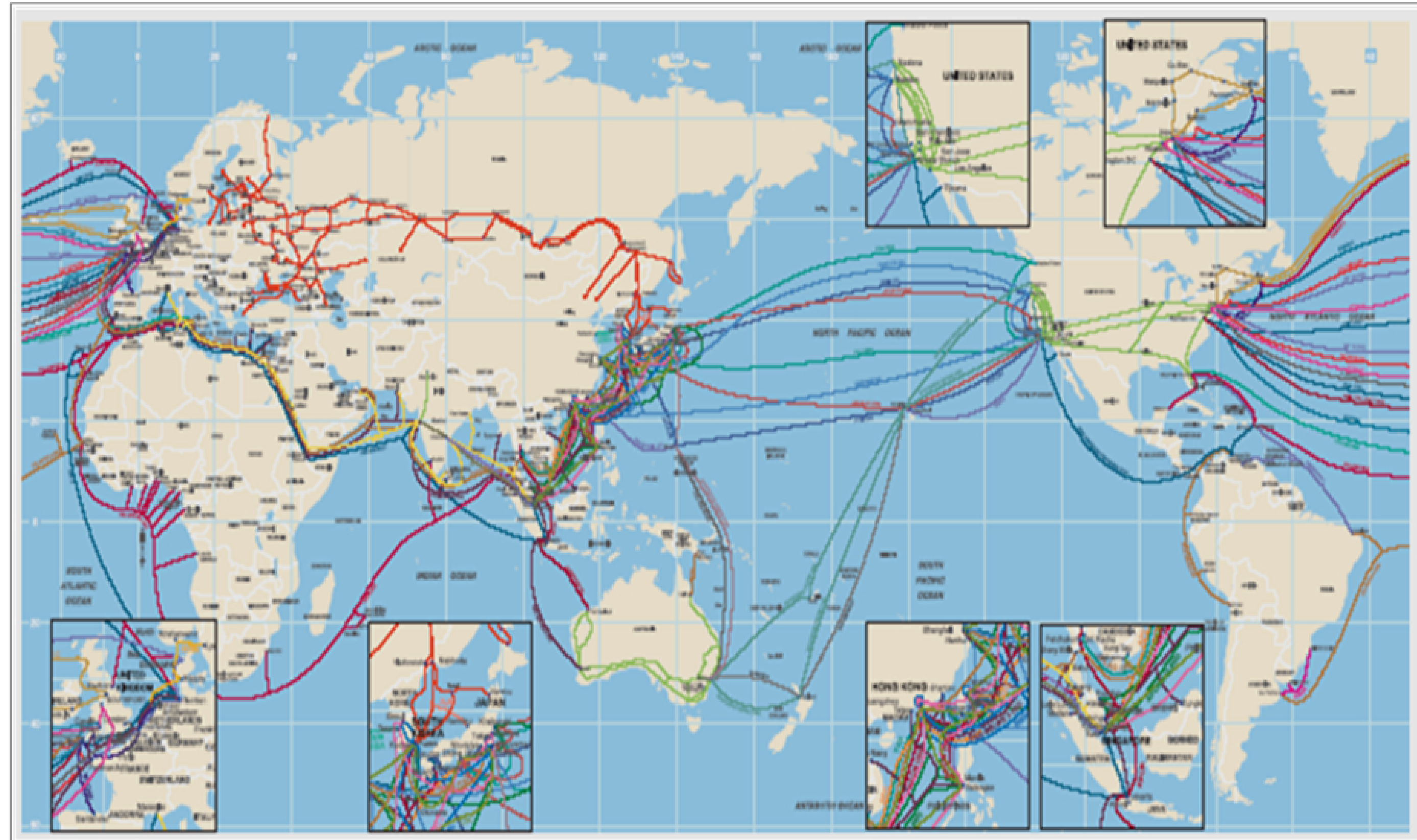


Operations Support Systems



Global Telecommunications

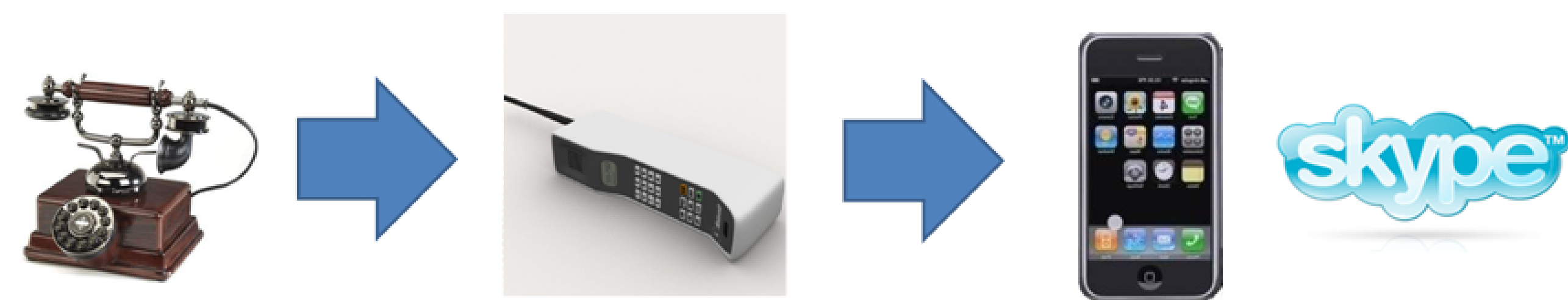


<http://www.btaaccess.com>

The Numbers: Billions and Trillions

- \$1.2 trillion revenue in 2006 (VOIP Magazine)
- 5.9% annual growth (Insight Research Corp, 2007)
- 2.7 billion mobile phone users in 2006 (Informa)
- 1.2 billion Internet users in 2007 (internetworkstats.com)

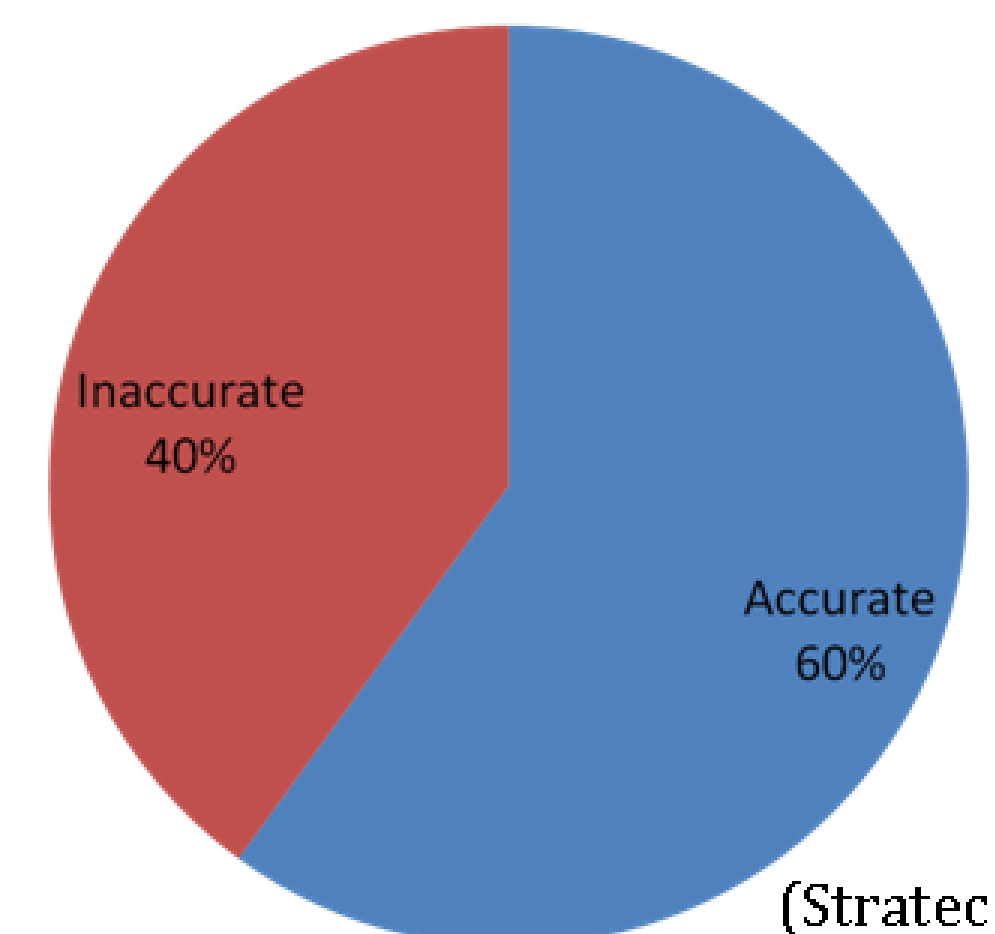
More and More Services



Material Challenges

Data accuracy is one challenge that telcos face in managing their business

Accuracy of Network Inventory

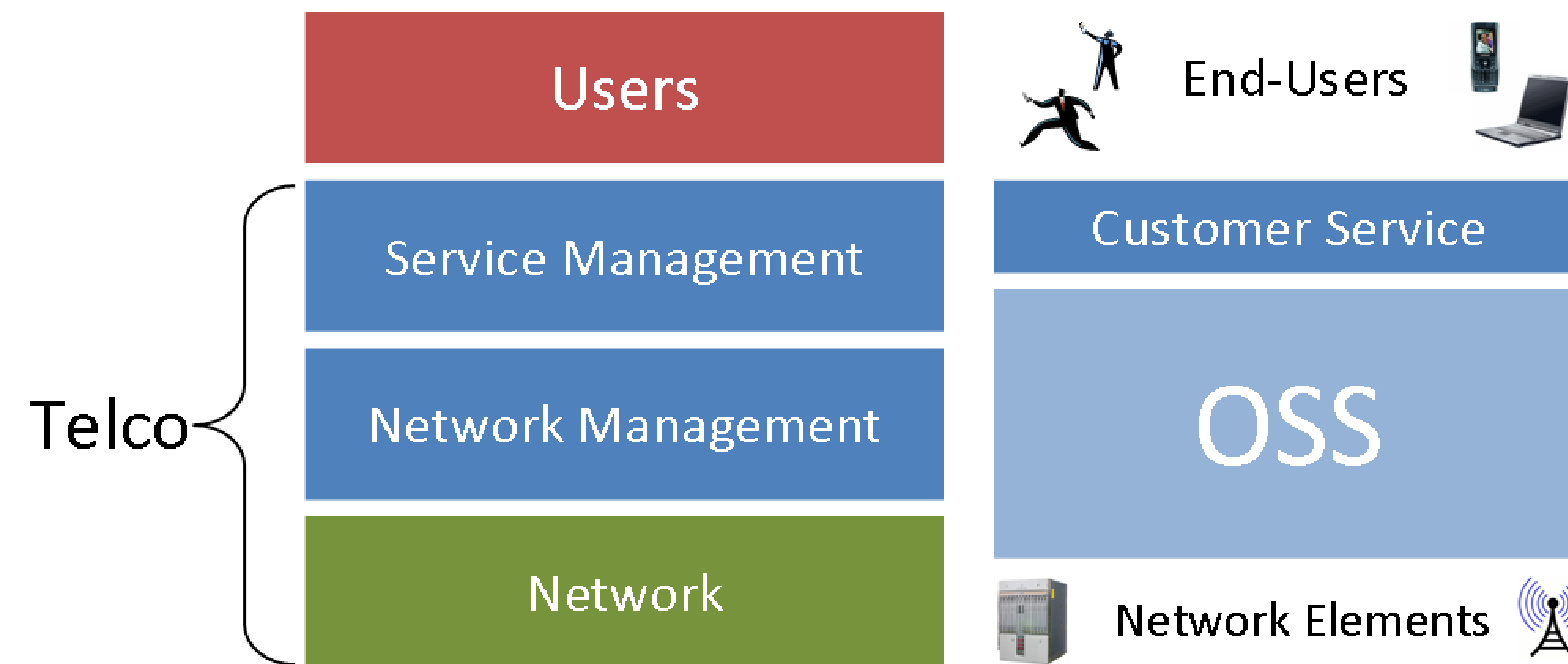


(Stratecast Partners, 2003)

- 40-60% of telcos' Network Inventory data is inaccurate
- 3-11% of gross revenue is lost to error

OSS: Managing Complex Data

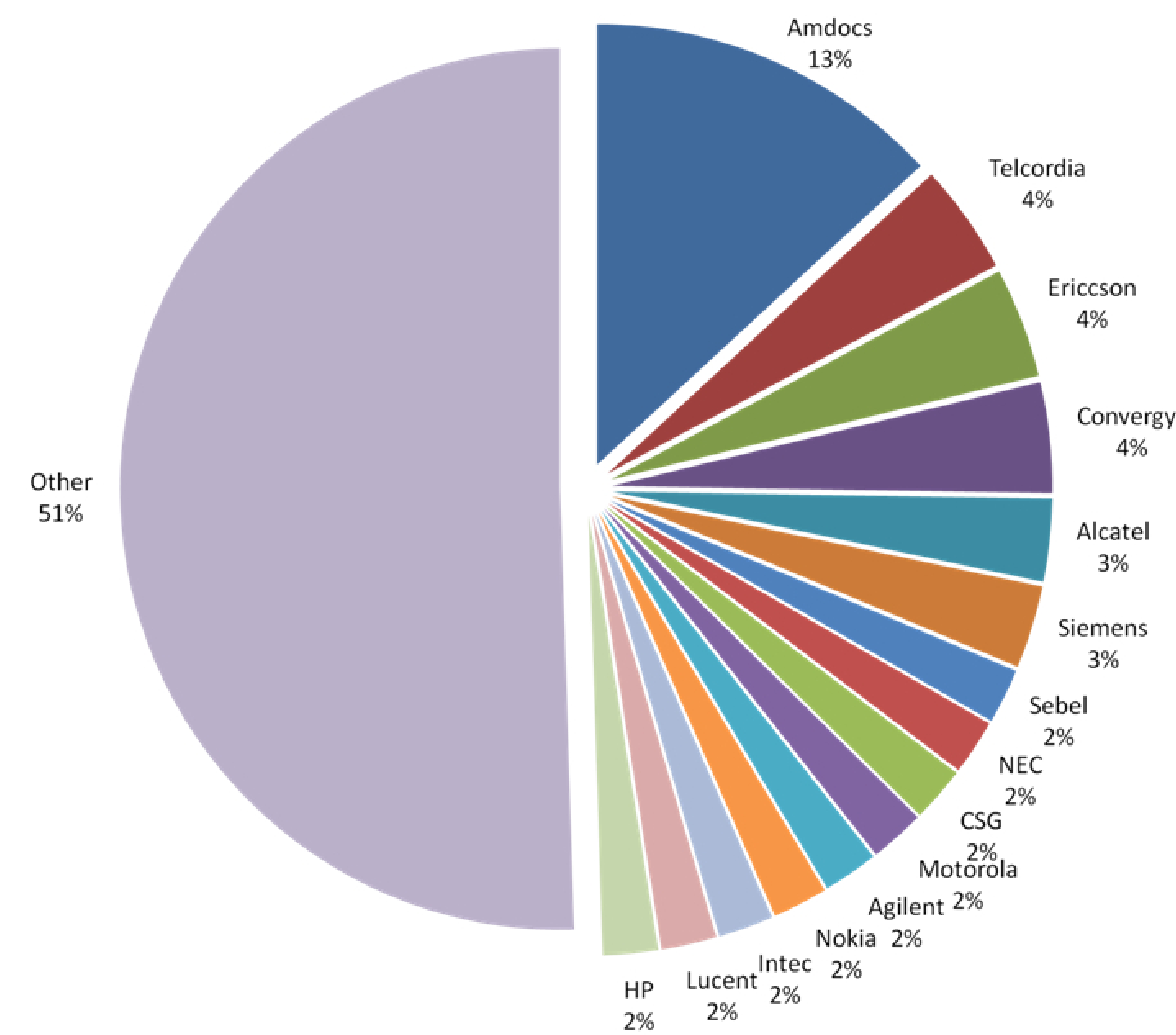
Role in Telecommunications



The OSS Industry

- \$21.5 billion revenue in 2006 (Gartner 2006)
- Highly fragmented

OSS Market Share (by Revenue)



OSS Offerings

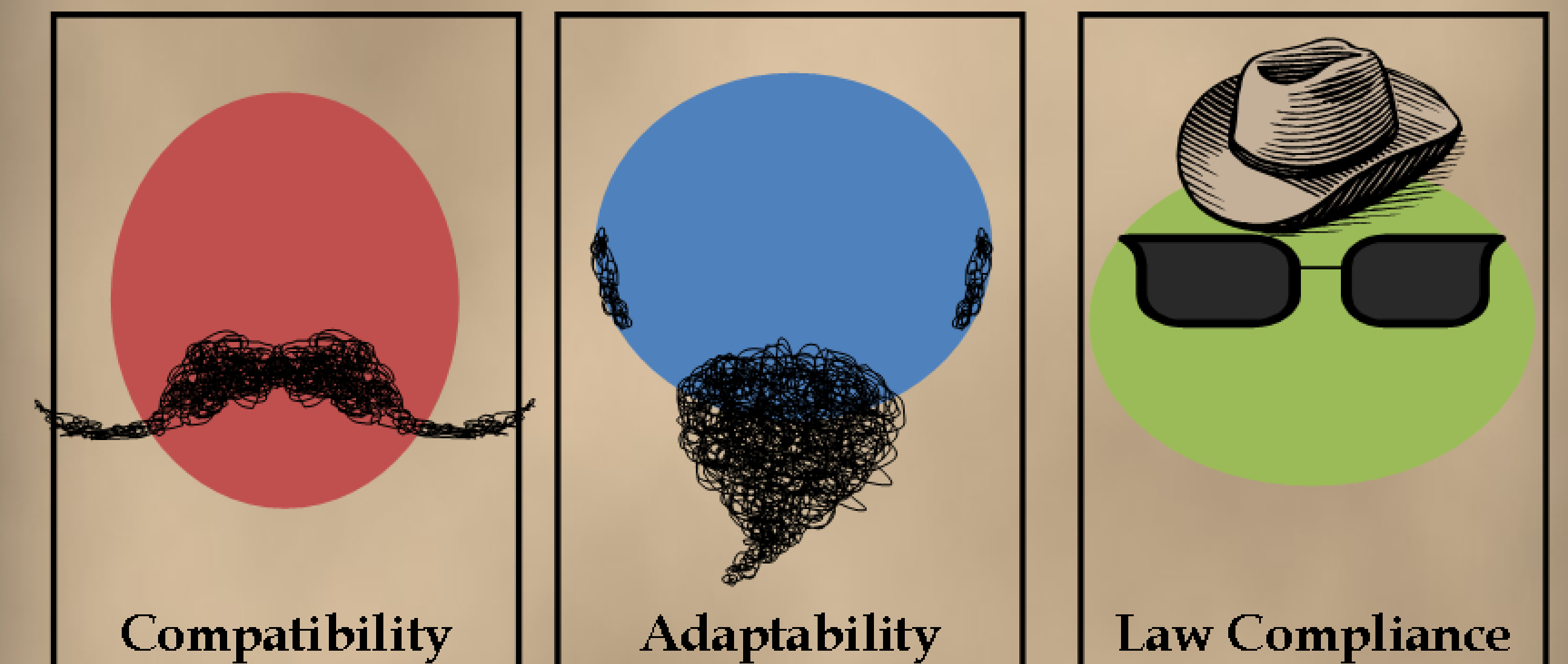
Category	Amdocs	Comptel	IBM	Comarch	NetCracker	Oracle
Product of Service	Strong	Stable	Strong	Stable	Stable	Stable
Market Understanding	Very Strong	Strong	Very Strong	Stable	Strong	Strong
Offering (Product) Strategy	Very Strong	Stable	Strong	Strong	Stable	Very Strong
Geographic Strategy	Strong	Stable	Very Strong	Stable	Stable	Strong
Sales Strategy	Strong	Stable	Strong	Stable	Stable	Strong
Market Responsiveness and Track Record	Strong	Stable	Strong	Stable	Strong	Strong
Financial, Strategy and Organization	Strong	Stable	Stable	Stable	Stable	Strong
Overall Score	Very Strong	Stable	Strong	Stable	Strong	Strong

Opportunity Found

Telcos are searching for the perfect OSS to manage their networks

WANTED ALIVE!

Accomplices to telcos' dream OSS



Features: Difficult to determine. Recognition requires intense market research and understanding of telecommunications industry standards, enterprise management, and United States Law.

ELUSIVE, BUT EXTREMELY HELPFUL

Reward: \$21.5 billion

Total OSS market revenue in 2006 (Gartner, 2006)

We have identified these accomplices and present our recommendations to Comarch:

Compatibility

eTOM

Enhanced Telecommunications Operations Map

Adaptability

ESB

Enterprise Service Bus

Law Compliance

SOX

Sarbanes-Oxley Act

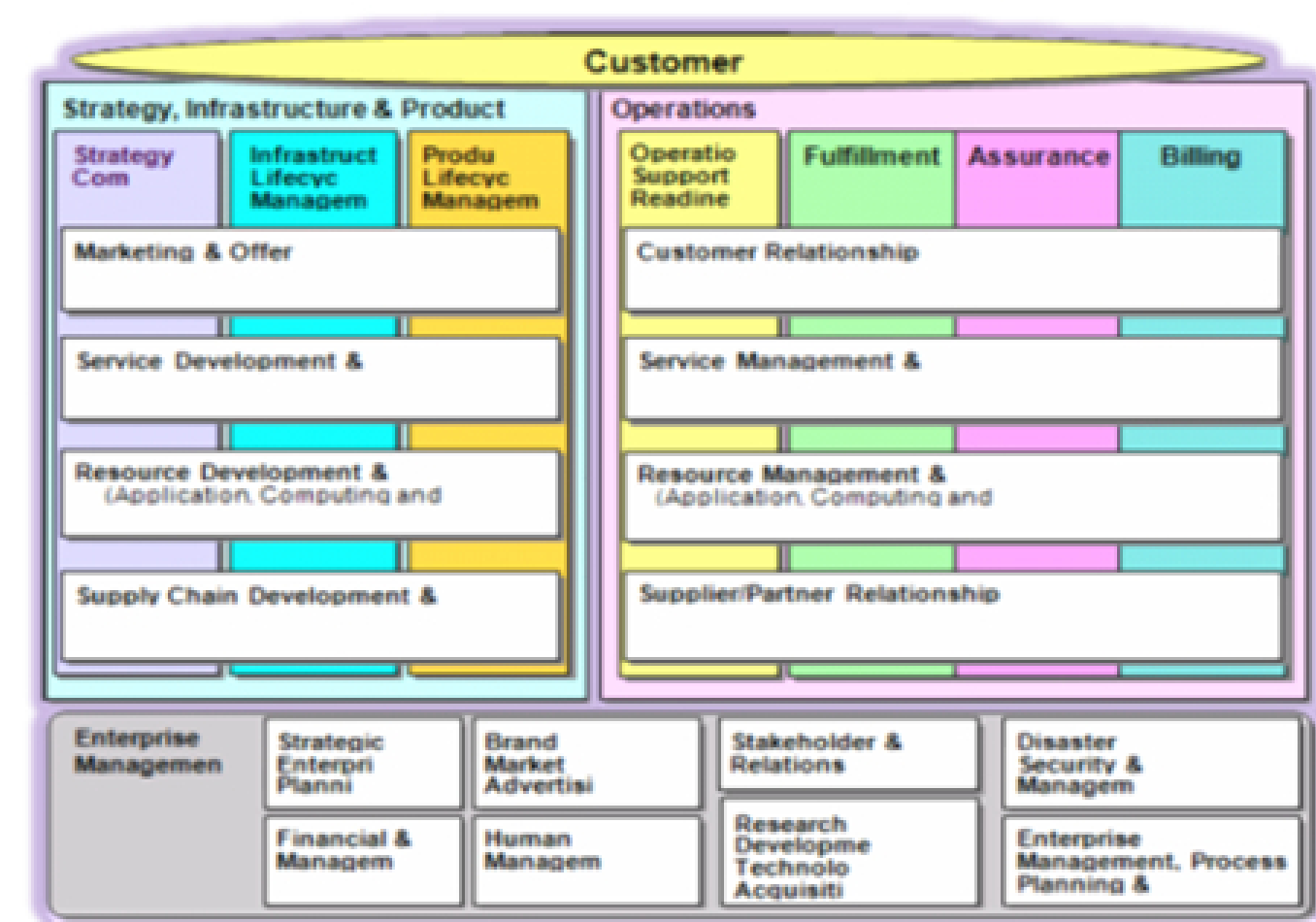
The Enhanced Telecommunication Operations Map (eTOM) is a framework of best business practices for the telecommunications industry. eTOM has become the de facto standard for analyzing and building tools to automate telco business processes.

The Enterprise Service Bus (ESB) architecture is emerging as the preferred platform for enterprise data communication. ESBs make business services reusable and widely available to users, applications, business processes, and other services.

The Sarbanes Oxley Act (SOX) was passed by the United States in 2002 to prevent corporate fraud in large public companies. To succeed in the US market, it is essential that Comarch understand and ensure SOX compliance.

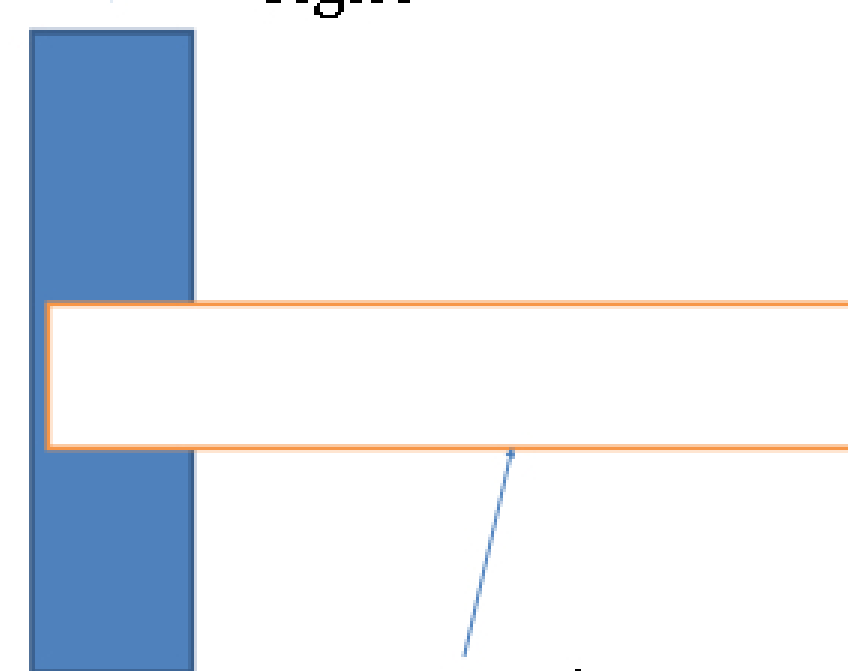
Understanding eTOM

eTOM Level 1



Vertical Groupings

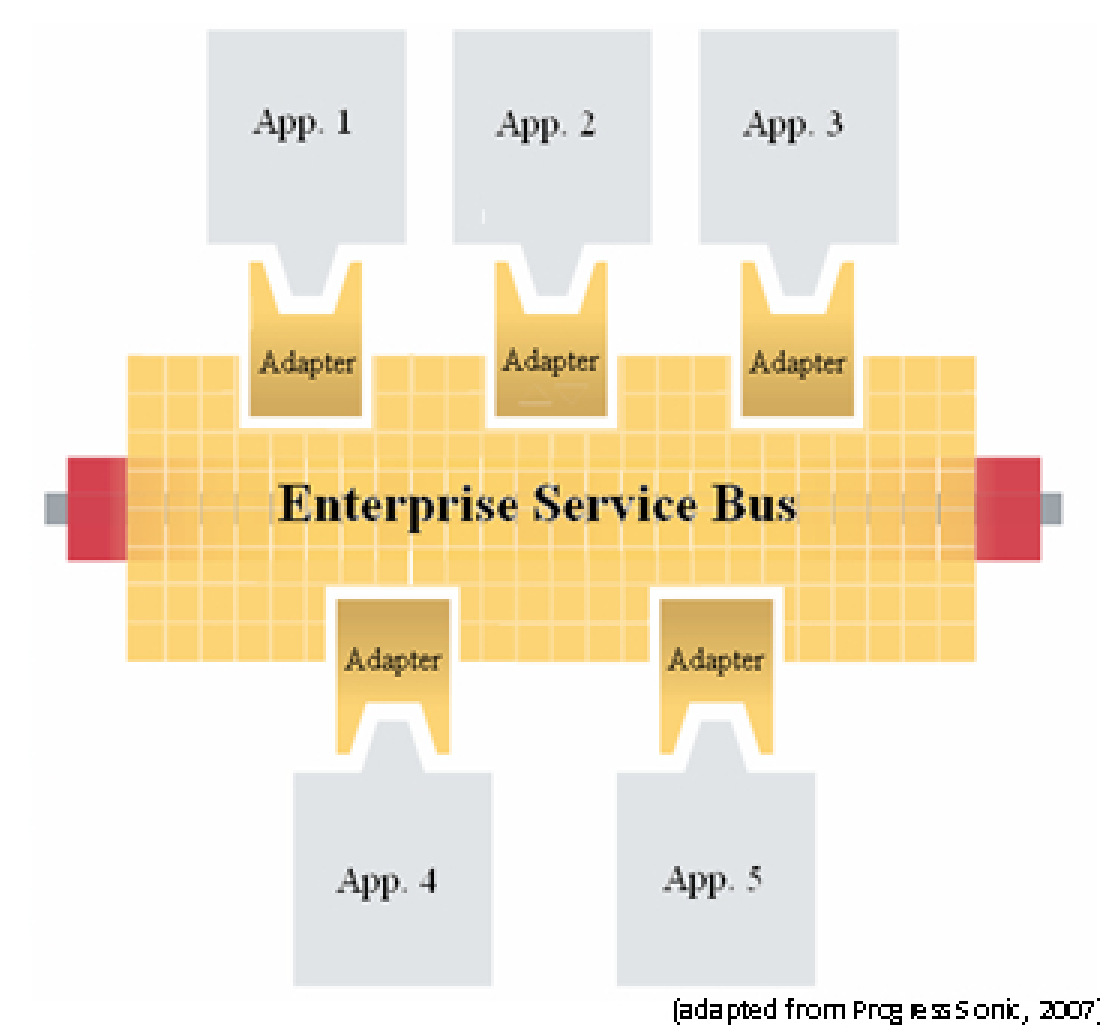
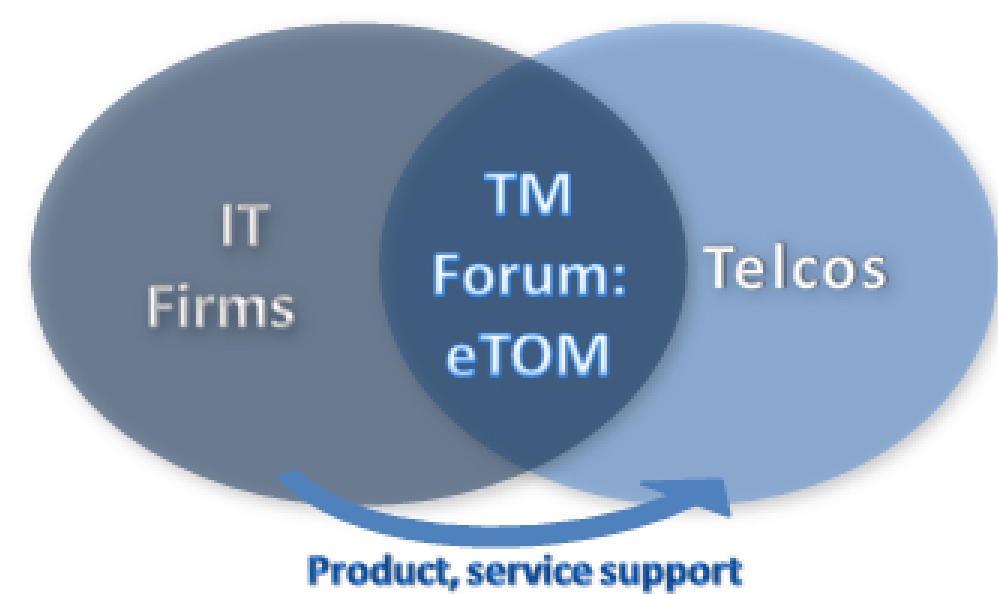
- Perspective of business model
- Planning at the left
- Transaction completion at the right



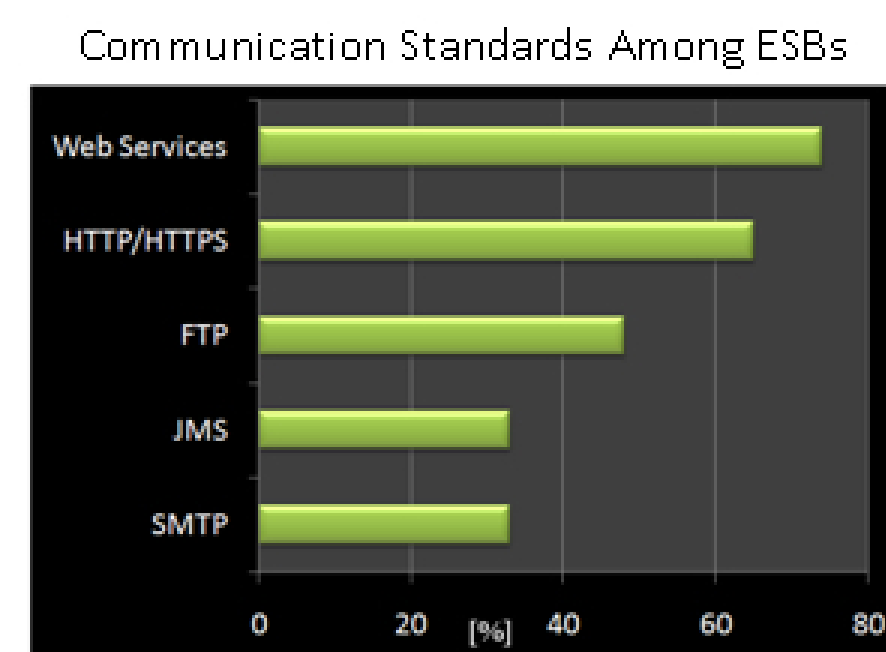
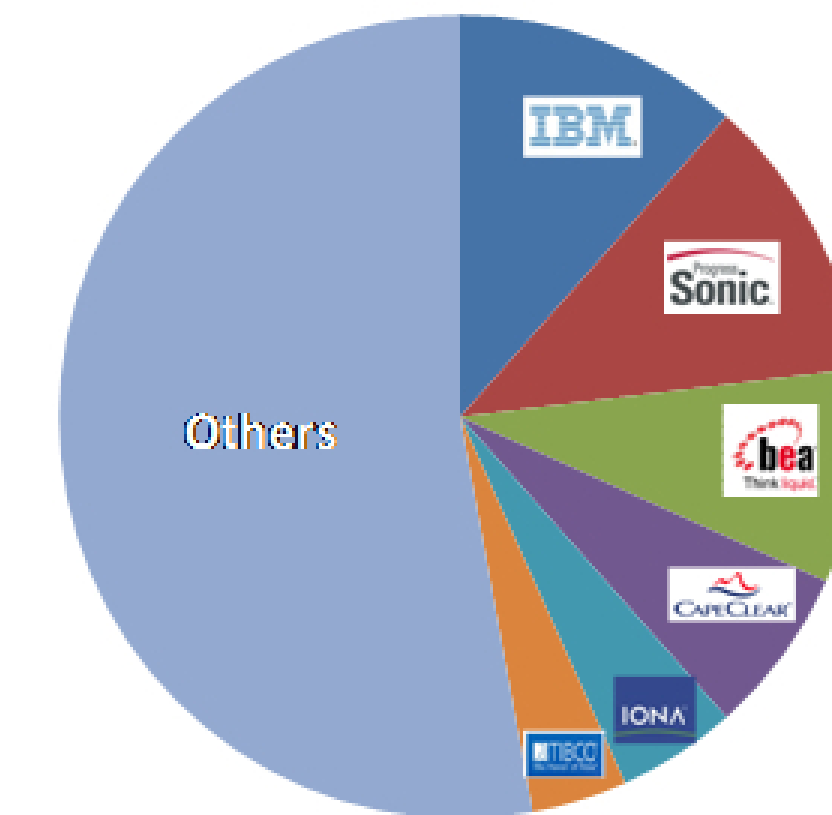
Horizontal Groupings (Layers)

- Perspective of management
- Customers at the top
- Suppliers at the bottom

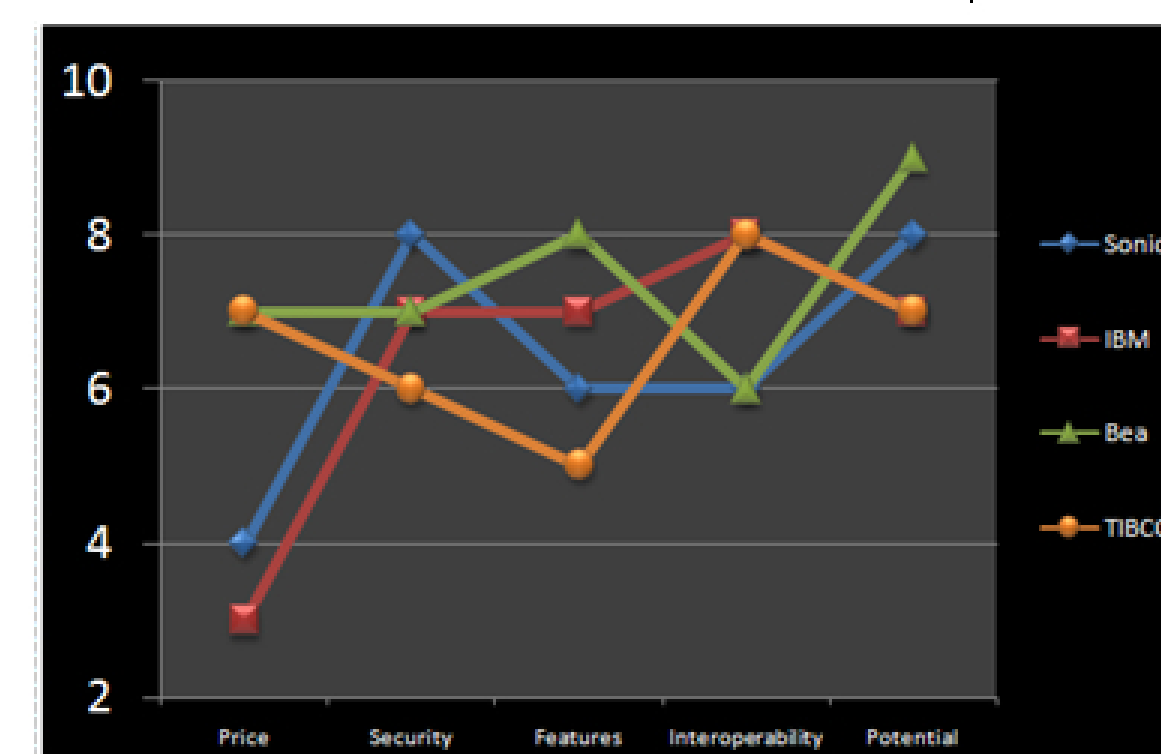
eTOM in Practice



Market Shares of ESB Providers



ESB Solutions: Dimensional Analysis



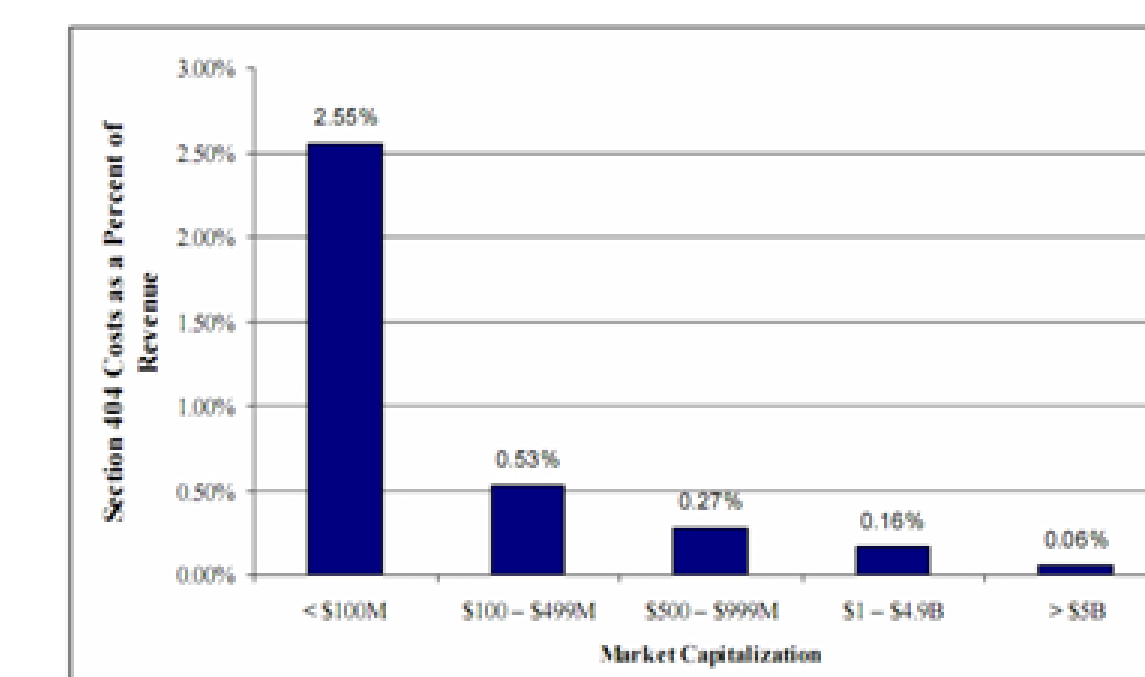
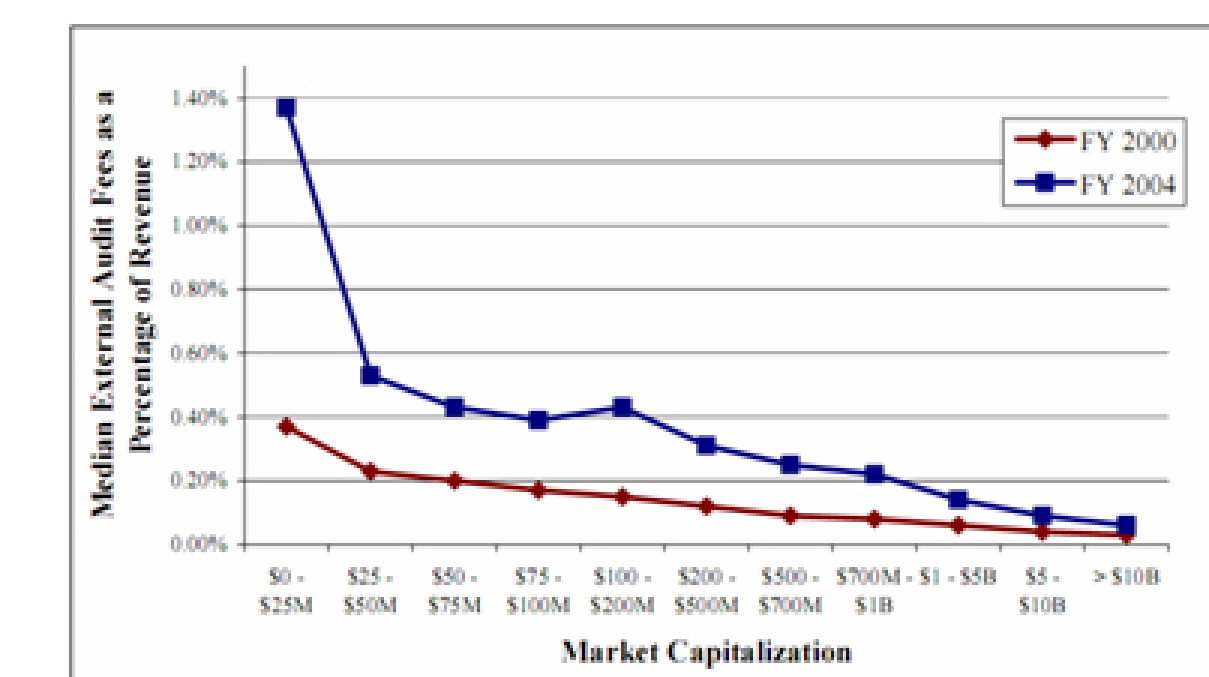
Understanding SOX



Section	Meaning
302	Corporate officers are accountable for fraud
404	Annual external audit of Internal Controls
409	Rapid and current reporting of financial conditions
802	Secure records and retention

Paying for SOX

"...[SOX] costs for public companies with a market capitalization between \$75 million and \$700 million will...equal, on average, approximately \$900,000."
 – US Securities & Exchange Commission, April 2006

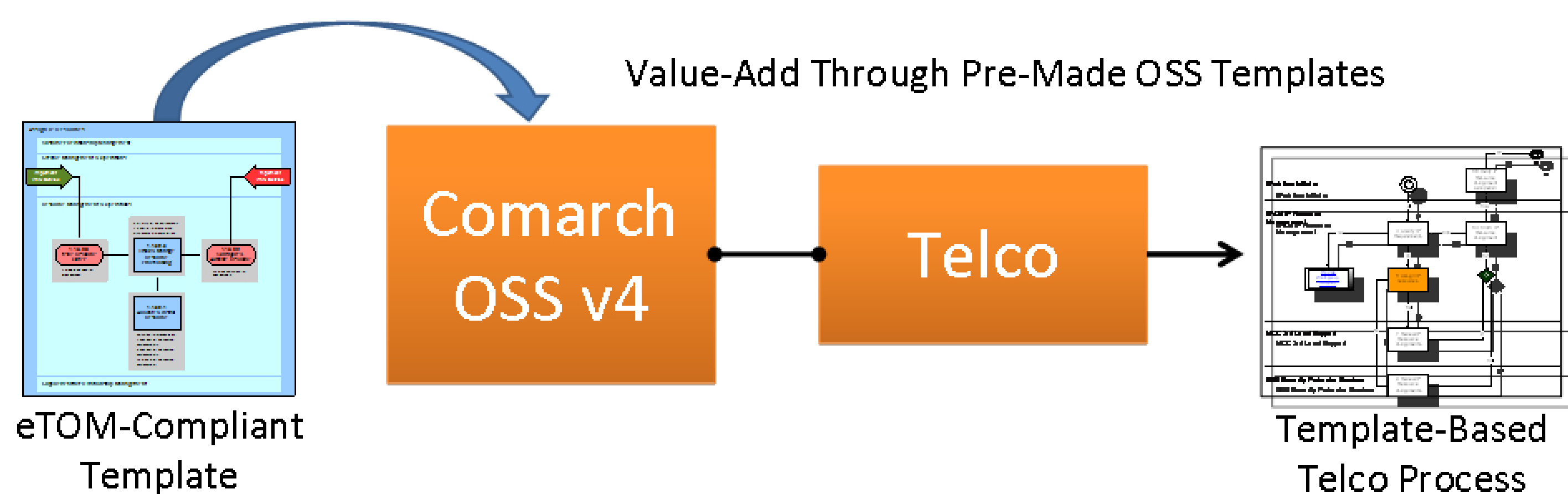


eTOM Recommendations to Comarch

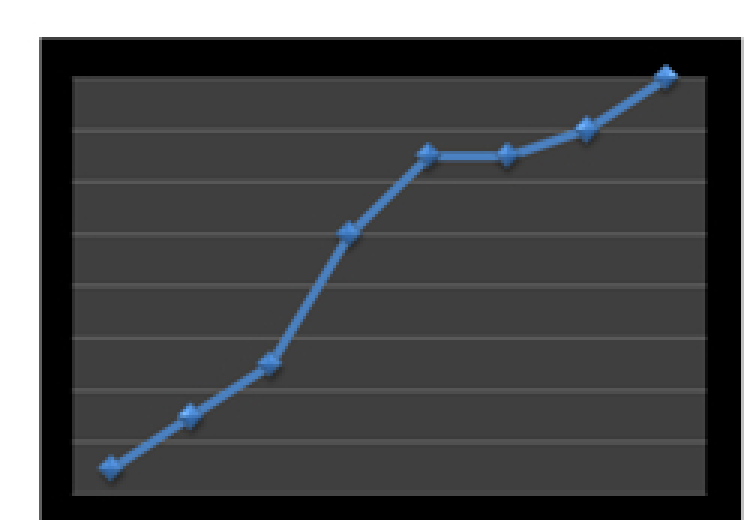
ESB Recommendations to Comarch

SOX Recommendations to Comarch

Comarch's Goal



1. Develop Integration with Top ESB Providers



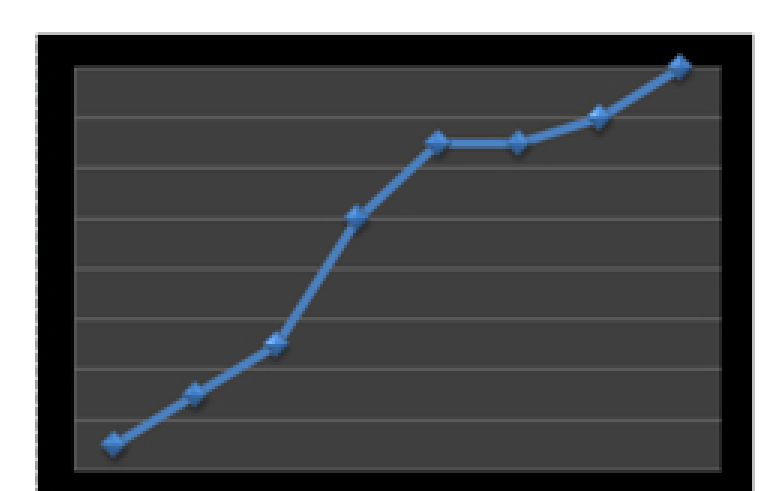
Telcos: Faster, less expensive integration of OSS



Low-cost development of ESB adapters, easy to integrate products

- Risks:
- Will need adapters for all of Comarch's products

2. Develop Comarch ESB Solution



Telcos: Low-cost ESB



New market, potentially value-add bundle with OSS solution

- Risks:
- Difficult to develop ESB

Comarch's Current Situation

Concern	Findings	Comarch's Status
Data Availability and Retrieval	SOX data contained in Comarch OSS': • Service Level Management • Inventory Management • Service Provisioning	SOX-Compliant ✓
Access Control	Comarch OSS provides easily-assigned user profiles for secure and limited access	SOX-Compliant ✓

Actual SOX Compliance depends on the client, not on Comarch!

Our Suggestions

Ask telco: Project vs. Process basis on SOX compliance?

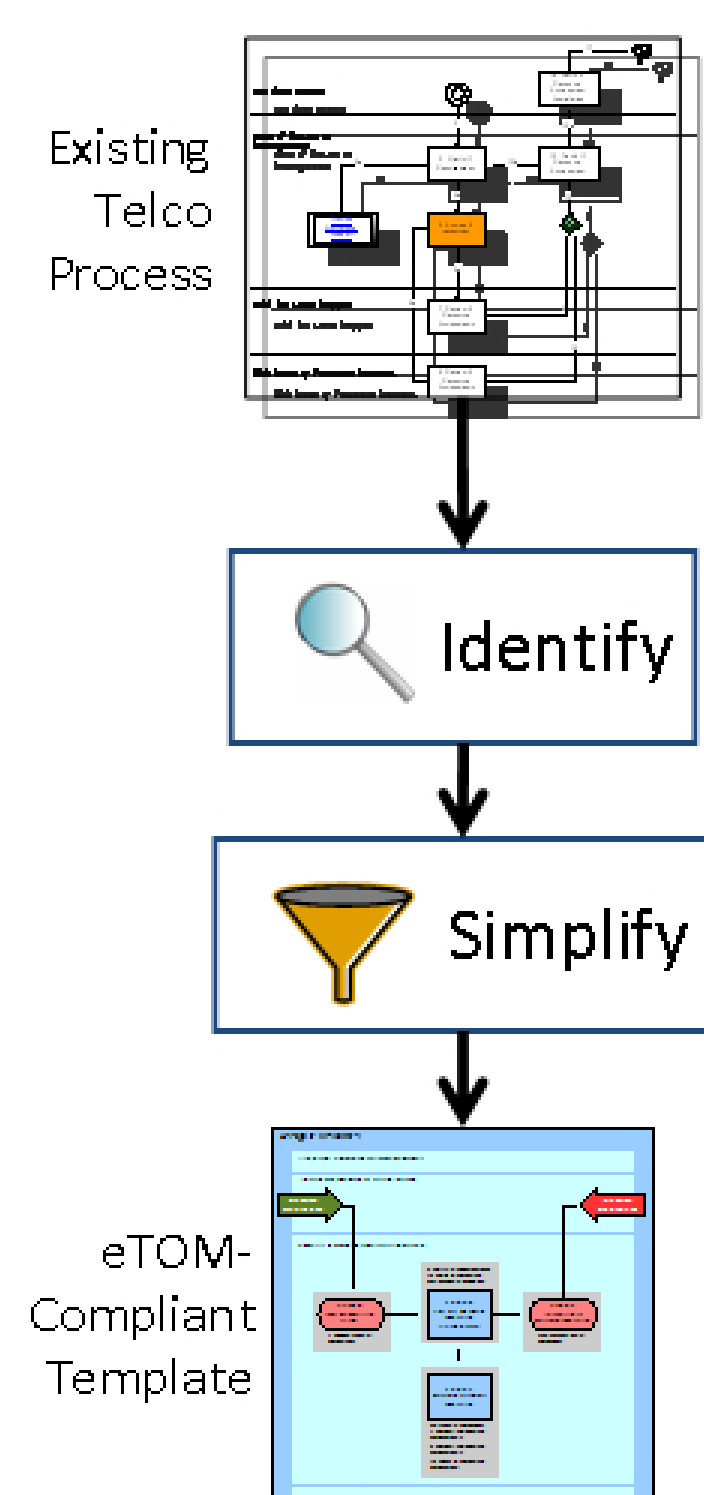


Ideas...

- Ensure SOX compliance in products outside OSS
- SOX Consulting (draw on experience with clients)

Our Experience in Creating Templates

- Identification of eTOM processes is critical
- Find **key words** in process names, then descriptions
 - Place in vertical and horizontal **groupings**
 - Use the **interactive eTOM map**



Other Ideas...

- **Database** to search **keyword density** in eTOM process names
- **Link commonly-sequential/related** eTOM processes (Process X usually followed by Process Y, eg.)