

Project and Production Management
Prof. Arun Kanda
Department of Mechanical Engineering
Indian Institute of Technology, Delhi

Lecture - 3
Project Identification and Screening

In this lecture we are going to be talking about project identification and screening. If you recall in the first lecture when I gave you an overview of project management I discussed the life cycle of a project and the first stage in the life cycle of a project was the birth of a project; how a project is identified and how exactly that project is undertaken for subsequent implementation. We are going to talk about this phase of project identification and screening today which is in fact a very vital phase because it governs subsequent success of the entire mission. What does project selection consist of? Project selection as the first stage in the project life cycle consists of number one the problem of identifying a suitable project. This is a phase where you look around, you identify what your objectives are and you try to identify what your strengths and weaknesses are. Around that basis you identify the project to be taken up. We are going to be talking about this phase in great detail today but you must link it with the other parts of project selection. Once a project is identified the next phase is the phase of project appraisal where you are trying to evaluate whether the projects that you have identified are actually worthwhile in terms of their financial capabilities in terms of the objectives that you set out to achieve. That is the phase of project appraisal and incidentally as you are aware a project feasibility report is generally an outcome of the project appraisal activity. Every project generally has a project feasibility study done and this particular project feasibility study is an outcome of the project appraisal which is done in the project. Once the appraisal is done the culmination of this particular phase is the selection of the project.

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The selection of the project is a problem where you have already selected or identified a number of projects. They have different characteristics and different accomplishments and you are trying to identify which out of those projects is the best one. This problem of project selection is not an easy one. Why? Because there are number of conflicting criteria involved. One particular project might be good on the front of the net present value but might be a very risky venture. Another project might be less risky but might give you much higher returns. So there are always tradeoffs between conflicting objectives and you have to take these tradeoffs into consideration to decide on how to choose the best particular project and in this case the best is again identified by what you want to do? It is subjective. It depends upon the priorities of the decision maker and these priorities ultimately help us in identifying the kind of weights that we would like to give to various criteria and in that sense this problem is identification, appraisal and selection. Quite often all these three steps could be done simultaneously, concurrently.

For instance when I go to buy a particular product in the market I might immediately like it. That means I have already undergone an appraisal in my mind and I might immediately select that particular product. But when you are talking about projects which have massive investments involved you have to make sure that they are properly appraised and then you have a formal method of selecting the right kind of project. This is essentially the phase of project selection when the birth of the project takes place. Precisely! You can use the techniques of decision matrix. You can use any other criteria in operations research for choosing between the best option. We will in fact look at various multicriteria decision making techniques which can be useful for selecting the best project.

Let us now look at this problem of project identification in a little greater detail. Project identification begins with what your objectives are, identification of the objectives.

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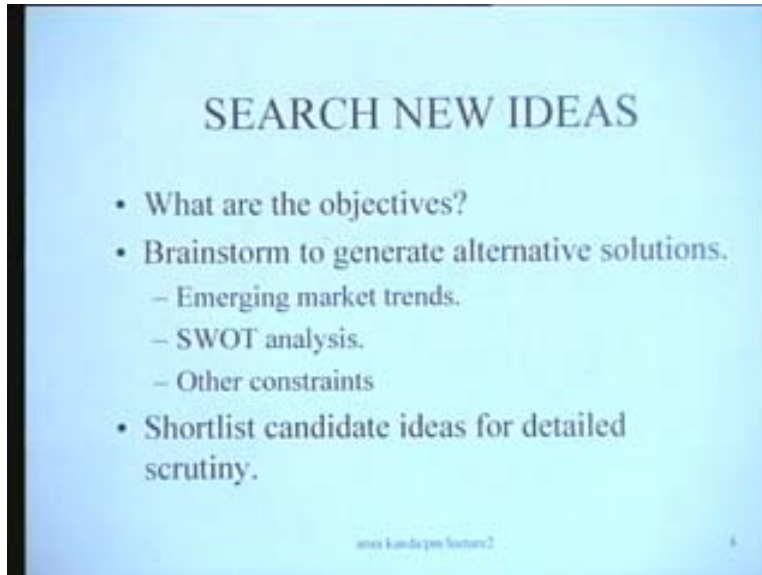
What is it that you want to accomplish? What are you trying to do? These are the kinds of motivating issues. First thing is you must be clear on what your objectives are? Then after the objectives there are two things that you must look at as far as your own strengths and weaknesses are concerned. If you are an organization, thinking in terms of expanding into a new area then you must consider what your current strengths are; what your current weaknesses are and how you are going to live with these strengths and weaknesses with regard to the new project which you are contemplating. Assessment of strengths and weaknesses is like a process of introspection; is like a process of looking within you. It is like trying to identify that this is what I am strong at and this is what I am weak at and therefore if I undertake a project of this nature will I be able to cope up with it with the kind of strengths that I have within me.

Apart from this introspection you have to look outside to the world, to the environment to the markets and when you look at the markets and the environment you are essentially looking for the new opportunities which exist in the market. What are the new threats which emerge as a consequence of may be new technologies, new products which emerge and so on. So you look at the opportunities and threats. Essentially what we are trying to do is we are looking at the strengths, weaknesses, opportunities and the threats. We are doing what is known as a SWOT analysis; s w o t analysis. It's a process of looking within and a process of looking outside to identify these so that you can choose the right kinds of projects and on the basis of this analysis you have to do some thinking. You have to find out exactly to achieve these objectives with the kind of limitations that I have and the kinds of strengths that I have, under these opportunities and under these market threats what are the kinds of project possibilities that can exist? This is the process of project identification and this is not a process which can be made very systematic. It's a process which is essentially innovative. It looks for creativity in the individual or in the organization and you are trying to look for new things which can happen. What are the new opportunities? What are the new kinds of things that can be done and you look for these alternative project possibilities. Broadly this is a kind of an overview of what we are going to be talking about in detail now.

Let us see how do we search for new ideas? Basically the process of project identification is a process of searching for new ideas. How do we search for new ideas? Obviously we must first find out what are our objectives? Are our objectives to make money or do we have more philanthropic objectives? Are we trying to help people in disaster without expecting any monetary returns? Depending upon what your objectives are your projects would be different and very different. Once you have identified your objectives invariably you will have to brainstorm to generate alternative solutions. Brainstorming is the process where generally a group would sit down and identify exactly what could be done to solve a given problem? You are utilizing the vast experience base of all the members of the group and you can consider various things. You can consider for instance the new market trends; emerging market trends. You might want to do a strength, weakness, opportunity, threat analysis; a SWOT analysis as we said to identify exactly the right kind of solutions for your particular situation. You might consider any other constraints that you might have within and on the basis of this you would probably shortlist candidate ideas for detailed scrutiny. This detailed scrutiny of the candidate

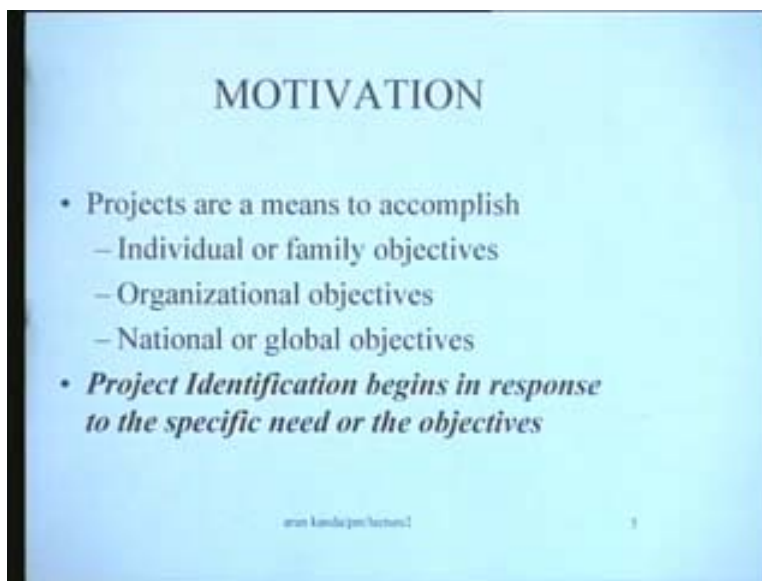
ideas could actually be done during the phase of project appraisal. You must first generate the ideas and then evaluate the ideas. We are at the moment talking about generating these ideas which would subsequently be short listed for a detailed scrutiny. This is essentially the process which is involved.

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What is the motivation for this?

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If you look at the motivation we must realize that projects are a mean to accomplish some goals. If you recall the definition of a project we had said that a project is essentially a

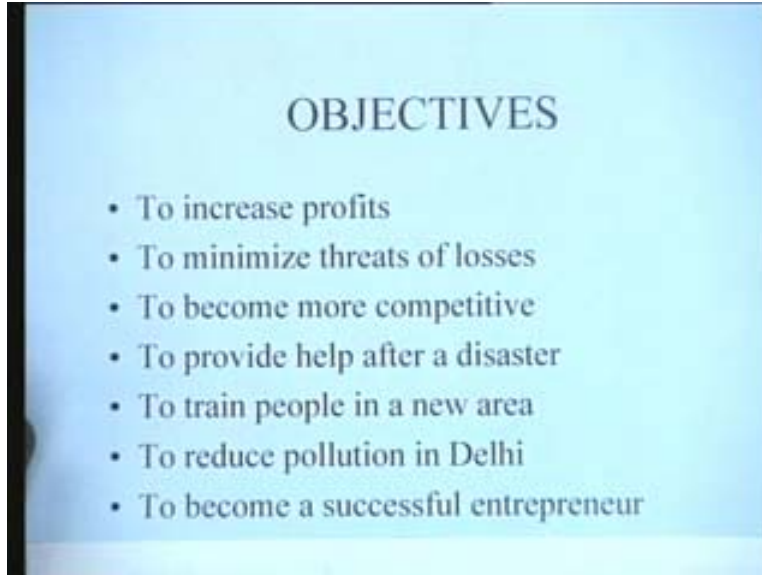
means to accomplish some goal or objective and remember that these goals could be either individual or family objectives or they could be organizational objectives. Organizations want to achieve a number of objectives like growth, like diversification, like increase in their profits and things of that kind. There could be national or global objectives. Really speaking one must recognize that project identification actually begins in response to the specific need or the objectives. That's the motivating force for setting up or deciding on a new project by identifying new kinds of projects.

What could be the nature of these objectives? Here is a partial list of the kinds of objectives that companies may have when you are trying to conceive new projects. Your objective may be to increase profits which is a very, very common objective; mundane objective really and yet a very, very prevalent one. It could be to minimize the threat of losses. Quite often new projects in companies are motivated because the sales of current products are declining and therefore you want to introduce some new products which will be probably able to boost up the sales that hold the company together. So to minimize threats of losses could be one of the other objectives. To become more competitive is again a very, very major objective today. Today's environment is much competitive than what it was 10 years ago. The markets have become more competitive. Multinationals have come on the scene and as a consequence the companies which existed and were fairly comfortable while operating in a monopolistic mode now have to think in terms of becoming more competitive either in terms of their prices or in terms of their quality levels and things of that nature. This could be an objective. You could have a quality improvement project within a company which could be motivated by this kind of objective.

This is an example of a philanthropic objective. You remember the train accident which took place recently near when the frontier mail banged into rather it was another train that banged into the frontier mail and there were a lot of people who were trapped and in fact it was a project undertaken by the villagers there to help them out, to take out all the bodies at night and the kind of work that they did. That was a project which was essentially a philanthropic project and the objective was to provide help after a disaster; that's a project that was there. To train people in a new area is another example that could be undertaken for project. You have for instance these days lot of people learning programming languages and especially the latest craze is learning java and this is again a project which you could start training people in newer languages and whatever it might be.

Another project, a very significant project which really needs to be done is to reduce the pollution levels in Delhi. In a city like Delhi where because of vehicular pollution the living is becoming very, very difficult, you could undertake projects to reduce this. Again this is an objective which could motivate some projects. To become a successful entrepreneur after graduation for many of the undergraduate students or graduating students from this institute for instance one of the projects could be that I would like to setup a factory of my own and be a millionaire very soon.

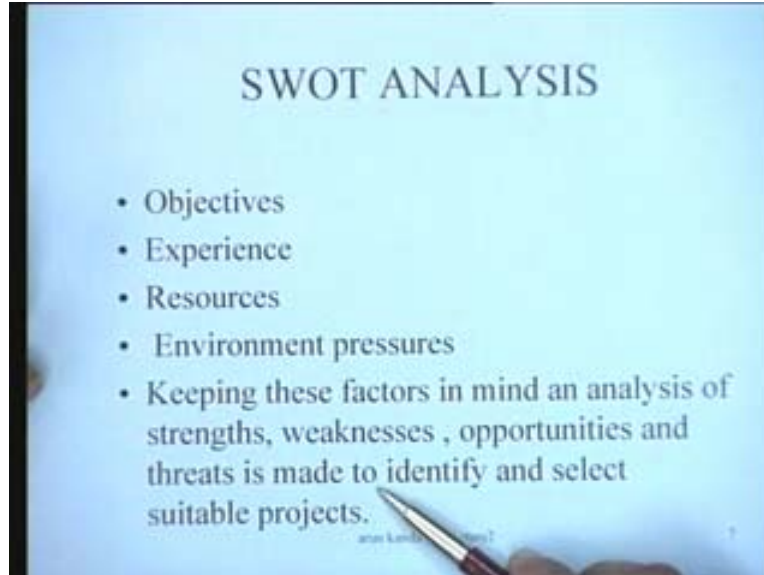
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This is a project and in order to implement this project you will have to undertake large number of activities but then this is a project in that sense. It is a personal project, personal improvement project. This is just to give you instances of projects.

Let's see what exactly happens when you are talking about a SWOT analysis or a strength, weakness, opportunities and threat analysis. Again this is motivated by what your objectives are. It could concern things like what's the kind of experience that you have? What are the resources at your disposal? What are the environmental pressures that are governing the whole thing at the moment and keeping all these factors in mind an analysis of strengths, weaknesses, opportunities and threats is made to identify and select suitable projects.

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This is the broad idea behind a SWOT analysis. It's not done in isolation. It's done with the intention of identifying your strengths, weaknesses, opportunities and threats so that you can undertake a particular kind of project or a set of projects.

Now let's look at what typically would be the kinds of questions that you would be asking when you are doing a SWOT analysis? Some are the strengths; what do you mean by strength of an organization or strength of an individual? Typically in the strengths you could cover things like what is your experience and what is your expertise in a particular area? This is a big strength. You can take cognizance of this strength and then develop whatever you want to do. What is the financial position? How much money you have? How much money can you raise and therefore as a company depending on your financial position you can contemplate what sort of projects you can go into. What's the amount of money that you can invest? That's a strength. What is your capital raising capability? We hinted at that. What are your industrial contacts? I mean do you have a network operating with the major politicians or with the major bureaucrats or with the major capitalists in the country which can help you. So that is a strength. Do you have any foreign collaboration? These kinds of things are parts of your strength analysis.

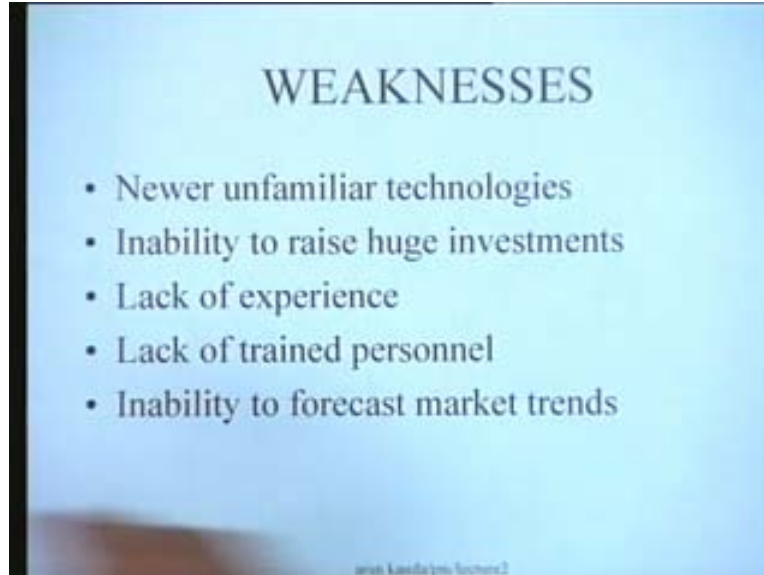
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Yes it can be; foreign collaboration can be both strength and a weakness depending upon how you look at it. For instance, foreign collaboration with a company which is very progressive and which has latest technology could be a strength because you have the greatest But at the same time a tie up with a foreign collaborator could also be a limitation because it would probably mean that you are not independent or you cannot develop the kind of components that you need because you are dependent entirely on the core supplier. So it depends; depending upon the

Let's look at typically the kinds of weaknesses that might emerge when you are doing an introspection. The unfamiliarity with new technologies could be a major weakness. For instance this is the computer age and if there is a company which is not aware of what is happening in computers then it is a terrible disadvantage. Inability to raise huge investments is also a weakness because probably you would not be able to undertake various kinds of projects if you don't have this kind of capability. Lack of experience is in fact a very major weakness. For instance if you want to delve into a particularly new area and you don't have any experience in that area, then you are at a terrible disadvantage and that is a weakness for you. So you have to be careful. Lack of trained personnel in a particular area is again a weakness. Inability to forecast market trends again could be a very, very big weakness because you don't exactly know how the markets are going to behave in the future and if you are familiar with these markets you might be able to predict to a fair degree of certainty as to how the demand is likely to be. Because after all the demand is one of the most crucial variables for any organization. The capacity to know or predict the demand is something very important and it could also depend upon the nature of the product because for certain products the demand itself could be very difficult to predict and especially if you are dealing with newer products then you might have no way of predicting the demand. These are some of the weaknesses that could be there when you are doing.

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Now let us try to identify what could be the typical opportunities that one could talk about in a situation like this. The opportunities could be the emergence of new technologies. Newer and newer technologies are emerging and you know it is an opportunity. This again could be both a threat and an opportunity. New technology is an opportunity because it's a kind of a vehicle for you to move ahead but at the same time it's like a threat because it is trying to displace some of the existing products; product are becoming obsolete. So it's a double **sided or edged?** sword really speaking in that sense. But generally an emerging technology should be seen as an opportunity which you should be able to cash upon if you can. New products with new markets are the opportunities.

There are new products coming up. You have new cellular phones now all over the country. So you can aspire to be a dealer for cellular phones in some city or in some other cities. Newer products, newer opportunities mean potential for growth; new processes with better features. Because of better technology new processes may be developed which have better features and they could be developing more in terms of either the efficiency or the output. So you have better features. Special financing schemes could be opportunities. I am quite sure that at a personal level you know this is the age when the consumer is enjoying a lot of opportunities. For instance if you are interested in buying a car, your project is to buy a car you have special financing schemes announced by various banks and other financial institutions and they would say you buy a maruthi and we will give you a gold coin worth 12,000 rupees free with it or we will fit it with a video system totally free. These are the kinds of opportunities which might come up from time to time and these are the opportunities really that come up and you should take cognizance of these.

Government and other incentives; there could be other incentives announced by the government from time to time.

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If the government wants to actually ensure that a particular area is developed, a particular backward area is developed then it might start giving you some kind of backward area incentives which is in fact an opportunity that is given to you to develop and setup your plants at that particular point of time. You could have some of these opportunities.

Now let's talk about some of the threats. I am just trying to give you some ideas about what could be the typical things which one could talk about in a SWOT analysis. Competitors could be one of the big threats to business; new people coming on the scene, multinational or otherwise whatever it might be. The poor state of the economy could be a threat because if the buying power of the people is low they cannot buy products and therefore even if you make very good products because of the poor buying capacity of consumers there would be no demand. Outdated technologies are threat. Unprofessional management skills could also be a very big threat in today's competitive world. If you cannot manage professionally your organization, that could be the biggest threat to business. You will probably not be in business especially when the scenario becomes so competitive and therefore it is necessary that you recognize these threats and try to do something about that. New products and services coming on the scene could be again threats.

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We have tried to broadly look at some of the major considerations when one is trying to do an introspection; to find out the strengths and weaknesses and is trying at the same time to look outside to identify the opportunities and threats so that you have a complete idea about yourself.

How do ideas for a new project come? It's interesting and in one particular study of how ideas for new products come, it was stated that sources for new product ideas could be from a variety of sources. You could have the marketing and sales people coming up with an idea for a new product and I think that this part is understandable because the marketing and sales people are the people who are in intimate touch with the consumer and therefore they know what the consumer wants and they can suggest that the new product should have these kinds of features. So source for new product ideas, marketing and sales department generally comes at the top; then research and development. This is the department which has the machine of developing new products and new processes and therefore by its very design it is trying to develop these. But you can see here that it's the sales and marketing people generally who exceed in terms of the total number of ideas generated for newer products rather than the R and D. R and D people probably catch on an idea and then work on it but that's the kind of thing.

Top management is generally responsible for giving ideas for new products and also for new projects. I think this is understandable because top management is really concerned about it. They are concerned about the success of their business. They have invested their money into it. They would like to make sure that the money does well and therefore they are attentive. They look forward to ideas from all sources and that is how they get ideas and they contribute to ideas. The production department will be sometimes giving you ideas about new products. It could talk in terms of either product simplification or substituting materials or making products which are simpler to manufacture and things. So they also come up with some kinds of ideas and the consumers.

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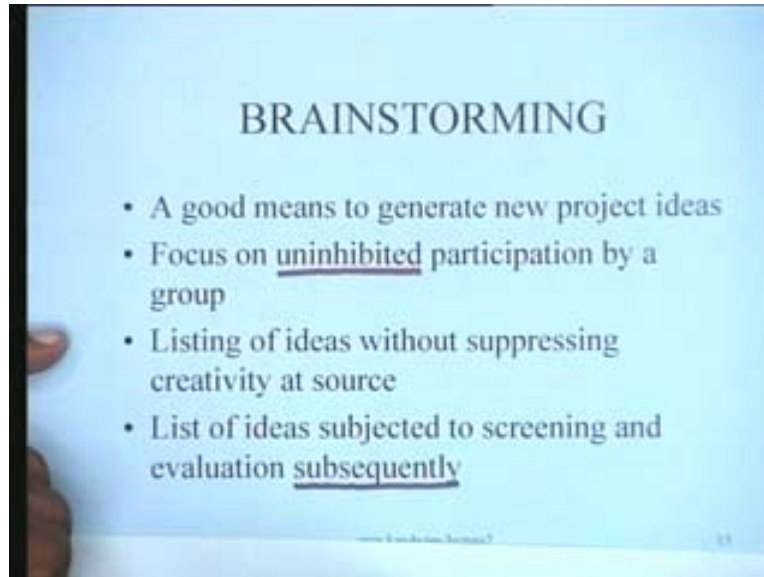
Sometimes the consumers themselves say. So the point is that if you look at a product, new product ideas come from a variety of sources. Similarly ideas for a new project can come from a variety of sources and therefore if you are looking for ideas for a new project you must keep your eyes and ears open. You must be receptive to ideas from all, from the top to the bottom in an organization. Anybody can give a good idea. The idea once it is given you know it doesn't really matter; as we have seen here it could be from any of these sources and it's only after a detailed appraisal later on you should determine whether that idea is really worthwhile or not. This process of generating new ideas is generally accomplished through a brainstorming session and how is brainstorming done? We will talk about some of the brainstorming activities.

Brainstorming is actually a way to encourage generation of creative ideas among individuals while they participate in a group. That's what it is and this is a very important exercise because on the strength of this exercise or on the results of this exercise hinges the performance and growth of the future company. **in that sense.** So all the top management or the people concerned get together let us say in a group and then they brainstorm and the information that is provided is the objectives that you want to achieve and the SWOT analysis. They know their strengths, weaknesses, opportunities and threats and they know that this is what we want to achieve. It's a competitive scenario let's do something about it. How do they go about it? A brainstorming is a good means to achieve this kind of innovation and to generate new project ideas.

The interesting thing here is this focus is on uninhibited participation by the group. I think the important thing to note here is that it is uninhibited. That's the key thing in a brainstorming session. When it is uninhibited you are actually trying to encourage people to think creatively. You are not trying to curb their thinking so that they can come up with creative ideas and listing of ideas is done without suppressing creativity at source because of this. Even if someone gives a silly or a stupid idea, to begin with the norm in

brainstorming is to just record it and not to scoff at it or not to evaluate it at that stage because that would in fact curb the creative urge in the individual. The list of ideas once it is taken is subjected to screening and evaluation subsequently. It's not evaluated there itself but it is evaluated later. That is I think another point to be noted.

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What we do is we basically generate a group of ideas in which normally the members participate together and once they participate together each member would give some idea which is recorded and once you have a sufficiently long list at that stage you can suspend this process and then go to evaluation or to screening. That would be the general way of looking at brainstorming exercise.

Let me just mention how screening is done. Screening of each idea could be undertaken based on some criteria. Typically one could think in terms of criteria like what is the cost of the idea? What is the risk involved? What is the return if I implement this idea and is it a hazardous thing? Does it mean a threat to life or property or groups of people; these kinds of things. You could have a variety of other criteria and for each criterion you have a sheet like this. You can probably tick each idea by saying whether it is poor or fair or good or very good or excellent and may be if we use a 5 point scale poor could be given 1 mark, fair could be given 2 marks, good could be given 3 marks, very good could be given 4 marks and excellent could be given 5 marks. For instance this particular idea that we are evaluating on the cost front is fair. So we put fair there and the moment we put fair in that particular idea it's like saying we have taken this. Similarly as far as this idea is concerned, as far as the risk is concerned it's not very poor; it's quite good. So we put a mark there. On the return aspect we find that it is very good. We put a mark there and on the hazard aspect we find that it is fair. So it is like this. What can be done is that these individual criteria that we were talking about could have different weightages depending upon management's priority. Let us take for instance that management wants to give a weightage of 20% to cost, 30% to risk, 40% to return and 10% to hazard.

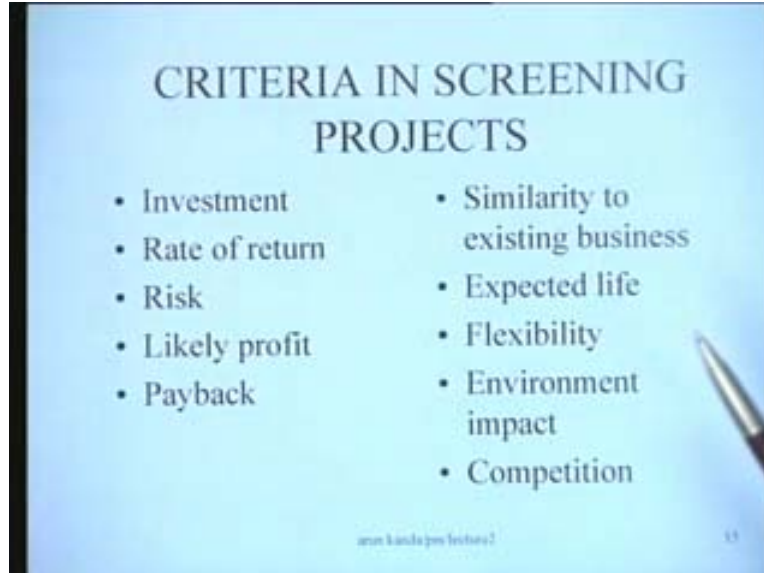
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	Poor	Fair	Good	Vgood	Excellent	Weight
	(1)	(2)	(3)	(4)	(5)	
• Cost		2				20%
• Risk			3			30%
• Return				4		40%
• Hazard		2				10%
•	$(score = 2 \times 0.2 + 3 \times 0.3 + 4 \times 0.4 + 2 \times 0.1 = 3.1)$					

Then the total score for this particular idea would be 2 into 0.2, 3 into 0.3, 4 into 0.4 plus 2 into 0.1 which is 3.1. So you have a means of identifying quickly, on one particular sheet, how much this idea is worth? It's got 3.1 points. So you can evaluate all these ideas and that is the screening analysis because we are not subjecting it to any great kind of appraisal. We are not trying to find out what the profitability is or what the risk is. We are just doing a broad screening of ideas to eliminate so called ridiculous ideas from the non-ridiculous ones in this.

What could be the typical criteria that you could have in screening? Some of the important criteria that you have in screening projects could be the investment, the rate of return, the risk, the likely profit, the payback, similarity to existing business, expected life flexibility, environmental impact and competition. There could be many more criteria but this is only a kind of a list that tells you that you could be screening projects on the basis of these criteria and you could do this kind of analysis.

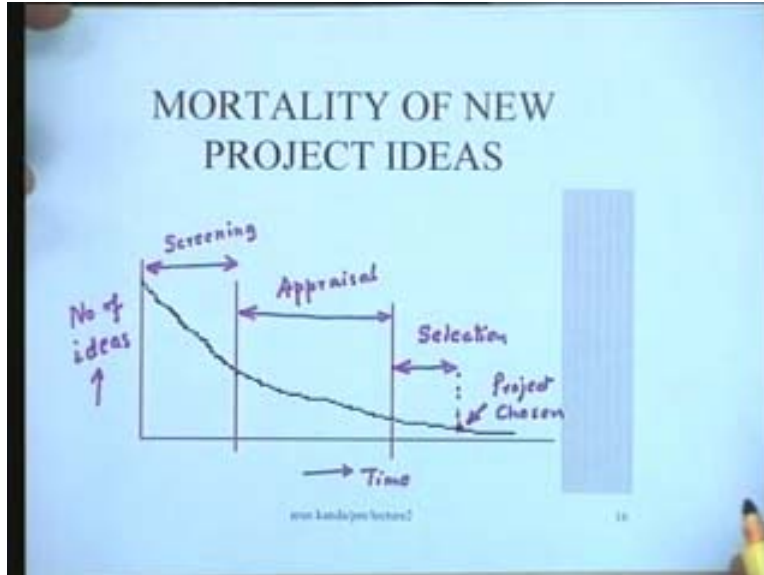
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Now look at the process of screening these ideas. For instance if we plot project ideas, the number of ideas are here on this axis and let's say we have time on this axis. What really happens is that we brainstorm and we generate a number of ideas may be we have generated some 50 ideas. These ideas are now subjected to a process of screening and during this screening which goes on from here to here you have only roughly half to one third ideas left. I generated a large number of ideas during the brainstorming and during this exercise the number of ideas left is less than half or one third. These ideas which have undergone a screening are subjected to a more rigorous appraisal which is what we will be talking about next time.

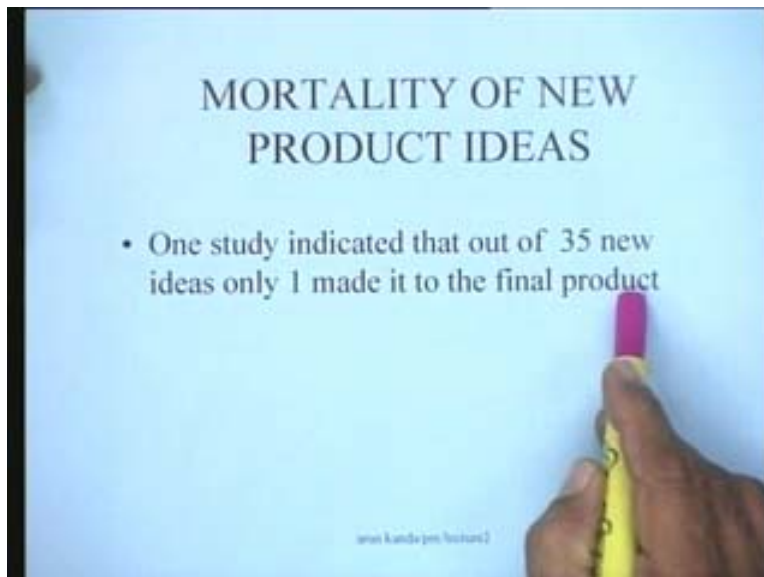
In the appraisal process you look at the market appraisal, the technical appraisal, the financial appraisal, the ecological appraisal, the socioeconomic appraisal and the casualty rate is much smaller here and finally after you have done an appraisal you have a project feasibility report of 3 -4 tentative projects. Ultimately you select a project here. So selection is here and at the end of the selection you have basically one project which is chosen for implementation. This is the project chosen which you start implementing.

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I think this would give you an idea of the successive stages through which various ideas pass before you get a successful project. We are discussing at the moment this phase today, project identification and screening and how you get this particular idea. There is an interesting result. In new products, there is a study which states that out of 35 new project ideas only one made it to the final product.

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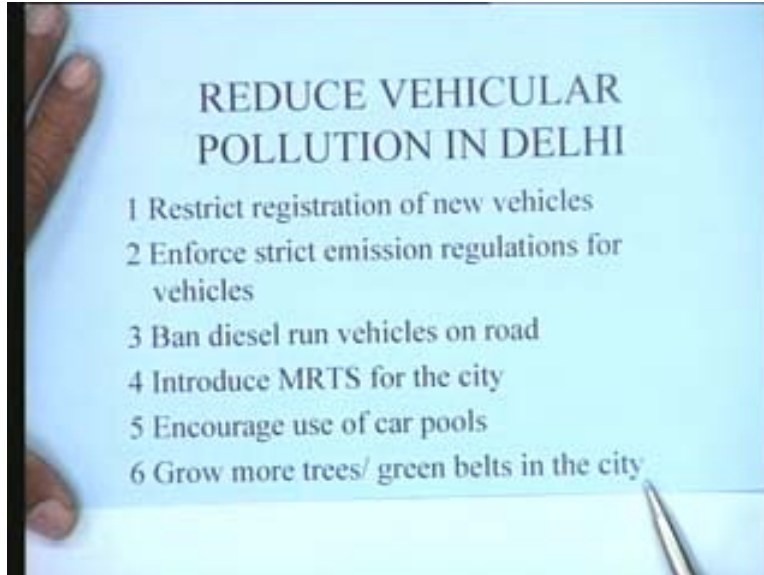
What it really means is if you look at this particular diagram there are 35 ideas here and only 1 makes it finally to the final project. I think we have now discussed the basics behind the process of project identification.

I think it would help if we take a small case study or a small example problem to do this exercise and see how we can actually identify new projects. For that let's think of a broad objective and one objective that we can all probably work with is let us look at this problem of reducing vehicular pollution in Delhi. This is our objective. Let us try to identify projects for this. That means let us undergo a kind of a brainstorming and all of us will try to identify some kind of a list. May be one particular project that could be identified is restrict registration of new vehicles. Instead of stopping production you can assume that production of vehicles takes place from where it goes to polluted cities. But polluted cities will not allow **to be registered – can be added** vehicles to enter. Restrict registration of new vehicles could be one way of dealing with this which is the first exercise. We will evaluate it subsequently, go through a screening and find out what is the best?

Another objective could be to enforce strict emission regulations for vehicles. This could be done. The police could be going around the city and doing detailed checking of your exhaust and there could be severe penalties for not conforming to the emission regulations. We have this being done. In fact the government does it off and on and sometimes it gets very strict and then it gets very lenient. But then this is another project that could be undertaken. A third project could be probably ban diesel run vehicles on the road. This could be done because diesel vehicles as we know are responsible for much more pollution as compared to the other vehicles and in fact this could be a project which could be undertaken. Fourth idea could be to introduce a mass rapid transport system for the city. In fact as you know the government has been toying with this idea of making a mass rapid transport system for the city either a tube railway or a tram system or something.

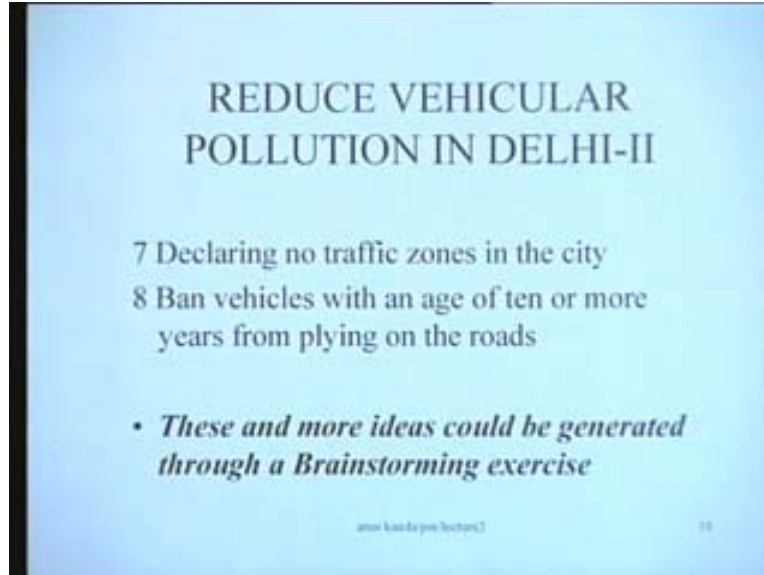
Let's talk of some mass rapid transport system for the city so that this would then discourage people to use their private vehicles and they would use this and hopefully the pollution will go down. Let's talk about fifth project which is to encourage the use of car pools. Large numbers of people drive to their offices independently in cars. They could probably coordinate and use more of car pools that would reduce the number of vehicles. We are identifying projects right! Another option could be, sixth project that we have identified is this, grow more trees or green belts in the city.

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This could be another project which would possibly improve the environment of the city and cut down on pollution. This is project number 6. Then let us see what else could be done. Seventh project that could be identified is declaring no traffic zones in the city and you can identify some crowded areas like Chandni chowk or may be near Connaught place and you say that no vehicle will go there and people will park their vehicles further and it will be only walking. This kind of a strategy is there not only here but in many European countries as well; many parts of America as well where you have only no traffic zones. So people only walk there; that's all. In the trade fare in Delhi they tried this and I was a victim to that because I have to walk something like 4 miles to get to the trade fare ones. There are social costs associated with this option and the eighth project idea we have is ban vehicles with an age of 10 or more years from plying on the roads. This would obviously mean that you would not get into those kinds of problems with old vehicles generating more fumes. This is a just tentative list and these and more ideas could be generated through a brainstorming exercise; you could generate more.

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In this particular case we will look at only these 8 ideas. We have generated or identified these 8 project ideas after doing a brainstorming; after thinking about what can be done. Let's now do a screening analysis to find out which out of these would we like to consider more seriously. In the screening of these ideas first thing that you have to decide upon is what are the criteria that you would like to choose? In this case what are the criteria that we are going to use for screening? Let us say that for a quick screening we would like to see the effectiveness to achieve objective. That is how good this project is; how effective is this project to achieve the objective which is to reduce vehicular pollution in Delhi.

I hope you know the difference between an effective project and an efficient project. Effective project is one which accomplishes the goal for which it was designed to and an efficient project is one which is done as per plan. You could be doing an ineffective project efficiently. But it is more important to select effective projects for implementation and for national growth; so effectiveness, cost of the proposal, ease of implementation. In this cost and ease of implementation we can take not only monetary costs but social costs also generally and then what is the time needed for implementing this solution? We will work on these 4 criteria that is effectiveness, cost, ease of implementation and time and this is an illustrative list. Other criteria could be added if needed.

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SCREENING OF IDEAS

- Criteria chosen for screening:
 - Effectiveness to achieve objective
 - Cost of the proposal
 - Ease of implementation
 - Time needed
- *This is an illustrative list. Other criteria could be added, if needed.*

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The scale of evaluation is again a 5 point scale where 0 is very poor and 5 is excellent. So when the effectiveness is low we give 0 and when it is very high we give 5. Cost when it is high we give 0 and when it is lot we give 5. So cost is basically a cost criteria. These are benefit criteria so they are in that sense. Implementation ease if it is difficult we give 0 and if it is easy we give 5 and this is with reference to the 8 projects that we are trying to talk about. Time when it is maximum we give 0 and when it is minimum we give high value. This is the way we construct the scales of the criteria that we would like to evaluate.

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SCALE OF EVALUATION

• v poor	poor	fair	average	good	excellent
(0)	(1)	(2)	(3)	(4)	(5)
• Low		<i>Effectiveness</i>			High
• High		<i>Cost</i>			Low
• Difficult		<i>Implementation</i>			Easy
• Maximum		<i>Time</i>			Minimum

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Based on this we would then like to do the scoring of the alternative projects. Let's see that. What can be done is take the first project which is to restrict registration of new vehicles. Effectiveness, we feel that is going to be quite effective, very effective in fact. So we give 3 marks on that front and as far as cost and implementation are concerned we feel it is going to be very costly and difficult to implement. So we give only 1 here and as far as the time is concerned we think its going to be fair. So we give 2 marks and assuming that all these criteria are equally important to the decision maker the total score for this project is 7; 3 plus 1 plus 1 plus 2.

Similarly we evaluate all the projects. Enforce strict emission regulations; we feel that that is very effective. Its cost is low. So we have given a high mark here 5 and its implementation is also easy relatively so 4 and in small time you can implement this. So this is 5. This gets a score of 18. Similarly ban diesel run vehicles on the road. It may be effective but it is very costly and difficult to implement and the time is fairly high. So this is 7 and a mass rapid transport system could be very effective. So we have given 4 marks there but cost and implementation we feel that it's very poor. Probably the government will not be able to implement this kind of a system. So we have put 0 here and 1 as far as implementation difficulties are concerned and time is going to be very large. So we give 0 here or you could give 1, whatever you feel is appropriate. The idea is that this project by virtue of this although it could be very effective could get 5 marks from that point of view.

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SCORING OF ALTERNATIVE PROJECTS					
(Effectiveness/Cost /Implementation/Time)					
• 1 Restrict registration of new vehicles	• 3	1	1	2	7
• 2 Enforce strict emission regulations on vehicles	• 4	5	4	5	18
• 3 Ban diesel run vehicles on the road	• 3	1	1	2	7
• 4 Introduce MRTS for the city	• 4	0	1	0	5

Finally we do a similar exercise for all the 8 projects. Encourage use of car pools 15 points, grow more trees and green belts in the city 13 points, declaring no traffic zone 9 points and ban 10 year and older vehicles 11 points.

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SCORING OF ALTERNATIVE PROJECTS
(Effectiveness/Cost/Implementation/Time)

• 5 Encourage use of car pools	• 2 5 4 4	15
• 6 Grow more trees/green belts in the city	• 4 3 3 3	13
• 7 Declaring no traffic zones in the city	• 2 3 2 2	9
• 8 Ban 10 year and older vehicles	• 3 2 3 3	11

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This is the broad methodology and finally what is the result of this exercise? The result of this exercise is the following.

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RESULTS OF SCREENING

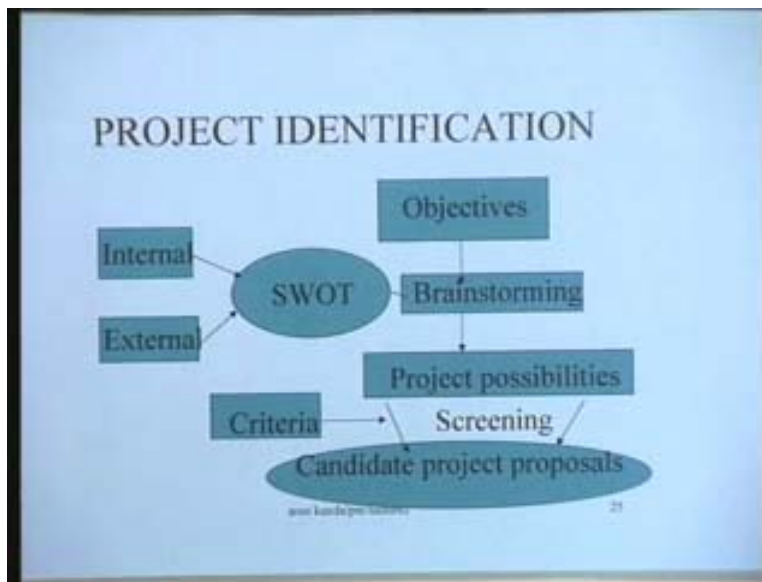
Project No.2: Enforce strict emission regulations on vehicles	(18 points)
Project No. 5: Encourage use of car pools	(15 points)
Project No. 6: Grow more trees/green belts in the city	(13 points)

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We have identified the three top projects out of the 8 that we have brainstormed. The first project which is enforcing strict emission regulations on vehicles gets 18 points and we have identified this project as number 1 in that sense. Encourage use of car pools is the second one which comes out at 15 points and grow more trees and green belts in the city comes at 13 points. This is essentially the idea of screening. Through this example we have been able to illustrate how we can identify projects, different projects to accomplish

a goal. We thought of that list and we generated 8 projects. That was a creative exercise. You will not have a method for doing it. You will not have ... program which will do that. You have to think and identify what the projects are and then we subjected them to a screening analysis. We tried to identify what exactly could be done in that front and we identified the 3 best projects. These are the ones which are available after screening. Now these would have to be appraised in terms of their financial, technical and market viability and then you could go ahead. Basically what we have tried to do today is look at the project identification process in fair amount of detail.

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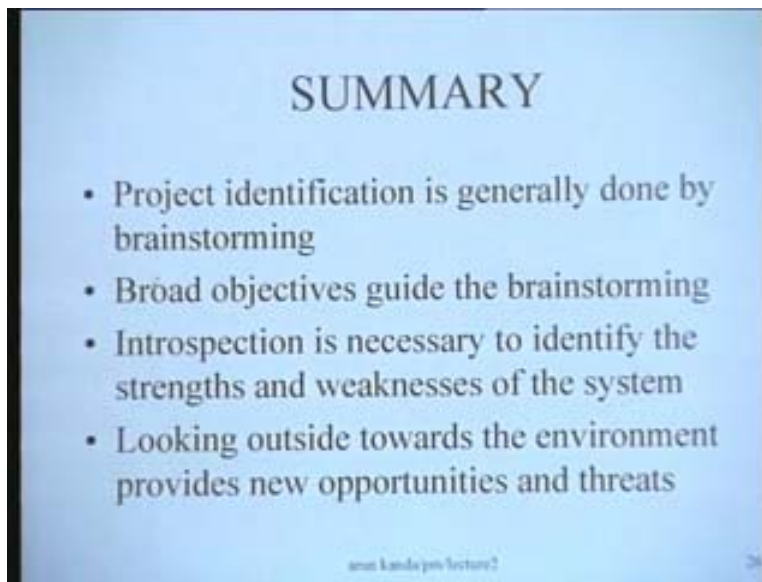


We have seen for instance that the project identification begins with the objectives. What are your objectives? What is it that you want to do and at the same time it is very essential to look at your internal strengths and external strengths. Looking within will identify for you the strengths and weaknesses. Looking outside at the environment will identify the opportunities and threats when you do a SWOT analysis in that system and on the basis of this SWOT analysis and the objectives you can conduct a brainstorming exercise. In fact we did conduct a brainstorming exercise for an example of reducing the vehicular pollution in the city. The purpose of this brainstorming exercise is actually to identify some project possibilities.

In this example that we did, we identified 8 project possibilities. These project possibilities are then funneled through a screening exercise and this screening is based on some criteria. We chose 4 criteria for doing this screening exercise and subsequently as a consequence of this screening we have a set of candidate project proposals which in the example that we were doing we had only 3 major proposals which could come out at the whole exercise. I think this is the whole framework of project identification as we look at it.

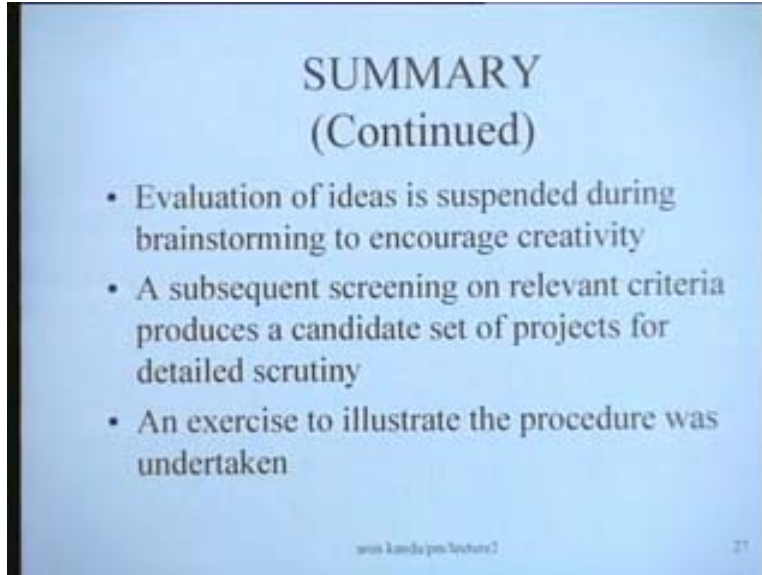
If we try to summarize our discussion today in this lecture we can see that the first thing is project identification which is generally done by brainstorming exercise where people utilize their valuable knowledge base and experience to come up with innovative ideas. Then the broad objectives guide the brainstorming. What you want to achieve that will obviously guide the brainstorming process. Introspection is necessary to identify the strengths and weaknesses of the system and looking outside towards the environment provides new opportunities and threats. You have to look for new opportunities and threats outside the environment.

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Evaluation of ideas is an important point about brainstorming. Evaluation of ideas is suspended during brainstorming to encourage creativity and a subsequent screening on relevant criteria produces a candidate set of projects for detailed scrutiny. This is it. An exercise was undertaken to illustrate the procedure, this particular procedure that we have.

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This is the broad concept of project identification and we will talk about project appraisal and project selection in our next lectures.