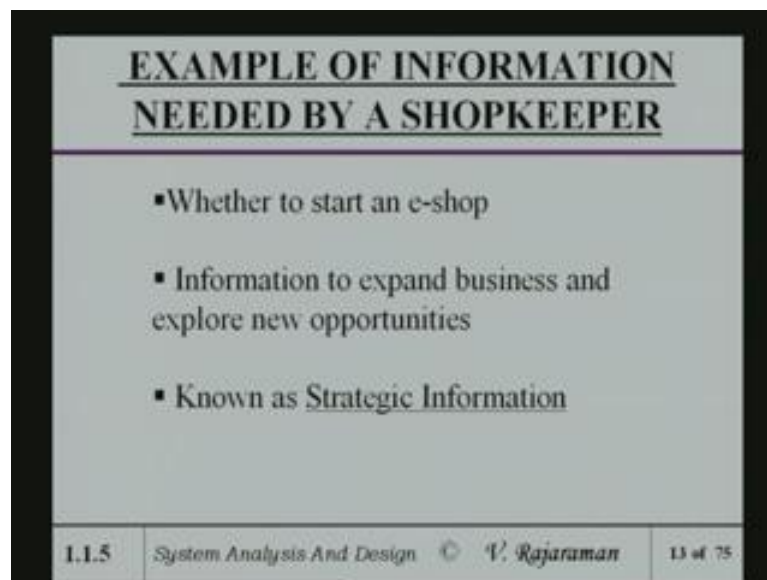
He has, if it is a very large shop, for instance if it is a variety store, not necessity to a medical shop. He can also think about diversify items, he may selling only certain types of provisions and so on. He may decide that, he would like to sell packaged food or he may like to sell, in addition sweets, milk and so on. In other words, diversification to improve the profitability is a higher level decision, which is based on your experience.

And essentially your general, what I would say experience and feeling. That this kind of a direction, will take your company further. So, you take a strategic decision, which is normally done as I said based on some collection, of what transpired for sometime

earlier. Similarly, suppose your business is going very well. But, you also find, that some new ideas have come up, or new sub odds have come up.

You may consider, whether it is worth while starting, a new branch of your shop. Or if you are running company, a new branch of company at some other location. So that, the the market which is their, which does not have access to search such shops will have access. And you will be able to sell items, in that other shop better. So, changing locality is also something like, or diversifying, or putting branches in different localities is also knows the, is a strategic decision.

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Similarly, one more decision may take, is your selling it with the physical shop. Instead of that do you want to sell it by having a e-commerce customer to business, kind of activity. Like very often book stores, do all books which are available in a store were person can come. And buys the book and buys the book and so on. But, many persons find it more convenient, to be able to buy a book, from sitting at home. Provided it is delivered directly to the person.

So, because books are something where you will get lot of information, on the terminal itself. You can ask number of reviews, how does it compare with the other books and so on. And based on that, we can decide to order from a e-book shop. Now, whereas the book shop may have a physical version, and it may also have reversion. Reversion would make for a different kind of a business strategy.

Then, you have to compare, whether you reversion really gave you the profits, which you thought it would give. Because, after all and if you want to start a new e version of your shop, it cause money, you have to invest money. When you invest money, you have to find out whether that investment is paying off. And so it compare, what it has done, compared to what you have been able to get from your physical book shop.

And if the e-book shop is doing much better than the physical book shop. Then, you may decide expand the e operation and reduce your physical book operation. And these are kind of strategic decisions one may take. You also may think about expanding new opportunities. It may be a book shop, but you may find that over and above books. It also profitable to be able to sell CD's of music.

And the persons who come to a shop to buy books, if they find CD's there also, they may buy CD's in addition to the books. In fact, interestingly a company called rediff dot com in India, is actually a e-commerce company started of with books. But, later on they diversified to many items. Including records, that is the CD's and other items also, like certain may be as, like even clothing and stuff like that.

So, the question of diversification again depends upon, what you feel is going to a profitability of this diversification. So, these are the decisions, which at top management normally takes, to improve their companies performance.

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**EXAMPLE OF INFORMATION  
NEEDED BY A SHOPKEEPER**

- Income tax account
- Sales tax account
- Used to provide information to the government
- Known as Statutory Information

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Lastly every organization, including a shop keeper has to confirm some statutory requirements. This is called statutory information. What is meant by statutory requirement, is that requirements which is enforced by the government. It may be the state government or the central government. Every shop is suppose to have a sales tax registration number, which they normally put on top of their cash bills and so on. The sales tax authorities find out, how much you have sold and tax you accordingly.

So, sales tax returns has to be filed at the end of specified period. Similarly, income tax account that we file, at the end of each year. And there are, maybe other kind of information, which you have to provide to the government. For instance, how many people are employed. And what is the kind of number of people who you newly had. And how many people have has to go and things like that. And besides that apart from price, you have a requirement very often of providing information.

Such as in case of a medical shop for instance, the information on what types of so called mode of saying, which are made sellable only under prescriptions. That record of prescriptions, which doctor gave the prescription, what medicine has given to the customer. All that record is supposed to be maintained by the medical shop, to be inspected, by the medical inspectors who come around. So, these are all statutory information, which company had to provide, I mean there are unpeeled statutory requirement. So, when I am just giving you some examples.

In fact, there is something called a boiling inspection, where they are suppose to come. And look at your safety of your boiler, fire examination of your company or organization is safe, when there is a fire. There whole lot of regulations, for that you have to keep the information readily available, whenever the specters come around and ask questions. And is also something called excise duty, in the NIP production which you do, based in the production. You are suppose to pay excise duty.

And you have to keep track of what you produce, how much you produce to able to give an account of the excise duty you paid and what you produce. So, this statutory information, in fact is a fare amount of detail, which you require to keep. In order to be able to run, any organization effectively.

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**TYPES OF INFORMATION**

- **STRATEGIC** : Needed for long range planning and directions. This is less structured.
- **TACTICAL** : Needed to take short range decisions to improve profitability and performance.

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So, to summarize strategic information is needed for long range planning. And what directions had company or organization has to take. This is less structured. In other words, there is not always possible to process and give you that information. For instance, supposes I want to start a new shop. Now, the only way I can take this decision is by a more experience. And by talking to others and other persons, who are in similar business.

So, there is not something, which is presented to you based on the processing of all information. Sometimes it is there, but sometimes you have to take your own, what I would call judgmental decisions. So, it requires a long range planning. But, some of it also comes from operational information. Like for example, if you have a railway reservation system. You primarily have from that system, what trains are crowded which trains are not crowded; and things like that.

And you may decide that, it is strategic need to say increase the trains and a particular route. And so you have to double the tracks, and trips and that is a large investment. And that kind of decision is strategic, which is taken by the, normally the railway minister and so on. So, there is a lot of things, which are distilled from the lower level information. But, not all statutory information can be distilled, from lower level information.

Tactical information is needed for short range decisions to improve the profitability; and performance. You saw an example of a vendor quality index, to decide which vendor

you have to give your item. And these kinds of tactical decisions, like in the case of railways, it may be that you found this overcrowding. Or certain types of classes in the train, are not occupied, where a certain other classes are overcrowded.

So, you may decide to a remove an AC second class coach. And instead put a sleeper, second sleeper coach. These kind of tactical decisions are really taken by the level of peoples, like general manager and so on.

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The slide is titled "TYPES OF INFORMATION" in a bold, underlined font. It lists two types of information with their definitions and examples:

- **OPERATIONAL** : Needed for day to day operations of the organization.  
Eg: Daily Sales, Billing.
- **STATUTORY** : Needed by law to sent to government authorities.  
Eg: Sales tax return.

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Operation as we said is day to day operations. And statutory is primarily what is required by the law for you to provide the government.

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Now, you can look at the entire thing as a pyramid. Pyramid in the sense, that at the lowest level is the operational level. The operational level work is done by what is known as line managers, in any large company. And these line managers do a day to day running others business.

For instance, if you take railway reservation system. The local station director or the local station is the one who does the operational work. Like based on the reservation chart and so on. He creates a complete chart and give it to people go and paste in on railway compartments. And this operation decision, operational information.

And he also find out how much money was collected at the end of day. And keeps an account of all the money collected. So, this a detailed report, which is, you know not at all I would say small in volume. Normally volume is extremely large and it is highly structured. What is meant by highly structured? Is that um to take a ticket for instance, the structure of the ticket is well known.

The name of the passenger the PNR number, the origin, destination, the fare all these things are detailed information. So, detailed information is what is used at the operational level for the day to day operation of any company. And the tactical information is little smaller in amount. So, the pyramid goes like this, as you can see. And the middle of the pyramid the amount of information is reduced and the structuring is also reduced.

Because of the fact, that it combines a number of different kinds of tactical information. To create the number of different types of operational information, to create this tactical information. So, tactical information is something, which is medium level moderately processed and certain smaller amount of data. So, that the person at the higher level decision making can take quick decision.

People are some of days of course say exceptional report. Like in the case of a large, say retail store. What I mean by large retail store, is something like a food world or food mall and fare mall and stuff like that all very large shops there is a package information is at the end of the day you can give the stocks of various items and so on. And if you give the complete stock item it is not much useful for the middle manager.

The manager would scold, but on the other hand at the end of the day you can give an exception report. An exception report may be that today an item a lot of item was sold. And this item does not sold at all or you can say. You can say how much of an item is very fast moving, what item is slow moving these kind of information the middle manager effectively use to refurbish his inventory.

So, choose the kind of thing, which is tactical and strategic is at a higher level, which is taken by high level management. In the case say a food stores you know like the fab mall or food world and so on. They normally have multiple branches in many any city. Now, strategic information is that should I open a new large, other food world in a new locality.

Also I expand my current shop in a given locality, because what is happened is that, there is ratios very much. And there is lot of sales in that place. So, you may have go to a larger premises and use larger premises to sell better. So, these are types of decision, which are strategic. And this contains as I said unstructured very often based on what I would say. What happens if competition and other information, which is not entirely coming of the organization.

So, one has to understand to design an information system for organization, you have to be concerned not only with day to day operations information. Because, there is a necessary information. But, that is not sufficient to be able to run your organization in a profitable manner. The in order to make profits for many companies, it is important to have good tactical information. And it is very important to have good strategy for the

organization to be able to increase your profitability in the long run. So, these are important for any for any information system you design.

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**NEED FOR INFORMATION SYSTEMS**

- Increasing size of organizations thus data volume increases
- Timely processing for fast action
- Better competitiveness with better information

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Now, the question ask, you may ask, why do we need computer based information system. If you take a shop for instance, medical shop is normally a one or two man show. And most of what they do is kept in registers. They just note it down and stuff like that. This is alright as long as your system is small. When you want to expand your shop and make it very large, then you cannot operate with one or two people. You have to operate it with many more people.

So, data volume increases. Take a very simple example, what is happening in railways. The railways before the computer reservation came, all reservation is being done manually. You go to the railway station stand in a long queue and take up the register and look at, whether it is booked or not booked. And then give you a ticket and it use to take a long time.

And it is possible as long as the number of trains was small and number of travelers was small. But as soon as the number of travelers increased. And the number of trains increased, it just became impossible to manage the reservation system. So, only alternative was to go to what is the computerized system. Because, the shear increase in volume of data, which comes in country like India, where population is very large. And

organization are also becoming very large, there is a need to have computer aides for this.

The computer aides makes it possible for you to do able to do things, which otherwise could not be done as the data volume have increased. Timely processing on fast action is possible. Like in the case of a reservation system the long queues were reduced, we have more counters and more people can work simultaneously. Because, is the what is the man who registers, the entire reservation status is in a data base in a computer.

When you see a computer data base, many people can refer to that data base simultaneously. Not only the same city. But, because of the communication network the reservation status of place from Bangalore to Chennai can be looked at by a a reservation system in Delhi. And the Delhi people can know what is the situation from Bangalore to Chennai. Because, somebody wants to go to Bangalore and go onwards to Chennai, it becomes possible for for you to book from Delhi itself, which is not at all possible in a manual system.

So, this timely processing and fast action and certain things, which pull the time earlier could also be done. And better more competitiveness with the better information. If you are well informed and you know, which items are moving fast in your shop, which items are not moving fast. Then you can improve your profitability and competitiveness if the business can increase

In other words suppose, that you find an item is moving very fast. And that you are making a profit you have to certainly give a discount. If you decide to give a discount; that means, people will come to you. And that discount in turn will able to improve your profitability. Or for instance if you have find that some item is not selling at all. Then you suddenly say that I am going to reduce the price by 50 percent to able to clear the stock out of my store.

So, this kind of a um decision, which comes out of the collecting information is what what impose your profitability.

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**NEED FOR INFORMATION SYSTEMS**

- Increasing of complexity of organizations require innovative processing
- Distributed organizations
- Same data can be processed in different ways

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Complexity of organization increasing and you require innovative processing, when the complexity increases. Let me say what is meant by complexity has increased. If you take for instance a company producing motor cars like maruti udyog.

The complexity of the organization, now consists of not only the factories produces these cars. But, is got a whole lot of service stations, which service the cars unless you have good servicing facility the car will not sell. You have also a whole lot of suppliers, who supplies the items in order to manufacture the car. So, the entire complexity, previously everything was done internally, because as long as the volume was small.

When volume becomes large, when you start selling large number of cars. Then it becomes very important for you to manage this complexity. Similar to I talked and told about railways. The complexity has increased because number of routes is increased number of travelers is increased and the same thing is happened to air lines.

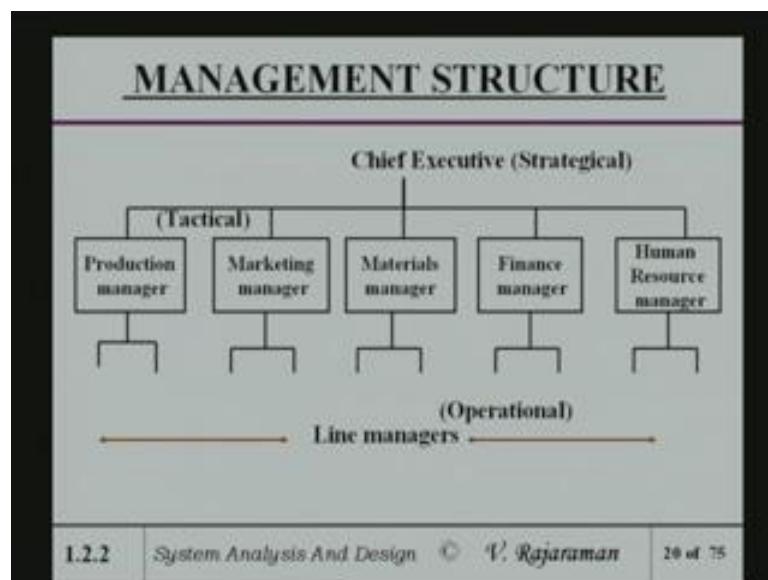
The complexity of operation has increased, competitiveness has increased and that requires information. And organizations are distributed, like in the case of Maruti cars. For instance, the car is produced primarily in Delhi. But, they may they, but their sales places and service centres has spread all over India. And so, that becomes the an important problem for them.

The distribution managing distribution and same data can be processed in different ways, then that we saw in terms of the ((Refer Time: 30:41)). Once you have filed it will be processed in number of different ways. The management structure of any organization is normally hieratical. What I mean by hieratical is there is a top level management, which is normally a chief executive. Who is the major leader of the entire organization.

Then assisting him will be a number of middle managers. Like there would be vice presidents, general managers and so on. Who take essentially tactical decisions. And following this below them, according to them are a set of. So, called assistant managers or managers, who have specific responsibilities to do day to day operations of a company.

This three level organization is normally the one, which is followed by most organizations. And these three levels are made in such a way, that the top level decides the strategy. The middle level deciding the tactics and the bottom level looks after the day to day operations.

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Let me take a very simple example of what these three levels really mean. All of you of course, would have followed the cricket match which is going on all the time. And in the cricket team, the top level strategic decisions are normally taken by the coach, the captain of the team and a group of selectors.

A group of selectors would place a constitute these persons who are the strategic decisions. These strategic decisions normally are in the case of cricket team, which play will play in the game. So, the second committee with the assistance of the coach. And the captain decides on the team who is going to play in a given match.

They normally do not decide on all the specific number of players going to play on a particular day. They have a something like two or three extra put into this team. So, that, they can make a last minute strategic decisions on including or removing some people. Depending upon the condition, at which condition of the other team. And what they persuade is the weakness of the opposition and things like that.

So, on the day of the match, final strategic decision on whom to include and whom to exclude, depend to top people who take the decision at the match. Namely, the coach and the captain. Then once the players going to field and start playing, the tactical decisions are the ones, which are taken by the captain. The coach is only sitting in the pavilion.

The coach is only gives the overall direction of on what to be done. But, the tactical decisions on the field on, what is to be done. In terms of say which bowlers to give bowling for they have to put fielders. And all these tactical decisions are essentially done by the captain in on the field.

And finally, of course the operations in the stage are all the 11 players playing in the team and also the bowler who is bowling the wicket keeper and so on. Each one has got a specific job to perform and they are go on doing the operation. When, you play in the game and so. These three level is there in almost every organization and if you take for instance, your university the top level or the chief executive is the vice chancellor.

The vice chancellor of course, has a large group which advises him, which normally consists of. So, called syndicate and the senate and things of that type. And there is they take over all the strategic decisions about what new courses start in the university. Whether to start some course what departments to expand and things that type.

So, overall strategic decisions in the direction in which the university had to be going. And then there are many heads of departments, who run each of the department. And they take the tactical decision regarding the growth of the department.

That is what new faculty to employ and what new courses to introduce in their own curriculum. And the examination methods and things of type, which are tactical decisions taken by the HOD or Head Of the Department along with normally certain professors in the department who assist in doing this.

So, this essential what I would call is tactical decisions. And at the operational level the individual teacher, who goes and teaches the class has responsibility of deciding how to teach the course. And operationally how to evaluate students and things that type is what the person who is in the line you might say.

In the line in this case means, actual teaching that decision is what he takes. But, this these all are very simple examples of organization of which you are all aware off. But, companies for which many of the information system are designed have a much larger hierarchy. And hierarchy is outside to evaluate the number of what I would say functions to be carried out under the control of the chief executive.

Say for instance most of the large organization will have a something called production. They produce some items which they want to sell. The selling is done by marketing. Production and selling there is marketing and in order to produce items you need materials

That is you want to buy materials from outside, may be assemblies, sub assemblies and so on, which you have to they have to come to the company for in order to produce. And that is done that is called materials management.

And there is a finance management which determines where to find the money to buy all these items or materials manager. Not only how to find the money, but payment to all the vendors, collection of the receivables. For once the items are sold getting getting the money for what you have sold. And over all budgeting for the company in terms of what budget are to be there. So, that you have a profit and loss account at the end of the year your company have to make a profit. And the kind of monitors and finances are actually being utilized and has to create or to make all these. So, called accounting statements, which are not only usable by the managers in the company.

But, very often they have to be also there also statutory. That is the account has to be presented some very often to the income tax officers. In the case of so, called public

limited companies. These accounts every quarter has to be submitted to the stock exchange board of India. So, there are many legal requirements for actually giving the financial status of a given given company.

And of course, every company has people to work. Unless there are people the company will not function. So, there is a human resource and human resource management is the area generally of a whom to have, what kind of incentive to give to your employees. How to detect the employees, who are not doing their job and fire employees if it is allowed.

All those, so called human resource development, which has many many functions. I mean I am only giving some samples of what human resource suppose to be do doing. And also many organizations, which I have not shown here also have a research and development part.

Research and development may not be there in every company. But, most of the big companies try try to improve their products as you go along. And you require of some method of looking a little bit old. And seeing what are the new products which they have to make and to spend a little bit of effort and money in experimenting. In terms of developing, so called proto types before they really put in the production.

So, these are all the areas, which which are there in most companies. Now, the as I said the chief executive takes the strategic decisions. And at for each of these different areas like production, marketing and so on. There is some body in charge that would be would be a vice president of marketing or a vice president of materials and there will be a vice president of finance.

Some persons call them as vice president, some of them call the general manager or whatever it is. The names differ, but by in large their in charge of the entire function namely production or marketing or materials or finance or human resource. So, each of them take tactical decisions about their own areas.

Whereas, the chief executive takes strategic decisions. Why I really, I mean ultimate of course, for each of these persons at the general manager production will have a number of line managers who report to him. And they have their own responsibilities of managing the day to day operation of a production shop.

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**MANAGEMENT STRUCTURE**  
**(CONTD)**

**TOP MANAGEMENT**

- Chief Executive known as CEO
- Executive Directors for each functional areas such as Production, Finance, HRD etc.
- Take strategic decisions

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So, as I said the top management is the chief executive called the chief executive officer or managing director, whatever you there are different names of that. And executive directors for each functional areas are the vice presidents or general managers and so on.

And normally the chief executive officer is thought, so called board of directors. The board of directors has part from some of the executive directors. Whoever employs the company have also external, so called non official directors. Who comes from outside the organization and they are normally taken for their specific ((Refer Time: 42:57)) in that about that particular product of a company and so on.

So, the every company normally has what is known as board of directors. The board of directors is may be a chief executive or it may have a non executive chairman who... But, this boards primary function is to take strategic decisions, in terms of what direction this company has to be growing. So, the chief executive is not dictatorial in the sense, that he also has actually comes under. Certain norms based on the advice he receives from the board of directors to whom he actually reports.

And the board of directors of course, does not meet every day. They meet once in 3 months normally. To take a very long way strategic decision affecting the future of the company. And what performance how the performance is and if there is any bad performance, what correct actions you take. And if it is a some competition is going

taking some preventive action before your competition really is able to make inroads into what you are doing.

So, these are systems, which the board of directors does. And as I said, it is got chief executive and a number of board executive directors. And non official directors, who come from outside.

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**MANAGEMENT STRUCTURE**  
**(CONTD)**

**MIDDLE MANAGEMENT**

- General managers, divisional managers, Vice presidents etc
- Each functional area may have 2 to 3 middle level managers reporting to top management
- Take Tactical decisions

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Middle management consists of general managers, divisional managers, vice presidents and so on. And this function may have two or three middle level managers reporting to the top management. And they take tactical decisions. And I gave you the examples of tactical decisions.

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**MANAGEMENT STRUCTURE**  
**(CONTD)**

**LINE MANAGERS**

- Group managers, Assistant Group managers, Assistant managers
- Each functional area may have several line managers reporting to middle level managers.
- Take Operational decisions

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Line managers are essentially group managers assistant group managers. And it is functional area know several line managers reporting to middle level managers. And they take operational decisions.

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**MANAGEMENT STRUCTURE (CONTD)**

**FUNCTIONAL AREAS**

- PRODUCTION
- MARKETING
- MATERIALS – purchase, stores

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As I said the functional areas are the production marketing materials.

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**MANAGEMENT  
STRUCTURE (CONTD)**

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**FUNCTIONAL AREAS**

- FINANCE –Accounts
- HUMAN RESOURCE DEVELOPMENT(HRD)
- RESEARCH AND DEVELOPMENT (R&D)

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Finance, human resource and R and D.

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**MANAGEMENT  
STRUCTURE (CONTD)**

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**FUNCTIONAL AREAS**

- All organizations need not have identical functional areas
- However some are common such as
  - MARKETING
  - FINANCE
  - HUMAN RESOURCE DEVELOPMENT(HRD)

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It is not essential that every company has all these functions, functional areas. If you take a company like motor car company like Maruti. They have definitely production. Whereas company like company, the company, which may not have production is a pure marketing organization. There are companies in this country, which do not produce anything at all.

They take materials many, many different vendors and just do the marketing. And make sure that the profit is made. And essentially, the company will be the company instead of producing, does all the other functions of their own to able to relieve the producing company from the problems of ((Refer Time: 46:24)) from marketing and stuff like that. So, the pure marketing companies, one of the important example in India is the so called eureka forbes, which sells out these aqua guard and other types of materials.

And they are whole lot of salesman, who come and knock at your door, every third day asking you to buy something. And they of course, do not produce anything at all. But, they really what are known as marketing people on working on behalf of not necessarily one company. But, on behalf of several companies. Normally of course, several companies, normally would not be competitors. They will have different types of products, which this marketing company sells.

So, marketing but if you take a job normal company even a marketing company. Marketing will be definitely one part. Of course, finance every company has to make a profit. So, there will be a finance part. And, human resource is very important. Every company, has to have people to work. So, human resource area is something, which will be common to almost every kind of company.

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**INFORMATION FOR MANAGEMENT**

Production Management

**Strategic Information**

- Yearly and monthly production quotas and alternate schedules
- Policies on machine replacement, augmentation, and modernization.
- Identifying best product mix.

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Now, let us look at the production management, what kind of strategic decisions production manager would normally have to take. Now, he as to look at production

quotas and alternative schedules policy and machine replacement augmentation and modernization identifying best product mix and so on. Let me explain and this is I will give an example to be able for you to clearly understand, what these things really mean.

Suppose you take say a company producing motor cars. If you take for Maruti udyog they produce many cars, many models of cars. There is a you know maruti 800 car which is low cost car, there is a maruti alto which is a little higher cost. And then there is a also this, they have boleno swift and so there are several models. And these models has a certain possible sales in a year. And there is a, it has to decide how to mix these projects.

In other words, reproduce lot of say, lot of maruti 800. And reduce the number of cars at the boleno class. Because, baleno cars will cost more than 7 or 8 lakhs. Whereas, maruti 800 will cost less than 3 lakhs. So, there is a different type of market. There are people, who want to enter buy a car for first time, who would go for maruti 800. But, there luxury ((Refer Time: 49:23)) if you want to get all the fours they will go for the highest model car.

So, he has to really decide, how much of each of these he has to produce is called a product mix. So, he has to decide, that he may produce x number of marutis, y number of alto's, z number of boleno and, so on. So, this decision is strategic decision, based on the experience of what went on the previous years, in terms of what he is able to sell. And no company wants their situation where, items are not sold and they are still in the factory. Because, it is dead, the all the money has been already spend and now a day's bought it.

So, he has to reduce suddenly find, the certain cars popularity is going down and some other car's popularity is going up. He has to au automatically adjust, the production what is to be done. So, production quota and he has to look at alternate schedules, which are to be scheduled and so on. And all companies, all production companies will have machines, machine tools like a car company there will be a paint shop to paint the car. There will be a part to make a gears or so on.

So, there would, there will be many, many production parts apart from assembly line. And he has to find out and see what to modernize. That is, if the paint shop becoming old is the quality of painted items not as per what they require. And if it is becoming old, they all have to replace it ahead of time. Or he can find out what is the bottle neck.

Suppose, there is crowding at the paint shop, because cars are getting painted and you may decide for one more paint shop.

And increase painting capability. So, these kind of strategic decisions has to be taken by the production manager. And such product as part mixing is very important.

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**INFORMATION FOR MANAGEMENT**

Production Management

**Tactical Information**

- Identifying and controlling areas of high cost.
- Identifying critical bottlenecks in production.

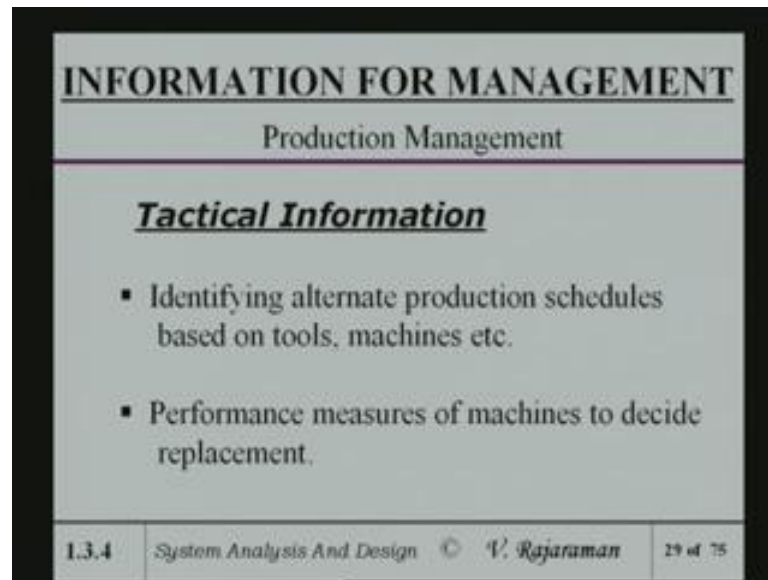
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The tactical manager on the other hand has to look at the desk level. How to going to desire it. What types of cars to produce and having been given a production schedule to the general manager, saying that you make 10,000 cars of this type of model A. Having been told that, you make model a 10,000 cars, his job is to make sure this 10,000 car come out in a whatever specified time. And that specified time is given by the strategic manager.

So, he has to also produce it at the minimal possible cost. So, his tactical decision is to see, where to get the supplies. And how to find the reduce of cost. So, that the ultimate cost of producing a car is minimized. And in production also that could be bottle necks. So there is Bottle neck in the sense that, I have pointed out that you know some item is not coming regularly or in as I said paint shop is getting all crowded. Then he has to essentially say, if there is a bottle neck.

And inform the top management that if a bottle neck is being created, I need more machines or I mean more people. And these are the kinds, which tactical decision maker has to make.

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He has to also look at the alternate production schedules based on availability of the machines etcetera. Because, suppose there is again product mix. Based on the product mix, he can reschedule in such a way that there is no bottle neck. So, all these decision have to be again looked at by the tactical person. And also in terms of machine replacement he has to look at the performance measures. If the machine is playing to often. He has to be look at that tell this to top management, that this machine is not working too well.

Then the operational manager those line managers, who are in the production shop has to look at the day to day, what is happening in terms of production information by examining assemblies detecting lightly shortages and giving early warning. To so that he can buy items. And scheduling better production dynamically. Because, certain no companies has an absolute stable system. While production is going on some machine may fail.

The machine fails, you have to really decide on the line at that time what to do, do kind of a buy a machine immediately or do you ask some other company to help you do this. And out source it. These kind of tactical decisions has got to be done. And scheduling of

a of a items, so that total production per day is automatized. These are items which are the operational manager has to do.

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**INFORMATION FOR MANAGEMENT**  
Production Management

**Operational Information**

- Preventive maintenance schedules.
- Monitoring tool, machine and personnel availability

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And you have look at the preventive maintenance of all machines. Because, unless machines are maintained regularly, it may break down. So, you have to have a schedule of preventive maintenance. And preventive maintenance schedule, will be decided based on the past experience of how these machines behaved. So, you can kind of predict. That after about 6 months this machine may start giving problems. So, you has to kind a look ahead and take this decision.

And he has to he normally using monitoring tool, it which is computerized to give him some idea, about what is going on at that time in terms of almost instant feed back. Now, a day's it is all online. On a pc which is connected to a network, he can find out at any given time, what is the status of different machines. And what is the production status and what is the level of items required is ((Refer Time: 56:05)) going down below dangerous level things that type he effective has to confined out and again monitoring tools and so on.

Look at the entire production area it is in fact, one of the most crucial parts. And if you look at the way in which information passes, the operational information namely all what is going on in terms of production bottle necks and so on. Any exceptions, which has happened, something which is unexpected is happened, this unexpected parts are called

exceptional reports. This exceptional report goes to tactical manager. So, tactical manager does not really get too much of information.

He gets only the information, which tells him that there is a some kind of a problem, there is a bottle neck and things like that. Then based on that information he has to take some tactical decisions. Now based and all these information, you will pass on to the top management the kind of problems, which pursues with the which may grow up in the next year or something. New strategic manager take charge of this. So, each areas there are different levels, of each level gets what they require and when they require it.