

40. Earning Money with Software

Prof. Dr. U. Aßmann
 Technische Universität Dresden
 Institut für Software- und
 Multimediatechnik
 Gruppe Softwaretechnologie
<http://st.inf.tu-dresden.de>
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1. Founding a Software Start-Up
2. The role of the markets
3. Business models
4. Sales meetings



Successful Engineers and Entrepreneurs

- ▶ Konrad Zuse. Mein Lebenswerk. Springer. A MUST for every student.
- ▶ Michael Lewis. The New New Thing. A book about how Jim Clark, Netscape founder, founded Healthon. Coronet Books, Hodder & Stoughton
- ▶ R. Würth. Skript on Entrepreneurship. Interfakultatives Institut für Entrepreneurship. TU Karlsruhe. <http://www.iep.uni-karlsruhe.de/260.php>
- ▶ Klaus Kemper. Heinz Nixdorf. Verlag Moderne Industrie.
 - The Nixdorf foundation donated given 2 chairs to the department (multimedia, computational engineering)
- ▶ The Google story.
- ▶ Steve Jobs. about Apple. (There are several books available)
- ▶ Bill Gates. The Way Ahead. (dtsch. Der Weg nach vorn. Die Zukunft der Informationsgesellschaft) Autobiography. Hoffmann&Campe.
- ▶ D. Brandes. Konsequent einfach. Die Aldi Erfolgsstory. Heyne-Verlag.
- ▶ David Thielen. Die 12 simplen Erfolgsgeheimnisse von Microsoft. Econ-Verlag
- ▶ W. Wiedeking. *Anders ist besser. Ein Versuch über neue Wege in Wirtschaft und Politik.* Piper-Verlag, München 2006.
- ▶ D. Tapscott. Wikonomics. 2007



- ▶ [Osterwalder/Pigneur] Alexander Osterwalder. Ives Pigneur. Business Model Generation. Wiley. !Fantastic!
 - ▶ There is a preview available from the website <http://www.businessmodelgeneration.com/book>, do NOT miss it
 - ▶ http://www.businessmodelgeneration.com/downloads/businessmodelgeneration_preview.pdf
- ▶ C. Barrow, G. Burke, D. Molian, R. Brown. Enterprise Development: The Challenge of Starting, Growing and Selling Businesses. Thomson Computing 2005
- ▶ R. Leicher. Verkaufen. TaschenGuide. Haufe-Verlag.
- ▶ Hermann Scherer. 40 Minuten für eine gezielte Fragetechnik. Gabal Verlag
- ▶ Accenture Campus Challenge
 - ▶ E.g.,: 2005. Digital Pen and Paper Applications.
 - Interesting project challenge, running every year in cooperation with TUD.
- ▶ <http://www.wirtschaftslexikon24.net> Enzyklopädie der wichtigsten Begriffe der Wirtschaftslehre
- ▶ <http://unternehmenskick.de> contains practical tips
- ▶ <http://www.formblitz.de/> has business plan templates
- ▶ Forecasts:
 - IT-Studie der BITKOM, Jan 2007, www.bitkom.de
 - James Canton. The Extreme Future. The top trends that will reshape the world in the next 20 years. Plume/Penguin 2007



Start-Up Foundation

- ▶ <http://www.gruenderszene.de/> Das Gründerportal
- ▶ Free business plan: http://www.mbpw.de/fileadmin/Redaktion/Standard_Dateien/e_Handbuch_MBPW.pdf
- ▶ Freies Softwarepaket zum Gründen: <http://www.softwarepaket.de/>
- ▶ www.dresden-exists.de die offizielle Gründeragentur der TU
- ▶ BMBF exist Stipendium <http://www.exist.de/>
- ▶ Technologiegründerfonds Sachsen TGFS www.tgfs.de
 - 60 Mio capital; 45 Mio were left in 2010; they have to be spent until 2015
 - Watch the chance!

40.1 FOUNDING A SOFTWARE START-UP

Adresses of Regional IT-Networks in Germany

- Bundesverband BITKOM.org hat mehrere Software-Arbeitskreise (CPS, Security,..)
- Bundesverband IT-Mittelstand e.V. (BITMi) <http://www.bitmi.de/>
- CyberForumKarlsruhe – <http://www.cyberforum.de/>
- DiWiSH - Clustermanagement Digitale Wirtschaft Schleswig-Holstein - <http://www.diwish.de/>
- ikn 2020 – Das digitale Niedersachsen, Hannover - <http://www.ikn2020.de>
- Innozent OWL, Paderborn-<http://www.innozentowl.de/>
- IT-Forum Rhein-Neckar - <http://www.itforum.de/>
- IT-Netzwerk e.V., Kassel -<http://www.it-netzwerk-online.de/>
- ITS Niedersachsen, Braunschweig- <http://www.its-nds.de/>
- Java User Group Hessen,Kassel -<http://www.jugh.de/JUGH!/>
- ruhr networker e.V., Essen – <http://www.ruhr-networker.de/>
- REGINA e.V., Aachen -<http://www.regina.rwth-aachen.de/>
- Silicon Saxony, Arbeitskreis Software, Dresden <http://www.software-saxony.de>
- Softwarestützpunkt Region Cottbus -<http://www.ssrc.de/>
- Teliason e.V., Braunschweig - <http://www.teliason.de/>
- VKSI: Verein der Karlsruher Software-Ingenieure - <http://www.vksi.de/>

- Work for 3 years as an employee in the domain in which you want to become an entrepreneur
 - Get a network of contacts
- Use a BMBF exist stipend via Dresden Exists
 - To write a business plan within one year
 - To eventually found a start-up
- Use a BMBF-VIP „Validation des Innovationspotential“, a Push-Transfer-Instrument of a professor
- ▶ Get always good salespeople on board
 - Wirtschaftsinformatiker
 - Business Angels
 - People that had already a start-up
- Use an incubator
 - To rent office space and share secretary
- Use regional networks such as Silicon Saxony www.silicon-saxony.de
 - This network meets several times a year, and you can find contacts
- ▶ The role of the venture capital
 - Having money at the right time is essential [MathCore]

Getting into Business

- ▶ Small companies are a means to create employment
 - Large ones merge and destroy positions
- ▶ Finding a good business idea
 - What do you want to do? Most entrepreneurs earn money with what they want to do. What is your dream?
 - What is your hobby, skill, experience?
 - Do you have a new invention? [champagne class, Moonpig greeting cards]
 - Apply creativity technologies (brainstorming, ...)
 - Find a big customer
 - ◆ Find a large user group
- ▶ Buy a business
 - Whole or in part (e.g., distribution or the development)
- ▶ Management-Buy-Out
 - Buy a part of a company as a manager

40.2 BUSINESS DEVELOPMENT

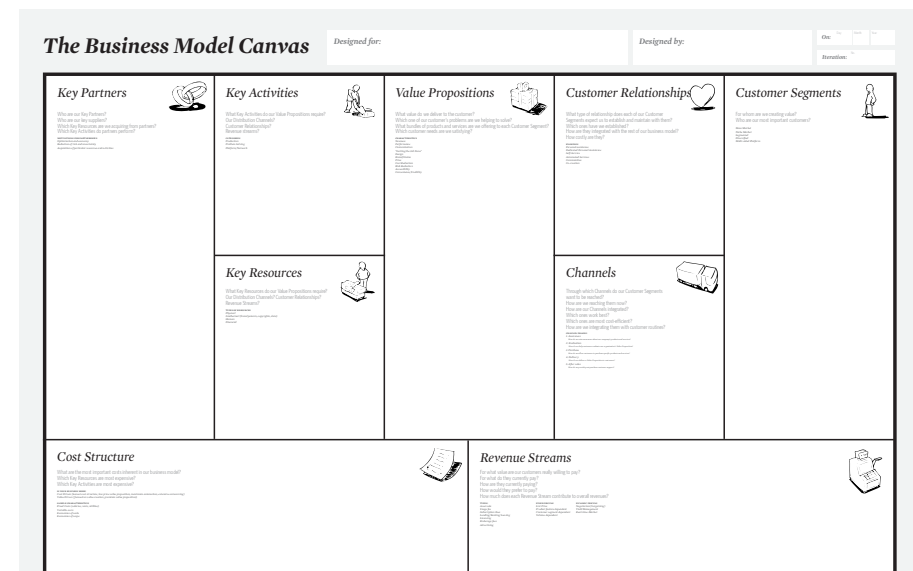
Business Model

- ▶ Business development creates business models
 - ▶ For start up and placement of new products
 - ▶ [Osterwalder/Pigneur] suggest to split the business model in 9 parts, divided by input, output, and in between
- ▶ Input (Resource) Side
 - ▶ Cost vs Profit
 - Estimate costs! Cost leadership?
 - Estimate break-even point!
 - Distinguish cash flow and profit
- ▶ Output Side
 - ▶ Target customer group
 - Companies? End customers? [champagne]
 - Selling directly or via distributor?
 - ▶ Channels
 - Market entry strategy
 - Segmentation of the market?
- In Between: Value Proposition and Pain Killing

- ▶ Business development (Geschäftsfeldentwicklung) develops new services, products, and product lines for a company.
 - ▶ It also develops business models (business cases), on which decisions for starting-up or product-introduction can be made
- ▶ Vision statement
 - A simple statement of the vision. What do you want to achieve?
- ▶ Objectives
 - More concrete goals
- ▶ Market analysis
 - Customers: estimate the target group, its size
 - Competitors: how many? how stable is the market, does it develop?
 - Product or service
 - Price
 - Promotional measures
 - Sales/distribution channels
 - Location
 - Where is my niche? Where can I sell?
 - ▶ Market position:
 - Location: Are we the only ones or how many competitors offer at this location? (Autos kauft man auf dem Automarkt, aber man verkauft sie nicht dort)

Business Model Generation with Osterwalder/Pigneur

- ▶ CC-BY-SA: http://www.businessmodelgeneration.com/downloads/business_model_canvas_poster.pdf





- Based on the metamodel "Business model canvas", you can generate your own business model with 9 components
- [Osterwalder/Pigneur] shows many examples, Patterns of business models, and strategies for brainstorming
 - This is a very practical book, buy it!



- **The early bird finds the corn** (Being first in a market)
 - Once with a share, there is a good share to keep it
- **The second bird also finds a corn**
 - Being second, you must be more enduring, but you can learn from other's mistakes
 - Microsoft:
 - ♦ Windows
 - ♦ Internet Explorer
- **The "constant improver" will find all corns**
 - Kaizen, a Japanese strategy, intends to improve quality continuously
 - [Wiedeking]
- Winning a new customer is 10 times harder than keeping a customer



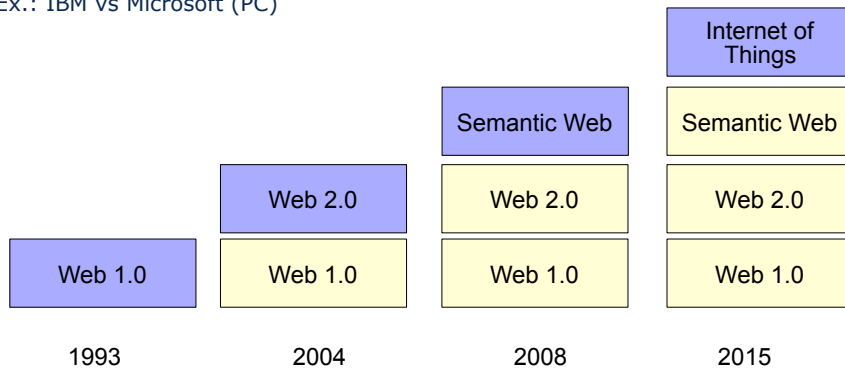
- ▶ Mass market vs high-price products (specialist tools)
- ▶ Product vs service business
 - A product would be good, but a service doesnt need so much capital
 - Start with a service, try to distill a product
 - Start with an application, try to distill a framework
- ▶ Jumping on the next running train (old markets vs new markets)
 - Dont try to enter an old market – it will be very hard
- ▶ Booming markets
 - Which market will boom? which ones are satisfied?
 - Which market will die? (retreat)
 - Which market is satisfied (change the way how to earn money)



- ▶ Base markets vs dependent markets
 - Consultancy
 - Service
 - Product (Application)
 - Framework (Product line) Framework markets (component platforms) are more basic than application markets
 - Platform. Platforms provide run-time environments for all other levels (Ex. operating system, database system, web system, ...)
- ▶ It takes longer to gain a base market,
 - but the other application markets depend on it
- ▶ Piggipacking:
 - Work in a market that depends on a base market, e.g., in a framework or platform market
- ▶ Domain-specific markets need domain experts and domain knowledge
 - SAP has always worked in the business software market, a domain-specific market
 - Combined with a component platform

- ▶ **RFIDs**
 - RFID can store a product memory
 - Identification: RFIDs will replace price tags (Streifencode)
 - RFIDs enable global traceability of goods and all their parts (excellence in logistics)
- ▶ **Expert portals**
 - Searching knowledge is an expensive business
 - Google is a start
 - Domains: medicine, personal relationships, house construction, financial services, ...
- ▶ **Personal communication applications**
 - SMS
 - Tunes for mobile phones
- ▶ **Specialized search engines**
- ▶ **Digital Pens**
 - Automation of workflows on paper and computer in parallel

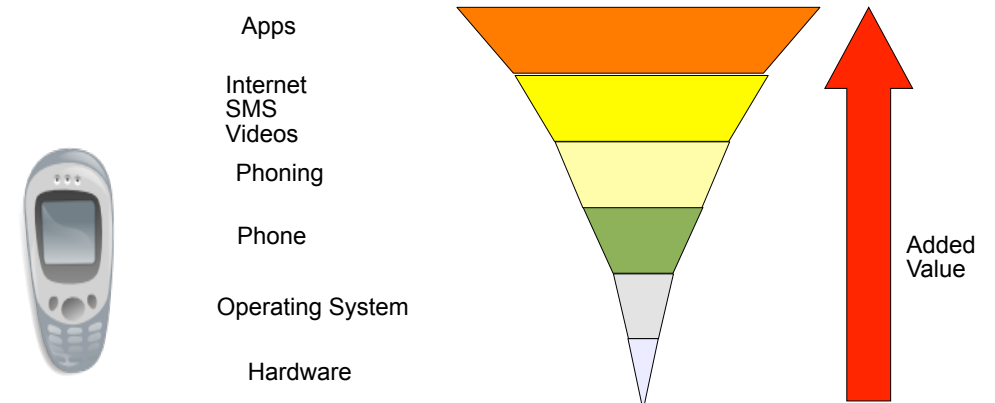
- ▶ **Innovation-Waves** are initiated by new **disruptive technologies**
 - ▶ They lead to exponential growth of markets and exponential diminishing of markets (exponential market change)
 - ▶ Example: Apple vs Nokia (Smartphone, Tablet)
 - ▶ Ex.: IBM vs Microsoft (PC)



Who's going to be the global player for

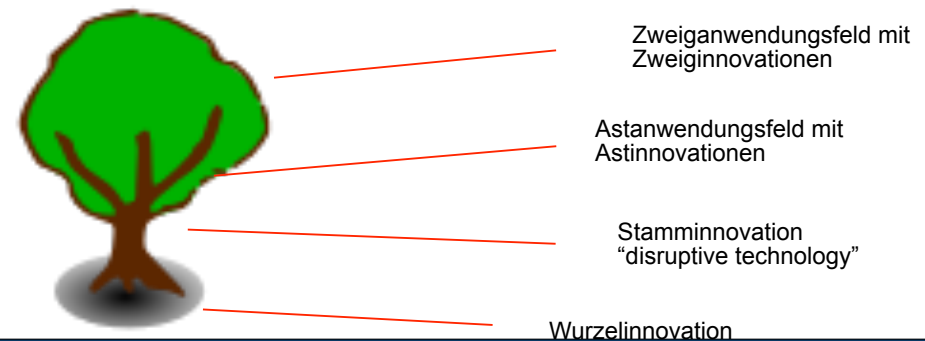
- Services in Web 2.0? [Google]
- Services in the internet of things (cyber-physical systems)?

- ▶ In a **value chain** (Wertschöpfungskette), the value is most often created by software; all other layers are **commodity**
- ▶ Example: mobile phones



Softwaresysteme sind die **Innovationstreiber** in fast allen Wirtschaftszweigen. Sie bestimmen maßgeblich die **Wertschöpfung** von Produkten, Fertigungs- und Geschäftsprozessen. [IKT 2020, Abschnitt 4.2.2]

- ▶ Grundlegende und abhängige Anwendungsfelder
 - In den abhängigen Feldern wird der "AddedValue" geschaffen
 - Aber sie existieren nur in Abhängigkeit vom Grundanwendungsfeldern



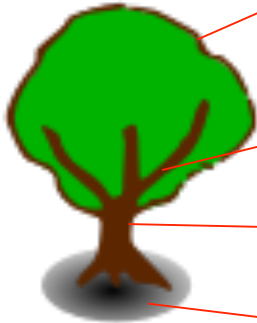


Chance: Eingebettete automatisierende Systeme

• Intelligentes Gebäude

Zweiginnovationen:

- Intelligenter Umgang mit Energie (mehr als Passivhaus)
- Life Sciences / assistierendes Gebäude (Wohnen im Alter, Health Care)



Astinnovation: Automatischer Entwurf für neue, branchenübergreifende Anwendungsfunktionen (2007)

Stamminnovation: Integrierte Datenmodelle für ganze, voll vernetzte Gebäude (2000)

Wurzelinnovation: reaktive Datennetze (1990)



Plastic Logic E-Paper

- Produced since 2007 in Dresden
- No German product so far

Web site www.plasticlogic.com



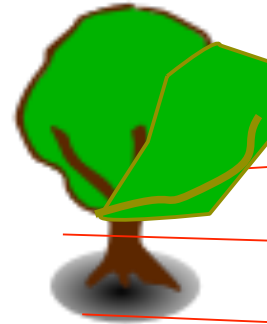
Nutzen von Veränderung der Wertschöpfungsfelder

- ▶ Wo entstehen neue Stämme?
 - Mittel- u. langfristige Veränderung
- ▶ Wo entstehen neue Äste?
- ▶ Wo entstehen neue Zweige?

Grundlagenforschung

Angewandte Forschung

Industrie



Neue Zweiganwendungsfelder

Neue Astanwendungsfelder

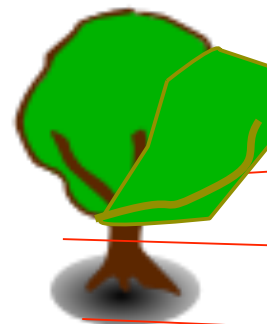
Neue Stamminnovation

Wurzelinnovation



Chance: Neue Wertschöpfungsfelder mit e-Papier

- Stamminnovation e-Papier von www.plasticlogic.com (Cambridge, Dresden)
- ▶ Wo entstehen neue Software-Äste?



Neue Zweiganwendungsfelder: Newsreader auf e-paper

Neue Astanwendungsfelder: e-paper laptop

Neue Stamminnovation: e-paper

Wurzelinnovation: e-ink

- Vom Jan. 2007, herunterladbar bei www.bitkom.de
- Strategische Wachstumsfelder:

- **Eingebettete Systeme (9% Wachstum/J)**
- Biometrie
- Digitales Rechtemanagement
- **IT Utility Services (SaaS)**
- **Service-orientierte Architekturen (SOA)**
- **IPTV/Mobiles Fernsehen**
- Weitere Themen: Breitbandtechnologien, **RFID** und Telematik.

40.4 SOFTWARE BUSINESS MODELS

Eingebettete Software

mobile Anwendungen
e-paper-Anwendungen

- Bündelung mit Hardware-Forschung für neue Anwendungsfelder
- Bündelung mit Silicon Saxony

- Bündelung mit Produktionsstätten und Zulieferern der Prozessautomatisierung
- SAP Research „Future Factory“

Automatisierungs-Software

automatisierende eingebettete Systeme

Web 2.0
Services in the Internet of things

- Bündelung mit lokaler Industrie
- Bündelung mit größtem Studiengang

- Bündelung mit lokaler Industrie

enterprise SOA

Utility Computing (SaaS)

Geschäfts-Software

Multimedia-Systeme, Websysteme

Business Plans

- ▶ It is hard to earn money with software
- ▶ A **business plan** should be made at the beginning, before starting-up or before product introduction
 - Business model
 - Market analysis
 - Cost planning (variant A, B, C)
 - Turnaround planning
- ▶ Business plans are the basis for
 - ▶ Getting a decision of the upper management
 - ▶ Getting a venture capitalist involved
- ▶ Decide in the business plan for a business model

– „Gleichzeitig sind die Themenschwerpunkte stärker an den identifizierten Innovations- und Wachstumsfeldern auszurichten.“ [Berger]



- ▶ Leasing (where others buy)
- ▶ Rent (where others buy)
- ▶ Sell advertisements [Opera]
- ▶ Sell directly, order via internet [Dell]
- ▶ Sell via auction [ebay]
 - Suspense during selling is a surprising effect
- ▶ Quality [Tupperware]
- ▶ Speed [amazon]
- ▶ Client relationships [Tupperware]



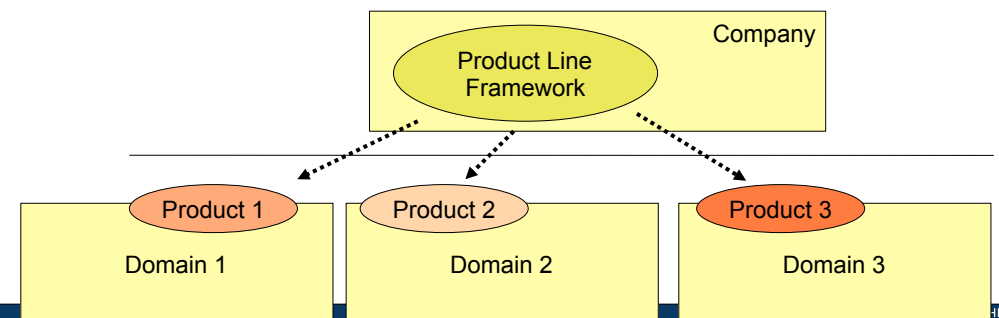
- ▶ Free "taster" versions
 - Give out earlier version of the product for free
 - Sell the new version
 - Ex. www.gentleware.com
- ▶ Free "community" versions
 - Give out a stripped version (e.g., only for 1 user, 1 database, ..)
 - Sell full version
- ▶ Free time-restricted versions
 - 1 month



- ▶ http://en.wikipedia.org/wiki/Open_source
- ▶ Free product ("free taste")
 - Give the product for free and sell applications or consulting
 - Mould a market with the product
 - Ex. Adobe pdf with Acrobat Reader
- ▶ Free framework
 - Give the framework for free, create a community, and sell applications
 - Ex. IBM gives Eclipse for free, fosters a community, and many sell
- ▶ Release Politics
 - with union-fs (overlay)
- ▶ Micropayment
 - Use micropayment companies for installation or run of a software (PayPal, ..)
 - Use Telecom billing
- ▶ Choose licences carefully
 - <http://creativecommons.org>
 - GPL is a virus that infects all extensions
 - LGPL not



- ▶ Have a framework in-house.
- ▶ Know how: instantiate new products with it, that are sold
 - Keep the product line framework as company secret
- ▶ Examples:
 - SAP, Comarch, many others

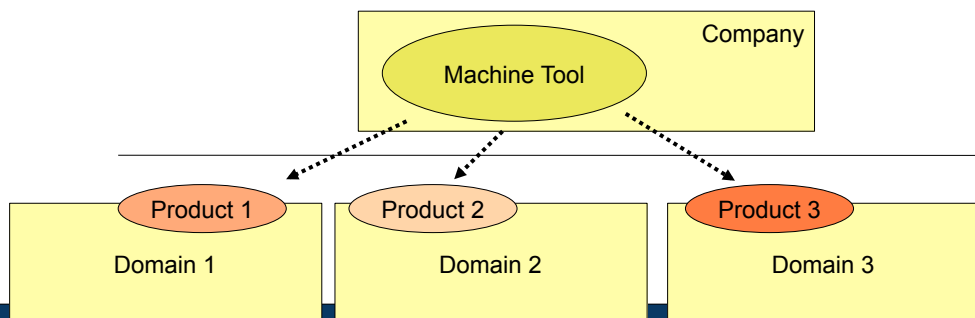


- ▶ Reifegrad gering: i.W. Dienstleistungen
 - keine großen Player außer SAP
 - Viele kleine Firmen (Zersplitterung)
- ▶ In Sachsen noch weniger; alle Firmenzentralen sitzen im Westen (SD&M, Accenture, Oracle, SAP, Microsoft, Ericsson, Nokia, ..)
 - Einige Mittelständler (SAP-SI, T-Systems MMS, Robotron RDS, ComArch, Saxonia)
- ▶ Folgen:
 - Begrenzte Innovationskraft von KMU/Dienstleistern
 - keine vorausschauenden Investitionen

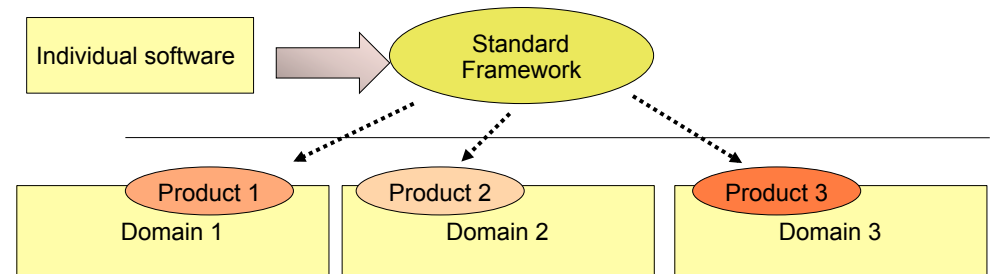
→ Vorlaufforschung nötig



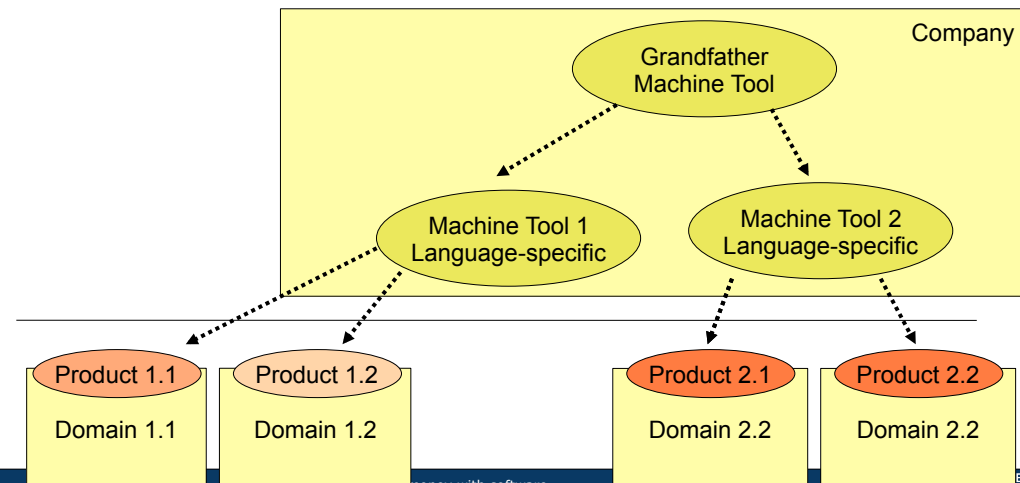
- ▶ Have a very complicated *Machine Tool* in-house.
- ▶ Know how to produce products with it, that are sold
 - Do not sell the machine tool
 - Keep the know-how as company secret
- ▶ Examples:
 - Compiler generators for specific compilers
 - Abstract interpretation generators for program analyses (www.absint.com)
 - Semantic search engines for different domains (www.transinsight.com, www.gopubmed.com)



- ▶ The 5 founders of SAP left IBM in 1974 because they planned a standard generic framework which they could instantiate to applications, which IBM didn't foresee
- ▶ The idea is that markets *mature over time* and move from individual software (expensive) to standard software (cheaper)
- ▶ New SAP frameworks (R/1, R/2, R/3, Netweaver, etc) appeared about every 10th year and doubled the turnaround of SAP every 5 years

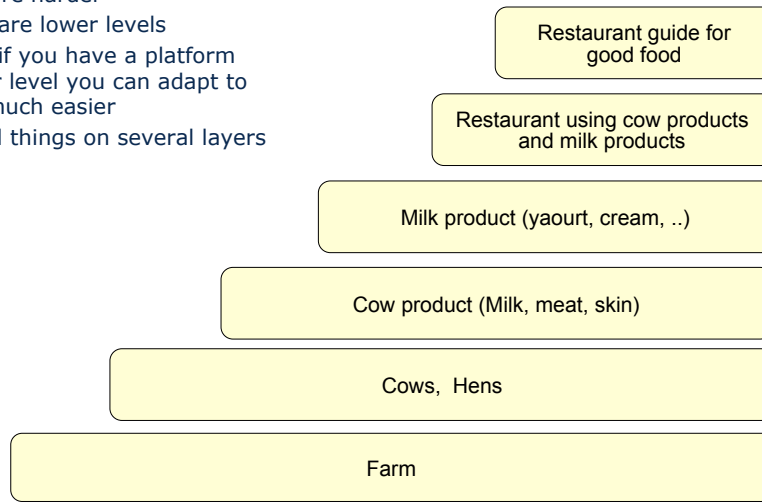


- ▶ Language-Universal Tool generates
 - Language-1-specific tool generator
 - Language-n-specific tool generator
- ▶ Those machine tools continue to bear grandchildren products



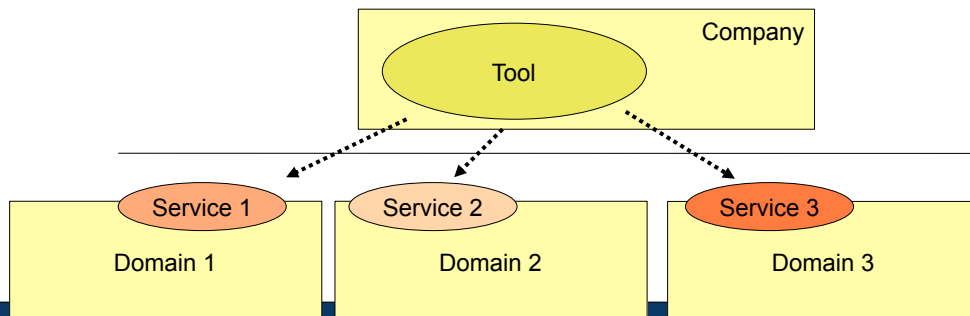
➤ With machine tools and product lines, you get an ecosystem of products and services.

- Services are easy to start with
- Products are harder
- Platforms are lower levels
- However, if you have a platform on a lower level you can adapt to changes much easier
- Do several things on several layers

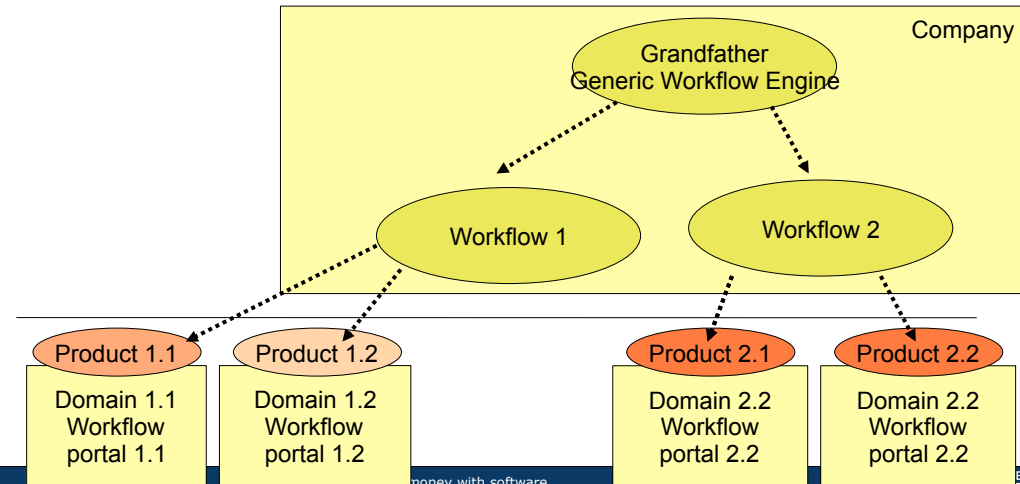


Business Model "Software as a Service" (SaaS, Utility Computing)

- Have an engine in-house and sell a (web) service
 - Use AJAX for incremental processing on the web
- Ex. Google docs



- Workflow-Universal Tool generates
 - Workflow-1..n
- Those workflows continue to bear grandchildren workflow portals (form-filling portals)



Business Model "Software Platform" (Software Ecosystem)

- A **software platform** is [Popp]

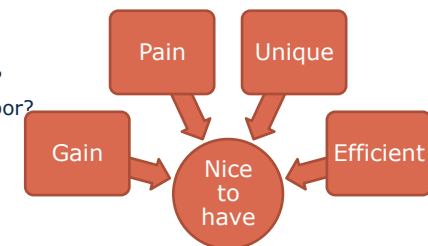
- ▶ Companies can make plugins for OSS tools under dual licensing
 - Thunderbird, Firefox, OpenOffice, Eclipse, ...
- ▶ Example: Quicktext Thunderbird extension
<http://extensions.hesslow.se/>
 - QuickText is free
 - QuickText Pro is commercial
- ▶ Advantage: Platform has already many users and a large market

- ▶ Prepare a sales meeting
 - Analysis of client's situation (needs, problems, state of business)
 - State analysis (IST-Zustand)
 - Problem analysis is most important
 - Goal analysis (needs, offers, next contact, alternatives, additional offers)
 - Strategy (introduction, questions, arguments, defending against counterarguments)
 - Control of meeting (achievements, why I failed, further contacts)
- ▶ Questions are most important
 - ▶ For analysis of the customer's needs
 - ▶ For giving him ideas
 - ▶ For directing the customer
- ▶ Phases of the sales meeting: (InIAC)
 - Introduction, often with a sales pitch (talk)
 - Information
 - Argumentation
 - Commitment

[Leicher]

40.4 SALES MEETINGS

- ▶ In order to sell, you must inform the customer about
 - The added value she can buy
 - The pain she can be freed of.
- ▶ A sales pitch convinces the customer about a **unique selling point** of a service or product.
- ▶ Train talking in front of customers
 - Your talks in University are simple preparations
- ▶ The pitch must answer the questions PaGUE for the customer:
 - What is my pain I will be freed from?
 - Why will I be *happy* with this new thing?
 - What is my gain (added value)?
 - Why will I *love* this new thing?
 - What is the unique selling point of the thing?
 - Why will I live much better than my neighbor?
 - Will the cost of buying it be efficient?
 - Why will it be cheap enough for the gain?
- ▶ Structure a pitch with PaGUE!



- ▶ Open questions: begin with who, why, when, which...
 - The customer can talk afterwards... (information phase)
- ▶ Usefulness questions: which benefit does the customer have
 - "what do you gain with this method?"
 - "when will you be able to achieve turnaround with this method"
 - "what do you think about this simplification?"
- ▶ Closed questions:
 - Do you? Don't you?
 - These questions force decisions (commitment phase)
- ▶ Alternative question:
 - "Would you prefer alternative A or B?"
 - "is a red or blue car better?"
- ▶ Suggestive questions:
 - "is it true that you are interested to simplify your production?"
 - Handle them with care
- ▶ Positive questions: try to avoid negative questions
 - "Are there problems?" --> "What happened?"
- ▶ Transform statements into questions
 - "Our competitor is too expensive." --> "Do you also feel that our competitor is too expensive?"

- A **problem question** analyzes together with the customer his problems. Problem questions
 - clear the mind of the customer
 - Show him the situation more clear
- Examples
 - „What is disturbing with your supplier?"
 - Which functionality is your product lacking?
 - Which problems do you have with the tool you use these days?

- A **state question** asks the customer about his/her state of affairs
 - „How can I help you?"
 - „Which functions are you interested in?"
 - „With which supplier do you work these days?"
 - „How large is your budget?"
 - „How is the decision process?"
- State questions are asked first, to enter the discussion

- An **effect question** analyzes together with the customer the effect of his problems and the consequences of his decisions.
- Effect questions
 - Visualize the effects of the current situation to the customer
 - Look into the future
 - Highlight trends and developments
 - Bring the customer the insight that he must solve his problem
- Examples for positive effects
 - „What is the significance of this problem with your supplier?"
 - Which other problems would this cure?
 - What should be changed to increase the effectivity of this tool?
 - What does the solution of your problem mean to the win/balance of your company?
- Examples for negative effects
 - „What is the significance if this problem is not solved?"
 - Which other problems would result if this is not solved?
 - Supposed you leave it like it is, what would result?

Effect questions are extremely important for sales decisions



- A **summarization question** summarizes the results of the analysis and attempts to get the agreement with the customer about the analysis
- A **benefit question** highlights a benefit to the customer.
 - „Which additional space could you win buying this new machine?“
 - „How would the win of your company rise, given you buy this machine?“

Benefit questions are extremely important for sales decisions

