
Technology Innovation for Sustainable Development
Technology Innovation Process: Concept
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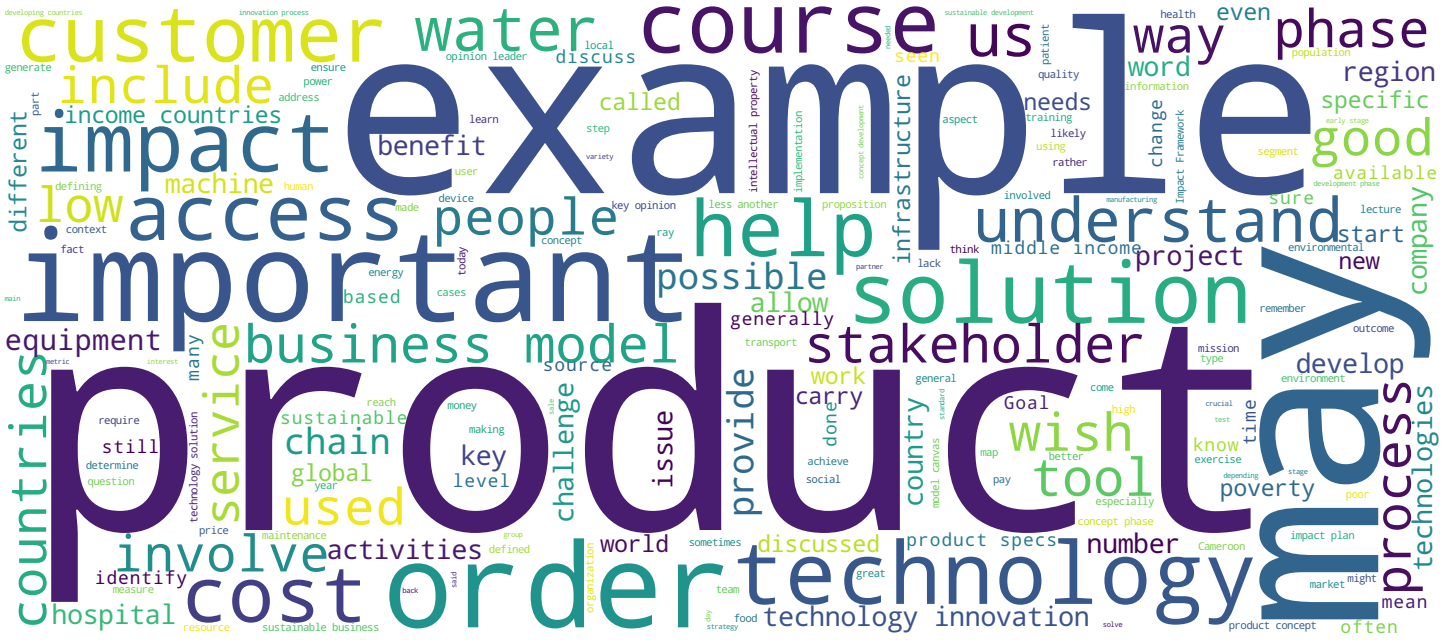
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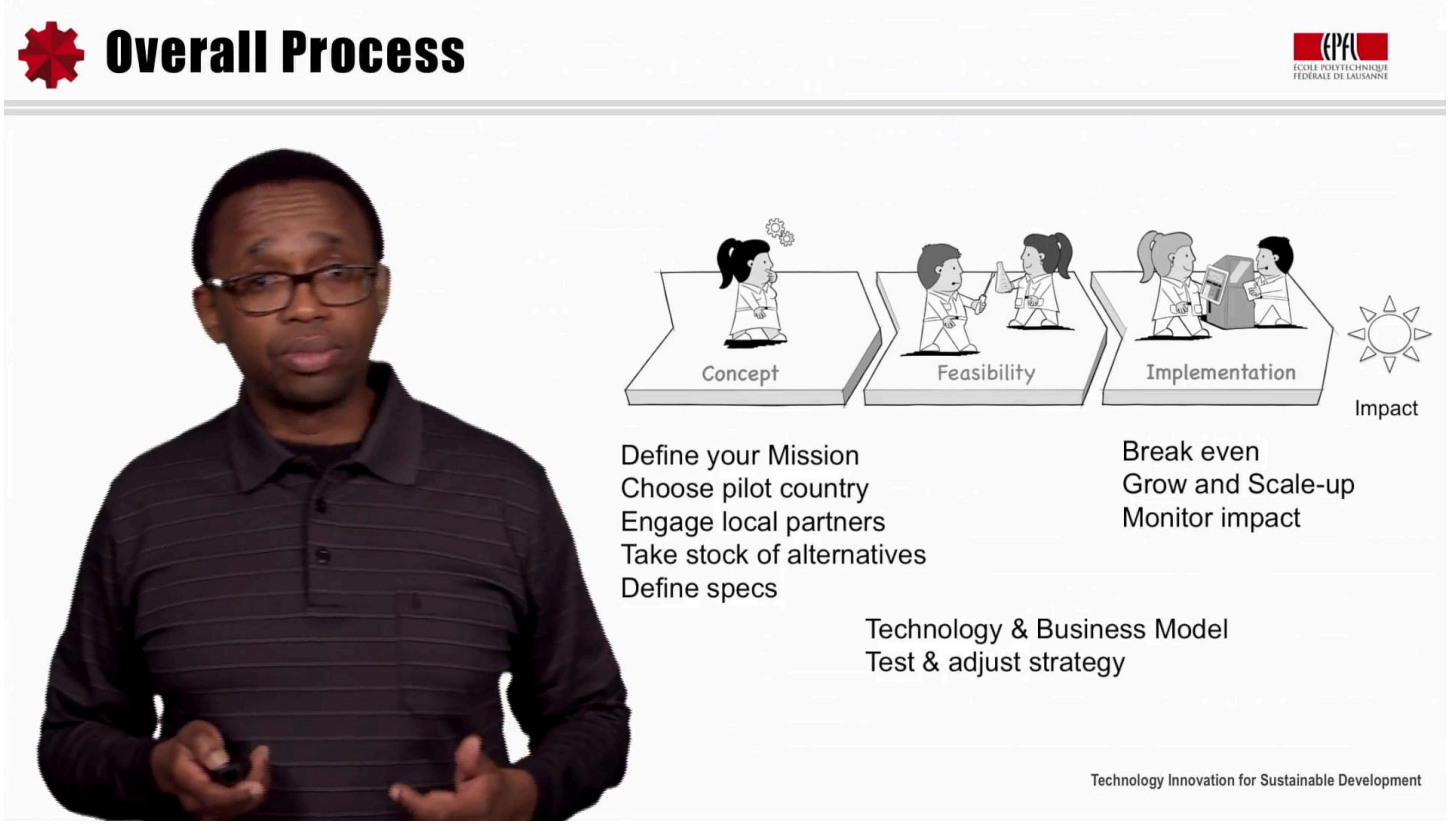

Now that you've had a chance to go through all the tools we've discussed in the course, we wanted to come back and try to tie things together. I'll start by reminding you briefly about the overall technology innovation process. Basically, the technology innovation process comprises three broad phases: the concept, feasibility, and the implementation phases. Phase one is the concept development phase, which involves a variety of issues, such as: defining your mission, choosing your pilot country origin, engaging local stakeholders, taking stock of alternative products, and then defining your product specs. Phase two is the feasibility phase where you attempt to test and demonstrate the feasibility of your product concept and business model. This may end up requiring you to readjust your product concepts and business strategy. And phase three is about implementation that is actually bringing the products to the market, where you will aim to reach your break even stage, and then scaling up to other region. This is also the phase where you will need to diligently carry out impact monitoring activities, in order to ensure that you advance towards your original mission.

Notes

Summary

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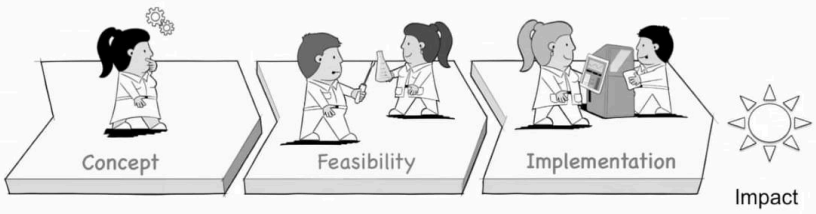
Overall Process

Learn
Collaborate
Be Agile



Define your Mission
Choose pilot country
Engage local partners
Take stock of alternatives
Define specs

Technology & Business Model
Test & adjust strategy

Break even
Grow and Scale-up
Monitor impact

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For each of the phases there is one key message: For the concept phase the main message is to LEARN, for the feasibility phase the main message is to COLLABORATE while for implementation we say "BE AGILE". For the rest of this lecture we'll only focus on the Concept phase.

Notes

Summary

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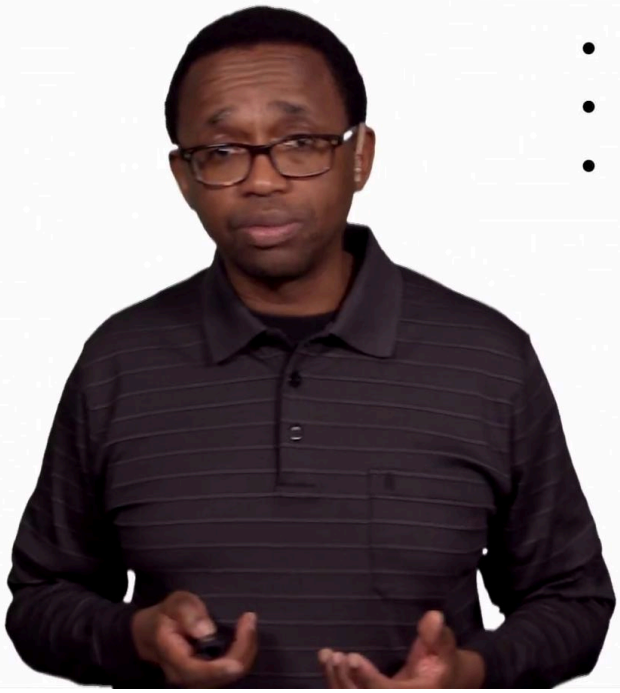
Define your mission



- Define the Mission
- Decide on Technology Solution
- Stakeholders: Define & Engage

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The concept phase can be broadly divided into the following parts which are: 1) Define your mission, 2)Define and engage your stakeholders, 3) Assess existing alternatives and competition and understand why they are falling short, 4) Define the specification or specs of the solution you have identified. Naturally, the first task for you is to define your mission, in other words: What problem are you trying to solve, and what change do you want to achieve? After you have done that, then you need to go back and do some background research, in order the verify that what you wish to solve is indeed a real problem. So, after you are satisfied with the validity of the problem then you must decide what is the technology innovation solution you wish to propose to address the problem, with a view to achieving your desired change in the long term. Then, after that, you need to understand and define who your stakeholders are exactly, in other words, who are the direct and indirect contributors or beneficiaries, or said differently, who will affect and/or be affected by the activities of your organization when implementing your solution?

Notes

Summary

1m 59s

Afterwards, create a Stakeholders' Rating Table and identify the ones who are absolutely key, for example, those scoring high on interest and power to affect your solution. But also identify those capable of influencing perceptions and opinion on your solution, that is the Key Opinion Leaders. Engage them as extensively as feasible, in order to understand what type of solution they really wish to see for this problem. Now, discuss your proposed solution and find out what their opinion is and what feedback they can give you on it. Once you have satisfactorily defined and verified the problem and the change you ultimately aim to achieve using your proposed technology solution, then you need to define the activities required to get to the required change. This pathway of activities must include deliverables and milestones along the way, as well as the metrics and methods to measure and monitor them. Now, if you think back to the first tool we introduced, namely the Impact Canvas, you will see right away that it is the ideal tool to enable you to carry out the process we mentioned above. As you can see, the process of defining your mission is very akin to the theory of change methodology in the impact plan development.

Notes

Summary

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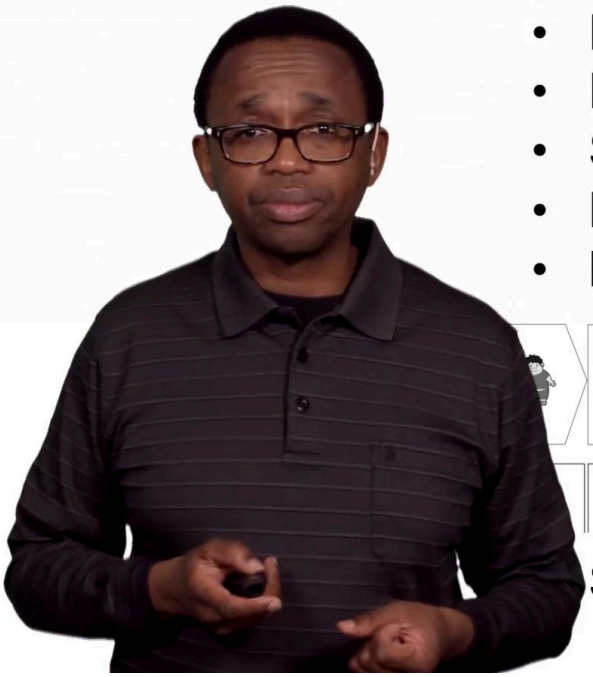
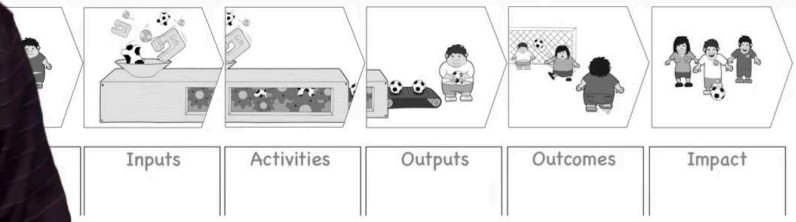
Define your mission



- Define the Mission
- Decide on Technology Solution
- Stakeholders: Define & Engage
- Milestones & Deliverables
- **Impact Plan**



Stakeholder analysis: PVC tool

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Therefore, the first key deliverable for you during the concept development phase is the Impact Plan or the Impact Framework. Note that in order to help you map out your stakeholders a high level non-detailed analysis of the product value chain is the tool we recommend.

Notes

Summary

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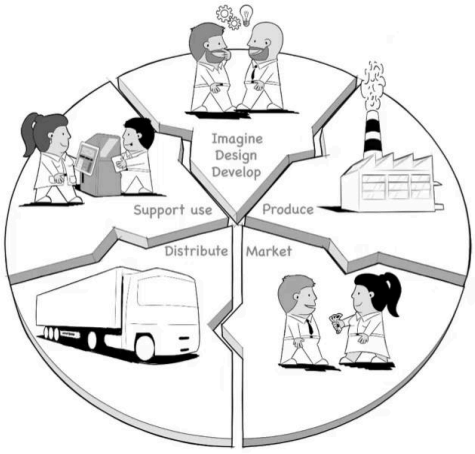

- Think Global & Act Local
- PVC tool: PESTLE Analysis
- Familiar Territory first

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Now that you have defined your technology solution concept, the key question you have to address is where you intend to launch your product first, in other words, what will be your pilot market? Even though our intention in this course is to develop products that eventually have as global a reach as possible, you must first learn to walk before you can run. Therefore, it is advisable to pinpoint a pilot market prior to scaling up. So, here we encourage you to think global but at local, initially! And we constantly remind you of this philosophy throughout the innovation process. There are various factors to take into consideration when making this decision, and here the PESTLE analysis in the market part of the product value chain tool will be particularly useful in helping you map out key original parameters that may have an impact on your product's success or lack thereof. It is also important to start off with a country you know reasonably well and where you have good and reliable contacts. And for this reason, many tend to choose their home or domicile market initially, after all, charity begins at home, as they say in English.

Notes

Summary

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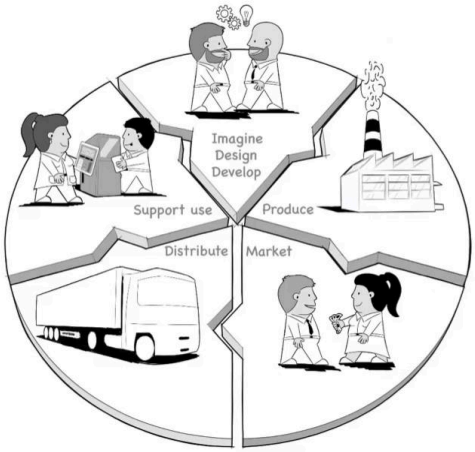

- Think Global & Act Local
- PVC tool: PESTLE Analysis
- Familiar Territory first
- Avoid over-adapting solution
- Case study example: Cameroon

But this need not necessarily be the case, choosing a pilot market is important, because it will allow you to go deeper and more specific in your assessment and understanding of customer needs and get more concrete data about your technology solution. However, you must also guard against over-tailoring your solution to that specific region to the extent that it becomes irrelevant outside that territory. So try and select a country or region that is as representative as possible of the global community you wish to address with your solution. In the case of the digital X-Ray project that we discussed, for example, Cameroon was chosen because it was deemed to be sufficiently representative of the challenges we wished to address that are faced by low and middle income countries with respect to radiology access and infrastructure.

Notes

Summary

6m 38s

Take stock of alternatives

- Understand the Status-Quo
- Maximally engage buyers:
  Must-Have vs. *Nice-to-Have*
- Porter 5 forces analysis
- Review existing IP on internet

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You need to have a good understanding of the status quo, in other words, how are the intended beneficiaries currently obtaining the benefit you wish to provide? In most cases there is generally an existing mechanism that people try and obtain an essential service or benefit from, even if it's not to their satisfaction. Make a maximum effort to discuss with and understand what the clients do appreciate about it and what they genuinely miss. Be sure that whatever is missing is what one might term "A must-have" rather than a "Nice-to-have" service or benefit. In order to help you with this particular process we recommend using the Porter 5 forces analysis in conjunction with desktop research. As we said before, this will help you understand where power lies in the market place, as well as understand your potential strength in the market you will be considering moving into. Before you move to the next step, for technology innovation it is generally very important to understand the intellectual property landscape surrounding your solution. Even if you do not wish to file a patent, you still need to be sure that you have what is termed "Freedom to operate".

Notes

Summary

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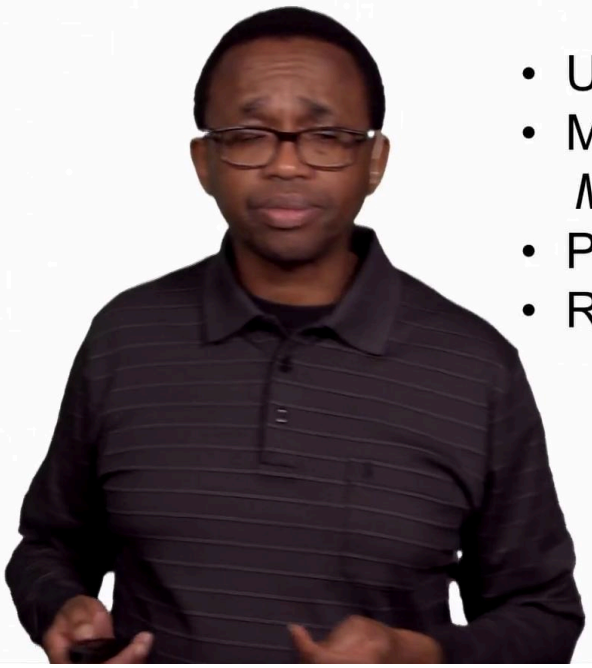
Take stock of alternatives



- Understand the Status-Quo
- Maximally engage buyers:
  Must-Have vs. *Nice-to-Have*
- Porter 5 forces analysis
- Review existing IP on internet

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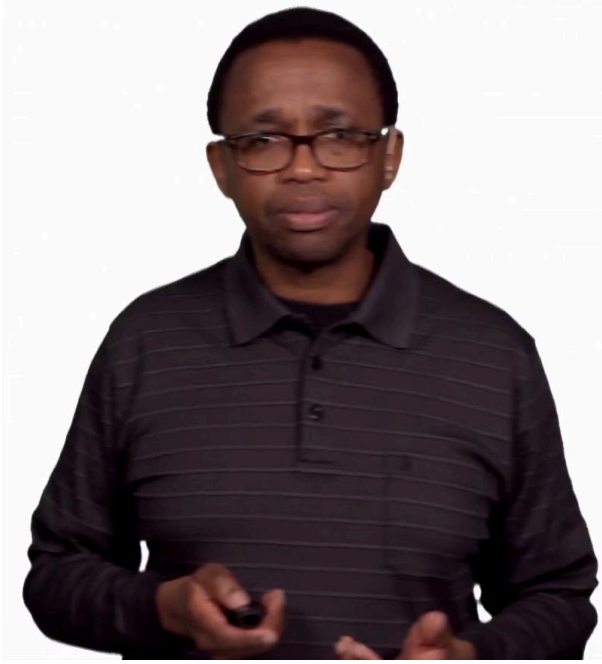
However, there are still many regions in the developing world who have weak intellectual property laws, which may render even a valid patent ineffective. ineffective. Consequently, many players simply do not designate these regions when filing patents. However, the PESTLE analysis should, in principle, provide you the the relevant intellectual laws for your pilot region, you can then make the call on the intellectual property issue.

Notes

Summary

8m 46s

Define specs



- Draft your initial Specs
- Assemble colleagues & Stakeholder, esp. KOLs
- Assess initial Specs in LMIC Context framework.
- SWOT Analysis: Product & Team.

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After carrying out the detailed process above, you are now ready to start drafting your initial product specifications or specs. This exercise is best done as a group with your colleagues, for example. If you have the opportunity, make sure to also include some key opinion leaders and other relevant stakeholders as this might also generate a sense of ownership for the eventual product. Getting such an early buy-in from key opinion leaders and stakeholders could pay off handsome dividends for you, as they are likely to be comfortable and willing to advocate for the product. Once you're satisfied with this version, we recommend that you put it through the low and middle income country context assessment tool that we discussed earlier, in order to determine how adapted your solution will potentially be in their anticipated contexts. And if required, revise and alter the specs, in order to comply with this context. Finally, you should carry out a SWOT Analysis, in order to have a global overview of products position. In addition, do also carry out a SWOT Analysis on the current team to assess what strengths are already available and which vital competences are missing to successfully develop the product concept.

Notes

Summary

9m 16s

Business options

- Identify Product Options
- Sustainable Business Model Canvas
- Value Proposition for each option
- Involve diverse inputs

Now based on your product's specs, try and identify the top two or three potential markets opportunities that could be addressed with your product's specs. And then, with the help of the information you have collected from the impact plan and product value chain analysis carry out the exercise of filling out the sustainable business model canvas for each of the product options separately. This will allow you to construct various business models scenarios that could result from your product. And for each business opportunity you should develop a corresponding value proposition. Ideally, you should carry out this exercise as a group, involving your colleagues and any other relevant players or stakeholders that you may have access to. Just remember that, the more diverse the participants the better the outcome.

Notes

Summary

10m 35s

How to finance the concept stage

The process of carrying out the activities we discussed in the previous slides requires that you spend an excessive amount of time if you wish to do it well. Therefore, in most cases it can be very difficult to do it as a part-time activity and requires full-time commitment. But depending on your personal situation many people require income for a living, and so, the question begs as to how do you finance yourself during this phase? I will say upfront that there is no easy answer, unfortunately, to this question, especially at this early stage. At this stage, traditional sources of finance such as the banks, businesses angels and venture capital are not likely to take any interest as it is too early-stage for them. So, the number one source is you, that is, your personal investments. This includes not only any financial expenditures you can make, but the time, resources and the sacrifices you need to make. This also includes all days and nights you may spend in your garage testing out numerous technical concepts. Your number two source is likely to be the so called the "Three F's": Friends, Family and Fools.

Notes

Summary

11m 26s

How to finance the concept stage

- Personal Investments
- Friend Family & Fools
- Grants & Foundations
- BP Competitions

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They may be able to lend you money, for example, to carry out the trips and visits to meet the important stakeholders, or also by just allowing you to continue to stay with them without paying boarding and lodging costs, or simply giving you a downright lump sum of money, in return for equity or a convertible loan. And depending on where you are there may be a variety of grants for supporting early stage startup companies. But, generally speaking, cash grants for the concept development phase are rare. However, there are several kinds of support instruments, such as Business Plan competition, incubator and/or enterprise accelerators. These instruments typically provide in kind support of by way of giving you access to expertise to help you develop your product concept as well as infrastructure such as physical space and IT.

Notes

Summary

12m 48s

So, to summarize what outputs or deliverables should you plan to have from the concept phase? The first tool you used is the Impact Framework tool, which then provides you with your Impact Plan as a deliverable. And then you applied the Product Value Chain analysis, to give you a more comprehensive list of stakeholders and key opinion leaders. And finally, your product specs or product concept. And then the sustainable business model canvas enabled you to develop suitable business models for each of the identified product options from your product specs. So, in general you will have noticed how many times we encouraged the interaction with/and participation of stakeholders in the various processes we have discussed in this lecture. That is because this is really the phase when it's vitally important that you put together as accurate a concept as possible before you go further with the arduous process of product development. So again, we cannot over-emphasize the need to involve them in this phase. Goodbye.

Notes

Summary

13m 54s