

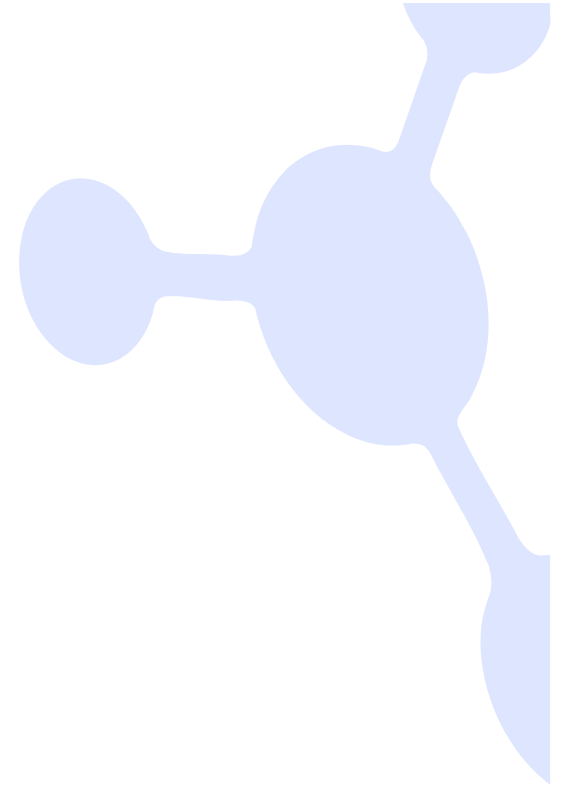


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eProcurement



Module outline

- **Why bother?** - Strategic role of procurement
- **What's so difficult?** - Critical procurement issues, such as transaction costs, control over procurement behavior, consolidation of orders and delivery, quality control, ...
- **Why the Web makes a difference?** Web/ networking fundamentals and dedicated procurement solutions (e.g. Ariba)
- **What are the options (and contingencies)?** - Business models for procurement, especially governance structures (market vs. hierarchy, long term contract vs. auction), role and of intermediaries, networking strategies

1 Why bother?

- Dominant business practice is to **focus** primarily on sales, marketing, and distribution
- In times when companies try to improve margins, people have realized that procurement is a major, often underestimated **cost driver**
- With a strong trend towards outsourcing, **dependence** on suppliers is increasing: availability of supplies, quality, partnerships in r&d
- **Electronic business** solutions can be extended towards procurement

Typical problems in procurement

Inefficient buying	Small numbers, urgent and costly requisitions, admin costs per order up to USD 100, lack of procurement policy
Redundant processes and allocation inefficiencies	Cumbersome requisition and approval processes, little IS support, long cycle times, over stocks and out of stock
Organizational conflict	Structural conflict between requisitioners and procurement office
Nonstrategic sourcing	Political decision making (collusion, bribes)

Contingencies: Factors that influence procurement

- Transaction characteristics (volume, specificity, uncertainty, information asymmetries, opportunism);
- Ratio of transaction & logistics cost/ product price;
- Level of expertise;
- Market structure: supplier concentration, level of buyer coordination, power;
- Governance structure: contractual arrangements, level of integration with supplier;
- Product structure ...

Characteristics of production vs. nonproduction related items

- Raw materials and components
 - Scheduled production runs
 - Professional procurement
 - No approval required
 - High degree of automation
 - Design-specification driven
- Operating resources, e.g. office and MRO supplies
 - Often ad hoc
 - Any employee is a potential requisitioner
 - Approval required
 - Little automation
 - Catalog driven

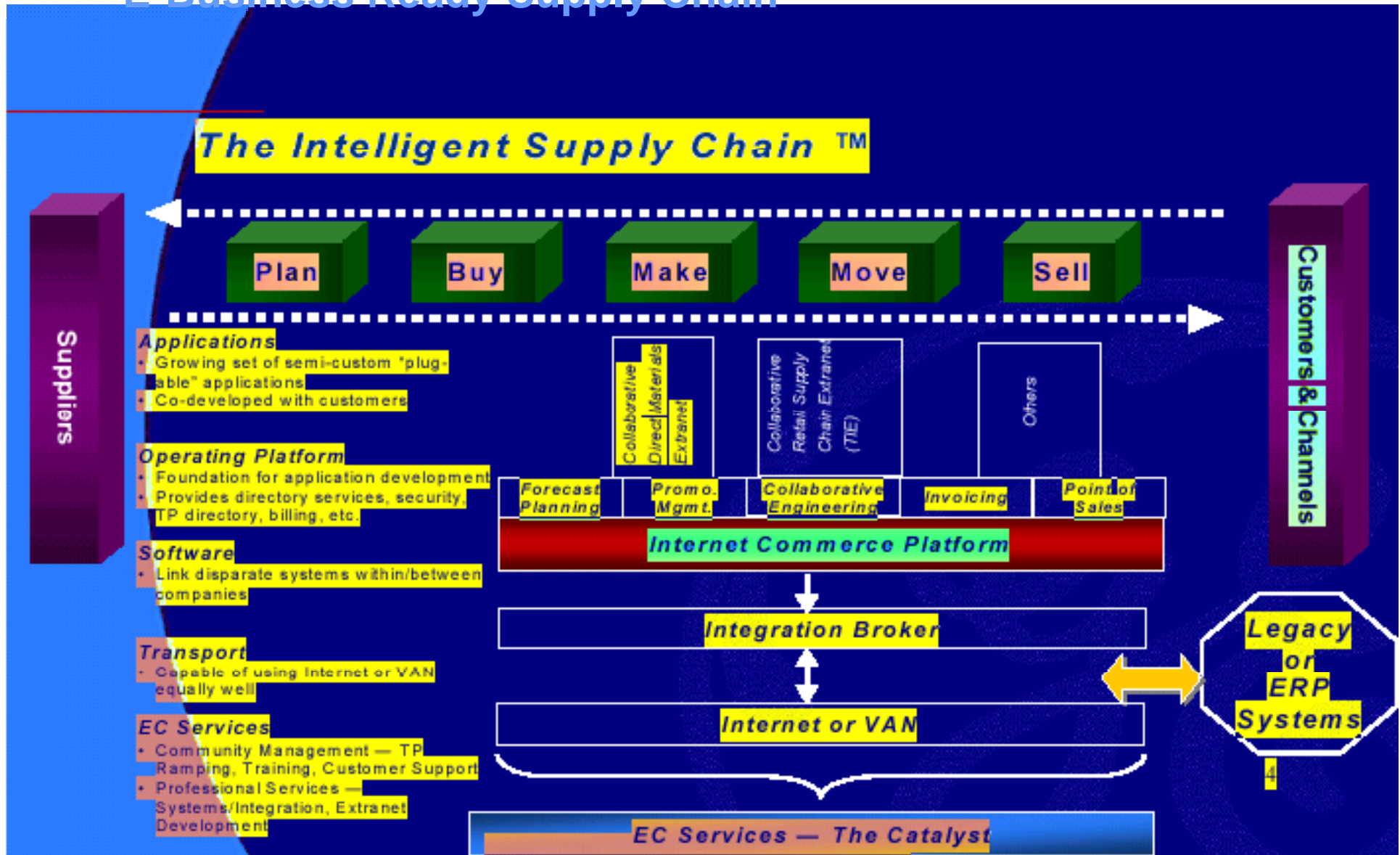


Supply chain
management



constitute up to 80% of orders
Focus of e-procurement

E-Business Ready Supply Chain



Source: GE Global Exchange Services

IOS lecture - 31: IT impact on governance structures.

Types and characteristics of operating resources

General and administrative products: office supplies	Low price, high transaction volume, relatively high admin and logistics costs
Office and computer-related equipment: hardware, software, networking, telco	Medium to high value, budget constraints, Technical product specifications
MRO: maintenance, repairs and operations	Critical for operations, careful tracking needed
Travel services	High value, budget constraints – expense tracking, multilevel approval process - cumbersome reimbursement

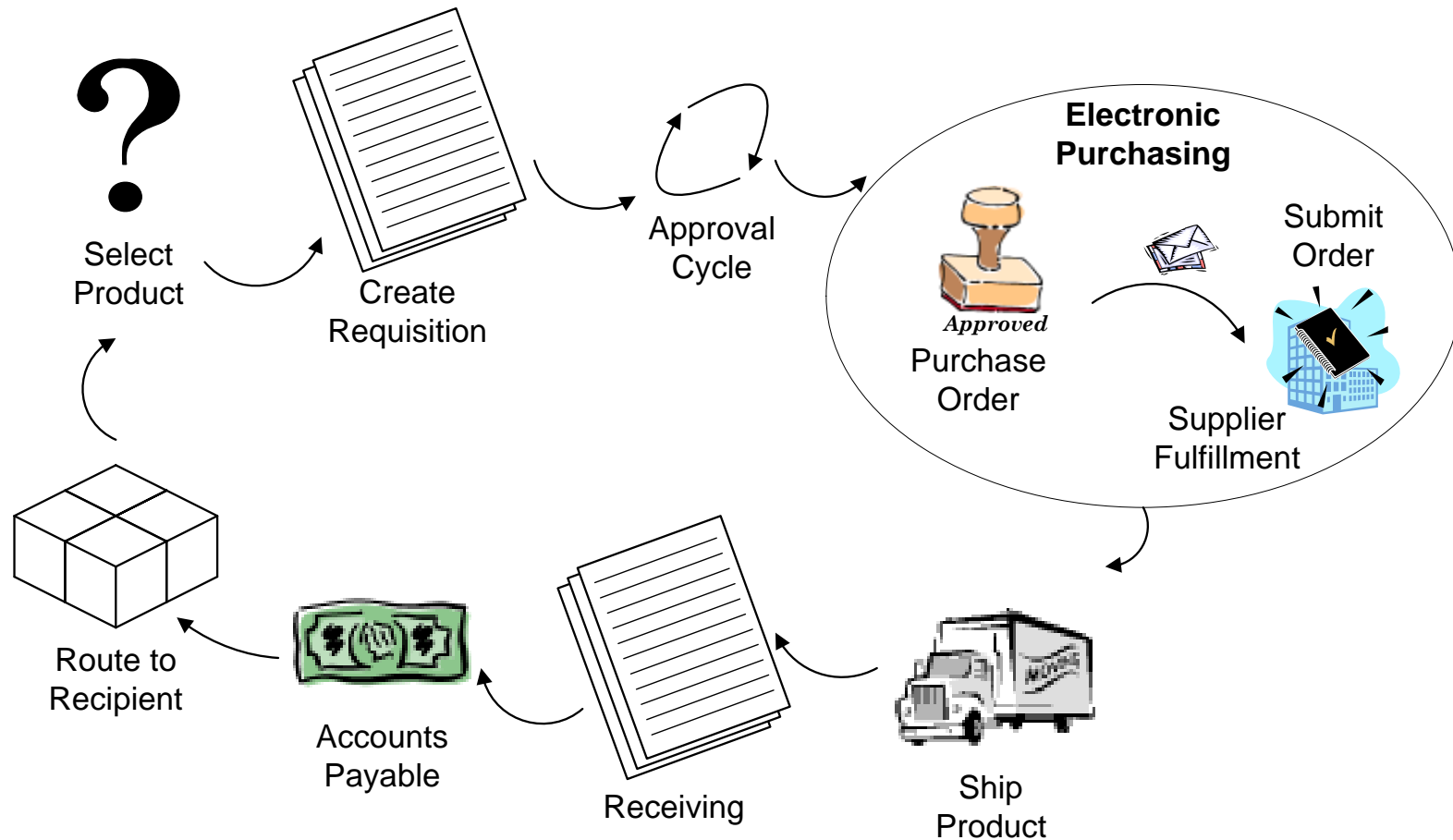
2 Challenges

- Overall high procurement volume, spread over a wide range of products, as diverse as a police car and office supplies.
- Some products are specific to the public sector (equipment for the fire brigade, police, cemeteries etc.).
- Expertise about products and suppliers is spread over a wide range of institutions.
- Procurement processes are typically inefficient.

What are potential remedies

- Reorganize the procurement process (role of requisitioners and procurement department, innovative scenarios such as continuous replenishment).
- Use IT for knowledge management, information access and comparison.
- Try to pool demand.
- Look for flexible pricing models.
- Look for an interorganizational solutions, e.g. procurement intermediary ...

The (e-)procurement cycle: a process view



Adapted from Kalakota; Robinson 1999, 234

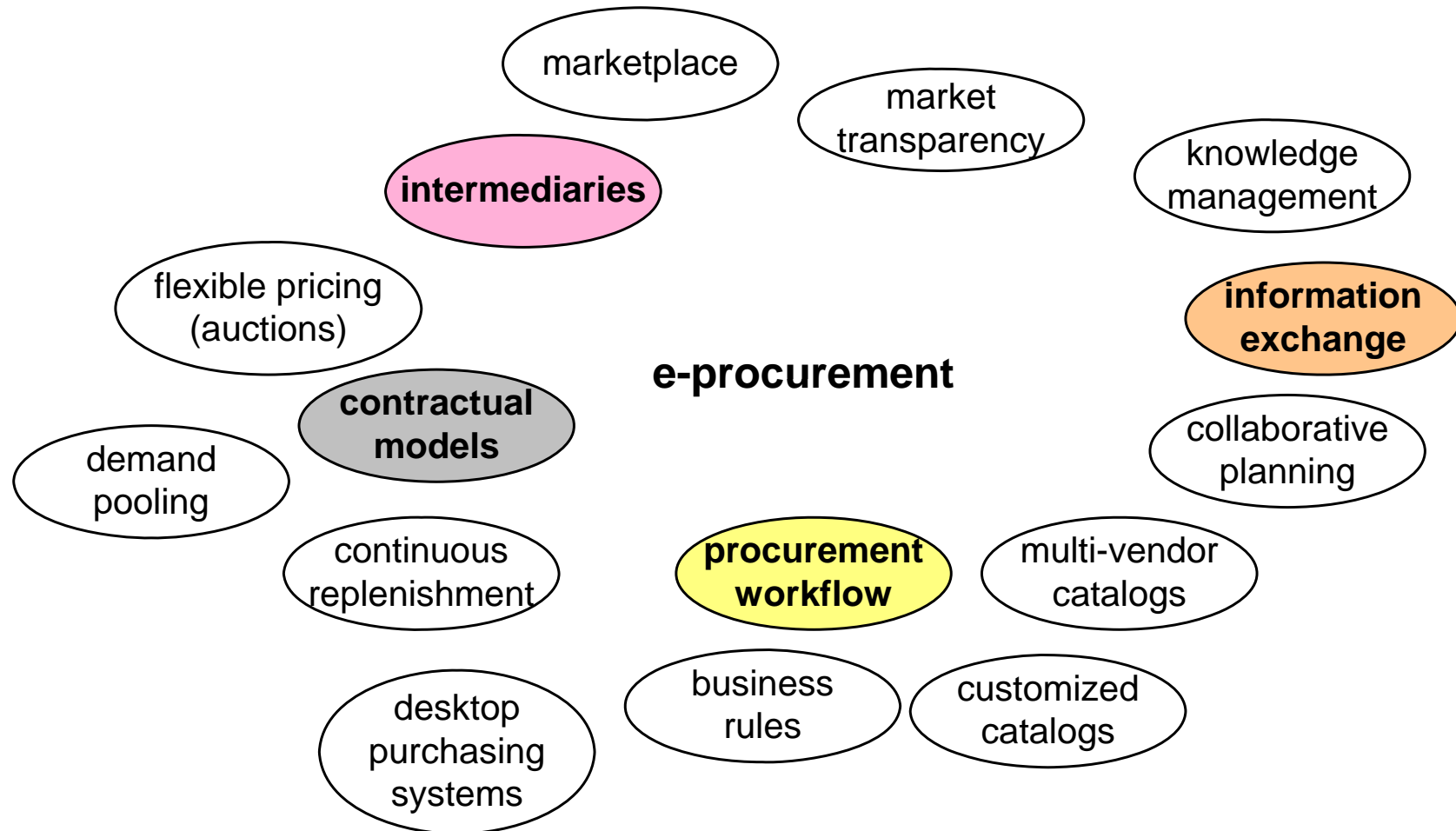
Functions to be addressed...

- Requisitioning
 - check employee's authorization
 - comparison of prices and quality of service (speed of delivery ...)
- RFQ (Request for Quote)
 - posting on open or private bulletin boards or marketplaces
 - eMail to selected partners
- Purchase Order
 - Automatic generation of POs
 - Status information for buyers
 - Integration with suppliers' order entry & accounting system
- Invoicing and Payment Processing
- Quality Control
- Security (encryption, authentication, authorization)

3 How IT can help: a buying cycle perspective

Information phase: supporting the decision making process	<ul style="list-style-type: none">■ Electronic, multi-vendor product catalog■ Supply market analysis and supplier screening
Negotiation Phase	<ul style="list-style-type: none">■ Models for flexible pricing■ Demand pooling■ All inclusive contracts■ All in one markets (concurrent mixed mode)
Fulfillment and after sales services	<ul style="list-style-type: none">■ Scheduling of deliveries, notification, tracing and tracking■ Continuous replenishment based on POS information

E-procurement building blocks



Impact of IT ... continued

- Electronic message exchange (EDI)
- Information logistics (tracing and tracking, product identification, bar coding ...)
- Collaborative planning and forecasting
- Workflow supported procurement (in particular approval process)
- Process and systems integration
- Desktop requisitioning and self-service

IT components

- EDI/ XML
- Customizable multi-vendor catalogs according to internal procurement rules, varying from department to department, embedded: individual rights, budgets and approval workflow
- Desktop purchasing systems
- Auction systems
- Electronic marketplaces

Product codes

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Standard für Materialklassifikation und Warengruppen

Klassifikation | **Merkmals-Bibliothek**

<p>Bezeichnung Produkt, Dienstleistung</p> <p>↓↓↓</p> <p>00-00-00-00 eCl@ss Schlüssel</p>	<p>SCHLAGWORT-SUCHE</p> <p>Geben Sie in das folgende Eingabefeld ein Suchwort ein und drücken Sie die "Suchen"-Taste.</p> <input type="text" value="Bautechnik"/>	<p>Suchen</p>
<p>01-xx-xx-xx a, b, c, d, e, ...</p> <p>01-2x-xx-xx a, b, c, d, ...</p> <p>01-23-xx-xx a, b, c, ...</p>	<p>HIERARCHISCHE-SUCHE</p> <p>Hier finden Sie eine Klassifikationsnummer mit Hilfe der Klassenbezeichnungshierarchie über maximal vier Ebenen.</p>	<p>Suchen</p>
<p>00-00-00-00 eCl@ss Schlüssel</p> <p>↓↓↓</p> <p>Bezeichnung Produkt, Dienstleistung</p>	<p>KLASSIFIKATIONSNUMMERN-SUCHE</p> <p>Durch beliebige Eingabe einer Klassifikation oder Teilen davon, erhalten Sie die zugeordneten Produkte bzw. Dienstleistungen.</p> <p><input type="text"/> - <input type="text"/> - <input type="text"/> - <input type="text"/></p>	<p>Suchen</p>

Weitere Information:

[News vom 22.10.02: Termine - Releaseplanung](#)

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BMEcat - Führende Unternehmen einigen sich auf einen Standard für den elektronischen Handel



Der Bundesverband Materialwirtschaft, Einkauf und Logistik e. V. (BME), Frankfurt a.M., hat eine Initiative zur Entwicklung eines Standards zur elektronischen Datenübertragung für Artikelkataloge gestartet, an der sich namhafte Unternehmen mit viel Engagement beteiligt haben. Dazu gehören Alcatel, American Express, Audi, Bayer, BMW, C@Content, DaimlerChrysler, Deutsche Bahn, Deutsche Telekom, DLR, e-pro solutions, Flughafen Frankfurt, GZS, InfraServ Höchst, Lufthansa, Mannesmann, Philips, PreussenElektra, Ruhrgas, Siemens, VEBA und VISA.

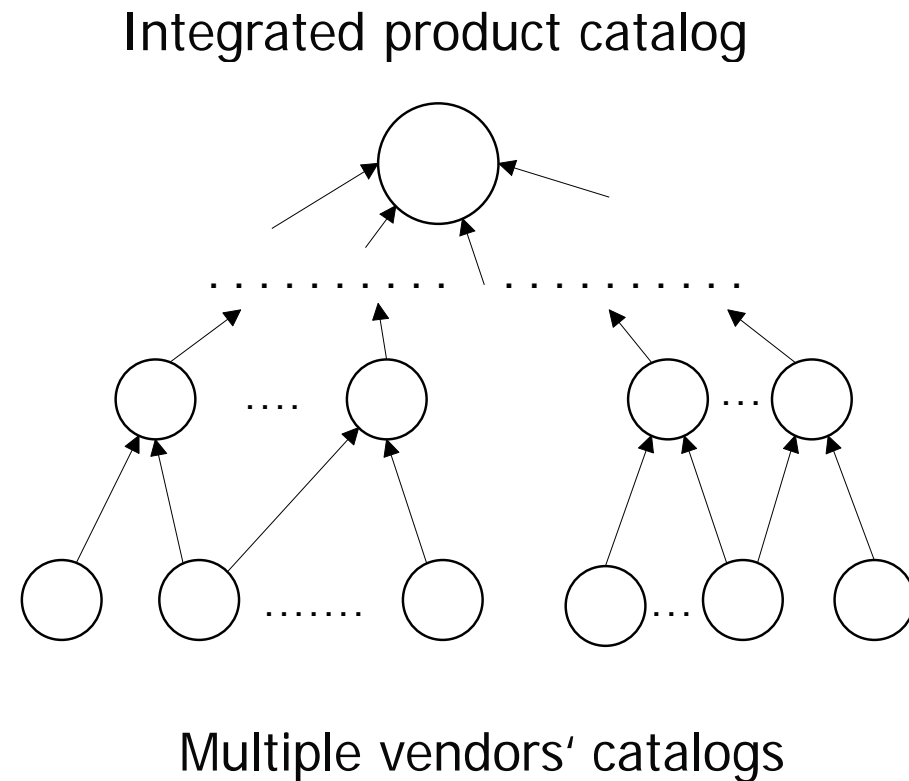
Die Version 1.0 des Standards mit dem Namen "BMEcat" wurde im November 1999 in Frankfurt verabschiedet. Die fachlichen Entwicklungen wurden von Fraunhofer IAO, Stuttgart und den Universitäten Essen und Linz durchgeführt. Der Standard BMEcat schließt eine Lücke, die sich durch die Digitalisierung der Märkte und das Fehlen eines allgemein akzeptierten Standards zu einem dringlichen Problem für alle Unternehmen entwickelt hat, die international wettbewerbsfähig bleiben wollen. Allein im Internet kursieren über 160 verschiedene Katalogsprachen. Ein Unternehmen wie der Siemens-Konzern mit 220.000 Lieferanten stößt hier ebenso auf Grenzen wie auf der anderen Seite der Lieferant, der für jeden Kunden seinen Katalog in einem anderen Format erstellen muß. Auf beiden Seiten wird BMEcat die Kosten für die Unternehmen erheblich reduzieren.

BMEcat schafft mit der einfachen Übernahme von Katalogdaten aus den unterschiedlichsten Formaten insbesondere die Voraussetzung, um in Deutschland den

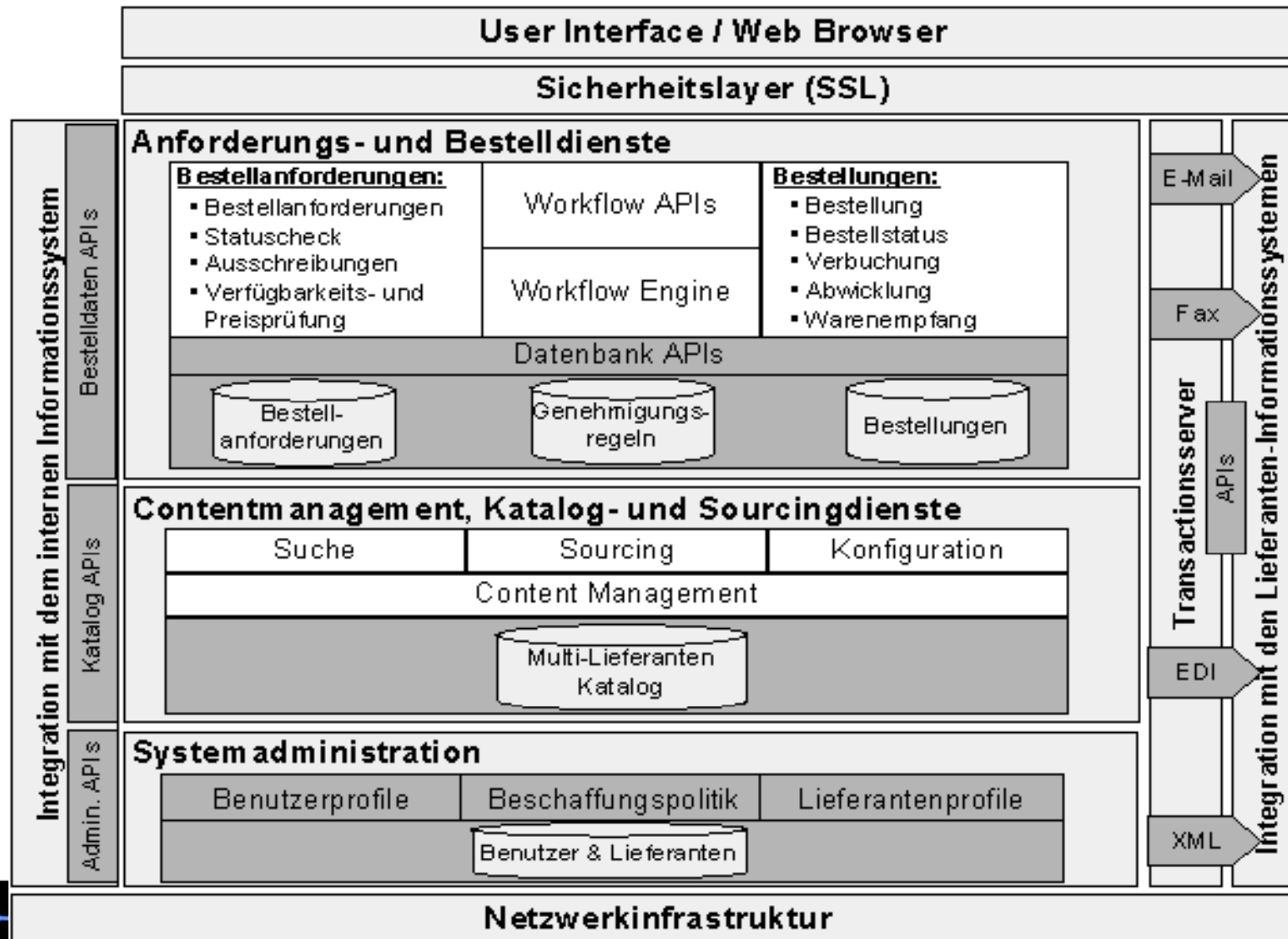
Product codes
www.bmecat.de

Electronic multi-vendor catalogs

- **Integration** across individual catalogs in order to enable queries across catalogs despite varying product codes and product representations
- **Customized** or personalized product catalogs (procurement rules, standard assortments etc. are represented to allow efficient and convenient ordering.



Generic architecture of desktop purchasing system



Österle; Dolmetsch; Fleisch 1998, 24

Electronic Marketplaces for b2b Procurement

Recent examples

- Ford, GM, and DaimlerChrysler, Mitsubishi, Nissan and Renault are setting-up an Online auction site for **car parts**
- HP, Compaq and Gateway have announced to built a procurement platform for **PC components**
- **Aerexchange**: b2b exchange for spare parts and services [Lufthansa, Air Canada; Air New Zealand; All Nippon Airways; American West; Austrian Airlines; Cathay Pacific; FedEx Express; Japan Airlines; KLM; Northwest; SAS; and Singapore Airlines Ltd.]

Leading systems providers are

- i2, Commerce One, Oracle and SAP

-> What may be motives of the participants?

-> What are the core components of marketplaces?

Case UBS

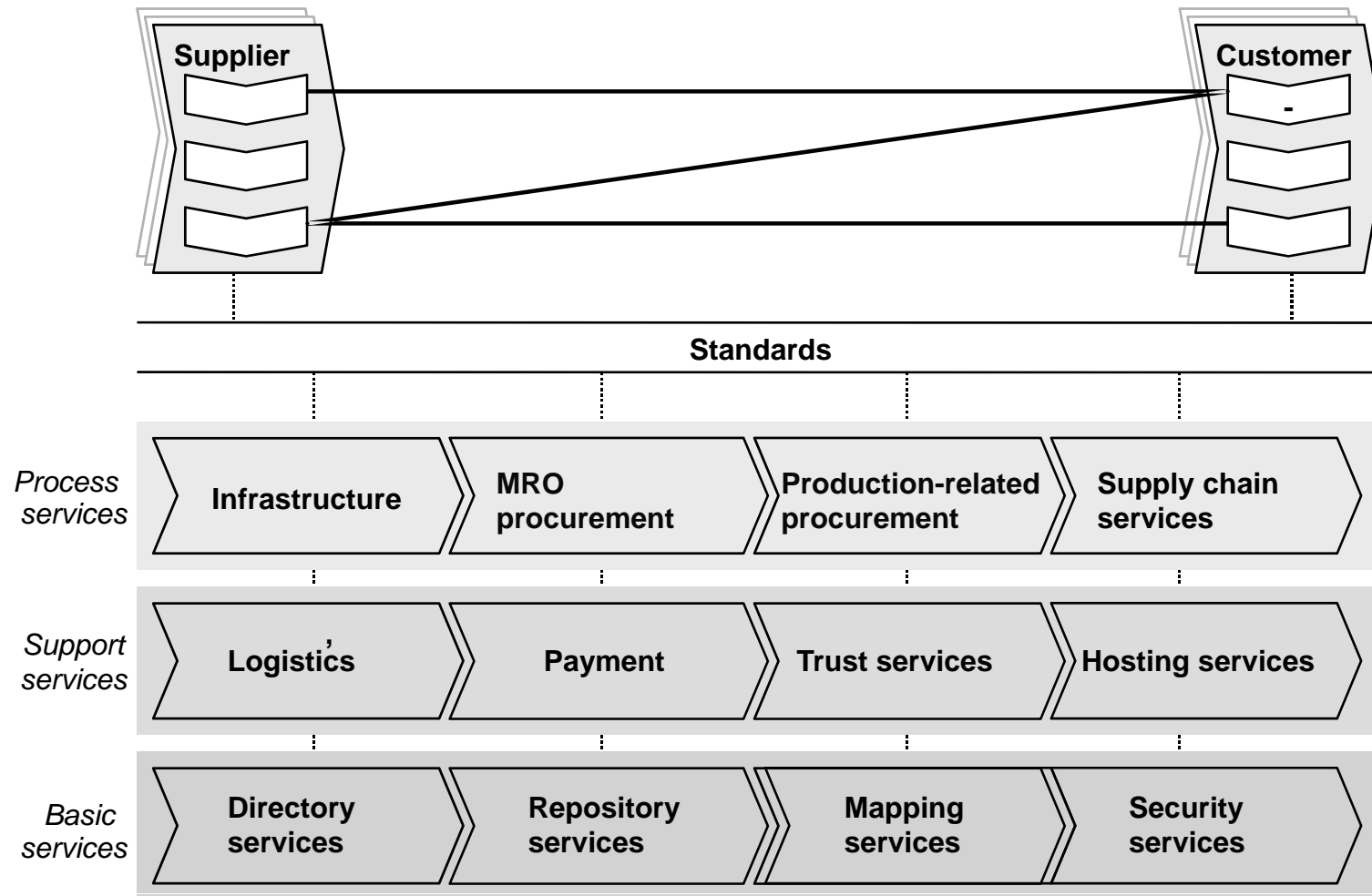
MRO products distinguished into three categories, all available via an internal shop system

- A products: 1900 items of merchandise, multi-vendor catalog maintained by GATE according to UBS guidelines
- B products: 4200 stocked items
- C products: 800 consumer goods and durable consumer goods

Effects

- monthly payment for A products based on electronic bills
- reduction of UBS inventory

Business networking model: external procurement services



adapted from: Österle; Fleisch; Alt 2000

Summary: Success categories

- **Cost:** cost of items, total cost of ownership, overhead cost (e.g. ordering, payment, logistics)
- **Time:** timely delivery, quick procurement cycles
- **Satisfaction:** internal customers, selection, internal processes
- **Quality:** quality of purchased goods and services
- **Stock:** Inventory management, optimal stock level
- **Value:** overall value delivered to the organization
- **Control:** control over the entire buying process
- **Organizational efficiency:** distribution of tasks to suppliers and requisitioners

Adapted from Gebauer; Beam; Segev 1998, 10

Conclusions

Improve it	<ul style="list-style-type: none">- order processing and cycle time- enterprise wide access to procurement capabilities (supplier and product selection, ordering)- enabling requisitioners self-service within company guidelines- integration with back-office systems
Transform it	<ul style="list-style-type: none">- IT support- organization improvements: decentralized model with management control (spending analysis)- knowledge management- supplier relations
Redefine it	<ul style="list-style-type: none">- coordination mechanisms: auctions, demand pooling- new business models: business network, marketplace, new intermediaries

E-procurement – a killer application?

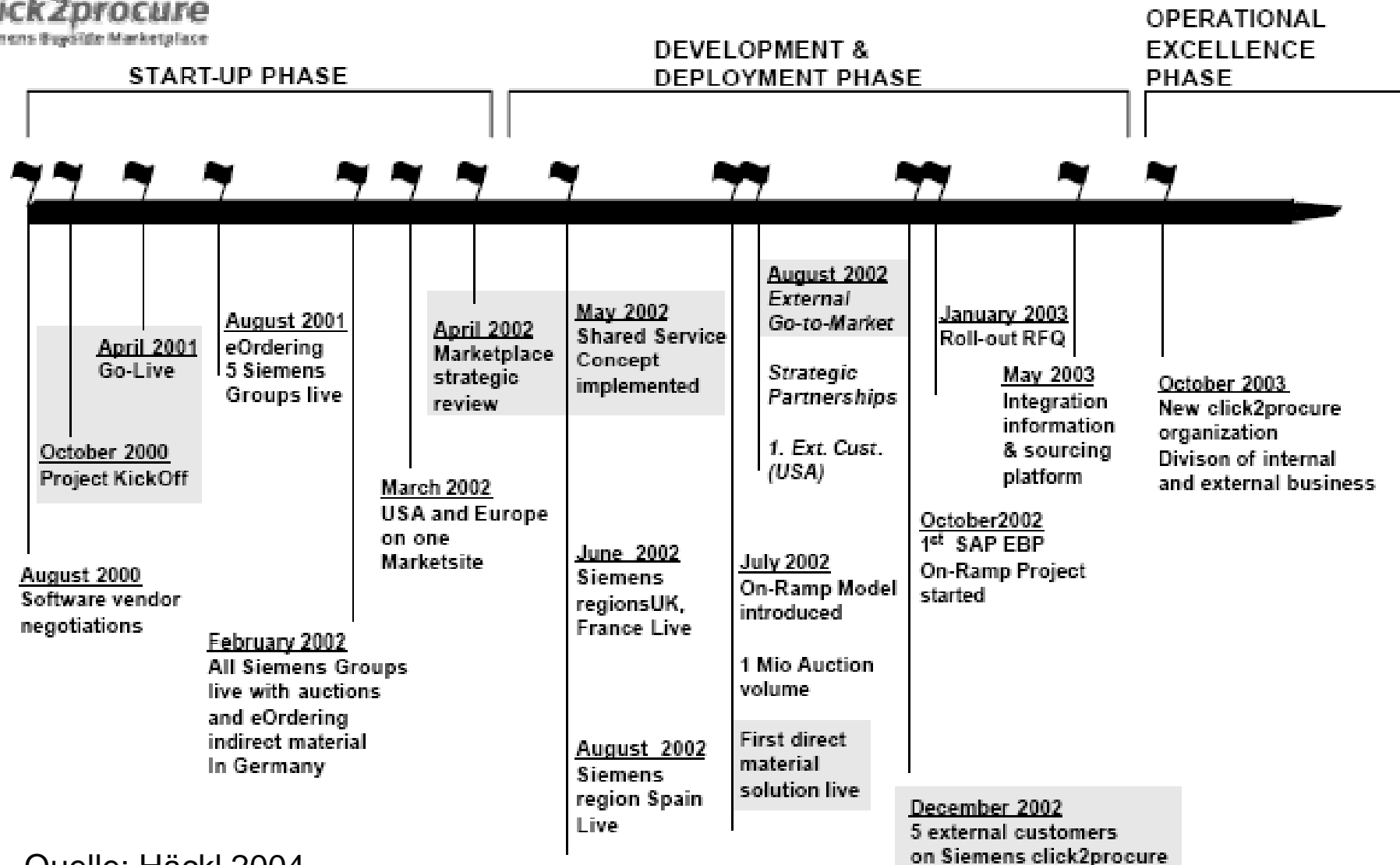
- Probably not, but ...
- rich and complex: EC in a nutshell,
- a perfect learning field for new business processes, IT support and integration, interorganizational networking.

- An old topic with a lot of fresh ideas enabled by IT.

Discussion and summary of Click2procure

Entwicklungsschritte

click2procure
Siemens B2B Marketplace



Quelle: Häckl 2004
Universität Münster

Kostensenkungen durch E-Procurement

Senkung der

Materialkosten

Signifikante Steigerung des Einkaufs über Rahmenverträge

▶ *durch die alleinige Nutzung von elektronischen Katalogen im Einkauf von indirektem Material*

Erhöhung der Materialbündelung

▶ *durch Einkaufsinformationssysteme, welche system-übergreifend Bedarfe ermitteln und bündeln*

Prozesskosten

Unterstützung des Lieferantenmanagements

▶ *durch Katalogmanagement und Transaktionsmanagement*

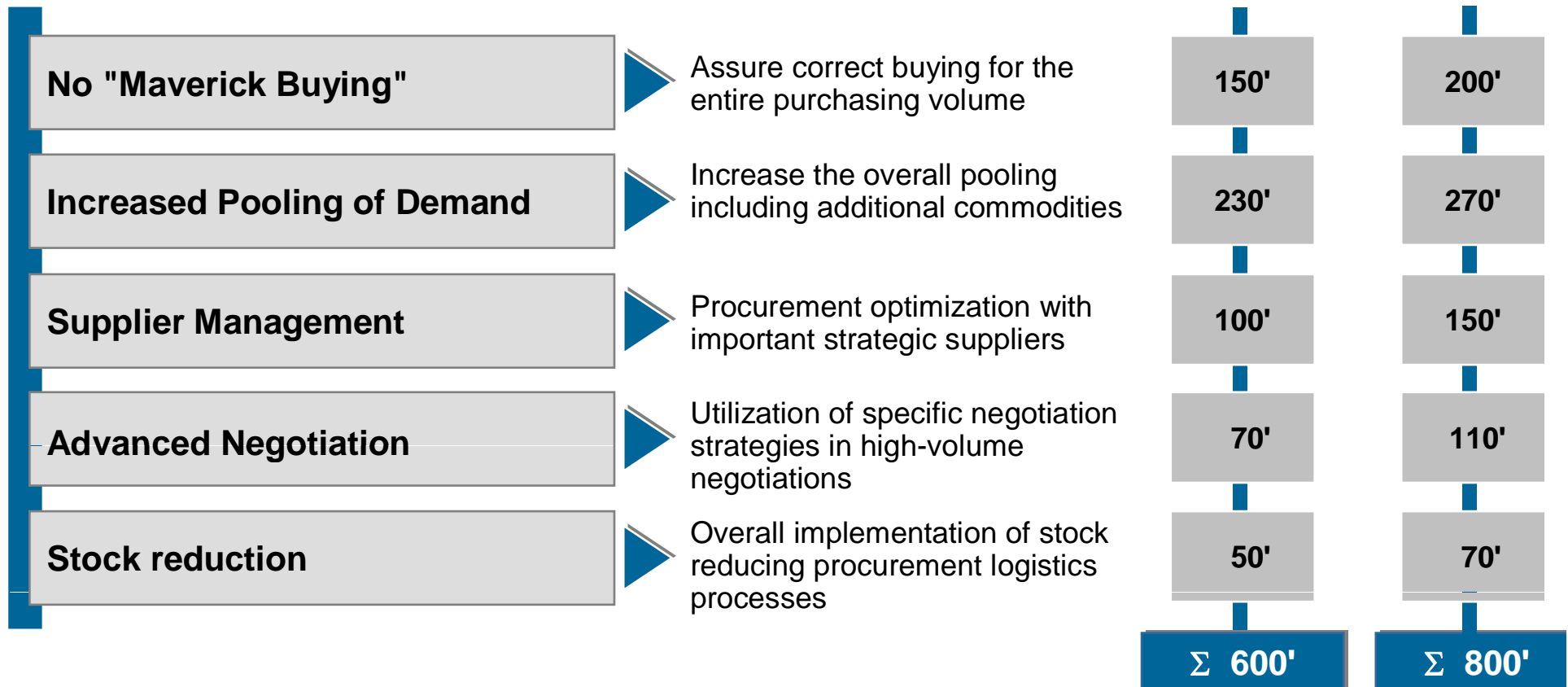
Effiziente Verhandlungsmöglichkeiten

▶ *durch elektronische Ausschreibungs- und Auktionssysteme*

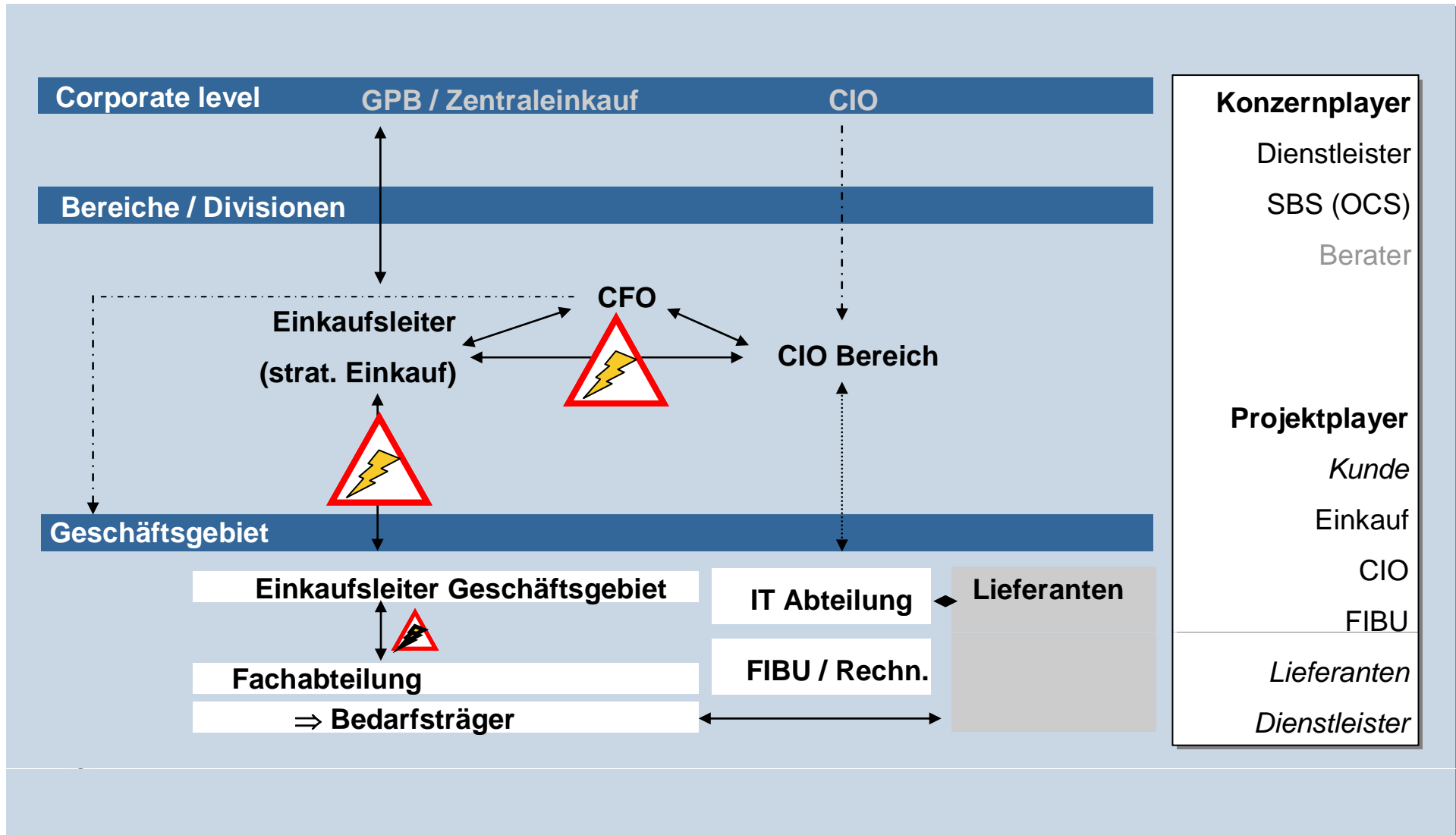
Entlastung des Einkaufs, vom operativen Geschäft

▶ *durch einfachere und transparentere Prozesse*

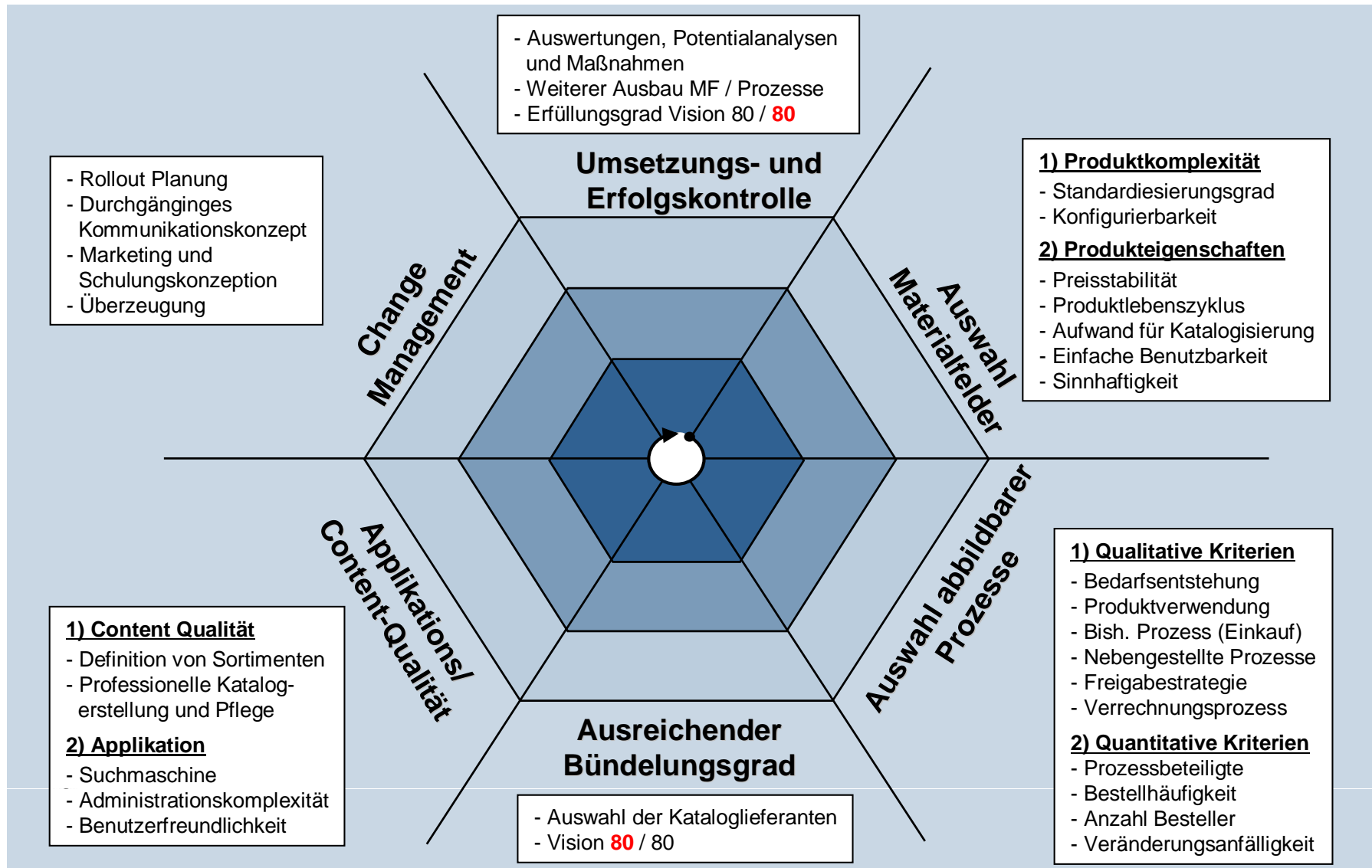
Das Procurement Excellence Programm



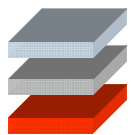
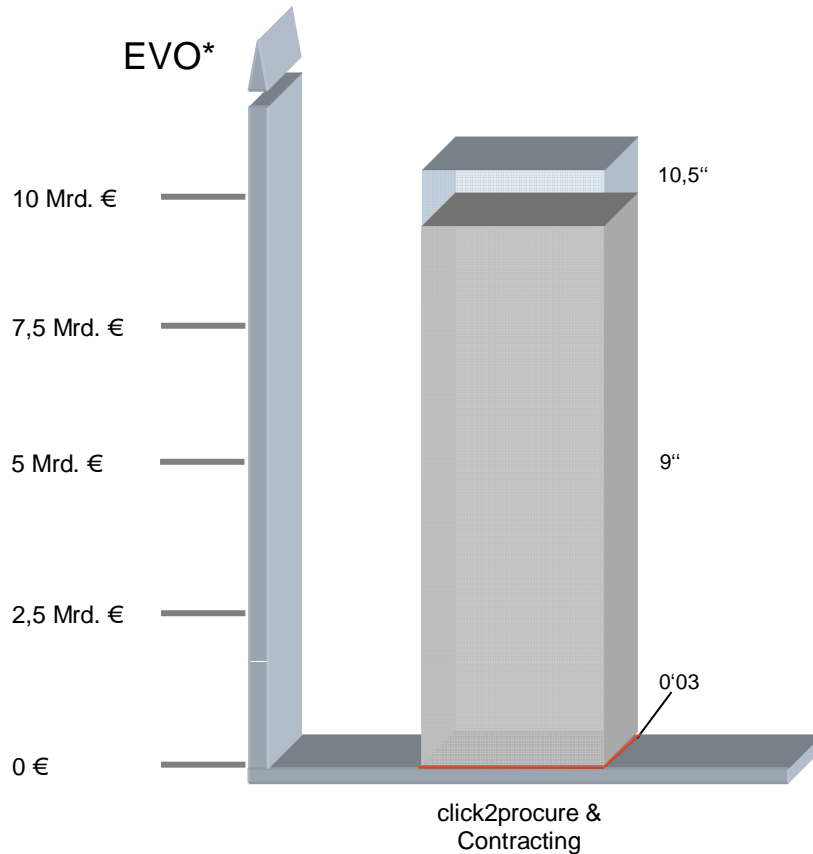
Überwindung von Kommunikationsbarrieren und Kompetenzstreitigkeiten



Lösungsbausteine



Ausweitung des Angebots auf externe Nachfrager



Gesamt PVO indirektes Material EMEA*

Für SPLS zu erreichender Markt

Für SPLS bereits erschlossener Markt

*ca. 400 SAP EBPs in EMEA a 25 Mio. € EVO indirekt

- Erste Referenzkunden haben sich für click2procure entschieden
- Über 120 konkrete Anfragen nach dem externen Angebot der SPLS rund um click2procure bis heute belegen die Potenzialaussage



B2B Market-places

1543 Services in 30 industries

1. Advertising, Media (31)
2. Agriculture, Farming, Fishing, Forestry, Flowers (95)
3. Automotive, Aerospace, Marine (70)
4. Bandwidth, Telecommunication Capacity (19)
5. Building, Construction (73)
6. Chemical (59)
7. Commercial Real Estate (15)
8. Electronic/Electromechanical Equipment, Components & Supplies (125)
9. Energy, Coal, Oil, Gas (10)
10. Environment, Recycling (10)
11. Excess Inventory, Rejection (3)
12. Expert Services, Freelance Consultant (46)
13. Financial, Insurance Services (2)
14. Food, Beverage, Tobacco Products & Services (104)
15. General Procurement (151)
16. Intellectual Property (31)
17. Laboratory, Measuring, Observing, Testing Equipment (23)
18. Logistics (96)
19. Manufacturing/Processing Machinery, Components & Supplies (89)
20. Medical Procurement, Health Care Services (95)
21. Metal Trade (49)
22. Miscellaneous Services (71)
23. Office Equipment, Supplies, MRO (76)
24. Plastic, Rubber, Elastomeric Materials (28)
25. Printing, Paper, Photo (74)
26. Services for small enterprises (10)
27. Textile, Clothing, Fashion, Footwear (40)
28. Travel, Events, Lodging, Entertainment (29)
29. Used Assets, Machinery (45)
30. Wholesale, Retail, Import/Export (66)

Quelle:

[www.berlecon.de/
services/b2bdb/](http://www.berlecon.de/services/b2bdb/)

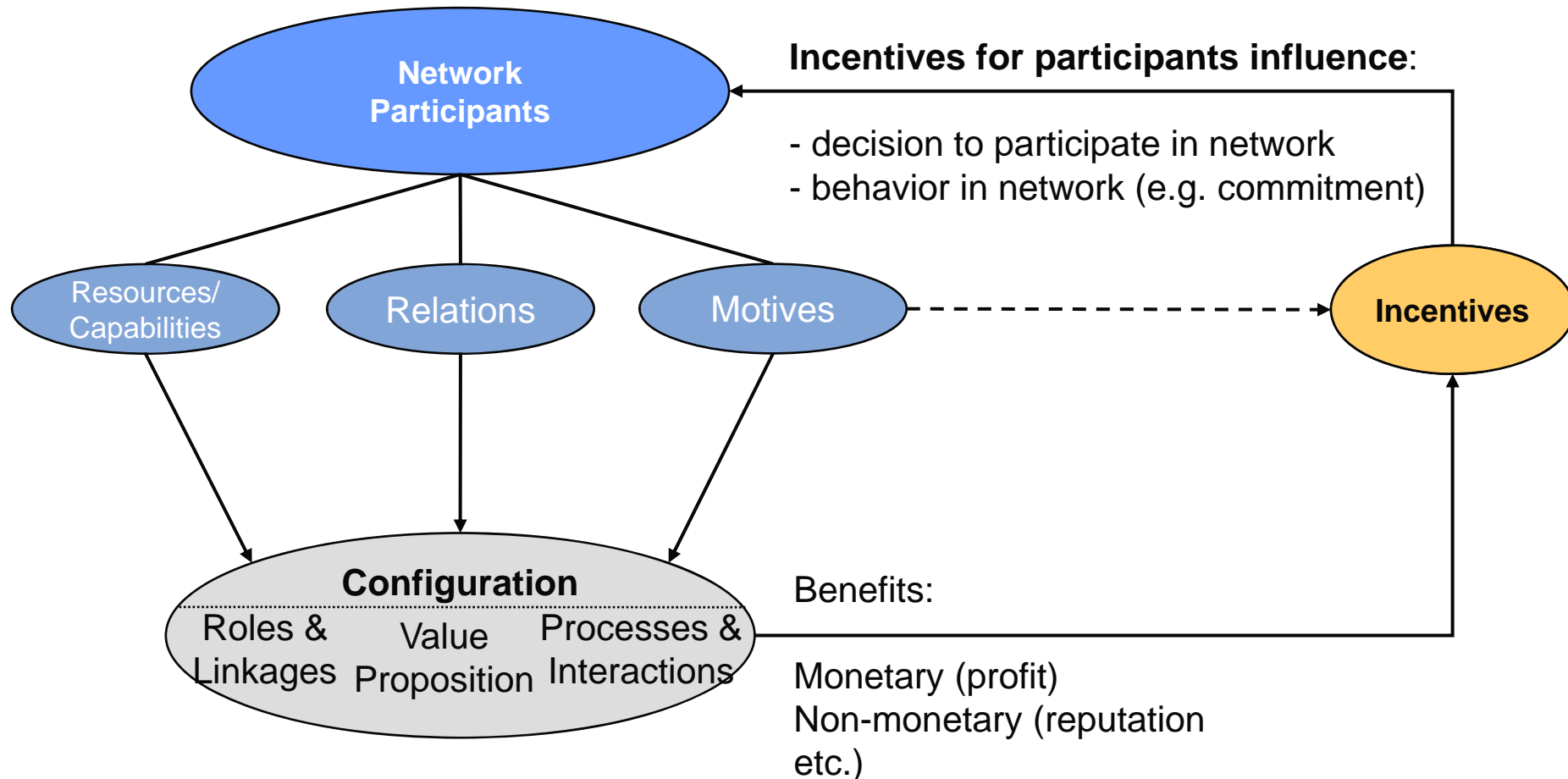
Zugriff: 11.07.2001

12.09.2003:
988 Services

B2B procurement platforms: a flawed business model?

- Landscape of Business-to-Business exchanges has experienced strong shakeout
- Amongst the survivors: trend towards b2b-exchanges operated by larger companies and consortia
- Buyside-operated platforms represent considerable share of these exchanges
- Design of Business-to-Business Exchanges is a challenging task:
 - Critical level of acceptance has to be ensured on both the buyer and the supplier side

Balancing incentives



Bundling Effects

- Approach to bundling reflects the logic of centralization and decentralization:
 - Indirect materials purchased centrally through SPLS
 - Direct materials often require more specific knowledge, purchasing managed through purchasing councils
 - Demand bundling leads to larger contract volumes, which might compensate those suppliers gaining a contract for decreasing unit prices
- A similar approach is taken for knowledge management: combine central and decentral knowledge

Case Discussion – trade mechanism effects

- Combination of trade mechanisms is
 - special case of mixed-mode strategy [Holland, Lockett]
 - an example of an „all-in-one market“ that simultaneously takes advantage of open market competition and long-term supplier partnerships [Kambil, Nunes, Wilson]
- Combination of competitive and integrative approaches on one platform might be difficult to pursue due to different underlying logics
- Dichotomy resolved through sequential use: competitive mechanisms aims to lower prices, subsequent integration lowers process costs

Case Discussion – trade mechanism effects

- Trade mechanism design tailored to lower purchasing prices for Siemens, attractiveness for suppliers doubtful
- Through access to supplier ratings and benchmarks, suppliers can estimate their standing
- A word of caution:
 - reverse auctions may lead to lower material costs
 - also potential negative effects impacts on non-monetary criteria (long-term supplier relationships, delivery times, quality) [Emiliani, Stec 2003]

Organizational Aspects

- Introduction of centralized procurement platform has influence on existing processes and power structures, which might lead to system rejection [Elbanna 2003]
- Lower process and material costs alone not always sufficient motivation for internal system acceptance
- Click2procure's design organizationally involves business groups, procurement not completely centralized
 - As associates, business groups steer c2p's development
 - OnRamp approach allows units to adapt processes to local requirements
- Supplier acceptance: Supplier councils create opportunity to involve suppliers in system development

Technical Aspects and Company Size

- Technical aspects:
 - Centralization of message conversion and transaction is centralized
 - Web interface for suppliers gives small suppliers access to click2procure
- Company Size:
 - Larger companies have greater potential to reach critical usage level required to pay off fixed costs
 - Opening of platform to external buyers contributes to this point
 - Siemens' purchasing power contributes to ability to increase competition amongst / pressure on suppliers

Conclusions and Outlook

- Trading mechanisms designed to support and improve Siemens' strategic and operative procurement activities and to generate benefits for Siemens
- Other design elements might positively influence suppliers' decision to use the platform, depending on individual supplier situations
- So far, no indication of supplier resistance (4,000 users at the moment)
- Ongoing development of platform functionality and an increasing number of external partners on the buy-side can have an impact on acceptance