

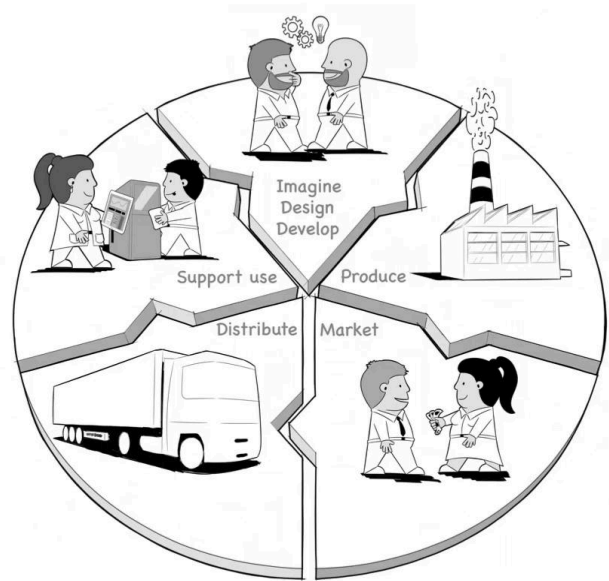


ÉCOLE POLYTECHNIQUE  
FÉDÉRALE DE LAUSANNE

**EPFL**



# The Product Value Chain: Use & Support



Technology Innovation for Sustainable Development

Hello. We have now reached the final stage of the product value chain, that is use and support. Since your goal is to achieve sustainable impact, this phase is particularly crucial to your overall mission, as we will discuss.

Notes

Summary



0m 22s



- Commissioning
- Training
- Maintenance & Repair
- Decommissioning & Recycling

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There is often a tendency to think that once the product has been successfully realized and delivered, the job is done and dusted. However, we must remember that the key objective for your product is to obtain sustainable impact, which implies providing a continued and reliable supply of intended benefits with your products. Therefore, this requires such a product that is always functional, and for as long of a period as possible. This section discusses elements related to putting your new product into use and providing it with proper support, in order to ensure its long term viability and ultimately impact. And in this session we will discuss commissioning, training maintenance, decommissioning, and recycling.

Notes

Summary



0m 38s



- Documentation
- User Feedback
- Plan & Budget

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The main objective of commissioning is to finally put a new product into use. Depending on the type of product, commissioning may also involve establishing and verifying safety objectives, connecting it to the requisite utilities, as well as the procurement of sufficient stocks of material required to put the product in full use. It is very important though that the documents relating to the commissioning process be kept well. Another important issue is the establishment of a user feedback mechanism. Presumably, you have done as much as you can to make sure that your product is as user friendly as possible so it is important to verify for every client, if possible, if they are indeed happy or not with the "usability", ergonomic features and other aspects related to using the product properly. This could be achieved by a simple questionnaire, for example but it would provide you invaluable feedback of what is working well and what needs improvement. Commissioning is also the period for finalizing how technical support will be provided and who will carry it out and when. And we'll discuss this some more in the coming slides. So overall, commissioning requires appreciable planning and adequate resources must be budgeted for.

Notes

Summary



1m 30s



- Documentation
- User Feedback
- Plan & Budget

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Many problems are known to occur during commissioning, in fact if it is not planned properly. And these problems can seriously hamper the product from ever obtaining proper functional levels and frequently leads to premature breakdown and use discontinuation.

Notes

Summary



2m 49s





- Operators and Users
- After-sales support staff
- Training formats: Tutorials & Workshops

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An extremely important point is that the commissioning process must be accompanied by a suitable training program for potential operators and users. If you are based in regions that tend to have high or frequent personnel turnover it would be prudent to train your needed critical personnel in duplicate, for example. Because the availability of the suitable, qualified personnel at all times is fundamental to the long-term longevity of the product and it may be necessary to recruit new staff beforehand, if insufficient or none available in-house. It is also likely that you will not be in a position to set up your own after sales infrastructure everywhere you'll be selling the product. The common strategy used by many businesses is to find already existing local distributors, who may also have the technicians to support local needs for repair and maintenance. In that case, you also have to design a suitable training program for such strategic partners, in order to make sure they are suitably equipped and must be regularly updated with new developments. Training can involve various formats, depending on the complexity of the product.

Notes

Summary



3m 07s



- Operators and Users
- After-sales support staff
- Training formats: Tutorials & Workshops

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For example, it could be in the form of a tutorial that is embedded in the equipment itself, which could be regularly updated via internet links when new product developments or revision occur. Or it could be accompanied by actual workshops at the client's premises, especially if your product contains complex procedures. Providing a workshop also allows you to include all the background or the theoretical information that maybe necessary to understand and optimally operate the equipment.

Notes

Summary



4m 18s



- Preventive Maintenance

Technology Innovation for Sustainable Development

In our previous slide, we emphasized the importance of properly commissioning your new product in order to assure it is put into full optimal use. Unfortunately in many cases, for as long as the product seems to be running smoothly, little or no care is given to routine and preventive maintenance issues. How ever rugged and hardy you may try and engineer your product, it is a fact of life that certain parts will experience wear and tear and will need replacement eventually. If you are dealing with complex instrumentation, it may also require occasional routine maintenance such as re-calibration. Maintenance is crucial to ensuring that your product continues to deliver optimum performance, which is a key enabler towards your desired impact. With devices, it will also ensure continued safety of the product, for example. Now, despite it's obvious significance it is often neglected in many developing countries for reasons that have partially been discussed in other lectures, such as the lack of suitably skilled staff, cost of maintenance contracts, etc.

Notes

Summary



4m 52s





It's no always that we think of or can afford to negotiate a maintenance contract as soon as we get the device. It can be delivered with a minimal warranty that rarely goes beyond the first year. After the first year, we become dependent from the dealer that didn't leave a technical documentation and holds us in case of a breakdown because we can only call him. And as we're not under warranty he can apply his own conditions before coming. Those are elements that are troublesome in the devices commissioning chain. Those devices are handled by private softwares So if you're not from Siemens, if you're not from Philips, if you're not from General Electrics you can't access the equipment. Even in case of breakdown. So you have to ask the salesman, the service provider. You have to sign a maintenance contract but for this contract to work out the service provider will need several reparation contracts so it's interesting for him when he has several equipments on one territory. And not one or two. And in this context we can imagine some sort of contract or deal would be signed between the service provider and the Ministry of Health to resolve a certain number of very simple breakdowns.

Notes

Summary



6m 07s



- Preventive Maintenance
- Repair
- Remote Monitoring

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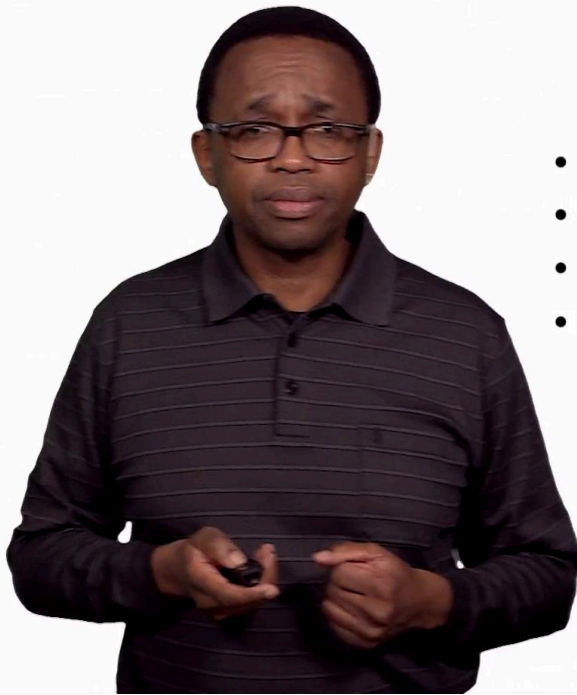
It's obvious that for a certain level of breakdown you'll have to ask for the expertise of the North. The training of a local engineer, when there is one which is sometimes present in the contract is not made... because normally the service provider when the contract was well negotiated has to deliver the equipment and train somebody to its' maintenance. Sometimes this is not done. It should be, I think, the supplier who installs the equipment who should train him to recognize early signs of frequent breakdowns. It isn't a very long or complex training. It's just teaching us to read code and when you see this or that come up understand this or that problem is going to happen. And call us, it's that simple. Now all of this discussion highlights the important issue I wish to re-emphasize that is, when you are designing your product do not think only about fulfilling the intended function as the only criteria for success, but also pay very close attention and consideration about how this product will maintained and repaired and how you can make this process as simple and cost effective as possible.

Notes

Summary



7m 53s



- Preventive Maintenance
- Repair
- Remote Monitoring
- Opportunity for Innovation

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For example, if it's a device or equipment you may consider incorporating remote monitoring features via mobile telephony, for example, that would collect pertinent data routinely from each and every one of your devices out there, which could potentially be used to detect problems before they occur and eventually pre-empt and prevent total machine breakdown and failure. And even when the machine requires to be repaired, think hard and carefully about how to make this process as simple as possible, so that anyone can virtually do it, such as using plug-and-play strategies where you only need a minimum of tools, such as a screwdriver. Also, if possible, try and make sure that most of the repairs that would be required could be based on universally available parts. In fact, we can go as far as saying that the issue of simplifying maintenance and repair can, in by itself, be a fertile hunting ground for new innovations for developing markets. In other words, for many existing products you may not need to develop them from scratch, but can simply engineer features that made them easier to maintain and repair, even in remote rural areas.

Notes

Summary



9m 12s



# Decommissioning & Recycling



- Decommissioning can be complex
- Understand Decommissioning Issues for your Product
- Could be Final Step of After-Sales Support

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Sooner or later your product will reach the end of its life cycle and will need to be rid off or decommissioned. The term decommissioning is generally used for major equipment. Manufacturing plants, production lines or hazardous products. Decommissioning is an important part of the life cycle of an equipment or installation, but often receives insufficient attention during the planning, budgeting and operational phases of the equipment. This has lead to many unforeseen issues and challenges when the products reaches the end their economic life, because decommissioning can be a complex multi-disciplinary process and it may require the management of diverse issues and the involvement of international and government agencies local communities and NGOs. So make it a point to understand the sectorial laws, regulations and guidelines applicable to decommissioning your products including any tax issues. In general, decommissioning is the task of the client who owns their equipment, but in many developing countries waste management and recycling is often a challenge and not carried out appropriately. So you may wish to consider developing a suitable plan for the recovery or the recycling of product material, and perhaps include it as the last step of your after sales services.

Notes

Summary

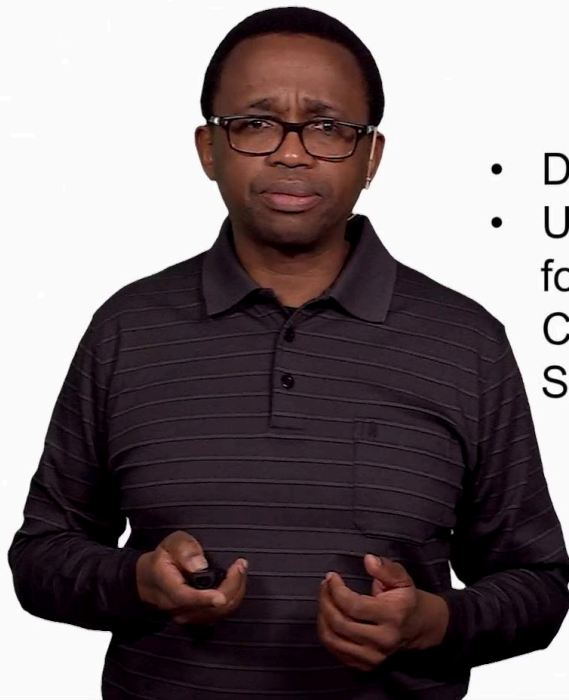


10m 36s





# Decommissioning & Recycling



- Decommissioning can be complex
- Understand Decommissioning Issues for your Product  
Could be Final Step of After-Sales Support

Technology Innovation for Sustainable Development

And the cost of this activity could be integrated in your initial sales price in fact. This way you would be sure that your products does not end up contravening some of the sustainable development goals, which you sought to promote with your innovation to begin with. So overall, it is important to design a product that simplifies this phase as much as possible, such as avoiding the use of toxic components or difficult to recycle materials.

Notes

Summary

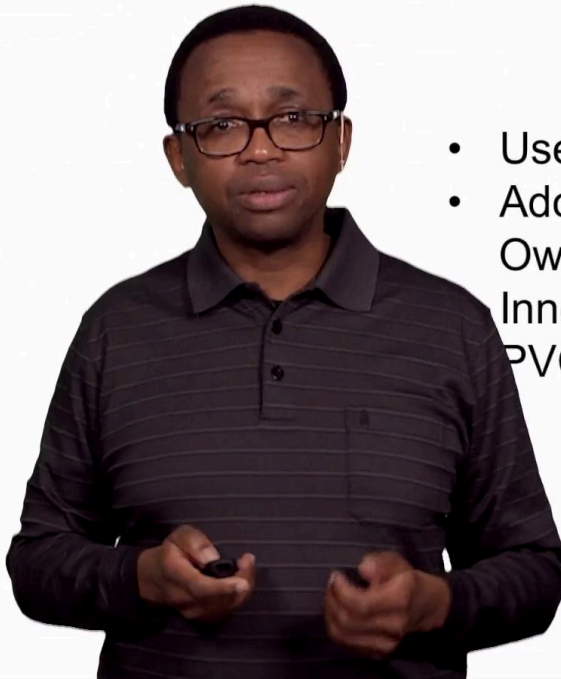


11m 55s





## Concluding Perspectives



- Use & Support crucial for Impact
- Adopt a holistic view – Total Cost of Ownership
- Innovation Opportunities on entire PVC

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We hope that you have understood the importance of this final step of use and support and it's crucial contribution towards attaining your sustainable development objectives with your innovation. Furthermore, we hope you have appreciated the significance of taking a holistic approach and looking at the total cost of ownership to your customer when thinking about your product. Because the purchase is only the first step, but if the other costs are not factored in or considered your product may quickly become a white elephant and be unable to achieve it's intended impact. This now brings us to the end of the discussion of the product value chain analysis tool. I hope that you have appreciated how important it is to consider all the steps, and the various steps within each of the steps, in fact. And also the fact that innovation may not only be needed only at the R&D phase, but there may be other innovation opportunities right through the other sections of the product value chain. Goodbye.

Notes

Summary



12m 22s