

Economic Justification of SOA

Key Results of Joint SAP/University of St. Gallen Research Study



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Institute of Information Management



University of St.Gallen

THE BEST-RUN BUSINESSES RUN SAP™



Agenda



1. SOA Drivers and Adoption
2. Study Set-up and Business Case Framework Approaches
3. Customer Examples
4. Summary

Business Needs in the New Reality

Minimizing Risk While Enabling Agility

SAP



The right strategy . . .

- Process innovation enabling strategic business agility
- Based on collaborative business networks

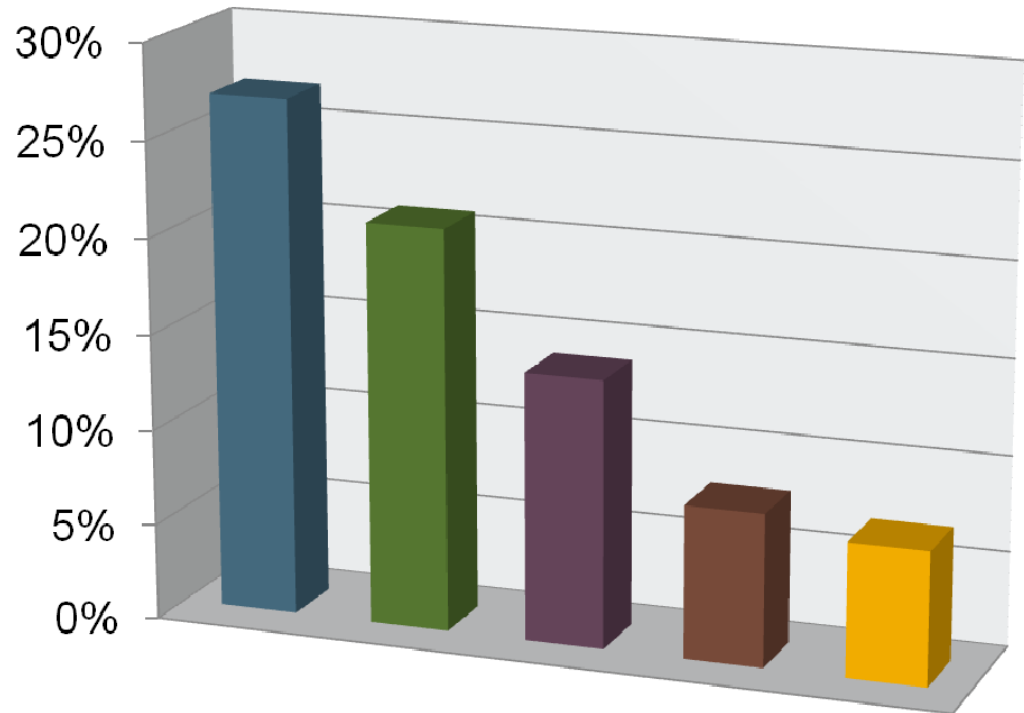
. . . Adapted to the new reality

- Short-term cost reduction
- Identification of opportunities
- Speed of execution and fast ROI



SOA Check 2009

- Higher flexibility
- Process optimization
- Reduced time-to-market
- Higher innovation rate
- Increase in productivity

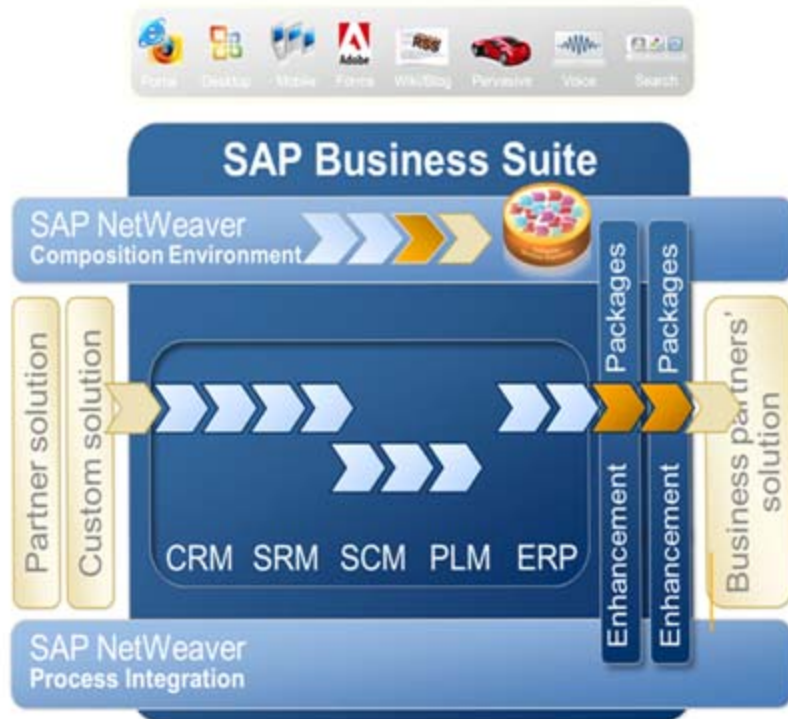


Source: W. Martin, SOA Check 2009

Drivers for SOA remain relevant as well in the current economic environment

Strong SAP Momentum

One SOA Infrastructure for Best Practice and Own Practices



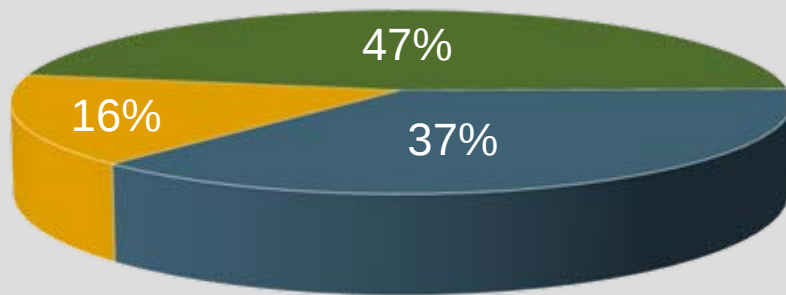
- Service-enabled SAP Business Suite
- 13,600+ ERP 6.0 customers, thereof 9,400 productive (+84% yoy)
- 52,300+ productive SAP NetWeaver systems (+47%)
- 2,800+ ready-to-run services
- 1,000+ SOA roadmaps completed
- 3000+ people trained on SAP Discovery System (pre-installed SOA system landscape shipped in a box)
- 330+ SOA reference accounts
<http://www.sap.com/platform/soa/customers/index.epx>

SAP delivered on it's SOA Roadmap

Overall SOA Adoption



SOA Check 2009¹ (Sample: 111 in GER, AT, CH)



- Already using SOA
- Planning to use SOA
- No SOA activities planned

1) Source: W. Martin, SOA Check 2009

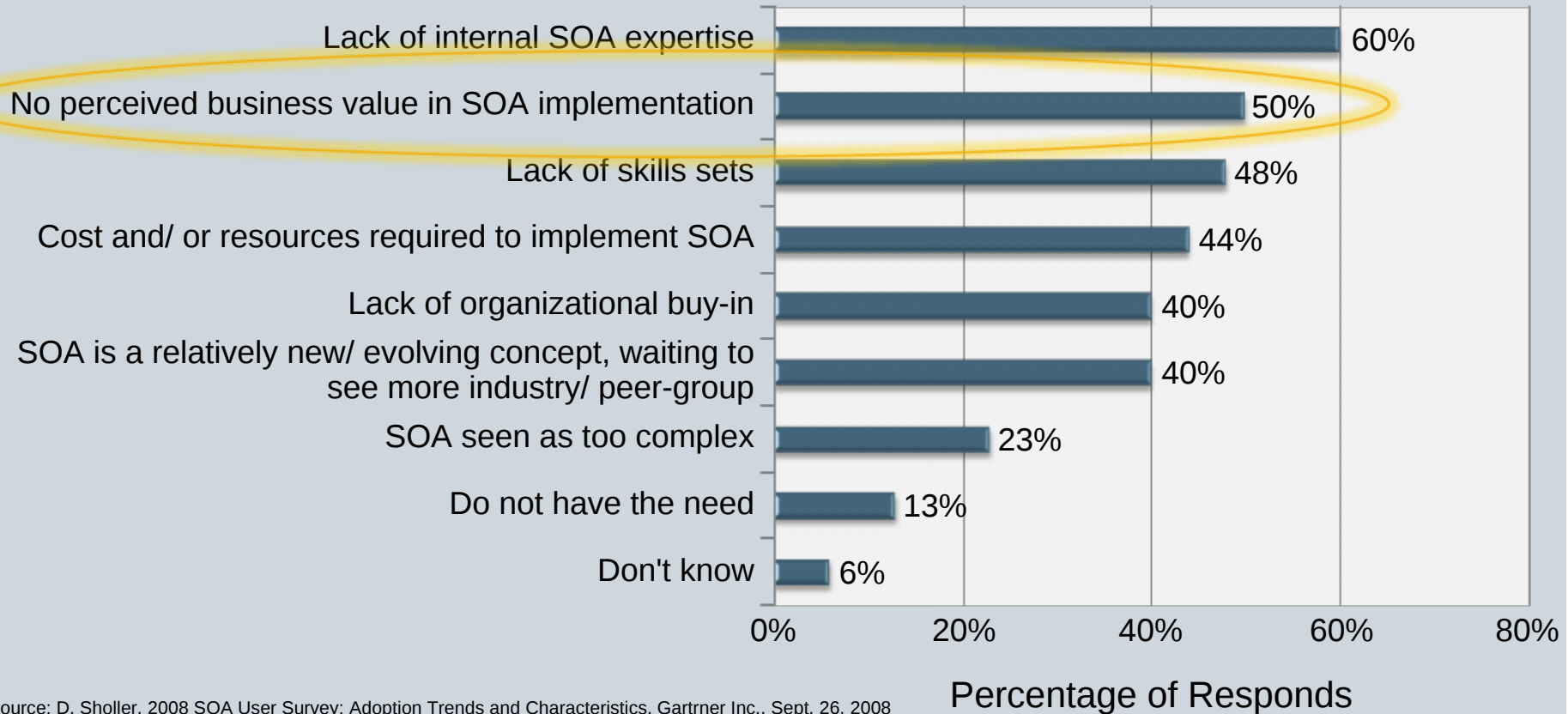
Gartner: 2008 SOA User Survey² (Sample: 200 Worldwide)

„Fifty-three percent of the respondents were already using SOA in some part of their organizations. Another 25% were not using it but had plans to do so in the next 12 months. Sixteen percent had no plans to use SOA at all.“

2) Source: D. Sholler, 2008 SOA User Survey: Adoption Trends and Characteristics, Gartner Inc. Sept. 26, 2008

Despite the current economic situation and some single analyst statements SOA has become mainstream

Why doesn't your organization currently use or plan to implement SOA in the next 12 months?



Source: D. Sholler, 2008 SOA User Survey: Adoption Trends and Characteristics, Gartner Inc., Sept. 26, 2008

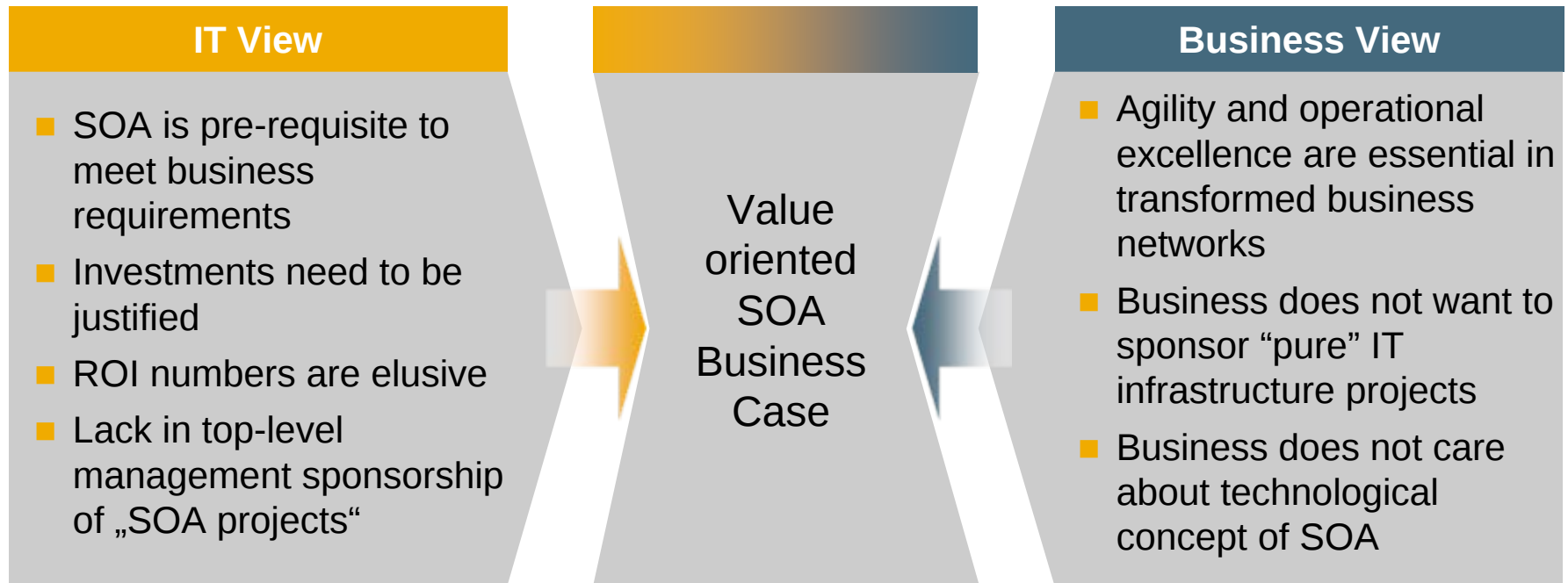
“However, conversations with many clients in this state have shown that there is a great deal of confusion about how to construct a business case for SOA”

Gartner Inc. “2008 SOA User Survey: Adoption Trends and Characteristics” by Daniel Sholler, Sept. 26, 2008

Motivation: Why SOA Business Cases



IT is often lacking in quantifiable benefits to communicate value to the business



A value oriented SOA Business Case bridges the Business / IT gap
-> get commitment and sponsorship

Situation as of Today

- **Observation:** in the market: many SOA Projects start without a Business Case
- Focus mostly on “learning” the new technology / addressing specific but isolated pain point
- **BUT:** Need for proving value increases rapidly along further SOA adoption
- **Assumption:** There is a difference regarding methodology, structure and tools for SOA business cases compared to traditional business cases for IT projects



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Goal of the study:

- Start with a generic **Framework for SOA Business Cases**
- **Customer Validation and Benchmarks**
(as “reusable” basis for SOA projects, benchmarks and marketing activities)

Setup of the study:

- 2 phased approach:
 - Focus on framework validation
 - Focus on quantitative benchmarks
- Covering enterprise SOA and “plain vanilla” SOA approaches

Participating Companies

CREDIT SUISSE

e-plus⁺



City of Hagen

Different Maturity Levels

- All maturity stages covered from introduction (proof of concept) to strategically deployed (SOA Infrastructure)
- Range from 100 – 2000 deployed services

Strategic Benefits

- **Landscape Modernization**
(e.g. new consolidation/integration strategies, TCO reduction)
- **UI Simplification** (better usability, self-service, UI individualization)
- **Real Time Business Networks**
(faster and more efficient integration of business partner)
- **Individual Adoption Strategy**
(Platform decision, Sequential optimization business scenarios)

Strategic Benefits

- IT productivity increase
- Improve user productivity
- Increased flexibility enables faster process optimization (automation, innovation)
- Faster time-to-market
- Compliance
- Facilitation of post-merger integration
- Higher transparency
- Shared Services offering

Different SOA Business Case Approaches Based on Customer Interviews



Study results show two different approaches of economic justification of SOA

IT-Centric Approach:

Focus:

- Business case mainly covers IT-related measures like IT infrastructure and organization

Key Drivers:

- “Reuse of services” as the most relevant driver for savings
- Focus on IT efficiency gains like reduced software development cost and reduced software development time

Conclusion:

- Missing connection between business and IT – SOA benefit hard to communicate

Business-Driven Approach:

Focus:

- Enhancing IT-centric approach in showing proven quantifiable benefits on IT and business side

Key Drivers:

- As a result, the business case was extended beyond “just” SOA
-> business process platform business case
- Comprises IT, business process and strategic benefits

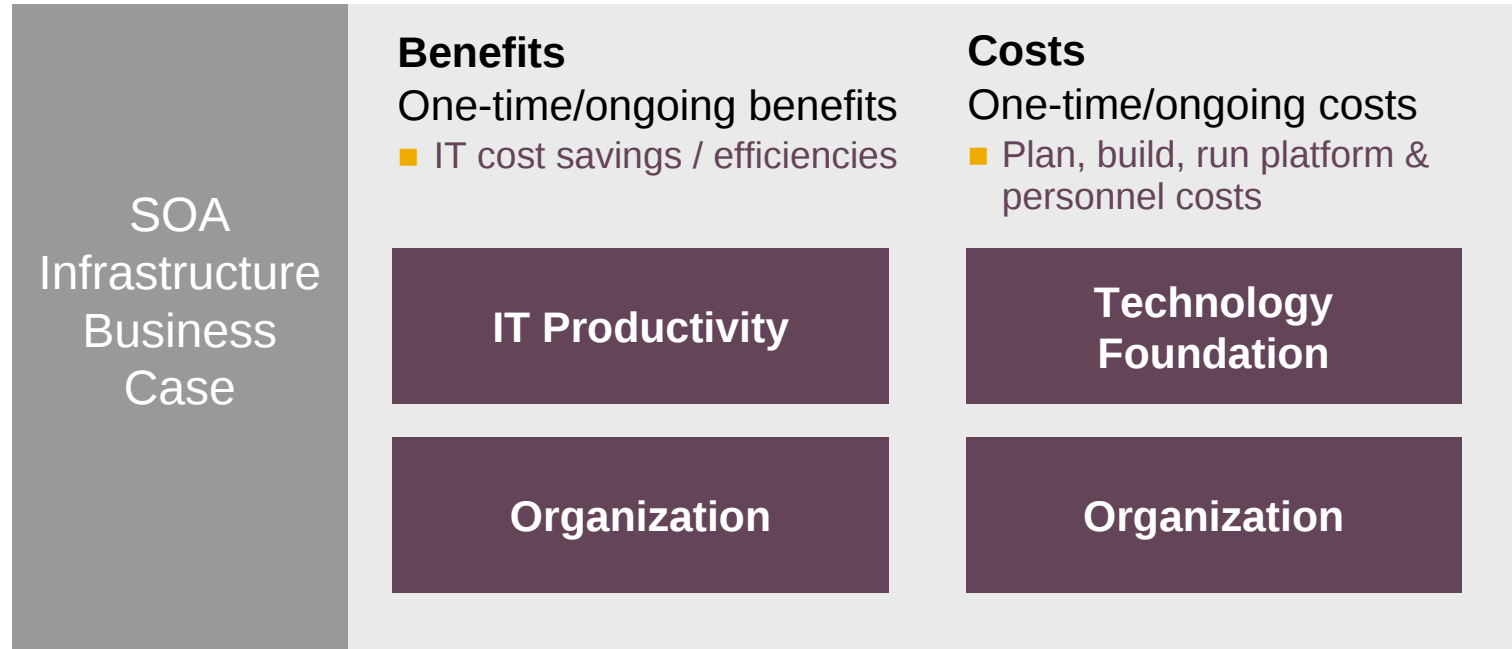
Conclusion:

- Strong involvement of LOBs - expected value of SOA clear on business and IT side

All SAP customers in the study turn out to pursue the business-driven approach

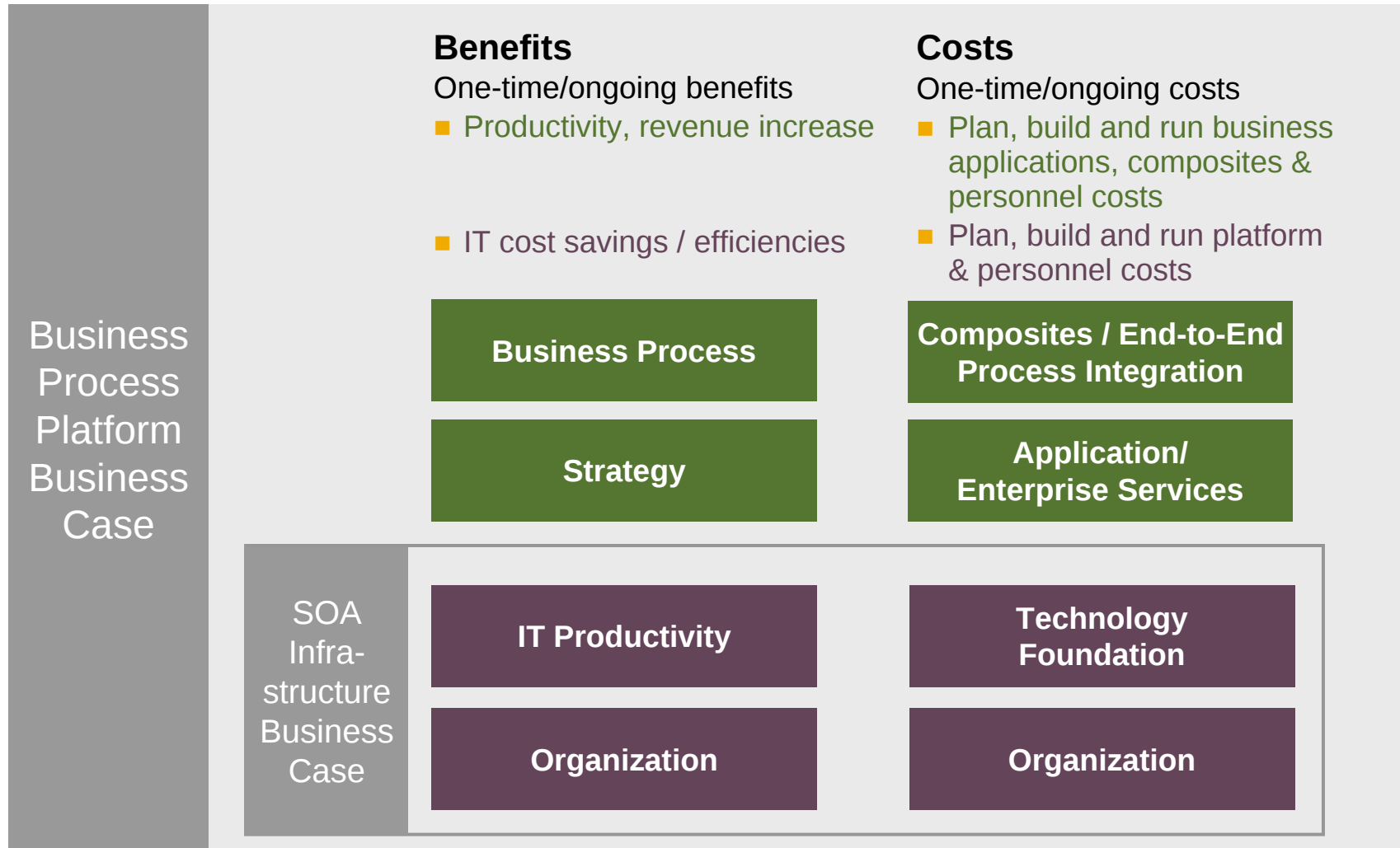
SOA Infrastructure Business Case Framework

→ IT-Centric Approach



- SOA is an IT topic -> business case covers mainly IT related measures (infrastructure / organization)
- “Reuse of services” is the most relevant key driver for savings
- Focus on efficiency gains like reduced software development cost, reduced software development time

Business Process Platform Business Case Framework → Business-Driven Approach



- Business-driven approach extends the **IT-centric approach** by the business view

Benefit and Cost Structure Drill Down to Quantitative Measures

Examples of Quantitative Measurements

Benefit Metrics and Customer Examples

Benefit Category –
e.g. Business Processes

Subcategories
e.g. Business
Process Productivity

Benefit Categories	Examples of Quantitative Measurements	Benefit Metrics Examples and Customer Examples
Business process productivity	Process efficiency and user productivity gains through increased process automation, iterative process refinement through decoupling from applications and standardized integration capabilities, and user interface simplification	Suitable benefit metrics: - Personnel cost reduction for specific business processes - Decrease in cost per transaction - Less manual effort and higher automation rate Study customer experiences: 16% productivity increase due to reduction in required resources for customer service - Increased process efficiency of 10% to 30% due to consistent data and role-specific process design Additional SAP reference customer experiences: - Wholesale distribution company: 50% time savings on service-request data entry due to self-service; capacity to handle 30% higher volume of service requests without additional headcount - Oil and gas company: 3% reduction of overall procurement cost due to consistent data and reduction in complexity of business operations
Business process quality	Well-defined interfaces, standardized access, and better process visibility leading to increased process quality with reduced error rate and faster process execution time	Suitable benefit metrics: - Reduced costs in troubleshooting and exception handling - Reduced QA efforts - Reduced number of errors/exceptions times costs per error/exception - Higher revenue due to better customer service Study customer experiences: - Process execution time reduced from 8 days to 60 seconds via new self-service with reduced error rate Additional SAP reference customer experiences: - Consumer products company: order fulfillment accuracy improved 95% to 99.8%, which led to a 50% QA labor reduction



ECONOMIC JUSTIFICATION OF SERVICE-ORIENTED ARCHITECTURE

RESEARCH STUDY: EXPERIENCES AND GUIDELINES
ON BUILDING SOA BUSINESS CASES

- ➔ Homogenous Framework for Business Case:
Based on results in phase definition of benefit and cost categories
- ➔ Benchmarks: along defined framework to be gathered in phase 2 of this study
- ➔ Study available for download: <http://www.sap.com/platform/soa/index.epx>

Identified Quantifiable IT-Productivity Benefits of SOA



Benefit Category

■ Development efficiency/ reusability

E.g. less interface and functionality development efforts leading to shorter project time, lower project costs, and less testing costs due to reduced dependencies

■ Operations/maintenance efficiency

E.g. operations cost reductions and reduced maintenance costs due to consolidation of interfaces, less user support due to UI simplification and empowered users

■ Application life-cycle extension

E.g. cost avoidance of new applications due to extended application lifecycle by wrapping of legacy functionality and reuse in new processes

■ Consolidation

E.g. reduced cost by leveraging existing assets and avoiding additional maintenance costs for new equipment

Development/test cost reduction due to reusability of services

■ Suitable benefit metrics:

- Percentage of overall development costs
- Amount of reusable services x reusability factor x development costs

■ Study customer experiences:

- 10% overall development cost reduction
- Highest reusability factor of 4 led to 35 Mio. EUR savings
- Percentage of reusable services 50-70%
- 20-30% shorter project duration

Identified Quantifiable IT-Organizational Benefits of SOA



Benefit Category

■ User interface simplification

E.g. reduced training costs, fewer skilled employees, and a shift from power user to front-office agents because of simpler and unified UI using Web services

■ Future proof

E.g. access to cheaper open market skills and less external consultancy services by using open standards for the enterprise as a whole

User interface simplification by using Web services:

■ Suitable benefit metrics:

- Reduced user training costs
- Increased user productivity
- Decreased costs per transaction

■ Study customer experiences:

- Customers confirmed that benefit item. However, calculation of user productivity gains are only possible to calculate in a specific business process context within a business driven approach

Identified Quantifiable Business Process Benefits of SOA



Benefit Category

■ Business process productivity

E.g. process efficiency and user productivity gains through increased process automation, iterative process refinement through decoupling from applications and standardized interface simplification

■ Business process quality

E.g. well-defined interfaces, standard based access for users, applications and better process visibility lead to increased process quality with reduced error rate and faster process execution time

■ Innovation

E.g. higher product, service, and process innovation rate due to possibility of sequential innovation and access to alternative process steps, different roles, or multiple channels

■ Insight

E.g. less data collection and reporting effort due to multi-source data and information

Business Process Productivity Increase:

■ Suitable benefit metrics:

- Personnel cost reduction for specific business processes
- Decrease in cost per transaction
- Higher revenue due to better customer service, ...

■ Study customer experiences:

- 16% productivity increase due to reduction in required resources for operating a customer service
- Increased process efficiency between 10% and 30% due to consistent data and role specific process design

Identified Quantifiable Strategic Benefits of SOA



Benefit Category

■ Business network transformation

E.g. new revenue/higher profit via new business model in a transformed business network

■ Time to market/time to scale

E.g. shorter period of time from product/service idea to market launch

■ Mergers and acquisitions/divestitures

E.g. speed up M&A activities, easier outsourcing/ in-sourcing and thus better negotiating position

Business Network Transformation:

■ Suitable benefit metrics:

- Increased revenue x EBITDA margin
- Cost reduction (e.g. production, distribution costs etc.)
- ...

■ Study customer experiences:

- Integration of a new business process outsourcing partner from more than 3 months to 6-8 weeks

Establish Customer Portal for Vendor-Managed Inventory – K+S Group



Change in the Salt and Fertilizer Industry

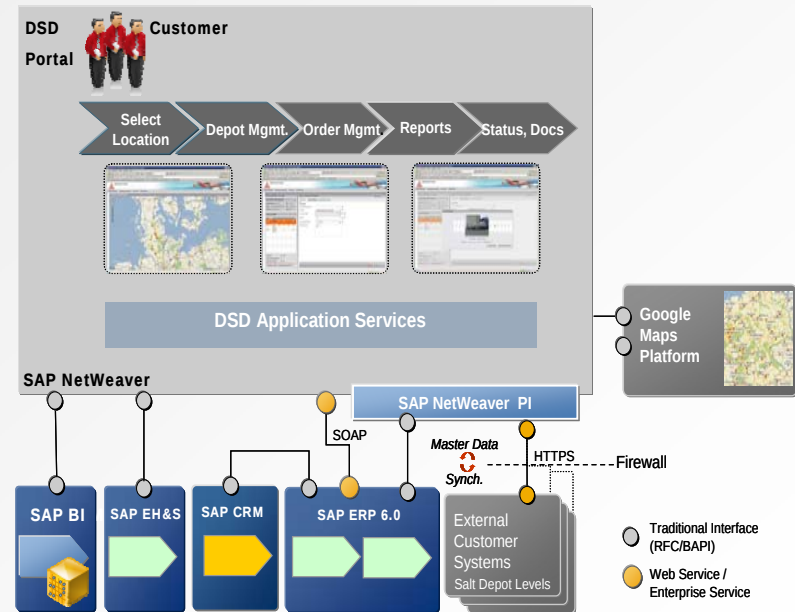
- Emerging economies change the competitive landscape in the salt business
- Customers demand fair prices and in-time delivery of salt goods



Implement leading edge customer portal

- Tailor and personalize (self-) service offerings for customers
- Provide customers with an insight into the order progress and associated documents
- Include Google Maps services into the application to enrich usability throughout the salt ordering process

SOA allows data mash-ups to realized enriched end-to-end business scenarios



SOA Value Delivered

- SOA helps K+S to overcome process gaps in order to streamline customer relationship processes
- SOA also allows better transparency and manageability for DSD throughout their replenishment processes. E.g. integration of customer systems via Web services for automatic order proposal when the stock falls below the critical level
- Web services are used to combine the Google Maps UI with customer data about salt depot locations
- Leverage SAP's enterprise services for lowering TCO

Transport Companies Need to Be More Efficient – EMT Madrid (Public Transport)



Change in Public Transport

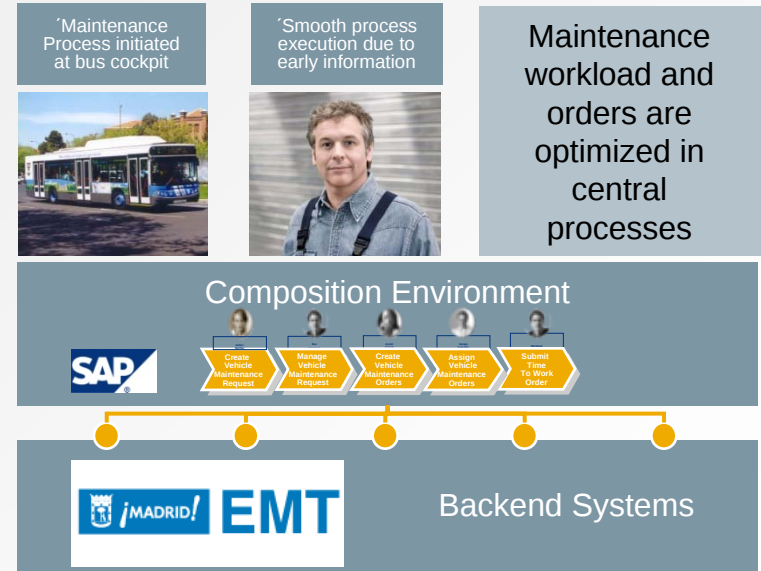
- Rising costs, especially for fuel, put transport companies under pressure
- Transport companies need to make their business processes more efficient to save as much resources as possible
- Cost efficiency is important when reporting to local government about usage of public funds



EMT Madrid straightens maintenance process

- Garage utilization optimized lowering costs
- Resources are adjusted much faster where they are needed
- Important time reduction on incident resolution

Maintenance process is executed more effective due to better preparation with information right from the street



SOA Value Delivered

- Access to SAP Maintenance, Warehouse, Inventory and Purchasing functionalities from various systems
- Efficiency improvement: critical business processes automation and centralization
- Low implementation costs due to usage of standard services provided by SAP

SOA Infrastructure Business Case



Impact Estimation	Y 1	Y 2	Y 3	Y 4	Y 5	Sum
Development (Systems/Interface) Cost Savings	\$	\$	\$	\$	\$	\$
Operational Cost Savings	\$	\$	\$	\$	\$	\$
Maintenance Cost Savings	\$	\$	\$	\$	\$	\$
Reinvestment Cost Savings	\$	\$	\$	\$	\$	\$
External Cost Savings	\$	\$	\$	\$	\$	\$
...	\$	\$	\$	\$	\$	\$
Total Cash Inflow	\$	\$	\$	\$	\$	\$
Cost Estimation	Y 1	Y 2	Y 3	Y 4	Y 5	Sum
Hardware Costs	\$	\$	\$	\$	\$	\$
Implementation Costs	\$	\$	\$	\$	\$	\$
Hardware Costs	\$	\$	\$	\$	\$	\$
Operational Costs	\$	\$	\$	\$	\$	\$
Governance Cost (Services)	\$	\$	\$	\$	\$	\$
Change Management Costs (IT Organization)	\$	\$	\$	\$	\$	\$
...	\$	\$	\$	\$	\$	\$
Total Cash Outflow	\$	\$	\$	\$	\$	\$
Net Cash Inflow – Realistic Case	-\$	-\$	-\$	-\$	\$	\$
Net Present Value - Realistic Case	\$					

- **IT Infrastructure Business Case with SOA specific IT benefit and cost items**
- **SOA savings:** Δ to traditional architecture, methods, ...
- **SOA costs:** SOA specific TCO calculation
- 5 years time period, ROI not before 3 years
- Cost over benefit ratio increases with amount of services and service reusability

Discounting: discount rate x%

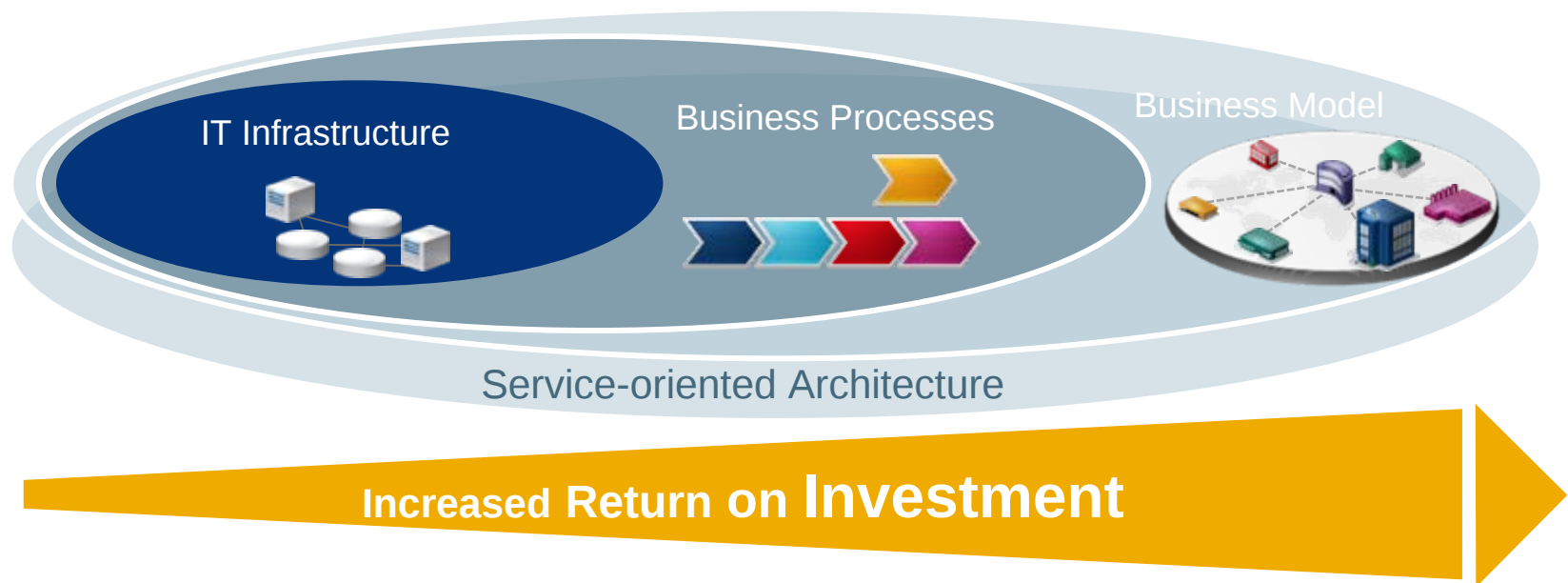
Business Process Platform Business Case



Impact Estimation	Y 1	Y 2	Y 3	Y 4	Y 5	Sum
Impact of SOA Infrastructure Business Case	\$	\$	\$	\$	\$	\$
+						
Business Process Productivity Increase	\$	\$	\$	\$	\$	\$
Re						
Co						
Re						
Re						
Re						
...						
Tot						
Co						
Co						
Application Software, Composite, Enterprise Services Invest	\$	\$	\$	\$	\$	\$
Implementation (Process Design, PM, Test, Training, ..)	\$	\$	\$	\$	\$	\$
Application Software Ongoing Cost and Operations	\$	\$	\$	\$	\$	\$
Governance Cost (Business Process Management)	\$	\$	\$	\$	\$	\$
Change Management Costs (Organization)	\$	\$	\$	\$	\$	\$
Total Cash Outflow	\$	\$	\$	\$	\$	\$
Net Cash Inflow – Realistic Case	-\$	-\$	\$	\$	\$	\$
Net Present Value - Realistic Case	\$					

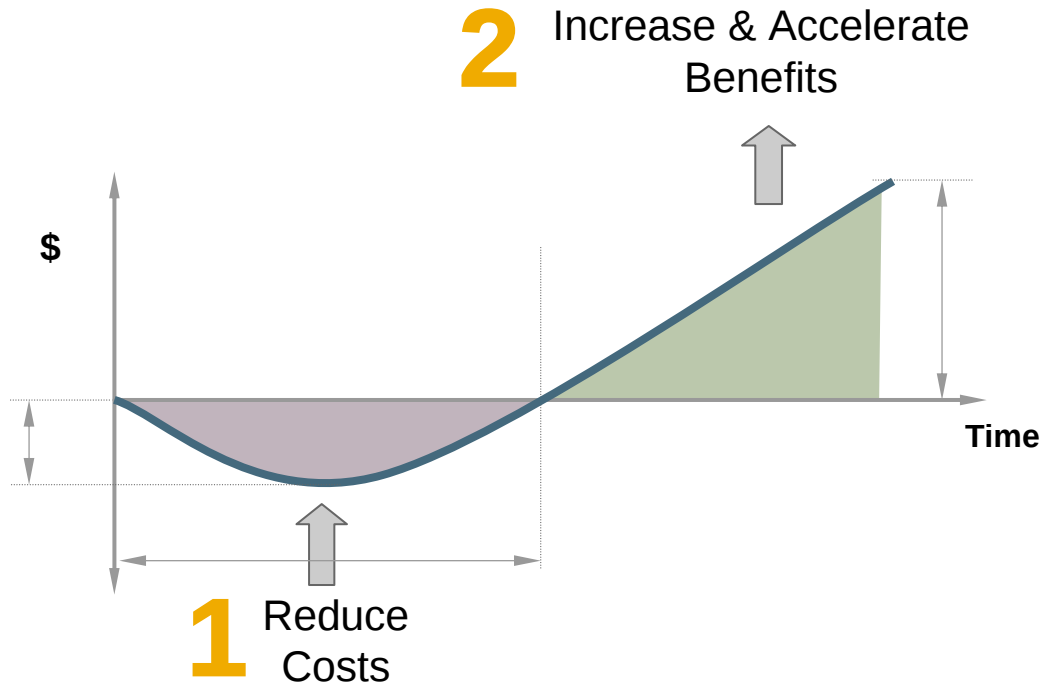
- **Business driven approach enriches IT centric driven approach by business view**
- **Business view:**
 - **Benefit side:** business process, strategic benefits
 - **Cost side:** application/composite, business process platform costs
- First Projects are relatively stronger charged with platform costs than following projects
- Time-to-benefit increases with every business optimization project

Discounting: discount rate x%



Most of the participating companies opt for an integrated business-driven approach covering IT and business benefits because they expect or have already experienced an increased ROI

How SAP's Approach to SOA Improves Return on Investment



- **Compose and orchestrate new business processes** re-using SAP's industry rich platform and best practices across 25 industries
 - **Simplification and role-specific processes** for business (not power-) users
 - **Manage & deliver information** with built-in analytics for performance and governance
-
- **Built-in business logic and semantics** of productized enterprise services can be accessed and used repeatedly in business processes
 - **Consistent integration concept** (A2A, B2B, UI) to leverage SAP, partner and home-grown solutions
 - **Consolidate & govern IT** using an ecosystem of solutions and one natively integrated open platform

“

Enterprise SOA allows us to drive flexibility and efficiency into our processes. We are now able to provide improved public services and achieve higher efficiency at the same time. For us, **enterprise SOA** is not only a technology concept but really **has strategic relevance for our business.**”



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“

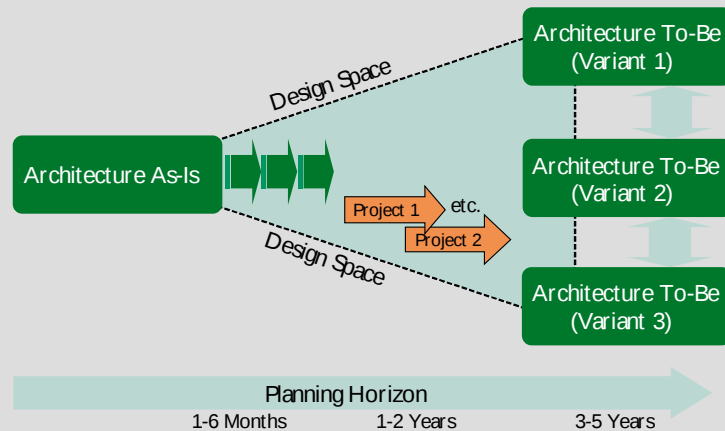
Service Oriented Architecture is a powerful concept that allows us to **increase our productivity dramatically**. We achieve **10-20% savings in operations** cost and **20-30% shorter project durations** within our IT, sometimes even more. Nevertheless this is only one side of the medal. The major benefit of SOA unfolds on the business process side. We achieve **increased process efficiency between 10% and 30%** and also benefit from improved process quality due to consistent data and role specific process design. This is only possible if you closely align your IT with the business and design services along process needs. **SAP's concept of built-in business semantics into enterprise services is exactly the way how to guarantee this.**”

The Hubert Burda Media logo, featuring the text "Hubert Burda Media" in white on a blue background.

Competence Center Integration Factory Research Agenda



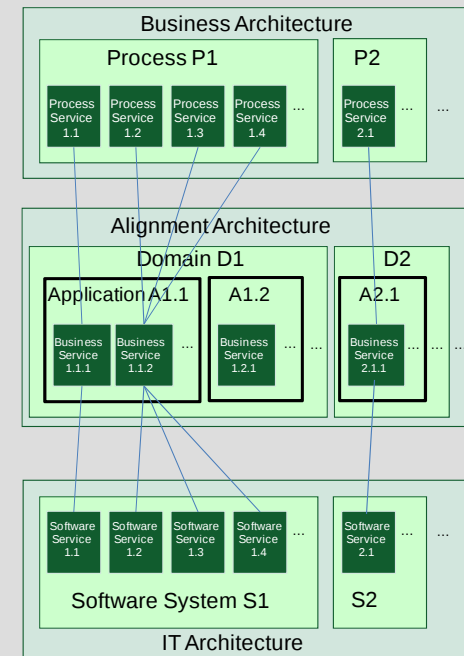
Architecture Planning and Development



Develop method support for

- Consistent modelling of dynamics in EA
- Time based analyses of EA
- Identification of necessary elements of time to be modelled in EA in a given situation
- Definition of change projects based on EA analyses

Service Maps



- Understanding goals in different service categories
- Understanding impact on design strategies
- Understanding the role of structural elements, e.g. Alignment Architecture for agility and sustainability of the entire EA/SOA



For the majority of the participating companies investment decisions were not only based on ROI calculations. The strategic dimension and benefits of SOA investments were a strong driver as well

Nevertheless there is a strong and increasing need on customer side for suitable and significant IT and business benefit metrics to justify SOA investments

Most of the participating companies opt for an integrated business driven approach covering IT and business benefits. SOA cost and benefits as part of a broader business process platform business case



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