Usability Engineering
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Module - 04
Lecture - 12
Requirement Analysis - I

Welcome to lecture number 12 module 4. In this session also, we would continue our discussion on user study and we will also focus on stakeholder analysis.

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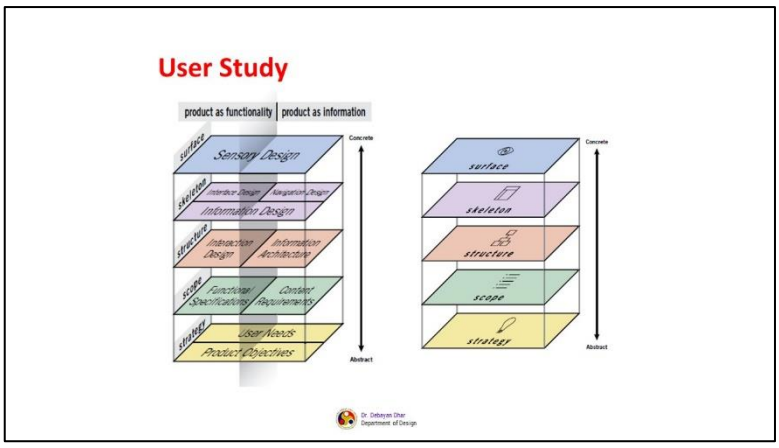

I would like to draw your attention to the Jesse James Garrett's model that we have discussed earlier. If you remember during the discussion initial discussions we elaborated on the five planes that Jesse James Garrett model suggests and these five planes are the strategy plane, the scope plane, the structure plane, the skeleton plane and the surface plane.

Now, these five planes these runs from being abstract to being concrete; that means, things that are visible to us or to our users. So, this is the final UI this is actually the user interface that we are being referring to by the word surface. Now, if you see the similar the plane that is there in the left-hand side you would see the relational attributes of each of these planes with the Jesse James Garrett model plane.

The strategy plane relates with the user needs and product objectives the scope with the functional specifications and content requirements structure with interaction design information architecture, skeleton with interface design navigation and information design

and the surface with the sensorial design that is on that is the UI or the user interface, we have discussed about all these in detail.

Now, what I would like to attract your attention to is that we are discussing on user needs identifying requirements addressing the unmet needs. So, this is the phase where we are starting to build up the strategy for our user interface, strategy for our user interface. So, here what we are essentially going on to do is we are going to define our user needs and the product objectives. This will in turn influence how we define the content requirement and the functional specifications. So, let us start discussing on these specific objectives.

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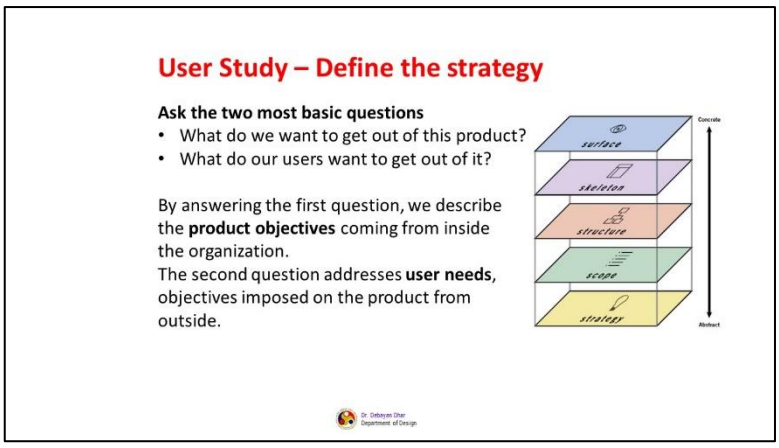

Now, the most basic questions the two most basic questions that as a designer or as a design team you should ask, while you are trying to define the strategy of your product design or your software is, what do we want to get out of this product? Remember the this is the product that we are referring to is actually the anticipated product; that means, you are yet not defined the actual requirement and therefore, you have an idea that you want to come up with a product to address a requirement.

So, what should be the product be? So, the first question that you should answer try answering is, what do you want to get out of this product that you want to design and what do your users want to get out of it? So, there are two things there is a product that you want to design and you want to design this product for a particular group of users and you want the product to address the unmet needs of your users.

So, by answering the first question we describe the product objectives that is what is important for us to now define. And this product objectives, comes from inside the

organization. So; that means, if we are part of a organization and we are building this product as a product that is being offered from that organization or if we are a start-up then these project objectives should be defined and it should have a allegiance to the organization; organizational principles, organizational visions.

The second question that addresses that we ask that what do our users want to get off of get out of it is generally addressed for I am identifying the users' needs right and objectives imposed on the product from outside. So, this is the product you have the organizational objectives and you have the user sub objectives right. Both of them are being used to define the requirements that are fit into the product. And that is what we actually call as the strategy based on which our product line or the innovation towards the product design happens.

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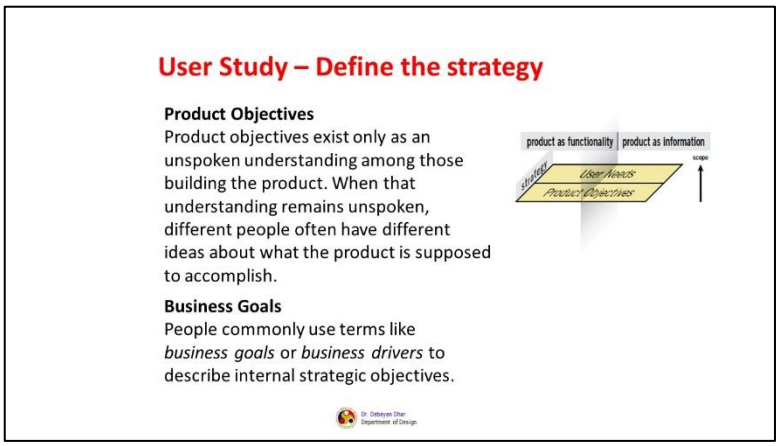

So, product objectives exist only as an unspoken understanding many times this happens that when you are working in an organization or you are working in a team. All of us know that ok, these are this is what we want to do I mean that that is what the overall vision of the team is or the organization is probably.

We would earn money out of it we would get return on our investments that is a goodwill that we have gathered in our garnered from the users based on our brand identity of our organization. And therefore, we would like to offer the user some more additional benefits or additional features for the products so on and so forth.

So, many things are undefined; that means, they are not clearly stated and written down in a piece of paper, but people in your organization or your team members might be aware of

it they are not very much clearly articulated, but they are aware of it. And when those understanding remains unspoken different people have different ideas about what the product is supposed to accomplish.

Now, the issue arises when these objectives are not coherent in nature; that means, unless things are being written down in a piece of paper and shared across the team members. All of your team members would not be at the same plane or the same frame of reference, that this is what we want to achieve as an organization that is what our vision is.

And therefore, because of this not being spoken clearly or being articulated clearly there is often a difference in between the team members or the organizational members in the way these objectives are being interpreted or understood. Now, generally business goals or the visions of the organizational business policies drive a lot of this product objectives and people commonly use these terms like business goals or business drivers to describe internal strategic objectives. And these are the important cursors that define the strategy plane in the Jesse James Garrett's model.

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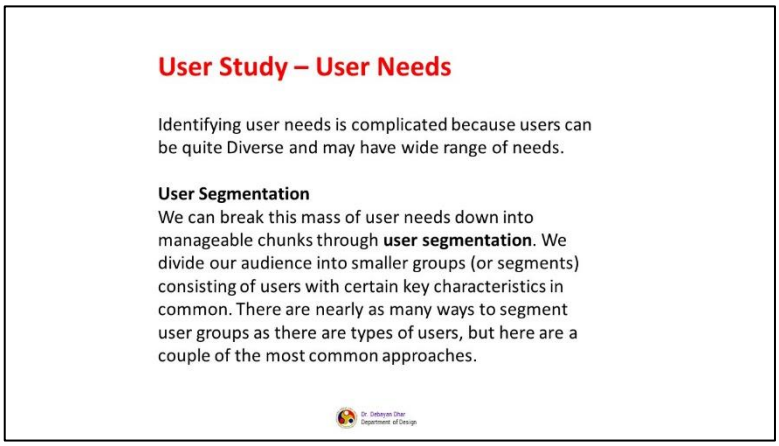

So, identifying user needs is a complicated situation, is a complicated task we have been discussing about this in some in the last subsequent lectures and because users are actually diverse and they have they may have wide range of needs. I mean consider our country India only you have so many zones in India so many states in India so, many cultural entities are there so many diverse languages are spoken each person coming from its particular state has their own lifestyle has their own customs, has their own food habits, has their own language and their own cultural beliefs.

I mean in a country like India, where you see such diverse population you can imagine the range of requirements and needs and how diverse those needs will be and therefore, it is important that while you conduct user study you specifically define the various segments that collectively share similar beliefs across themselves.

So, we can break this huge population or the user group that we have in terms of the user needs down into manageable chunks and the way and the way we break it down and we break it down into manageable chunk these chunks are called user segments. So, we divide our audience or our users into smaller groups and these groups are called segments.

Consisting of users with certain key characteristics in common, these groups has certain key things key characteristics, key parameters that are shared across the group members. Now, there are nearly as many ways to segment user groups and there are many various ways through, which you can segment these user groups, but there are some most common ways to segment these users in terms of the smaller groups.

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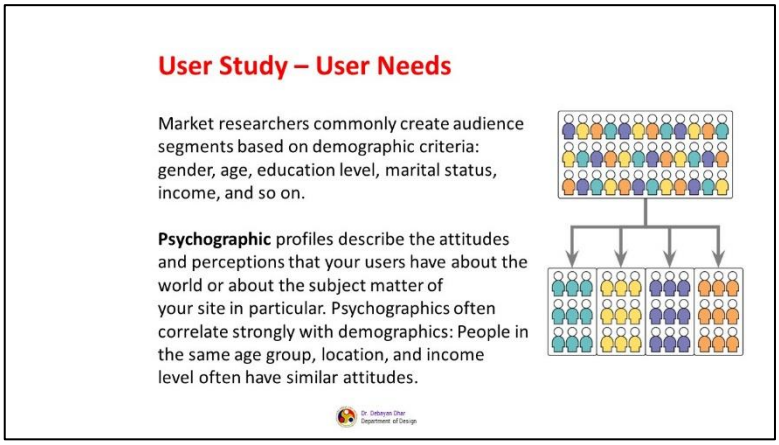

Market researchers commonly create audience segments based on some basic parameters and these parameters are called as demographic data, what are these this can be gender, then age, then education level, then marital status income and so on and so forth even ethnicity you know ethnicity can become another cluster right.

So, these are some of the ways there are many ways still possible these are some of the most basic ways through, which marketing people or the market researchers they classify user segments. There is also another way through which we can classify users in terms of

the segments and those are based on psychographic profiles describe the attitudes and perceptions, these are important aspects of a psychographic profile.

They explain or the inherent connection between a group is the perception and the attitudes, that your users have about the world or about the subject matter of your site in particular. Now, psychographics often correlates strongly so, they correlate strongly with the demographics; that means, these attitudes have a strong correlation either with gender or age or with the educational level the income or with ethnicity.

So, each of these demographics has a strong correlation with the psychographic parameters and people in the same age group location and income level often share similar attitudes. So, therefore, you have this heterogeneous user group from where you can identify this clusters based on these parameters, and why this is important?

Understand that if you have a diverse range of users and if you try to understand them without understanding the shared properties you may end up with various different requirements, various different situations which would be overwhelming for you as a user.

So, instead of looking at a heterogeneous structure if you focus on users across the segments and these segments are based on parameters, which share similar characteristics across the segments then you would see what you would see that the issues the reactions the work practices the motivation the frustrations are to some extent similar and there is a pattern across these homogeneous user segments.

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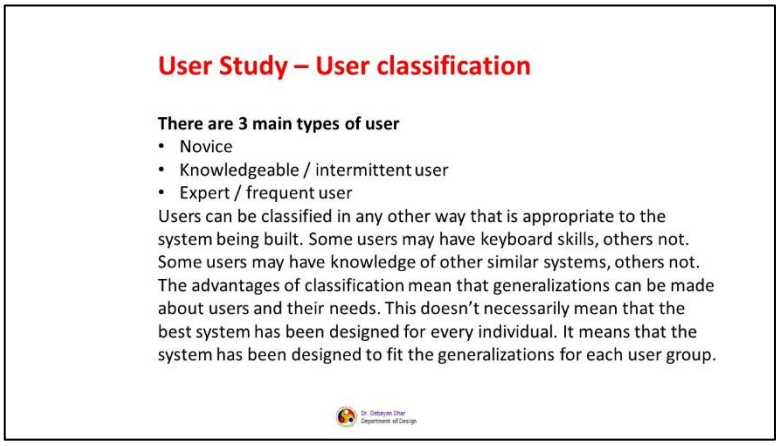

Now, there are three main types of users or we can say that users are classified into three main categories and these are the novice user types the knowledgeable or the intermittent user types and the third one is the expert or the frequent user types. Irrespective of any domain irrespective of any situation you will have these three major classifications of users.

Now, users can be classified in many other way you know and some users can have you know high degree of keyboard skills like they can type very fast others may not be able to do that while some have a high very high degree of knowledge about a particular field of science or of a particular system others may not.

So, the advantages of classification mean that generalizations can be made about users and their needs this does not necessarily mean that the best system has been designed for every individual, it means that the system has been designed to fit the generalizations for each user group.

Understand this word when it means, what it means generalizations. See when we are going for a user study say for example, we have around 10 users and we try to identify their issues the focus for our user study should be the patterns of the frustrations that each one of them faces right.

And what are the similarities these this group share? Now, what you will see is that some of them are really unique while some have something in common and these are the generalizations that we are being referring to. Now, if you see here you will see there are 10 users and out of these 10 users I have coloured them in some way and you would see number 1 2 6 8 9 10 they shared the similar pattern; that means, this box this box and this box share the similar pattern.

While these two also say 4 and 5 also say similar, but they are in small number. So, the largest number among these 10 users are the 6 number of users that share similar pattern, this is the generalization that we are referring to. The overarching pattern that we intend to see across our users and these patterns are of what these patterns are of frustrations ok, their pain points ok, their breakdowns any other issues that concerning them ok.

So, we are focusing on these major patterns and therefore, breaking them into segments while we are studying them is very important because in that way what we ensured that

we see that there is a group of users that share similar categories. There is homogeneity in terms of the characteristics of the user when you go for heterogeneity because of diverse user characteristics.

And because of the diverse psychographic characteristics, individual characteristics and other demographic characteristics their reaction to a particular situation might differ and therefore, we might not be able to identify these generalizations these patterns and hence we must go for these users segments. The most common of them is identifying users by novice users who are knowledgeable; that means, they are intermittent and users who are expert. We will discuss about them in detail in subsequent slides.

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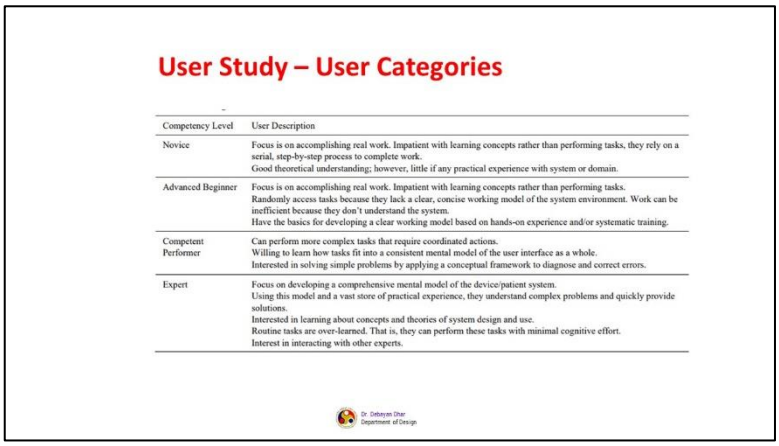

Now, how are these a novice user behaves how do a knowledgeable user behave what are their characteristics, how are experts behave we would know from this slide, the novice users their focus is on accomplishing real work. So, their objective is to accomplish a particular task. They impatient with learning concepts rather than performing tasks, their focus is on learning the concepts they rely on a serial step-by-step process to complete the work good theoretical understanding.

However, little if any practical experience with system or domain; that means, they have highly any experience with the media and the media means the UI. Now, why I am referring the UI as a media? Understand that the interface that you are presenting to your user is only the medium through, which your user is trying to finish an objective or finish a task that is the goal of your user.

Therefore, for a novice person he is he has never used your system he has never been exposed to your UI so, he though he knows how to complete the task, but he does not know how the interface features needs to be used in order to accomplish the task. So, for him he lacks the gulf of execution between conceptual model of the product and the mental model of this novice user is huge.

And therefore, he has to execute now, why this is huge? This is not this is not huge because there is a there is an issue with the conceptual model of the product node it is not that. It is because this person has never used this kind of interfaces before and therefore, this kind of users does not have any queue any past memory of how to accomplish task using this interface.

They will take a little bit time to learn these things and getting a custom to complete the task using these interfaces. Then we have advanced beginner, so these two are generally clubbed I mean these are what we call as the knowledgeable user they are the intermittent ones ok. They are in between the novice and the expert these are the intermittent group and here you have the advanced beginner and the competent performer.

Now, for the advanced beginner the focus is on accomplishing real work they are impatient with learning concepts rather than performing task. Randomly they access tasks because they lack a clear concise working model of the system environment, the work can be inefficient because they do not understand the system.

They have the basics of them for developing a clear working model based on hands on experience and or systematic training. And the competent performer they can perform complex tasks that require coordinated actions. So, difference is here complex tasks. So, while the novice goes for a step by step process they go for a random-access task there is there is very high degree of randomness in the way they access the task. They and the competent performer they are willing to learn tasks, they fit into a consistent mental model of the user interface as a whole.

They are more interested in solving simple problems by applying a conceptual framework to diagnose and correct errors; that means, the focus is more on adapting to the system rather than you know any other focus on learning the UI basic features of the UI.

So, they focus on how after committing an error they can recover from it and still continue using the system and the expert users focus on developing a comprehensive mental model see the difference. So, here the focus is on developing a comprehensive mental model and using this model and a vast store of practical experience they understand complex problems and quickly provide solutions.

They are interested in learning concepts and theories of system design use see how the requirements and the motivations change as they migrate from being novice to the expert. Routine tasks are over learned that is they can perform this task with minimal cognitive effort.

So, now what happens once a person becomes expert he has done so, repeated activities with the UI the focus is more on completing the efficiency of reaching the goal objectives right. The focus is not on learning the UI or the features. Now, being an expert he takes quick routes for task completion he take the shortest possible route to complete the task right.

So, routine tasks are over learned that is for that is what we have been mentioning that routine tasks are overland and that is they can perform this task with minimal cognitive effort their interest in interacting with other experts. So, these are the specific features of the various user categories which are novice knowledgeable; that means, intermittent, which can be classified as advanced beginner and competent performer and the experts.

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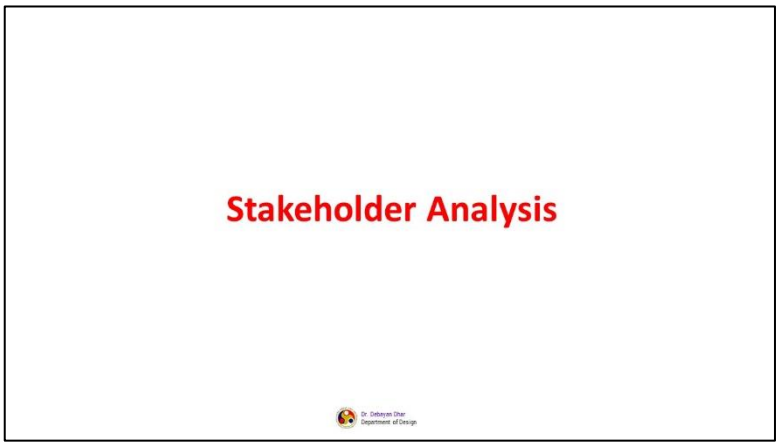

With this we will now move on to discussing about stakeholder analysis. Now, why this is important? See, in any of the design projects or a while you are developing or you intend

to develop a software product is important that you understand who are who would have a direct effect from the work that you are doing and, in that way, they can influence the work objectives as well.

So, therefore, to have a comprehensive plan regarding how you deal with each of these stakeholders or that is what we refer to them it is important that you analyze their behaviours you analyze their requirements and you accordingly react to their requirements.

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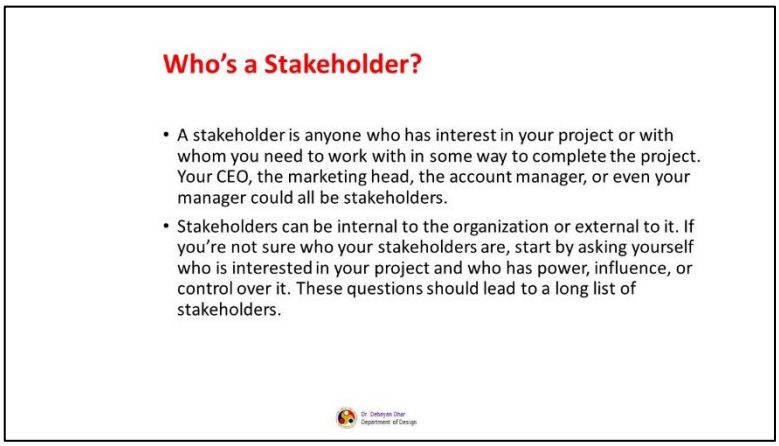

Now, a stakeholder is anyone who has interest in your project. So, I am not saying that this is the person who is going to invest money in the work that you are going to do what I am just trying to explain is that, this can be any type of users or any type of people who essentially has an interest in the project or the work that you are doing.

With whom you need to work within some way to complete the project. It can be your chief executive officer, the marketing heads, the account manager or even your manager product lead could all be the stakeholders. So, a stakeholder can be internal to the organization or external to it.

If you are not sure who your stakeholders are, start by asking yourself, who is interested in your project and who has power, influence, or control over it. These questions should lead to a long list of stakeholders and then you start focusing on, what strategy to you employ to focus with to in start interacting with them.

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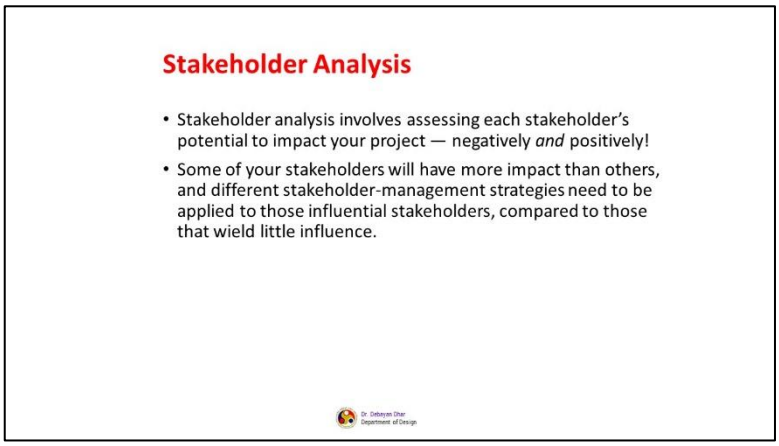

A stakeholder analysis involves assessing each stakeholder's potential to impact your project and these potential cans are can be positive or negative. Some of your stakeholders will have more impact than others and different stakeholder management strategies need to be applied to those influential stakeholders in comparison to those and that have little or less influence and those who have high influence.

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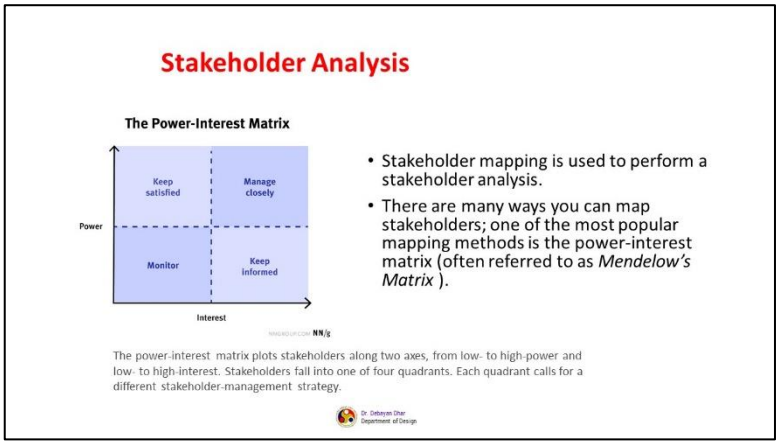

Now, what you see in this slide here is the power interest matrix. Here in the vertical axis what you would see is power and the horizontal axis is the interest and you see these 4 quadrants right. So, the 1st quadrant is of high power and low interest this is high power low interest, the 2nd quadrant is high power and high interest, the 3rd quadrant is low power and low interest while the 4th quadrant is low power and high interest ok.

So, these are the four quadrants we have and the high-power low interest is the quadrant that we call as the keep satisfied quadrant the high power high interest you need to manage them closely. The low power and low interest are the groups whom you need to monitor regularly and the low power high interest are the groups that you need to keep them informed.

Now, stakeholder mapping is used to perform a stakeholder analysis and there are many ways you can map stakeholders. One of the most popular mapping methods is the power interest matrix, which is often referred to as Mendelow's matrix. So, this power interest matrix that is highlighted in this slide which you can see is called the Mendelow's matrix. The power interest matrix plots stakeholders along two axes from low to high power and from low to high interest. Stakeholders fall into one of the four quadrants each quadrant calls for a different stakeholder management strategy.

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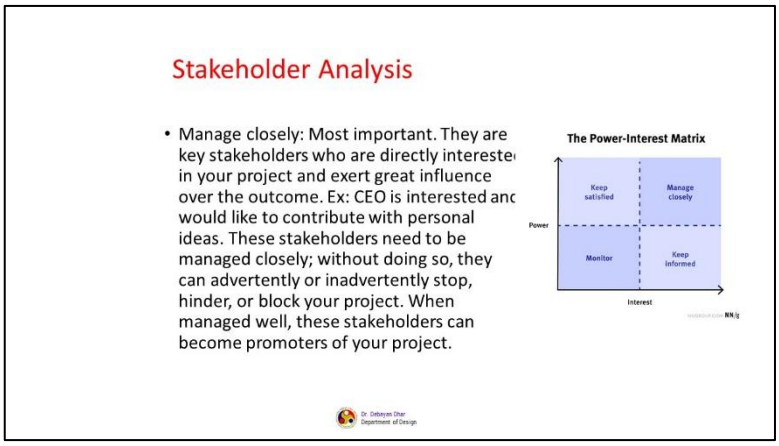

Let us start discussing about each of these quadrants, let us start with manage closely quadrant. Now, these are the most important stakeholders they are key stakeholders who are directly interested in your project and exert great influence over the outcome. Example your chief executive officer is interested and would like to contribute with personal ideas.

These stakeholders need to be managed closely without doing so they can advertently or inadvertently stop hinder or block your project. So, when managed well these stakeholders can become promoters of your project. So, these are the groups the people whom are the bosses of the organization.

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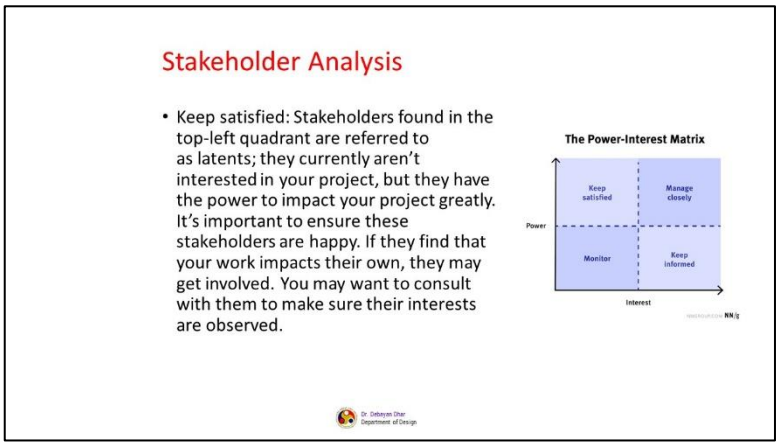

The next quadrant is the keep satisfied now these are the stakeholders found in the top left quadrant are referred to as latents, these are the latent stakeholders. And they currently are not interested in your project, but they have the power to impact your project directly. So, it is important to ensure that these stakeholders are happy if they find that your work impacts their own.

So, why they are called latent because they would not take that much interest unless and until they find out that your work impacts their own work they may get involved and that is why they are called as latent. So, you may want to consult with them to make sure their interests are observed.

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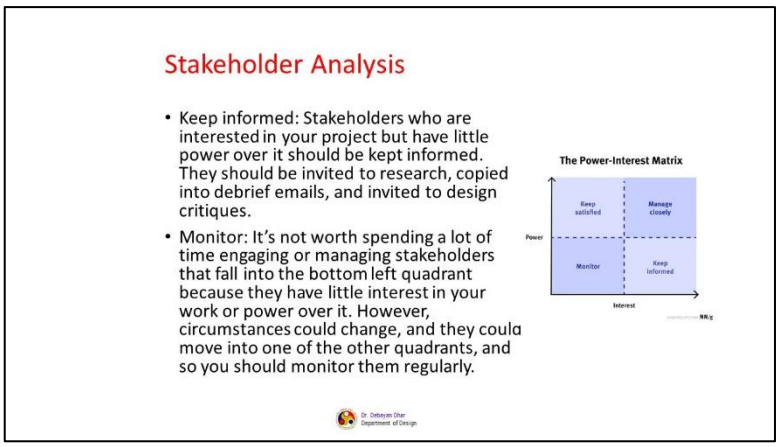

The third and fourth quadrants are the keep informed and the monitor group. So, the keep informed stakeholders are those who are interested in your project, but have little power

over it and they should be kept informed they should be invited to research, copied into debriefing mails and invited to design critiques.

The monitor stakeholders are not those stakeholders that is oath spending a lot of time engaging or managing because they fall into the bottom left quadrant and they have very little interest in your organization and also very little power over it; however, circumstances could change and they could move into one of those quadrants and. So, you should monitor them regularly.

So, what will happen? So, what will happen that they could move into one of those other quadrants and they should monitor so, you should monitor them regularly? So, these are these stakeholders who needs monitoring because they can move here or they can move here, they may go here, which is a very distant reality, but because they can move or shift to any of these quadrants therefore, you can monitor them need to monitor them regularly.

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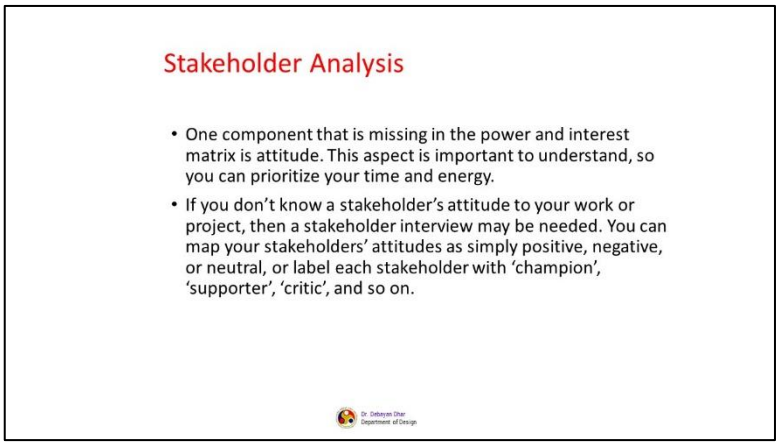

So, one component that is missing in this Mendelow's matrix is the power and interest matrix in the power and interest matrix is the attitude. This aspect is important to understand. So, that you can prioritize your time and energy, understand we are doing this in order to ensure how do we move in the project management while we are doing a requirement analysis phase. If you do not know a stakeholder's attitude to your work or project, then a stakeholder interview may be needed.

You can map your stakeholders' attitudes as simply as positive negative or neutral or label each stakeholder as a champion, supporter or critic and so on.

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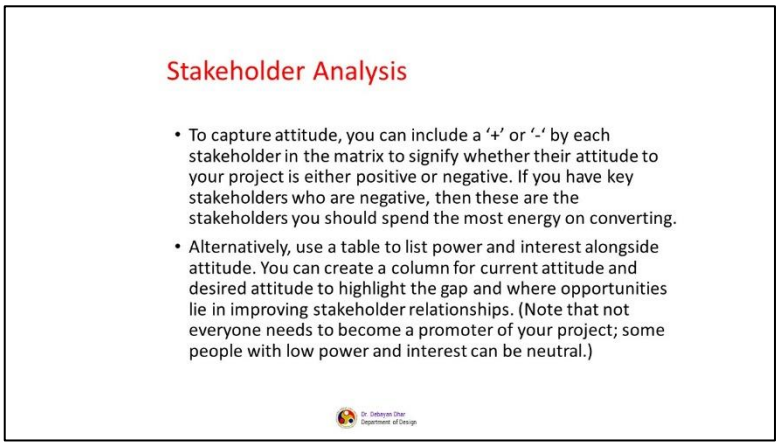

Now, to capture attitude you can include a positive or negative sign by each stakeholder in the matrix to signify whether the attitude to your project is either positive or negative. If you have key stakeholders who are negative then these are the stakeholders you should spend the most energy on converting.

Alternatively use a table to list power and interest alongside attitude you can create a column for current attitude and desired attitude to highlight the gap and where opportunities lie in improving the stakeholder relationships. You must note that not everyone needs to become a promoter of your project that is very important. Some people with low power and interest can be neutral. So, the focus is not to make everyone positive right the strategy is different.

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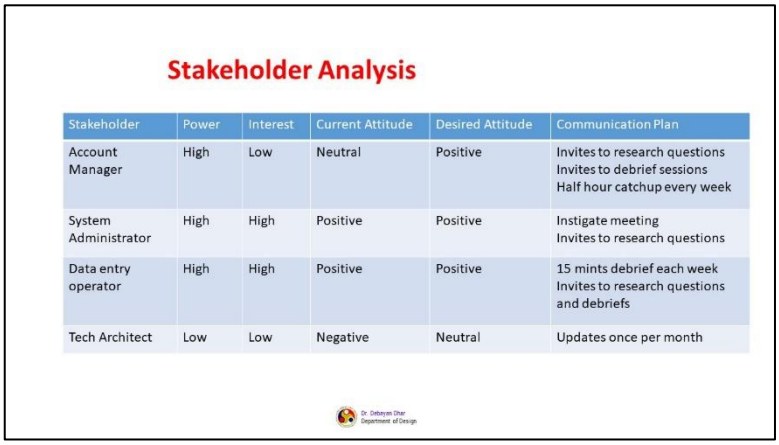

The strategies is neutrals can be made positive that should be the objective the negatives can be made neutrals ok. Now, you can see here this is a stakeholder analysis chart you can see the various stakeholders the account manager, the system administrator, the data entry operator, the tech architect. You can see their power and interest also high, low, high, high, high, high, low, low and their current attitude right.

So, the account manager is neutral the system administrator is positive the data entry operator is also positive the tech architect is negative. So, the focus is to not to make the negative positive no rather the focus is to make the negative people neutral right. And what is the communication plan?

So, for the account manager you can invite him to research questions invite to debriefing sessions half-an-hour catch up per week you know that is how you plan it out for the system administrator can instigate meeting and invites to research questions for the data entry operator 15 minutes debriefing session each week invites to research questions and debriefs.

And for the tech architects you can just updating him or her once per month and that is what you know that would ensure that this guy moves into the neutral zone. So, with this we are now ready from the subsequent lectures to discuss tools and techniques specifically for conducting user research and we will start with contextual enquiry.