

**Understanding Design Thinking and People Centered Design Prof.  
Jhumkee Sengupta Iyengar Department of Humanities and Social Sciences  
Indian Institute of Technology, Kanpur**

**Lecture - 02  
Introduction and Problem Discovery  
The Need to be People Centered**

All right, we are now talking about Subsection 2 - The need to be people centered.

(Refer Slide Time: 00:21)



Why is it so important? Why can't we just design products without worrying about all those people?

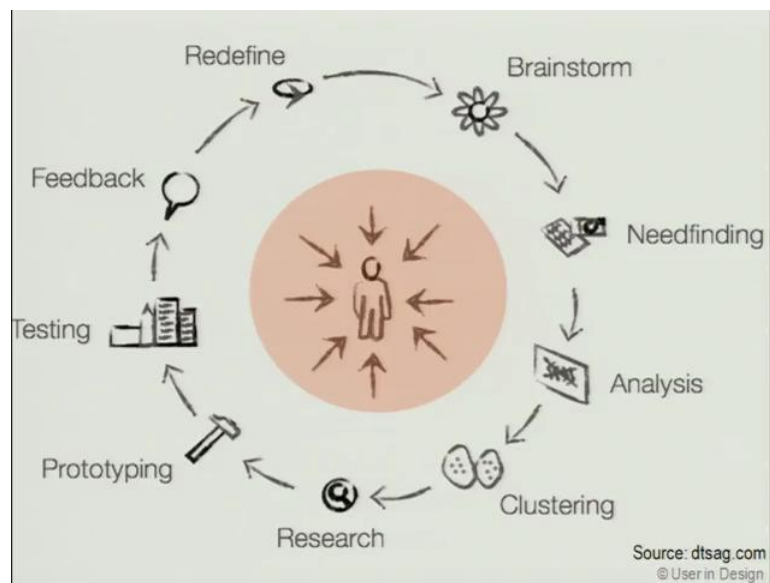
(Refer Slide Time: 00:27)



So, here is this little dog. I am sure many of you love dogs and you see this cute looking thing and you go near it, you know doggy, doggy and very excited and all that. And when you go close, this is what it does. So, this happens right and this is what it feels like when a product is not designed from the user perspective.

So, it can either be something that is comfortable and pleasant as an experience or it can be something that you expect to be comfortable and pleasant and when you go and start interacting with it, it comes to bite you, not literally, but it becomes very unpleasant. So, the other take away from this is that products that are not designed from user centric perspective, not only do they not behave as you would expect them to, but also that, you know, it is not just about the appearance, but it is also about the behavior. So, it appears a certain way but it behaves in a very different way.

(Refer Slide Time: 01:46)



Every organization believes that they are customer centric. If you look at the product creation process at organizations, they more or less look something like this- You know the different cycles that they go through of need finding, analysis, research, testing feedback, and etcetera and so on and so forth.

Nobody believes that they are not customer centric, but innovation, true innovation happens when we put people at the center of this process and we begin to look at this very differently. The minute we put the people at the center of the process, our whole approach, our whole thinking starts to be very different. Because we are solving their problems and we are not solving the problems that we think need to be solved. We are solving the problems that they need solved, they, the people.

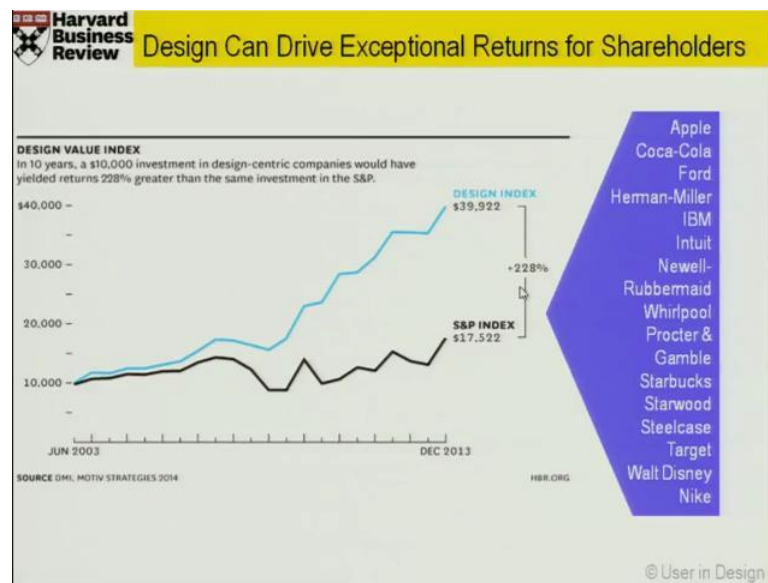
(Refer Slide Time: 02:57)



This is an article. We look a little bit now at the business impact, the business side of things and design thinking. How it works from the business prospective and for the business. So, this is an article in the business magazine called Forbes and it says 'Why design thinking should be at the core of your business strategy development.' These are some excerpts out of the article. It says design thinking is a proven and repeatable problem-solving protocol that any business or profession can employ to achieve very big results.

It combines creative and critical thinking, some of things we just discussed earlier-creative and critical thinking. It also says design thinking should be at the core of strategy development and organizational change to create a culture, focused on this way of solving problems. When we are talking about shifting the culture of an organization, shifting the whole, you know, way that the organization thinks about their customers, what we are talking about is mindset changes. Mindset changes of the type that we are engaging in through this course. This way of thinking can be applied to products, services and processes, anything that needs to be improved. And he further says Apple and Google use design thinking in their day to day operations and we can see that happening, right. We can see what is happening through their products.

(Refer Slide Time: 04:35)



This was a study reported in Harvard business review, which is another business magazine, that talks about 'Design can drive exceptional returns for shareholders.'

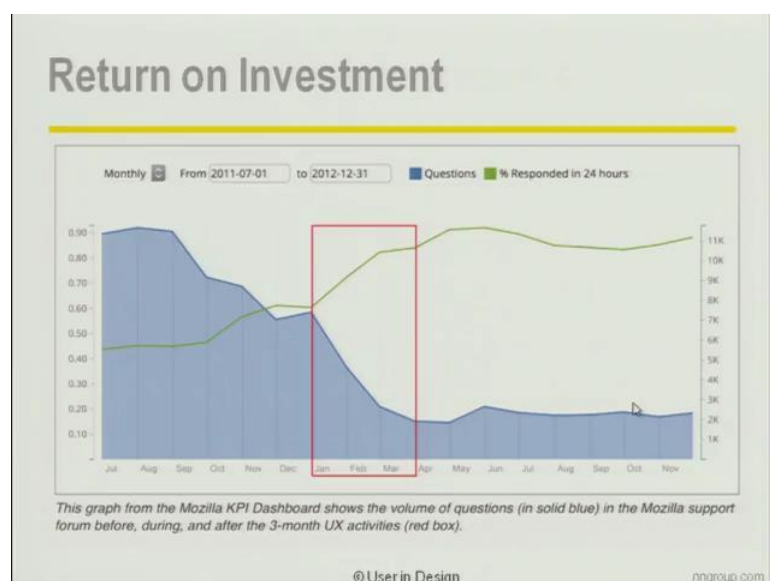
So, now it is not just about the people for whom we are designing, it is also for the business, it is needs to finally, make business sense. So, this company called Motive Strategies and Design Management Institute conducted this research, where they tried to find, define and locate companies that are design centric, where design thinking is part of their DNA. And they were all able to only identify 12 companies and these are those 12 companies. And they defined, what they called is a design value index and they studied the performance of these companies over a 10-year period versus companies that were not design centric and what they found is that there is a huge difference in the return for shareholders. So, it yielded returns; 100000 investments in the design centric companies would have yielded returns 228 percent greater than the same investment in companies that were not design centric. So, this is another interesting angle that helps you understand the design also impacts the business.

(Refer Slide Time: 06:01)



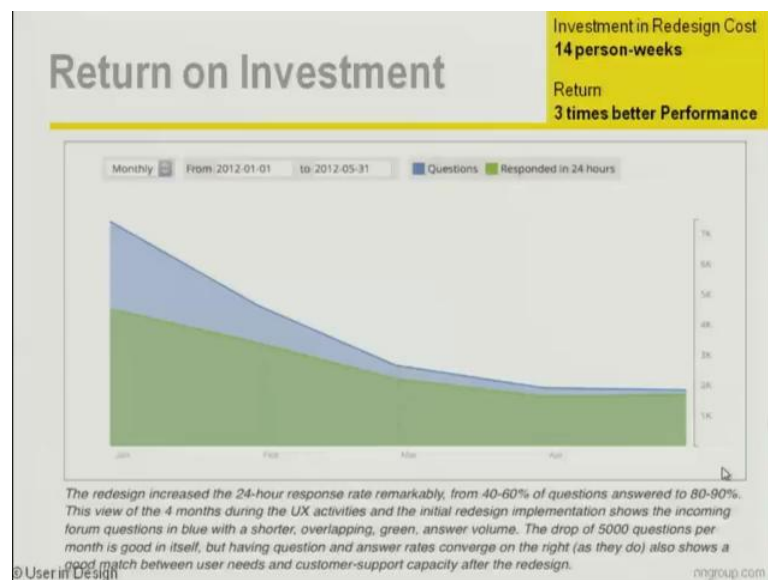
This was the cover page of business week several years ago and it had this front-page article about all the technology and you know, complexity associated with technology related grief that users, customers, on day to day basis, have to go through. It says- from VCRs and telephones, to copiers and microwaves, poorly designed machines, cluttered with unwanted features are driving consumers crazy. Whatever happened to user friendly? So, we can see that, it is not just about us, you know creating a product and then creating product to be user centric, but also understanding that it impacts the business.

(Refer Slide Time: 06:54)



So, this is a study that I would like to share with you and reported by the Nielsen Norman Group. This is from a study of the Mozilla Firefox, the web browser. And they were basically trying to go through a redesign of their support sites and this redesign happened over this period; January, February and March. And this is showing you how results were evident as a result of this redesign after that period. So, one of the things you can see, is the volume of questions that users opposing to their support side, the customer support side, dropped from this to this and also the percentage that they were able to respond to, within a 24-hour period, rose. Thus, they were able to respond to a lot more questions.

(Refer Slide Time: 07:46)



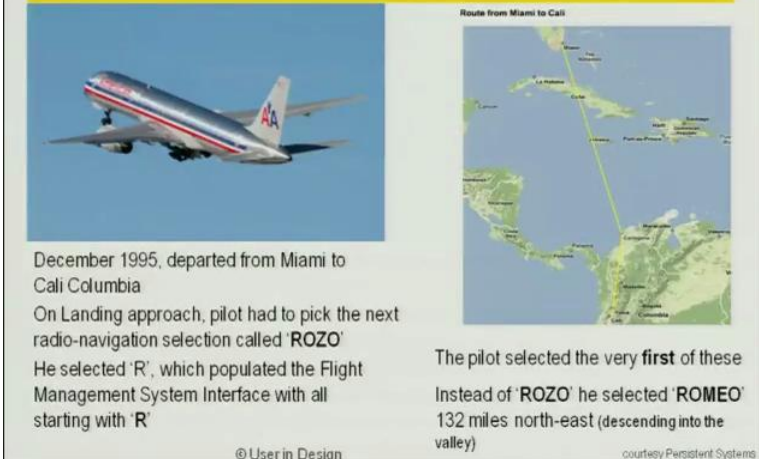
And this is another view of that where, you know, they zoomed in on January, February, March and the period following thereafter, after launch and this shows you that, you know, the volume of questions dropped as we saw and the volume of the answers also started to match. So, therefore, it showed a good match between the user needs and the customer support capacity after the redesign, while before they were hugely lagging behind. So, there was a big queue of customer support related queries that were not being answered. So, this is the impact of a user centric redesign and looking at the return on investment, the investment in redesigning this, was 14 percent weeks and return was three times better performance. So, if you are able to translate this in to numbers, you can say that three times better performance means each person is able to address three times

the volume or perhaps that we are looking at being able to do the same work with one third the people; So, various business implications.

(Refer Slide Time: 08:57)

### Cost of bad Design for People

#### American Airline Flight 965



December 1995, departed from Miami to Cali Columbia

On Landing approach, pilot had to pick the next radio-navigation selection called 'ROZO'

He selected 'R', which populated the Flight Management System Interface with all starting with 'R'

The pilot selected the very **first** of these

Instead of 'ROZO' he selected 'ROME0'  
132 miles north-east (descending into the valley)

© User in Design courtesy Persistent Systems

Now, let us look at an example from the people perspective. This is the story of American Airlines Flight 965, this was in 1995; flying from Miami to Colombia, Cali. And this was the route that they were flying. So, it departed from Miami to Cali, Columbia. On the landing approach, before landing, the pilot had to pick the next radio navigation selection and the code they pick, called airport codes and the correct code was ROZO. Now, he selected R and the flight management system got populated with all the Rs and he did something which is a very normal, natural, human thing to do. He picked the first of those options and you and I know that we do this all the time, right. See something reasonable enter, enter, enter. Just get through it quickly, right. So, he picked R and what happened is, by selecting the first of these, instead of ROZO, he selected ROME0. That was the first of those selections.



(Refer Slide Time: 10:13)



It went off to a completely different place, 132 miles North East. So, this is where ROMEO led him and this is where ROZO had to lead him. And 150 passengers and 8 crew members died. Very, very simple design related issue; there was a time in history you know, over the course of the maturation of this profession as it is today that we are talking about human centered design, when this used to be called human era, pilot era right?

(Refer Slide Time: 10:56)

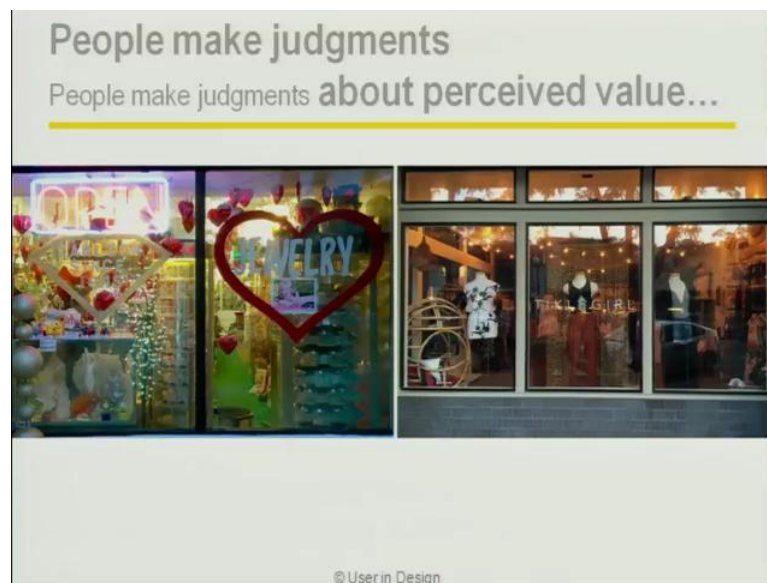


Now, we know that there are human capacities and limitations and expectations that we need to design for, that we need to understand first. Here is another simple example, where you know, we have the hot and the cold taps right. And we know these kinds of taps move clockwise and anticlockwise and we have this notion in our heads, that you turn it anticlockwise and it opens and you turn it clockwise and it closes. Now look at this, the cold water goes that way, the hot water goes in the reverse direction. So, you turn it clockwise to open and anticlockwise to close. What might be the cost of this? What if you are bathing a baby over there, and by mistake you close the cold water or you increase the hot water, right. It can be quite disastrous.

This is an example of a stove; the 4 burners, and this was a subject of a lot of study early in the days of this profession, that how do people connect the knobs over here with the 4 burners? Which burner corresponds to which knob? So, if you look at this, this is the front which corresponds to this, this is the rear. So, in this case, however, this is not the front, this is the rear and this is the front, this corresponds to the front, the middle one is for the oven. So, you know there is a sort of special arrangement over here; whereas over here a linear arrangement is followed.

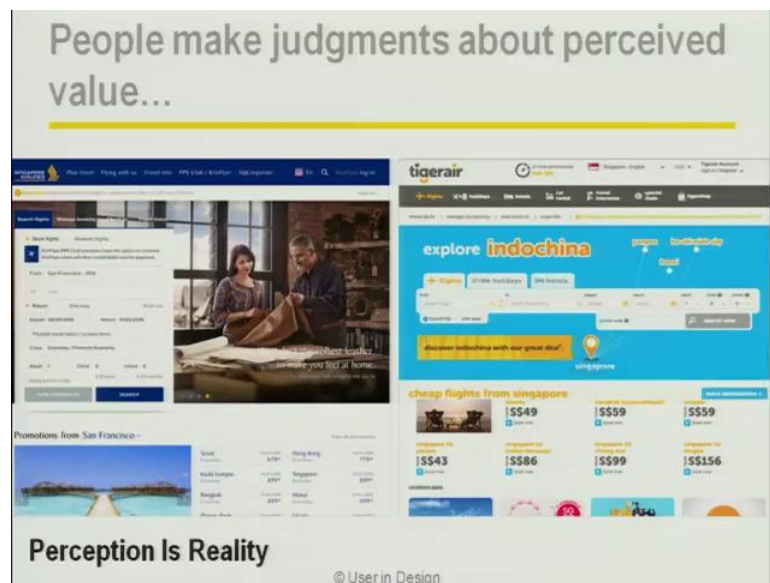
So, perhaps it can cause confusion among people. This is just a representation of a story I am about to tell you reported by Gray Chang where, you know, there was the photocopier in an office and this photocopier needed pages to be fed manually, one at a time, right. You could not put a stack of pages. And when the machine was working, when it was copying, the green indicator light came on and when the machine was idle the red indicator light came on. Now this is how the machine behaves right. Now what about me as the user? What this means for me is that when the machine is showing red, I am supposed to feed paper in it and when it is showing green, I cannot feed paper in it. So, this is the opposite perhaps of how we think, how we as people think and perhaps opposite also of how the traffic light metaphor is.

(Refer Slide Time: 13:37)



So, it is important for us to also understand. We looked at you know the people side of it. We looked at the business side of it. Now we also need to understand that people make judgments based on the appearance, they make judgments about value. So, now, if we look at this store front, right. This is one store front and this is another. Now based on these busy and very loud visuals that we see over here, people make certain judgments and perception about value. So, the perceived value, they would look at this as something that is more maybe sophisticated, more classy and they would look at this as something that is maybe not so well designed, not so well put together, not a good quality store, right.

(Refer Slide Time: 14:39)



Same thing carried forward in the world of the web. If you look at these two examples right, with the choice of the fonts and the colors and you know the cute C kind of little graphics and everything, perhaps tiger air gives the impression of being a more of a low-cost airline, not as conscientious about quality perhaps whereas, the one on the left, Singapore, with its, you know, design and its appearance and everything, it gives a feeling of being you know perhaps a better service airline.

Nothing wrong with either of those, it really depends on your priority; so, whether services are paramount or low costs are paramount. But the point is that users, customers, when they come to these, they make perception about value, about what this presents, what this means. So, perceived value, right, and it is important to remember that for a customer perception is reality.

(Refer Slide Time: 16:00)



So, this is another element of the design that comes very importantly to bear. This was a study of monthly snack boxes that were delivered to people and these are two services; one is Box Green and Guilt Free and they went through a usability testing and it was found that the majority of the people preferred the one on the left. The service was completely comparable, there was no difference between the two, in quality and everything; however, people had a perception. They had a judgment and that is the judgment they made about perceived value. It was not about the actual value, the actual value was the same, but the perceived value. So, this is also something that we need to keep in mind, when we design products and services for users, that people will make judgments, people will attach value to what they see.

So, along with this understanding that it impacts the business, understanding how you know people make errors if the design is not reflecting the way they think it should be behaving, if the design behaves in a completely different way, then people make errors. So, therefore, the need to be really people centric, you know, because being people centric or not being people centric, it impacts across the board, it impacts, you know, the performance, it impacts people perceptions, it impacts the business, it impacts shareholder value and all of those things. So, by now I am sure you are convinced of the importance and the need to be people centric.

(Refer Slide Time: 17:46)

## References

---

Slide 30 - wesharepics.info  
gettyimages.in  
Slide 31, 32 - dtsag.com  
Slide 33 - Lawton Ursrey  
Slide 34 - DMI, Motiv Strategies 2014, hbr.org  
Slide 36, 37 - nngroup.com  
Slide 38 - Persistent Systems  
Slide 41, 42, 43 - nngroup.com