„Ohne Software gibt es kein Wachstum mehr."
Philipp Rösler, Bundesminister für Wirtschaft und Technologie, 21.5.2013

40. Scalable Software Business Models

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http://st.inf.tu-dresden.de/teaching/saab

1) Different Driving Factors
2) Service-based Business Models
3) Product-Based B2B Models

Obligatory

- [Cusumano] Michael A. Cusumano. Staying Power: Six Enduring Principles for Managing Strategy and Innovation in an Uncertain World. Clarendon Lectures in Management Studies. Oxford University Press, 2010.
  - Try to buy this book second hand, it is revolutionary.
  - Spend 20€ to win your lifetime's income!
- http://www.drkarlpopp.de/VeroeffentlichungenPublications.html

References

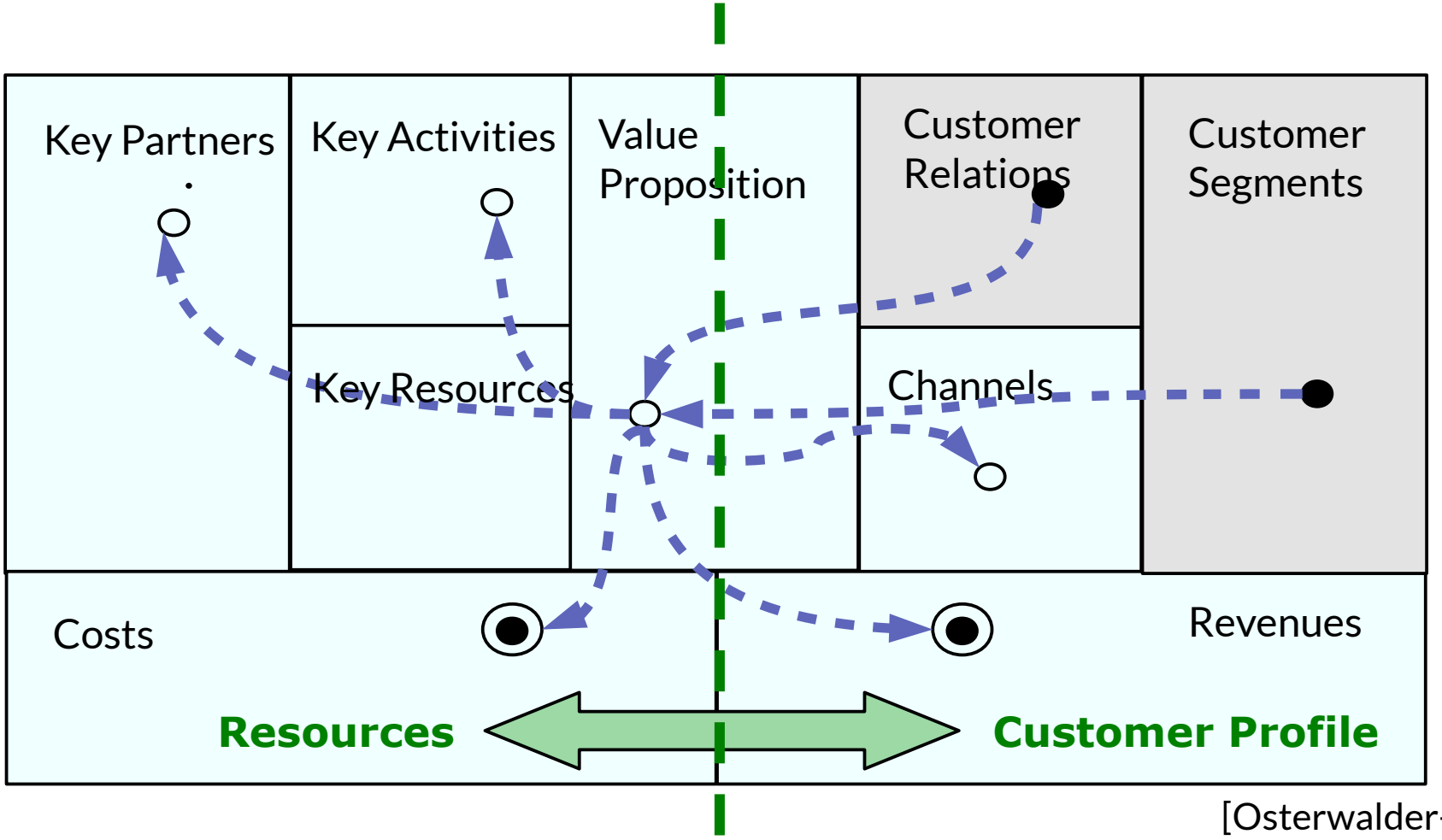
- Karl Popp. Software industry business models. IEEE Software, 28(4):26-30, 2040.
- [MassCustomization] Charles Krüger. Software Mass Customization. Biglever Software White Paper. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.84.6997&rep=rep1&type=pdf
- [Scheer] August-Wilhelm Scheer. Unternehmen gründen ist nicht schwer. Springer. 2000. Honest book about ups and downs of ARIS.
- Klaus Schmid, Frank van der Linden. Software Product Lines in Action. Springer.

40.1 Different Factors Drive Business Models – How to Vary a Business Model Canvas

[BMG p 142]

Customer-Driven Business Models

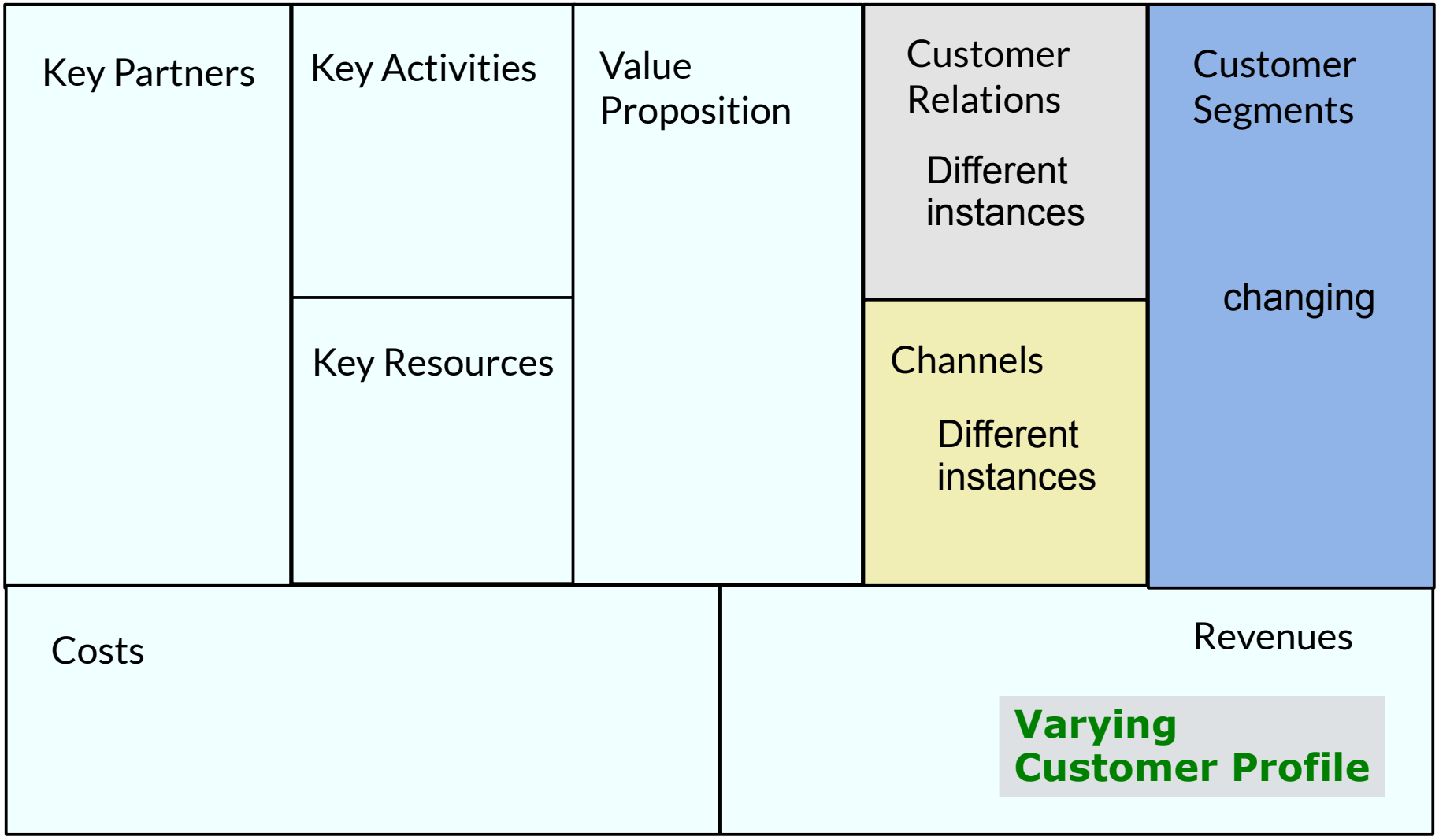
- From customers to value proposition and the rest
- Many Software BM use *product specialization* for disjoint groups of costumers
  - Setting up a customizable product or product line
  - Setting up a second product line in a product matrix



[Osterwalder-BMG]

Customer-Varying Business Models for Services, Software Products and Product Lines

- Customers live in different domains, with different communities, habits, histories



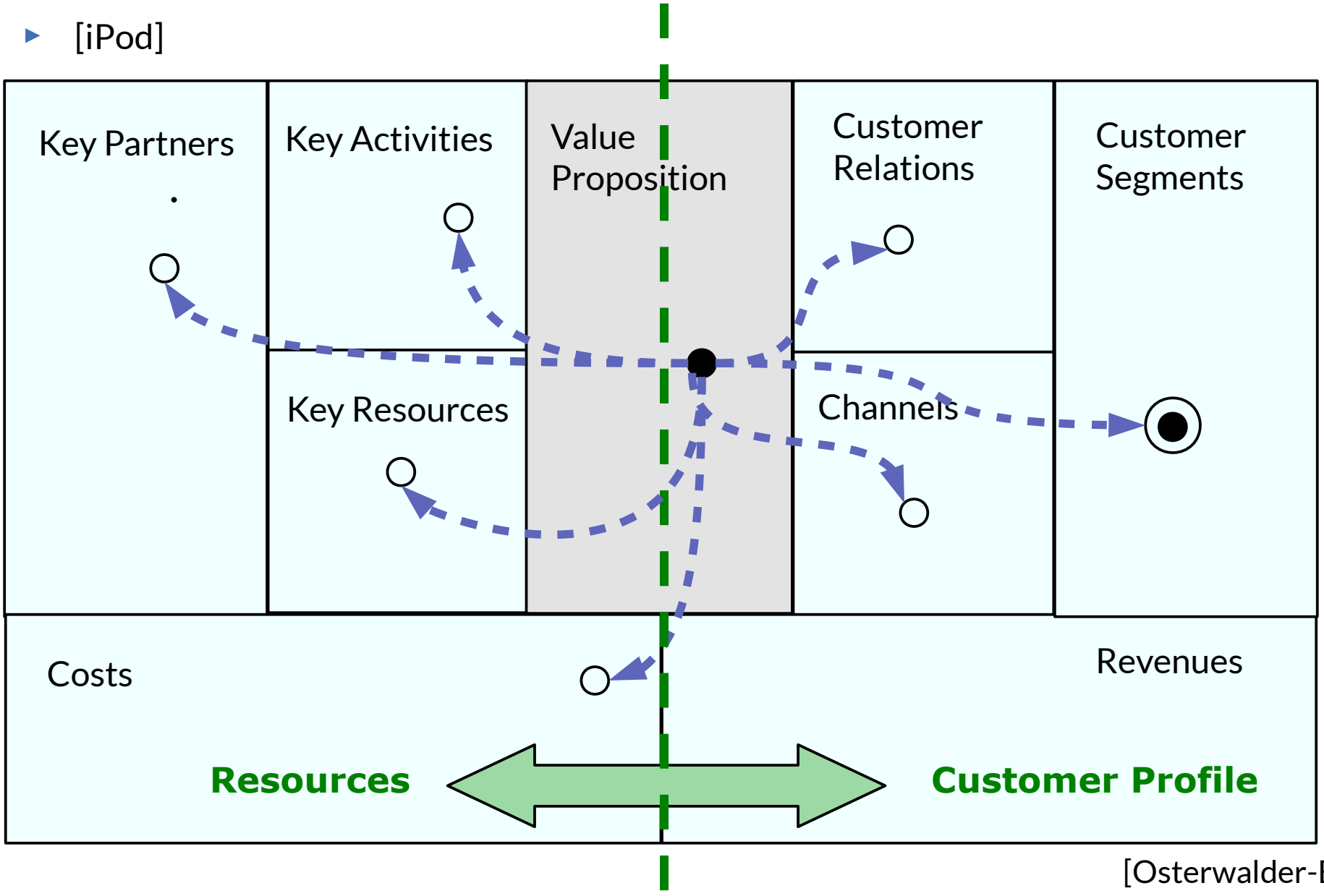
Scale by Variation of Customer Segments for Product Variation

- One of the most ***scalable*** software business models is **customer segmenting via domain-specific, regional, or customer-group specific product lines.**
- **Software reuse factors** should be high
  - To sell the reused components many times
  - → Component-based Software Engineering, Frameworking, Product Line Engineering

Always attempt to derive a product variation with a new customer segment and a good software reuse.

Value-Driven Business Models

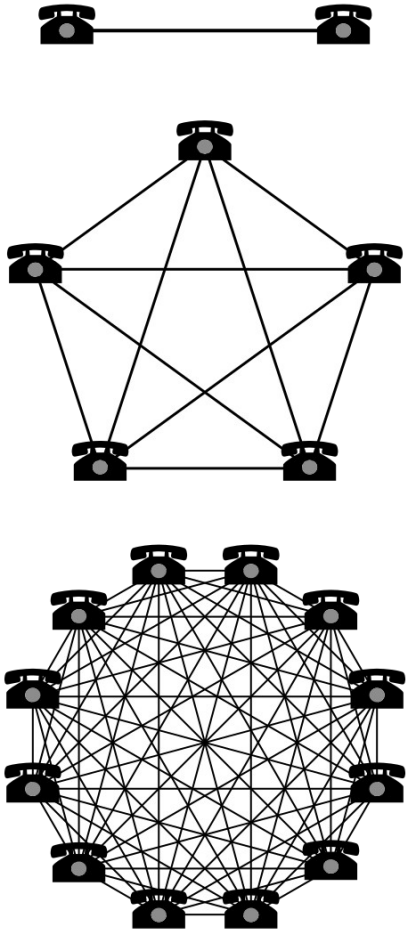
- From value proposition to resource and customer map
- [iPod]



[Osterwalder-BMG]

Scaling in Value-Driven Networks

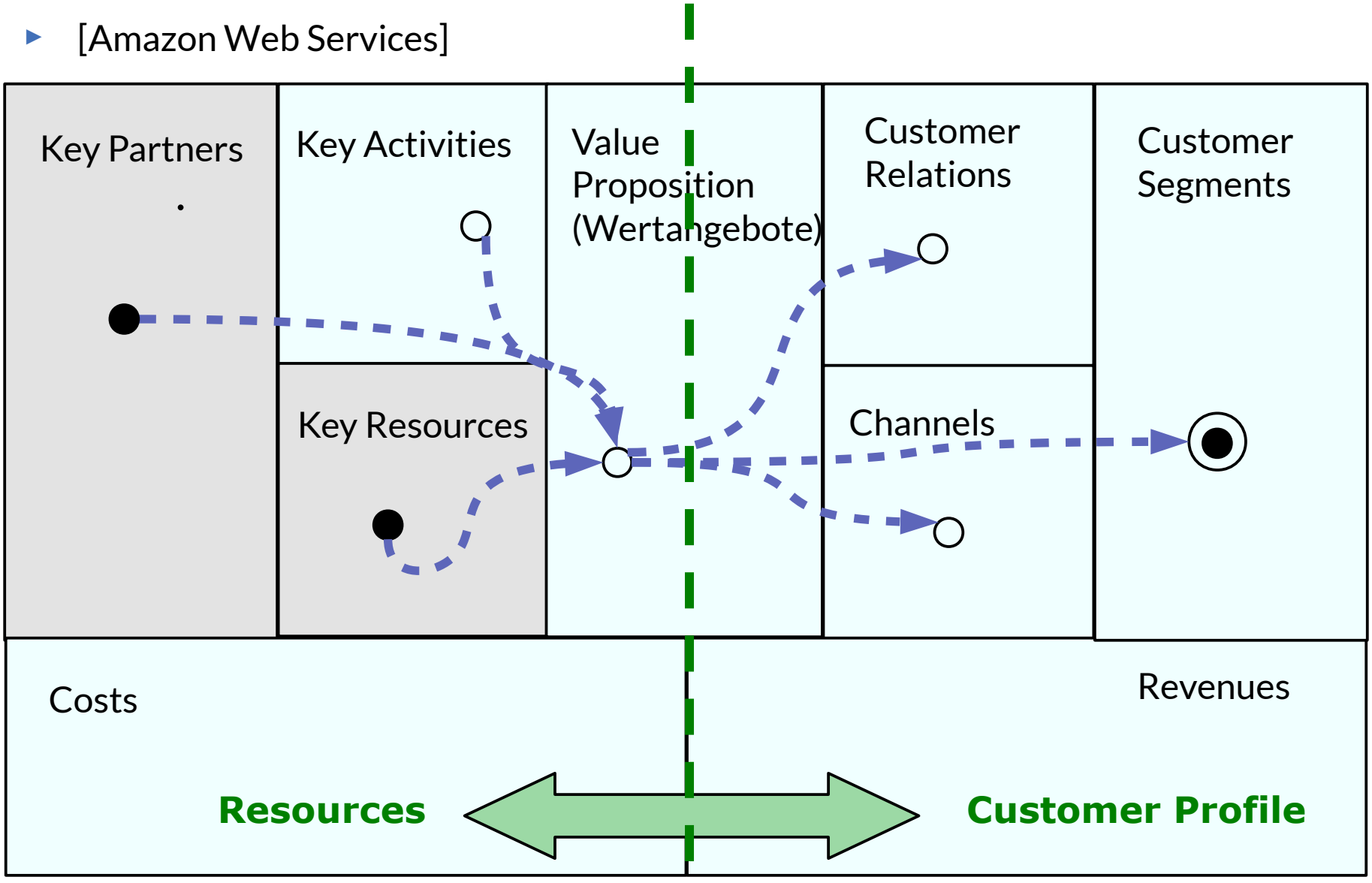
- https://en.wikipedia.org/wiki/Metcalfe%27s_law
- If the value proposition affects the *relation* of the customers, n^2 business opportunities result
- This is the business model of Facebook, Twitter, XING etc:
- Create a network first, sell later



Business models based on Value-Driven Networks are among the best-scaling business models

Resource-Driven Business Model

- From Resource map to customer map
- [Amazon Web Services]



[Osterwalder-BMG]

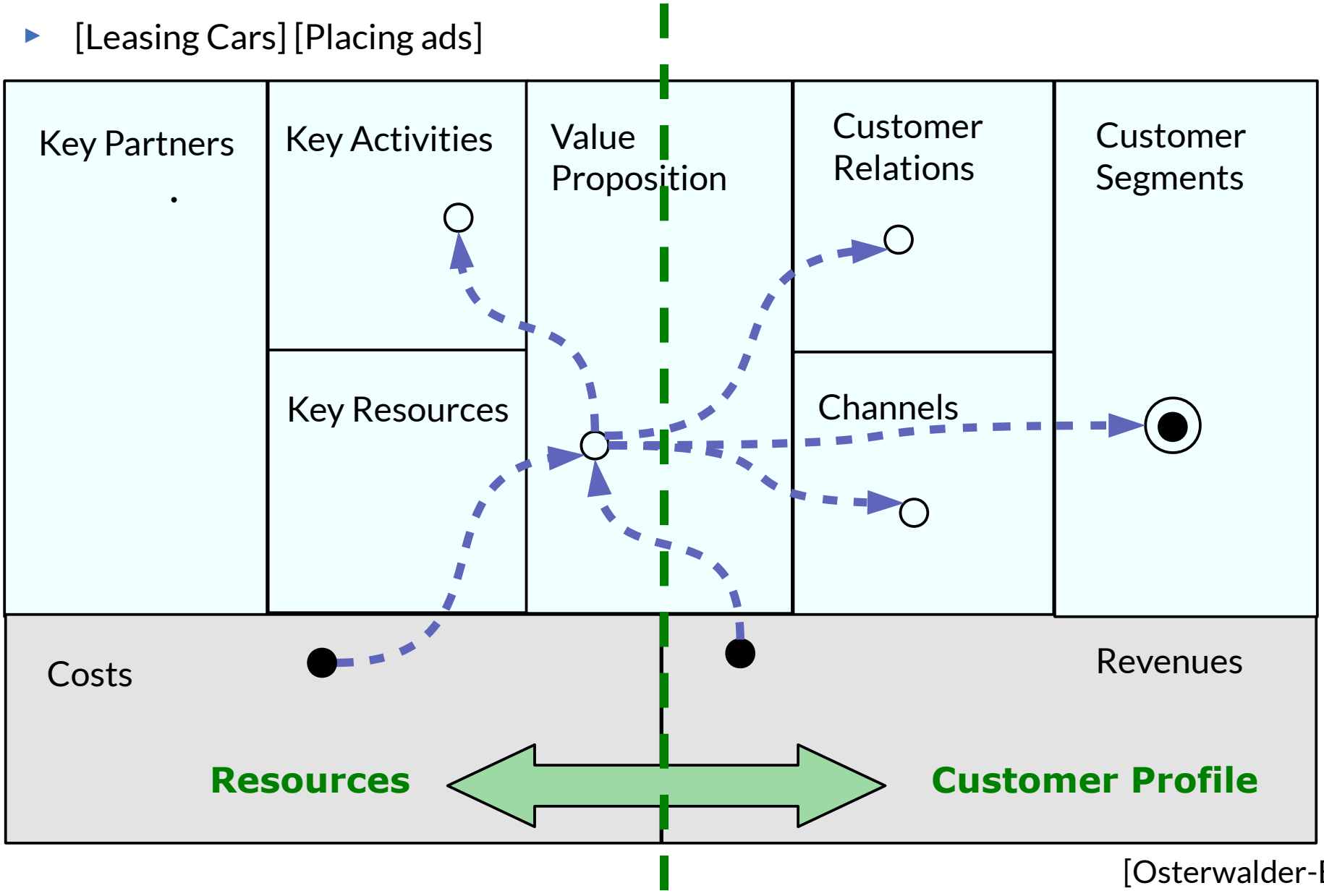
Technical Domains – Technology Variation Driven Business Models

- The same user group can be reached by different technologies
- A **technical domain** is a technology which can be crossed with the **business domain (customer segment).**
- Product matrix models result (variation in 2 dimensions: business domain and technology)

Always attempt to derive another business model
based on a technology variation
crosscutting the customer segments.

Finance-Driven Business Models

- From costs and revenues to value proposition and customers
- [Leasing Cars] [Placing ads]



[Osterwalder-BMG]

Finance Drives Variation

- A **finance-driven variation** sells a product with different pricing models (3rd dimension of variation):
  - Teaser for free, but with advertisement
  - Pay-per-use with paypal
  - Computer-based license
  - Flatrates
  - Location-based services with base product

Always attempt to derive a finance variation crosscutting the customer segments and the technology.

Finance: Sell Binaries
Closed-Source Software Business Models

- Leasing (where others buy)
- Rent (where others buy)
- Sell advertisements [Opera, Google]
- Sell directly, order via internet [Dell, Amazon]
- Sell later, hope to use the Metcalfe network effect [Twitter, Facebook]
- Sell via auction [ebay]

Open Source Software (OSS) Business Models

- http://en.wikipedia.org/wiki/Open_source
- **Free product** (“free taste”, “Versucherle”, “Köder”)
  - Give the product for free and **sell services, consulting, or apps**
  - 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); with browser; with portal
- **Micropayment**
  - Use micropayment companies for installation or run of a software (PayPal, ..)
  - Use Telecom billing
- Choose licences carefully
  - http://creative-commons.org
  - GPL is a virus that infects all extensions; LGPL not
  - EPL

Open Source Business Model “Free Taste” (dual-licensing, fremium)

- Free “taster” versions
  - Give out earlier version of the product for free
  - Sell the new or premium version (“fremium”)
- Examples
  - www.gentleware.com
  - NatSpec
- 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

Business Model “Versucherle”/”Köder”: Plugins under Dual Licensing

- Fremium: [BMG] p. 108
- 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

Deriving Secondary from Primary Business Models

- From a primary value-driven or customer-driven business model, secondary ones can be derived
  - **Customer-driven models** vary the customer segment
  - **Resource-driven models** can be derived to use the resources more efficiently
  - **Finance-driven models** can be derived to re-use a good value proposition with other pricing and costs
  - [Hilty drilling machines]

Always attempt to derive a secondary BM from your primary one by varying along one of the variation dimensions.

Basic Forms of Business Models

- Product (with maintenance contract)
- Product with parameterization and mass configuration
- Product with piggy-pack Service
- Product Line (variation in 1 dimension)
- Product Matrix (variation in 2 dimensions)
- Product Cube (variation in 3 dimensions)
- Product Platform with Apps/Complements/Plugins and Services

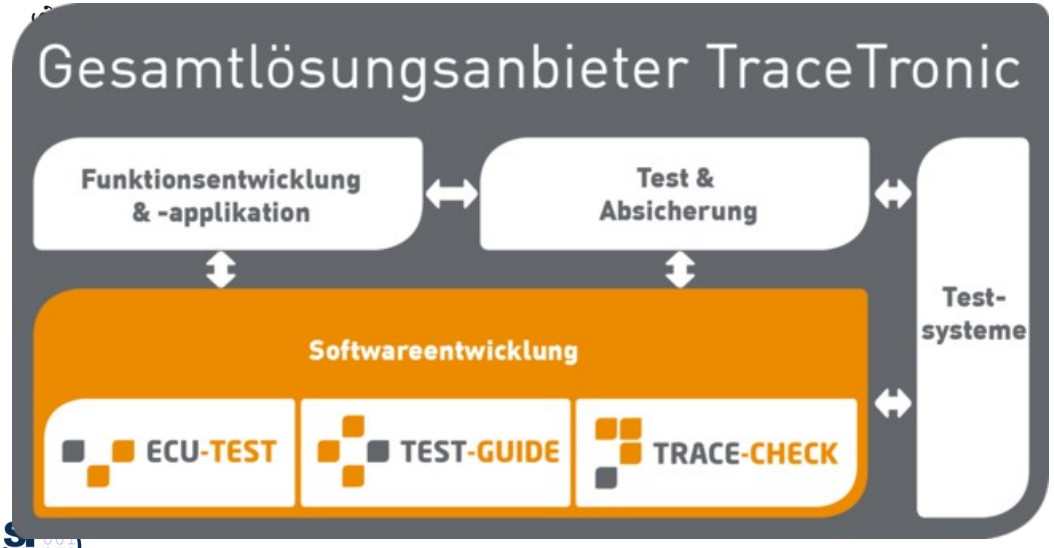
- Individual software solution (with maintenance contract)

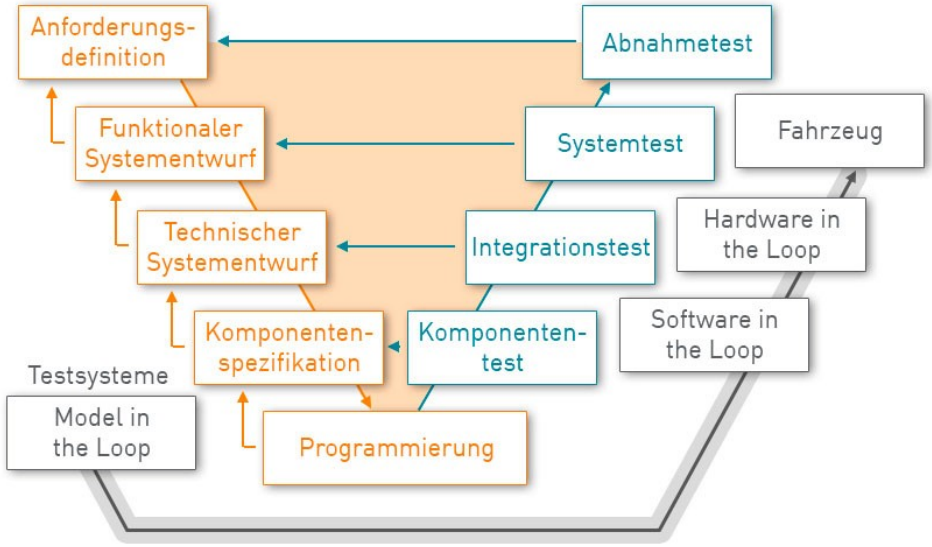
- Service
- Service Family
- Service based on Value Driven Network
- Service Matrix (variation in 2 dimensions)
- Service Cube (variation in 3 dimensions)

40.2 Service-Based Business Models

40.2.1. Services (“Leistungen”, “Solutions”) can be based on Products

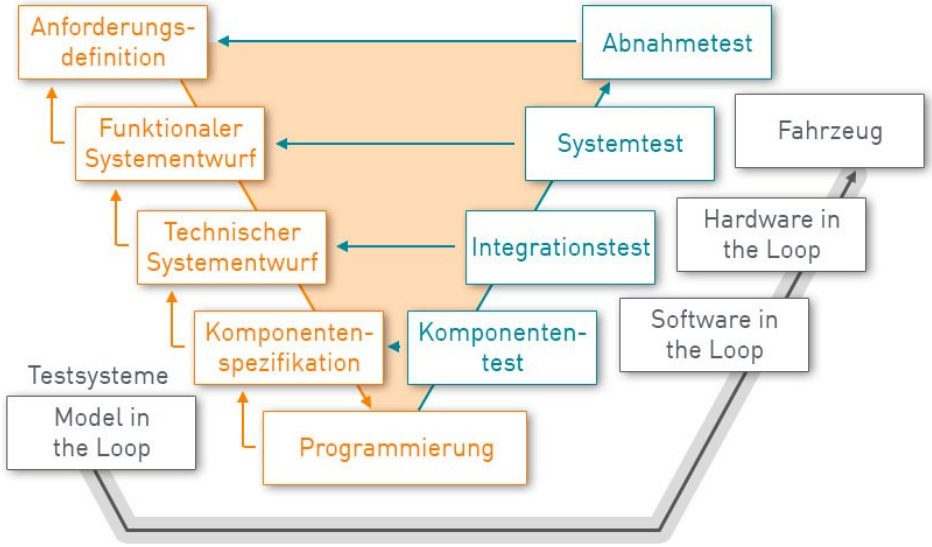
- http://www.tracetronic.de/leistungen/
- TraceTronic (Gittersee) has several products for motor tests
- On top, they offer test projects, construction and integration into further test systems, function development for motors
- Testing uses the automotive V-model: lots of spots for service projects
  - Requirements engineering (elicitation, checking…)
  - Specification
  - Design and Testing
  - Seminars (Schulung)





Business Model “Service Family along V-Model” Salt Solutions

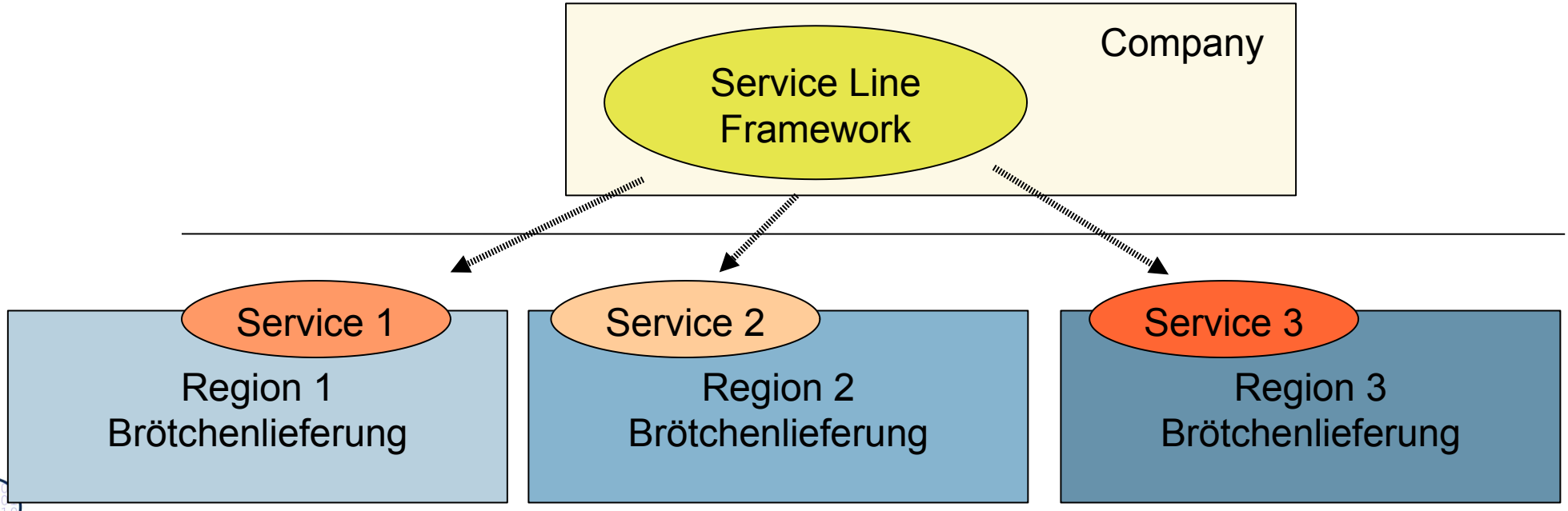
- For any software company, services can be structured along the typical tasks of the V-model
- https://www.salt-solutions.de/leistungen.html
  - Quality management
    - Requirements engineering
    - Testing
    - Certification
  - Consulting
  - Conception (Design, Processes, Specification)
  - Implementation
  - Support



- http://www.tracetronic.de/leistungen/

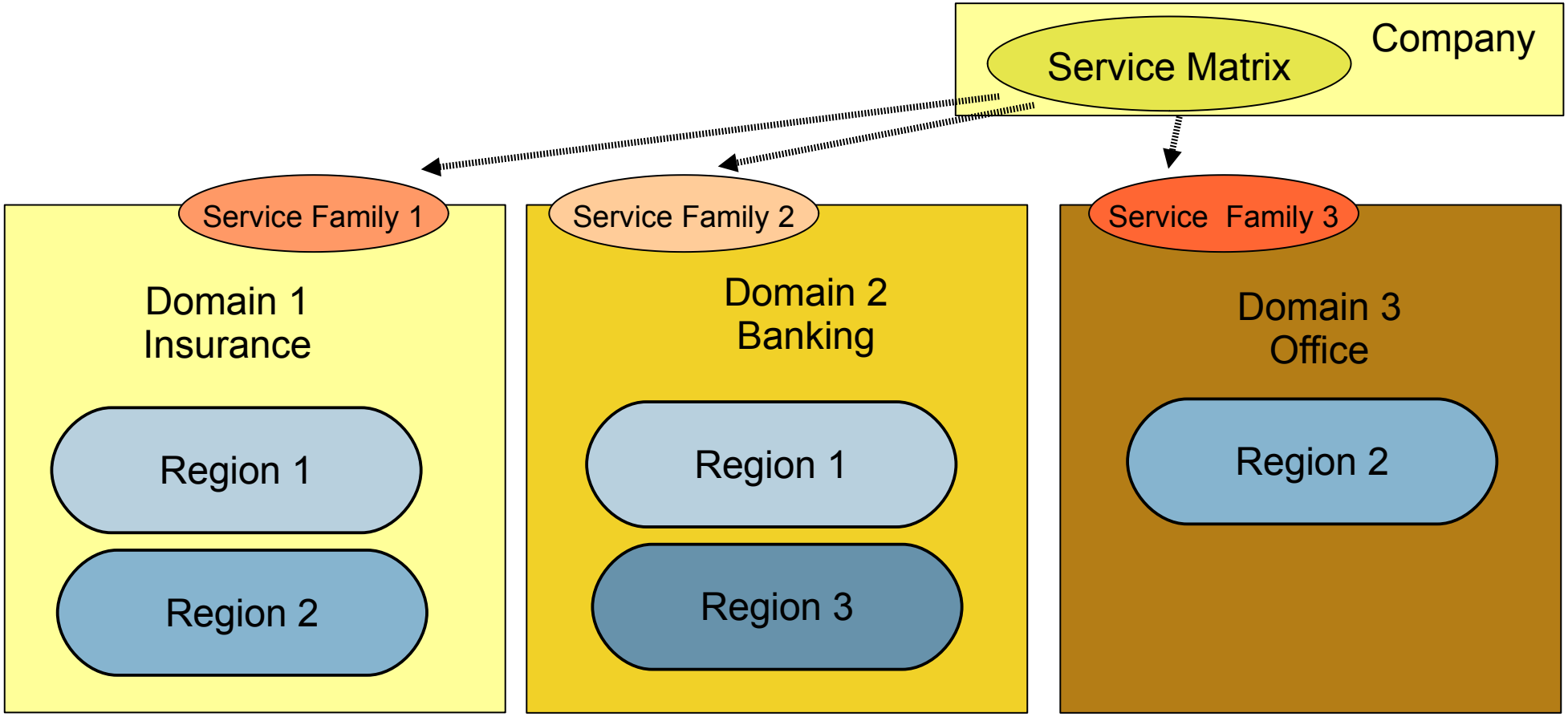
40.2.2 Business Model “Regional Service Family”

- One dimension to vary can be the region of sales
  - Develop a service in a region (regional business model, regional customer segments)
  - Replicate the service to other regions (regional porting)
- Example: www.Morgengold.de, www.it-sax.de (pludoni.de)
- Franchising can be used to spark small enterprises
- The same software can be used in every region, if customized appropriately



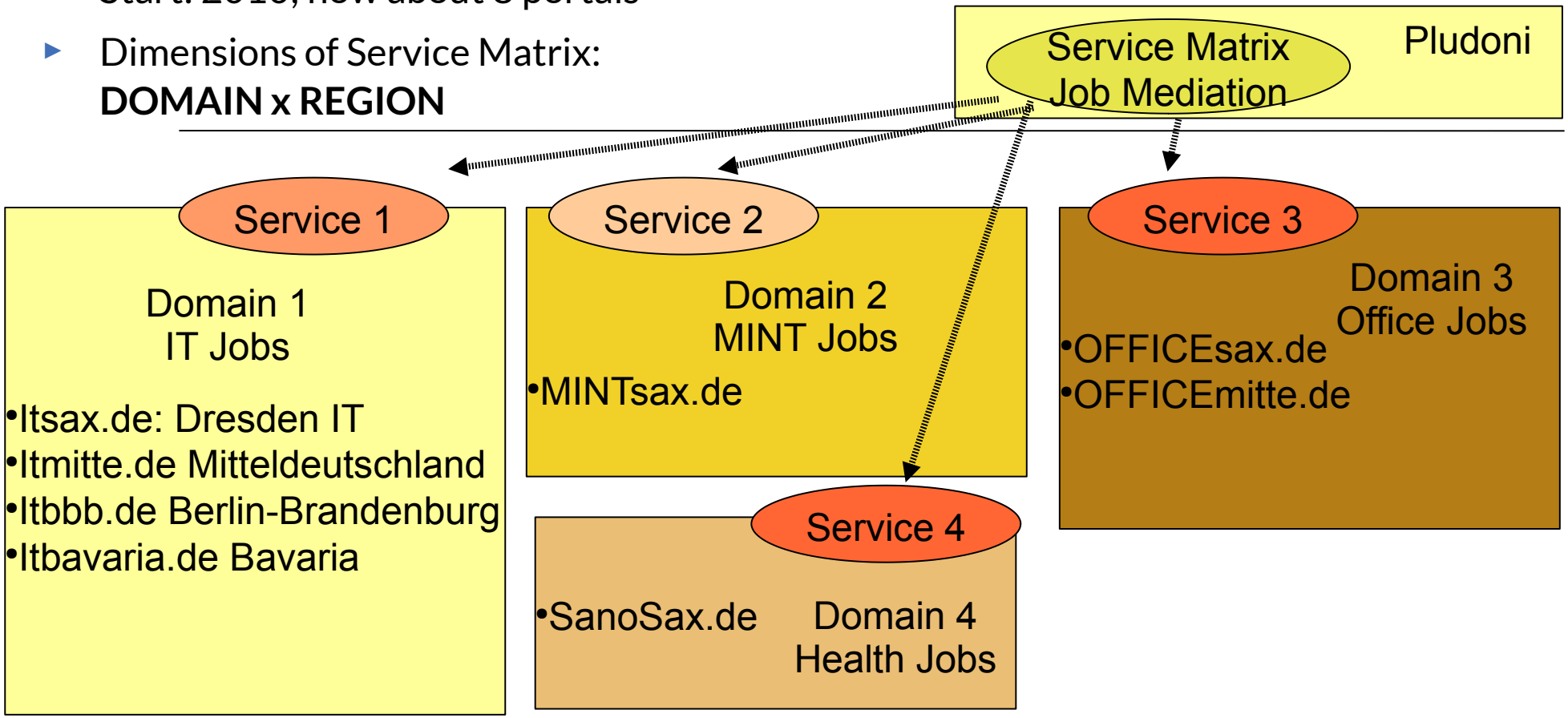
40.2.3. Business Model “Domain-Region Service Matrix”

- Develop a service in a two or three dimensions
  - Region
  - Business Domain
  - Technical Domain



Pludoni's Business Model “Domain-Region Service Matrix” with “Smart Companies”

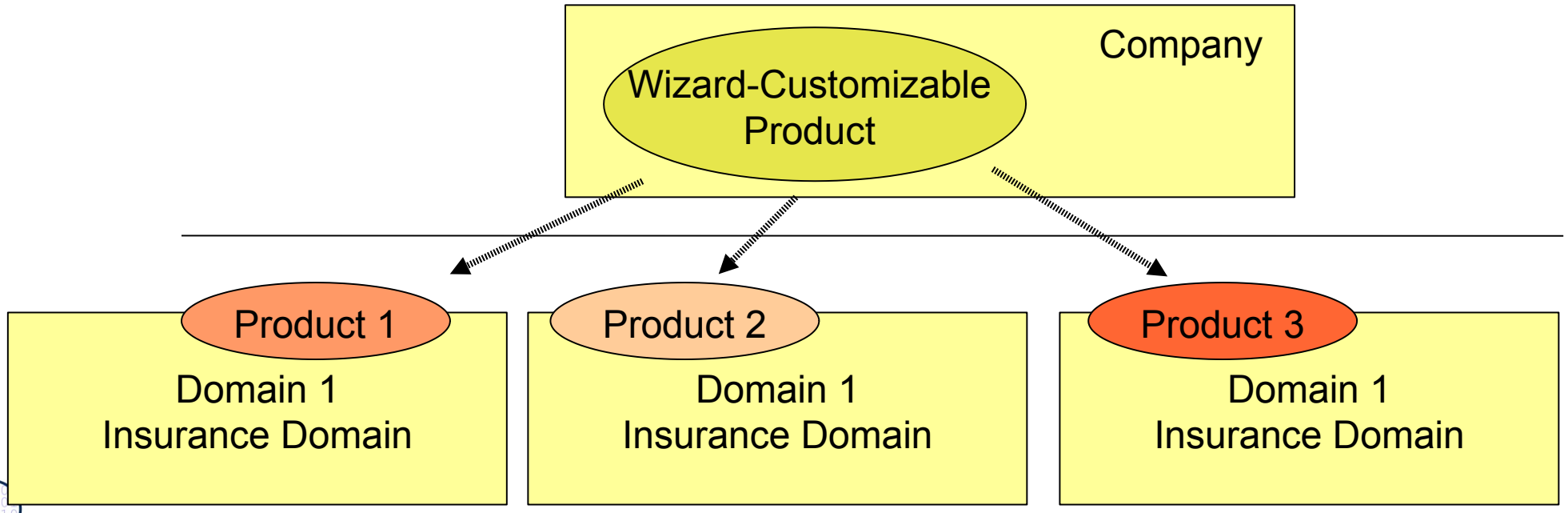
- www.it-sax.de (www.pludoni.de): a portal for mediating (brokering) applications and job offers in a region (regional business model)
  - Trusted web community (“club of companies”) with recommendations
- Founder Jörg Klukas ported it to many other regions and professional domains
- Start: 2010; now about 8 portals
- Dimensions of Service Matrix:
  DOMAIN x REGION



40.3 Product-Based B2B Business Models

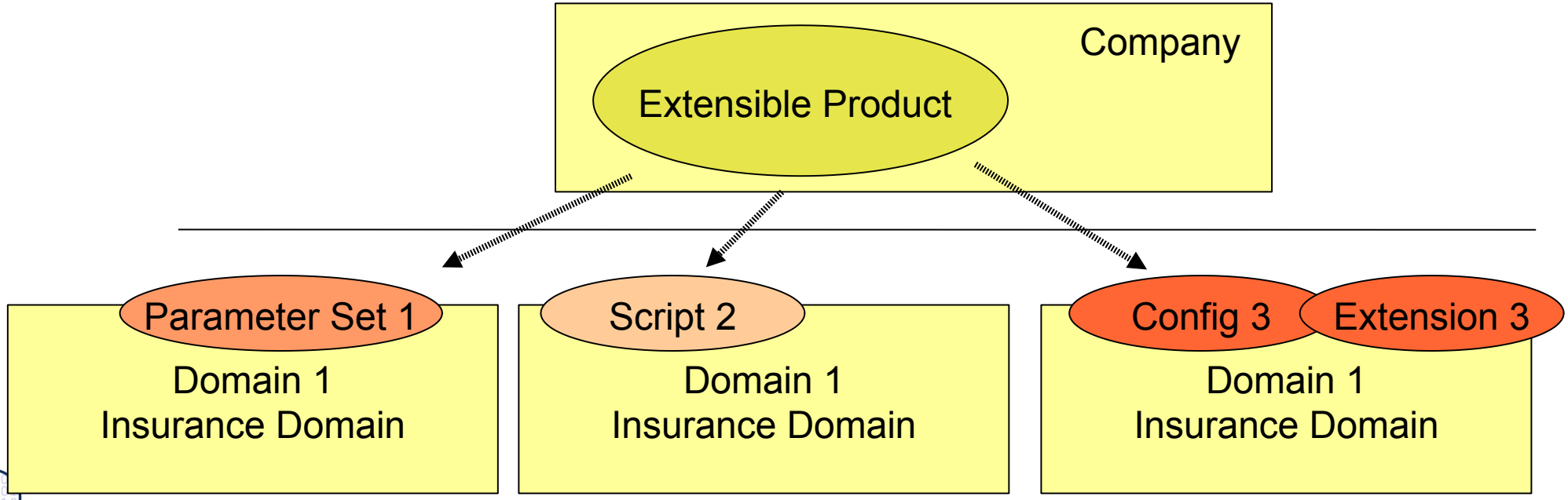
Business Model “Mass-Customizable Product”

- Make the product **customizable (by end user)** [MassCustomization]
  - Customize by interactive Wizard simplifying the customization
  - Keep the product customization technique as company secret
- Intense interaction with customers required to ensure that the mass customization is simple enough



Business Model “Parameterizable Software Product”

- Design an extensible product in-house, **parameterizable by experts**
  - Parameterize by scripts in a scripting language, domain-specific language, or complex form mechanism (XML)
  - **Extend** by Plugin (Extension, Complement); Requires a *component model*
- Extension by product owner or third party (partner or supplier)
- Know how: instantiate new products with *different extended functions (features)*
  - Keep the product extension technique as company secret
- This is the standard way for product-oriented companies, how to scale their business to more than 15 people

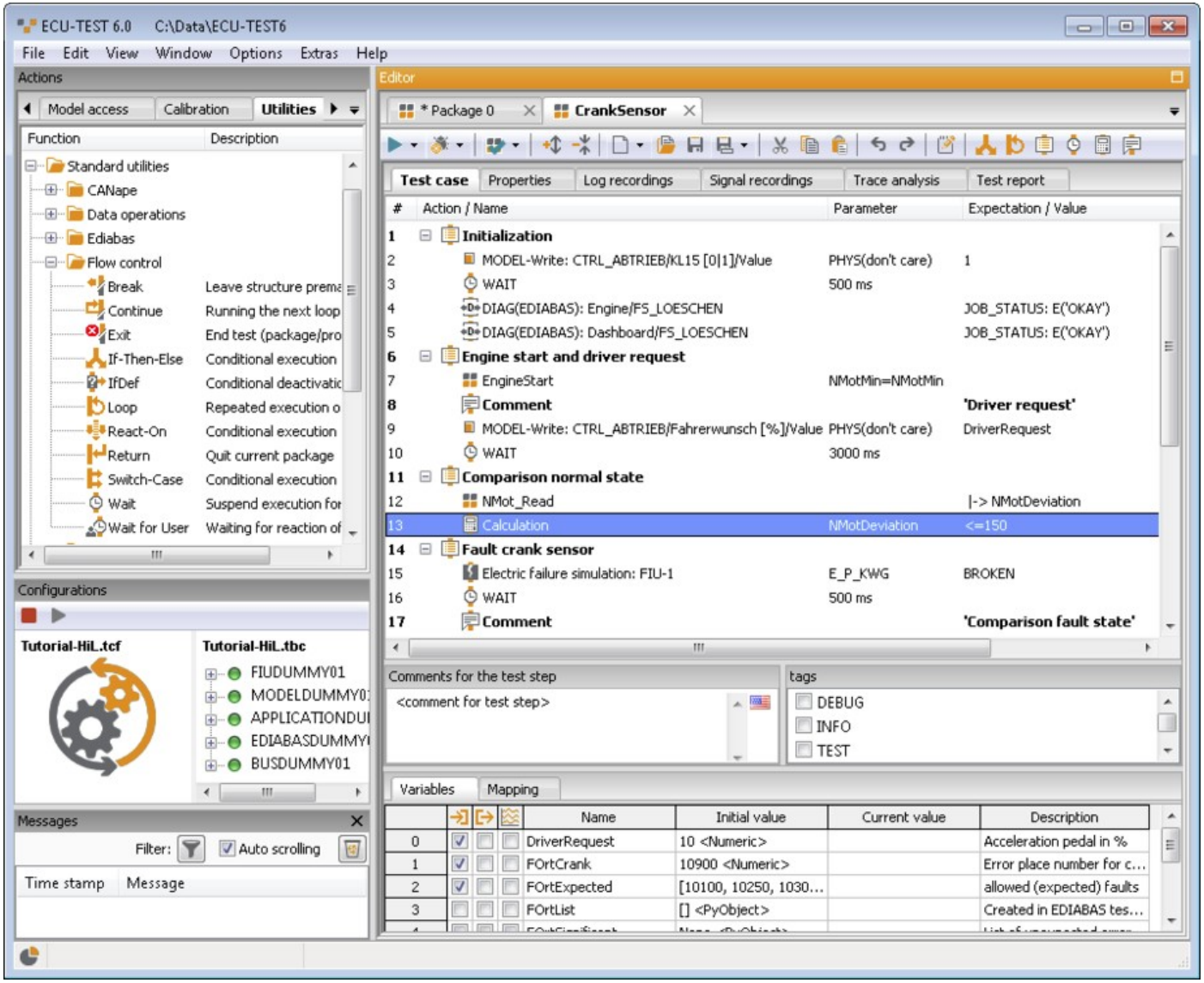


Tracetronic ECU-Test, a Parameterizable Domain-Specific Product

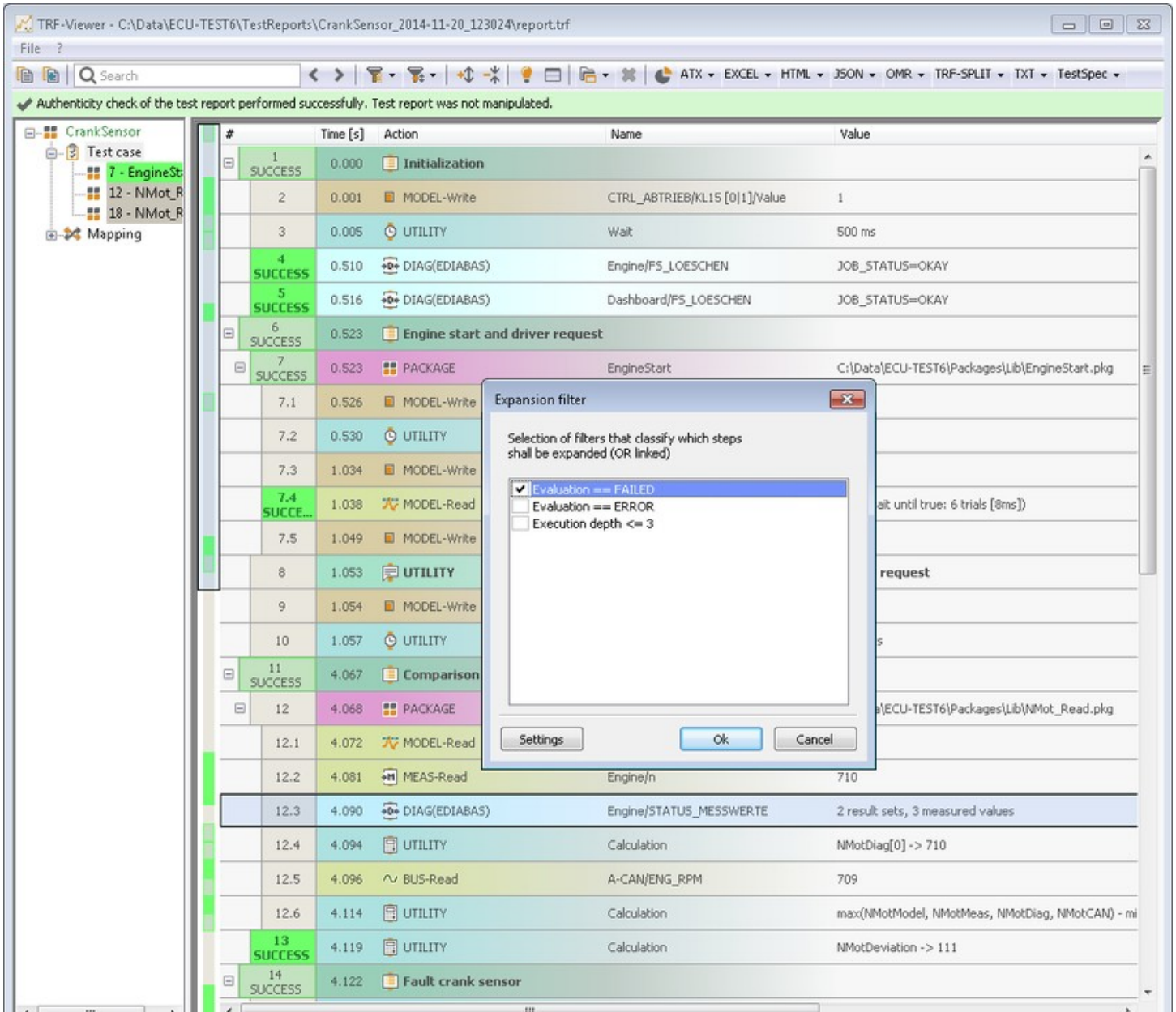
- Gittersee, Dresden, Germany
- http://www.tracetronic.de/produkte/ecu-test/
- Motor testing software
  - Writing and composing test scripts for motor runs in simulators or cars
  - Test script libraries
- Model-in-the-loop (MIL), Hardware-in-the-loop (HIL), Software-in-the-loop (SIL)
- Adapters for other test tools
- Growth: 1->100 employees in 10 years

Domain-specific products and product lines fill a domain-specific need (a need of a domain-specific customer segment)!

Tracetronic ECU-Test

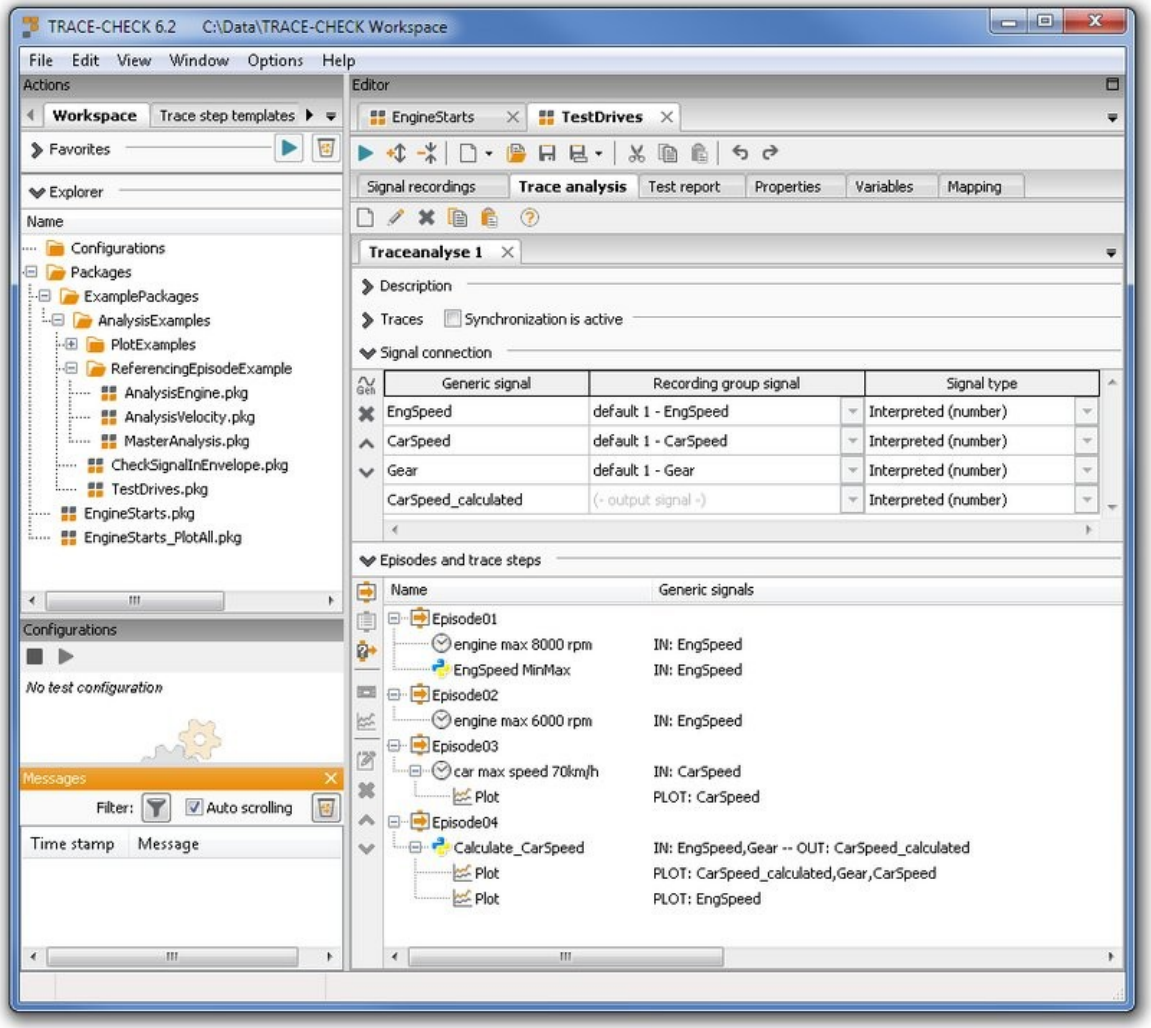


Tracetronic ECU-Test



Tracetronic 2nd Product: Trace-Check

- Monitoring and evaluating test traces with temporal logics (path expressions over time, see model-checking courses)
- Modular trace analysis
- Reporting
- Works with EXAM of VW
- https://www.exam-ta.de/



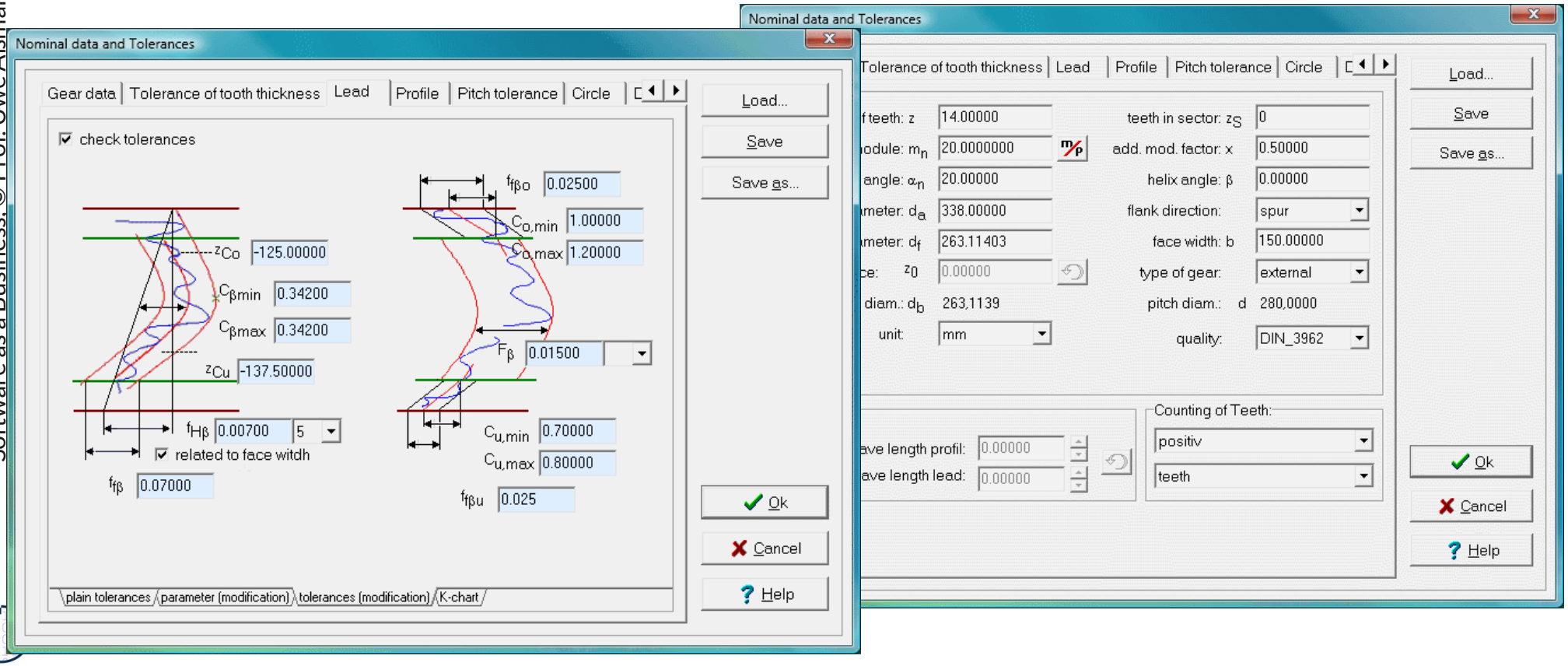
Tracetronic Customer Channels

- http://www.tracetronic.de/cms/data/docs/pdf/Datenblatt_ECU-TEST.pdf
- Tracetronic is a domain-specific company (automotive domain)
  - supplier to big car OEM (such as BMW)
  - It collaborates with other suppliers, such as ETAS or Vector
  - Many adaptors to other tools

Domain-specific products and product lines fill a domain-specific need (a need of a domain-specific customer segment)!

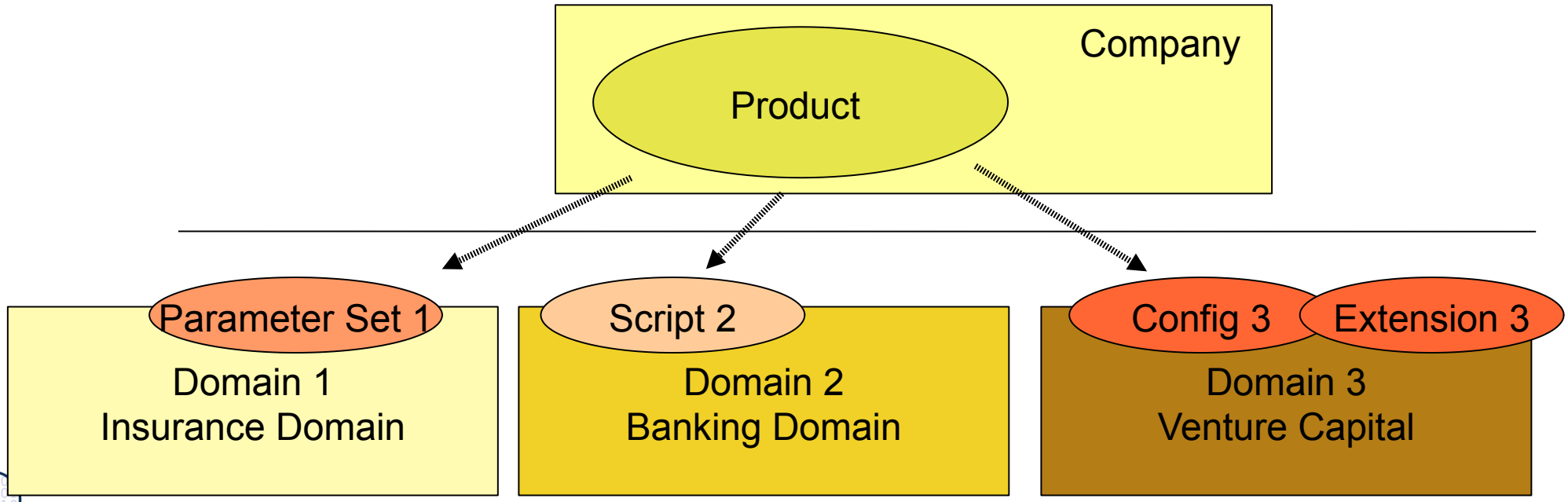
Carl Zeiss Innovationszentrum für Messtechnik
Product: ZEISS Involute

- Dresden product for data analysis of gearwheels, e,g. wind power plant gearwheels
- First ZEISS software product, more than 100k customers worldwide
- http://www.zeiss.de/izm/involute.html
- Every year, ZEISS Dresden sponors the Diplompreis Informatik for the department:
- http://www.zeiss.de/izm/diplompreis.html



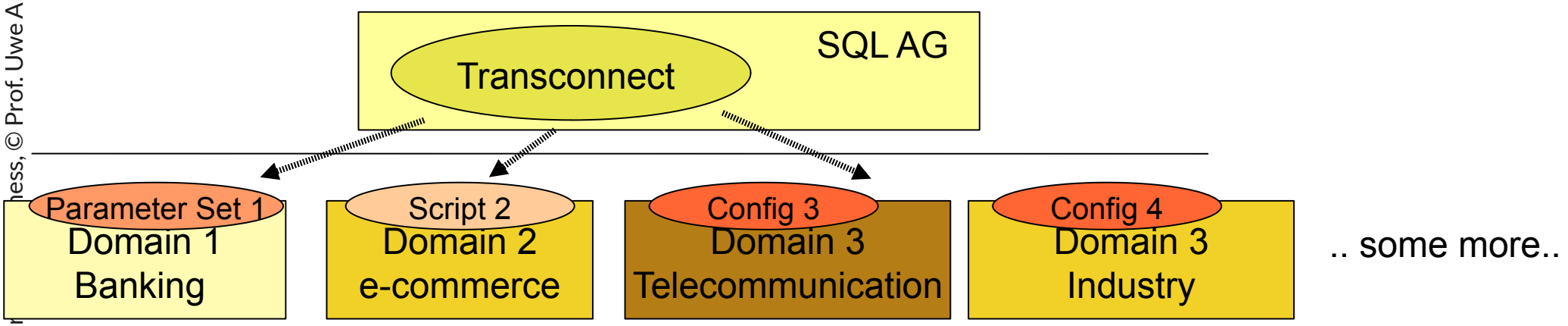
Business Model
“Parameterizable Domain-Portable Technical Product”

- Produce your product for several domains
- Make it **parameterizable, customizable, extensible (by experts of different domains)**
  - Offer a domain-unspecific scripting language
  - A *technical component model*
- Problems: hard to sell, because customers appear in different domains (no closed customer group
  - CRM is very important to memorize the details of the customer



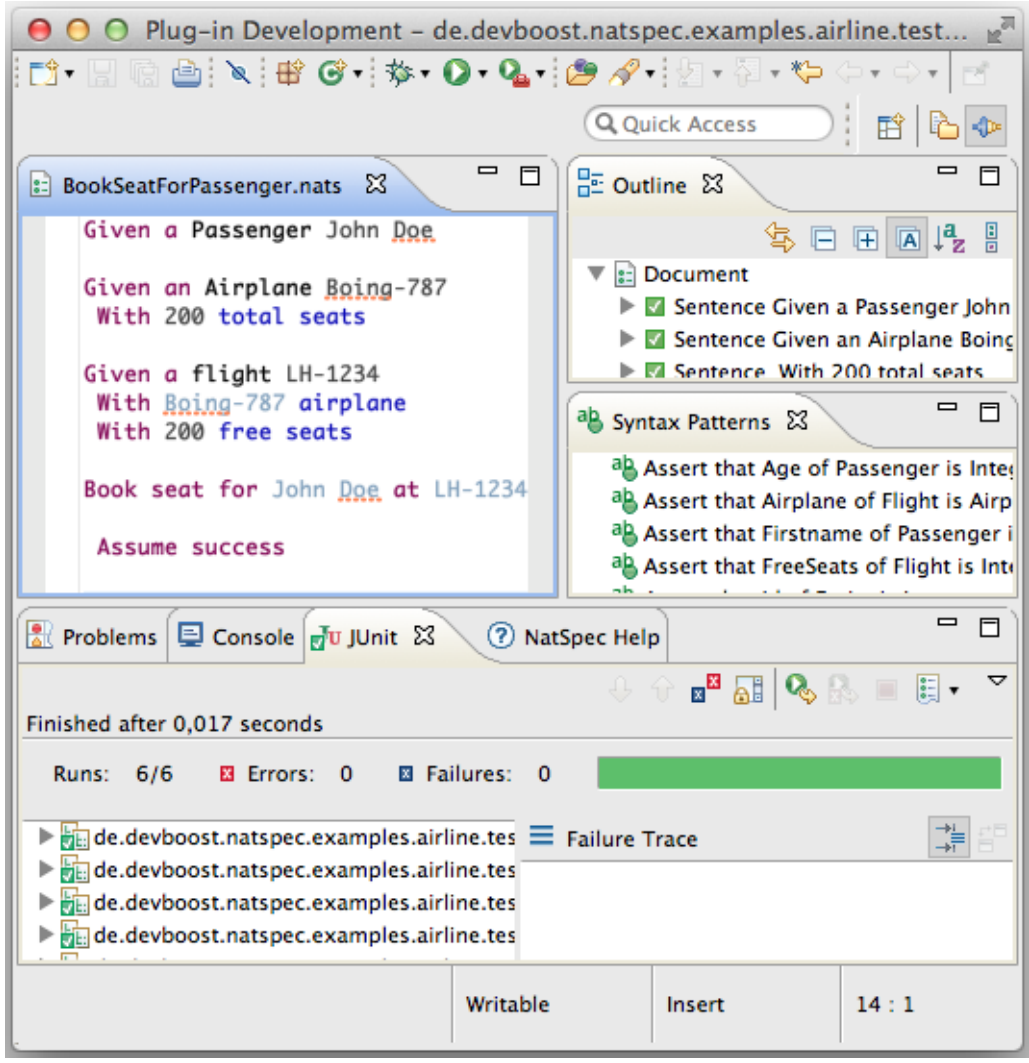
SQL AG Transconnect Integration Suite

- http://www.sql-ag.de/transconnect.html Dresden, Franklin-Strasse
- Non-domain-specific, technical product: can be applied in many domains
  - Does not imply a domain-specific customer binding
- Data connector (integrator) between systems; many adapters



NatSpec Testing Tool (Template-Based Domain Porting)

- http://www.nat-spec.com/ Specifying tests in semi-natural language
- Generation of test cases
- Agenda for instantiation in a domain:
  - Domain-specific template sentences
  - Mapping to generic test cases
- http://www.nat-spec.com/downloads/NatSpec_GettingStarted_2.2.5.pdf
- Startup DevBoost www.devboost.de



The End

- Explain the business model “domain-region service matrix”
- Explain the steps how to arrive from a product to an extensible product
- Explain how the BMC and the LeanCanvas help to find customer segments for a product line
- Compare the concepts of a Product Line, Product Matrix, and a Product Cube
- Explain how the products of a product line can be assessed with the BMC assessment process