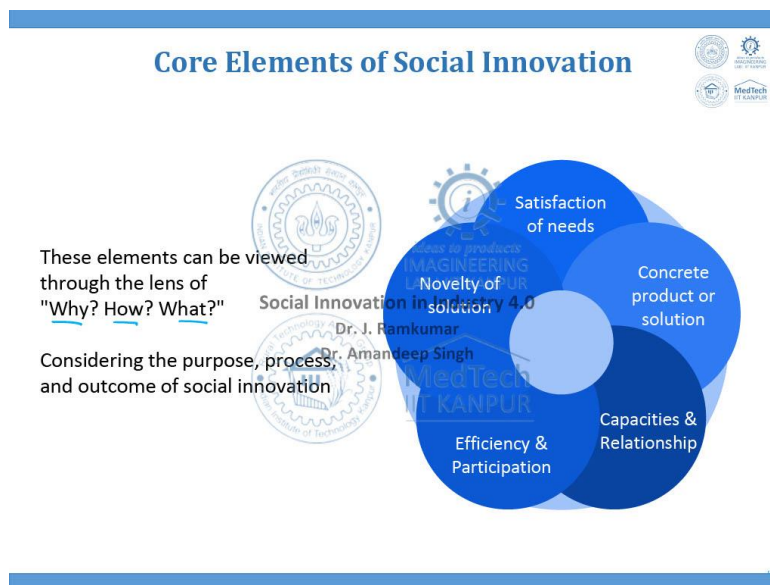


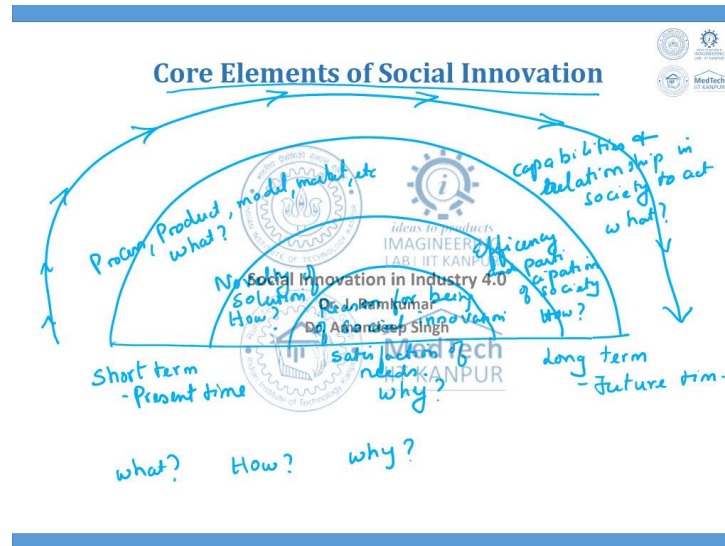
**Social Innovation in Industry 4.0**  
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**Department of Mechanical Engineering and Design**  
**Indian Institute of Technology, Kanpur**  
**Lecture 08**  
**Core Elements and characteristics of Social Innovations**

Welcome to the next lecture in the course Social Innovation and Industry 4.0. In this lecture we will try to cover Core Elements and Characteristics of Social Innovation.



When we look at the Core Elements of Social Innovation, these are 5 different Types of Elements which are part of Social Innovation. They are Satisfaction of Unmet Needs, Concrete Product or Solution, Capacity and Relationship, Efficiency and Participation, Novelty of Solution. These are the 5 elements. The elements can be viewed through the lengths of Why, How and What. Why is this happening? How is this happening? What is happened to?

So, you can try to ask these questions and always try to find out What is the root cause. So, Why, How and What are the 3 questions. You have to use these 3 lenses to identify the problem. Considering the purpose, process and outcome of the Social Innovation, we try to use these 3 words.



Now, let us try to schematically represent these Core Elements of Social Innovation. So, we can term it as short term, and this is long term. Basically, I am trying to draw an arc. This is the present time and this is the future time, and let me tell you we are moving from here to here.

So, we will try to have 3 circles. Circle 1, circle 2 and circle 3. And, here let us try to write down in each lengths, what it will be. Here it is going to be Reason for Being of Social Innovation, and here we have satisfaction of needs. And then, you will try to ask a question, why is people doing this or why are we suffering.

So, the Reason for Being of Social Innovation is to satisfy the needs of the customers. So, that is what is try to saying the 'Why' part of it. The next is Novelty of Solution comes here, where it comes 'How'. How do I do it? How is this happening?

Novelty of Solution always starts with this question, How do I get it done to this place?

The next one is Efficiency and Participation of Society. Here again, the question of 'How' comes into existence. So, in the first circle you had 'Why', in the second circle you had 'How'. In the third circle where in which we are trying to talk about, you will try to have Process, Product, Model, Market, etcetera, that happens at 'What'.

If you see the circle, we are moving from short term to long term, and from present time to future time. And then, I divided into 3 circles basically Why, How and What. So, here you will try to have Capabilities and Relationship in Society to act which is 'What'.

So, it is very easy, the inner circle will ask 'Why' questions, the next circle will ask 'How' questions, and the third one will try to ask 'What' questions. So, if you look at it ,What, How and Why are the 3 questions, which play a very important role in establishing the Core Elements of Social Innovation. This entire thing moves from short term to long term, this is the arrow.

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## Core Element 1: Satisfaction of Social Need



It is at the core of social innovation, shaping its mission and purpose.

Reason for existence of the social Innovation

Prioritizing the resolution of a social problem, regardless of any potential economic benefits, with a focus on addressing the issue in a respectful and dignified manner.



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Satisfaction of the Social Needs, this is Core Element 1. As I told you, we will ask questions like Why, How, What. So, then, we will get into Core Elements 1. So, it is at the Core of Social Innovation shaping its mission and purpose. Satisfaction of Need, need of a customer identification is not so easy.

You can not assume certain things, you have to have a thorough understanding, that is why I said in the previous lectures Empathy Study. When you do an Empathy Study, you will always try to figure out the unmet needs. So, that need has to be satisfied which is the Core Element 1.

It is at the Core of the Social Innovation, you should have the shaping its mission and purpose. The reason for existence of the Social Innovation is to prioritize the resolution of your social problem, regardless of any potential economic benefits, with a focus on addressing the issue in a respectful and dignified manner.

You have to address to solve the problem or focus on addressing the problem the issues in a respectful and dignified manner. This is very important. So, the keywords are prioritizing the solution of a social problem, regardless of any potential economic benefit, with a focus on issue in respect and dignified manner.

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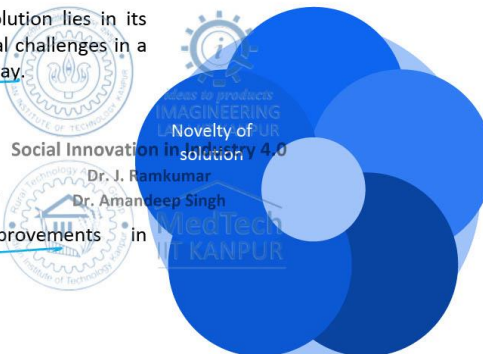
## Core element 2: Novelty of the Solution



The novelty of the solution lies in its ability to address social challenges in a unique and effective way.

It can either be

- Radical innovation
- incremental improvements in existing solutions.



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The Novelty of the Solution. The Novelty of the Solution lies in its ability to address social challenges in a unique and an effective way. For example, if you are trying to develop water based filter.

Now, if you look at the people who are surviving in and around the desert area. They might have few ponds, these ponds will be dirty and the people always look for portable drinking water. If they have a filter at home, every time you travel all the way home, collect water and drink is not a solution. The vice versa is, if you can have a filter which is movable, and which can be light weighted, and an economical filter. Then, people would like to buy that filter.

So, here the requirement for the public, or the common man, or the customer is that they should have a filter which works on free maintenance, it is very economical, and it can withstand for a year, which tries to provide them a portable drinking water.

So, I told you, water will be available everywhere, but portable drinking water is always a challenge. So, here, there is a start-up company which went around identified the need, and after identifying the need, they came up with a filter where in which the filter is completely made out of passive. That means to say, there is no energy required, they have series of filters where in which it can filter up to 1 micron particle, just by applying Negative Pressure. What is Negative Pressure?

When you start sucking it is called Negative Pressure. So, what people used to do is, they developed a filter which they can hold through their mouth, and then, they start sucking as though it is like a straw. And, moment they do it, all the dirty water or the contaminated water which has particles, which also has some another dispersed heavy particles, all these things are getting filtered, while you do a negative suck, it comes and they get a clean drinking water.

So here, the solution is Novel, the solution is unique, The solution is effective because it does not demand energy. It is a light weighted filter, it can be taken as and when you go


to any place, you can use it, when you see a dirty pond, you can put the filter, start sucking, you get a clean drinking water. You cannot try to suck, and then like a pipe you cannot maintain, you have to continuously keep sucking, such that the water comes. So, then this also tries to make sure that the filter life is for 1000 liters of water. So, normally a human is expected to drink 5 liters. So, it is expected to withstand for 200 days, but generally people do not drink 5 liters.

So, when the product was designed, it was designed for 1 year. A passive water filter, which is used for 1 year without maintenance, should provide portable drinking water for the customers. So, that was the Need statement. From the Need statement they developed a unique and then effective way. So, it can either be radical innovation or incremental improvement in the existing solution.

Radical means it is new of it is kind, delta x improvement is also possible. The solution has to be novel.

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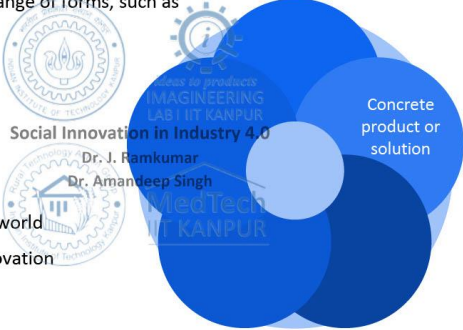
**Core Element 3: Concrete product or solution**



It encompasses a wide range of forms, such as

- New products
- Services
- Processes
- Models
- Markets

It demonstrate the real-world application of social innovation



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The next one is Concrete Product or Solution. This encompasses a wide range of forms such as new product, service, process, model and market, identifying a niche market, a new model in business, new processes by which the solutions can be made, services and new products.

It demonstrates the real world application of Social Innovation, this is the third element. So, the first two elements are: First element was Satisfaction of Social Needs, next is Novelty of the Solution, the third one is Concrete Product or Solution.

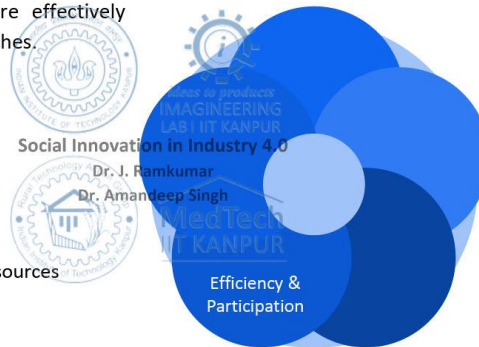
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## Core Element 4: Efficiency and Participation

Using resources more effectively than existing approaches.

It seeks to optimize

- social
- economic
- cultural
- institutional
- environmental resources



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The fourth one is Efficiency and Participation. Using resources more efficiently than existing approaches. For example, nowadays you have Internet of Things getting integrated with your fan, lights.

In a room, if there is no motion, then the fan and the light automatically gets switched off, when it does an energy saving, which we saw in smart cities waste management, all these things are there.

So, it seeks to optimize social, economic, cultural, institutional and environmental resources. So, the Efficiency and Participation, it seeks to optimize social, economic, cultural, institutional and environmental resources.

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## Core Elements 5: Capacities & Relationship

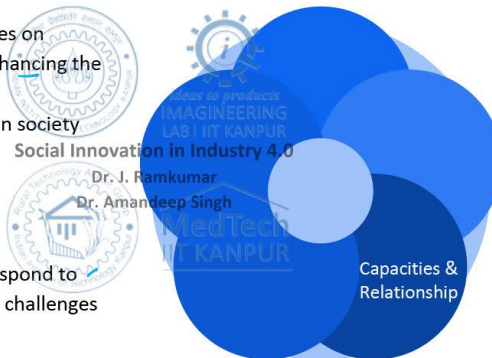


Social innovation focuses on

- Developing and enhancing the capacities
- Relationships within society

It empowers:

- individuals
- communities
- organizations to respond to present and future challenges



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The Core Element 5 is Capacities and Relationship. The Social Innovation focuses on developing and enhancing the capacities, and then it also tries to have a relationship within the society. Capacities and Relationship, it is nothing, but it empowers individuals, communities, and organizations.

So, you have 5 elements, the 5 elements are Satisfaction of the Need, Concrete Product or Solution, Capacities and Relationship, Efficiency and Participation, Novelty of Solutions.

## Characteristics of Social Innovation



These eight characteristics makes social Innovation different from other innovations

These eight characteristics are:

1. Intersectoral Collaboration
2. Open and Collaborative Approach
3. Bottom-up Approach
4. Pro-Sumption and Co-production
5. Mutual Interdependence
6. New Roles and Relationships
7. Resource Optimization
8. Capability Development

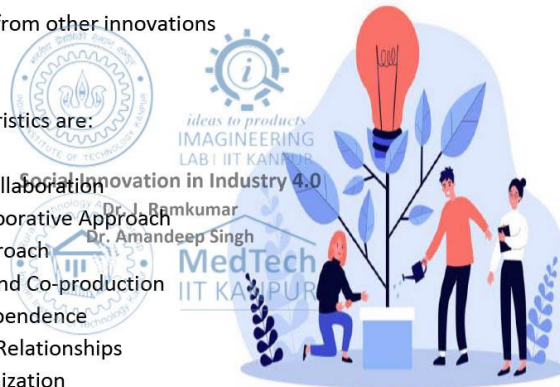


image source: <https://www.istockphoto.com/search/2/image?mediatype=illustration&phrase=social+innovation>

Now, if we move on to Characteristics of Social Innovation, there are 8 Characteristics makes Social Innovation different from the other Innovation. The first one is going to be Intersectional Collaboration.

The next one is going to be Open and Collaborative Approaches. The third is Bottom-up Approach, the fourth is Pro-Sumption and Co-Production.

The next one is Mutual Interdependence, New Roles and Relationships, Resource Optimization and Capability Development. These are the 8 Characteristics which are very important, we will see one after the other in the forthcoming slides.

### Characteristic 1: Intersectoral



- Transcending sector boundaries
- Involving diverse stakeholders from different sectors
- Collaborative efforts to address complex societal challenges



image source: <https://images.app.goo.gl/Tww6rhbrYidR82V66>

So, what is Intersectoral? Intersectoral means it is transcending sector boundaries, breaking sector boundaries, involving diverse stakeholders from different sectors. Collaborative effort to address complex societal challenge.



The complex societal challenge can be transportation in a village, taking health care, developing ambulance in a non-reachable zone because of territorial conditions or because of forest.

So, you identify the challenge there, societal challenge, and then try to develop a device, a product called ambulance, and then you try to go towards the solution. So, collaborative effort to address complex societal challenges So, these are all Intersectoral.

So, Intersectoral is the first thing, breaking boundaries and taking all the stakeholders to a single platform.

## Characteristic 2: Open and Collaborative

- Inclusive nature of social innovations
- Emphasizing collaboration, knowledge sharing, and co-creation
- Leveraging technology for greater connectivity and exchange of ideas

image source: <https://images.app.goo.gl/mZro2jHFRUpruw26>

Next is Open and Collaborative. Open and Collaborative means you try to accept the feedback or criticism which is given by customers, and then start accepting them, then develop products.

The Open and Collaborative nature is nothing, but inclusive of Social Innovation. Emphasizing collaboration, knowledge sharing and co-creation is very important. If you have a open mind, then co-creation and knowledge sharing is very very easy.

What I have an information, I share it with you, then you start your journey from the shared location to the next level. So, emphasizing collaboration, knowledge sharing and co-creation.

The next one is going to be leveraging technology for greater connectivity. We use technology for greater connectivity and exchange of ideas. I have an idea now to connect to the rest of the world and communicated.

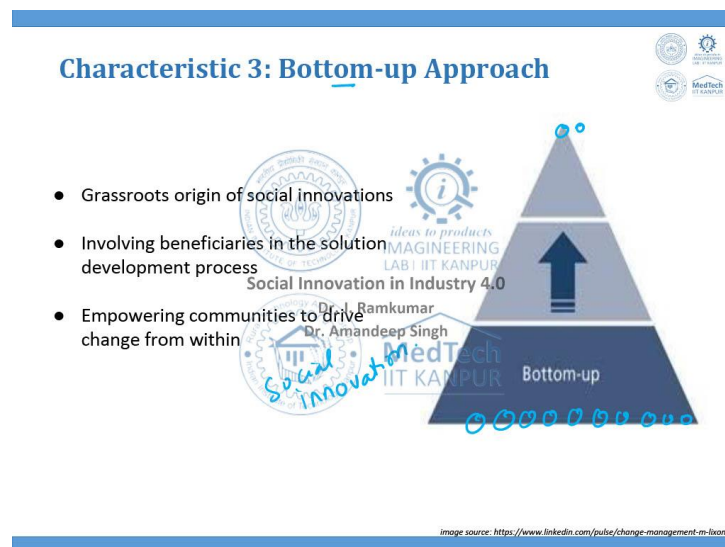
Today we use digital media. So, that is what we are saying leveraging technology, use technology for greater connectivity between the stakeholders. Open and Collaborative is very very important.

Today in the research field, there are lot of good papers getting published collaboratively between institutions. It is intra-institute and inter-institute collaboration leads to larger success.

Suppose, let us assume there is an expertise of X, this is an expertise of Y. When X tries to publish papers, he tries to publish paper here, and not many people go so deep.

Same way, with Y, if you do, you get to make those papers here, research work here, but when we have a collaboration of X and Y, we start publishing papers in this zone, in this plane, and it will attract lot many more researchers and a novel initiatives can be taken. Collaboration helps in a big way.

Today, Government of India is pushing hard to have inter-institutional collaboration and collaboration of academia and industry. For a Social Innovation, Open Mindedness and Collaboration is very very important.



The third one is Bottom-up Approach. Bottom-up Approach is where there is a need, you have identified the need, based on the need, you try to start developing towards solution, rather than develop the solution, which you keep and pushing it down.

So, Bottom-up Approach means here in which we use lot of grassroots innovators, understand the unmet need, and then help them financially, ecosystem technology in developing products such that these products are sustainable.

So, Bottom-up Approach is one thing, the grassroots origin of Social Innovation comes from Bottom-up Approach. Even today, there is a huge space which is there at the bottom of the pyramid, which pushes you towards innovation and in our case we are looking for Social Innovation.

So, there are grassroots innovators who can develop products, who can develop process, there is a niche market which you can identify, and you can come up with protocols. Involving beneficiaries in the solution development process itself. For example, you are

trying to develop a solution for an unmet need community, then keep that community upfront into your loop and start developing products.

Do not develop the product and then push it into the customers and say that please accept the product that will not be going good. So, empowering communities to drive change from within.

So, kuth, you have to change yourself, when you try to change yourself or when something happens within you, within the society, there is a lead for Bottom-up Approach. Bottom-up approach is sustainable.

#### Characteristic 4: Prosumption and Co-production



- Blurring the lines between producers and consumers
- Engaging users as active participants and co-creators
- Shared responsibility for the solution's success and sustainability

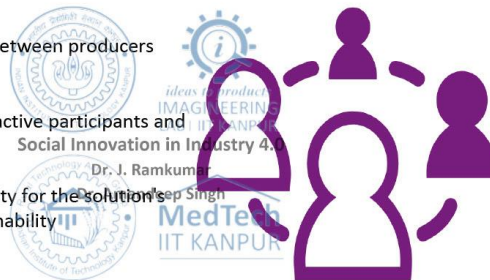


image source: <https://prodford-dasv.co.uk/im-a-professional/ralets-2/co-production-project/>

Pro-Sumption and Co-Production. Blurring the lines between producer and the consumer is Pro-Sumption. Pro-Sumption, blurring the lines between producer and the consumer is one of the characteristics of this. Engaging user as active participant and co-creators is also a part of Pro-Sumption and Co-Production. Shared responsibilities for the solution's success and sustainability is part of it.

## Characteristic 5: Mutual Dependence



- Recognizing the interdependence of individual and collective well-being
- Promoting collaboration, trust, and reciprocity
- Building stronger social bonds and community resilience

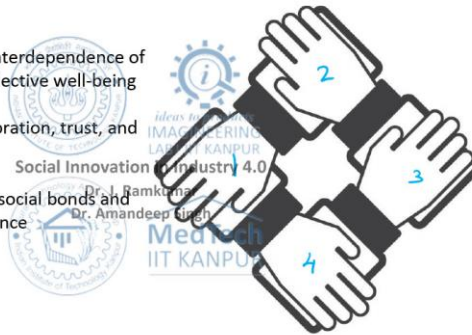


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Next one is Mutual Dependence. You recognize the interdependency of individuals and collective well-being. You understand each other's requirement. Recognizing the interdependency of individuals, individual 1, 2, 3 and 4.

Recognizing the interdependence of individuals and collective well-being, promoting collaboration, trust and reciprocity, building stronger social bonds and community resilience is very very important.

## Characteristic 6: New Roles and Relationships



- Redefining traditional roles and relationships
- Fostering new collaborations and partnerships
- Developing innovative networks and ecosystems for collective action



image source: <https://images.osp.aaa.ai/cd/CdaIAGfNMhdoe8>

Then, New Roles and Responsibilities as and when novel products get developed, then there are Roles and Responsibilities also have to be redefined.

So, redefining traditional roles and responsibilities or relationship. Initially the boss whatever he says used to be right, but today we are all talking about participatory governance.

So, redefining traditional roles and relationship, fostering new collaboration and partnerships, developing innovative networks and ecosystem for collective action. So, this is the 6th characters New Roles and Relationship.

## Characteristic 7: Resource Optimization



- Optimizing the utilization of existing assets and resources
- Identifying untapped potential within communities
- Leveraging available resources for maximum impact and sustainability



image source: <https://images.app.goo.gl/Qf53NEoUvphIMWt8A>

hen, Resource Optimization, optimizing the utilization of existing assets and resources. So, optimizing the utilization of existing assets and resources, then identifying untapped potential within communities, leveraging available resource for maximum impact and sustainability. So, these are the characteristics of Resource Optimization. So, we optimize the utilization of existing assets and resources. What we are trying to do is, we are trying to use the resource for multiple things.

For example, if there is a limitation for a society of people to make a school from class 1 to class 10, Suppose, like assumed, there are only six classes, the furniture is fixed, the desks are fixed, the blackboard is fixed.

So, here what you can do is you can run the school in shifts, run it in two shifts or three shifts, balance your timetable, and try to cater to a mass spectrum to get the resources whatever they have. So, all you need is a teacher, a fixed classroom, and then knowledge transfer happening in the classroom. So, optimizing the utilization of the existing asset and resources.

Then, identifying untapped potential within the communities. Within the communities there might be youth, there might be a segment of people who are too good for doing any business. So, identify them, tap them, and then get the best out of them. Leveraging available resources for maximum impact and sustainability.

## Characteristic 8: Capability Development



- Enhancing the capabilities and capacities of individuals and communities
- Building human capital, knowledge, and skills
- Empowering people to meet their long-term needs and aspirations

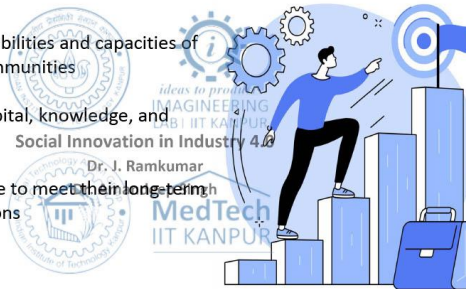


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So, Capability Development, enhancing the capability and capacity of individuals and community, part of the 8th character. Building human capital, knowledge and skills, empowering people to meet their long term needs and aspiration.

## Summary



Social innovation plays a crucial role in leveraging the benefits of Industry 4.0 while

- addressing its challenges
- ensuring a more
  - Inclusive
  - sustainable
  - ethical digital transformation

The adoption of social innovation, in Industry 4.0 should be a collective effort, driven by

- partnerships
- collaboration
- shared commitment to social and environmental well-being.



In a Summary, if I have to discuss about this entire thing what we have seen in this lecture is , understanding the Core Elements and Characteristics of Social Innovation is crucial in creating effective and impactful Social innovations. It helps in designing solutions that truly address social needs, engage diverse stakeholders, maximize the utilization of resources.

Incorporating these Core Elements and Characteristics, Social Innovation can have a lasting and a meaningful impact on society. So, in this lecture, I would like to give an assignment.

The assignment is focused on Mutual Dependency in Society, which is a cluster, can be any cluster, leather cluster, pottery cluster, leather cluster, any cluster.

So, you have to tell me who are all the different stakeholders, what is their Mutual Dependency on each other, what is your interpretation for Mutual Dependency in a Society. Thank you very much.