

**Entrepreneurship and IP Strategy**  
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**Lecture No. 07**  
**Types of Innovation**

A very warm welcome in the second module of week 2 of the course, entrepreneurship and IP strategy, title, types of innovation. We know now, what is invention, innovation and creativity. Now, in this module we will try to understand what are the different types of innovation.

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Now, when we talk about a types of innovation, there are various ways of classification of innovation. We will deal with only 2 types, means the classification based on two different, what we can say the basis on which the classification is done. So, this is a first way of classification of innovation. You can see here in the matrix, there is an incremental, architectural, modular and radical and then you are seeing the as a minor change, novel change, existing and a novel and this words you are seeing here.

Now how to understand this classification. On the y axis it is a related to component knowledge, I repeat on y axis, we are looking a component knowledge and on the x axis we are concentrating on a configuration of a components. So, we are taking two points here as on y axis component knowledge and x axis we are considering that configuration of a component.

Now, just you relate that particular thing and try to understand what this matrix is saying you about this 4 types of innovation. So, here it says that if you concentrate on a modular one it says that its components are existing one. So, you can take any example of innovation, and you just have to remember that when I am talking about a modular that I have not changed anything about the components, but I have changed something about the component knowledge that is a novel change is done, when there is a change in that component knowledge, that type of innovation is called as a modular type.

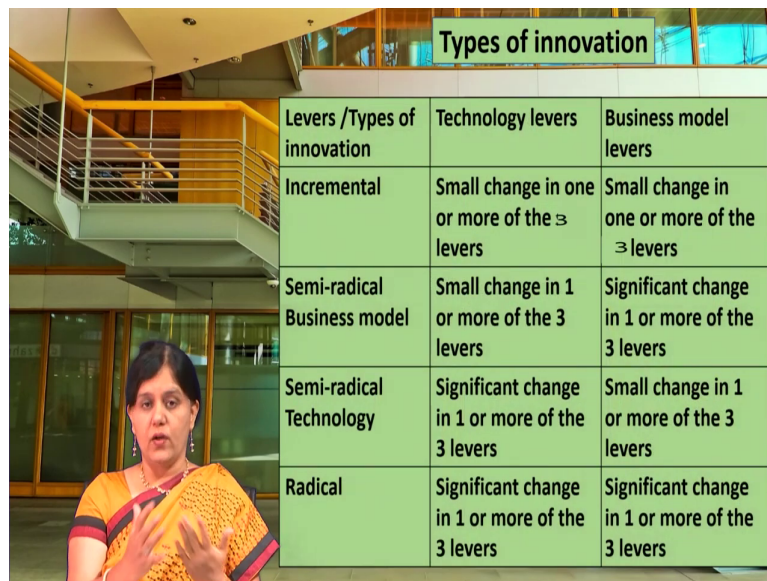
Now, on the same line if we see the radical innovation, in the radical innovation you can see, there is a novel change in both that component knowledge as well as a component a configuration and it is a radical that is changing both the components like knowledge and configuration.

Now, if you see the third type that is incremental, here, there is a minor change in the, what we can say the component knowledge there is a minor change, and that component configuration is not at all change or it is as is it, so it is an existing one. And, if you go on the architectural side, again it is a minor change in the component knowledge and there is a little or novel change, novel change is there in the components.

So, if you see this four types, that is a modular incremental, architectural and radical, radical you can appreciate that everything means, both the things are novel. So, probably that invention or innovation whatever it may be, it will be a very, probability is that it may be disruptive also. So, here what the thing happening both the components and the knowledge, both are changing given this is a one classification.

I hope that you have understood that 4 different types of innovation incremental, modular, architectural, radical. Radical will be the most what we can say a disruptive kind of thing and you can say that incremental will be the lowest one that that will be very minor change and it will be mostly existing. So, incremental will be, so the scale will be from incremental to radical kind of thing, if you see, so this is the one type of a classification.

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Levers /Types of innovation	Technology levers	Business model levers
Incremental	Small change in one or more of the 3 levers	Small change in one or more of the 3 levers
Semi-radical Business model	Small change in 1 or more of the 3 levers	Significant change in 1 or more of the 3 levers
Semi-radical Technology	Significant change in 1 or more of the 3 levers	Small change in 1 or more of the 3 levers
Radical	Significant change in 1 or more of the 3 levers	Significant change in 1 or more of the 3 levers

Now, if we move further, there is a next classification that is based on the business, what we can say the model levers and technology lever. So, we are taking into consideration now that types of innovation based on the technology levers and a business model levers. Now, what are the different technology levers are there. So, there is a product and service as a technology lever process and a third one is a enabling technologies. I repeat, product and service then process and then the enabling technologies. So, these are the technology levers.

Now, what are the business model related levers are there first is a value proposition, that is what exactly is offered or what is exactly changed that is a value proposition is the supply chain that is a how you are doing that particular business model innovation and target customer that whom to whom you are offering your either product or process or service whatever it may be, but who is your target customer.

So, business model is depending on that value proposition what exactly you are offering, supply chain that is how and then the target customer that is you are answering to whom. So, if you are changing any of these 6 levers there will be a change and that will be considered as a types of innovation. So, you can see a incremental then there is a semi radical business model, semi radical technology and the radical.

So, 4 types of innovations are given. If you see in the earlier model, there are 4 types like incremental, modular, architectural and radical. Now, here in this types, they are considering

incremental and radical both as is, but they are instead of saying that the modular or instead of saying it as an architectural, they are saying it as a semi radical and semi radical in business model and semi radical in technology. So, what exactly it is changing and we have understood there are 3 levers for technology and 3 levers for business model.

So, what exactly is happening in incremental, in incremental when we talk about a technology levers or it may be a business model lever when we are talking about incremental only minor change a small change is there in any of the levers. So, either it may be 3 levers of technology or 3 levers of a business model that is either there will be a minor change in product offering or a service offering or there will be minor change in the process or there will be a minor change in the enabling technologies.

Or there may be a minor change in value proposition that is what you are offering a minor change is done or there will be a minor change in supply chain or there will be a minor change in the customer, customer base you are just shifting but that shift is a little only. So, if that kind of change is there then we call it as incremental it is a basic what we can say a type of innovation, in first classification also we have seen incremental is a basic one.

Now, next is a semi radical business model, when we are talking a semi radical business model, what the thing is happening, business model we are talking about business model. So, there will be a significant change in one or more of the 3 levers of the business model. Which are these 3 levers of business model? Value proposition, then supply chain, and then the target customer. So, there is that change. So, significant changes there in the business model. And obviously we are talking about a business model semi radical innovation, so there may be a minor change in the that technology levers.

Next is a semi radical technology. When we talk about a semi radical technology of exactly opposite it will happen that there will be a significant change in technology levers, which are this technology levers? Product and pre-service, process and enabling technologies. And, here there will be minor change in the business model levers that is a semi radical. And as a radical that is the last one, you can guess easily that is increment that is a minor change in any of them, what we can lever, here, what did they what the thing is happening, that there is a significant change in one of the technology levers or one of the business levers if anything is there, that significant change will bring a radical innovation.

So, you can appreciate that thing, that when there is a drastic change or major change is there we are talking about radical and if there is a minor change we are talking about incremental. So, incremental radical these are the two what we can say extremes, one on that basic side one is at the advanced side and in between that semi radical is coming either business or a technology. Or in the first classification, we have seen it is same, that is, it is a, like a incremental and radical, but the change is like a modular and architecture, because we are talking about a configurational knowledge and configurational, that component knowledge, so we are talking about knowledge and component configuration.

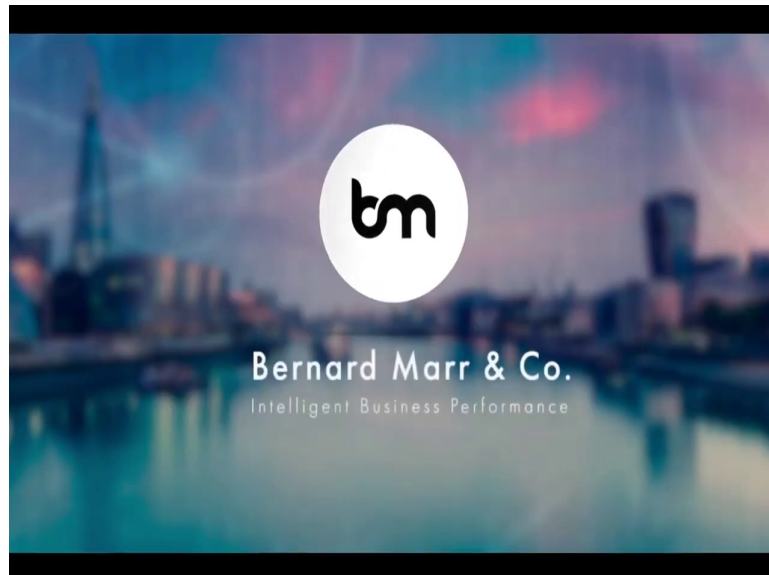
So, these are the two basis then there are various like, you may have heard about a disruptive innovation, or you may have heard about a sustainable innovation. So, these are the different names or different words probably you have heard. So, if I want to add something about that particular thing, generally there is radical innovations, generally I am not taking that every time, but generally radical innovations are disruptive in nature. Disruptive is like a completely that technology field is completely upright change that we call it as a disruptive, disruption that is a complete change, so that we call it as a disruptive.

So, but generally this is you just remember, all radical innovations will not be disruptive in nature; we have to just remember that thing. Sustainable as name suggests that whatever innovation you are bringing in any of the process or a product, that innovation is a sustainable, longer time it will be like it will not affect much on many factors, but that will be a and it will be a sustainable, long time it will remain as is there will not be any effect on the complete setup and all that thing, so you can appreciate that sustainable change is their, continuously constant, that kind of a scenario is there.

So I guess you can, I am just giving you the idea in what we can say, I am not talking about a hardcore management language, I am just giving you an idea in a very simple language. So, you just appreciate that language do not get it, don't consider it as a management language, it is a very simple name, what we can say language I am using and that way I guess I am able to convey that, this is one type, this is another type then sustainable then disruptive probably you can understand that, these are the innovation types are there.

Now, what I will suggest to you that we will just watch this video, and then we will just go in later in a little bit details about that particular thing.

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Here are the ten best examples of how artificial intelligence and machine learning are used today. Hi, I am Bernard Marr, and I am the author of the book artificial intelligence in practice and what I did in this book is I looked at fifty different companies and how they are using AI today to make a real difference and drive success. So, in this video, I want to give you an overview of some of the top 10. So, the first companies, the first ten companies I talked

about in this book, I would, I call the AI trail blazer. So, some of the companies that really embrace artificial intelligence. So, here are my top 10.

So, I hope you have enjoyed this video, you can, if you want you can go into details of that. So, that you can see the what are the different what we can say the innovations that he has taken into consideration artificial intelligence, and how that artificial intelligence is helping in the innovation that is taken into consideration.

Now, here when we are talking about incremental innovation, we have just seen that types that is incremental innovation or a semi radical innovation or a, that radical innovation. Here, if we see the radical innovation if it is that, that radical incremental innovation is like a leads to a small improvements, we have understood that thing that is no major investment is there when we are talking about a company point of view, that incremental change there is no major investment, then it is a generally sustainable for a long period of time, generally that incremental.

I am just giving you the characteristic of an incremental, then what we can say here, that it provides a protection for a competitive erosion means it is like a when organization is continuously what we can say improving on the product deliveries or service deliveries, generally it is like a it will protect it or that particular incremental innovations will protect organization from a competitive erosion, that is a advantage of that incremental innovation and generally these are followed in the organization continuously, it is a continuous process.

Then, here when you are talking about a semi radical innovation. These are a little bit what we can say asymmetric with respect to a business model or a technology we have seen that 2 levers are there. So, business model or a technology levers are there and this is little bit like a asymmetric. Now, the change is like linked to the other obviously, if there is a change in technology business model, probably it is there, there will be a minor change in that business model also or if there is a change in business model probability is that there might be change in the technology also.

So, these are related, so that when we are talking about a semi radical innovation is happening, obviously they are related to each other. Now, it creates an opportunity to other means, like one change in technology is a I am talking that if you change minor thing in the technology, obviously there is a possibility of a change in the that business model or if you change or make a major change in the technology you can think of a further business model

development, so we can say that one innovation feeds to the another further innovation. It is like a it feeds to the next innovations and it goes on continuously. Ok.

Now, here this organizations when we are talking about innovation, these organizations are continuously trying to do innovation they may be incremental or they may be semi radical, radical innovations it is little bit a time taking and it may not be that frequent that we have to understand. And, if we want to see the some examples like innovation, I can give you the best example like a Southwest Airlines are there, so that is a best we can say a service innovation is there and how effectively they are managing the complete service of Southwest airlines or a Walmart is giving the service, how exactly they are doing that particular activity and how particularly they are showcasing different products in their what we can say premises, so they are always doing innovation in that particular thing.

So, obviously, if now you try to think on that changes which are occurring day to day life, whatever brands, whatever products or whatever services you are using, you will observe that yes, there are changes, for example, simple change, which probably everybody of you observe that Google every time is given you, giving you a different presentation on a Gmail, I am just taking example of a Gmail, I am not talking about extra application they are providing, but only that Gmail also they are giving you some, some or the other minor changes they are doing and they are just offering that thing. It is minor changes, so it is a incremental innovation. So, you can appreciate that incremental innovation is there. Right?

So, similarly if there is a substantial change, for example, laser technology came into existence, it is a substantial a radical change is there in the technology and you see that because of that, so many, what we can say sector, industry sectors, they have adapted that laser technology and you can see the wonders of the use of this technology. So, here what the thing is happening or artificial intelligence it is completely shifting the, what we can say the industry offerings because of that particular technology.

So, this is we can say this is a radical innovation. Right? So, in this way what the thing is happening continuous innovation is going on some are minor, some are major, minor we are talking incremental, major it is we are talking about radical that is a substantial changes there and there are some in between we are talking it as a semi radical.

So, it is not important, it is important as to know that what are the different types of innovation, but when we are talking about a your entrepreneurial activity, you have to



understand that, ok, I am doing something, this is my business model. You have that business model, you have some technology in your hand and you are giving that offering to the, what we can say, your customers, you have determined who are your customers, you know that 3 levers of technology, 3 levers of business model, you can apply these 3 levers to your business model to your technology.

And you can just check that ok this is something I can change, and I can give, I can I, if there is a possibility of innovation in my offerings. So, you can use this session for your entrepreneurial activity to just know that, ok these are the types of innovation, this is my offering, I am giving this product or I am giving this service. These are my customers, I know these are the technology levers, I know these are the business levers. Now I am going to use this business levers or I am business model levers or technology levers for my continuous improvement in my offerings.

So that way, if you see this lecture that will be very beneficial for you as an entrepreneur. I guess you appreciated this innovation and types of innovation. And, here we come to the end of this session. Thank you.