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Software Product Management Innovation

Oct 12, 2010

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Focus

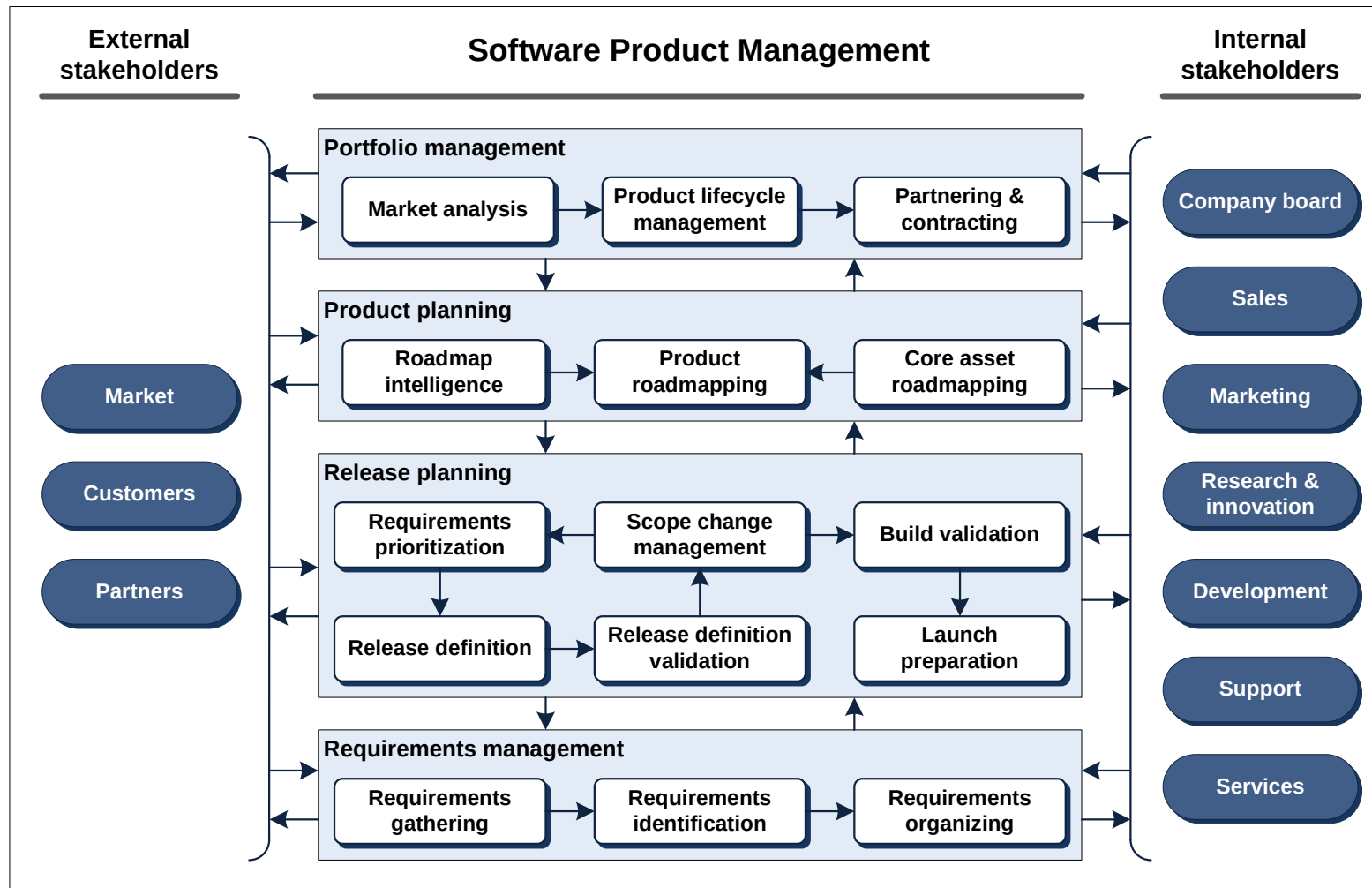


	Market Analysis	Product Analysis	Product Strategy	Product Planning	Development	Marketing	Sales and Distribution	Support and Services
Often on corporate level			Portfolio Management	Resource Allocation	Resource Allocation	Marketing Strategy and Plan	Sales Strategy and Plan	
Product (family) level	Market Research Market Sizing Market Problems Technology Assessment Competitive Analysis	Product Performance Customer Satisfaction Win/loss Analysis Opportunities	Positioning Delivery Model Pricing Model Pricing Business Case Make or buy Ecosystem Legal terms Protection of Intellectual Property	Roadmap Release Plan Requirements Management Functional Specification	Project Plan Technical Specification Project Requirements Management Implementation Quality Assurance Technology Innovation	Launch Plan Customer Analysis Partner Management Operational Marketing Material	Channel Preparation Operational Sales Operational Distribution Material	Customer Support Technical Support Marketing Support Sales Support Services Preparation Operational Services Provision

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Contents

Learning Objectives

- Understand Product Innovation
- Understand How to Evaluate Product Ideas
- Understand Selected Creativity Techniques

Agenda

- Product Innovation
 - Models of Innovation
- Innovation Techniques
 - Creativity Techniques
 - Idea Gathering and Evaluation



Definitions

- Invention:
1st occurrence of an idea for a new product or process
- Innovation:
1st attempt to carry the idea out in practice

From Idea to Product

- Leonardo Da Vinci (~1500):
Invention of the flying machine
- Necessary technology
(one of many):
Combustion motor





Kinds of Innovation

- Product innovation:
How to create and improve products?
 - Support economic growth: income and employment
- Process innovation:
How to develop and produce new products?
 - Reduce cost, effort, and lead time
- Other kinds of innovation
 - New sources of supply
 - Exploitation of new markets
 - New ways to organize business

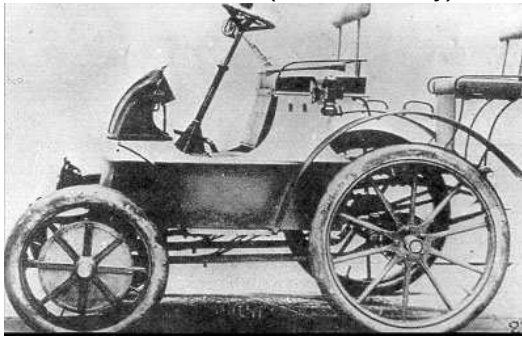
Innovation as Long Process: Hybrid Vehicles



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1903: Lohner-Porsche (83% efficiency)



1903: Variant of Lohner-Porsche



1921: Owen Magnetic Model 60



1965: GM 512

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1997: Toyota Prius NHW10

2007: Toyota Prius III
(Plug-In Version)



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Product-Life-Cycle Theory

- Innovator
 - Commercializes a given new idea in a specific context
 - Idead generation
 - Productization
- Imitator
 - Introduces the same idea in another context
 - Technology transfer
 - Adaptation and improvement of the idea
 - Organizational innovation
- Growth of a sector or industry
 - Imitation leads to increased competition and productivity

What are Innovative Software Products?



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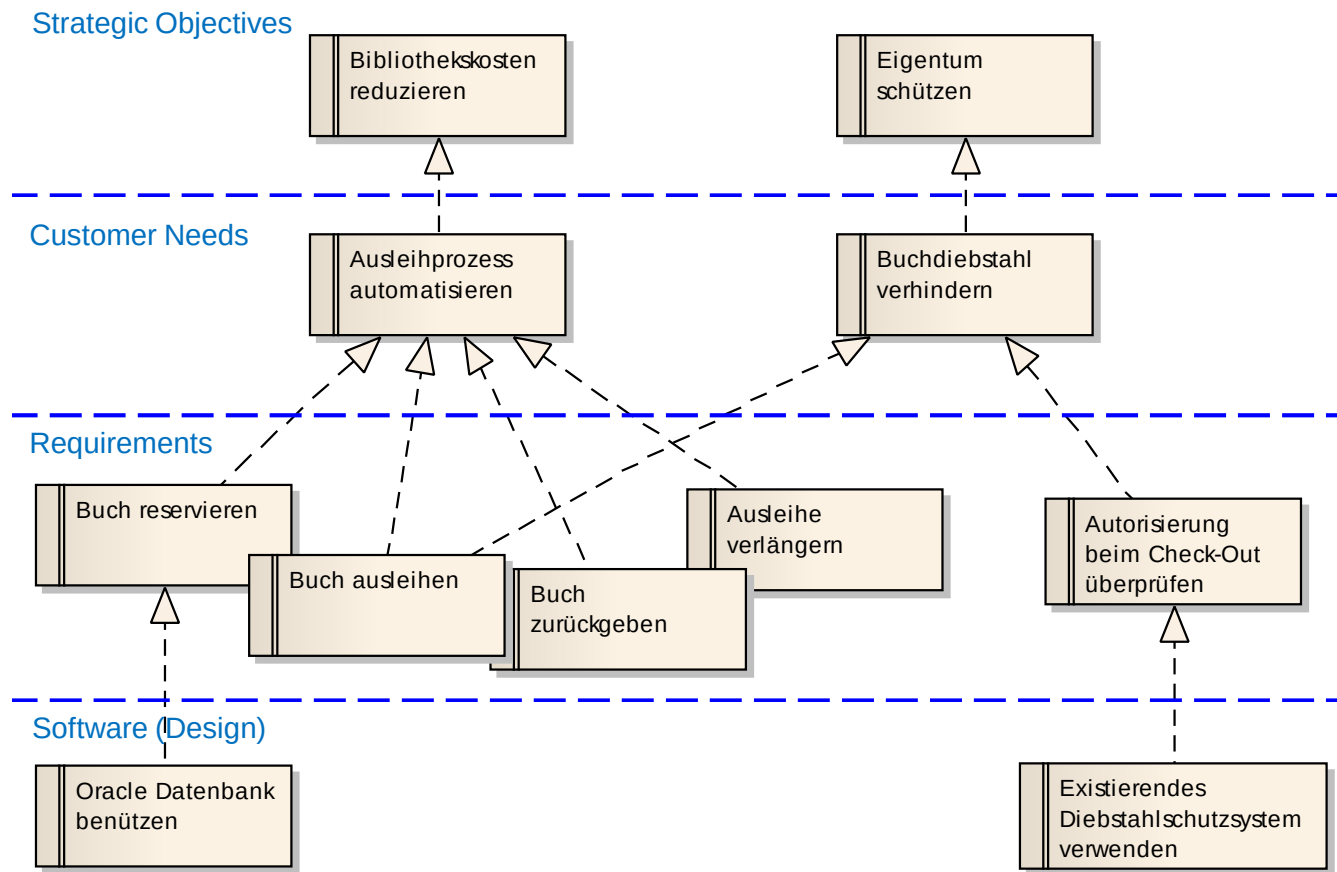


- New for the Company
 - High: Completely new product with non-comparable features.
 - Mid: Some product features are new.
 - Low: Existing features revised.
- New for the Market (for the Customers)
 - High: New applications. New needs satisfied.
 - Mid: Adaptation to changed needs.
 - Low: Well known needs supported.

Innovation in Terms of Abstraction Levels



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What are Innovative Software Products?



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		Novelty for Market		
		High	Mid	Low
Novelty for Company	High	New to the World (20%)		New Product Lines (37%)
	Mid		Additions (20%)	Improvements (20%)
	Low		Repositionings (2%)	Cost Reductions (1%)

*: The quotas (%) correspond to the high-tech industries in 1991.

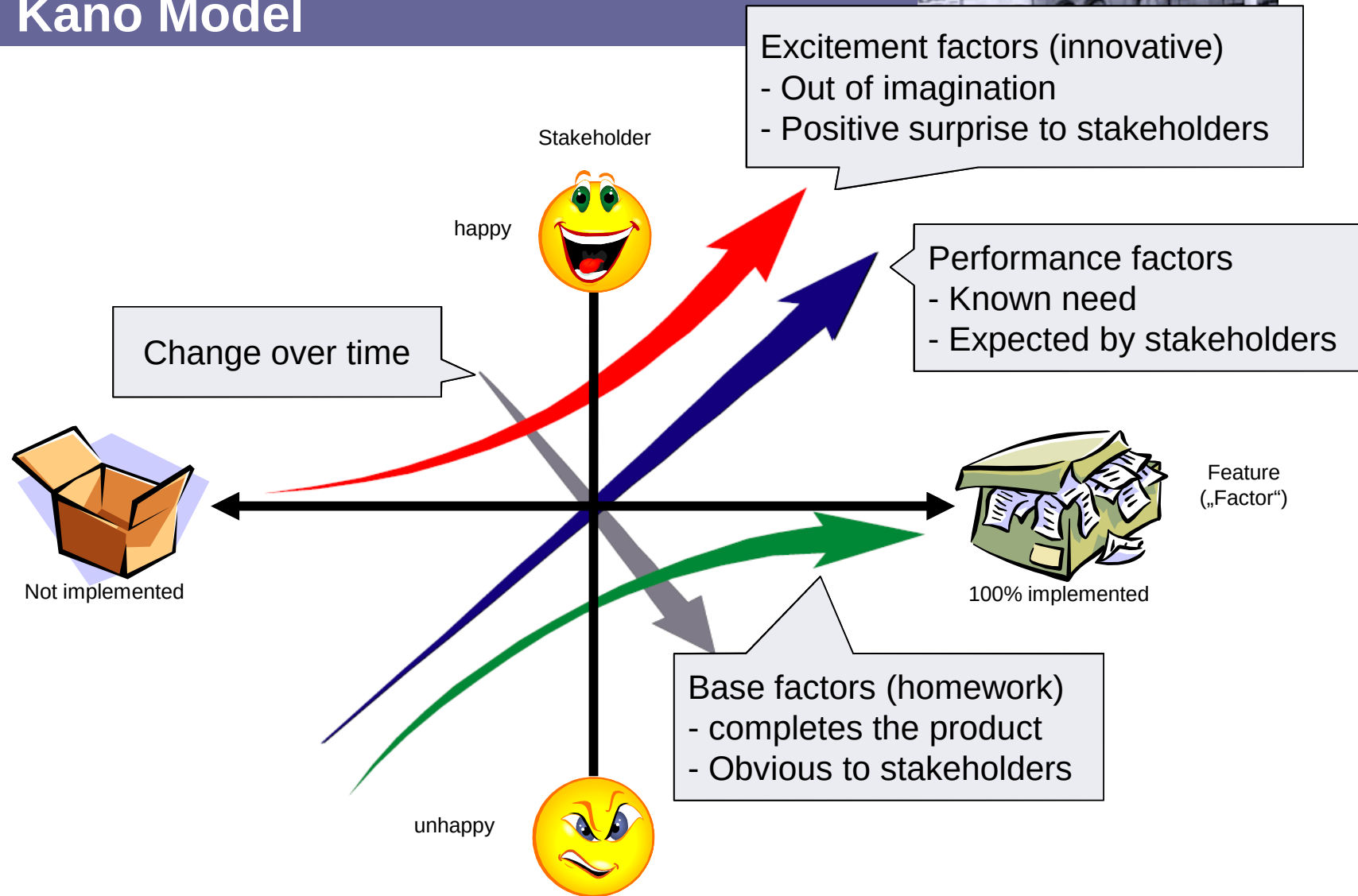


Degrees of Innovation

- Incremental, marginal
- Radical, technological revolution
- The sum of incremental improvements may be more important than individual radical innovations.
- Realization of economic benefits from radical innovations often requires many incremental improvements.



Kano Model



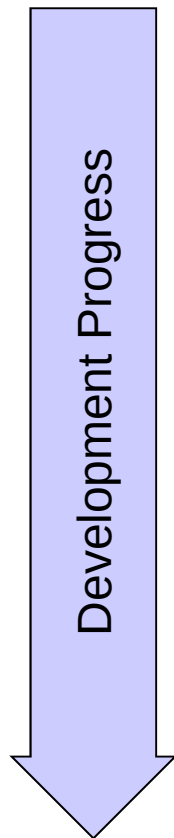
Development of Given Classes of Requirements



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- Degree of Innovation in Requirements changes.



- Innovative Ideas (Excitement Factors)
 - Responsible: Company Management (incl. product and other managers)
 - Sources: Employees (Researcher, Developer, Marketing...)
- Product Requirements (in addition: Performance Factors)
 - Responsible: Product Manager
 - Sources of Market Requirements: Customers, Channels, Competition, Suppliers
 - Sources of Company Goals: Company Management
 - Sources of Internal Needs: Company Functions (Development, Production, Services...)
- Project Requirements (in addition: Base Factors)
 - Responsible: Project Team
 - Sources: Requirements Engineering by Project Team
- Product Evolution (Change, Matured Expectations)
 - Responsible: Market, incl. Users, Customers, Competitors...
 - Sources: Product Introduction



Views of the Innovation Process

- Linear Model
 - Innovation = applied science
 - Research → development → production and marketing
 - Focus on idea generation, evaluation, and selection
- Non-linear Model
 - Innovation = reaction to commercial pressure
 - User experience → combine knowledge → research
 - Focus on experimentation and feedback



Kinds of Entrepreneurships

- Individual entrepreneurs
 - Advocate novel solutions to particular problems
 - Fight against social inertia
 - → Start-up kind of entrepreneur
- Cooperative entrepreneurs
 - Establish teams, often within large organizations
 - → Product-manager kind of entrepreneur



Innovation Enabling Values

- General characteristics
 - Fundamental uncertainty in any innovation project
 - Need to move quickly before somebody else does it
 - Hard fight against resistance to change
- Desirable Traits
 - Deal with uncertainty: avoid lock-in, implement pluralistic leadership
 - Be open to new ideas: the broader ideas, capabilities, skills, and resources are considered, the greater the scope for them to be combined
 - Absorb (outside) knowledge: overcome the not-invented-here syndrome that today makes the company efficient.
 - Organize for innovation: provide freedom to experimentation, mobilize knowledge, maintain strong and weak ties



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Vereinfachter Innovationsprozess

Kreativität
anwenden



Ideen

Ideen beurteilen



Business
Cases

Ideen auswählen



Entwicklungs-
projekte

Ideen
realisieren



neuartige
Produkte

If You Want Innovative Requirements, Never Ask the User



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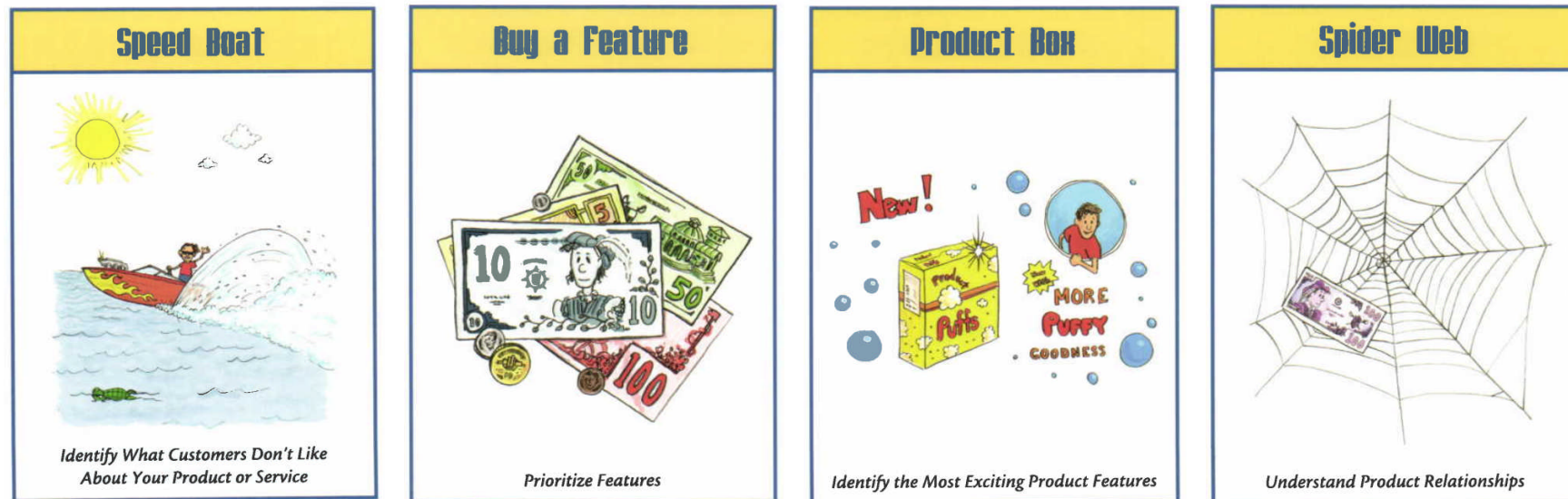
- Do not ask the user
 - Necessity is often not the source for innovation. Steve Jobs: “you cannot build what people ask for, by the time you build it, they want something else. Ask developers.”
 - Nobody wanted tablet PCs. People want iPads today.
 - Users do not have systems engineering skills. Validate and refine your ideas with the end-users, however.
- Ask the user
 - Not asking users leads to strange products that are not useful. The innovative guys tend to forget the work of end users.
 - You need domain expertise to design acceptable products. It is ethically problematic if you force people to use useless products.





Innovation Games

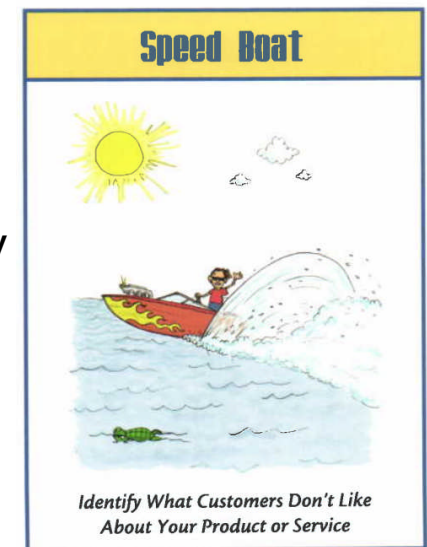
- The toughest part of innovation: Accurately predict what customers want, need, and will pay for.
 - Even if you ask them, they often can't explain what they want.





Speed Boat

- GOAL: Identify what customers don't like about your product
- ACTIVITY: Draw a boat on a wall. You'd like the boat to really go fast. Unfortunately, the boat has a few anchors holding it back. The boat is your system, and the features that your customers don't like are its anchors.

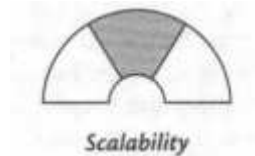


- Customers can also annotate the anchors created by other customers, indicating agreement on substantial topics.
- After customers have posted their anchors, review each one, carefully confirming your understanding of what they want to see changed in the system.



Why it Works

- Stay in control of how complaints are stated and discussed.
- Creates a safe environment where customers can tell you what's wrong.
- Customers get motivated to think about issues when writing them down.
- Identify sets of problems that you need to address before your product fails.





Analyze Gathered Input

- Classify anchors
 - **Product area** associated with the problem:
Poor documentation, user experience, defect, technology incompatibility, mismatched expectations
 - **Severity** of the problem:
Serious safety issue, crash with workaround, serious problem, minor problem, not a bug
 - **Urgency** for fixing the problem:
Immediate, urgent, before next release, as time allows, defer

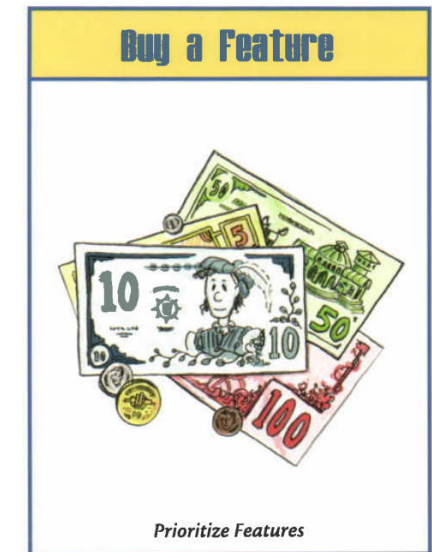


Buy a Feature

- GOAL: Prioritize features
- ACTIVITY: Create a list of potential features and provide each with a price.
- The price can be based on development costs, customer value, or something else.
- 4-7 customers buy 14-30 features that they want in the next release of your product using play money you give them.

Number of people playing the game						
Money per person	4	5	6	7	8	9
15	60	75	90	105	120	135
20	80	100	120	140	160	180
25	100	125	150	175	200	225
30	120	150	180	210	240	270
35	140	175	210	245	280	315
40	160	200	240	280	320	360
45	180					
50	200					
55	220					

The customers together should be able to buy 1/3 to 2/3 of the features



- Some features are priced high enough that no one customer can buy them. Encourage customers to pool their money to buy especially important and/or expensive features.

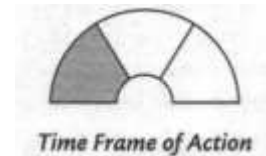


Why it Works

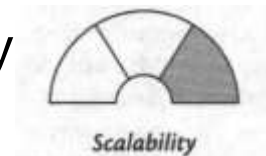
- Most customers do not have clearly defined product priorities. Here customers prioritize their desires as a group.
- Negotiation conversations between customers enhances your understanding of what customers really want.



Open-Ended Exploration



Time Frame of Action



Scalability



Customer Preparation



Market Preparation



Physical Preparation



Analyze Gathered Input

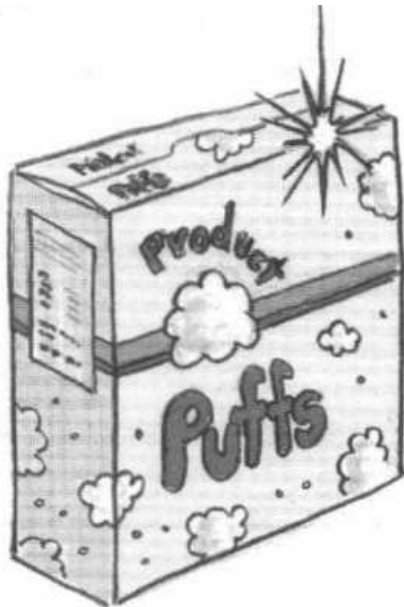
- Who bought what?
- Which is the most attractive feature?
- How did customers negotiate for buying features?

	Customer	Feature 1	Feature 2	...	Feature n-1	Feature n
	Price	34	21	2	4	4
1	<customer name>					
2	<customer name>					
3	<customer name>					
4						
5						
6						
7						
8						
	Subtotal					



Product Box

- GOAL: identify the most exciting product features
- ACTIVITY: Ask your customers to imagine that they're selling your product in public by first drawing a product box.
- The box can contain anything they want—marketing slogans that they find interesting, pictures, price points.



- When finished, ask your customer to use their box to sell your product to you and the other customers in the room.
- What happens when they do this? Which of your customers want to buy this box? Why?





Why it Works

- Customers may not be able to fully understand the problems that are driving their behavior. Product Box gives customers a way to express otherwise unarticulated needs when they are selling their product back to you.
- Although your customers are trying to sell you, they will also be selling to the other customers in the room. Who nods in agreement? Who shakes their head? When? Who asks questions? About what? What messages resonate?
- The reactions of other customers in the room help overcome one of the more common challenges faced by product teams: focusing on benefits instead of features.



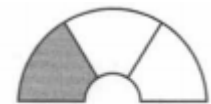
Open-Ended Exploration



Time Frame of Action



Scalability



Customer Preparation



Market Preparation



Physical Preparation



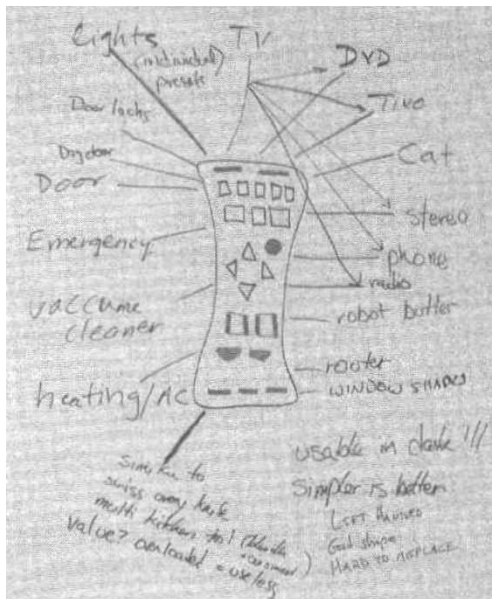
Analyze Gathered Input

- Transcribe box content with selling statements
 - Features, benefits, or labels or slogans
- Categorize each statement
 - Accolade, adoption, community, user experience, support, technology, price, or value
- Assess how well your product fits the idealized product
 - Analyze the boxes with a critical eye, looking for the gems of truth that represent things your customers want in their idealized product that you're currently not providing.



Spider Web

- GOAL: Understand product relationships
- ACTIVITY: Put the name or an image of your product or service in the center of drawing space. Ask your customers to draw other things they think are related to your offering.
- These things can be other products or services, companies, people, physical objects, or locations - anything they think is important.



Spider Web



Understand Product Relationships

- Encourage them to use different colors, line weights, or styles.
- When finished, ask your customers to explain their drawing to the group.

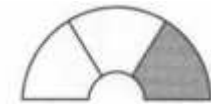


Why it Works

- All products and services coexist within a larger context of an ecosystem of related, complementary, and even competitive products and services. Capture more revenue by creating innovations around these relationships.
- Customer-generated diagrams tend to get messy. Realistically messy. Messy in a way that helps you understand the real opportunities for genuine innovation.



Open-Ended Exploration



Time Frame of Action



Scalability



Customer Preparation



Market Preparation



Physical Preparation



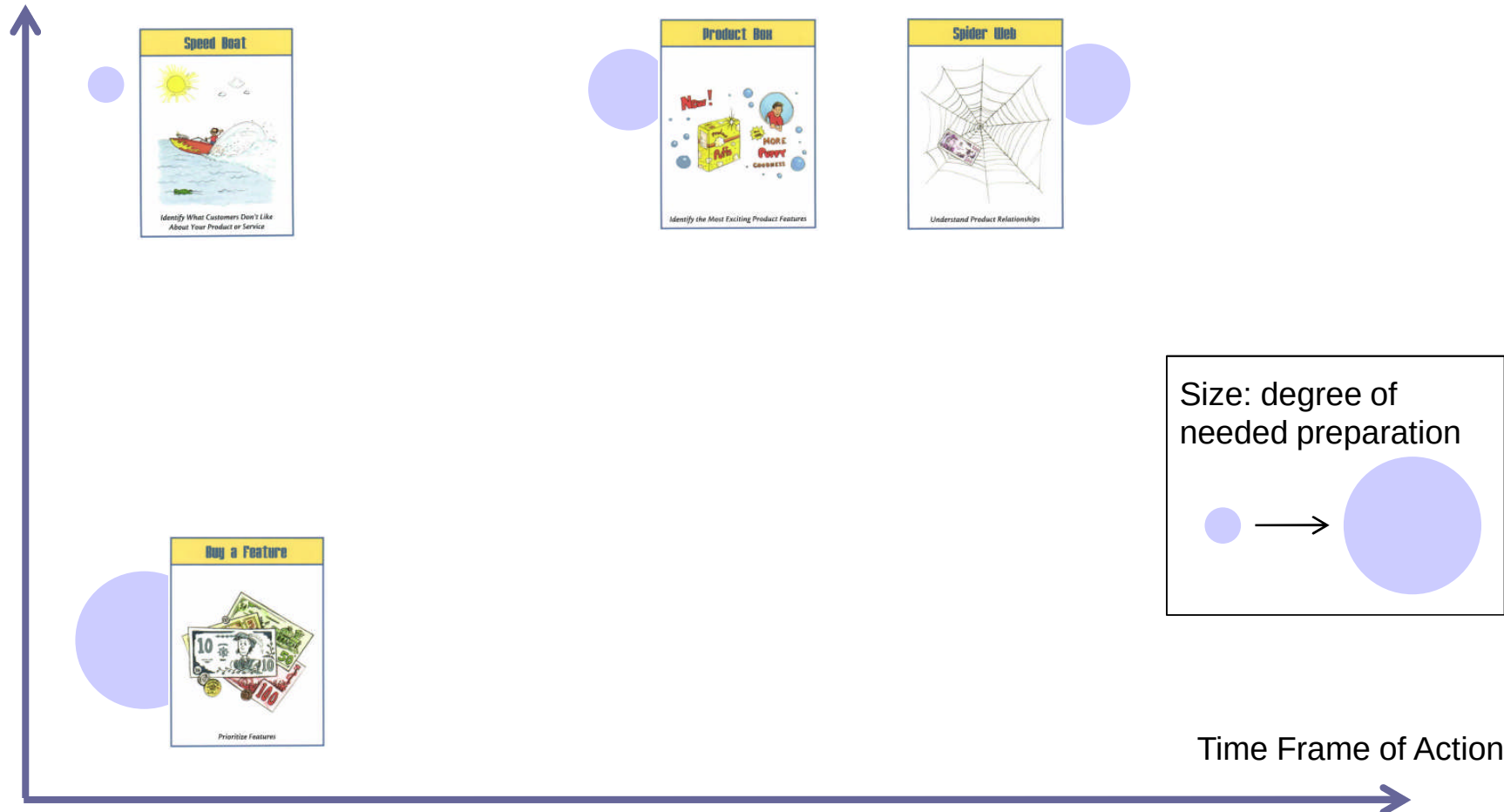
Analyze Gathered Input

- The relationships captured in Spider Web diagrams provide starting points for further, more detailed discussions.
 - What **kind of entities** are related to your product?
People, objects, locations, conceptual ideas, other companies...
 - What **kind of relationship** were created by your customer?
Shared work products or artifacts, shared data...
 - Do the entities represent **themes you should explore** to gain a better understanding of your customer?
 - **When** do the relationships hold?
Now, planned future, potential future...
- How can you leverage these relationships to create more revenue?



Selecting Innovation Games

Degree of Open-ended Exploration



Challenges for Innovation Processes



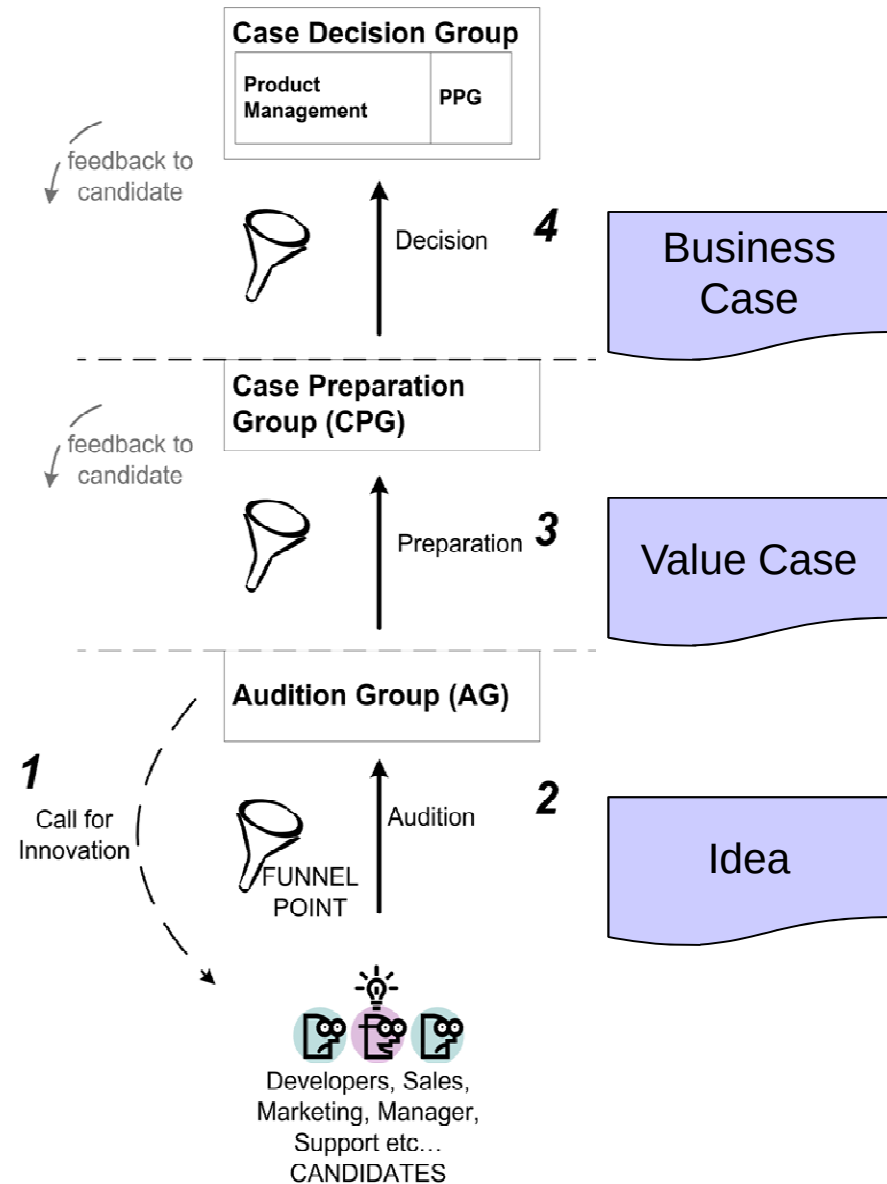
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- There are only few really good ideas
 - How do you find as many good ideas as possible?
 - How do you recognize good innovation candidates?
 - How can idea identification be made efficient?
- Implementation of an idea requires the right network and money
 - How to get the right motivated developers, marketing, and pilot customers?
 - How to acquire investors?

„Star Search“ Process

- 1. Call
 - Distribute call for innovation
 - Employees with ideas register for casting
- 2. Audition
 - 30-40 min per idea casting, incl. Q&A
 - Remove non-innovative ideas
 - Refine idea with value case
- 3. Prestudy
 - Idea combination and refinement
 - Development effort and risks
 - Market potential
 - Develop business case
 - Remove non-innovative ideas
- 4. Project Decision
 - Planning for development project

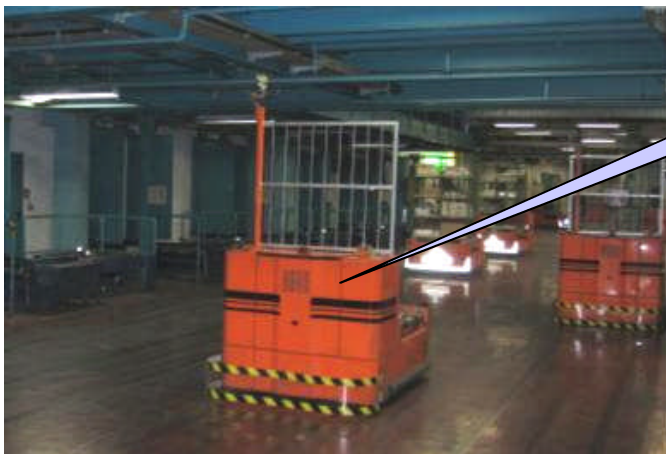


„Star Search“ Process: Example

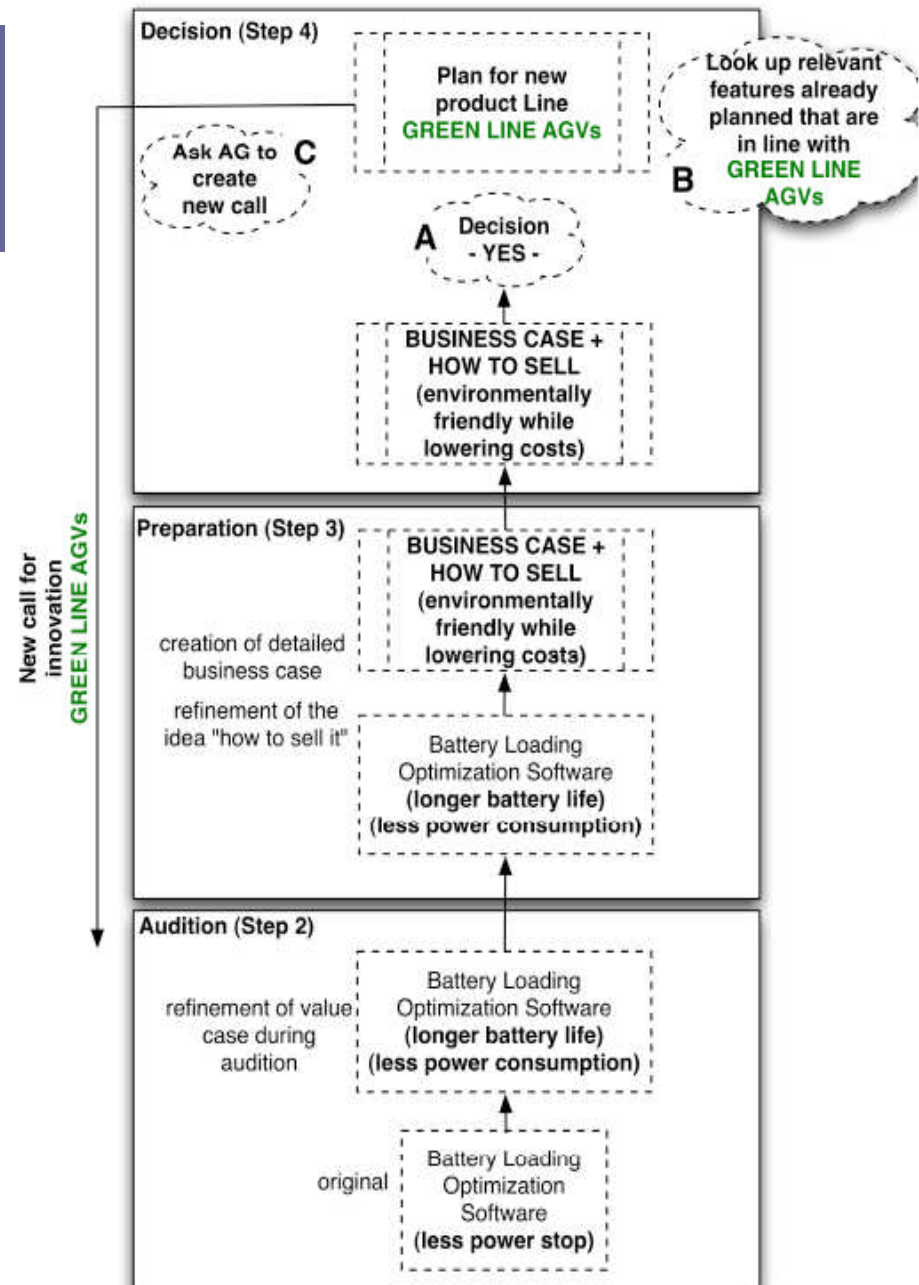
Automated Guided Vehicles (AGVs)

The original idea presented by the candidate in this audition (Step 2) was to develop software for optimizing the charging of AGV:s. This idea had been rejected previously as the rate of optimization only resulted in small savings. However, during the audition new arguments and “features” were added by Sales and Product management, i.e. selling points for the idea. These were documented by updating/complementing the value case. The refined idea was passed to Step 3 where the CPG put additional time on refinement and the creation of a business case focused on savings but primarily on the fact that this solution was environmentally friendly.

During Step 4 the idea was deemed worthy (A) of extra analysis as the business case for environmentally friendly AGV:s was interesting. After analysis the idea was given a new container as a new product line was proposed (Green Line AGV:s). As a part of this the current requirements repository was searched for features in line with the overall idea (B), and in addition a new Call for innovation was ordered by the product management organization with the angling of Green Line AGV:s to find even more good ideas for the new product line.



AGV





Value Case

- *Source.* The idea's source.
- *Title.* A short title of the proposal, idea, or innovation.
- *Description.* A general description of the idea.
- *Present products affected.* Because some ideas will be based on previous products or features, a short impact description could be relevant (at least a list of products potentially affected). One additional aspect is to think about value dependencies; that is, does the new idea compete with or cannibalize present products?
- *Why/benefit.* Who does the idea benefit? Why is it relevant?
- *Potential customer/market.* The candidate must have both the technical perspective and a marketing and sales perspective.
- *How to sell this?* A slogan or idea for marketing/sales.
- *Estimated cost.* A cost estimation (including a separate field describing what the estimate is based on—for example, previous experience).
- *Technical risk.* A short description of potential technical risks.
- *Infrastructure risk.* What's the risk to the company infrastructure; for example, can present sales and marketing staff handle the new idea or product?

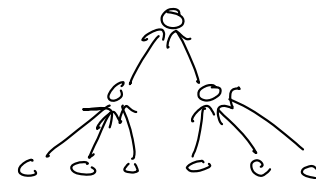
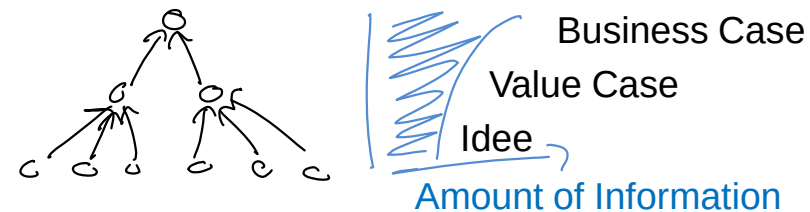
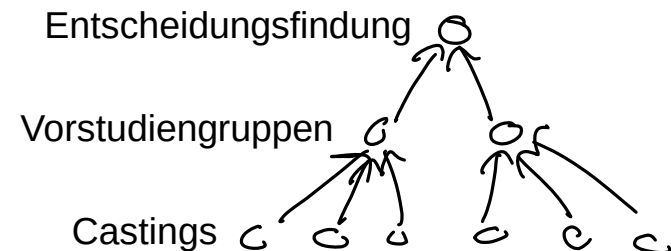
Important Properties of the „Star Search“ Process



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- Hierarchical organization: collect and evaluate large number of ideas from many people.
- Incremental enhancement of information: control effort.
- Incremental discarding of ideas: discard good ideas only with hard facts.
- Incremental exposure of ideas: build coalition to fund and realize ideas.



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ein Dutzend
100+

Number of Ideas

Lessons-Learned from Applying „Star Search“



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- Statistics
 - +25% more innovative ideas considered in product planning compared with unplanned innovation.
 - About 1 innovation candidate per 10 employees.
 - About 25% of the candidates were evaluated in prestudies.
 - About 20% ultimately made it to the market.
- Fair (democratic) in processing and evaluating ideas.
 - No dismissal of good ideas
 - Good atmosphere for the contenders.
- A successful audition must not be seen as additional work
 - Time must be budgeted.
- Increased risk must be compensated
 - Backing of a champion.
 - level of innovation candidate refinement and analysis should be better than those performed on normal requirements.



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