

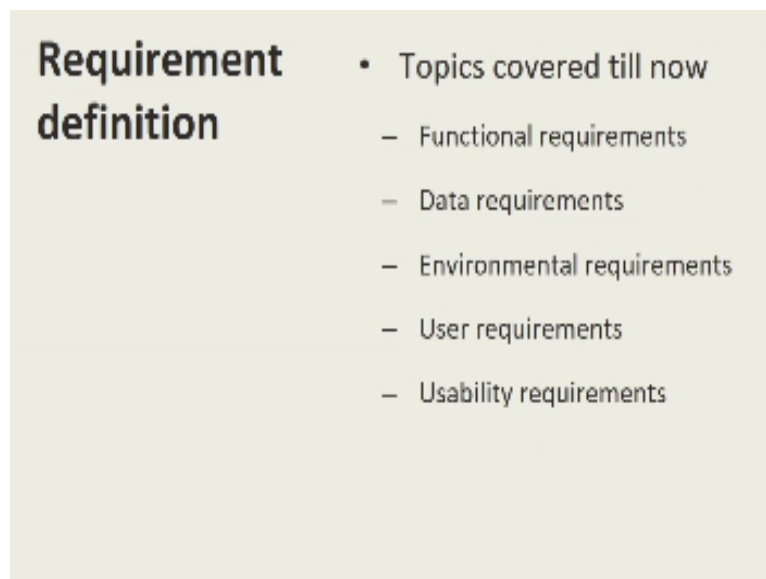
Interaction Design
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Lecture - 12

The Requirement Definition Phase in Goal Directed Design Process Part-2

Let us do a quick recap of the topics that we have covered till now. So within the requirement definition phase we have seen that there were initially 2 different requirements functional and non functional then in an alternate scheme of categorization.

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Requirement definition

- Topics covered till now
 - Functional requirements
 - Data requirements
 - Environmental requirements
 - User requirements
 - Usability requirements

We have seen that those requirements were further categorized as functional requirements, data requirements, environmental requirements, user requirements and usability requirements. Now the next topic that concerns us is that how do we gather these requirements. Are their techniques available to help us in gathering these requirements. One of the known techniques which is widely used across the design discipline is the techniques of creating scenarios.

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Requirement definition

- Scenarios
 - Developing scenarios is a technique for extracting requirements
 - Personas -> Scenarios -> Requirements -> Framework definition (in an increasing order of details)

Let us look at what these scenarios and how do we create them. So as we have spoken earlier that developing scenarios is a technique for extracting requirements. So if you have attended all the sessions in the goal directed design process right from the research phase to modeling uses and then we are now into the requirement definition phase you would see that the details are increasing at a certain rate.

So from personal to scenarios then to requirement definition and then to framework definition that is the increasing order of details when it comes to design and development of the interactive product. And if you look further you would find that scenarios there are 3 different components when it comes to scenarios. So what is the first component?

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Requirement definition

- Scenarios- Three components
 - FIRST: Personas "act as if ..." or "behave as though..." while acknowledging that it is not a complete description
 - Persona is put up in a situation
 - Story, not an epic
 - Persona performs some action or task

First component is that persona act as if or behave as though while acknowledging that it is

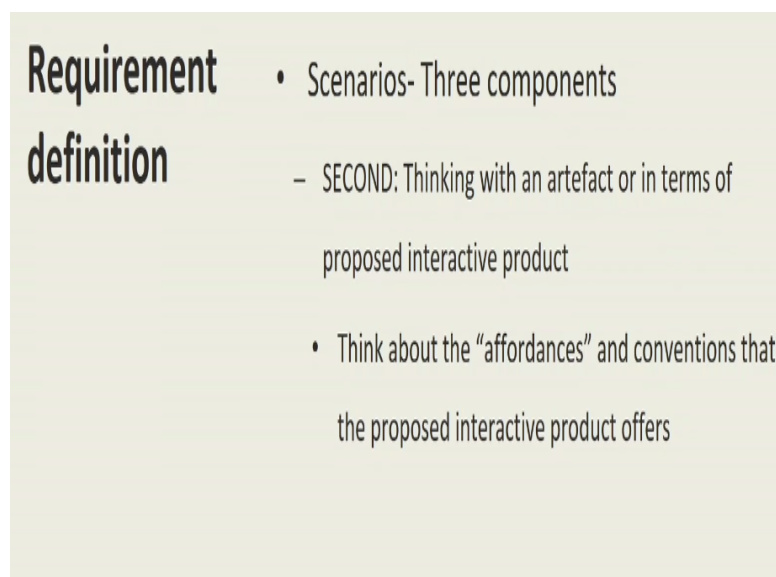
not a complete description. So remember initially when we had said briefly about different stages in the goal directed design process. We had said that in the stage of requirement definition we put persona into different situations into different scenarios. So these are enacted, these are imagined, these are fictional scenarios, these are fictional stories.

So personas they behave as if they are in a particular situation or they act as if they are in a particular situation. So that is why the first components is that you have to make your personas fit in a particular situation or you have to imagine fictional stories around your personas when they encounter a certain situation. So personas act as if or behave as though while acknowledging that it is not a complete description.

So your scenarios need not to be all epic. It has to be a very short description of a particular activity carried out in a particular situation. So that is why we are saying that while acknowledging it is not a complete description, but we put our persona into a scenario and made it to act as if or behave as though. So these are the conditions while you put while you imagine your persona in a particular scenario.

So persona is put up in a situation story not an epic, persona perform some actions or task in the given scenario.

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Requirement definition

- Scenarios- Three components
 - SECOND: Thinking with an artefact or in terms of proposed interactive product
- Think about the “affordances” and conventions that the proposed interactive product offers

So what is the component second. So the second component involves thinking within artefacts or in terms of proposed interactive products. So in the first component you see we had put our persona into a situation and we are thinking in terms of a fictional story where the

persona was performing an action or task. Now in the second component we bring the aspect of interactive product.

Now the persona performs those actions or tasks with reference to an interactive product in the same context. So think about affordances and conventions that the propose interactive products offers. So while you are in component 2 you have to think about all different affordances and different conventions. Let us talk about conventions for a while. So if you are talking about developing interactive product which are to be used on a web platform.

There are conventions which are corresponding to web platform. For example, hyper linking is one convention. So you have to hyperlink in a particular way and there is a protocol that governs that hyperlink. So that is what we mean by conventions. So conventions are rules or regulations or protocols which are local to a particular platform that we are going to use. So while you are in phase 2, while you are in component 2 of scenarios.

You have to think about different affordances and conventions that the proposed interactive product is going to offer and again let me again simplify in the first component you were putting your persona into the scenario, into a situation in a fictional story and then you are imagining your persona to do certain actions or activities. Now in a component 2 those actions or activities that your persona is doing are with reference to the propose interactive product.

So you bring in the interactive product also in the scenario or the fictional story. So this is about the component 2 of the scenario.

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Requirement definition

- Scenarios- Three components
 - THIRD: Decoupling
 - Decoupling ourselves as designers when we think about fictional world in a scenario
 - Think through the perspective of the persona designer
 - Decouple ourselves from our realities (here and now) and get into the shoes of the persona to imagine scenario (fictional)

Now there is a third component. The third component is the component of decoupling. As a group of designer or a single individual designer who is designing these scenarios you have to decouple yourself when we think about fictional world in those scenarios. So you have to think through the perspective of the persona. Decoupling means that you have to detach yourself while you are thinking about how the persona would do certain actions in that scenario.

So decoupling means that you have to decouple yourself as designers when you are thinking about fictional world in the scenario. Think through the perspective of the persona. It is not that designer who is in the scenario imagine all the time it is not the designer who is in that scenario it is the persona which is depicted in the scenario. So you have to think through the perspective of the persona and decouple ourselves from our realities.

So maybe designers are designing this particular scenario or developing scenario in a particular environment. Now the realities of those environments you have to delink those realities with the fictional world of the scenarios. None of that should affect or influence actions of the persona in the fictional world as depicted in the scenario. So as a designer or as a team responsible for developing prototype, who are responsible for developing scenarios you have to essentially decouple yourself, detach yourself.

That is what we mean decouple yourself means that you decouple from your realities and get into the shoes of persona while you are imagining the scenario. So these are the 3 different component. Let us have a look at these 3 different components once again. So first

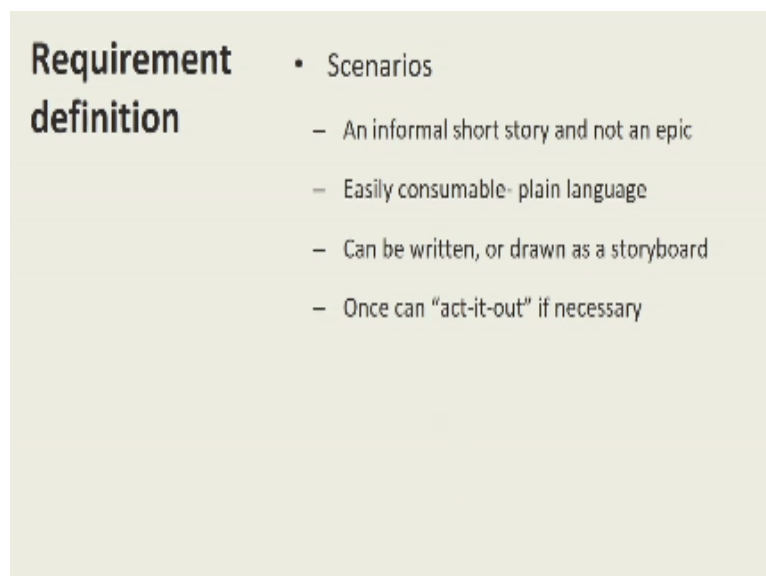
component once again is that scenario is a fictional story and you put your persona in a particular situation where the persona commits certain actions or activities.

The second one is that within this detail you also put the interactive product also. Within this scenario now you are thinking about all the actions or activities performed by the persona with respect to the interactive product. So you are in a position to estimate all the affordances and conventions offered by the interactive product and third one is about what you should do as a designer.

So you have to decouple yourself while you are designing these interactive products. You have to essentially think in terms of the persona, in terms of the perspective of the persona. So imagine that these 3 components are 3 different components of the stages. So as you would appreciate that these 3 components basically give you an approach view of developing scenarios.

How you should develop these scenarios what you should do to develop these scenarios that is an approach view. Now it might feel to you as if developing personas is a very hypothetical task or it is a very difficult task it might feel to you. So let me give you few simpler points to remember while you are developing personas and maybe it would feel easier to you to develop different personas.

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Requirement definition

- Scenarios
 - An informal short story and not an epic
 - Easily consumable- plain language
 - Can be written, or drawn as a storyboard
 - Once can “act-it-out” if necessary

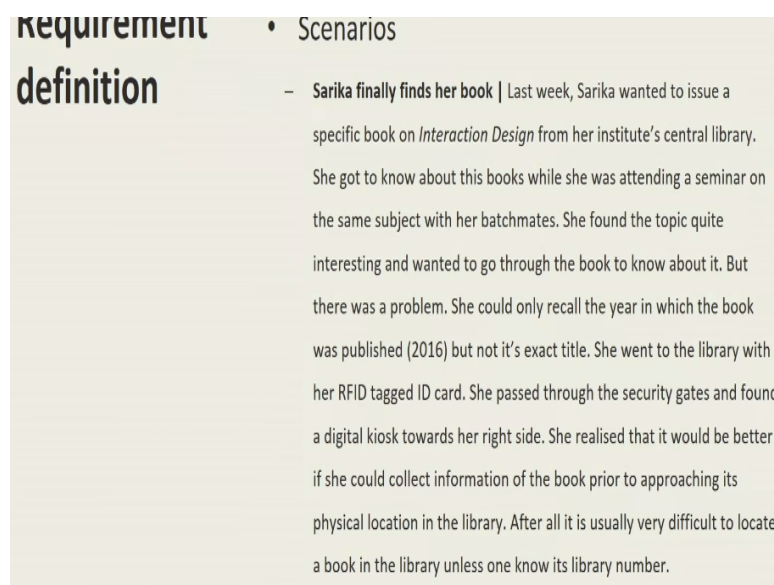
So as we have said across all the 3 components that we have studied earlier that scenarios are informal short story. They are not an epic it need not be a whole length book with the same

persona in different situations. In fact, it could be a very short maybe 200-word written story, a very short informal not an epic. It has to be easily consumables. So that is one of the things that we have constantly being emphasizing all throughout the sessions.

Because designers work within a team, within a structure involving different other stakeholders. So whatever is the outcome of your process should be easily consumable. So you should make sure that while you are writing or drawing your personas as storyboard you should do it in as plain language as possible. So one can act out if necessary. They should be as simple that if one of the design team member or if one of the stakeholders want to act it out that should also be possible.

So if you remember these 4 points and if they seem simple enough to you let us look at an example of a scenario. So look at your screen it might be a little crowded screen for you, but I would read along with you.

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Requirement definition

- Scenarios
 - **Sarika finally finds her book** | Last week, Sarika wanted to issue a specific book on *Interaction Design* from her institute's central library. She got to know about this books while she was attending a seminar on the same subject with her batchmates. She found the topic quite interesting and wanted to go through the book to know about it. But there was a problem. She could only recall the year in which the book was published (2016) but not it's exact title. She went to the library with her RFID tagged ID card. She passed through the security gates and found a digital kiosk towards her right side. She realised that it would be better if she could collect information of the book prior to approaching its physical location in the library. After all it is usually very difficult to locate a book in the library unless one know its library number.

So Sarika finds her book that is the title of the scenario. So last week Sarika wanted to issue a specific book on interaction design from her institute's central library. She got to know about these book while she was attending a seminar on interaction design with her batch mates. She found the topic quite interesting and wanted to go through the book to know more about the topic.

But there was a problem what was the problem she could only recall the year in which the book was published that was 2016, but not its exact title that happens with most of us in a

library situation. We either remember the title of the book, but forget when it was published or some details which are corresponding to the book or the article of interest we keep forgetting.

So that is a limitation of our working memory, but anyways go through the scenario further. But there was a problem. What was the problem? She could only recall the year in which the book was published and that was 2016 in this scenario, but not its exact title. She went to the library with her RFID tagged ID card. She passed through the security gate and found digital kiosks towards her right side.

She realizes that it would be better if she could collect information of the book prior to approaching its physical location in the library. After all it is usually very difficult to locate a book in the library unless one knows its library number. Let us move to next slide to read the scenario completely.

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Requirement definition

- Scenarios
 - Sarika started interacting with the library kiosk. She found that she could search the book catalog either by thematic keywords (in her case, “Interaction design”) or by date. Out of all the other available options, she couldn’t find the one which would let her search for a book on “Interaction design” published in “2016”. It would have been nice for her to see a list of all the books on “Interaction design” published in 2016. In that case she would have easily located the specific title of the book and its library number. However anyways she kept on trying by using “interaction design” as a thematic keyword. After few minutes of interaction with the kiosk and looking through a long list of books on Interaction design, she located her book of interest and recorded it’s library number on a piece of paper. She finally got her book and was happily looking forward for some interesting discoveries while going through the book.

Sarika started interacting with the library kiosks which was remember in the last slide it was reported to be on her right side when she was entering the library. Sarika started interacting with the library kiosk. She found that she could search the book catalog either by thematic keywords. In her case it was interaction design or by the date. Out of all the other available options she could not find the one which would let her search for a book on interaction design published in 2016.

It would have been nice for her to see a list of all the books on interaction design published in

2016. In that case she would have easily located the specific title of the book and its library number and eventually the book on the shelf. However, anyways she kept on trying by using interaction design as thematic keywords. After few minutes of interaction with the kiosk looking through the long list of books on interaction design.

She located her book of interest and they got its library number on a piece of paper. She finally got her book and was happily looking forward for some interesting discoveries while going through the book. So this is a very fairly simple story it is not an epic. It involves a persona who name is Sarika and she is a college student and she lives on campus and she has attended one seminar on interaction design last week with her batch mates.

And she found the topic quite interesting and that motivated her to find a book on interaction design. And it appears to her that the book was published in 2016 and she does not remember the exact title of the book. So these are the conditions under which she enters the central library of the institutes with RFID tagged ID card. She entered through the security gates and found digital library catalog kiosk towards her right side.

She started interacting with the kiosk and she found that she could only search either by the thematic keyword or by the date. In all the other possible options that she had there was no options that could let her search with both the keyword and the date. Had that been the case it would have been easier for her to locate the book, but as you can see she was quite a persistent character.

She kept trying with the thematic keyword until she finally found the book of her interest and she was happily looking forward to read that book to know more about the discipline or the topic of her interest. So that was fairly a short scenario. What do we learn from this short scenario? Let us look at those aspects in the slides to continue.

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Requirement definition

- Scenarios
 - The user goals and her motivation
 - “She found the topic quite interesting and wanted to go through the book to know about it.”
 - Helps us decide the fit criterion*

— Recall the requirement template

Requirements no.	REQ-001	Requirements no.	REQ-002
Description	The user shall be able to search for books by author.	The user shall be able to search for books by title.	
Priority	High	Medium	
Created by	Jane Doe	John Smith	
Reviewed by	John Smith	Jane Doe	
Created on	2014-01-15	2014-01-15	
Reviewed on	2014-01-15	2014-01-15	
Created at	London	London	
Reviewed at	London	London	
Created by	Jane Doe	John Smith	
Reviewed by	John Smith	Jane Doe	
Created on	2014-01-15	2014-01-15	
Reviewed on	2014-01-15	2014-01-15	
Created at	London	London	
Reviewed at	London	London	

Turner, P. HCI Redux. Springer International Publishing, 2016. & Cooper, A., Reimann, R., Cronin, D., Hoessel, C. About Face: The Essentials of Interaction Design. John Wiley and Sons, 2014.

In your slides if you look that you know the scenarios even a shorter scenario like this gives you useful insights about user goals and motivation. So go through line it says that she found the topic quite interesting and wanted to go through the book to know more about it. So that was her motivation or that was her goal to know more about a particular topic of interest was a goal or motivation of the user in this case.

And what that helps us do if you are aware of goals or motivation you can estimate the fit criterion. Remember the earlier slides in this session where we were showing you the requirement template within that template there was a mention of fit criterion. What was that was mention of a condition where a requirement is seen as fulfilled. So if you know the goals of the user you can estimate the fit criterion to satisfy that goal.

So it is important to write somewhere goals and motivation of your persona in the scenario that we help you estimate the fit criterion. Now let us move to the next learning.

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Requirement definition

- Scenarios
 - The environment which surrounds the interactive product
 - “She went to the library with her RFID tagged ID card. She passed through the security gates and found a digital kiosk towards her right side.”
 - Helps us understand the physical barriers and presence of other actors

The environment which surrounds the interactive artefacts or interactive product. So she went to the library with the RFID tagged ID card. She passed through the security gates and found a digital kiosk towards her right side. So this is fairly we are trying to depict the environment around the persona. And what does it help us do? It helps us understand different physical barriers and the presence of different other actor.

So maybe the security guard is the other actor and presence of physical barrier maybe like the security gate that you are entering if that gate is closed you have no access to the library or if your RFID tagged ID card is not there with you, you have no access to the library kiosk. So this is the environmental factor. So if you are writing a scenario you must also report somewhere the environmental factor that will help you understand the physical barrier or presence of other actors.

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Requirement definition

- Scenarios
 - The inability of the system in terms of providing a flexible search
 - “She found that she could search the book catalog either by thematic keywords or by date.”
 - Helps us understand moments of frustration with the system

The third learning is that the inability of the system in terms of providing a flexible search. What does it mean? With respect to the particular scenario where our persona Sarika was trying to find a particular, a very specific book of interest the system was incapable, the system did not had any capacity to provide a flexible search. Remember she wanted to search using both thematic keyword and the date and the system did not had any options of that kind.

She found that she could only search the book catalog either by thematic keyword or by date. So the specific this is very specific learning with respect to that system. A system was incapable of providing a flexible search. So if you could record with respect to the proposed interactive product these moments where the system does not do a particular activity which would have suited the expectation of the user.

You come close to understanding moments of frustration with the user interaction. So this is also very important to know at what points across the interaction is the user feeling frustrated that is also very important.

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Requirement definition

- Scenarios
 - The ideal experience with the interactive product
 - “It would have been nice for her to see a list of all the books on “Interaction design” published in 2016. In that case she would have easily located the specific title of the book and its library number.”
- Moments of delights with the system

The fourth learning if you see on your slide is the ideal experience with the interactive product. What is the ideal experience that the user is expecting out of her interaction with the product the scenario should also be able to give you a glimpse of that. So read through the following lines. It would have been nice for her to see a list of all the books on interaction design published in 2016.

In that case she would have easily located the specific title of the book and its library number so she would have easily located that would have been the best experience for her out of her interaction with the library kiosks. So your scenario gives you a sense of ideal interaction, ideal experiences which are possible out of interactions with the interactive product. So how does it help.

It helps you gather a knowledge about different moments of delights with the system. So you had a knowledge about moments of frustrations and you had a knowledge about moments of delight with the system.

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Requirement definition

- Scenarios
 - Usefulness of showing a list of similar entries when an exact match doesn't appear
- "After few minutes of interaction with the kiosk and looking through a long list of books on Interaction design, she located her book of interest and recorded it's library number on a piece of paper."
- Helps us understand ways of complementing methods to satisfy user goals- contingency plans

Okay another learning is that usefulness of showing a similar list or entries when an exact match does not appear that is also a specific learning with respect to the interactive product domain, but what does it lead us to let us go through the lines once again. Usefulness of showing a list of similar entries when an exact match does not appear. So let us look at it once again.

Usefulness of showing a list of similar entries when an exact match does not appear. This is also one learning which is very specific to the domain of the interactive product which is the search and information retrieval domain. Now what does it tell us? It tells us that you need to understand ways of complimenting methods to satisfy user goals. So what are your contingency plans as a designer?

So it helps us understanding ways of complimenting methods to satisfy the user goals different contingency plans which might be important for you to consider while you are designing interactive product. So after few minutes of interaction with the kiosks looking through a long list of books on interaction design. She looks in our book of interest and recorded its library number on a piece of paper.

So anyways she could find out a list of books. So the system is not really rejecting all the possibilities of providing or satisfying goals of the users. There are definitely contingency plans in place. If one plan does not work you have the other plan in place. So keep contingency plan have alternate methods of satisfying user goals because that might be a real world scenario.

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Requirement definition

- Scenarios | Summary
 - Think about setting under which the interactive product will be used
 - Think about the typical duration of the interaction
 - Whether the persona is able to attend to the task without any interruptions

Let us look now look at the summary of our discussions on scenarios. Think about setting while you are developing scenarios you should think about setting under which the interactive product will be use so what are the environmental conditions, what are the settings, what are the contextual details under which your product is going to be used. You have to think about the typical duration of the interaction.

So this is (()) (23:08) important when you are thinking of self servicing kiosks like (()) (23:10) like different ticket vending machines, dispensers and a lot of machine which are kept at public places for use by general audience. So at that time it becomes a very critical factor to think about the typical duration of the interaction. Whether the persona is able to attend to the task without any interruption or not that is also something which we have to think about.

So while you are doing a particular task you might have few notifications coming out from a different device. Now those are the interruptions which are there while you are performing the task on your device. So you have to think about all the possible interruptions which may (()) (23:54) up when the persona is carrying out a task of interest.

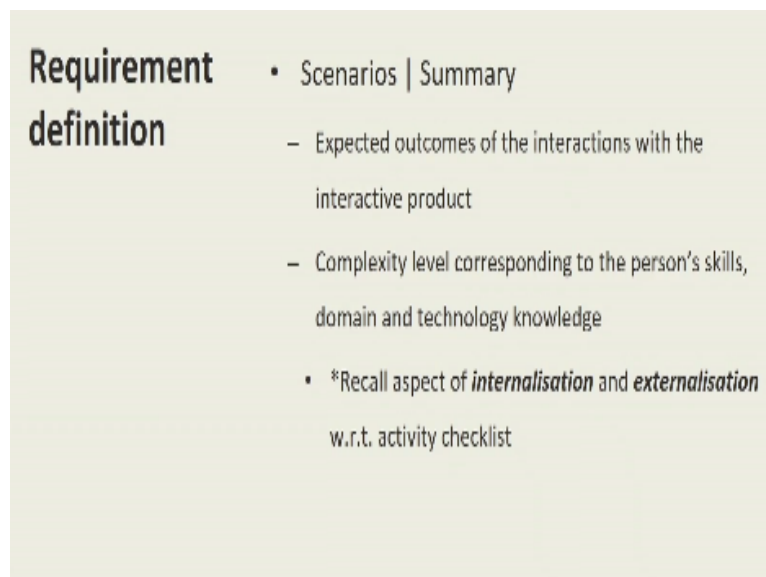
Let us look to the next point whether the persona is required to share its system or a set of resources with other present in the same environment that is also very critical and we have seen relevance of knowing about these things in the requirement section earlier. So whether people are sharing resources, whether it is most likely to be a scenario when your users are sharing resources or a different system or an interactive product with other present in the

same environment.

A knowledge of that is also very critical. You have to think about conditions for integration with other interactive products. So maybe the users are not really devoid of all the interactive products. He or she might be experiencing, he or she might be interacting with one or several of these interactive products at any given point of time. So the propose interactive product should integrate with those existing products.

So you have to think about the conditions of integration of the proposing interactive products with the existing set of interactive products. You have to also think about the activities undertaken by the persona to meet her goals that is also very important.

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Requirement definition

- Scenarios | Summary
 - Expected outcomes of the interactions with the interactive product
 - Complexity level corresponding to the person's skills, domain and technology knowledge
- *Recall aspect of *internalisation* and *externalisation* w.r.t. activity checklist

Now it is important to kind of know what are the expected outcomes of the interactions? So you have to understand or estimate all the possible outcomes out of an interaction with the interactive products. In case of the library kiosk one of the possible outcomes was that users have the information on the book of interest and they are happy with that. So it is also important to know the expected outcomes of the interactions with the interactive product.

You must estimate all the possible outcomes out of an interaction with the product. So there might be breakdown, there might be success, there might be failures, there might be errors, there might be recoveries you have to imagine and estimate all of these several outcomes out of interaction with the interactive product. Complexity level that is also very important. Complexity level corresponding to the persona skills, domain and technology knowledge.

So different users may have different skills, they may have a different domain or technology knowledge, complexity of the interactive product corresponding to this variation in the level of skill acquisition, in the level of domain knowledge and with respect to the level of skill acquisition domain knowledge and technology knowledge that also need to be considered while you are deciding how complex the interactive product can be that is important.

So I would like you to recall particularly with respect to the complexity point, with respect to the point on complexity level, aspects of internalization and externalization which we have expressed while we were talking about the activity checklist in the earlier session. So it is important to consider all of these following points when it comes to designing or developing the scenarios.

Remember we are now going to move into the framework definition phase in our next session. Thank you.