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

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1. SOA Drivers and Adoption

2. Study Set-up and Business Case Framework Approaches

3. Customer Examples

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

Source: W. Martin, SOA Check 2009

- Higher flexibility
- Process optimization
- Reduced time-to-market
- Higher innovation rate
- Increase in productivity
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 2009\(^1\)
(Sample: 111 in GER, AT, CH)

Gartner: 2008 SoA User Survey\(^2\)
(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.”

1) Source: W. Martin, SOA Check 2009


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?

Lack of internal SOA expertise: 60%
No perceived business value in SOA implementation: 50%
Lack of skills sets: 48%
Cost and/or resources required to implement SOA: 44%
Lack of organizational buy-in: 40%
SOA is a relatively new/evolving concept, waiting to see more industry/peer-group: 40%
SOA seen as too complex: 23%
Do not have the need: 13%
Don’t know: 6%


“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”

Motivation: Why SOA Business Cases

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

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<th>IT View</th>
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<tr>
<td>- SOA is pre-requisite to meet business requirements</td>
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<td>- Investments need to be justified</td>
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<td>- ROI numbers are elusive</td>
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<td>- Lack in top-level management sponsorship of „SOA projects“</td>
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<table>
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<tr>
<th>Business View</th>
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<tr>
<td>- Agility and operational excellence are essential in transformed business networks</td>
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<tr>
<td>- Business does not want to sponsor “pure” IT infrastructure projects</td>
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<tr>
<td>- Business does not care about technological concept of SOA</td>
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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

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
## Study Participants

### Participating Companies

- Credit Suisse
- e-plus
- Bauer
- Hubert Burda Media
- 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

- **Benefits**
  - One-time/ongoing benefits
    - IT cost savings / efficiencies

- **Costs**
  - One-time/ongoing costs
    - Plan, build, run platform & personnel costs

- **SOA Infrastructure Business Case**
  - **IT Productivity**
  - **Organization**
  - **Technology Foundation**
  - **Organization**

- 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-driven approach extends the **IT-centric approach** by the business view.
Benefit and Cost Structure
Drill Down to Quantitative Measures

Homogenous Framework for Business Case:
Based on results in phase definition of benefit and cost categories

Benches: 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

<table>
<thead>
<tr>
<th>Benefit Category</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>User interface simplification</strong></td>
<td>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</td>
</tr>
<tr>
<td><strong>Future proof</strong></td>
<td>E.g. access to cheaper open market skills and less external consultancy services by using open standards for the enterprise as a whole</td>
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</table>

## 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

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<th>Benefit Category</th>
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<tr>
<td><strong>Business process productivity</strong></td>
<td>E.g. process efficiency and user productivity gains through increased process automation, iterative process refinement through decoupling from applications and standardized interface simplification</td>
</tr>
<tr>
<td><strong>Business process quality</strong></td>
<td>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</td>
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<tr>
<td><strong>Innovation</strong></td>
<td>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</td>
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<tr>
<td><strong>Insight</strong></td>
<td>E.g. less data collection and reporting effort due to multi-source data and information</td>
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**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

**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, ...
### Identified Quantifiable Strategic Benefits of SOA

<table>
<thead>
<tr>
<th>Benefit Category</th>
<th>Customer Examples</th>
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<tbody>
<tr>
<td>Business network transformation</td>
<td>E.g. new revenue/higher profit via new business model in a transformed business network</td>
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<tr>
<td>Time to market/time to scale</td>
<td>E.g. shorter period of time from product/service idea to market launch</td>
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<tr>
<td>Mergers and acquisitions/divestures</td>
<td>E.g. speed up M&amp;A activities, easier outsourcing/insourcing and thus better negotiating position</td>
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**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 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

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<thead>
<tr>
<th>Impact Estimation</th>
<th>Y 1</th>
<th>Y 2</th>
<th>Y 3</th>
<th>Y 4</th>
<th>Y 5</th>
<th>Sum</th>
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<tr>
<td>Development (Systems/Interface) Cost Savings</td>
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<td>Operations Cost</td>
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<td>Maintenance Cost</td>
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<td>Reinvestment Cost</td>
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<td>External Contractor</td>
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**Total Cash Outflow**

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**Total Cash Inflow**

**Net Cash Inflow – Realistic Case**

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<tr>
<td>Net Cash Inflow – Realistic Case</td>
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**Net Present Value - Realistic Case**

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**SOA Infrastructure Business Case with SOA specific IT benefit and cost items**

**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

- Impact of SOA Infrastructure Business 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

Cost Estimation

- 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

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

1. Reduce Costs
   - 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

2. Increase & Accelerate Benefits
   - 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.”

City of Hagen

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.”

Hubert Burda Media
**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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