Summary

Service Innovation [SI]

Hochschule Luzern – Technik und Architektur
Wirtschaftsingenieur | Innovation

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Content

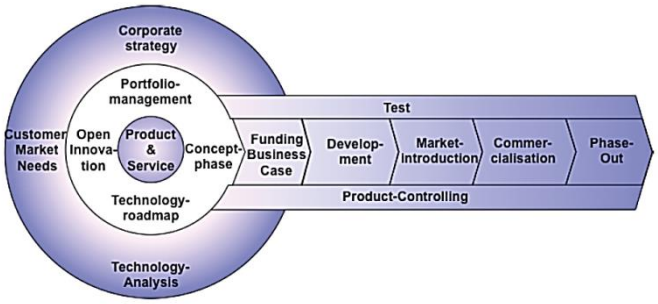
1 Service Innovation – class introduction (TE01)

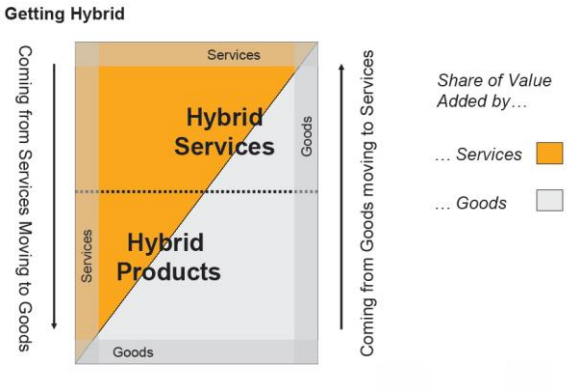
1.1 Overview module SERVICE INNOVATION

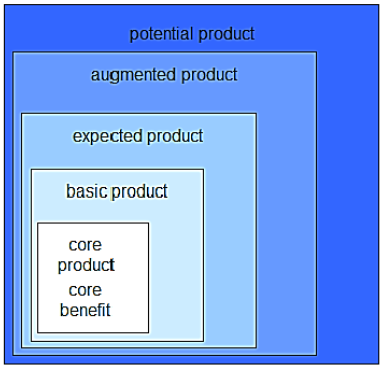
Short description of the course (S. West, 2013):

"The focus is on the industrial services required for engineered products. The importance of close cooperation between the new equipment and service departments of a business to create high value innovation will be discussed. The innovation stage gate process will be described and its limitations discussed within the constraints of a service environment. Use of concepts from service industries will be used throughout."

1.2 Some revision SERVICE INNOVATION







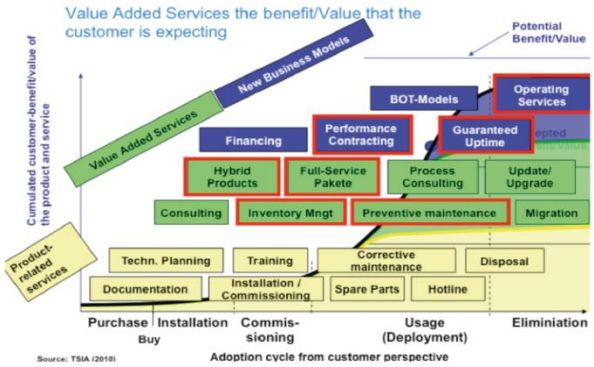
encompasses all possible augmentations and transformations

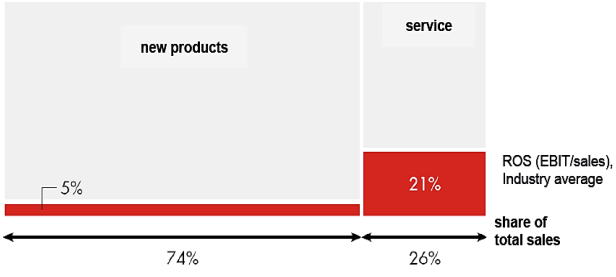
exceeds customers expectations

set of attributes and conditions buyers expects

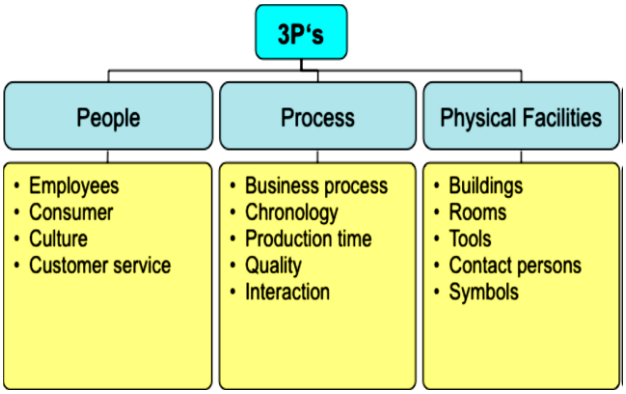
functional basic product

service or benefit customer is really buying





Product specific Documentation	Customer specific Documentation
The service documentaion / manual should include the following: ▪Installation manual ▪Product-logistics information include all aspects of life cycle strategy (Spare part & disposal, repair,…) ▪Maintenance manual (e.g. checklists, service tasks, value proposition) ▪User-documentation incl. service information (e.g. guarantee) ▪Software-Release information ▪…	The customer documentation should include the following: ▪All completed service processes and works (incl. Date and time) ▪Change of configuration and settings ▪Spare-part and repair ▪Software updates ▪…

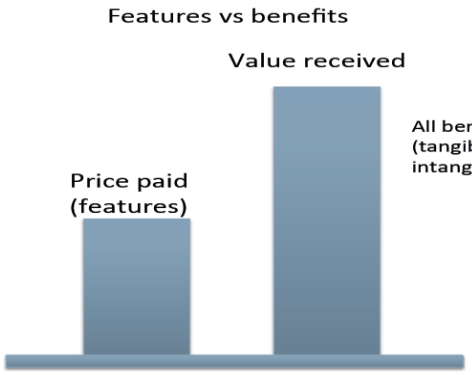


1.2.1 Remember to consider what the best in the pack do to win

- Customer/service-oriented culture
- Clearly defined strategy
- Value services for the sake of service
- Adapt business models
- Collaborate with customers and partners
- Know their customers and the installed base
- Creativity and 'eyes wide open'
- Leadership seen on 'shop-floor' spreading the message (and enforcing the culture)

1.3 An introduction to what innovation means for services

Intangibles become more and more important with services:



- Value stack consists of all the elements of the customer stacked on the of each other
- The decision maker needs to understand this to 'make the right decision'

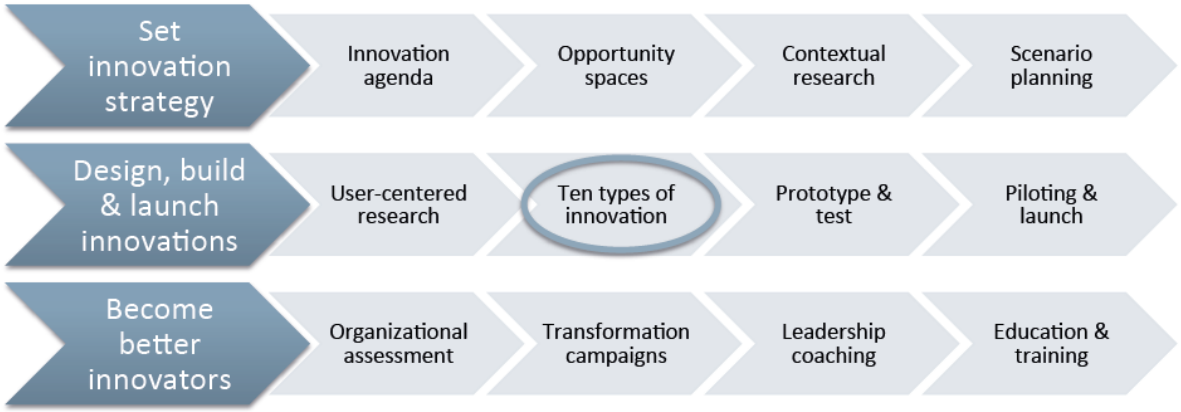
Narayandas, 2002

Or put another way by the Service Alliance – we need to manage the four key service enablers:

1.4 Some new theory SERVICE INNOVATION

Looking a little deeper into the 10 types of innovation – this was a key learning (or a-ha) for me:

Doblin-model → moving away from product development:

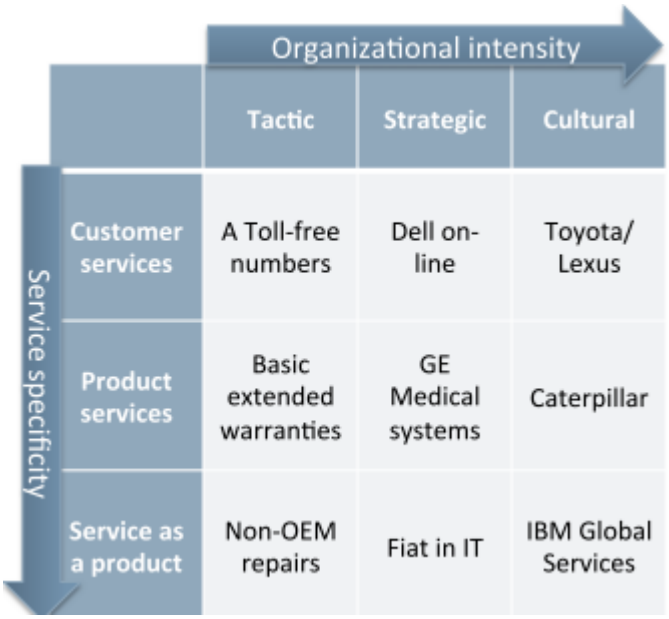


Schlesinger and Heskett (HBS) → model includes 4 very humanising elements for establishing that the model of "the employee-as-a-disposable-tool" is very costly to a service company.

2 Servicer Innovation – understanding cultures (TE02)

Culture is the way of behaviour for the people. If you don't adapt your service to their culture, you will have to fight against an endless stream. This is not affordable for most companies.

2.1 Benchmark your services - Mathieu's 3x3 matrix

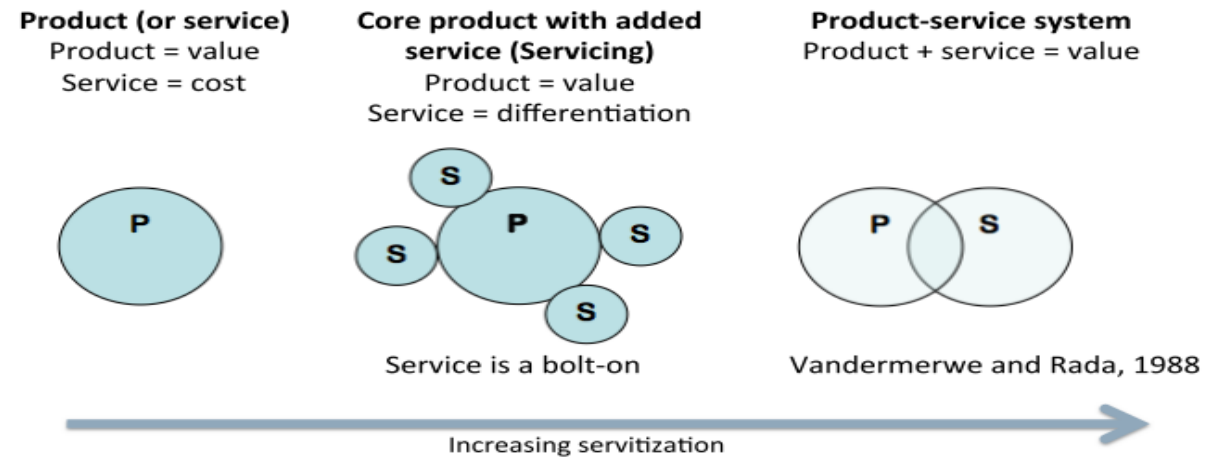


To change a company to more service orientation has risks and costs.
Increase service specificity causes political risks, because the organisation will be against change. But the greater specificity gives you close contact to the customer.
A rule for intensity is also, if services are more than 30% of your sales it's surely not 'tactical' anymore.
Move from top-right to bottom-left increases your services. But be sure your services also are paying back.
Below you find a list of criteria to find out where you stand in this matrix.

Examples	Customer service	Product service	Service as a product
Toll free number	x	x	x
Shipment of goods (to/from)	x	x	x
Spare parts sales	x	x	x
Extended warranties		x	x
Field services (planned, unplanned, 24/7 support)		x	x
Training on the equipment		x	x
Installation/commissioning		x	x
Website for customers		(x)	x
User groups		(x)	x
Repairing competitors equipment			x
Creating new services for customer problems			x
New products/uprates based on service experience			x

What to listen for/observe within the organization	
Service is only cost	T
What to do our customers know?	T
Customers should operate *our* equipment more carefully	T
We deliver engineering excellence	T/S
We measure our success with financial measures	T/S
We do service to sell spare parts	T/S
We have process in place to improve service delivery	S
Service is an important cash generator	C
Delivering service is as important as delivering products we make	C
Some of out best product improvements come from the field	C
We measure our success with how well our customers are doing/satisfaction	C
We always ask for customer feedback	C

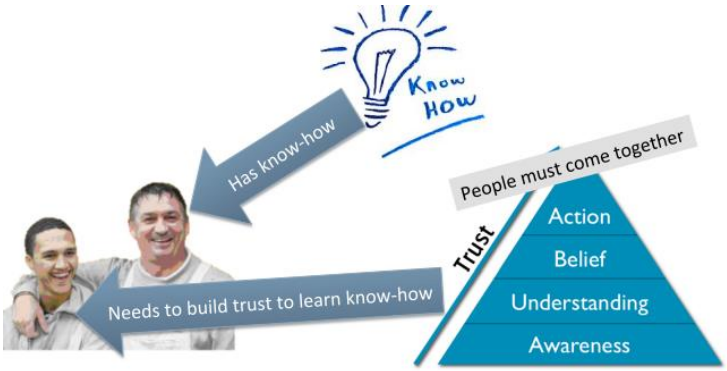
Increase your services will generate strategic, financial and marketing benefits (e.g: Improves customer satisfaction). But will also have costs strategic, political and financial. Every department is affected different by this changes and has different reasons to be against it. These reasons have to be taken care of, or there is no support for the change.



2.2 Know-How transfer in service organisation

Service is a difficult area to keep hands on the knowledge. Most of service shops are isolated and have weak IT systems. Service is often the place where the underperformers of the employees are sent, which is a really bad idea – this unliked employees are now face to face to the customer. And the customer is the one who brings you money.

Service is also difficult to document because it's mostly impossible to save the documentation in the company's IT system from the field. As a result of this, lots of "documentations" are only in the brains of the employees. If they are leaving the company all of this knowledge is lost. This is where service culture comes into place. With how we deal with the service employees and how we deal with this know-how transfer. Service is a good place to put apprentices, to build up trust to the experienced people and keep knowledge in the company.

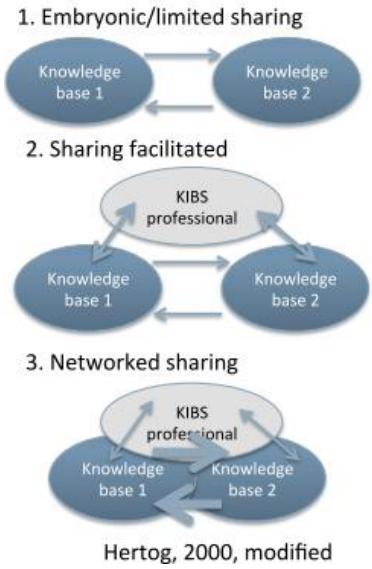


Polanyi model of knowledge creation

- Tactic knowledge → "know how"
- Explicit knowledge → "knowing about" → easy to transfer and store

Hertog (2000) model

Knowledge-intensive business service (KIBS) model can share knowledge like this:



Hertog, 2000, modified

1) only personal network
2) Personal network and help of KIBS brokers during meetings
3) Sharing between all as a norm

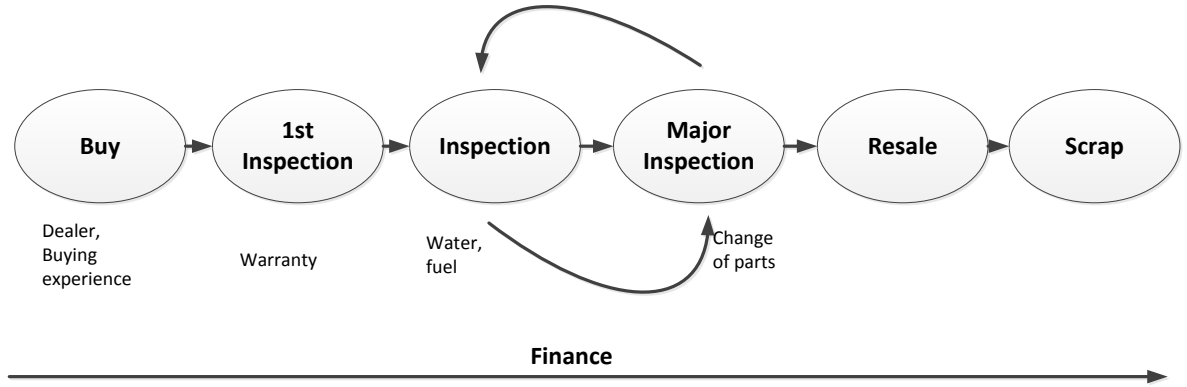
To allow this become a norm, the KIBS broker has to be accepted by all parties. The costs of this KIBS broker Is high (salary + travel) and the setup of this system requires also a reliable IT system. Local service personal needs to gather experience in other locations (the more experience the better for the customer and his acceptance of costs)

3 Life cycles for engineered products

3.1 Life-cycles

The product development key like it was known in SM+PM is really much much longer when the owner/operator is considered.

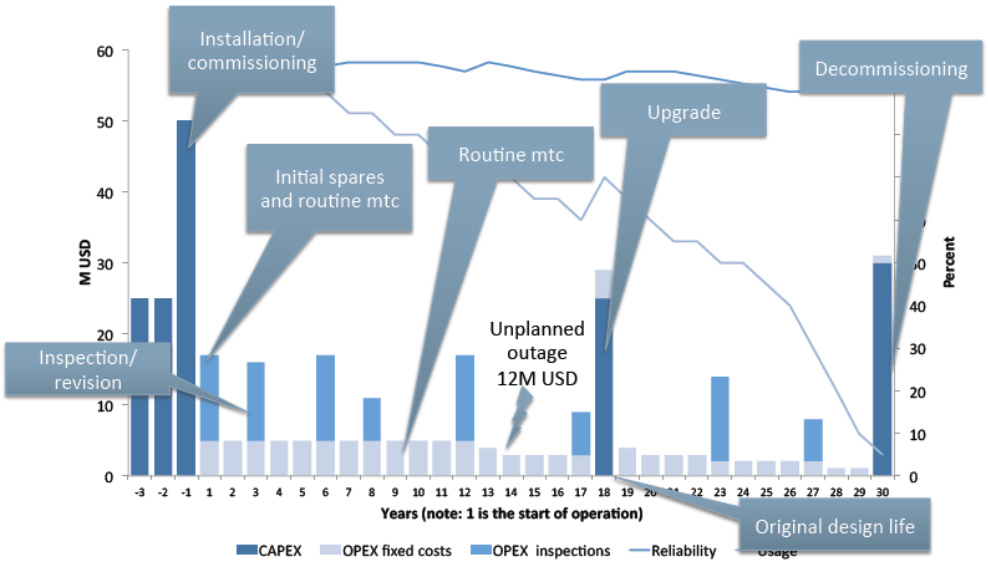
3.1.1 Life-cycle of a car



3.1.2 Generic view of the life-cycle for engineered products

Roland Berger (2012)

3.1.3 Consumption of services during life of equipment



CAPEX: Capital expenses

OPEX: Operational expenses

installation/commissioning	• Do the new equipment sales team 'give-away' the services? • Who leads the warranty phase • How to create the 'service' relationships early on
initial spare part sales	• Who sells the ISP – new equipment sales or service? • What parts does the owner/ operator really need? • Is there a better way (service model) to fulfil the needs?
normal operation (Routine mtc)	• What are the real needs of the owner/operator • How to align drivers better? • Monitoring or equipment • Linking service experience to product development • What additional services are under-delivered? • How do you use this phase to drive relationships?
Inspection / revision	• What is really required? • What are the variables that can be change • How can service experience be linked back to the product teams
How to drive service innovation through **break down situation**	• What is really needed by the owner/operator • Rapid response • Sticky-plaster, make-do and mend vs. full repair • Can this phase improve/break relationships? • Tensions between product and service teams?
Original design life / Upgrade	• Service up-grades can be sold! • Need to understand the owner's/operator's needs and value drivers • Opportunity to re-focus relationship
Decommissioning	• How can decommissioning services be improved (drivers?) • What happens to the 'scrap'? • Could the equipment be re-applied for another owner?

3.2 Service Mix

Services	Service sales share		EBIT	Cycle
Commissioning/installation		20%	$	CAPEX
Training		3%	$$$	CAPEX/GDP
Maintenance contracts		5%	$$$	GDP
Maintenance/inspections		16%	$$	GDP
Spare parts		40%	$$$$	GDP
Updates, upgrades and retrofits		5%	$$	CAPEX
Software/engineering		2%	$	GDP
Other		9%	$	CAPEX/GDP

$ = 5% ROS (approx)

Why is the value in commissioning low?

- Sold as part of new equipment deal, normally a highly competitive process

- When separated from new equipment it can be very profitable

Why are the margins on spares so high?

- Once the unit has been installed the OEM has a 'virtual' monopoly on parts sales
- Prices are 2-3x cost (cost plus not value pricing)
- Risks of loss of trust on some highly priced parts
- Pricing can become very 'competitive' once an independent breaks into the market

3.3 Calculating the value of a break-down

HV motor service for dumper truck→ What are the value drivers?

- Copper price is a major driver
- In 2011 every tonne of copper was worth 8k USD
- Each truck can carry 300 tonnes or ore
- Ore yields typically 3%, each truck can make a round trip in 2 hours, average time to repair 3 days
- Lost production (back of envelope)
  - 8,000 x 300 x 3% x 3 x 24÷2 = 2.6M USD
    24÷2 = Number of round trips per day

3.4 Power-by-the-hour as a tool to align drivers in aerospace

Rolls-Royce celebrates 50th anniversary of Power-by-the-Hour

…'Power-by-the-Hour', a Rolls-Royce trademark, was invented in 1962 to support the Viper engine on the de Havilland/Hawker Siddeley 125 business jet. A complete engine and accessory replacement service was offered on a fixed-cost-per-flying-hour basis. This aligned the interests of the manufacturer and operator, who only paid for engines that performed well… RR, 2012

Services provided

- Engine Repair and Overhaul
- TotalCare work scope
- Engine Reliability Improvement
- Comprehensive Engine Health Monitoring (EHM)
- TotalCare Service Integration
- Specialist Line Maintenance

Owner/operator benefits

- Low risk, fixed cost maintenance
- Reduced management burden
- Enhanced aircraft resale value
- Increased aircraft availability
- Reduced capital investment
- 24/7

3.5 What value for spares?

Understanding how to create a price based on customer value.

- Spares parts are normally sold with a mark-up of 100-250%
- OEMs typical use a price list
- Owners/operators normally negotiate discount to the list price when buying the equipment

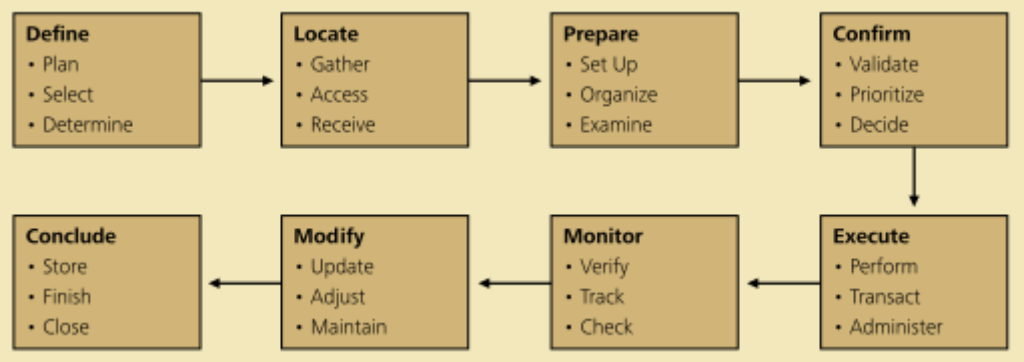
➔ What is the value of one spare part needed to complete the inspection? (Assumption here is the owner does not have the item on stock)

4 Value of unknown needs

4.1 Importance of hidden needs

There is all about selling stuff to the Customer – if you find out what he need before he knows, you win. This can be done by detecting hidden needs. With them you have the opportunity to discover and enter new markets, disrupt existing markets and a good chance to chain the customer to you. Important by design your service is that you consider the outcomes and adjust to your customer.

To capture the customer needs you can use the Ulwick's universal job map:



This map provides you a structure of what your customer needs, and you are able to find out where hidden / unknown need could be. This results in ideas where you can expand your business.
REMEMBER: The customer (user) doesn't need a drill – he needs holes.

4.2 Capturing customer inputs

Often your customer can give you a good hint what you should improve. Why don't ask them? Companies do such information gathering often, there are 3 issues they miss:

- Lack of standard definition
- Perception of ability to obtain good customer input
- Focus on how to capture data, instead of capture the right data

If you do such a question to your customer, always take the look on what he is trying to **achieve** by using the product. This will focus you on the outcomes, not on the processes. Your target is to make him more efficient / successful in his job.

Issue	Result
Too much product focus Over use of specifications, eg, 'lighter'	'Me-too' copycat thinking
Needs only expressed at a high-level	Imprecise and open to interpretation
Marketing-like customer benefits	Too ambiguous for innovation

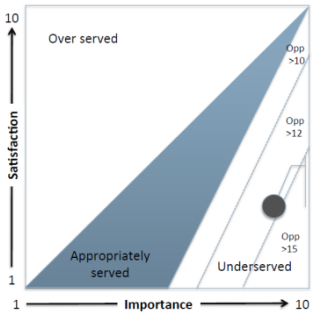
If you go for a questionnaire, obtain at least 30 – 40 results. Group feedbacks count as one. A good way of getting info is a mix of questioners, focus groups, interviews and observations.
Make your questions in an outcome driven quantitative format -> direction + measure + outcome wish
You must include at least these sections:

- What jobs that need to get done
- What outcomes are you trying to achieve

- What constrains do you have

4.3 Opportunity algorithm

With the input of the outcomes, you can evaluate the Importance and satisfaction (Score 0-10). Then you calculate -> **Importance + MAX(Importance-Satisfaction,0) = Opportunity**. With this you can see where you are good and where not. If you catch the satisfaction of your competitors, you can also benchmark your services. The higher the opportunity the more underserved your customers are.
You can also benchmark with your competitors to help find where you should first innovate.



4.4 Segmentation

Traditional market segmentation is known from other modules (regional, market, equipment, use, owner…). This explains market development is a base for prognosis. With the new outcome driven segmentation you look out for segments which are interesting for your innovation. This segmentation gives you a clearer view of what your customers want.
It allows us to discover:

- Unique opportunities in mature markets
- Demanding customer they are willing to pay more for more elaborated solutions
- Unattractive segments
- Over-served segments → attractive for disruptive innovations → how to enter as a new player?
- Segments with high growth potential

4.5 Targeting for growth

Next step after segmentation is to target only those segments which are attractive as for example:

- Related opportunities that form a theme
- Unrelated opportunities that provide growth avenues
- Single opportunities that could be addressed with a new (ancillary) service
- Over-served outcomes that add unnecessary cost

For this you can take a look at which feature has the best chance to be sold. These are those features which are asked over all segments. Next priorities have those who are cheap to produce / give the most profit.

Feature	Segment 1	Segment 2	Segment 3
A	X		X
B		X	
C	X	X	X
D			X
E	X		
F	X	X	X
G			X

Consider to have proper research and the necessary know how. Because of this are the most common problems of companies trying to sell new services.

4.6 Positioning existing services

4.6.1 Right message to sell 'true' value

- Focus on what your customer's needs are (outcome driven)
- Precise, innovative message (hit the market)

4.6.2 Effective messaging strategy

- Communication and clarity – From development to customer
- Sale has to understand what they sell

4.6.3 Choose most effective message

- Message around a specific outcome
- Often emotional messages are more effective (even in rational business)

4.6.4 Emotional or functional message?

More	Food / Drink	Automobiles
Emotional complexity	Chemical / Raw material	Services / Medial devices
Less	**Functional complexity**	**more**

Emotional decisions often bases on thrust

4.6.5 Can the sale force sell from day 1?

- They need to understand their customer first (needs / outcomes)
- Training tool package is part of the process

4.6.6 Advantage of outcome based brand

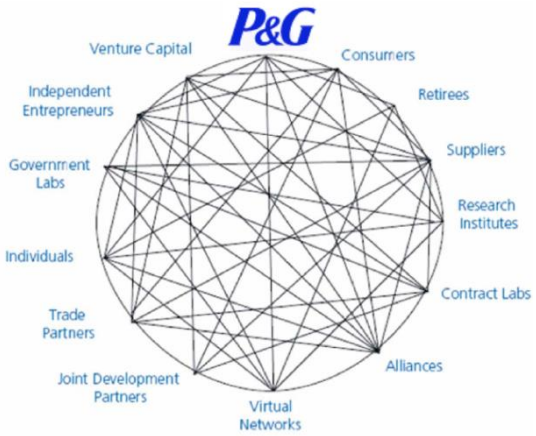
- Customer knows, where you can help him and where not
- Outcome driven thinking provides a solid foundation for a brand
- You earn credibility, if you connect your customer to a colleague who offers a needed service, that you can't provide

5 Development of innovation processes

Darwin: *"It is not the strongest of the species that survive, nor the most intelligent, but the ones most responsive to change."*

<u>Today's world is very complex</u> and becoming more so!

- P&G model is for consumer goods but remains valuable → Engineered products have an equally complex environment
  - Even more complex when you consider their customers' environments
- All stakeholders can have an impact on innovation (positive and negative)



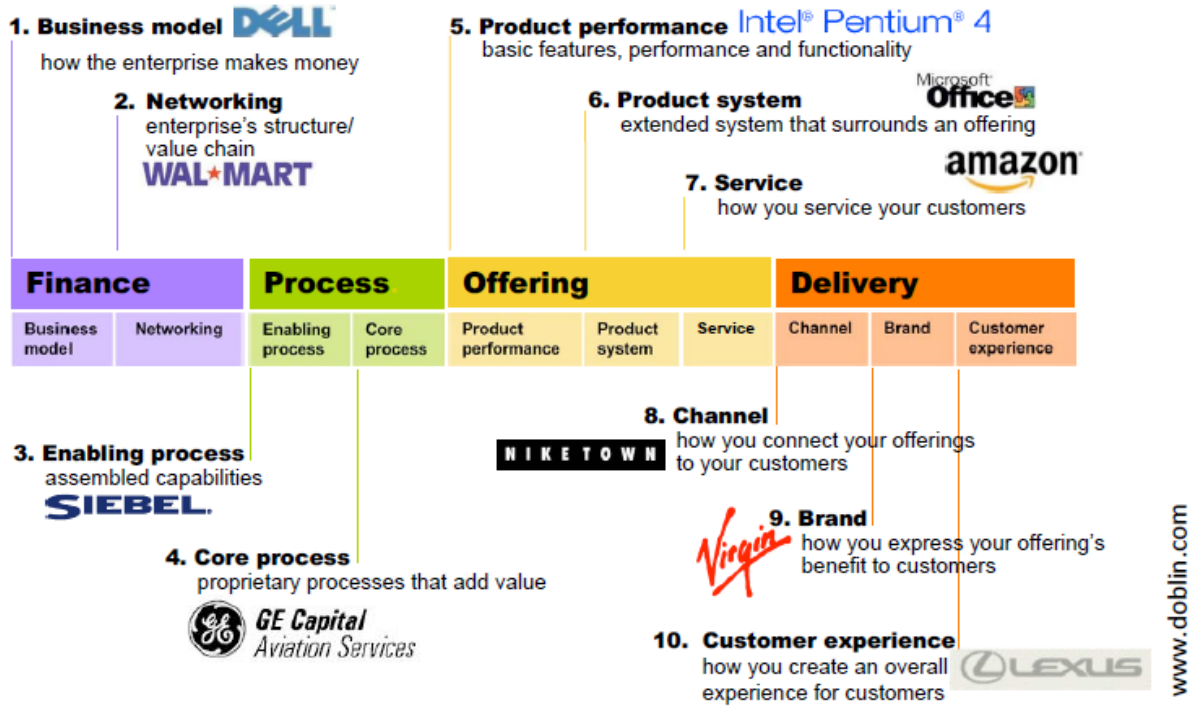
5.1 The 6 innovation myths uncovered by Doblin

Myth	Reason why it's a myth
1: Innovation comes from being creative...	Creativity = Ideas, but Innovation = Ideas + Action (put them into practice)
2: Innovation is about creating a hot new product...	New products are swiftly copied and rarely enjoy sustained profits. Virtually everything can be copied successfully. This has always been the case and always will be, it is just getting easier every day
3: Senior executives should stay away from geniuses at work...	Leaders should work to build inspired and inspiring innovation intent. Innovation teams then are free to develop within the constraints set.
4: Financial analytics are paramount…	The future cash-flow is only a guess based on today's assumptions. • What base-line should you measure from? / How accurate are Sales in forecasting Order Intake for 12 months?
5: Seek reliable concepts to ensure success in the marketplace	Reliability often produces predictable, not compelling, experiences This creates more of same, just slightly better. It is important to improve existing products and services It is really key to improve customer-outcomes
6: An innovation 'stage-gate' process is vital...	The stage-gate creates an allure of consistency and predictability. It is slow and cumbersome and suited to some types of product development.

→ Innovation in services is different from product innovation

→ Moving beyond product development is important to create real sustainable advantage

5.2 Doblin Model of innovation

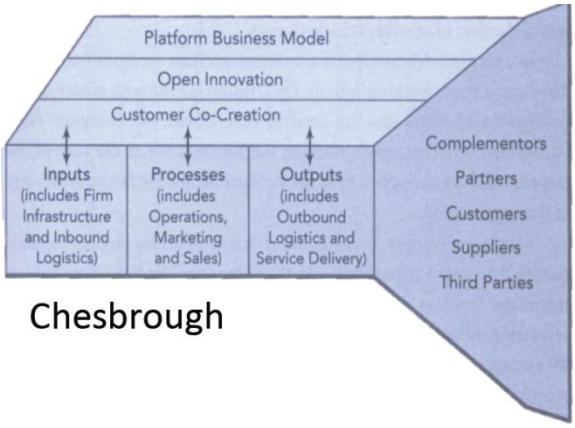


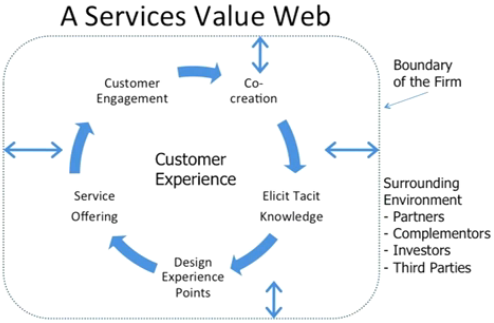
Above the old model is shown, below is the updated one. Because business and the world have evolved over time, the model was changed a bit. Finance and processes now are combined as "Configuration". Also new is that "Service" is added to "Delivery" and renamed to "Experience". This shift was necessary because it's all about customer experience, what a customer wants.

A good explanation of the ten types can be found here: http://www.doblin.com/tentypes/#framework

There are more things to innovate in than just in products. **Products are like seeds. Seed, let them grow and finally harvest money from services.**

5.3 Chesbrough's input to the service innovation process

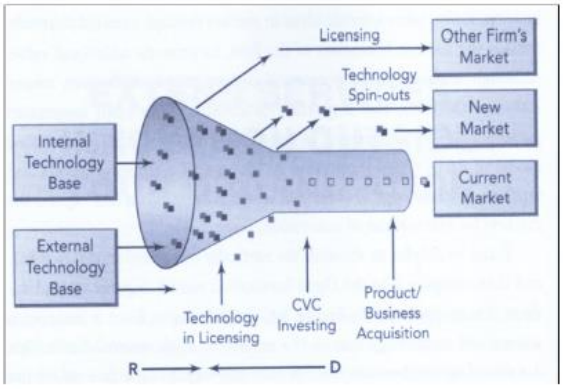




Open Services Innovation
Chesbrough's (open) services value chain is very different to that of Porter. Porter's traditional value chain is about better products, lower costs and higher margins. The centre of activity of the Services value chain is the customer experience.

The value chain highlights:

- Inputs, outputs and the process
- Expects a two way relationship with customers and suppliers



(Open) Innovation funnel

This model better captures the options available for the innovator

- Internal and external technologies
- Options for the 'spin-outs'
- Options for buying in knowhow

Experience points with your customers

- Valuable input can be obtain from each and every experience point with the customer
- What are the outcomes the customer wants to achieve?

5.4 The service innovation process (Ulwick)

- High-level view
- Using outcome-based approach as this leads to sustainable advantage

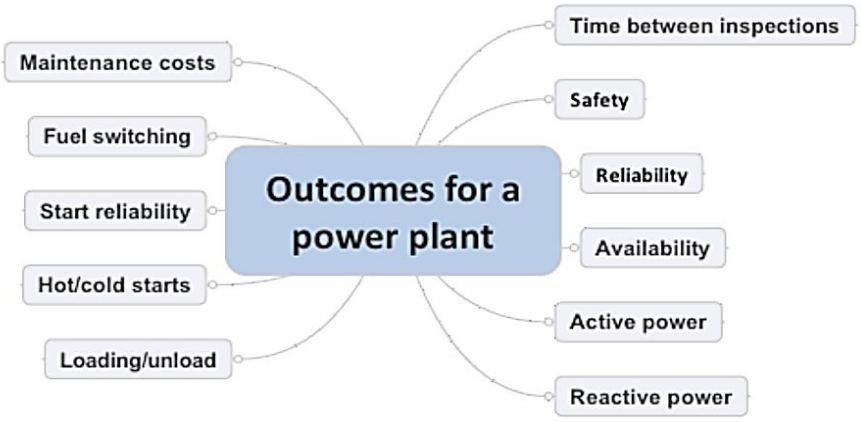
Process step	Customer-driven approach	Outcome-driven approach	Benefits of outcome driven approach
Formulate a strategy	Focus on core markets. Other options are 'too' risky.	Consider many directions: product-, market-, operational- and disruptive-innovation.	Create strategies with high growth potential and chance of success.
Capture customer inputs	Listen to the 'voice-of-the-customer' and struggle to create solutions the customer's request.	Determine the outcomes the customers want to achieve and let qualified experts devise the solutions.	Both Marketing and Development managers have the inputs they need to create high value solutions.
Identify areas of opportunity	Define opportunities as the solutions the customers 'say' they want. Prioritize based on available resources and existing competencies.	Define opportunities as the outcomes the customers say are important and unsatisfied. They find resources to address them.	Leaders and managers know where to focus creativity to create customer value. They do not waste effort on over-served outcomes.
Segment the market	Customers are classified by product type, price point, age, risk, etc.	Customers are segmented based on the outcomes they are trying to achieve	Managers are able to discover the segments of opportunity revealing new options for growth.
Target opportunities for growth	Customers peruse ideas that are intuitively attractive and easy to	Peruse underserved and overserved outcomes for improvement and cost	Companies proactively define their competitive position that it valued and

Process step	Customer-driven approach	Outcome-driven approach	Benefits of outcome driven approach
	develop within the core competencies.	reduction respectively.	then devise a solution to occupy that position.
Assess the message	Companies are unsure if their position/messaging is tied to underserved outcomes. Confused signals to the market.	Products, services and brand are tied to the emotional jobs/func3onal outcomes customers are trying to achieve.	Messaging connects strongly with the customers and enhances future sales
Prioritize the development pipeline	Managers try to cover all bases. All projects have resources rationed, reluctance to kill projects (seen as a weakness).	Only projects that fulfil under/overserved outcomes progress.	Companies know which projects would create most value. They create more willing services.
Devise breakthrough ideas	Brainstorm without focus, 100s of ideas with questionable value. Large number of projects evaluated.	Focused brainstorming to direct energies into specific underserved outcomes generating a few ideas with significant value.	Employees don't waste their time generating ideas that do not add value.

6 Defending products with service (TE06)

Alstom's 13E2 2012 uprate – what was it and how is it innovative? (This is a really good example)

What could be the desired outcomes for a successful power plant?



You have to know customer needs, what you can do to improve his business?

All the time: Ask **WHY** that is important for the customer?

Publication from Alstom's website

- What are the needs and outcomes being addressed?
- Where are the clear customer benefits?
- Is this emotional or functional
- How do they address barriers to entry?
- What part of the life-cycle does this address?
- What are they telling us with this page?
- What are the outcomes that they are describing in the graph
- What are they highlighting in the table at the bottom of the page?

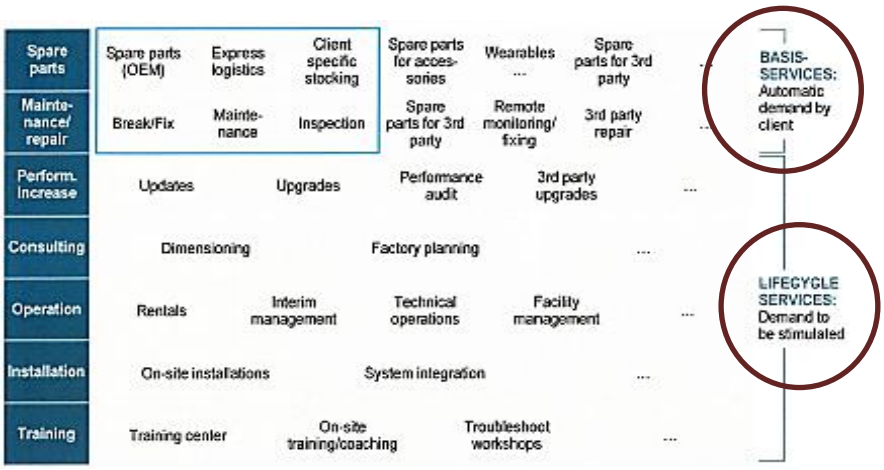
Important question to think what business they do. What the outcomes….

High - level range of services for engineered products offered by many OEMs

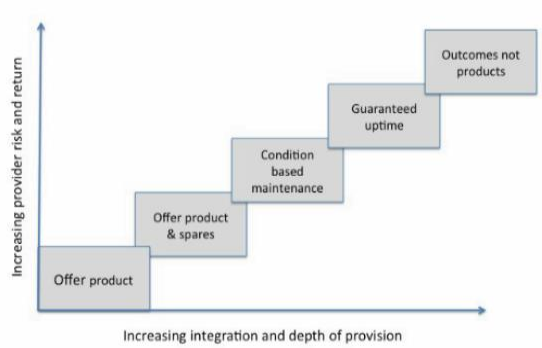
Advanced services (risk/asset transfer)	O&M	Consulting and financial services	
Value adding services (Performance commitments)	Modernization and life extensions	Upgrades	Long term service agreements
Basic services (Warranty backed)	Commissioning	Inspections	Spare parts

adding services

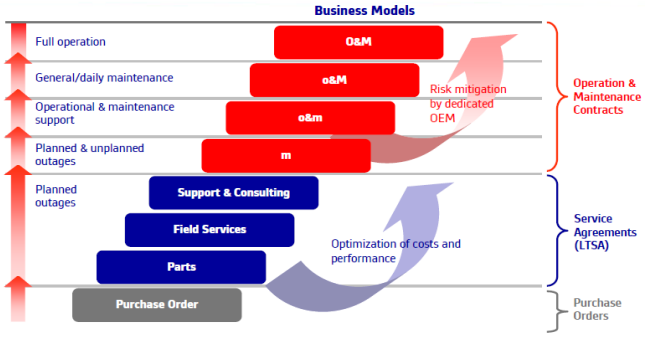
Which services did they use/not use when we look at the specific upgrade? Are there more we could use in the future?



The service staircase



Alstom's staircase of services Service



A set of questions to ask whenever upgrading a technology as part of the service life of the technology

Generic questions that we will answer, they help to identify the intangible value we create with the service innovation:

- Why do owners/operators' needs change over the life of the turbine
- What are the constraints OR what can you not change (economically)?
- What options exist in the market for service ?
- Why is it hard to support a new 'product' as a non-OEM service provider?
- What does this new upgrade offer that the non-OEM cannot often provide?
- How long would it take the non-OEM to catch-up with the technology?
- What could Alstom's next move be? It is expected that they will continue to develop new 'exciting' technologies
- How does this move the increase intimacy?
- How does this outcome-based behaviour benefit the new-unit sales?
- How can the long-term service agreement limit competition?

Why do owners/operators' needs change over the life of the turbine?

Spark-spreads change	Spare system capacity	Fuel mix changes for the company
Regulatory changes	Pool vs bilateral market	Renewables obliga:on
Carbon price	Unit heat rate	Capacity payments

What are the constraints OR what can you not change (economically)?

Capacity of the unit may be limited	physically by the generator or transformer
Base plate's physical dimensions	Contractually by the Power Purchase Agreement (PPA
Transportation of equipment	Exhaust gas temperatures when combined with a steam cycle

What options exist in the market for service?

Not everything may be purchased [by the owner/operator or any other service provider] on the free market

What can be purchased in the free market?

- Craft labour / Technical assistance
- Consumable parts / Capital parts
- Component repairs

This defines the choices that the owner/ operator may have

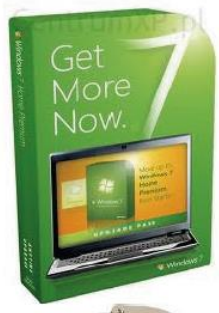
When the unit is first developed the OEM has a monopoly position

- The uprate can recapture the monopoly

Why is it hard to support a new 'product' as a non-OEM service provider?

- The non-OEM service provide has a 'chicken and egg' relationship
- They cannot provide services or parts without having experience or parts to hand
- At some point this changes…
  - Service engineers join other companies
  - Parts become available
- Very close owner/operator and service provider relationships required

What does this new upgrade offer that the non-OEM cannot often provide?



The upgrade is sold to provide 'more' for the owner/operator:

- Time between inspections
- Improve component life
- Improve capacity/capability
- Easier/compliant operations
- Installation of new(current) technologies

The upgrade provides for the service provider:

- A new monopoly lease for the OEM
- An ability to price on 'value'

How long would it take the non-OEM to catch-up with the technology?

Depends…

- Some modifications are cosmetic
- Some are complex engineered changes
- The available market must be large enough to create value for all
- The number of units with service contracts (no non-OEM access)

Technology can always be copied – it is just a matter of when/

- Some cases the non-OEM is first!

What could Alstom's next move be?

It is expected that they will continue to develop new exciting' technologies

- They will be forced to reinvent or drift
- Expect Alstom to continue to use the technology ticket to deliver improved outcomes
- This will continue to create a technology race
- What is today differentiating technology will become the expected standard
- To refresh the offering they should now look to increase the intangible value

Where technology and access to it created a difference you can use it – but more emphasis must be placed on the delivery greater value though intangibles

How does this move the increase the intimacy?

Is it outcome-focused or just 'end-of-line'

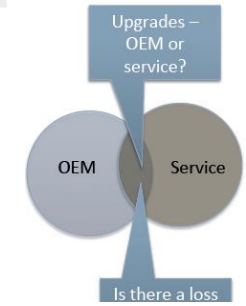
Do share of intangibles grow?

How is the relationship between the service and the manufacturing groups?

Do the OEM group see the upgrade is cannibalizing their' market?

This conflict with be felt by the owner/operator!

Do the EM group see the upgrades as contributing to the brand?



OEM sales supporting service sales

How does this outcome-based behaviour benefit the new-unit sales?

- How many contact points exist?
  - New unit sales are once per x years
  - Service sales are one per x months
- Service will have at least 10x the number of contacts with the customer
  - This can be good or bad
  - Both may touch different departments… not all will be equal value!
- The importance of consistently high class delivery/experience has been highlighted by Doblin and others

Service supporting OEM sales

How can the long-term service agreement limit competition?

The LTSA is an outcome driven service agreement

It can align drivers

It provides risk transfer at a known price

It is an outsourcing tool that effectively locks-out competition

Can you see how they can limit competition?

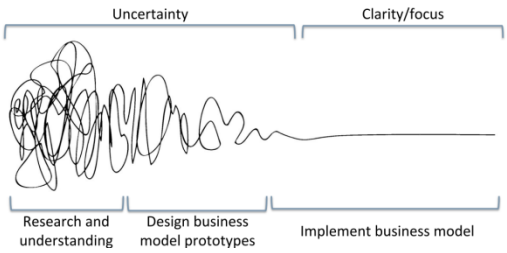
We will cover long-term service agreements in more detail later

7 Changing the business model

7.1 Business model innovation

It can be

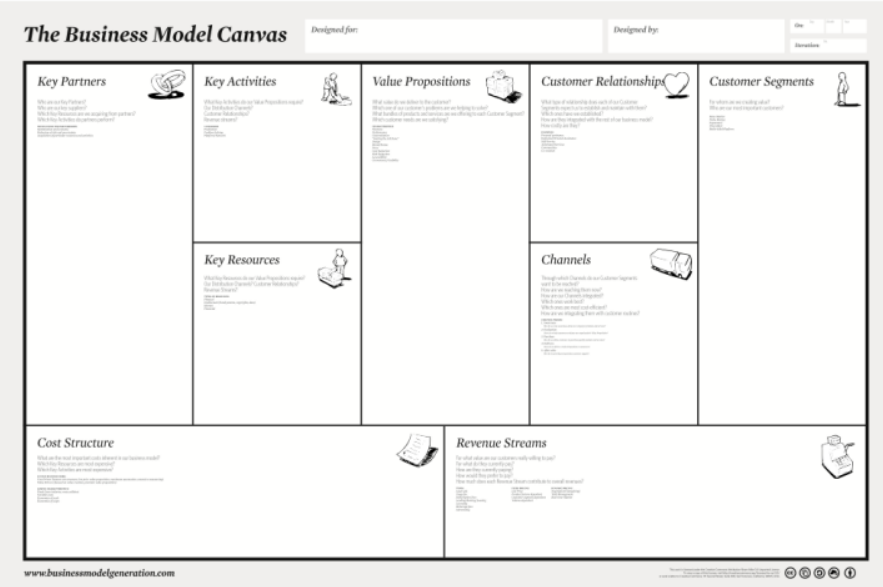
- managed
- structured into a process
- used



7.1.1 Business model canvas

Area	Description
Customer Segments	- their needs require a distinct offer - reached thorough different channels - require different types of relationship - have different profit levels - willing to pay for different aspects of the offer
Value Propostitions	- What is the bundle of services (and goods) that are being provided - What is the newness factor – does the market exist already? - What is the impact on performance? - What is the allowable level of customization? - Does it help with 'getting the job done'? - Does the design help reinforce the brand? - How does it work with pricing, cost and risk - What is the accessibility, convenience and usability
Channels	**Channel types** / **Channel phases** Own – Direct: Sales force, Web sales Partner – Indirect: Own stores, Partner stores, Wholesaler, Agent **1. Awareness**: How do we raise awareness of the services and goods? **2. Evaluation**: How do we help customers evaluate the value proposition? **3. Purchase**: What is the purchase process for specific offers? **4. Delivery**: How do we deliver the value proposition to our customers? **5. After sales**: How do we provide post-purchase customer support?
Customer Relationships	**For example:** - Personal assistance - Dedicated support - Self-service and other more complex automated service - Community or user groups - Co-creation
Revenue Streams	**Types**: Asset sale; Usage fee; Subscription Fees; Lending/Renting/Leasing; Licensing; Brokerage fees; Advertising **Fixed pricing**: List Price; Product feature dependent; Customer segment dependent; Volume dependent **Dynamic pricing**: Negotiation or bargaining; Yield Management; Real-time-Market
Key Resources	**Categories:** - Phyical - Intellectual - Human - Financial
Key Activities	**Categories:** - Production - Problem solving - Platform / Network
Key Partners	- optimize and gain economies of scale - reduce risk and uncerainty - quickly acquire additional resources and activities
Cost Structure	**Type**: - Cost-driven - Value-driven **Structure of organization:** - fixed and variable costs - Economies of scales / scope

The using of the business model canvas is very based on “design thinking” methods.



8 Collecting ideas

8.1 Tools, uses and limitations

Tool	Uses	Limitations
Surveys (web or paper)	Simple feedback tool, cheap	Often incomplete or poor returns
Interviews	One-on-one surveys with more in-depth input	Time consuming, selection of interviewees critical
Brainstorming workshop	Good to get feedback within clear guidelines	Risk of group-think without clear moderation
Focus groups	Good for getting more in depth feedback	Need to have good moderation to make sure it works
Kaizen journals	Good for the service team to give instant/direct feedback	Can be hard to review
Post-service feedback	Collection of data on a particular project from the customer	Need to ensure that the feedback form is sent to the ‘right’ person(s)
Direct observation	Watch and learn with a customer	Costly

Minimum numbers some general guidelines

- The very minimum amount of data is 40 returns
  - 40 surveys,40 focus groups, 40 interviews, etc
- It may be a mix of some or all
- Quantity here is important to make the date meaningful
  - Over 200 returns would be better as this means there is good data in each segment (and sub segment)
- Many people with ideas are unwilling to share them
- Some great ideas come from problems
  - Often on the edge rather than the ‘average’

8.2 Who has the ideas when it comes to service innovation

- **Everyone** with a direct contact with the customer has valuable feedback that can become valuable ideas for service innovation
  - Everyone who is involved in creating/delivering the service/solution to the customer
  - Your customers and your target segment(s)
  - Your suppliers and 'want-to-be' suppliers

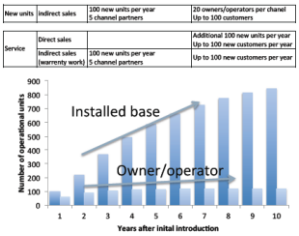
- The team must be trained, empowered, feel valued before they will hand-over their ideas for service innovation

- Always give feedback to those who provided ideas

8.2.1 Customer = key stakeholder in idea generation

Customers as a key stakeholder in idea generation – they use the equipment for many years

- Many OEMs use indirect sales channels
  - There are two customer groups: the channel and the owner/operator of the equipment
- Customer company names may not be sufficient
  - Behaviors vary from location to location



The site, company, equipment data are key for service

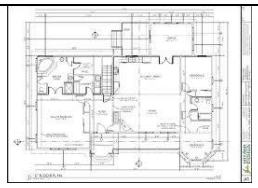
What to collect and not to collect

Collect	Not collect or ignored
- Customer's own process or the criteria they use to measure value - Intangibles that they value - Customer's metrics - Customer outcomes and their importance - Customer satisfaction - Processes they have to do but don't like to do	- Customer requirements/ specifications (often too vague) - Solutions (it is good to collect a list of their problems!) - A list of needs (often too vague) - A list of benefits (often too vague)

When collecting customer data do not trust sales to provide reliable input

- Sales are not viewed as neutral by the customer
  - Use a facilitator
- Sales will tend to focus on 'features' and price
  - This helps them close the next deal rather than innovate
- Remember you have others who have experience points with customers
  - Their input may be more reliable than sales
  - They may have a more contact points with the customer

8.3 General guidance – highly visual approach

	Old Style	New Style
1) Planning is key to know what to use and when		
2) Visualize the content as much as possible	textual	cartoon, storyboard, 3D
3) Capture the big picture rather than the detail	 The drawing is fully representative but is missing the 'essence'	 This graphic grabs your imagination Warning: ensure you do have the details available

4) Visualize the relationships	Listed	A mind map or network map clearly shows the relationships
5) Collective assumptions	Assumptions were not spelt out. It was assumed everyone knew them!	Ask the obvious questions again and again and again
6) Ensure that the language is shared by all	text full of jargon	limit use of acronyms and use plan language to improve accessibility
7) Joint understanding	Assumed everyone understood if no questions	Stop, check and ask questions
8) Trigger ideas	Linier dialogued (often monolog) Limited engagement of other team members	Use the form 'what if…' Challenge assumptions Ask 'what outcome for the customer does that give'

8.4 Focus groups

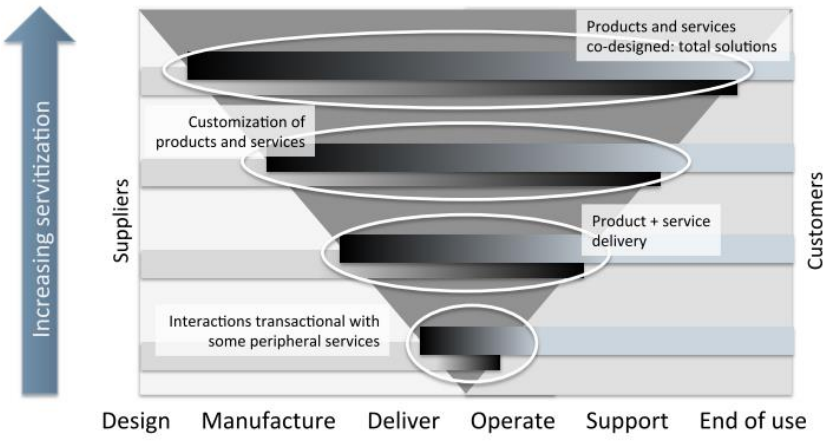
- Why use a focus group?
  - Surveys assume that people know how they feel
  - Listening to the opinions of others in a small group provides deeper and richer feedback
- A good focus group requires (a lot of) planning
- You can find out more by reading the guideline

8.5 Kaizen journals

The kaizen box is better than the classic suggestion box and is about implementation the idea in a collaborative way. It's important to know that not every idea focuses on service innovation. Most of them have an impact on the customer.

9 Alignment of drivers

Servitization is one of the major tasks to raise your business. Generally it means to do some of the job your customer doesn't want to do. You can reach different levels of servitization if you become more and more linked to the customer.

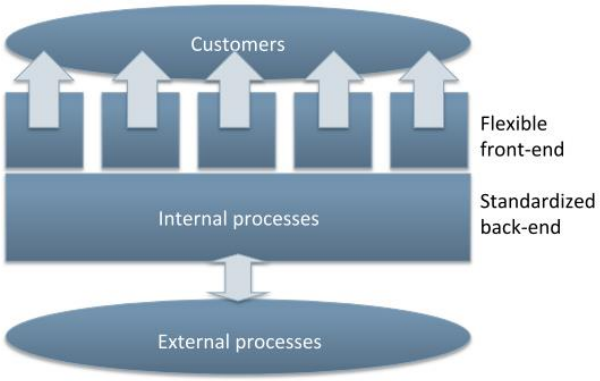


9.1 Servitization continuum

The bigger the area between customer and suppliers is, the more service driven is your business. The start is with just a little interaction in delivery and use support. But in the end you offer from design to end of live everything the customer needs – a total solution. There are grey areas in between, but to make it a little easier the cone is divided in four stages:

Stage 1	Stage 2
Some peripheral services	Product & service delivery
Arms-length relationship: (RFQ ➔ Quote➔) Place order ➔ Design/ manufacture/deliver ➔operate/support/end of use Normal in a commodity market Cost focused Service can be delivered in the same way Customer satisfaction may be low (key signal)	Arms-length relationship with standardized products and services: (RFQ ➔ Quote➔) Place order ➔ Design/ manufacture/deliver ➔operate/support/end of use Suitable for commodity products and services Cost focused but now delivering some added value Customer satisfaction may not be measured (intangible benefit)
Stage 3	**Stage 4**
Customization of product & service	Co-designed P & S – total solution
Close relationship allowing discussions of needed outcomes to allow customization of products and services: Discuss scope/needs in detail ➔ Place order ➔ Design/manufacture/deliver ➔ operate/support ➔ end of use Suitable for complex/engineered products and services Cost is important however value is growing in importance Customer satisfaction should be high	Working together like a single organization: Agree JV or alliance agreement ➔ Discuss outcomes/ needs/Design/manufacture/deliver/operate/support ➔ end of use For complex/engineered products and services For when (production) flexibility is important To provide high speed to market Value/risk transfer focused but some focus on cost Customer satisfaction should be high

Challenge in uprising the stages in service business is to make the front end (outputs to customer) most flexible and keep the back end (inputs from suppliers) standardized. Standardized supplies can be bought at low costs and flexible outcomes be sold at high prices – this is your margin.



As example a tailoring service: Inputs are standard trousers (Jeans). The customer at the front-end gets jeans fitted to his figure. With this services the business need to buy standard products (low inventory and price) and can sell customized products (high margin)

Back end (standardized)

- Standardization provides a base for cost management (efficiency)
- Standardized processes provide economies of scale
- Standard customer experience for core business processes (The way we are / - we do things)

Process	Outcomes	Benefits
Sales	Ease of creating quotes – Reduce time – Improve accuracy	– Lower cost of production – First quote wins in an unplanned situation – Customer is delighted with quote that fulfills their needs
Documentation	Ease of production – Reduced drafting time – Standard navigation	– Lower cost of production – Speedy delivery/says 'you are important' – Easy to find important findings
Project management	Reduce customer conflicts – Increased transparency	– Reduce PM costs – Understanding of costs/risks – Both parties understand open items – Both understand delivery

Frond end (customized)

- The 'pick-and-mix' front end allows customization for the customer
- Customization allows alignment of drivers
- This approach ensures 'economies of scope'
  - The scope is backed up with the customized back-end
  - Additional scope can be added (internally or externally supplied)

(P & W Example)

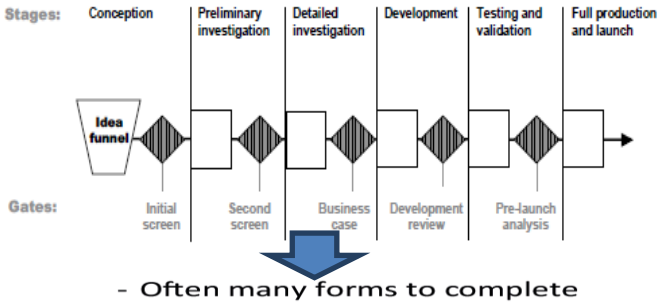
Scope	Idea	Outcomes and benefits
Generator	Could use same team on turbine and generator	No interface issues, option to reduce total cost
Transformers	New team, same PM system	Standardized PM reporting system
C&I	New team, same PM system	Important for turbine/generator commissioning Direct access to the turbine experts
HRSG	New team, same PM system	Standardized PM reporting system

10 Limitations of the stage gate process

In TE05 we presented the myth that a stage-gate process was vital to success

Problem is without 'process' innovation will fail

- Projects will not be killed
- Projects will not be supported
- How do we get around this apparent problem?



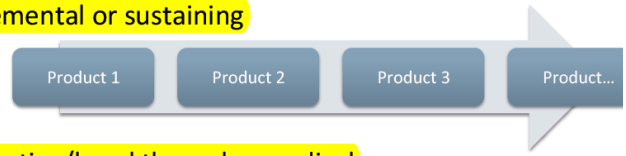
- Often many forms to complete
- Much of the data unknown by those filling in the system
- Set schedules for reviews
- Often very technical focused
- Often unable to capture the service concept

Product development: months to years

Service innovation: days to weeks

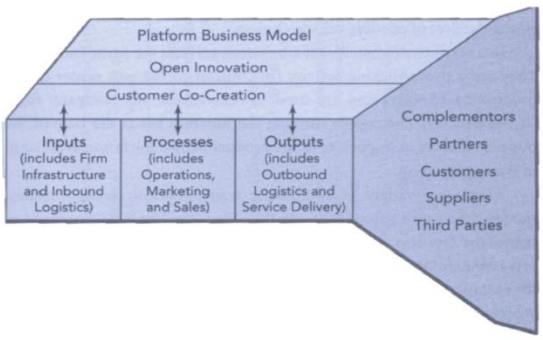
There are different types of innovations

- Incremental or sustaining



- Disruptive/breakthrough or radical

Chesbrough's service value chain:



Summary of issues with the stage-gate process in a service environment:

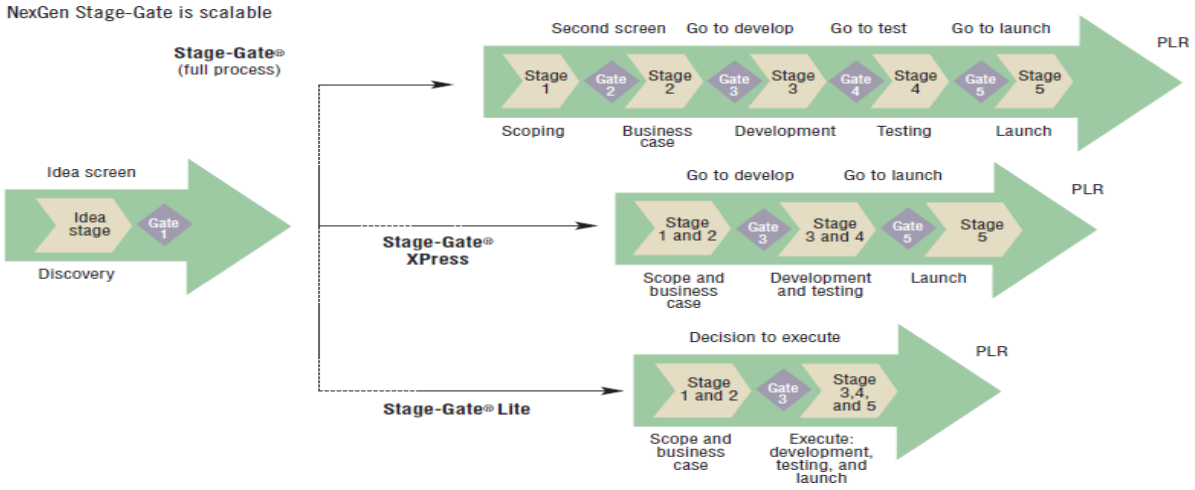
- It runs the risk of becoming a technology development tool rather than an innovation tool
- It fails to capture the small day-to-day innovations that are created through necessity in a service organization
- It fails to capture all of the different types of innovation taking place
- So should we just drop the stage-gate (and all other processes)?

10.1 Creating an innovation process for service

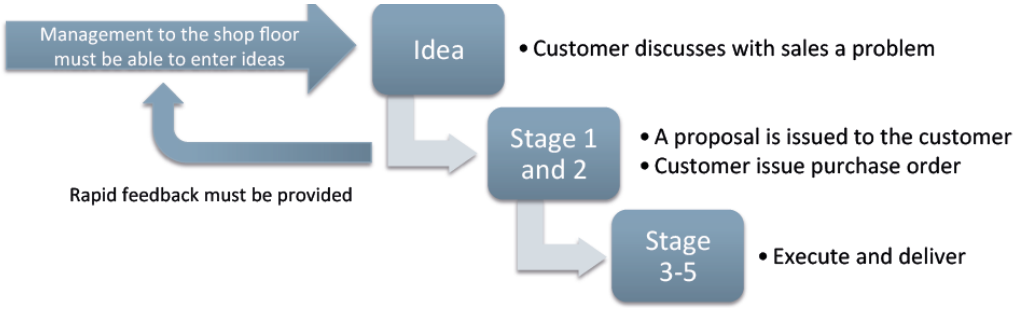
Gates are business decision checkpoints

- What outcomes do we need from a stage-gate like process to be highly productive?
- Customer focused
- Heavy front-end homework before development starts
- Spiral development-loops with users throughout development
- Holistic and effective cross-functional teams
- Metrics, accountable teams, P&L reports for continuous learning
- Focus and portfolio management
- Lean, saleable and adaptable stage-gate process

The process Lite and Xpress are more suited to service innovation



A typical example in a service environment example

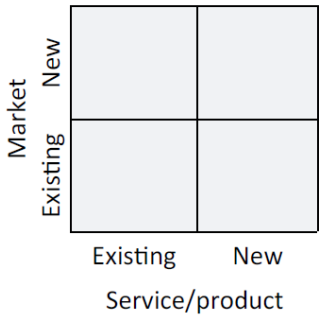


Is it possible to reconcile the conflicting requirements of disruptive and incremental innovation?

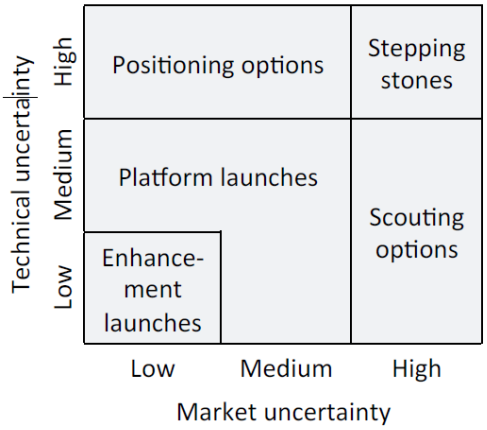
Incremental innovation	Disruptive innovation	Why
Efficiency	Iterative	1. Improved classification
Forecast	Estimates	2. Loops within the stage-gate system
Progressive measurement	Flexibility	3. Appropriate tools/information for each
Resource allocation	Virtual teams	level

Project classification is best done by how much we do not know, it is more transparent than the conventional 4 box system Traditional:

Traditional

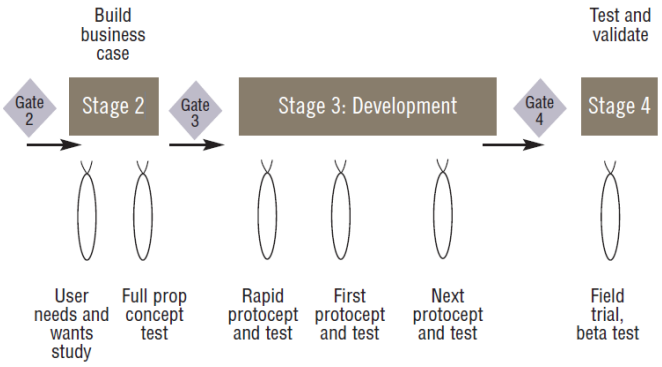


Uncertainty classification



Introducing loops into the stage-gate process gives us the ability to find out more

- A series of loops can be introduced
- This is 'give it a try', 'play' 'test' or 'Beta' phases

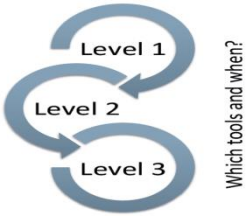


The service innovation must return to the 'customer', single contact is never enough

- How can customers say what they want something when they do not know what it is
- Feedback on 'prototypes' can only be provided on incremental changes that they understand
- A new cycle can then start

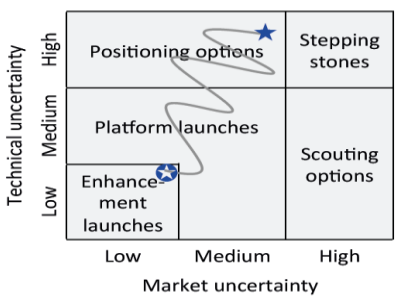
Each time we return to the customer (or enter a loop) we should deepen our questioning

- Project analyses is repeated
- Until the 'appropriate' level of uncertainty is attained
- Different tools are used
- Level 1 tools feed the subsequent levels



We must apply sound project management principles to projects:

- Projects with different levels of uncertainty must be
- Managed differently

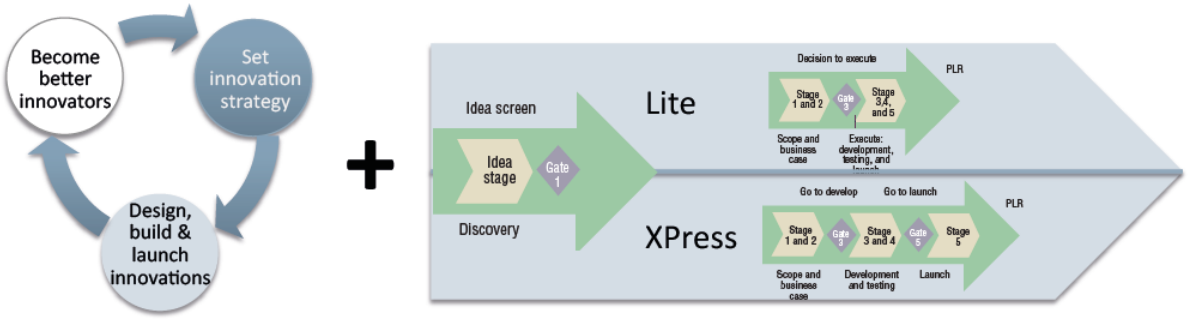


- Have different expectations
- Different tools are needed
- This requires an organization with ‘mature’ project management capabilities

Simplistic overview of a service innovation process (adapted from Doblin) showing the stage-gate process as a key tool

The stage-gate

- Adds discipline to the innovation process
- Must be customized for your business
- Must not become a barrier for ideas
- Is not the only process/tool required for service innovation

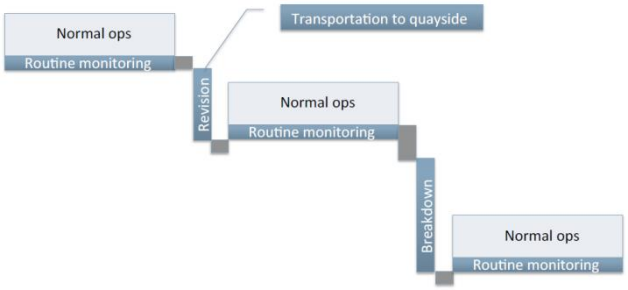


11 Services supporting new technologies / barriers to market entry

The service aspect should be considered at the beginning of the product development process. This way the customer receives added values by reduce costs, time or something else.

The expected services of customers could be:

- Condition monitoring
  If it breaks up, the customer will phone if there is no monitor
- Revisions
- Unplanned maintenance
- Training
- Installation
- …



On services it is impossible to have single point contacts. For example: If you visit a restaurant, there you will have contact with waiters or the chef.

Services for an engineered product

Category of service	Scope
Condition monitoring	Monitoring machine parameters • Hydraulics • Generator • Power conditioners • General condition
Planned/overhaul	• Rust removal, repainting • Inspection of hydraulic cylinders, motors, generators, reservoirs, accumulators and associated piping and wiring
Unplanned/ breakdown	• Repair/replacement of damaged component(s)
Replacement parts	• Replacement parts for planned and unplanned services

Do these scope items deliver the outcomes the owner/operator need?

It is important not to forget the main service which ensures that the following processes could be provided. In the Pelamis case a boat to reach the power generation system is a basic need. If an OEM wouldn't provide a boat the customer has to organize the boat on its own what could be very expensive cause in the uncertainty of breakdowns and the unpredictable costs.

Outcomes to drive up the availability

Outcome	Idea	Impact on outcome	Issues
Reliability of units	Remote condition monitoring can increase the reliability	Improved - failures become predictive	Costs driven out as repairs become planned
	Increase the amount of planned maintenance	Improved	Costs increase Avail could decrease
	Replace parts during inspection	Improved	Costs would increase
	Hold spare units	Improved	Cost of underutilized asset

Outcome	Idea	Impact on outcome	Issues
Increased periods without maintenance	Operate for longer between maintenance	Improved	Increased degradation and lower reliability rates
	Use condition-based maintenance	Improved	Requires condition monitoring
Simple maintenance procedures	Simple construction, maintenance-friendly	Improved	Any company could do the maintenance
	Standard parts (all non-preparatory)	Improved	Selling parts is no longer a profitable business

Outcomes to drive down the maintenance costs

Outcome	Idea	Impact on outcome	Issues
Slow degradation	Overhaul when performance drops	Output 'managed'	What the the correct level?
	More regular inspections	Output maintained (degradation slowed)	Units become over-maintained
Shorter maintenance periods	Become fully kitted out to undertake inspections/repairs	Improved	Risk of holding too much material
	Cut the inspection scope	Improved	Time and experience needed

Remark: Some outcomes work against each other!!!

Service concept

1. Supply of the service manual and the list of spares

   → *not for everybody*

2. Outsourcing of service commitments to a local contractor (Caterpillar)

Scope	Owner/ operator	Service Co	OEM
Condition monitoring	Leads	Supports when requested	Provides (remote) backup
Planned/ overhaul	Instructs work	(Supervision), labor and tools as ordered	Provides scope (and supervision)
Unplanned/ breakdown			
Replacement parts	Orders parts	Provides parts as required	Provides only propriety parts

   → *OEM's reputation is reflected in the relationship that the Service Co has with the customer*

   → *Data to the OEM is filtered*

3. Provision of individual services on a transitional basis

Scope	Owner/operator	OEM
Condition monitoring	Leads	Supports when requested
Planned/ overhaul	Instructs work	Provides scope, supervision, labor and tools as ordered
Unplanned/ breakdown		
Replacement parts	Orders parts	Provides parts as required

   → *Sales manager appointed to "account"*

   → *Draws on the information in the service manual for planned overhauls*

   → *Supports breakdowns when they happen on an reactive basis*

   → *The minimum you should offer*

4. "pic-and-mix" services on a transitional and annual basis – simple integrated solution

Scope	Owner/operator	OEM
Condition monitoring	Follows only key 'tags'	Linked into the system, provides status reports (annual contract)
Planned/ overhaul	Instructs work	Provides supervision, labor and tools
Unplanned/ breakdown		
Replacement parts	Orders consumable parts direct from manufacture Joins spares club for major parts	Manages the spares club

→ *Service delivery is becomes in "joint" effort*

→ *This results in greater trust and intimacy between the parties*

5. Longer-term partnership created by aligning drivers – risk sharing between parties

Scope	Owner/operator	OEM
Condition monitoring	Follows only key 'tags'	Linked into the system, provides status reports, base inspections on condition data.
Planned/ overhaul	Many provide labor Coordination of inspections (planned and unplanned)	Provides supervision, labor and tools and parts Provides a level of performance commitments
Unplanned/ breakdown		
Replacement parts	Joins spares club for major parts	Manages the spares club

→ *Option to charge for every productive hour*

→ *Opposite to point 4*

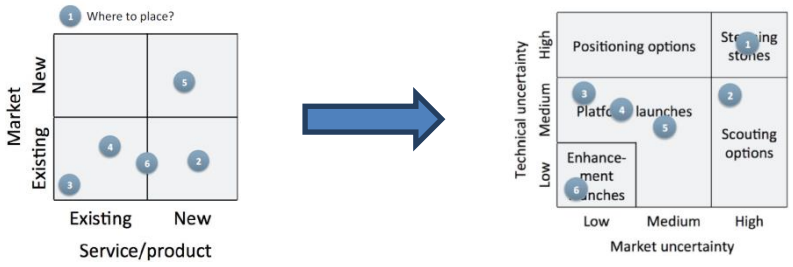
6. What platforms could we create that would help improve the service delivery, the relationships and brand loyality

Platform	OEM tasks
MyOEM site	Secure site for sharing customer materials (part list, service manuals, orders, emails, documents, meeting notes etc) - Risk: they could download all materials (and share) - Benefit: you can better understand their needs and deficiencies in you materials (you need to learn to mine the data)
User groups	Encourage open exchange in a controlled environment - Risk: share propriety know how (but they will do it anyway!) - Benefit: collection of innovation ideas; they feel valued (they may have better 'fixes'!)
OurOEM site	Setup to enable the user group to communicate as a community together. - Risk: you hear bad news and they share propriety materials - Benefit: you are better able to judge the 'view' of the community (you can even survey them or just quietly mine the data)

→ *The most terrifying for OEM: sit together with user groups and manage them "online community"*

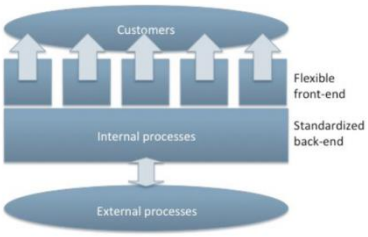
Look at service concepts from the owner / operator's view

Change from the old one to the uncertainty matrix. This is easier to use because it creates more useable segmentation. With this matrix it is likely that the owner / operator will also do a risk review. Now they will aks similar questions and more. Put the customer in a comfortable position in the service continuum.



Flexibility in delivery

- The concepts are built on a common platform (4 service categories plus the boat)
  - Pick and mix of scope
  - Pick and mix on risk and reward
- Important that the OEM shows that there are internal process to support
  - Insufficient data as yet



And now… How does the service concept help us go to market?

1. The concepts can be discussed with (potential) customers
2. The customers will present their views on risks
3. Survey your customers outcomes and segment
4. Customers and service partner can help to reduce uncertainties

→ Without the service concepts created discussion / surveying with the potential owner / operators and partners becomes virtually impossible!

12 Bonus: Best practice in industry

If you design a new product, you should learn from the mistakes in the past (remember incremental innovation). This is also a successful way of doing business. As example the B747 plane bases still on the same airframe like the first one in the 1960's. A second point you should consider is where your product will be build. Services works better, if the manufacturing site of the product is close.
Service include a lot of things

- Technical services, advices on operation
- Spare parts and supply
- Upgrades
- Product overhaul & servicing

There are also different ways of creating and delivering the service to the customer

- **Independent agent network**
  Global dealer network, good for nice markets
  PRO: Knowledge of local law and markets
  CON: Agent will not always act in your best interest
- **Global owned international network**
  local offices in different sizes (very good option for bigger companies)
  PRO: complete overview over products and product performance
  CON: Expensive to build up the network
- **Local company with limited international exposure**
  PRO: Minimal overhead, can be a sub-model
  CON:
- **Franchising / licensing**
  PRO: Limited capital costs, no production costs
  CON: Limited first-hand access, need to adapt design to local norms

Product related services are always based on a need or a problem (customer need). You fulfil these with your services outcomes. To create or design these services you need a clear process because you will involve a lot of different peoples, with different experiences and views. This service creation process will be best if it is parallel to the product development process.

Always think of serviceability when designing a product. You will reach best results when you:

- Work with standardized components
- Plan (and implement) access points for servicing the product
- Consider product lifetime (consumer electronics as example, are not used to service because they have usually a very short lifetime)

You make good money with equipment breakdowns. But if you make your equipment breakdown often to increase your turnover, you upset your customers and they will change the supplier as soon as possible. So it is not a good idea to betray your customers, even if you think they will not find out.