Understanding Design Thinking and People Centered Design
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Lecture - 03
Introduction and Problem Discovery
People Centered Design Methodology

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Now, we are moving on to part sub part 3 which is called People Centered Design Methodology. In this we will try and understand that, we talked until now about bringing people into this process, bringing people in and then, researching with them, conceptualizing with them, testing with them, but how do we actually do this is there a stringent approach is there a step by step process a how do we make this actually happen.

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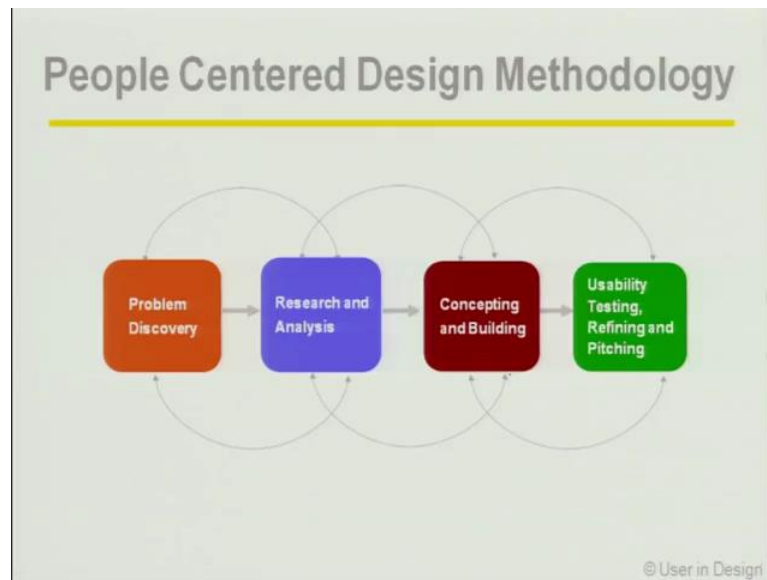
So, what you will see is the four parts of the course that you are working with mapped to this methodology. So, the first part is called problem discovery, what problem discovery means is that we take a problem that they give in or we want to solve and then taking that we trying find do we just run into solutions or others some other things associated with this problem. Do we need to think about this a little more, maybe we need to take a step back, maybe we need to take a step sideways, maybe we need to look at this problem from various angles and then discover what is the true and the correct problem to solve.

The second part is called research and analysis where we would be researching users as part of our due diligence and we would be analyzing all our findings from our research refuses from our study refuses from going in the fields, etcetera and we would come back and analyze all those findings. Now not only our own research refuses it also involves research of you know research material content that exists there is a lot of information that is available about people's behavior, about peoples cognitive abilities and all of those things that exists. So, bringing those as well into the fold, but essentially making sure that we spend our time researching users understanding what their needs are and then analyzing then that to the point where we say this is what we need to design, this is what are the overall course strategy is and then we move on to the third which is concepting and building right.

Concepting and building is where we take these insights this core idea of what is it that we need to design and then we start ideating we start looking in various direction whereas, places whereas, avenues for opportunities that we can think about and ideas that we can think about out of the box and try come up with lots of different ideas and then we take all of those and then we start converging and building bringing it all into one concept and then we take it further and start building start building those concepts. So, that is the third and then we have usability testing refining and pitching. So, taking that first concept that we would have made, we start to bring users in and try and test it. Not just show them and not give a demo and just tell them do you like it or do you not, but it is about bringing them and having them actually use some version of the product that we would have created.

So, early on we are able to tell whether it makes sense or not and then based on that we refine and re pitch. Now does this all follow in the sleek sequence that I have shown you it does not design is not a neatly planned sequential process design is a process that can be full of you know different pathways. So, based on your concepts you might decide to go back and research some more you might decide you know to change a problem that you realize after your research refuses that the direction that you are taking is completely not the right direction is a very different direction. So, you a start with you are a problem definition all over again or you might do usability testing and realize that you know this is happening over here there are certain gaps in the information. So, we need to go back and do some more research and analysis.

So, while it looks like it may be a chaotic process it is not chaotic, but it is flexible it allows us to do what is the right thing to do from the people's perspective. So, if we feel we need to go back and forth this is what the a methodology allows us to do this is what the methodology requires that, we do not go in this neat sequence, but be able to move around and be flexible working with these different building blocks and be able to arrive at something that is truly people centric.
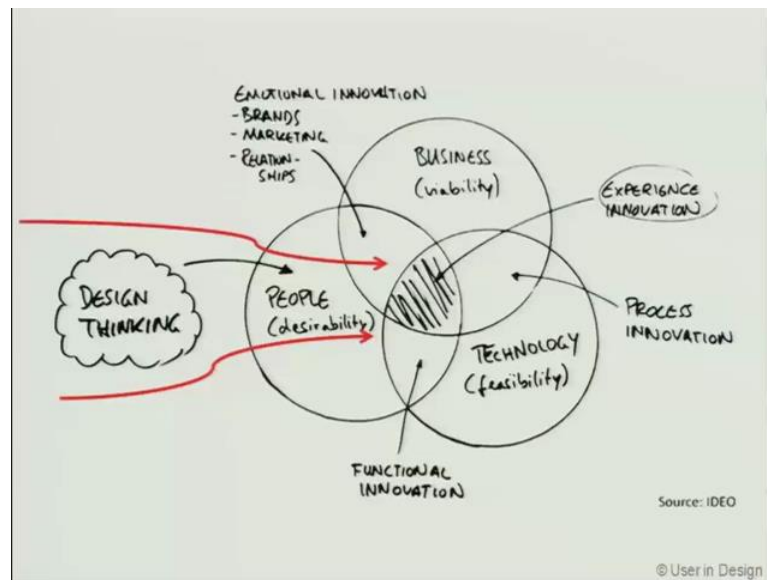
This is a diagram that I am presenting to you that has gotten now to be very well known often courted put together by ideal which says that innovation happens at the intersection of these three elements which are shown in a Venn diagram, the business aspect, which was viability the people aspect, which was desirability and the technology aspect, which is feasibility.

When these three come together then at the intersection of that is where very strong innovation happens and with the examples that I presented to you earlier we understood that how important it is that a good design impacts the business if it does not impact the business. If it does not have a positive draw out of that from the business perspective it does not make sense right. So, from the examples we saw how we can the business. If we create, if we arrive at a poorly created design that also impacts the business, if we create something that is you know excellent it impacts the business and we look at couple more examples and design thinking and the process must begin over here that is the other point that we take back from a this.

So, they talk about different aspects of innovation as well emotional innovation happening at the intersection of business and people process innovation and then, functional innovation. But we would like to focus on this whole experience innovation part and design thinking being the starting point of that where starting with the people we

start with the people and we also pay attention, to the business and the technological aspects and all that is in balance that is when we arrive at a strong experience innovation.

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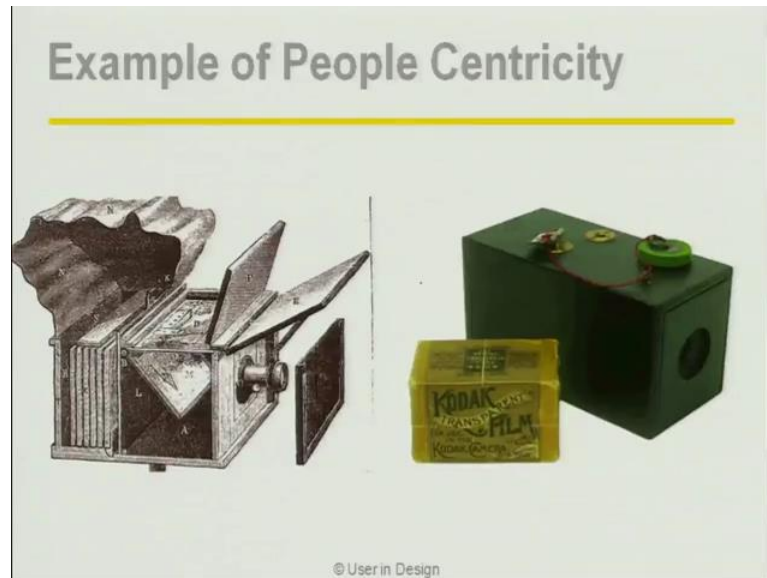
Now, let us look at some examples that, confirmed what I have been speaking to you about the methodology. This is a camera from Kodak from many; many, many years ago this was in the 1800s. In those days photography was something that only a few experts select people could do and it was very, very complex, the cameras were very complex, it was not the job of your average person. It is very hard for us to even imagine a day like that because today every one of us is holding a camera in our hands right.

So, those were the days when this was how the camera looked it was a huge contraption it was not at all easy to operate. Now Kodak at one point through all the there you know very strong user centric approaches and of course, very strong business acumen they came up with this camera which was a huge revolution and a big shift. What did this camera do this camera became a hand held camera not just that it became something smaller much simpler much easier, with the notion that you or me or anybody could start doing photography and what they also did was the role of film was invented. So, in the process what they understood there were two things over here one is that they understood the deeper human need to do photography be able hold camera in your hand, why because, what does photography do photography captures memories it is an emotional thing. So, for us to be able to capture memories which is, what we do all the time today

is a very strong human need is a very strong people need which they understood and therefore, this transition happened from this camera to this one second thing is this role of film was invented and this role went in the camera.

Now, this were the module comes in it was a role of twenty four shots right and when you are done with those 24, shots you send the film back to Kodak to process and there came the very strong business module. So, it was a win situation for the costumer the end user as well as the company and those are the designs that typically are the most successful ones those which have a strong balance between the business and the user and this was a classic example of that and remember this happened in the year 1888.

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Now, this is the advertising slogan that went with it and this was I believe George Eastman from a Kodak company came up with this and this became very, very famous and quoted a lot where he says you press the button we do the rest.

Now, what do you think this meant what do you think they captured over here they captured ease of use all you have to do I understand I Kodak understand that you want to capture your memories I also that the present camera is something that is very frightening. So, we are taking care of everything you just press the button you enjoy the whole experience of photography you press the button and we do the rest what is the we do the rest we do the rest is we process your film we you know put it all together and we back to you and of course, in the process it was a very strong business proposition.

So, you press the button we do the rest is a very strong statement in people centricity in understanding people needs and being able to not just make it into a product, but translate it into a business proposition. So, some of the other things that they did through their marketing material and advertising material that you can see and by the you can see that it looks like something from 1800s right. But look at the things they put on it anybody can use it anybody can use it is a very powerful statement that is taking the camera from the hands of extremely sophisticated professionals experts only who know how to do it to the hands of you and me anybody can use it.

So, this was a very strong exercise that they went through and very wonderful outcome that happened for Kodak as a company and as I told you they, understood the fundamental human need of the fact that photographs capture memories and that is what people would like to do right.

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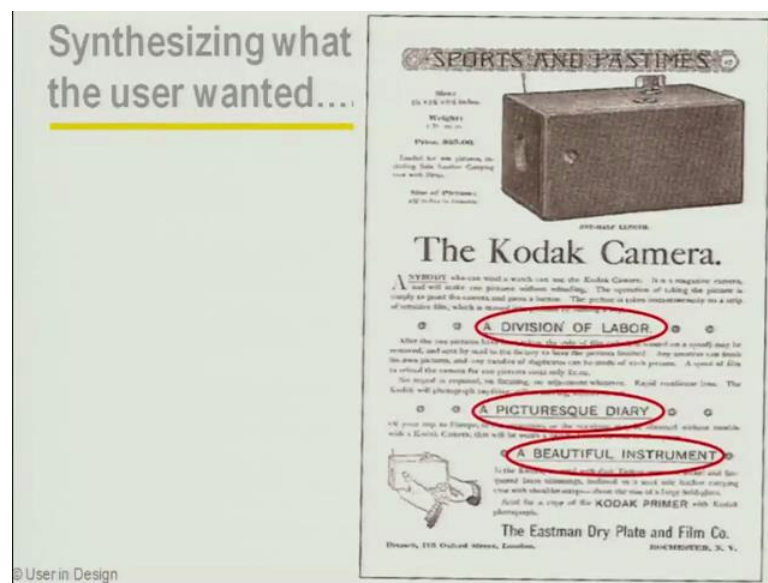
What else did they do they understood and projected it as a picturesque diary; it is a picturesque diary that captures all your beautiful memories it is a beautiful instrument. If you compare with the earlier one which, was a huge contraption it is a very handy portable little machine and product and they also called it a division of labor division of labor was what that you click the button we do the rest you take your photographs we process it for you.

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So, this is a very beautiful example of them Kodak synthesizing and understanding what the user wanted and it translated into an extremely successful product for many, many years.

Here's another example of something in more recent times that we are all familiar with and we know what a huge success this product was the iPod now the iPod was not the first and only m p three player in the market. When the iPod came out there were many there were successful m p three players already in the market it was a yet another one. So, what made it? So, successful again like the approach of the business and the technology and the people perspective and bringing people into the center of it what happened it was they were able to separate the product and you know how music is purchased and how music is managed. So, they changed forever how people listened to music the notion until then was you could only get music as a collection you could have collections of music that you buy as is the notion of getting a song by song kind of elements that you add to your collection was not heard of until them.

Secondly the notion that you put you know limited songs on a on the device which is on the iPod and in large part of your collection goes on something else which is in your iTunes. So, it is situated else where your music library is situated elsewhere.

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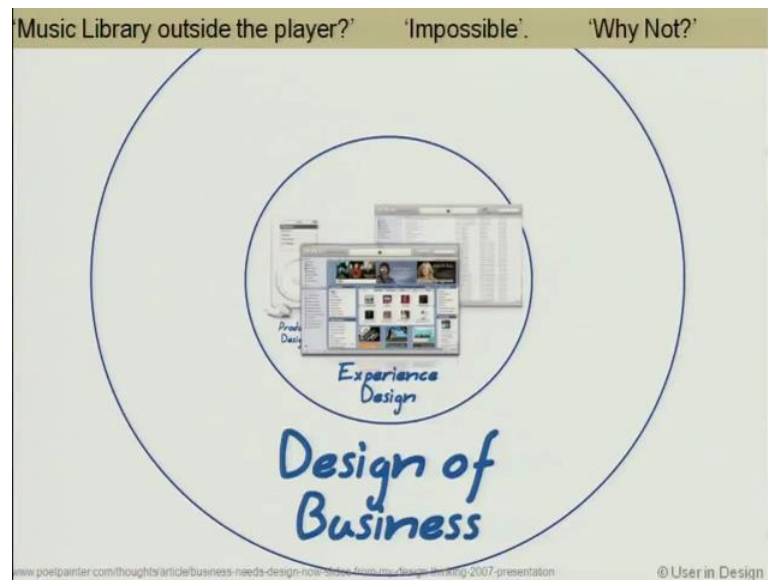
So, this was again a very new concept and this is what made it. So, successful they were able to look at it as a product as a product as you know the way music is purchased and the way music is managed. So, the three were separated and it was a really out of box concept the notion that you know your music library. So, the music that I own does not sit in my music player. So, it was a very strange concept perhaps initially, but based on what existed until then and then they forged ahead with it and then it became a huge success as we know.

So, they looked at it as the design of the product design of the overall experience over here and then the design of the business came around that and of course, we know what a successful business it became. So, that is another example of how being people centric led to business success ultimately right listening to the user watching the user understanding user needs incorporating those into the product and bringing them all together led to business success. So, this notion of you know music player outside the library perhaps people before that had said impossible and perhaps apple said why not why cannot we do it right. So, this why not is a very a design thinker a people centered designer approach having that can do attitude why not.

Another example in much more recent times from proctor and gamble and this was called the sweeper mop which became very, very successful again.

So, what proctor and gamble did is they started to look at how people are cleaning their floors and what they found is that people are spending as much time cleaning the floor as they are spending to clean the mop the instrument that they are using to clean the floor sticking as much time to clean that. So, they started asking the question why the people are spending as much time cleaning the mop is the spend time cleaning the floor there is got to be a better way to clean a floor. So, what did they do they went around and did extensive iconographic research we will discuss that in part two, they went around and they interviewed a people they interviewed people who clean floors in their homes they interviewed maids and a you know cleaning agencies.

Who do this for a living who you know professionally clean floors and through that whole research emerged the inspiration and thereafter the design of the product how to provide a better cleaning tool than a mop with less time spent cleaning was the new problem that they came up with and what was their new solution a wet towel on a stick that could be thrown away once it was soiled and that they called the Swiffer. What you see over here and it became a huge success not just the people who cleaned loved the product, but it was a huge business success and made lots of money for the company.

Let us look at another example closer to home in rural settings, we have pumps that are situated near the farm in order to water the farm and often times it is far away from the farmers house right and this pump needs to be started at different times in the day depending on when, they need to water the farm water the fields, and you know the someone and typically it is the women of the house often times that needs that goes that needs to go and do this work walk across all the way to the where the farm is from their home turn on the pump and then come back, right and often time this has to be done after dark in the evening you know turning on or off the pump needs to be done in the evening which can be not such a happy situation.

So, this product called Nano Ganesh was developed by this person called Santhosh Ostwal. What he did is he understood this particular need and he designed something that would operate the pump using the mobile phone remotely, it would be able turn on the pump and off the pump remotely and revolutionized, how you know people's lives became thereafter where these women did not have to go at the end of day in the evening at dark after dark to go and turn on or off the pump they were able to do it from their home a this led to a very successful start up. So, often times and most times successful products you will find have a very strong connect with the people for whom they are being designed.

So, looking again at the people centered design methodology you know the problem discovery research and analysis concepting and building and usability testing refining and pitching these are the four broad things that we do the broad 4 parts in which, we are going to learn this course. However, remember to be flexible remember to be comfortable with ambiguity remember if, you feel that there is something that is kind of not quite making sense from the users perspective you need to go back and do a little research or you need to go and ideate a few more things do not feel like this is a methodology that is cast and stone it is not it is the reverse it is meant to be very flexible it is meant to be something that your able to adapt to the way you need it to be.

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Now, here is an example I will show you of a people centered design process and unfortunately I am not able to show you the picture of the product, but I will describe it to you textually all right. So, this is a product that was a small mailing machine and it is an office product and it was designed for small business owners the project started with a business reason it, started because this particular machine was been taken and every time it a costumer bought it a service person from the company was having to go over either drive there fly to wherever the costumer is go and spend half a day a day whatever it is to set up the machine for them this was costing the company too much money right it was a business problem. So, can we make this machine? So, that it can be a self installed is there a way that we can pack this machine into a box and ship it to you costumer who is a small business owner and you will be able to set it up yourself it saves the company

huge amounts of money if the service person does not have to go along with that product and set it up for you right.

So, this is what it says the current machine needed a person to go and set it up for the customer it costs too much it just was too expensive. So, is there something we can do right? So, what was the goal what was the design goal design and easy to set up set up and use machine and it is interaction with the computer center. So, this needed not just for the user to be able to set up machine in their home office or in their office, but it also needed for them to call a computer center remotely and then be able to put money into the machine. So, this is something that a lot of people were not may not be comfortable with, but we needed to make it a self installed that is the design goal right. So, we can ship it in a box and send it to the costumer and we can save all those money how do we design something to be. So, easy to use, one of the first things we started what with who were our user it is a small business owner is. So, what does that mean who is that person what might their profile be like.

So, a small business owner probably has no time they are a startup probably. So, their running they are wearing multiple hats and their doing you know they are also their own accountant their own CEO their own a cleaning person everything they are probably stressed right and perhaps they may have limited education. They may not have a lot of sophistication. So, this is the kind of profile of the person we created. So, this is the person for whom we need to be able to design and this is the person who needs to be able to get this machine arrive at their doorsteps by a shipped to their home and then, they need to be taking it taking it out and be able to set it up themselves they need to be able to call the computer center and then they need to be able to put money remotely.

So, it was a tall order trying to do all of those things now based on all this what is the design goal that we set up based on our understanding of our users that this person has no time they are wearing multiple hats they are stressed they may, have limited education may be and all of those things. We said 15 minutes setup, we said those has to be this person this kind of person has to be able to set this up in 15 minutes and also with no calls to the help line what is the point right. If the machine is going to the doorstep and then they instead of the person going the customer service person going to a set it up. If we getting lots and lots of calls to the helpline it is the same thing it costs to company.

So, we went through iterations and this is what I want to present to you how, you know the iterative process led to a satisfying the business goal right.

So, the in the first iteration it took these kind of person 45 minutes to set up this machine it took a long time. We looked at that and we said what are all not working, let us go back and change things we made revisions change things and all, in the second revision it we brought it down to 25 minutes, they were able to set it up in 25 minutes and then finally, we were able to successfully shift a product that met it is benchmark setup time and you will hear this word bench mark later again. The benchmark was 15 minutes with no calls to the helpline.

So, before the product was shift we had a great sense of comfort that this is working it was not shipping it out and saying, Oh My God! I wondered they are going to take 45 minutes to set it up I wondered they, are going to keep calling the helpline I wondered they are going to be able to set it up or not. So, this is the example of people centered design in action, in process and it resulted in a very successful product. So, the goal, while the goal was cost reduction the solution, was a people centered design. A few years later this research came out which is very interesting and that is why I would like to share it with you.

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It says and this is not just about the benchmark that we have said, it says the average consumer only spends 20 minutes trying to get say a DVD, player or something like that

working they returned the item has faulty, but remember the item is not faulty. They returned them because they were not able to set it up, but what is important for us to understand how long of a tolerance do people have.

So, this study by this Dutch scientist says that, number is about 20 minutes and as you saw in our design we pegged it at 15 minutes, but 15-20 minutes that is how long people have the tolerance, have the desire to spend time before they just shut it up and say boom, I am not interested and today with online purchasing and all that if you have people going through a process that does not seem that seems too tedious it is very easy to just click on that a close button right and move to a competitor. So, again people centered design has far reaching implications there was a study done by Accenture and what did this study say they found that 68 percent of gadgets were returned by buyers that do work properly they work, properly there is nothing wrong with them they just do not meet the costumers expectations or they were set up incorrectly.

So, if they do not meet costumer's expectations and they pack it up and ship it back to you it costs the company a lot of money a lot of money that is completely avoidable. Why were they not able to set it up right? If they set it up incorrectly what does that do it results in call to the service center and that again costs the company money which means a service person, would have to service that call get in their vehicle come to your door step sit and figure out, what the problem is and then sort it out for you costs money right.

So, I hope through all these you have understood not just the people centered design methodology and the general approach that, we take to solving people centric problems or solving problems in a people centric way, but that we also be able to be flexible about it and flexible from, what perspective that at all times we keep the people at the center when that happens there are strong business implication, positive business implication and we are able to create successful products and again I would like to remind you that when I say products I mean product or a service or a product service or entire product service ecosystem.