Course on E-Business
Professor Mamata Jenamani
Department of Industrial and Systems Engineering
Indian Institute of Technology Kharagpur
Module No 02
Lecture 06: Inter And Intra Organisational Business Processes

Welcome back. In the 1st week, we learned about that we just have had some introductory material and this week, we saw that how e-business, I mean specifically Internet and Web has helped not only for new businesses to emerge but it also helped the old, the traditional brick and mortar businesses to improve their process and thereby gaining more benefits in terms of profit and increase in profit, reduction in cost, and so on.

And we also saw one of the examples in which it was not directly any kind of transaction was happening but actually through the proper information flow, they were actually able to induce the farmers to get more benefits. So that the farmers ultimately agreed to sell their products.

(Refer Slide Time: 1:32)

Now from today onwards, for next 3 weeks we are going to talk about how various functional areas in business have got functional areas have made e-business enabled. As I have told you earlier, this e-business is about automating the business processes. And in fact, in earlier classes, we learned that there is a difference between e-business and e-commerce. Commerce is about about making buying and selling where as business is about is a term which includes commerce

and it commerce is is just a subset of business and business includes many more stops without which business would not have been possible.

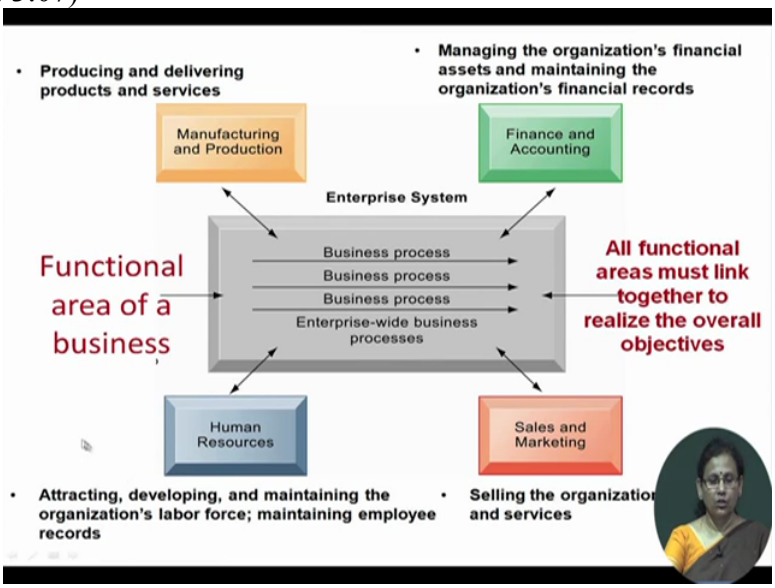
So from today's class onwards, from today onwards, we are going to learn about how to make this functional areas e-business enabled.

(Refer Slide Time: 2:28)

So 1st, we are going to talk about inter and intra organisational business processes. To start with, we are going to learn in this, the major functional areas of a business about a business process this, classification of the processes, we will try to understand who are various stakeholders of a

firm and what is the role of information system for connecting stakeholders and what a digital firm is and what are the information system resources of a digital firm.

(Refer Slide Time: 3:07)



Now look at this diagram. In this diagram, we show various functional areas of a business. So what are those functional areas? Those functional areas in fact, if you remember the value chain of a company, the value chain consists of 5 major processes, 5 major activities-inbound logistics, then manufacturing and production, then outbound logistics, marketing and support activities. So in fact, if we look at the major functionalities offered by a business, they are 4.

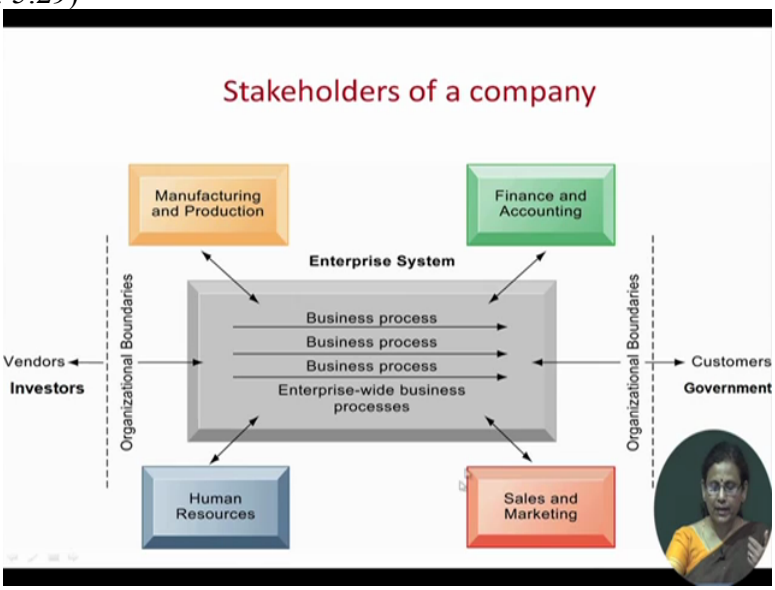
Manufacturing and production which deals with producing and delivering products and services. Then the 2nd one is finance and accounting which deals with managing the organisation's financial assets and maintaining the organisation's financial records. Then we have human resources which is about attracting, developing and maintaining the organisation's labour force and maintaining employees' record. And the 4th one is sales and marketing which is about selling the organisation's products and services.

While these 4 are integral part of any business processes and they are connected integral part of every enterprise, and they are connected through the business processes, there are other entities who are outside this business and they are the stakeholders. So the idea here is this functional ideas can stay independently but through use of information and communication technologies,

we should be able to connect this individual subsystems which through appropriate automation of business processes.

So the is all the functional areas must be linked together to realise the overall objective. Now the question is, what should they not be staying independently and they should be integrated with each other?

(Refer Slide Time: 5:29)



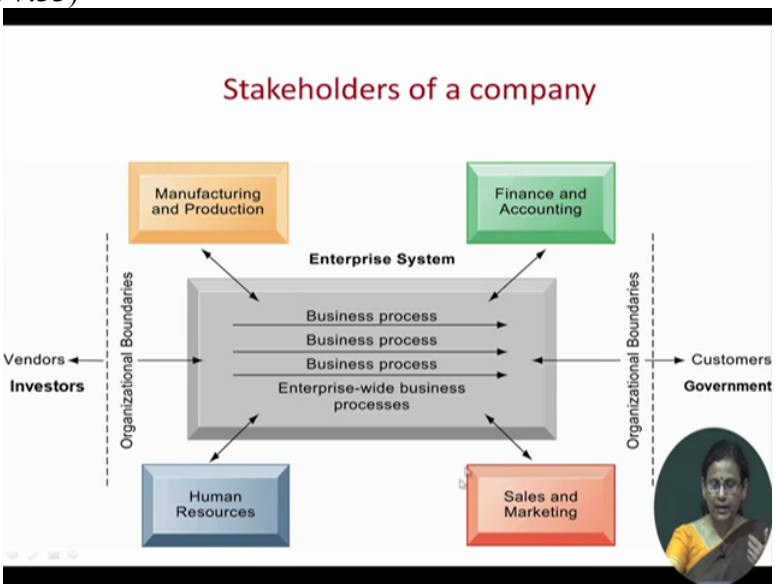
Now look at this. If we say, if we make all this elements to stay independently, they will have their own software to maintain them, they will have their own database system and if there is any data exchange has to take place between the subsystems, for example, look consider the case of order processing system. The order will be actually coming through the sales department and this order has to be going to the manufacturing and production department so that the production can be made and at the same time, it has to be this credit information of the company who is who was giving the orders were sent to the finance and accounting to set up the corresponding accounting process.

So now if all these 3 systems are not connected with each other, and they independently maintain the data, for example the sales department maintains its own data, so and manufacturing department maintains its data. So there will be data replication in various places. And there will be, besides subsystems maintaining their computerised systems, there has to be some manual

flow of data and there has to be the data has to be operated in multiple places and this will lead to many and kind of anomalies in the system.

Now besides this major functional areas of a business, beyond the organisation's boundary, the organisation has to interact with its vendors, its investors and its customers and government. And for this also, we need some subsystem which need to be connected to this enterprise system which in turn integrates all these subsystems.

(Refer Slide Time: 7:33)



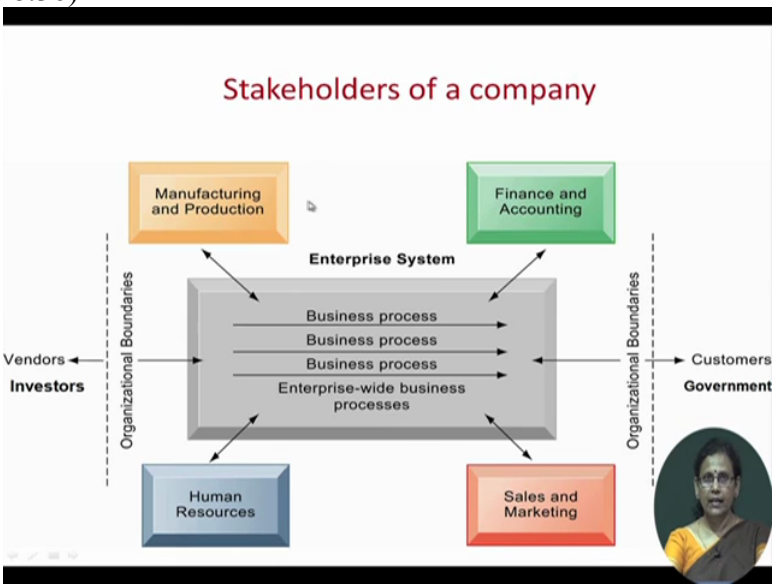
Now last slide, we saw that this businesses processes should be integrating all the subsystems.

(Refer Slide Time: 7:48)

Now let us to formally design what a business process is. A business process is a set of logically related tasks to realise a specific business objective. You can say, a business process is the workflow of material, information, and money. Every organisation, there are 2 broad types of business processes. Either it is within the organisation which we call as intra organisational business process or it is inter organisational business process. It is across the organisation.

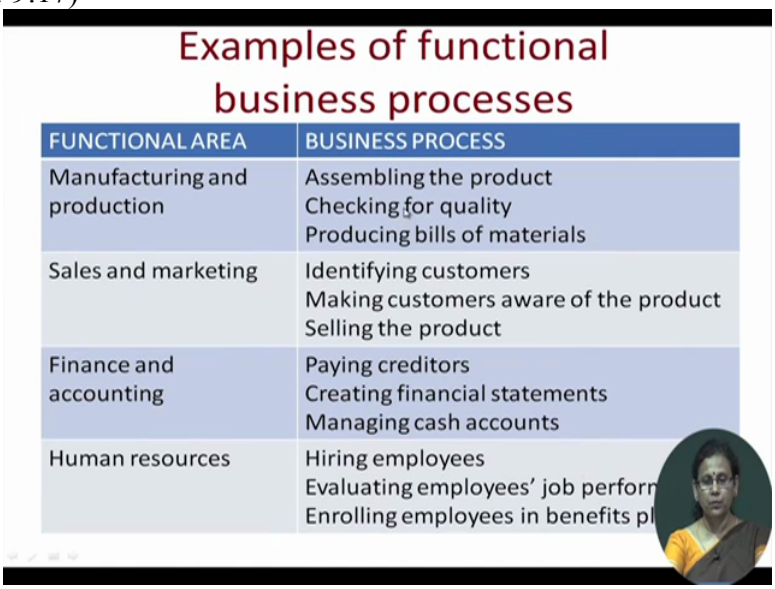
So again this intra organisational business process, it can be either functional or it can be cross functional.

(Refer Slide Time: 8:36)



So by functional and cross functional, we mean, look these are various functional areas of a business. Manufacturing, human resource, sales and marketing, finance and accounts, they are they are individual subsystems of this bigger enterprise system and in each subsystem, there can be one business process within a subsystem. This we call as our functional, intra organisational functional business processes. So again, there are business processes which are within your organisation but they connect across the functional areas.

(Refer Slide Time: 9:17)

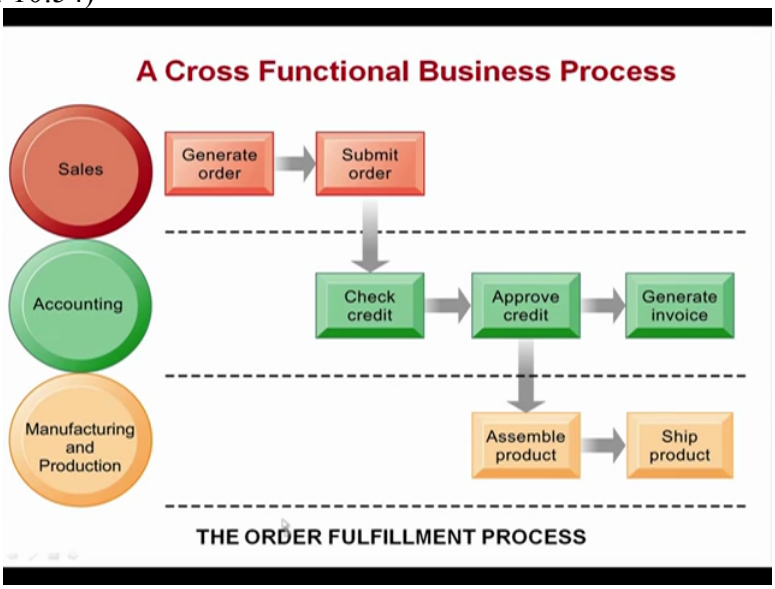


Now let us look at few examples of functional business processes. So this functional areas as we have discussed, there are 4 functional areas-manufacturing and production, sales and marketing, finance and accounting and human resources. Now look at these business processes. Within manufacturing and production, look at these 3 business processes. In fact, I am not telling that there is only these 3 business processes but there can be many more business processes which are functional and they exist within this.

For example assembling the product, checking the quality, so checking the quality do not require the involvement other functional areas. So we can say it is within very much within the manufacturing and production. Similarly, production of bill of materials. It is again within the within the purview of only one department. Similarly, if we look at the sales and marketing, identifying customers, making customers aware of the product, selling the product, so all these things are happening within the sales and marketing subsystem.

Similarly, coming to this finance and accounting subsystem, paying to the creditors, creating financial statements, managing cash accounts, all these are tasks which happen within this system, within this subsystem. Similarly coming to human resources, hiring of employees, evaluating employees job performance, enrolling employees' benefit plan, all these things happen within the human resources.

(Refer Slide Time: 10:54)

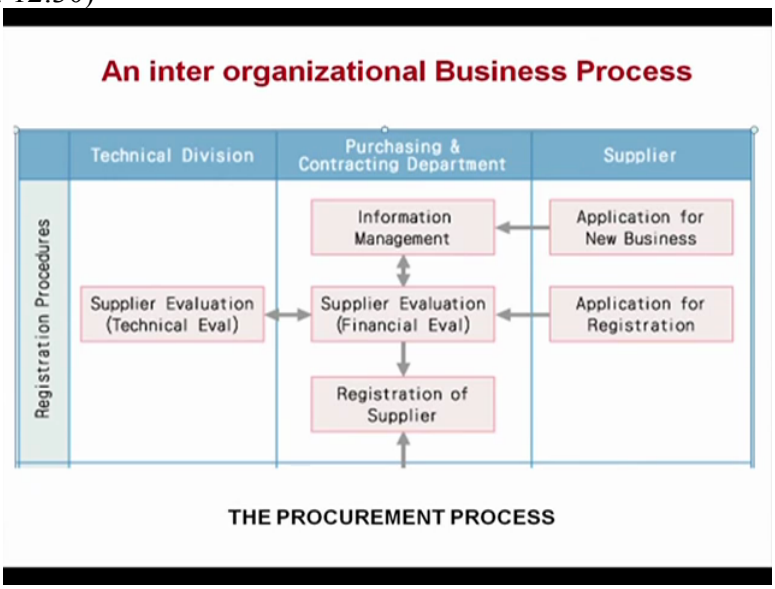


But there are some business processes which need to span across the functional areas. Look, as I was talking about, this is a order, in fact, I started with this example. Look at this order fulfilment process. Here, 3 departments are involved, sales, accounting and manufacturing. What the sales department does? It generates the order, it submits the order and order is sent to the accounts department, the accounts department checks the credit and approves the credit if sufficient credit is there.

Then once the approval is made by the accounting department, it is sent to the production department and where the production possibly is the item is produced or assembled and there is a material flow here, it is shipped to the customer which has placed the order and at the same time, your accounting department parallely generates the invoice. Both these things are sent to the customer.

Here we are not showing the outside agency, that is the customer. In fact, there will be information flow from customer from the organisation's enterprise system to the customer and the material will flow from organisation to the customer. But the point that I am going to make here is, 3 different departments are involved over here.

(Refer Slide Time: 12:30)

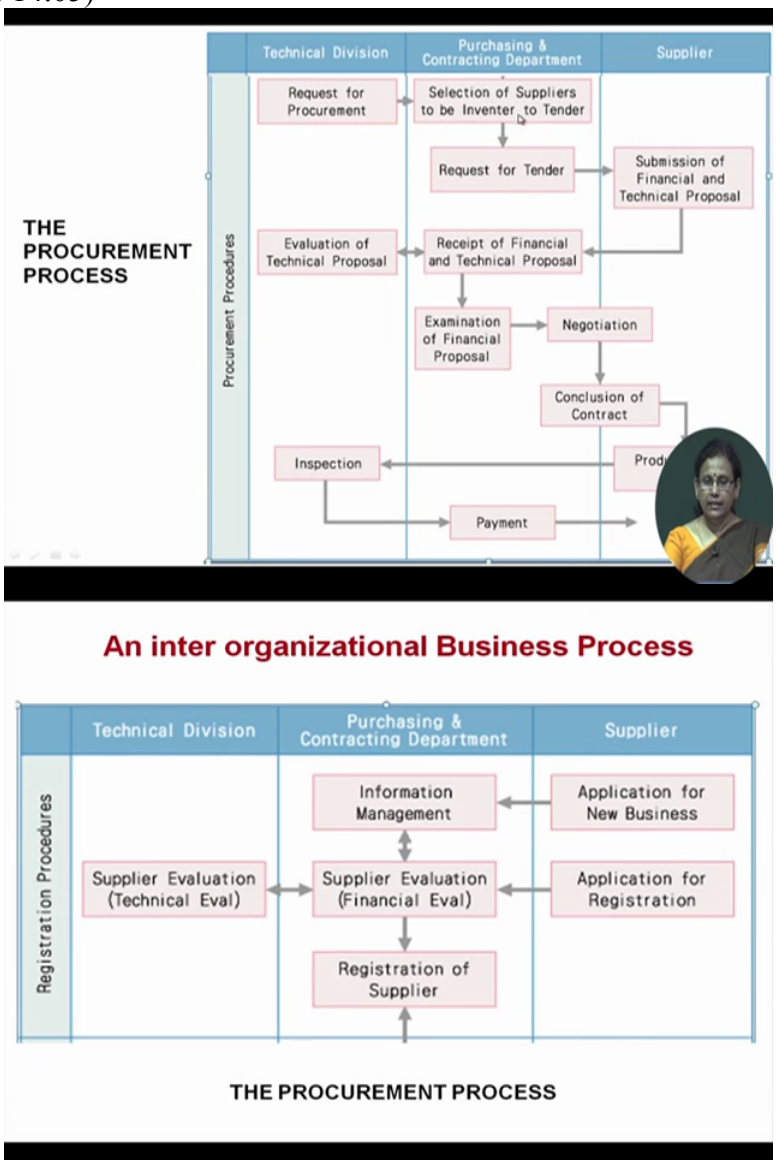


Now take the case of one interorganisational business process. Now what is an inter-organisational business process? The business process that spans across the organisation. It is no more included within one organisation. Now look at the one business process for procurement for purchasing. So what happens? The 1st 2 division, this is a typical process, I do not say that this particular process is followed everywhere, this is a typical process where besides the organisation, look this particular organisation.

In fact, two departments of the organisation are involved, one let us say technical division, another is purchasing or contracting department and one supplier is involved. So how the information flow and how this thing is connected? So in fact this procurement process has many steps, 1st one is your vendor registration procedure. In this vendor registration procedure or the supplier registration procedure, the supplier made the application to the purchasing and contracting department, then supplier evaluation takes place.

Then he registers for the application and this technical division is sent, is asked to send the supplier evaluation report and finally the registration happens.

(Refer Slide Time: 14:05)

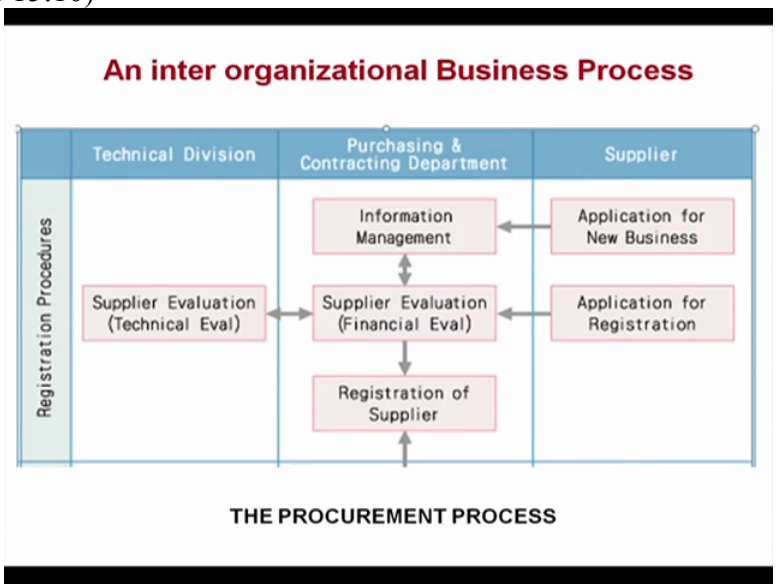


After the registration is over, the procurement procedure is followed. Here what happens? The supply here the request for procurement is generated by the technical division, it is sent to the purchasing division for selecting the suppliers, then the purchasing division requests a tender and in fact, as we have shown earlier, when suppliers are already registered for this business, out of

those registered list of vendors, to some of the vendors, the appropriate vendors the request for tendering is sent.

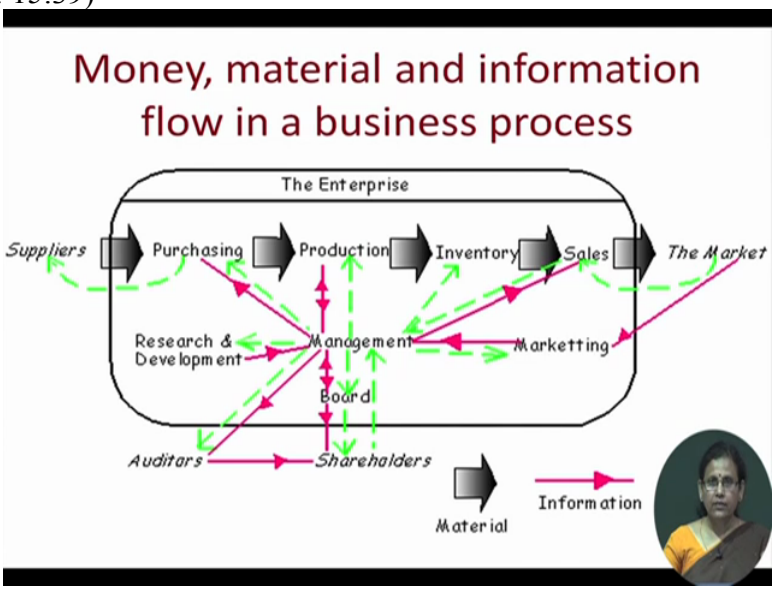
Then the suppliers submit their technical proposal, then after receiving this financial and technical proposal, this technical proposal evaluation takes place. Then once they are technically qualified, this financial proposals are evaluated, then negotiation is made to the supplier and so on. And finally, payment process is initiated.

(Refer Slide Time: 15:10)



The point that I am going to make is here, look at, here there is a information flow from supplier to the organisation. Within the organisation, there is information flow, there is vertical flow of information as well across one department and again there is information flow from the supplier. Here also, look information coming from the supplier, it is going back to the supplier. And there is information flow within the organisation as well.

(Refer Slide Time: 15:39)



So as I have told you already, the organisation, when we look at a business process, a business process is not only the flow of information. In fact, what we have? We have, so far we have discussed that there are 2 broad category of business processes, 1st one is intra-organisational, that is within organisational and another is interorganisational. And within intraorganisational, that are again 2 broad categories, within the functional area and across the functional area.

And there is interorganisational business processes as well which is across the organisation. And I have already told you, from the business processes, not only the information flow, it is the flow of information, material and money. This is a typical scenario which indicates this. If we consider this is the enterprise with its boundary and this is the material flow, this is the red one is the information flow and green one is the money flow and the purchasing process that we are just now we were discussing.

Material comes from the supplier to the enterprise, to the purchasing department, to the production department, then inventory and finally the finish product is made and it is sold to the market. This is how the material flow. And accordingly, the information flow, from the management to the purchasing department, from the production to the purchasing department and so on, from the research and development department to the management and so on.

And money in turn after getting the material, the money also flows from the market to the organisation, from the organisation to the supplier and if the organisation makes the profit, then it goes to the shareholders as well and shareholders invest to the management. So every business organisation if you see and any business process in particular, this is actually multiple processes, if you look at business processes, there is always 3 different flows are possible, flow of material, flow of information and flow of money.

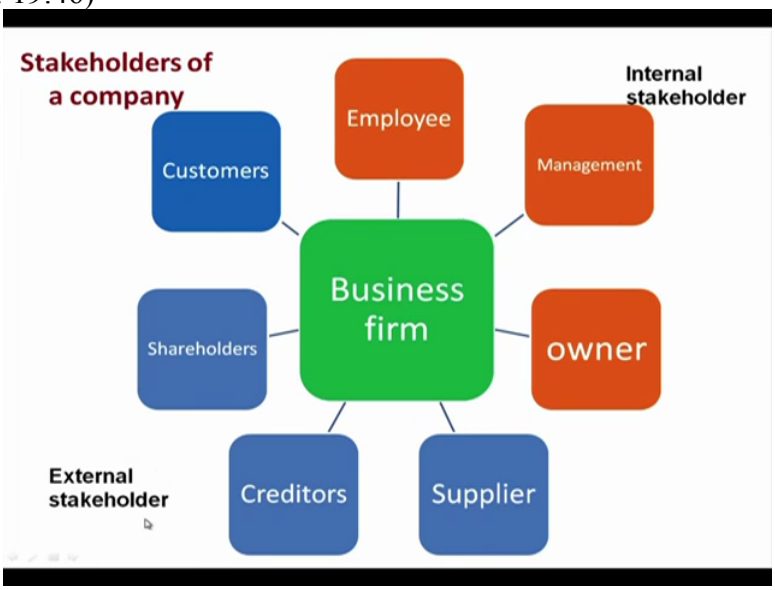
But what we are most concerned here is the flow of information. In fact, I would like to tell you that when we talk about, in fact let us go back to the slide and have a look at it, when we talk about this flow of material and low of money, in fact they in both material and money, there is one information component. What is this information component? Consider the material is flowing through the supply chain.

So when the material is going through various stages, that information needs to be tracked by the organisation. So there is, along with the material, the information flow also occur. For example, if you are sending material, along with this you are trying to send the advanced shipping notice, this advanced the notice can go online while the material go on its, while there is a physical flow of material, there is online flow of the document.

So the advanced shipping notice of this let us say payment information, invoice, all those things can be sent through information and communication technology, specifically through Internet. So whether it is material or money, similarly for money. For money also, you have through bank, you can have electronic transaction. So when the money flow, when the funds flow, there is also one information component associated with it.

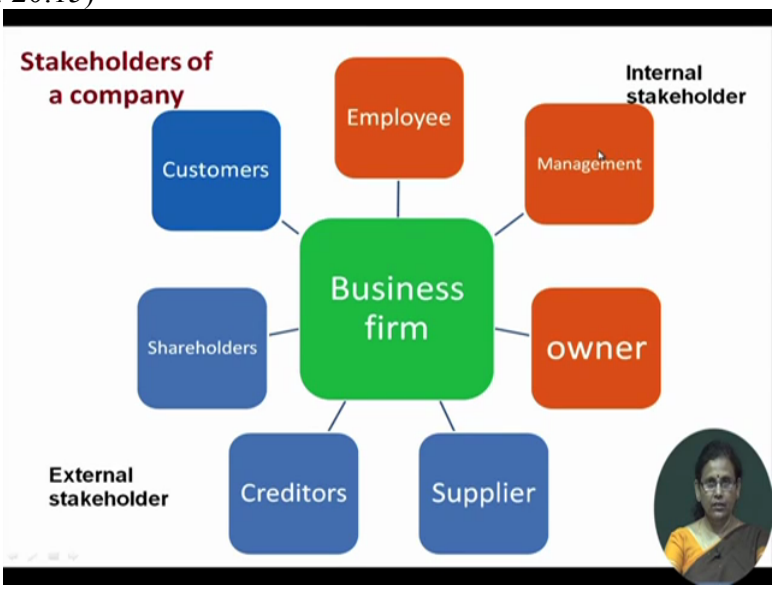
So information is the point that I am going to make is information is everywhere, whether it is material flow or money flow, some information flow is also associated with them.

(Refer Slide Time: 19:46)



Now look at this, we have we have already discussed little bit, we are going to discuss little bit more. In fact, if you look at the stakeholders of a company, the stakeholders can be classified into into 2 parts, some are internal stakeholders, and some other external stakeholders. The internal stakeholders are employees, management and the owner of the firm. And the external stakeholders are customers, shareholders, creditors and suppliers.

(Refer Slide Time: 20:15)



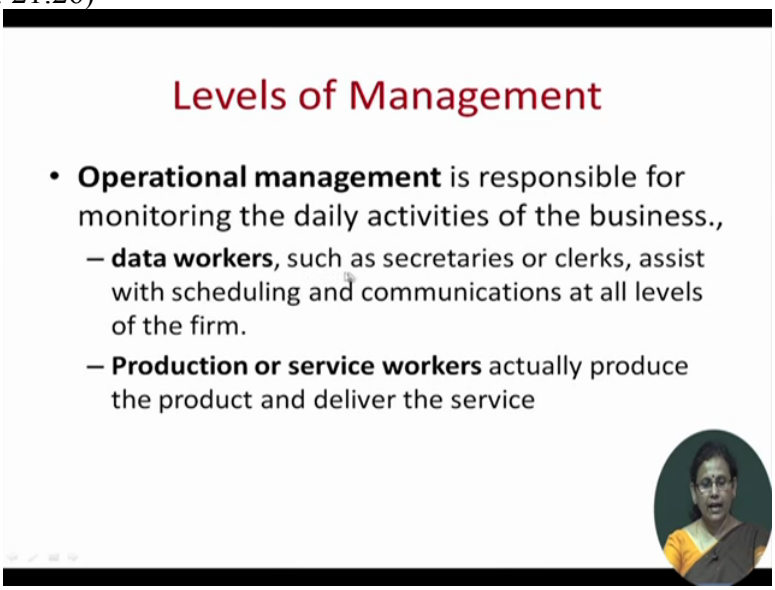
So this when we talk about this internal stakeholders, and specifically the management , the management is again is of 3 types. 1st one is senior management which makes the strategic

decisions, then you have the middle management which consists of scientists and knowledge workers like engineers, et cetera who are at the tactical level and finally we have the operational level management which consists of production and service workers and data workers.

(Refer Slide Time: 20:49)

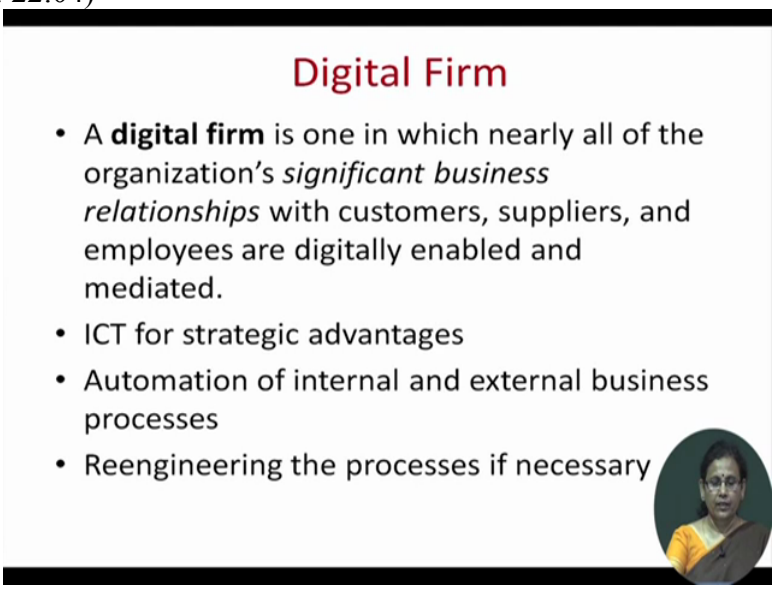
Now in this senior management, they take long-range strategic decisions about products and and services as well. And they ensure as well as ensure the financial performance of the firm. This middle management carries out the programs and plans of the senior management and they consist of knowledge workers such as engineers, scientists, architects, product designers, designers of products and services, and they create new knowledge in the firm.

(Refer Slide Time: 21:26)



And finally you have the operational level of management which is responsible for monitoring the daily activities of the business. It consists of 2 types of entities, 1st one is the data worker. They are actually the secretarial employees who are, can be either clerk, who assist with scheduling and communication at all levels of the firm, then you have this production of the service level worker who actually produce the product and deliver the services.

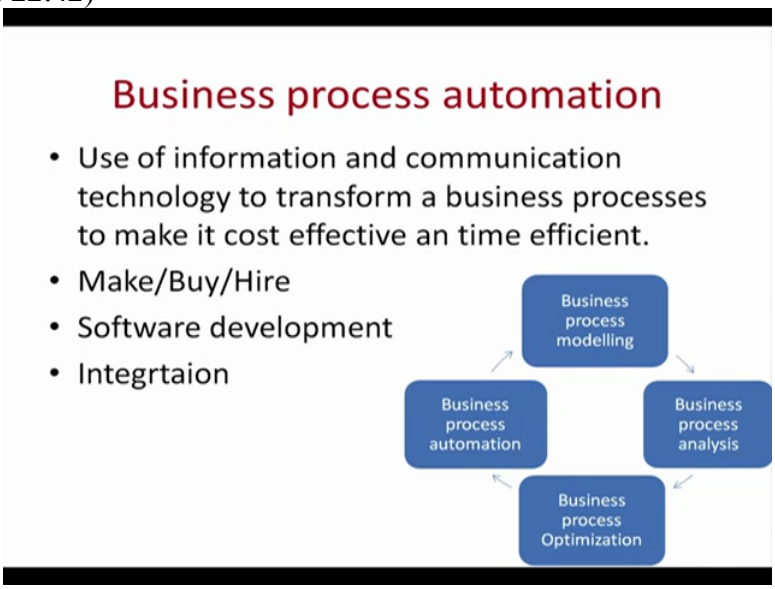
(Refer Slide Time: 22:04)



Now let us try to understand what a digital firm is. A digital firm is one in which nearly all of the organisational significant business relationships with customers, suppliers and employees are

digitally enabled and mediated. These such firms, such digital firms use ICT for strategic advantages and there is automation of internal and external business processes and if necessary, they such organisations actually re-engineer their business processes.

(Refer Slide Time: 22:42)



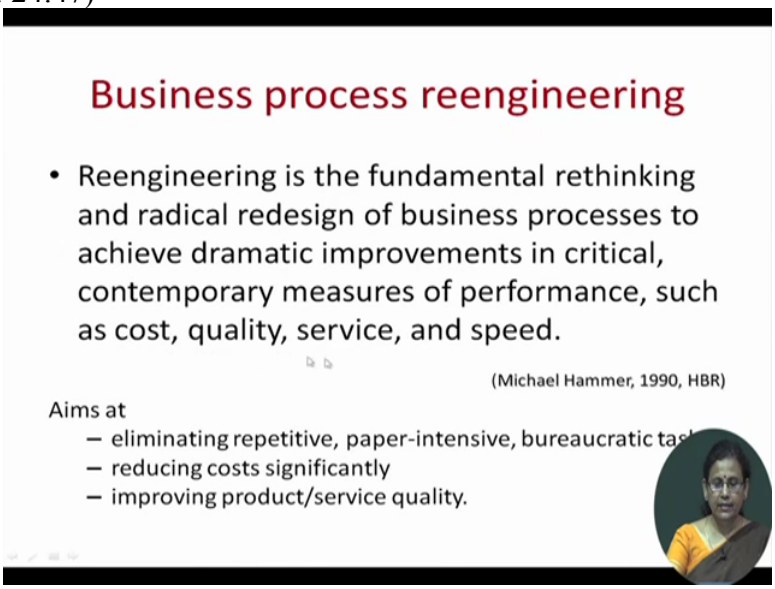
Now this organisations actually, as I have told you already, this e-business is about automating business processes. These business processes can be internal, intra-organisational, within the organisation, or it can be interorganisational but it is about automating the business processes. Now what is this business process automation is all about? It is the use of information and communication technology to transform a business process, to make it cost-effective and time efficient.

So here you have to decide whether to make or buy or to hire. By making, we mean whether we actually use our resources we use the resources of the organization to make a software for the business process or we buy the software or we take the help of some 3rd party service providers, let us say nowadays there are many e-procurement service providers. Through the e-procurement service provider whether we would like to hire their services.

And it is about software development internally or externally and integrating the business processes. In fact, it started with business process modelling, then business process analysis, then business process optimisation and finally you automate. You model the process, you see that

where all lackness lie, you try to remove those problems that exist in the current process, you try to optimize it, you minimise the time required to carry out the process and finally you automate it. By automation, we mean we develop a software or we buy a software or we the take the help of a 3rd party to execute that service, that business process in a faster way.

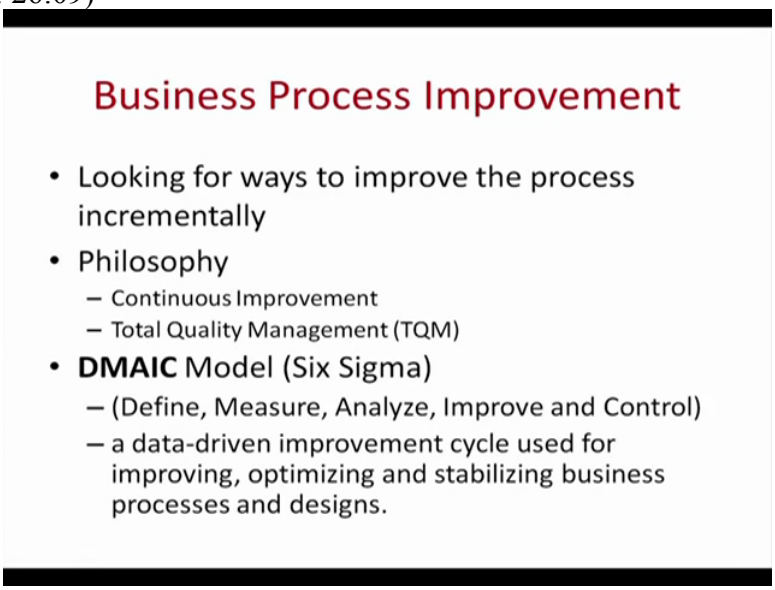
(Refer Slide Time: 24:47)



Then this business process automation sometimes requires business process reengineering. What is business process reengineering? It is, business process reengineering is not business process automation. When we say business process automation, it is about existing business process baby, whatever is the process existing, we will be converting it to, we will be automating it using software, using information communication technology. But when it comes to business process re-engineering, it is about fundamentally rethinking and redesigning the business process.

And in fact, as it has been defined by Michael Hummer, this business process reengineering is the fundamental rethinking and radical redesign of business process to achieve dramatic improvement in critical contemporary measures of performance such as cost of quality, service and speed. Such reengineering aims at eliminating the reputive, paper intensive, bureaucratic tasks which ultimately reduces the cost significantly and improves the products, service and quality.

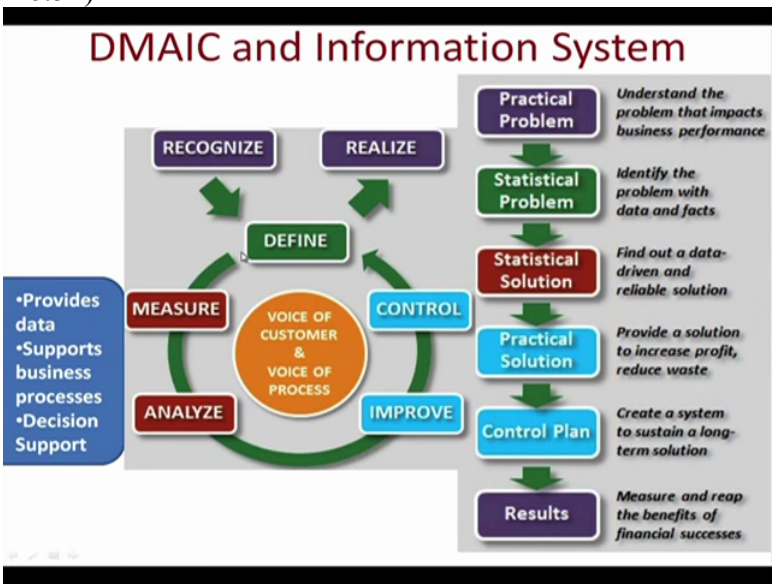
(Refer Slide Time: 26:09)



And when we look at the business process improvement, in fact business process reengineering is about business process improvement. When we talk about the improvement, naturally the philosophy, the 6 Sigma philosophy comes in and this DMAIC model that is define, measure, analyse, improve and control automatically is comes into picture. So in this particular model, the basic philosophy is the continuous improvement using this TQM approaches.

And this model is basically data driven model used for improving and optimising and stabilising a business processes and business designs.

(Refer Slide Time: 26:52)



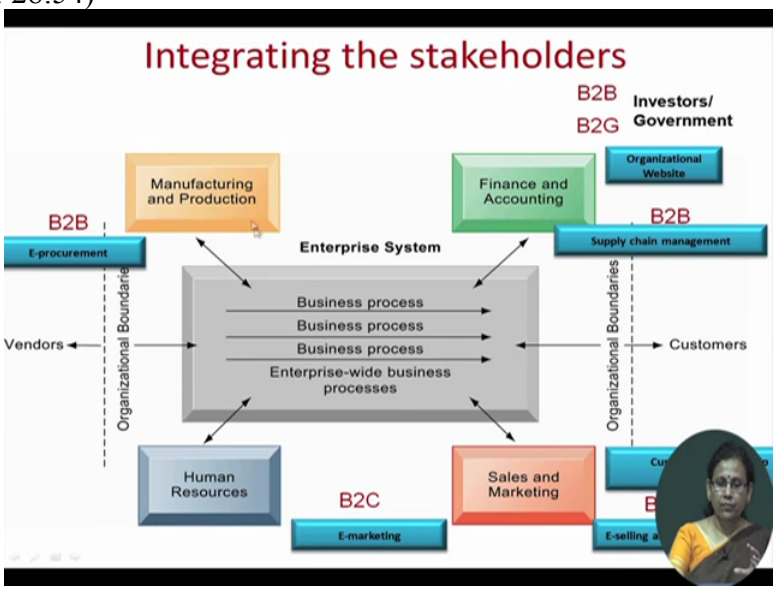
In fact if we look at what is the role of the information system, in fact we are going to, in subsequent lecture, we are going to formally define the information infrastructure. But right now I would like to tell you because now the we are trying to connect this DMAIC model with that of the information system what I would to tell about the information system is it is a system which actually automates the business processes.

In fact, in a information system, you have not only the data, but you also automate the workflow that happens across the organisation. In fact, when we talk about this DMAIC model which is about DEFINE and DEFINE is about identifying a practical problem and you know understanding its impact on the business. Then you from the practical problem, you bring it to a statistical problem.

Then you make a statistical solution, then you make a practical solution of it and finally you decide a control panel. Now what is the role of, the role of information system here is identified the problem while defining the identifying the problem and measuring the through some sort of performance indicator, wherefrom the data will come. You need some kind of organisational depositor data from which you will be getting for the statistical model that we were discussing, for the statistical model we will be getting the data.

So the role of the information system is to provide the data, to support the business processes and finally they provide decision support for improving the process.

(Refer Slide Time: 28:54)



So far we have discussed that this organisation has two category of business processes, internal business processes and external business processes, intraorganisational or interorganisational. And when it comes to interorganisational business processes, naturally, the kind of transactions that we have talked about, this B2B, B2C, B2G, et cetera comes in.

In fact, beyond the organisational boundary where your enterprise system which is the information system which provides the data for process improvement, process reengineering and as we have discussing for DMAIC model, for building the statistical model, for measuring the process and ultimately taking a decision to find out the (())(29:47) and the process and ultimately to optimise the process, the data comes from this enterprise system. And it is not only the data comes from this, within organisation system, it also comes from across the organisation systems.

It So there are other systems as well besides this enterprise system- e-procurement system, e-marketing, e-selling and distribution, customer relationship management, supply chain management and organisational website which actually connects the organisation to its investors and government agencies. Okay, from next class onwards, we will be talking more on this information system aspect of the business. In fact, I have already told you that e-business, this topic is an offshoot of Information Systems. So understanding the information system is an integral part of this particular course. Thank you very much.