Social Innovation in Industry 4.0
Professor J. Ramkumar
Professor Amandeep Singh
Department of Mechanical Engineering and Design
Indian Institute of Technology, Kanpur
Lecture 12
Value Creations from Social Innovations (Part-1)

Welcome to the next lecture on Value Creation from Social Innovation.

Value Creation is the Fundamental Component of Social Innovation. Value creation in social innovation, then, refers to the inclusion of social, environmental, and economic factors in addition to financial gains.

In order to create value that has the greatest possible impact, solutions must address societal issues, reduce needs, and produce significant results. Making money, making people happy, or bringing people together can all be considered meaningful outcomes. As a result, all of these actions contribute to optimising impact, which also includes improving governance.

To have the greatest impact, a remedy must address social processes, reduce needs, and produce a significant result. When we refer to outcomes in this context, they should ensure that sustainability is maintained.

Next is drives sustainable solutions. Here, we are looking for innovative and scalable approaches to social challenge, that is very important. Whatever product we do, whatever innovation we do it, if it is only for a fixed community, or fixed group of people, a small

set of people, then the solution is not very well accepted. Whatever solution we do, it has to have a component of scalability.

The scalability factor, when we talk about Social Innovation, it has to have mass customization included in it. That means to say, if there is a solution which works in the southernmost part of this country, the same solution when it is tried in the northernmost part of the country, there will be various mismatch, because in this country like India we have diversified culture, and diversified climatic conditions.

So, when we try to take a solution which is scalable and which also has mass customization, the technology can move from the southernmost corner to the northernmost corner without any difficulty.

There are several sustainable solutions we are looking forward today. In fact, the packaging industry for all the toys are now forced to use bio-degradable packaging material. here we are not talking about paper, we are asking for a new alternative solution. For example, today lot of people are working on cellulose packaging. So, cellulose packaging is, there are certain plants and trees which go abandoned in one region. They try to cut it because of its excess existence. They try to clear it.

And then, this is converted into a paper. This does not bring in the habit of deforestation. It is a plant, which is cut-down and which we can regrow. For example, sugarcane. From sugarcane people are trying to extract lot of cellulose packaging material, same way with the leaf whatever is getting wasted, they are converting into a small dispersible plate. So, here in which we are trying to look for sustainable solutions, we are also looking for sustainable solutions like using the large leaves which are in forest, use those large leaves, stitch it, again using a forest waste, stitch it, and make packaging material.

This market is slowly-slowly gaining importance. People are also looking for the biomedical devices which are made out of textile, a Social Innovation, where in which the people can have their innings like weavers can have their innings by using textile for biomedical applications. Here, biomedical can be used for diagnosing and it can also be used as a therapeutic device. Lot of start-ups are coming; they are all looking for Social Innovation and the biggest challenge all they face scalability. So, scalability is one thing which is part of Social Innovation we should always keep it in mind.

Next one is, it engages all the stakeholders. Here, it talks about understanding and meeting the needs through collaboration and inclusivity. So, here they try to understand and meet the needs through collaboration and inclusivity.

For example, if we are trying to involve in our start-up or trying to develop a product, a typical example what we develop during that period of COVID. So, what we want is, we wanted women folks who are staying at home, who are struggling for having their

livelihood, we were trying to educate them through online teaching and taught them how to use a tailoring machine, then how to make masks using the tailoring machine, and then we went ahead in collecting their product output which we could sell it in the market.

So, here the template was given by us from our institute. We gave the template to the women folks, we taught them tailoring, we gave them some of the tailoring machines which was there in our institute. A group of people, a start-up company helped in over oiling that, and then we gave this to various women folks. We could get masks made and these masks were completely innovative.

These people who are there, the women folks who are there, they could come-up with lot of innovation because a start-up company could not understand what is the child's feeling, what is the women's feeling, what is an elderly women's feeling. So, these people, they helped in fabrication and also gave lot of insight to us saying that these are some things which we could do, such that we could have a better sale, which was true.

The first set of masks which we made was plain blonde in color, but these women folks came and said why do not we start printing something on it or use a printed cloth which gave us a big sale difference.

So, here why am I telling this is, we have to understand and try to meet the demand by collaboration and inclusivity give each and every stakeholder their comfort zone?

Then comes creativity. In innovation the most important thing is creativity, and if creativity has to happen, it has to happen collaboratively.

Social innovation has the power to create significant impact. It also tries to deliver a very positive outcome. That is, what we said in the previous slide, impact measurement is very important.

Impact of Social Innovation helps in addressing the pressing social needs and bring positive changes. It should not be only money; it should also have sustainability. Which leads to the improvement in education, healthcare and poverty alleviations and more. The outcome of Social Innovation can be both, tangible and intangible.

The tangible benefits are access to resources, enhanced livelihood, economic empowerment. Economic empowerment is a very very strong theme. Giving economic freedom to all the participating stakeholders, makes them all more and more responsible. So, the tangible benefits are going to be access to resources, enhanced livelihood, economic empowerment.

And, intangible benefits are going to be empowerment, attitude and behavior changes. This is very important, when we do the Social Innovation, we try to get a change in the attitude and behavioral changes, which can be used for the betterment of a society. So, moment you start engaging all the youth who are involved in other illegal or criminal activities, you start training them, educating them, empowering them. So, then they all be a valuable citizen for a society or for a country. So, intangible benefit is also part of Social Innovation.

The Value Creation in Social Innovation encompasses multiple dimensions, you draw a cube. So, one is economy, another is social, the third one is environmental. So, when we try to convert this into a cuboid, for example, if you take this axis, this axis and this axis, you can try to make this as environment, this as social and this as economy. So, here we expect the Social Innovation to happen and people are spread in this region where in which you get the maximum in environmental protection, then social they are good, and

economy also they have reached the topmost corner. So, these three are some of the Few Dimensional Value Creation in Social Innovation.

These dimensions work together to create, that is what I said, it is in a slope, it is not only going here, going here, or going here, it should not be here, here only here. When we do so, then what happen is, you are only trying to exploit the society, or exploit the environment, or you are only trying to make lot of money without the thought process of sustainability in mind.

So, these dimensions work together, it is not one, one-one separately, it all has to work together to create holistic, sustainable solutions. They are understanding the leveraging these dimensions are crucial for addressing social needs effectively.
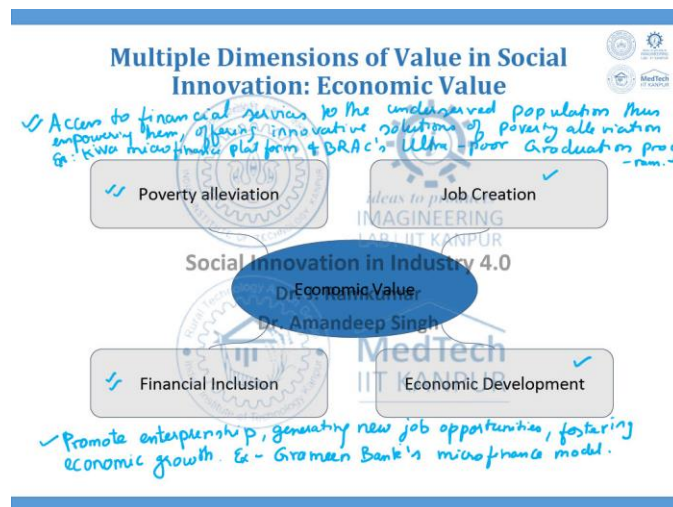
So, the Multi Dimension of Value in Social Innovation, when we try to keep only economic value, it is going to be Poverty Alleviation, Job Creation, Financial Inclusion and Economic Development. All these things are part of economic value.

So, when we try to talk about Job Creation and Economic Development. this is nothing, but we try to promote entrepreneurship, generating new job opportunities, fostering economic growth. Example, Grameen banks, then microfinance model. So, you can see this, Job Creation and Economic Development, they add an economic value. So, here it is nothing, but promote entrepreneurship and generate new job opportunities.

New job opportunities, for example, after class 12, if there are lot of limitations by the person to undergo for higher studies, like plus 2, then you go for undergraduate, then you go for post graduate. If entering into a college becomes difficult because of financial limitations. Now, the government comes with policies where in which they offer 3

months, or 6 months diploma courses where in which they get themselves trained in one particular area and then they can try to go to the market.

For example, these courses are something a Social Innovation, they try to offer courses for beautification, they try to offer courses for extraction of honey in an efficient manner, they offer a course on solar drying of vegetables, then they try to give a 6 months training on economical way of preparing herbal shampoos and soaps for toiletry items. So, all these things have been taught.

These all are nothing, but Social Innovation. A policy Social Innovation where in which government has come-up with these things, such that they create new job opportunities and they also foster economic growth.

The other one is the Financial Inclusion and Poverty Alleviation. So, for this, they access to financial services to the underserved. The next dimension is going to be social value.
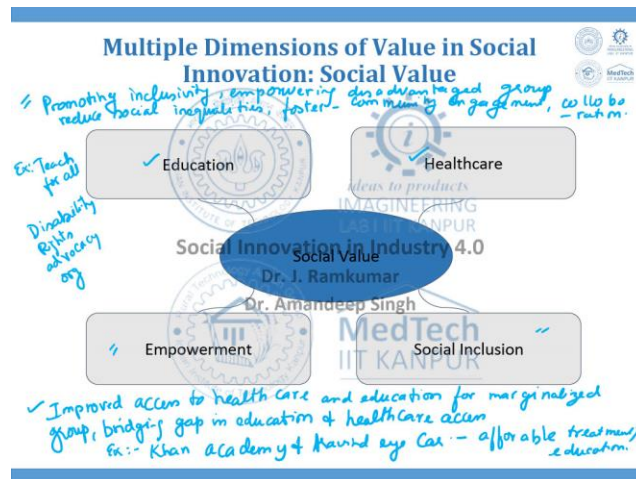
So, in social value, education, health care, social inclusion and empowerment, these 4 play a very significant role in adding social values. When we try to take education and healthcare, it tries to improve access to healthcare and education for marginalized group. Bridging gap in education and healthcare access.

Example, here will be Khan Academy and Aravind Eye Care, which goes for affordable treatment or education. So, here what we do is, we try to talk about Khan Academy which is very famous and it is also a Social Innovation. It is trying to educate people who do not have the financial backing to go to college or getting yourself honed in one particular area which you need.

So, that is Khan Academy and Aravind Eye Care hospital is a very successful model. So, here in which the patients are given the world's best treatment in a very economical price.

So, here the model is the doctor's time is very precious and it is a skilled job. What they have done is, they have listed the events or the activities which has to undergo for an operation   in   eye.

They have easily classified it as which all are significant, which are non-significant, and they have gone ahead in educating. The non-significant means it is not really non-significant, it is the work which could be done by paramedic. So, they have identified, these are the activities which paramedic can be used for execution and this can be doctor.

So, then what they did was, they educated the paramedic, such that they can take care of all these things and they had doctor coming only for the operation. And, what they also did was, they also try to do optimization while using an ampule of medicine and the other surgical tools sterilization.

So, the doctor comes-in and intervenes at those places where his presence is very much required, and they do it like a batch production. So, patients A, B, C, D, there will be 4 or 5 patients. They will be placed besides each other; the paramedic gets all the cases ready for the doctor to intervene. The doctor comes and intervenes and does the operation of the first patient, moves to the next. So, here what they do is, they do cluster analysis.

Identify all those cases which are having similar problem, bundle them, and then keep them on one day or one session. By doing so, they have made a frugal innovation where the entire society is given the best care. And, they also have introduced a very good traceability system, plus after operation post operative care also, they have made it in a very systematic manner.

They realize that the lens is going to be pretty expensive in the entire operation, they went ahead and learnt the technology of how to make lens, and started educating people in that local community and now they make the world class lens.

After learning the process, now they have started making mass customization, and they come-up with the best lens which they compete internationally. It is a beautiful example of educating people, converting them to the HealthCare activity. This is a Social Innovation which this particular hospital has carried over, and there are several case studies you can go through them, same with Khan academy. So, Khan academy delves in some topics or full syllabus in a very nice manner, and here people can come and participate, who are experts they come and participate, they could do a delivery.

The third thing which recently happened is we used to run an online portal. In an online portal, we used to get connected across the country with students who are in class 11 and class 12.

So, we used to offer a course from IIT Kanpur, under the leadership of professor H. C. Verma. So, he used to teach the content in a lecture, and then what he does is, he does a hangout. In the hangout period or in the hangout duration people can post questions.

He has made it in such a manner, such that the student posts and another student try to explain and give the correct answer. So, here the peer-to-peer learning also happens. When you try to do in Education and when you try to do online Education which is also a Social Innovation.

Then, the next thing is Empowering and Social Inclusion. Here, it is promoting inclusivity, empowering disadvantaged group reduce social inequalities and foster-community engagement, collaboration. So, examples are, teach for all, the next example is disability rights advocacy org. These are the two examples. So, teach for all is a very successful program, where in which people go and participate for 6 months to 1 year teaching, to a particular disadvantage group. So, here they are trying to get connected with people and try to educate them to meet out to the next level of competition.
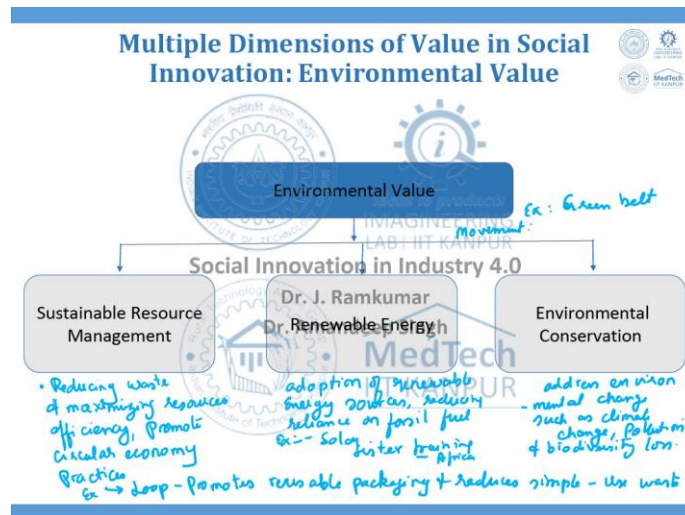

The next one is going to be Environmental Values. We are here going to discuss about Sustainable Resource Management, Renewable Energy and Environmental Conservation. So, in this under Sustainable Resource Management, we are trying to educate them reducing waste and maximizing resource efficiency, promote circular economy. The next one here. So, here examples are going to be loop promotes reusable packaging and reduces simple-use waste. Loop is an example, loop is a company which promotes that.

Next, when we are trying to talk about renewable, renewable is adoption of Renewable Energy resources, and then reducing reliance on fossil fuel. So, here example is, you can see which is on solar sister training.

This is solar innovation; you can see which is happening in Africa. This is very, very famous. So, you can go through it as an assignment, solar sister training program or something, which is there.

The Environmental Conservation is address environmental change such as climatic change, conservation and biodiversity loss. So, here the example is going to be green belt movement. It advocates for planting of trees, and then environmental conservation they talk about. So, the three dimensions which we saw are going to be Economical Value, then we studied about Social Value, and we studied about Environmental Value.

So, these three dimensions are going to play a very important role for Value Creation in Social Innovation. And again, as I told you, it is going to have a holistic approach, you do not look at one individual approach and do things.
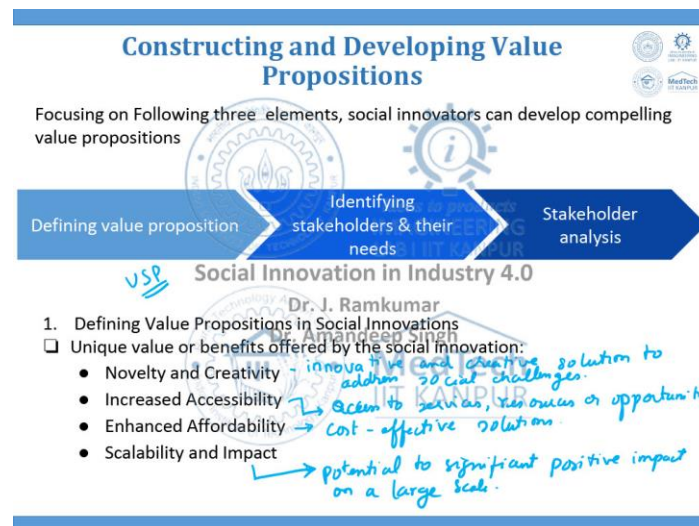
Constructing and Developing Value Propositions. Here, we focus on the following three elements, social innovators can develop compelling value propositions.

So, the first one is going to be defined value proposition which I said in the last lectures also, the definition of the problem is very very important. So, defining value proposition is the first element in creating Social Innovation.

Next is identifying stakeholders and their demands and the third one is stakeholder analysis. These three elements are very very important for Social Innovation. So, what comes under defined value proposition? Defining value proposition in Social Innovation is unique value or benefits offered by the Social Innovation has to be clearly written and mentioned. For example, novelty and creativity, increased accessibility, enhanced affordability, scalability and impact. All these points have to be integrated into the defined   value   proportion.

So, it is called as the USP. The USP is identifying the need of people, and then trying to come up with an innovative solution, such that it is sustainable. For example, there are lot of fruits which comes in deep forest, these fruits have to be extracted, and then they have to be packaged which has lot of medicinal value and which can be sold in the market.

So, a group of people joined together where in which it is identified as self-help group, some initial training and money is given and after 6 months or 8 months or 1 year, they become self-sustained. So, they try to make their livelihood without doing any damage to environment.

So, the USP here is trying to make or collect people together, ask them to work in a group for their own betterment and societal betterment without creating damage to mother earth, that is the USP. Here, what happens is, the unique values or benefits offered by the Social Innovation is going to be, you have to come up with a novel and a creative solution.

You have to create a solution which helps in increasing accessibility and which enhances affordability and scalability and impact. So, let us have little more understanding of this novelty and creativity. So, here we try to innovative and creative solutions to address social challenge has to be thought of.

Next, increase accessibility serve access to services, resources or opportunities. Next, enhance affordability is cost-effective solution. Scalability and impact, it is potential to significant positive impact on a large scale. So, these are the unique values.

When we go towards addressing a specific social need or a targeted problem solving. It addresses specific social challenges like poverty, education, healthcare, disparity and environmental issues. So, the tailored solutions will be customized, context-specific approach and holistic approaches a comprehensive solution.

So, here you can see that if it has to address a specific social needs or problems where in which we talk about targeted problem solving, then we tailor make, that why it is I was repeatedly telling, mass customization and a holistic thing. A clear communication of purpose and impact should happen, the clarity of the purpose should be, we should clearly have the value proposition, which states mission, vision and goals have to be clearly laid, for the Social Innovation.

Otherwise, you cannot go towards the solution, then demonstrated impact is going to be have a measurable result, this is very important. See, in normal innovation and normal business, the measurable output will be the amount of money the company generates, but here you should have societal impact, you should have environmental impact and it has to be a sustainable impact. So, here we try to look at measurable results and tangible outcomes like improving livelihood then reducing inequality or promoting sustainability.

So, when we have the stakeholder engagement, it has to be active participatory of all the beneficiaries. So, here we look at beneficiaries, then partners and funders, all these people should be in the same page. So, a clear communication of purpose and impact should happen, where in which the clarity of the purpose demonstrated impact and stakeholder engagement has to happen.

When we try to identify the stakeholder and their needs and aspirations thorough research and engagement activities should be done. So, we try to do a survey, do not go by somebody else version. So, you go to a survey, you do an interview, and you focus on groups. Suppose, if there is a huge set of people, there might be clusters of different kinds of people. These are different-different clusters, say for example, A cluster, C cluster, D cluster, B cluster, then F cluster, G whatever, they have different clusters.

Now, first try to understand a holistic view of the entire place, and try to understand what is their cultural change, what is their mindset, and then you try to focus in one particular cluster. And, when you start working on this particular cluster, try to have secondary data collection like reading books and other things, but it is always a good idea that you go do a survey, or you do interview with a focused group, do not do with everybody, with a focus group, and you should also understand, we will cover that data analytics later in our course.

A focused group cannot talk, suppose, I do only a research in this portion, a survey in this portion, and can I talk the entire zone, no, it is not possible, there will be a variation. If at all you want to do, you have to use the various analytical tools, such that it can help you in benefit, and in Social Innovation the use of advanced tools is very much important because you have to understand people very precisely.

So, surveys can be done. I always would recommend you to do interviews, or live with them, engage with them for a time period of 3 to 6 months, then you understand what they are. So, if you would have tried this trick many a times with the school children also, they will try to do, they will say I will not go to school today, I have some health issues and other things. But if you slowly-slowly start asking him, then over a period of time the

child will open out and say I did not do my homework, my teacher in the class will try to put me into a task.

So, since I did not do, I would like to take a day-off. So, if we start looking into, it is a health issue, let me start catering to the health issue, take him to the doctor, that is not the root cause, the root cause is he did not finish his holiday homework, or his yesterday's homework. So, a thorough understanding, a thorough interview and until and unless, you spend lot of time with the kid, you will not be able to understand, this is a simple exercise, like this you have to do. Why are a certain community of people not able to come out of their house? What is the social status? What is the religious behavior or religious thought process which makes them to stop at home? What stops girl children going to school? So, until and unless, you understand it very very precisely, you will not able   to.

So, if a girl child cannot go to school, can we connect them with a digital media? Can we educate them through the digital media? Can we give training programs to them to in the digital media? So, all these things are there, for enjoying a digital media, they should know how to use the hardware. You can teach somebody to use a hardware, but it is always good if you motivate them, and say there is going to be a benefit, you do it by yourself, they try to explore, and they try to exploit, they will have a better understanding. So, a thorough research and engagement activity is important.

The next one is tailoring value proposition. It is always customizing value propositions and demonstrating impacts and improvement. This will be the tailoring value proposition. Then, the next one is stakeholder analysis for target audience identification. The stakeholder based on influence, interest, and relationship; it is very important. Let me give a simple example, my son wanted to buy a mobile phone.

Currently, in India the kids are not going to a part time job that culture is slowly diffusing, but still, the child solely depends on his parents or guardians for their financial power. So, my son decides to buy a mobile phone. He comes and puts a request to me saying that please buy a mobile phone.

And, when I am deciding to buy a mobile phone, I will always ask my wife what mobile phone to buy and what is whether his demand is acceptable. My wife comes and says, no, please do not buy and give him a smartphone, already his academic performance is extremely poor. So, now what is the role of my wife? She has influenced my decision. Like this, there can be several people who can influence the marginalized community for their betterment. So, that is influence.

The interest is, my tuition teacher is always interested to push my son to buy a smartphone, why, because the tuition teacher need not to come home, and he can do an

online teaching. So, that is the interest, whether it is good or bad, does not matter, he is an independent entity. The relationship is, what is the relationship? Amongst the community of people is the relationship. So, stakeholder analysis is also very important.

If you try to take a healthcare, and if you try to take a customer here. So, now in this, the customers, major thing will be two things, he would like to have a quality output, and then he would also try to have an economic output, with an economical cost, a quality output, then he will try to say in a lesser time.

So, these are the three objectives. For these three objectives, he has to have various stakeholders to understand the problem, and then go further. So, identifying target audience segments, such as primary and secondary. So, primary and secondary, this is based on common characteristics and relevance prioritizing primary audience.

So, let us look at it, the government of India wanted to promote the activity of save electricity. It has been doing time and again educating lot of parents and elders, and giving pamphlets, and making videos for elderly people saying that please switch-off your power, so that it can try to help somebody who is needy. All these things have been tried, but later what they realize this is not taking them anywhere. So, now, the advertisement   is   focused   towards   the   child   in   the   house.

So, the government of India is trying to hit at the audience. Who are the audience? The audience are the children, make advertisement for the children, and promote through the elderly people how to save electricity. So, now, what has happened, the primary target has to be identified properly for your innovation whatever has to happen. Earlier, primary was parents and secondary was children.

Now, the children have become primary audience, and the parents have become the secondary audience. So, based upon the common characteristics and relevance prioritizing the primary audience is very very important.

When we are trying to talk about validating the value proportions, the importance of validating value proportions in Social Innovation is very very important. It has to ensure relevance, effectiveness, and impact. For example, in any of the healthcare which we talk about, the innovation is conducted by survey and testing in healthcare innovation. So, here we try to do, the relevance of the healthcare.

So, innovation here, it is done by conducting survey and testing the innovation. This is ensuring relevance, effectiveness and impact, then minimizes risks and maximizes chances of success. So, what we do is, we try to have example is financial inclusions initiative by conducting market research to access the potential demand and competition. Then, the next one is going to be, aligns with stakeholder needs and aspirations. For example, engaging students, teachers and parents about new education program. So, you have a new education program, now you align all the stakeholders need and their aspiration.

So, the validating a value proposition is iterative and is refined on the basis of feedback provided by potential customers. For example, if you are trying to do an empathy study define, once you start defining, you go back and do the empathy study, and then try to see whether it is worth it. So, this itself goes back and forth, and that is why we said value proposition is an iterative, and is refined on the basis of feedback provided by the potential customers. Thank you very much.