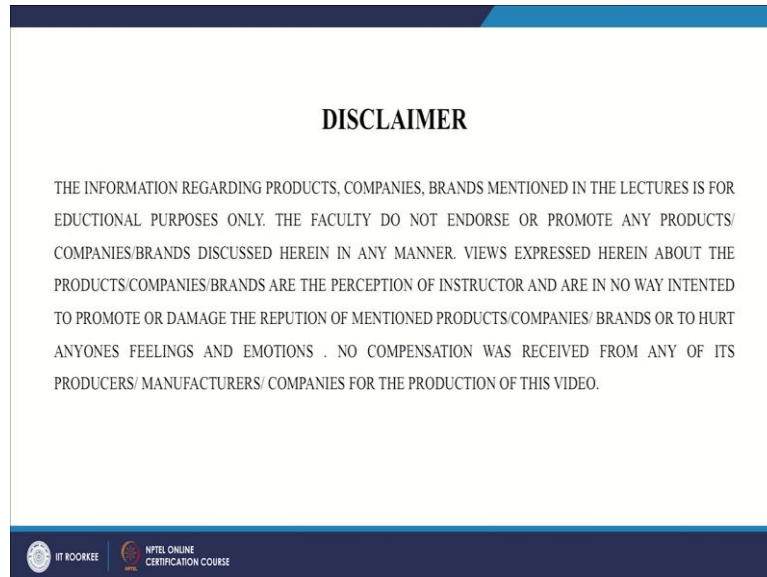


**Product and Brand Management**  
**Professor Vinay Sharma**  
**Department of Management Studies**  
**Indian Institute of Technology, Roorkee**  
**Lecture: 31**  
**Design Thinking - II**

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Hello friends. Welcome back to Product and Brand Management. We are going ahead with design thinking, one of the most composite and most encompassing kinds of subjects, wherein we have talked about definitional framework. We have tried to understand how design thinking works, how we should be thinking in terms of a design thinker, and how integrative it is, in terms of its nature. We talked about Veena Vadini school, an example wherein Mr Birangat Sharma instigated a charm towards education amongst young children who were actually not so interested.

And there are several other kinds of experiments in which people have done successful experiments which got converted into a business. And not only that, in those experiments, they instigated a chain reaction through and through, not only in their own value chain but across several value chains and that is what design thinking is all about. I will be taking you further as far as the whole design thinking goes and then I would be taking you towards innovation, wherein we would be having several examples and context of innovation and then we would be moving on towards new product development.

At last, we will be talking about the relationship of reflexivity, reflexive co-creation, innovation, new product development, design thinking and almost all the elements to

understand how this works. So, let me carry the discussion forward. After understanding the definitional framework.

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**Shifts in social and economic areas that are affecting the role of design in business:**

- Globalization: Changing and Rechanging form; Transportation/Self Dependence/Dynamics of Oil Production/Alternative Energy/Raw Material.
- Most of all Human Resource, Education; Shift of acumen and talent.
- Web 4.0
- The “triple bottom line”—People Profit Planet or Social Environmental and Business-Sustainability at large.

Source: Lockwood, T. (2009). *Design thinking: Integrating innovation, customer experience and brand value*. NY : Allworth Press

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Let us see how shifts in social and economic areas have affected the role of design and design thinking in business. You see, design thinking also gets influenced by so many things and why not, it actually is responsible for creating a replicable process which may divert into several other processes. One of the most important things which we have passed through for the past three, or four decades and we are going ahead in that direction is globalization. It’s a whole lot of an integrated world.

Globalization has been changing and re-changing forms. Earlier globalization had an internationalization perspective. Multinationals and internationals, these kinds of terms came in. Today you do not know which company has a production setup where and which is their prime market and from where the customer is sourcing a particular kind of a product through an online portal, and then who is supplying you when you are buying through Amazon and through these kinds of avenues.

The point is that globalization has taken a different kind of form altogether. Transportation has changed, we have quick transport, we have air systems, our ships have become more efficient, we have re-devised routes, and we have worked on the policy structures, so as to reach places quickly and so on. Another thing which is coming up is the interconnectedness of one spot to the other. They say that there is a rail transport facility for carrying goods from China to Europe.

And those kinds of systems are developing, and several intermediary canals or transit systems are being worked about and so on. Transportation has become very efficient in due course of time and that is responsible for carrying goods and giving a particular kind of impetus to globalization. Why am I mentioning these kinds of things are because, once you look at the perspective of transportation, you would realize that, if you focus on this, there are several other elements which can be facilitated. Because of this, this can have a central value.

Then, you see, dependence, dynamics of oil production, alternate energy and raw materials supplies, different kinds of new evolving raw materials, usage of material science to develop different kinds of composites or matter to be used in different forms and so on. Technology has enabled us so much. If a country is focusing on a different kind of material development, other can use it for manufacturing things and so on. You see most of all human resource, education and shift of acumen and talent has also been giving a very different kind of shape or is influencing the shape of globalization.

There was a time when there were very specific courses available in India in terms of software, AI, databases and several other kinds of scientific branches and even in arts or management. But today, there is no country where you would not find a composition of courses which are universally available almost anywhere else also, depending upon what kind of equity a particular institution holds amongst the prospective students.

So, that is the only thing of charm that a student thinks of. Otherwise, the availability of the courses and the content is quite universal, plus sitting at home in India, several software programmers, and designers, work for several companies abroad. There is a different kind of structure that human resource management has taken all through. You are unable to judge that, this particular person is being hired for an international operation and where would she be placed actually.

That gives a different kind of impetus and the subsequent element which is associated with human resource management development is institutional development. Today institutions have come a far way in terms of redesigning their core structures enabling the students. Earlier there were specific branches related to computer-related skills. Today almost every branch of science, engineering and management, you have that composition where fundamental skills to higher skills are available for any sort of student to learn and then use in the field as they want to. You see, these are the examples of how globalization is getting restructured in due course of time. Web 4.0, we all know that.

The triple bottom line of People Profit Planet is an important thing which has taken prominence in due course of time. Earlier, there were several other considerations which were dominant, but today, especially established organizations and thanks to the norms, which have been negotiated and discussed between the countries and the policymakers all through these developments which have taken place plus the sensitivity of consumers, sensitivity of the manufacturers and realisation by everyone that the value of this Mother Earth is the most important for all of us to survive in due course of time.

Every organization working in soft business or manufacturing business or infrastructure-based business, they have started thinking in terms of sustainability more as compared to anything else. Once we have shifted our concentration from only producing goods and earning profits towards sustainability, we have revitalized and rejuvenated all the procedures. So, that is what is the impact of this particular element of the triple bottom line.

Again, COVID-19 has taught us many, many things, health is most important. Healthcare is most important. There is the prime importance of people who actually work for the health care of people. Today the world has started focusing on earlier probably, we were sure that we will find treatment for almost everything which we are going through. There are several medicines and definitely thanks to those people who have been working in the research and development area of medical sciences, people who are serving people as doctors and healthcare professionals.

We are quite sure that as and when the disease would come, we will keep on fighting with that and we kept on fighting with that we produced medicines and treatments and so on. But COVID-19 suggested that something may happen suddenly. So, we should not be getting prepared for what is coming our way. We should be preparing ourselves for anything and this holds prime importance. Otherwise, the world would come to an abrupt stop.

So, a whole lot of predictability models, a whole lot of forecasting models, have started rethinking and they are putting sustainability and health measure at the core. And a whole lot of structure is being reworked. It is not apparent so much as of now when I am talking to you in November 2021. But, probably after 2 or 3 years from now, you would realize that everything has been re-centred. When you use Google Maps to follow a pathway, it says re-center yourself. So, probably everything would have been re-centered by that time.

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**Shifts in social and economic areas that are affecting the role of design in business:**

- Innovation drives business, and design enables innovation.
- Seeking meaning in an “experience economy.”
- From mass media ads to brands as stories and relationships.
- From manufacturing-centric to consumer-centric.
- The integration of customer touchpoints.

Source: Lockwood, T. (2009). *Design thinking: Integrating innovation, customer experience and brand value*. NY : Allworth Press

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Innovation drives business and design enables innovation and design thinking enables almost all processes. Then again, there is an element that we are seeking meaning in an experience economy, that things are changing radically. That is also one of the important elements when we talk of something in terms of the experience economy. I will not be elaborating on all the terms being used, these are common terms. You may refer to the reference given with these slides. Otherwise, you can just Google experience economy and there are several beautiful examples there.

From mass media, and advertising to brands and stories and relationships, we have come a long way in terms of communication as well. From manufacturing-centric to consumer-centric. I have just mentioned that, but with a sensibility towards sustainability and human health and human life. Today, it is not the only concern what is the average human age, the major concern is now that what is the average age of a healthy human. How far we can keep up the health levels of human beings? Definitely, people have started talking and focusing on the happiness of human beings.

That is also an important kind of development which is going on in many countries, and many societies have started following that. Remember this, once you have a particular kind of perspective, all the other things would start falling in line with that, the integration of customer touchpoints and several other elements. There are four powers of design and, you see, as I have been telling you, all these are evolving structures, you can add to this, you can subtract from this. But largely thinkers have categorized as far as design goes four elements.

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**THE FOUR POWERS OF DESIGN**

- **Design as differentiator:** a source of competitive advantage on the market through brand equity, customer loyalty, price premium, or customer orientation.
- **Design as integrator:** a resource that improves new product development processes (time to market, building consensus in teams using visualization skills); design as a process that favors a modular and platform architecture of product lines, user-oriented innovation models, and fuzzy-front-end (An Opportunity is seen, and idea is taken to the formal development)project management.

Source: Lockwood, T. (2009). *Design thinking: Integrating innovation, customer experience and brand value*. NY : Allworth Press

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Design as a differentiator, a source of competitive advantage through brand equity, customer loyalty, price premium or customer orientation. And remember, when I am talking of design, it is not just the product design, it is the design of almost everything, the processes, the value chains, and we have talked about this thing in Design Thinking orientation. So, when I refer to design, just go back to the definition of design thinking and then take it from there.

Design as an integrator, a resource that improves new product development processes and time to market building consensus in teams using visualization skills. Design is a process that favours a modular and platform architecture of product lines, user-oriented innovation models, Fuzzy Front End. Now, this is a term which is commonly used now, but just to give you a glimpse of it, that for example, you realize that there is an opportunity or there is a need both ways, we started our discussion on the product with reference to needs for example, you find a differently abled person and you find a need to serve that person, and that is also an opportunity for you to serve that person both ways. And once that is observed, that is focused upon then an idea emanates, or several ideas come to form. Then those ideas or one of those ideas is taken to formal development. Now, this timeframe is usually referred to as a fuzzy front-end kind of thing basically. It is defined that way. So, you can read literature on that and most of all, you can Google that.

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### THE FOUR POWERS OF DESIGN

- **Design as transformer:** a resource for creating new business opportunities; for improving the company's ability to cope with change; or (in the case of advanced design) as an expertise to better interpret the company and the marketplace.
- **Design as good business:** a source of increased sales and better margins, more brand value, greater market share, better return on investment (ROI); design as a resource for society at large (inclusive design, sustainable design).

Source: Lockwood, T. (2009). *Design thinking: Integrating innovation, customer experience and brand value*. NY : Allworth Press.

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The other element which is very important with reference to design is that it can be seen as a transformer, a resource for creating new business opportunities. Birangat Sharma is one of those and there are several others. I talked about Dean Kamen, one of the most renowned innovators of our contemporary times. I talked about *Earth the sequel*; where the author has written about commercially viable efforts being made by innovators wherein an organization has developed an ink for printing solar cells for example.

So, you see, that is where the transformation perspective related to design comes in, and that is where new business opportunities come in. As they say, renewable energy is going to be one of the biggest business spheres in times to come, much much bigger than many other business sphere or areas and when you talk of new business opportunities, that is related to a company, improving the company's ability to cope with change.

It may also be termed with reference to an expert to better interpret the company and the marketplace in coherence with each other. What, how capable we are, what is the competence we have, and then how we can utilize that competence for times to come if we are having a science-based human resource, where that scientific acumen can be utilized as simply as that.

So, designing a good business in itself with a strategic orientation and you will remember that in the last session, I talked about design thinking as a strategy by itself. You see, when we talk of design as a good business, we may refer to it as a source of increased sales and better

margins, more brand value, greater market share, better return on investment and design as a resource for society at large inclusive design, sustainable designs and so on.

I have been referring to IKEA furniture or let us say Lego toys or let us say LIC or ICICI bank or SBI bank, and several organizations in this regard. You can choose to think of any of those at this particular moment or whichever way you like. Narayan Hrudayalaya I talked about and Arvind Eye Care, I refer to and so on.

Then there are principles of design thinking. Now, let us focus on the fundamental principles and please keep reiterating the examples I have taken in the definitional framework of design thinking.

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**Principles of Design Thinking**

- Develop empathy for the customer.
- Engage unique design processes.
- Connect with corporate culture.
- Set design strategy and policy.
- Align business strategy and design strategy.
- Design for innovation and transformation.
- Design for relevance at each touchpoint.
- Focus on the customer experience.
- Empower creativity.
- Be a design leader.

Source: Lockwood, T. (2009). *Design thinking: Integrating innovation, customer experience and brand value*. NY : Allworth Press

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See, the first principle is to develop empathy for the customer. Get associated for the customer or with the customer should I say, if you talk of Narayan Hrudyalaya, Arvind Eyecare and if you talk of any organization for that matter, someone which is producing toothpaste. So, without having an empathetic perspective towards the consumer, you will not be able to develop a product which would be beneficial for the consumer.

Veena Vadini School, Mr Birangat Sharma was having or has always been having empathy towards the students. That is why he generated the procedures which are beneficial for the students for their development along with getting their interest towards education. So, that is a fair empathetic perspective. Several hospital chains apart from Narayan Hrudyalaya also have been doing that.



It is not specific to any service area. If you will talk to product managers, if you visit the plants, if you talk to the people on the floor, you would realize that while working on their products, and developing their products, they are all in the perspective as if they are the consumers themselves. They are so deeply associated with the subject. So, that is what we have to look at when we talk of empathy being a reason for design thinking.

Engage in unique design processes. When you say unique design processes, it is not just that competition should not be able to follow that. The uniqueness of the processes is associated with how well you would be able to materialize that design thinking perspective, how cost-efficient would it be? How technologically efficient would it be?

Would be connected with the corporate culture. Of course, the cultural buildup of an organization is one of the most important elements. Here my favourite examples are Khadigram Udhdhoyog in India, Gandhi ashram which is a very popular organization, Patanjali on the other side and several others just to give a cultural markup. They have built up a different kind of culture within their organizations as such. LIC definitely is one of those and then there are several other organizations like Hindustan Unilever is there, Nestle is there.

Set design strategy and policy. Strategy and policy will operate it quite a bit in terms of the time path and so on. Align business strategy and design strategy. So, product design perspective pathways, revenue model profitability, everything all together. Design for innovation and transformation, designing for relevance at each touchpoint, focusing on the customer experience and empowering creativity, is one of the most important elements. You have to build up a culture where your team actually becomes creative by nature. They have an eye on almost everything around you, they come all out with whatever best can be done. Be a design leader.

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**Ten Categories to Evaluate the Performance of Design**

- Purchase influence or emotion
- Enable strategy and new markets
- Enable product and service innovation
- Reputation, awareness, and brand value
- Time to market and process improvement
- Customer satisfaction
- Cost savings, ROI, and IP
- Developing communities of customers
- Usability
- Sustainability

Source: Lockwood, T. (2009). *Design thinking: Integrating innovation, customer experience and brand value*. NY: Allworth Press

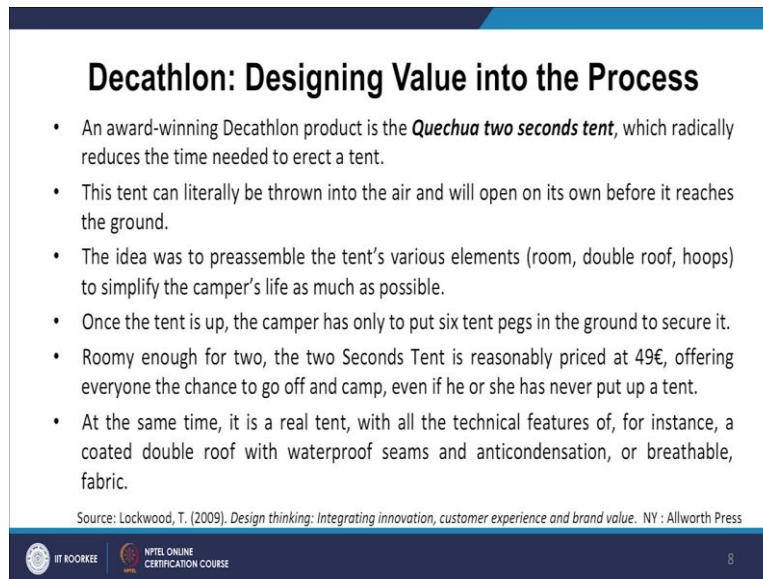
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And you see there are several categories by which you can evaluate the performance of a design. Purchase influence, enablement of strategy and new markets, how design is contributing there, and in terms of product and service innovation. Reputation, awareness and brand value, obviously, it is visible Nike, just go to their website.

Time to market and process improvement and customer satisfaction. This is one of the biggest markups. If the customer is satisfied and loyal you do not require any other markup to that level. I am not saying that you have to undermine those markups. Then there is the return on investment, intellectual property, developing communities of customers, usability and sustainability.

Sustainability again is very important. How sustainable the design in itself is and what is the contribution of design to sustainability at large? In both ways, sustainability is an all-encompassing term. Let us look at a few examples. These are one of my favourites and there can be several others, you can think about those, you can surf the websites.

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**Decathlon: Designing Value into the Process**

- An award-winning Decathlon product is the *Quechua two seconds tent*, which radically reduces the time needed to erect a tent.
- This tent can literally be thrown into the air and will open on its own before it reaches the ground.
- The idea was to preassemble the tent's various elements (room, double roof, hoops) to simplify the camper's life as much as possible.
- Once the tent is up, the camper has only to put six tent pegs in the ground to secure it.
- Roomy enough for two, the two Seconds Tent is reasonably priced at 49€, offering everyone the chance to go off and camp, even if he or she has never put up a tent.
- At the same time, it is a real tent, with all the technical features of, for instance, a coated double roof with waterproof seams and anticondensation, or breathable, fabric.

Source: Lockwood, T. (2009). *Design thinking: Integrating innovation, customer experience and brand value*. NY : Allworth Press

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Decathlon designing value into the process. There is an award-winning decathlon product and it is called Quechua two seconds tent, which radically reduces the time needed to put up a tent. See, the thought process around and if you will look at this tent, this product, you would realize that it has enabled the tourism industry. It has enabled several other things, for example, it can be of important use to mountaineers and to soldiers as well.

Several types of usage are there you see. Two seconds tent, the tent can literally be thrown into the air and will open on its own before it reaches the ground. The idea was to pre-assemble the tent's various elements room and double roof hoops to simplify the camper's life as much as possible anyone's life for that matter.

And it is very useful if someone is not allowed to enter the home so they must carry a tent and they can go anywhere and just blow the tent and they have at least a place to stay in the night itself on the lighter side. Once the tent is up, the camper has only to put six tent pegs in the ground to secure it.

Roomy enough, the two seconds tent is reasonably priced at 49 euros which is not a high price at all, offering everyone the chance to go off and camp even if he or she has never put up a tent at the same time. It is a real tent with all the technical features. For instance, a coated double roof with waterproof seams and anti-condensation or breathable fabric. Quechua two seconds tent has several elements of value for the client.

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Quechua: Two Seconds Tent	
<b>Value for the client</b> <ul style="list-style-type: none"><li>• Spring hoops allow this tent to be thrown into the air and to open up on its own before it reaches the ground.</li></ul>	<b>Value for the process</b> <ul style="list-style-type: none"><li>• Better integration of marketing and design upstream in focus groups.</li><li>• Process innovation: the (patented) process that allows the automatic opening of the tent to include a room and a roof.</li></ul>
<b>Measure</b> <ul style="list-style-type: none"><li>• Customer satisfaction in Quechua brand; product used in television campaign.</li></ul>	<b>Measure</b> <ul style="list-style-type: none"><li>• Fuzzy-front-end NPD process and expertise in design research.</li><li>• New process for development of future range of tents.</li></ul>

Source: Lockwood, T. (2009). *Design thinking: Integrating innovation, customer experience and brand value*. NY : Allworth Press

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So, you see spring hoops allow this tent to be thrown into the air and to open up on its own before it reaches the ground. Value for the process is through better integration of marketing and design upstream in focus groups. The measure of value for the client is related to customer satisfaction with the Quechua brand, the product used in the television campaign and value for the process can be measured through Fuzzy Front-End new product development process and expertise in design research.

Several other elements can be counted upon when we talk about such kind of a product. Value for employee and knowledge management is also there. Value for shareholders and society definitely is there. I will not elaborate too much on all the aspects, I am just pointing out that one single wonderful product through design thinking does wonders.

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At a Glance	
	Design Thinking
Objective	Innovation, clarifying fuzzy front end, direction finding
Scope	Concept of objects, services and processes
Process	Collaborative, conceptual, iterative, idea formulation and demonstration
Typical Players	Designers, researchers, managers, individual contributors, anyone
Thinking Style	Abductive thinking*

\*According to Darden professor Jeanne Liedtka, abductive thinking is "the logic of what might be." Inductive thinking is proving through observation that something actually works; deductive thinking is proving through reasoning from principles that something must be.

Source: Lockwood, T. (2009). *Design thinking: Integrating innovation, customer experience and brand value*. NY : Allworth Press

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And you see, there can be snippets on such kind of aspects, one thing I want to point out here apart from the objective, scope, process, and thinking style is objective thinking, imagining what comes after a particular kind of stage, cumulatively thinking the complete process, looking at the patterns and so on. So, that is again a very important element of how we look at things from a design thinking perspective.

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### Case Study: Aravind Eye Care Hospital

- Aravind was founded in 1976 by the late Dr. G. Venkataswamy—"Dr. V," as everyone called him—to explore ways to deliver medical care to inhabitants of poor and developing countries.
- Aravind has its own in-house manufacturing facility that makes the intraocular lenses and sutures used in cataract operations (example of breakthrough innovation).
- At the hospital, physicians perform more than 250,000 surgeries per year.
- Assembly-line operating procedures are at the core of Aravind's productivity. As a surgeon removed the damaged lens from one patient in a quick but skillful procedure, the next patient was being prepared right alongside in the operating room.

Source: Brown, T. & Katz, B. (2009). *Change By Design: How Design Thinking Transforms Organizations and Inspires Innovation*. NY: Harper Business.

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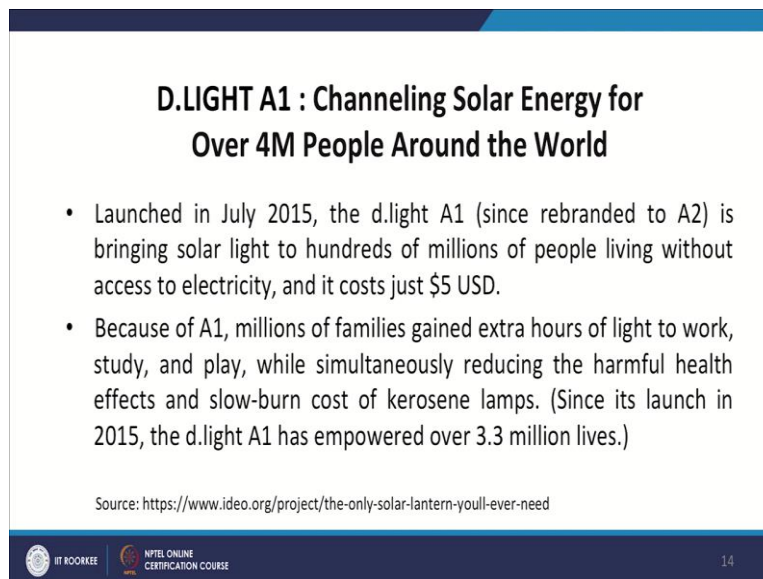
Arvind Eye Care, I talked about it earlier with a different kind of reference. You see, it was founded in 1976 by Dr G Venkataswamy. Dr V as everyone called him wished to explore ways to deliver medical care to inhabitants of poor and developing countries and Arvind Eye

care has its own in-house manufacturing facility that makes the intraocular lenses and sutures used in cataract operations which are examples of breakthrough innovation.

See, I will just give you some data. At the hospital, physicians perform more than 250,000 surgeries per year. Assembly line operating procedures are being used and for about a third of patients, it is free. For the remainder number of the patients, they pay on a sliding scale, which begins at 3000 rupees. So, you see very optimal pricing, much suited to wherein you can say that we are providing health care to people and we are not practically charging, but still they are operating and they are recovering their costs.

That is the magic of design thinking wherein they have augmented their procedures, they are providing world-class facilities and surgery and abilities that they have developed in due course of time and the treatment to the patient is world class and so on. Everything is all-encompassing with an objective that they would be reaching the people with an orientation of serving them and maintaining their costs as well that is both ways. So, that is an important element.

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**D.LIGHT A1 : Channeling Solar Energy for Over 4M People Around the World**

- Launched in July 2015, the d.light A1 (since rebranded to A2) is bringing solar light to hundreds of millions of people living without access to electricity, and it costs just \$5 USD.
- Because of A1, millions of families gained extra hours of light to work, study, and play, while simultaneously reducing the harmful health effects and slow-burn cost of kerosene lamps. (Since its launch in 2015, the d.light A1 has empowered over 3.3 million lives.)

Source: <https://www.ideo.org/project/the-only-solar-lantern-youll-ever-need>

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When we talk of design thinking we have one last example, which may justify the complete discussion which we have had. You see channeling solar energy for over 4 million people around the world. Launched in July 2015 the D.Light A1 since rebranded to A2 is bringing solar light to hundreds of millions of people living without access to electricity. And the cost is just \$5. Because of A1, millions of families gain extra hours of light to work, study and play, while simultaneously reducing the harmful health effects and cost of kerosene lamps.

Since its launch in 2015. The D.Light A1 has empowered over 3.3 million lives. Ask a student who does not have enough facility in the night time to study and the number of years that student loses because of that. If you will cumulatively multiply that number with such number of students, you would realize the kind of productive years lost and the kind of productivity lost in future and then you convert that into an economic contribution and you would realize what I am talking of. So, this simple change can bring in that kind of productivity and economic contribution to this world. And this is all about design thinking. As simple as that. I will be coming back to you with a discussion on innovation in my next session. Till then, goodbye.