

The Third Wave of Business Process Management

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Thank you for our Web services



“Success in understanding and developing Web services can mean the difference between keeping and losing your IT job.”

"If you want security and scalability in Web services with .NET, you are going to have to figure it out yourself"

"QoS is going to be a huge issue for Web services"

"Web services require changes in both the architecture and technical infrastructure"

"When building a Web service, one of our first concerns is what business operation it must support, e.g. order placement or quote requests"

"It's time to get past the hype and start addressing the real issues"

"Designing Web services is not a trivial task"

"We have to go back to relearn security, reliability and QoS with the unique parameters of Web services in mind"

"Since the initial marketing drive behind Web services, developers have been trying to understand what they are and how they can use them"

"Web services are more complex to deploy than Web sites or intranet applications. They are based on intricate platforms, or runtime environments that, like any software, can have their own runtime errors"

"A mechanism to match service-level agreements with deployed services would reduce errors and customer complaints"

"There is an incredible amount of infrastructure required to build production quality Web services"

"Developers have been so busy learning Web services that management issues have taken a back seat."

Experience suggests it is not enough to approach Web services development armed with documentation on just the underlying technologies, such as SOAP and WSDL. Developers must also study the design issues and patterns related to the domain they intend to implement.

"The issue now is how to use Web services for business"

"Web services has a huge impact on the network"

"Should there be a problem with the Web services platform environment, such as running out of memory or disk space, the Web services in that environment would likely begin to fail"

"Because Web service environments are inherently more intricate, it's unlikely that developers will be able to create a management model that can suit every service"

"As you know, Web services creates another avenue for hackers to exploit corporate resources"

"Although the model of Web service interoperability is straightforward, it introduces new development practices and methodologies that can be difficult to learn"

"As companies begin to implement Web services, IT managers are being confronted with the long-term ramifications of their deployment."

What Web services really mean

- A new development approach
- Another layer in the stack
- New design patterns
- New skills, more tools
- Additional costs
- More software artefacts
- Another run-time
- New management tools
- Another deployment lifecycle
- More acronyms
- Ten years late



Hang on a minute, wasn't the whole point interoperability and integration ...

"It is tempting to believe that SOAP messages provide interoperability. But, XML is not the "silver bullet" for solving integration problems"

- "With different levels of SOAP support, it makes it difficult for true interoperability"
- "Furthermore, interoperability between SOAP implementations can be difficult, as interpretations of the standard can diverge"
- "Also applicable to SOAP, specific Web services platforms may support an older version of a specification, which may not be interoperable with your clients"
- "SOAP provides connectivity, but the content and meaning of messages is left to developers to agree"

What more proof do you need?



“Walt Disney once said, ‘You can’t top pigs with pigs’, objecting to a sequel to his *Three Little Pigs* cartoon.”

The jury is unanimous

- From 1992 to 2001, US companies spent over \$2.7T on hardware, software, and services – IDC
- Research shows only a random correlation between IT spending per employee and return on shareholder equity – Strassman
- On average, only 7% of software functionality that was paid for is actually used – Gartner
- 85% of IT projects fail to meet objectives (with 32% being cancelled outright) – Gartner
- IT projects often suffer from a prolonged delay to realizing value, an average of 18 to 24 months from initiation to operations (usually only providing a one-time cost impact) – Standish Group



- **Success in understanding and developing Web services can mean the difference between keeping and losing your IT job.**

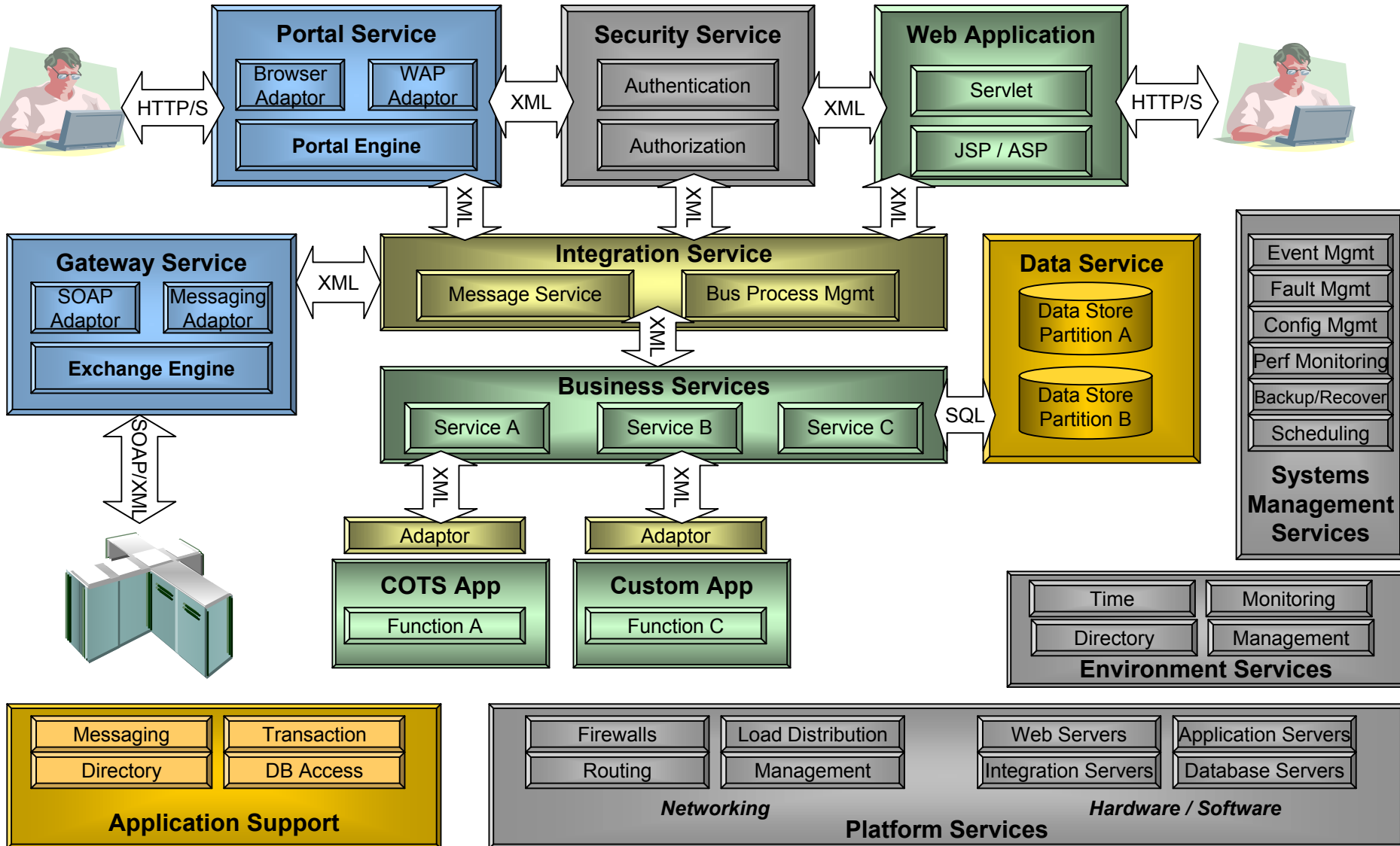


- **Success in understanding and managing business processes can mean the difference between keeping and losing your company**

But how to make it work?

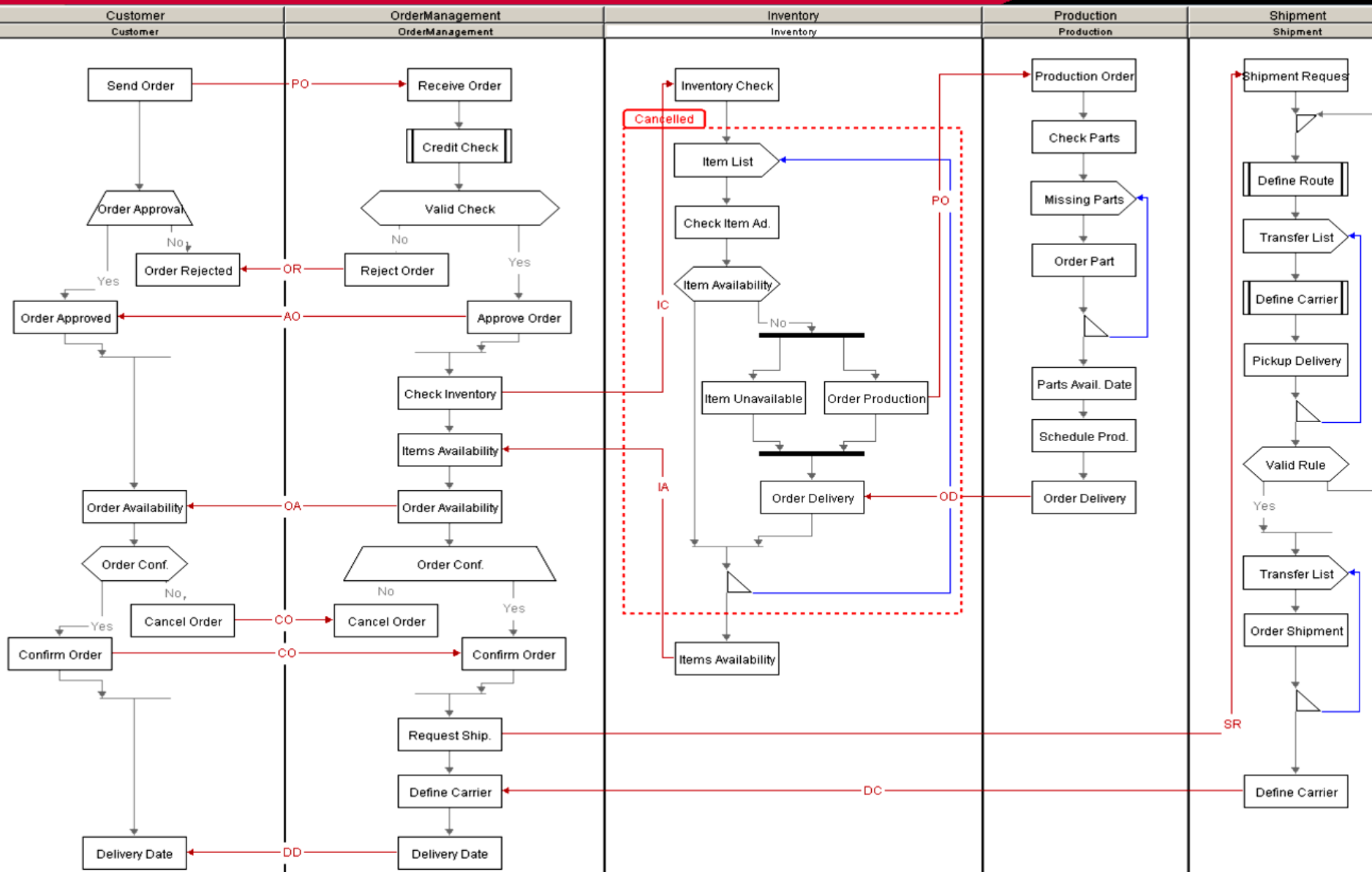


When complexity mounts and eventually becomes unmanageable, it's time for action

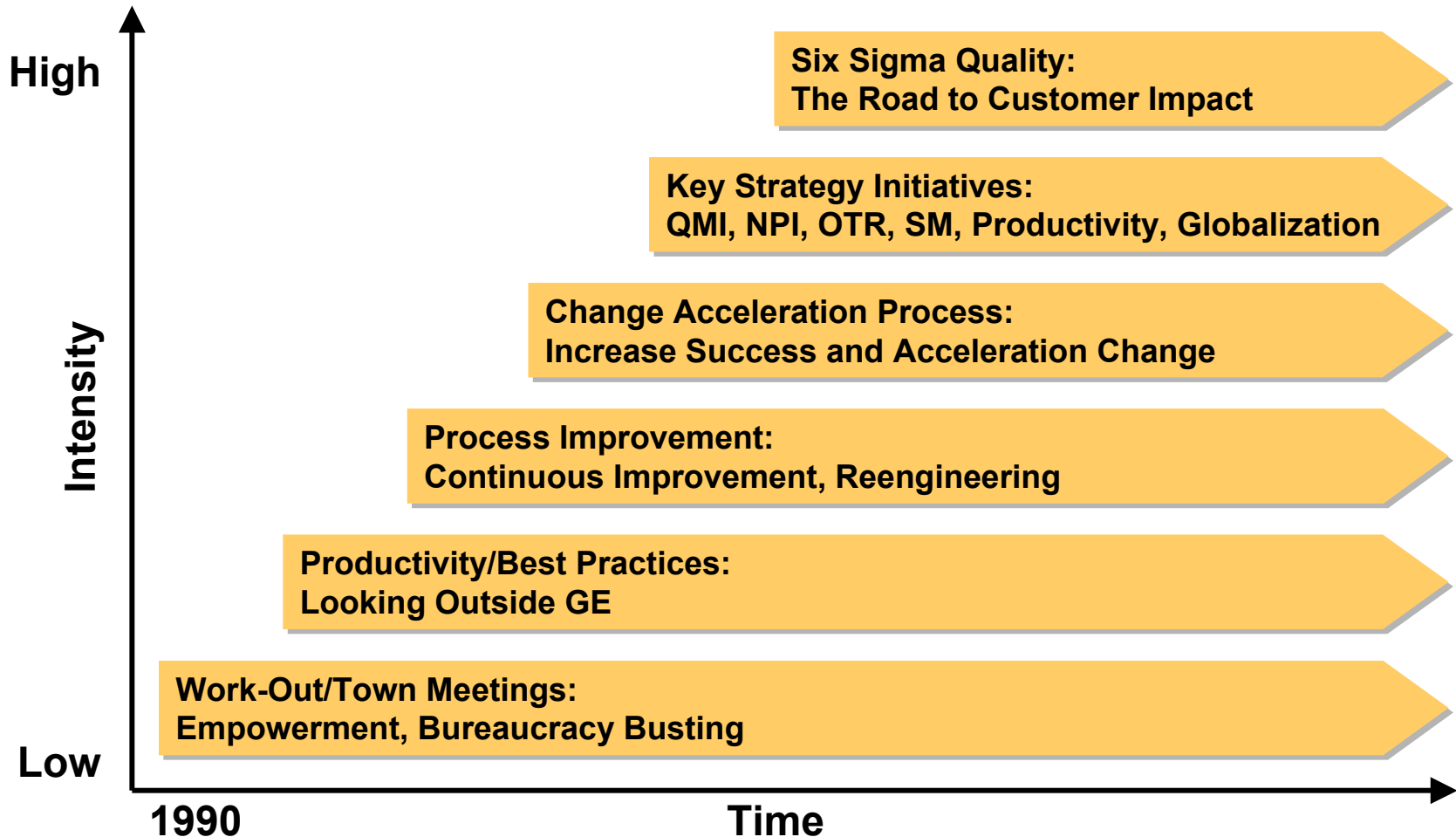


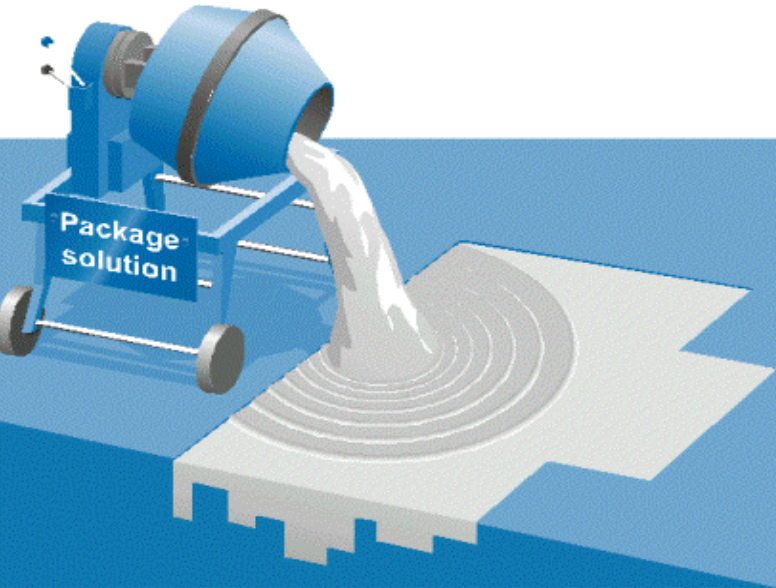


How business people think



Processes are not new, but until now the IT Industry has failed to develop an effective platform for their deployment, optimization, and analysis

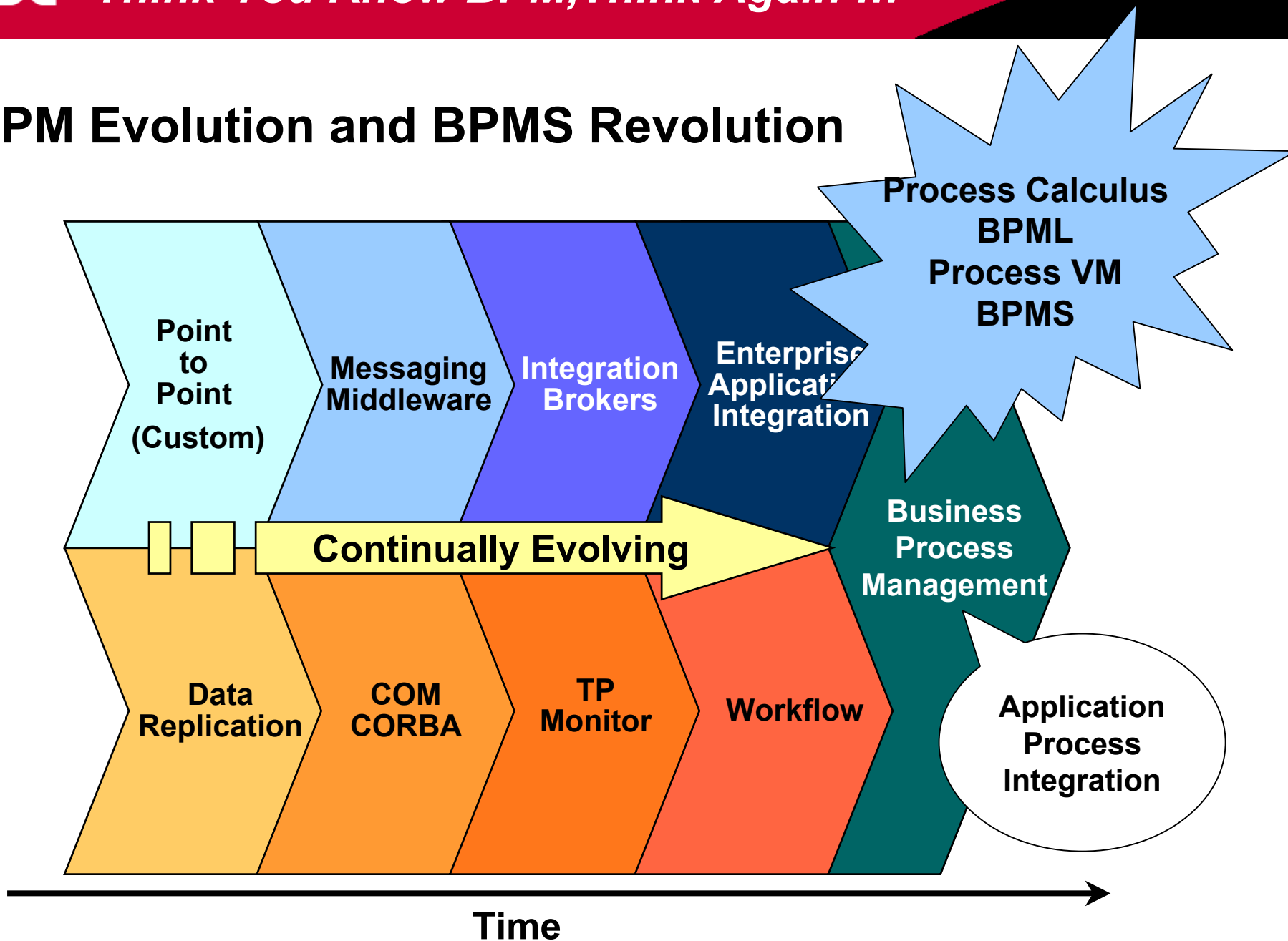


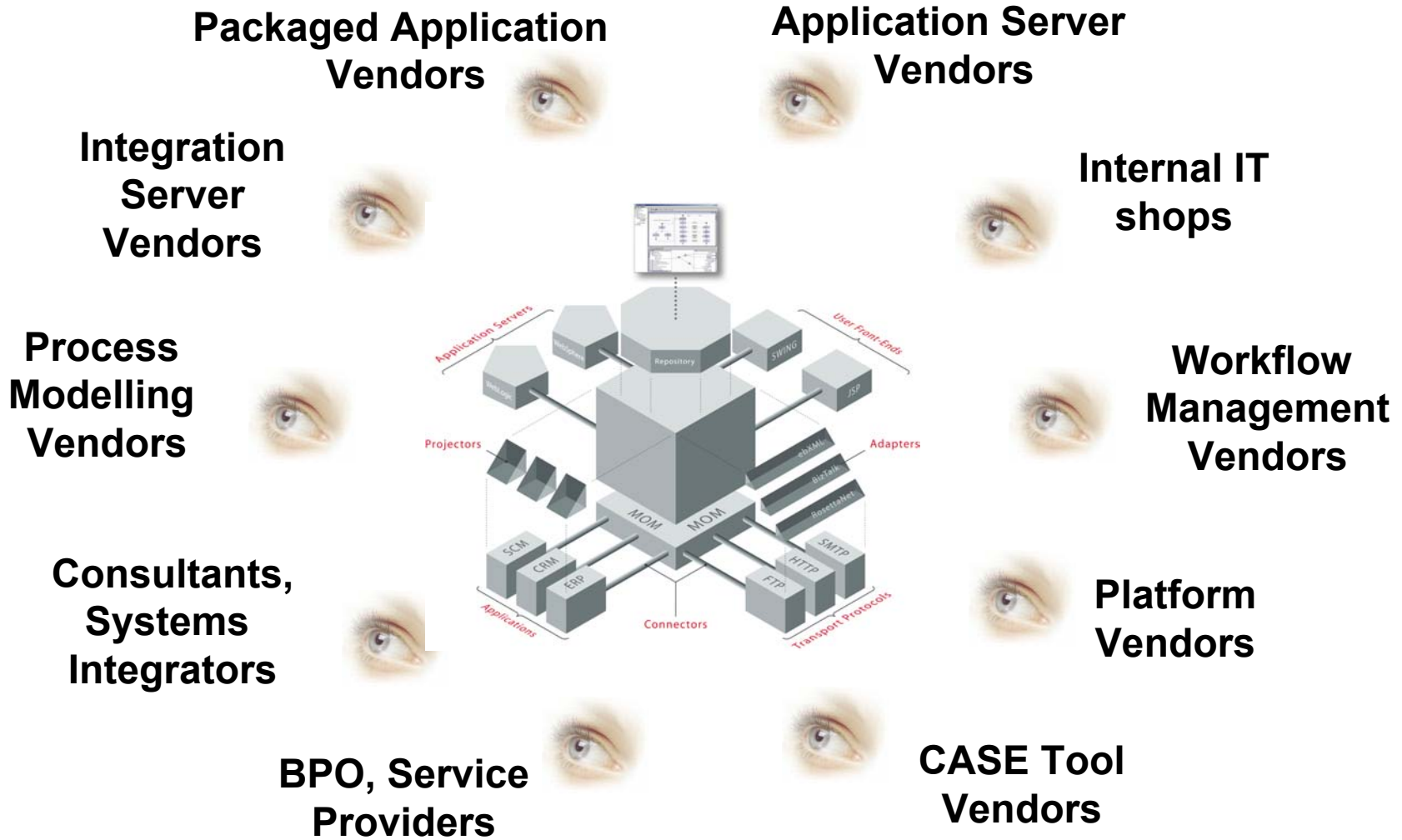


The next 50 years
of business and IT?



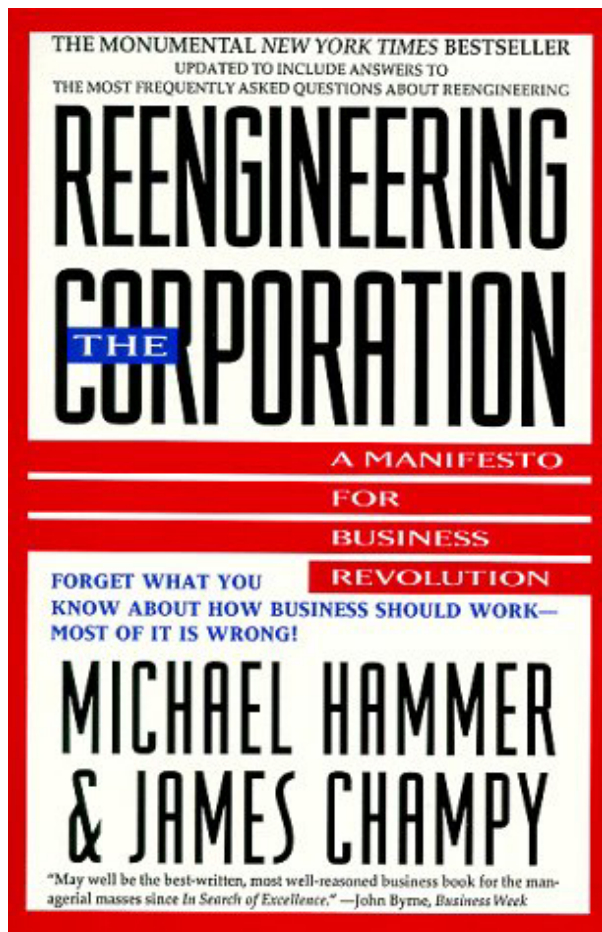
BPM Evolution and BPMS Revolution



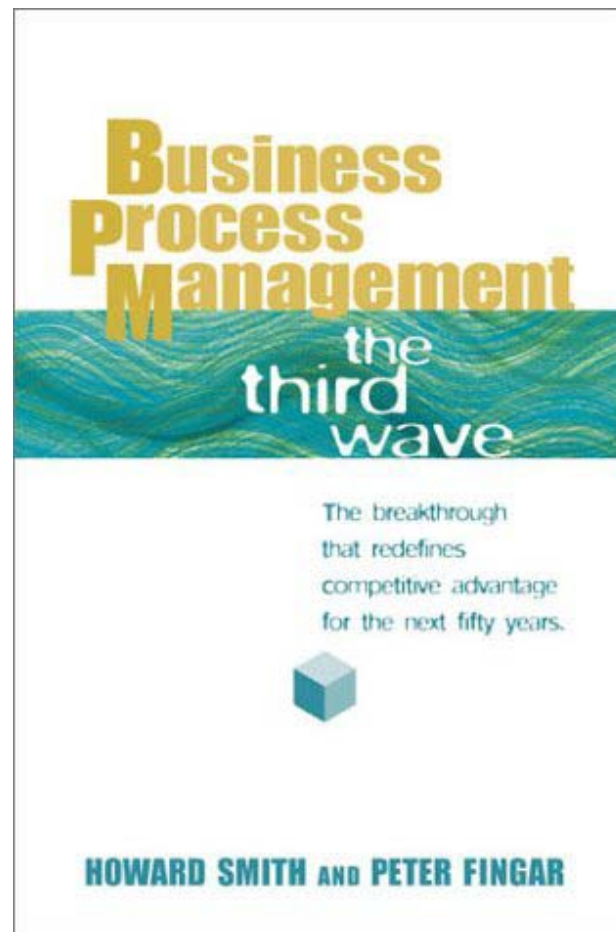


Each with a different and sometimes vested perspective

www.bpm3.com



1993



2003

First wave

Second wave

Third wave

1920s

Methods & Procedures
Analysis
Process implicit in
Work practices
Little automation

1980-90s

ERP, other packages
Manual reengineering
IT Enablers/Automation
One-time creation

2000s

Process focus of IT
Path to execution
Agility, adaptation
Closed loop optimization

1980s

TQM
Continuous
Scientific
Incremental

1990s

Reengineering
Disruptive
Un-scientific
Radical

2000s

BPM
Continuous
Scientific
Lifecycle

1970-90s

DBMS
Sharing data
Data aware applications

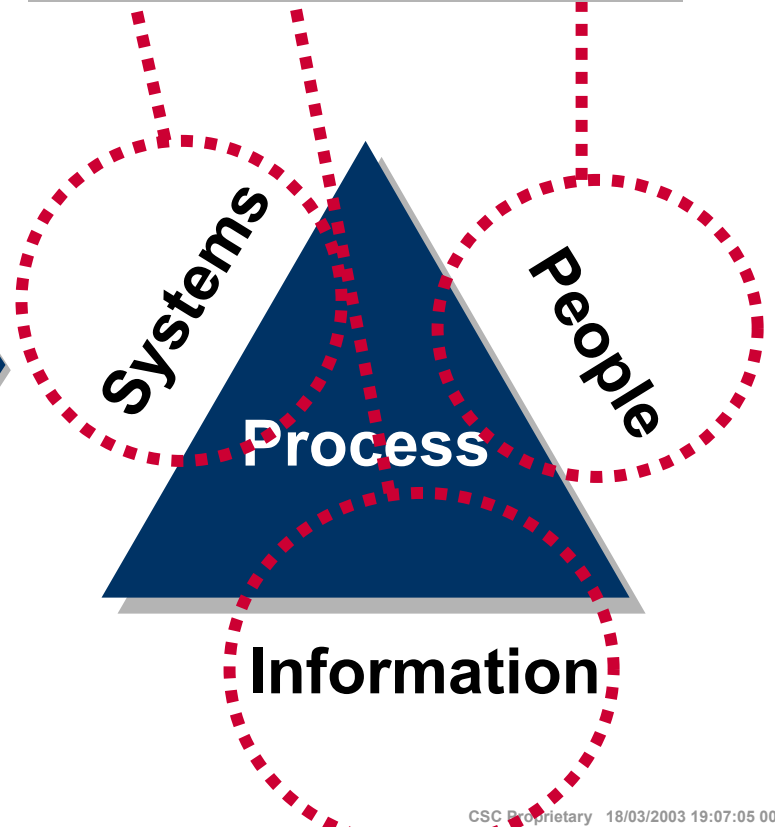
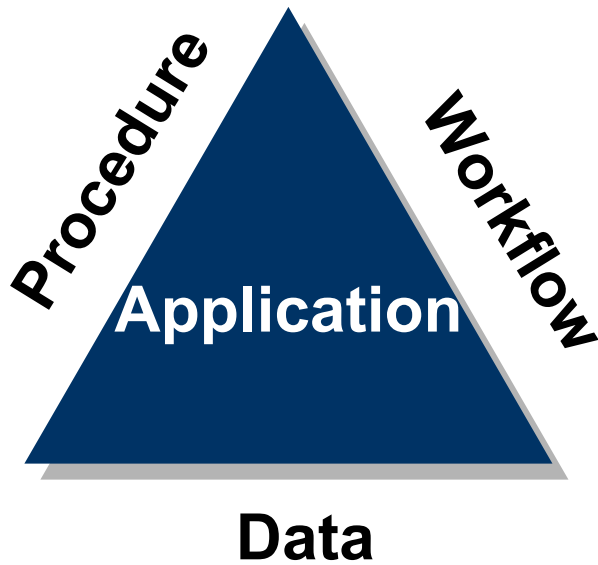
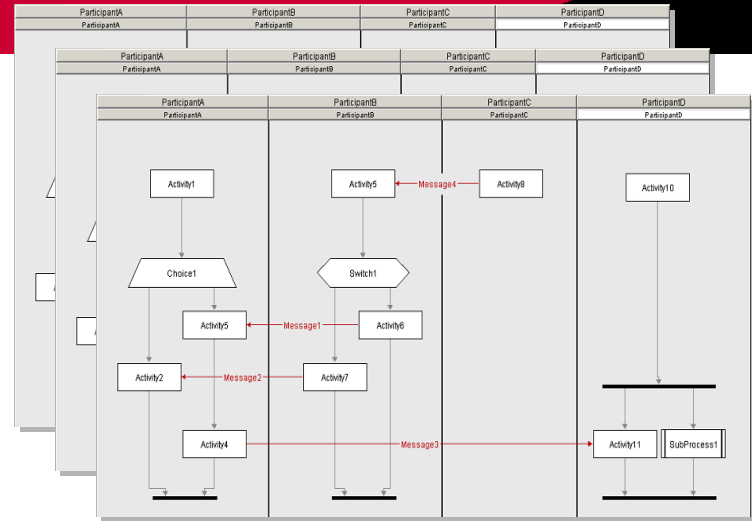
1990s

Distributed computing
Sharing functions
Distributed applications

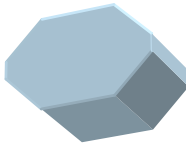
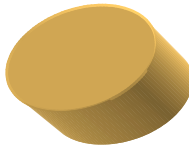
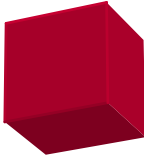
2000s

BPMS
Sharing processes
Distributed processes

Process Architecture

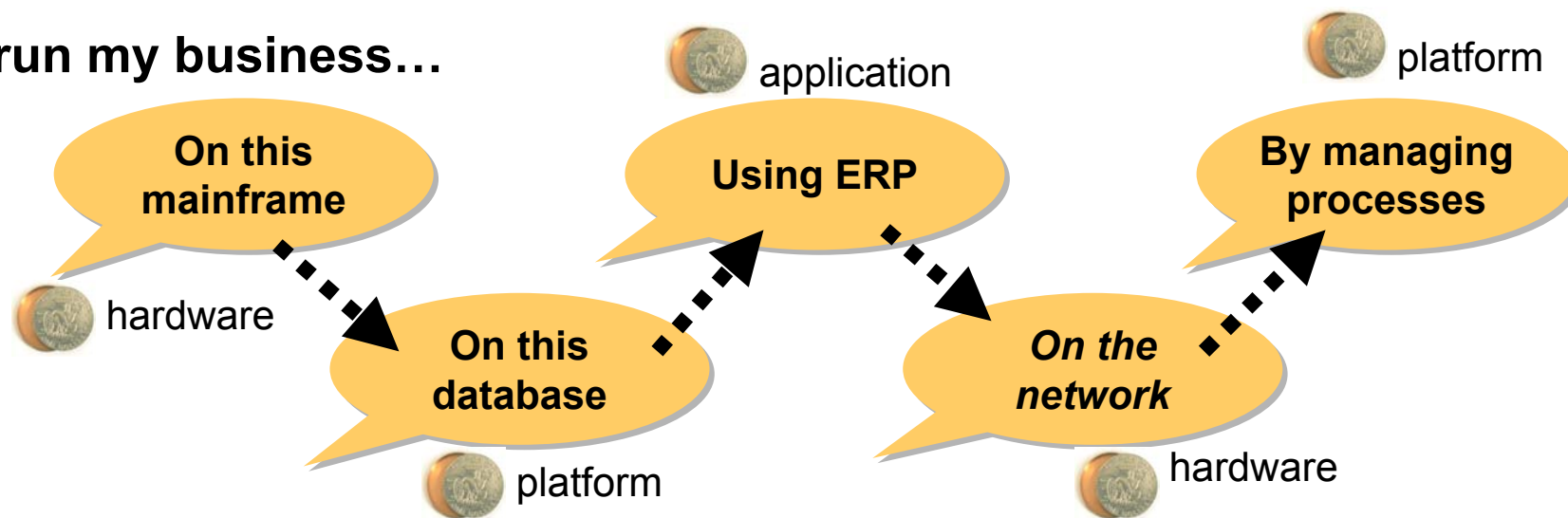


The Changing Platform for Business Capability

Applications	MRP	ERP, CRM, SCM	BPM, BPO, BPU ...
Platform	Mainframe	Operating System	Web Services
Language	DL/1	SQL	BPML
System	HDBMS 	RDBMS 	BPMS 

Trends in business infrastructure

“I run my business...”



Data-centric architecture



Distributed computing



Process-centric architecture

Learning From the Past: E F CODD Revisited or how Larry Ellison Got Rich

- **“Large data banks must be protected from having to know how the data is organised in the machine (the internal representation)**
- **Activities of users and most application programs should remain unaffected when the internal representation of data is changed**
- **Changes in data representation will often be needed as a result of changes in query, update, and report traffic and natural growth in the types of stored information**
- **A model based on n-ary relations, a normal form for database relations, and the concept of a universal data sublanguage are introduced**
- **Three of the principal kinds of data dependencies that still need to be removed from existing systems: ordering dependence, indexing dependence, and access path dependence”**

..., \sim_ω is a decreasing sequence of relations.
 claim is a consequence of the fact that the transition relations

$\sim_\omega Q$ iff $P \sim Q$.

from the definitions that $P \sim Q$ implies $P \sim_\omega Q$.
 $\sim_\omega Q$ implies $P \sim Q$ by establishing that \sim_ω is a bisimulation.
 Q and $P \xrightarrow{\alpha} P'$. Then for each $n < \omega$ there is Q_n such that
 Since $\xrightarrow{\alpha}$ is image-finite, there is Q' such that $Q \xrightarrow{\alpha} Q'$ and
 tely many n . We deduce that $Q' \sim_n P'$ for infinitely many n ,
 P' . \square

$\sum_{i \in I} P_i$ abbreviates $P_{i_1} + \dots + P_{i_r}$ where $I = \{i_1, \dots, i_r\}$.

Suppose that $n \geq 0$ and $P \not\sim_n Q$. Then there is a summation M
 $\tilde{z} \subseteq \text{fn}(P, Q)$ and any fresh name s ,

$$(\nu \tilde{z})(P \mid (M + s)) \not\sim (\nu \tilde{z})(Q \mid (M + s)).$$

on on n . For $n = 0$ there is nothing to prove, so suppose that
 e are α and P' such that $P \xrightarrow{\alpha} P'$ but $P' \not\sim_{n-1} Q'$ for all Q'
 $Q' \xrightarrow{\alpha} Q'$ (or vice versa, when the argument is the same). Since $\xrightarrow{\alpha}$
 $\{Q_i \mid i \in I\}$ for some finite set I . Appealing
 hypothesis, for each $i \in I$ let M_i be a summation such that for
) and any fresh name t ,

$$(\nu \tilde{w})(P' \mid (M_i + t)) \not\sim (\nu \tilde{w})(Q_i \mid (M_i + t)). \quad (2.2)$$

cases, one for each form that α can take. We give the details

Since $A \sim B$ there is B' such that $B \xrightarrow{\tau} B'$
 $B' \downarrow_s$ does not hold. The only way this is po

$$B' \stackrel{\text{def}}{=} (\nu \tilde{z})(Q_j \mid \sum_{i \in I} P_i)$$

for some $j \in I$. We now exploit the inducti
 We have

$$A' \xrightarrow{\tau} A'' \stackrel{\text{def}}{=} (\nu \tilde{z})(P' \mid \sum_{i \in I} P_i)$$

Since $A' \sim B'$ there is B''_j such that $B' \xrightarrow{\tau} B''_j$
 we must have $B''_j \downarrow_{s_j}$. The only possibility is

$$B''_j \stackrel{\text{def}}{=} (\nu \tilde{z})(Q_j \mid (M_i + t))$$

But $A''_j \not\sim B''_j$ by (2.2), a contradiction. Hence

Case 2 Suppose that α is $\bar{x}y$. Let s_i ($i \in I$) a

$$M \stackrel{\text{def}}{=} x(w). \sum_{i \in I} [w = y] P_i$$

The argument is then similar.

Case 3 Suppose that α is $\bar{x}(z)$. Suppose $\text{fn}(P, Q)$
 and t and w be fresh names, and set

$$M \stackrel{\text{def}}{=} x(w). (\sum_{h=1}^k [w = a_h] t + \sum_{i \in I} P_i)$$

The argument is then similar. In this case, us
 we have

$$A' \stackrel{\text{def}}{=} \nu \tilde{z} \nu z (P' \mid (\sum_{h=1}^k [z = a_h] t + \sum_{i \in I} P_i))$$

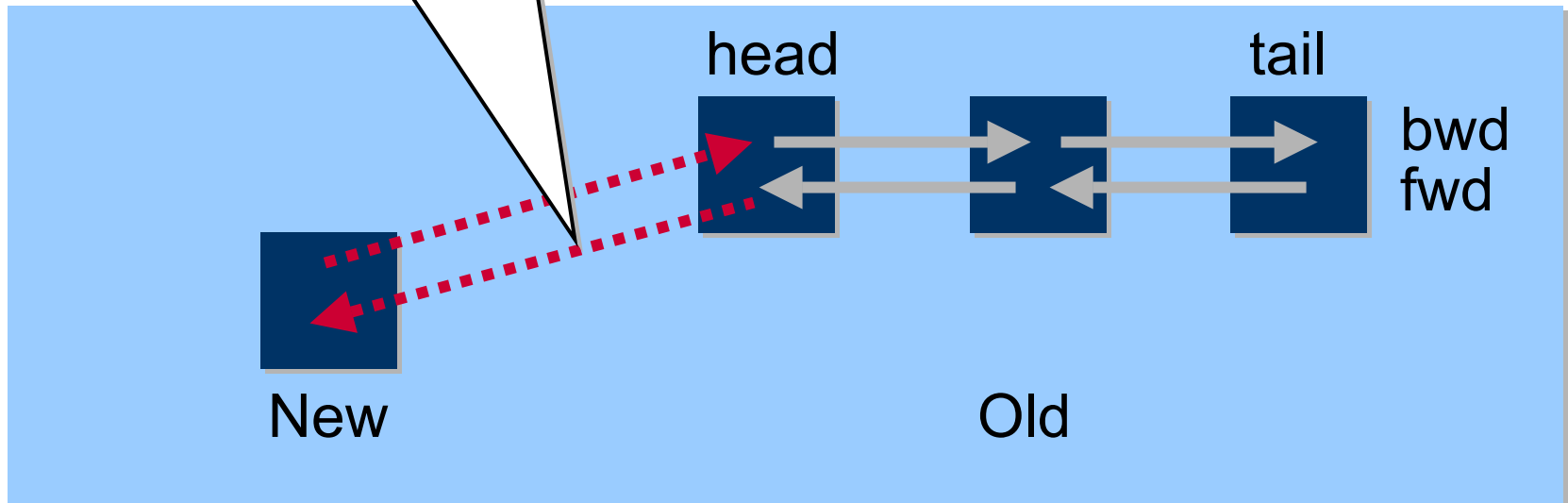
and not $A' \downarrow_s$ and not $A' \downarrow_t$. It follows that the
 from Q performing a bound

Process calculus primitives

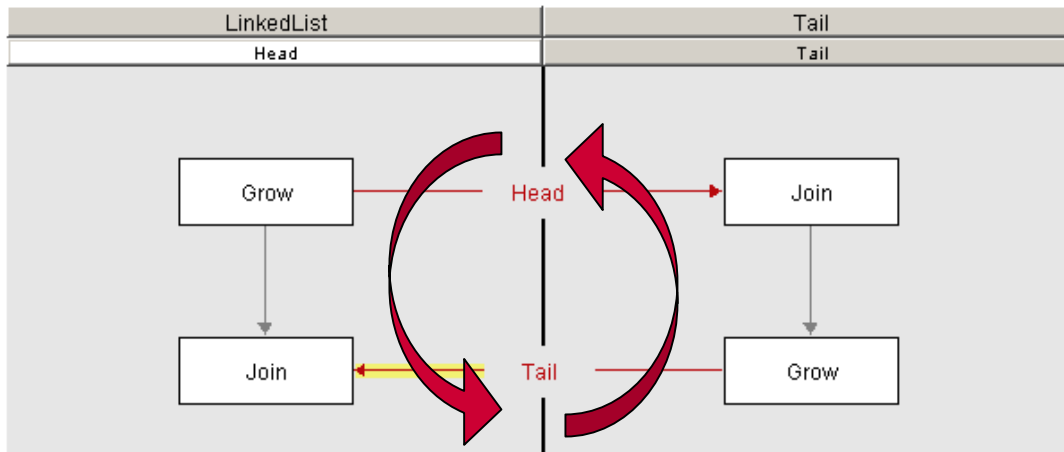
Operation	Notation	Meaning
prefix	$\pi.P$	sequencing
action	$x(y)$ $\bar{x}y$	communication
summation	$a.P + b.Q$	choice
	$\Sigma \pi_i.P_i$	
recursion	$P = \{\dots\}.P$	repetition
replication	$!P$	
composition	$P \mid Q$	concurrency
restriction	$(\nu x)P$	encapsulation

Process calculus shows us how to break down distinctions between code and data

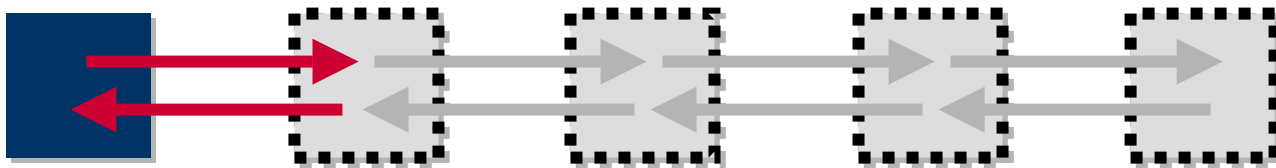
extend-list (new, old)
new.bwd = old.head
old.head.fwd = new
end



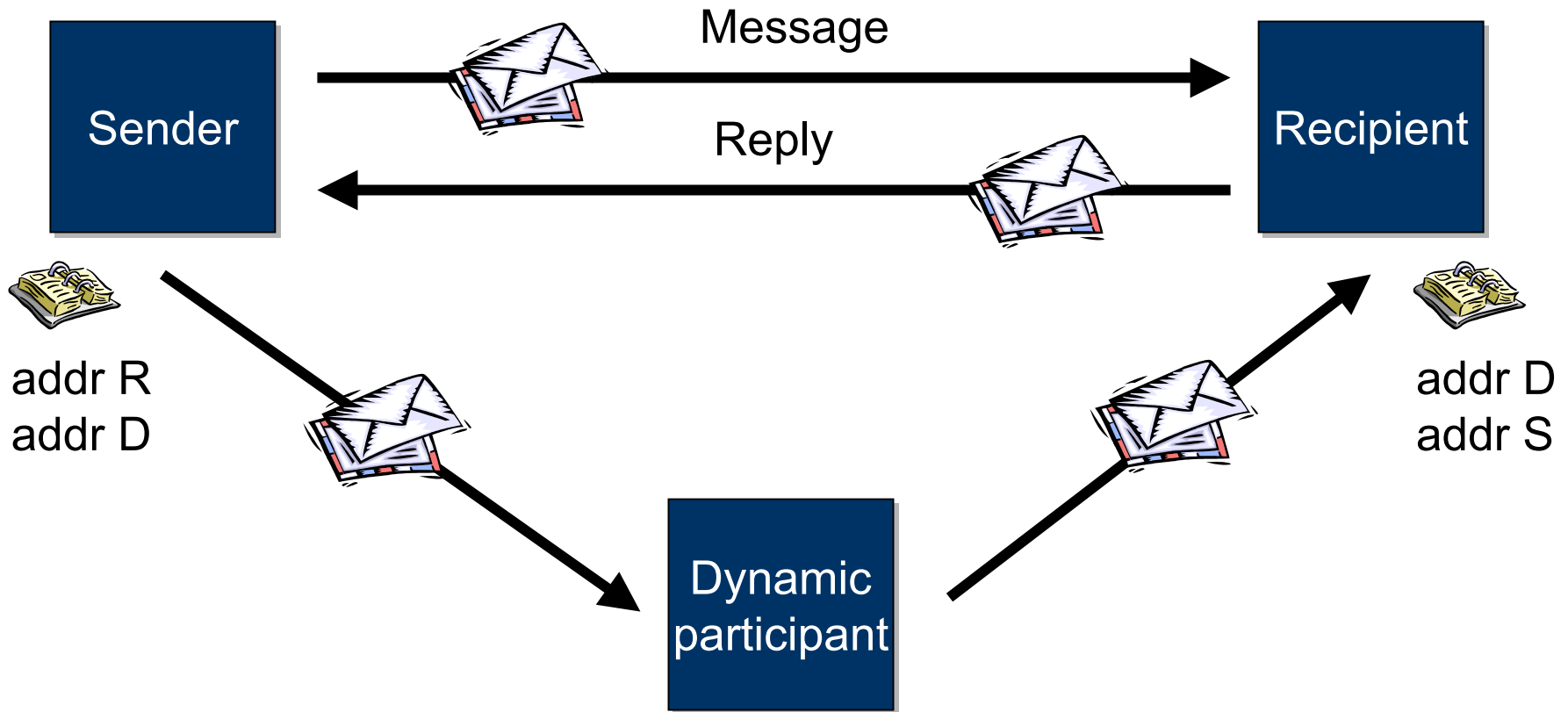
A BPML process encodes its past, present and potential futures



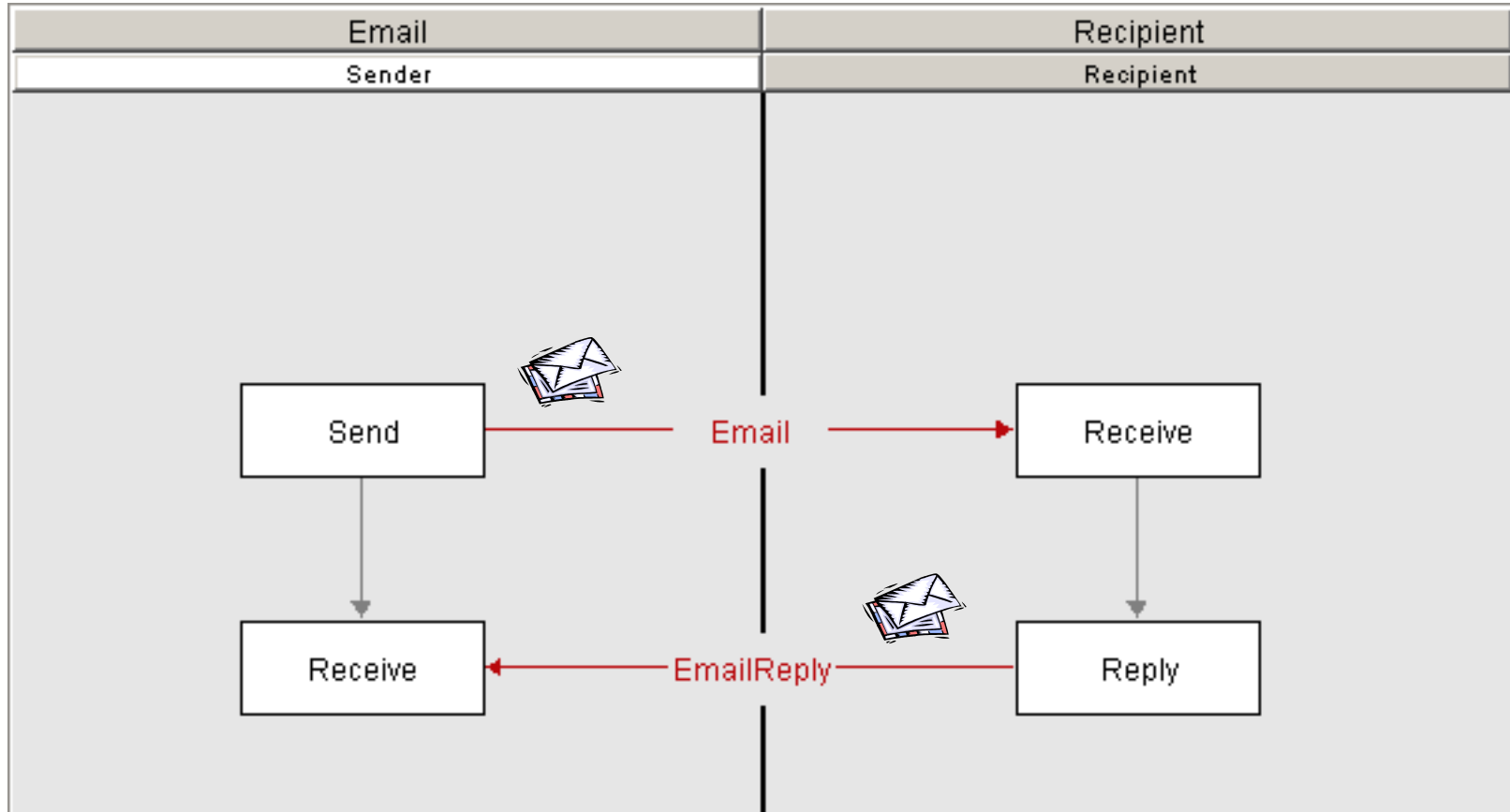
BPML processes
“proceed”



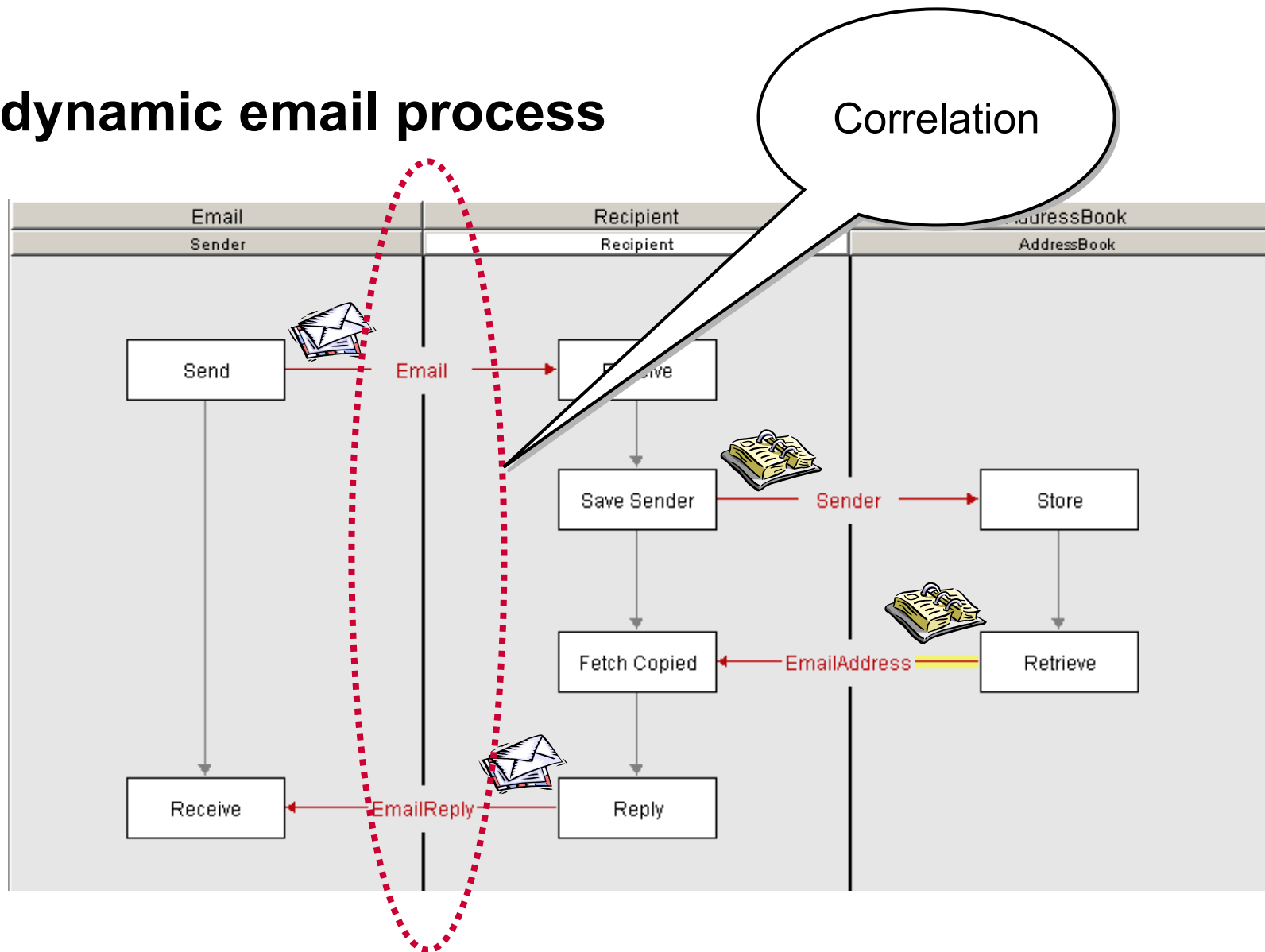
Electronic mail is a dynamic process



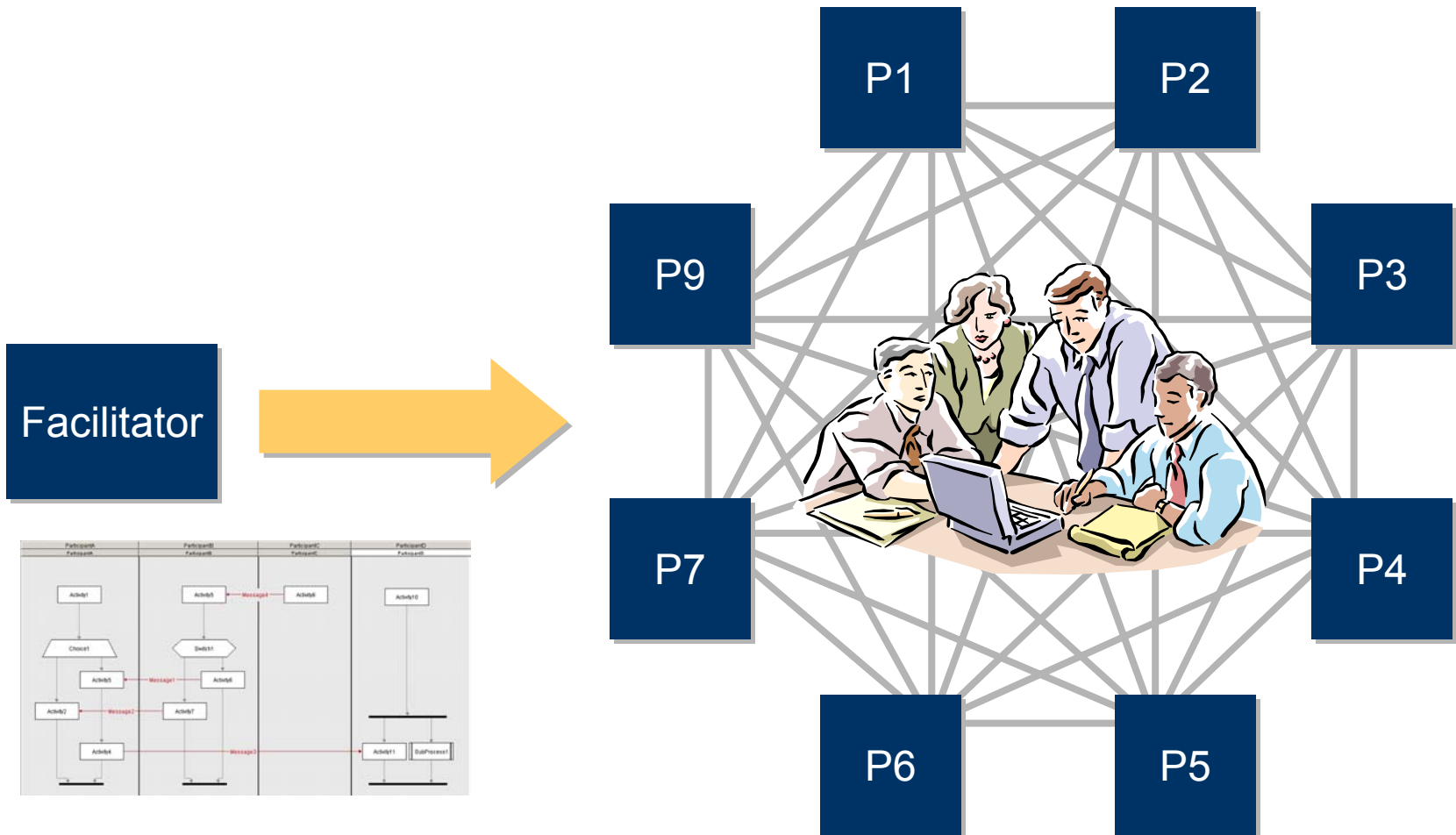
A static email process



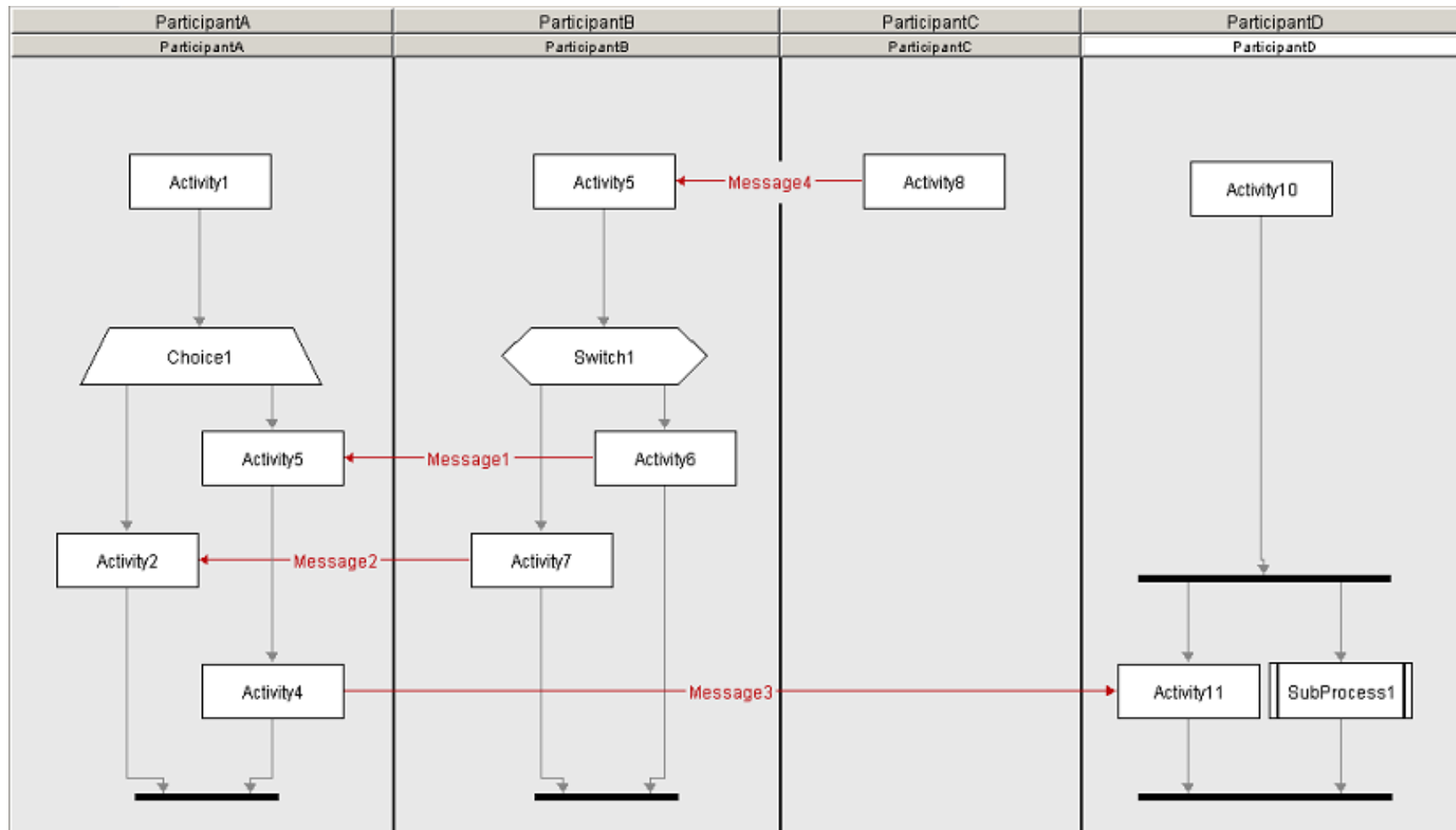
A dynamic email process



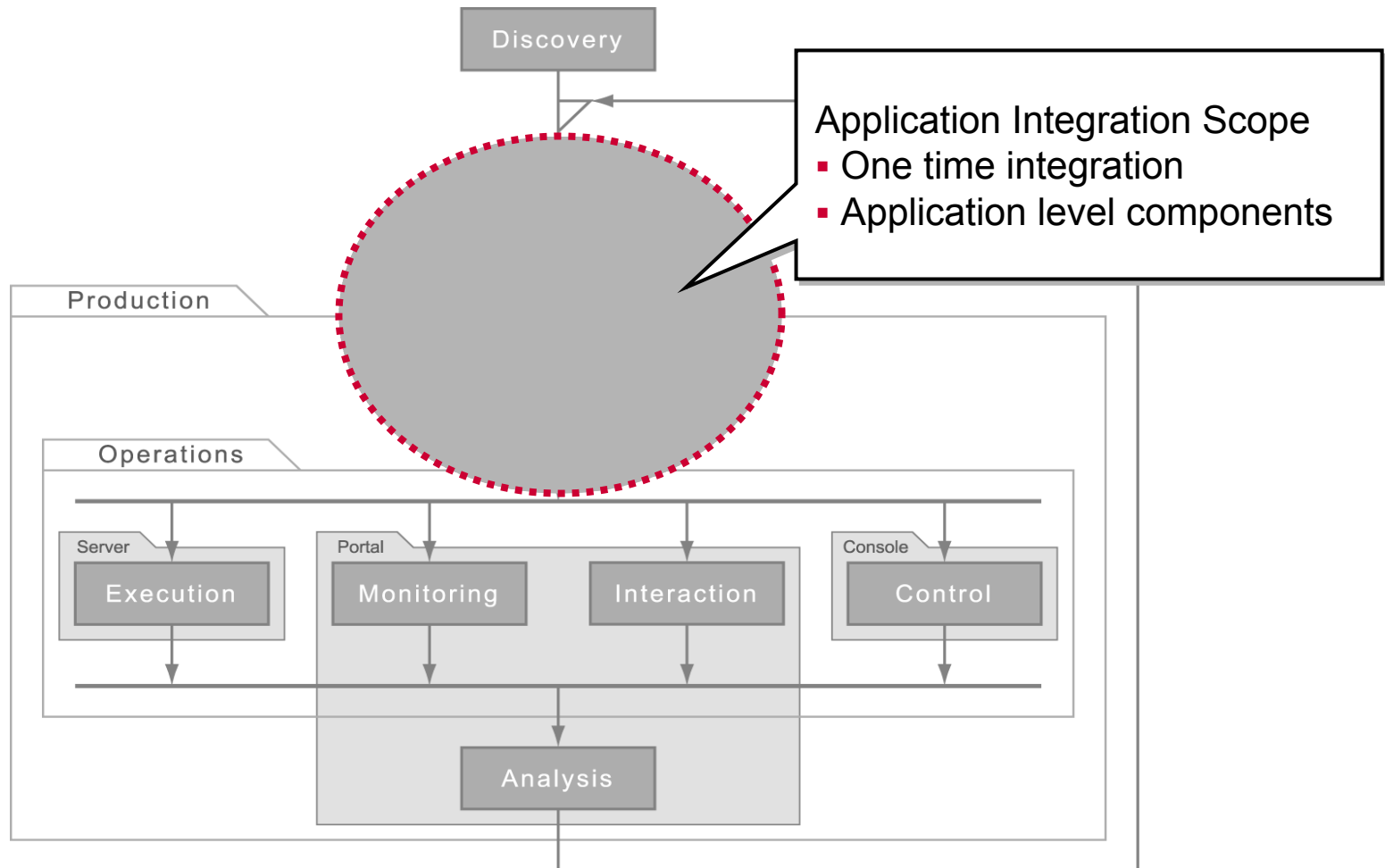
Dynamic process example: collaboration



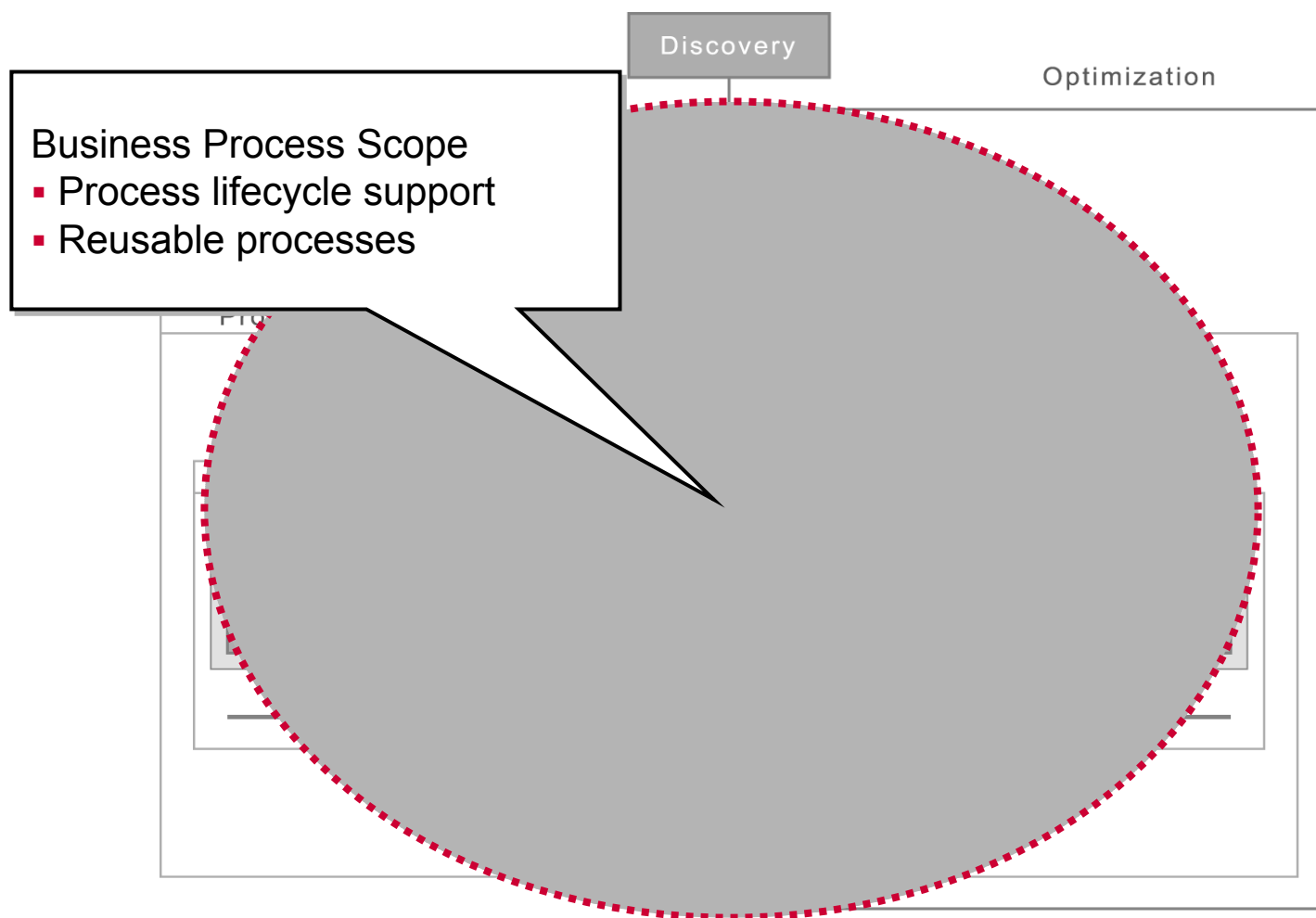
Switch and choice, cause and effect

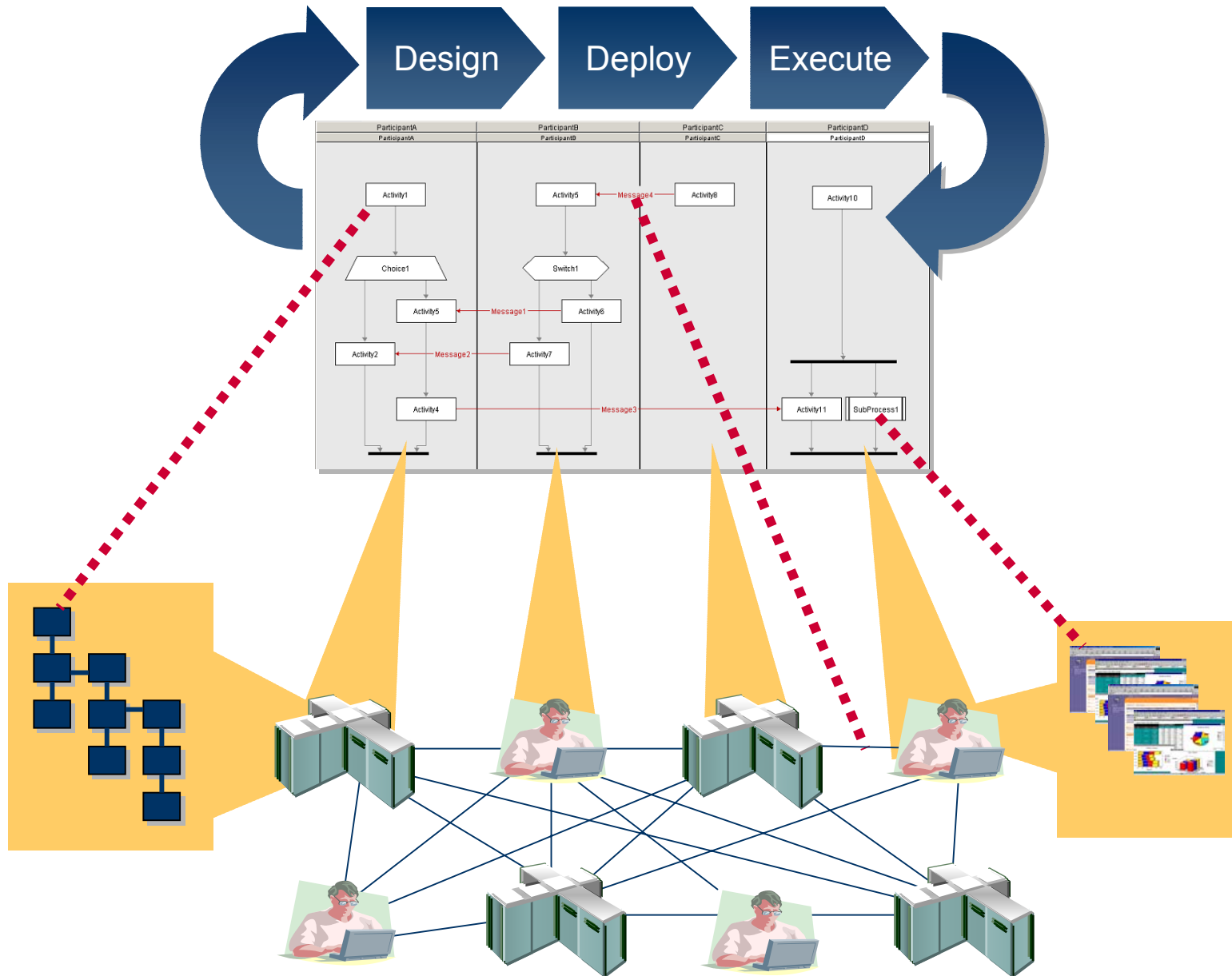


All processes have a lifecycle but few are managed today, due to cost, complexity or other practical issues



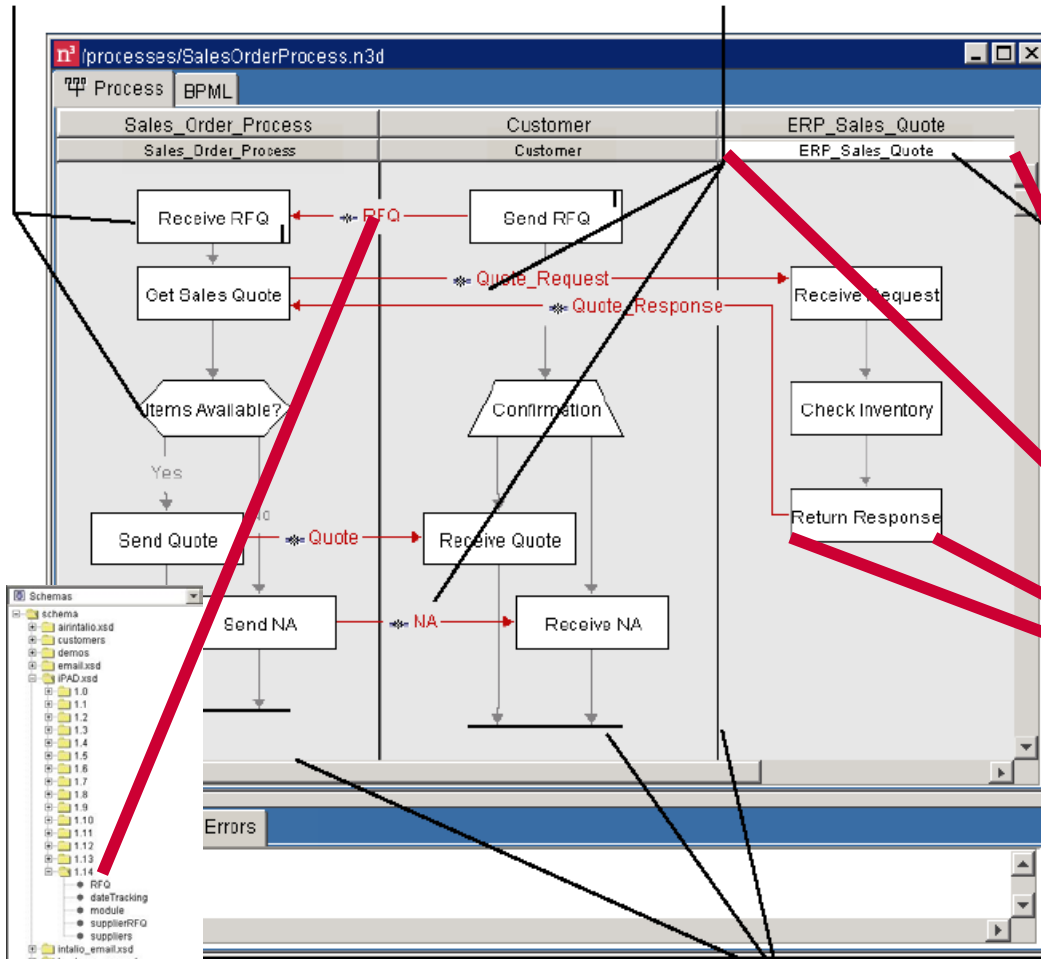
All processes have a lifecycle but few are managed today, due to cost, complexity or other practical issues





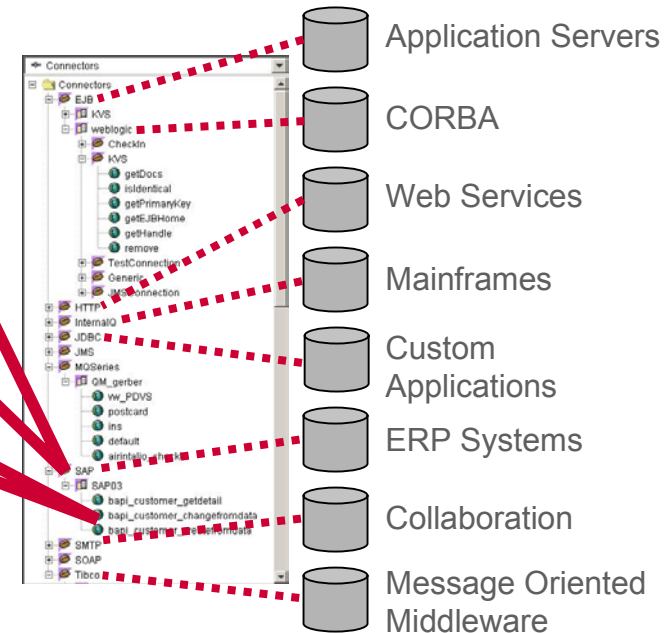
Process shapes describe activities and logical rules for activities

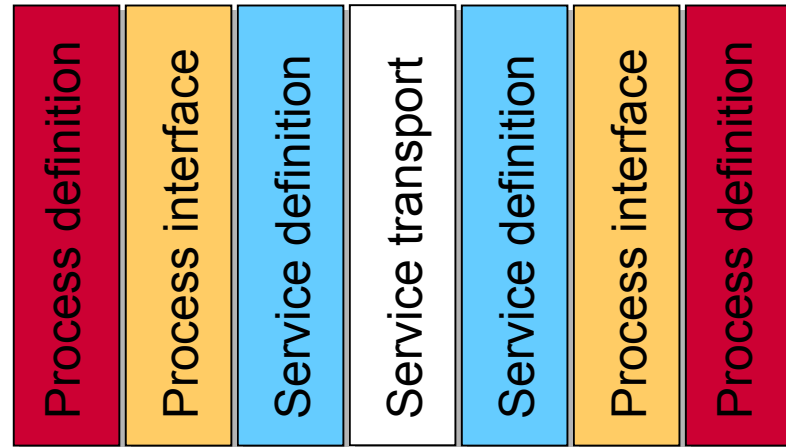
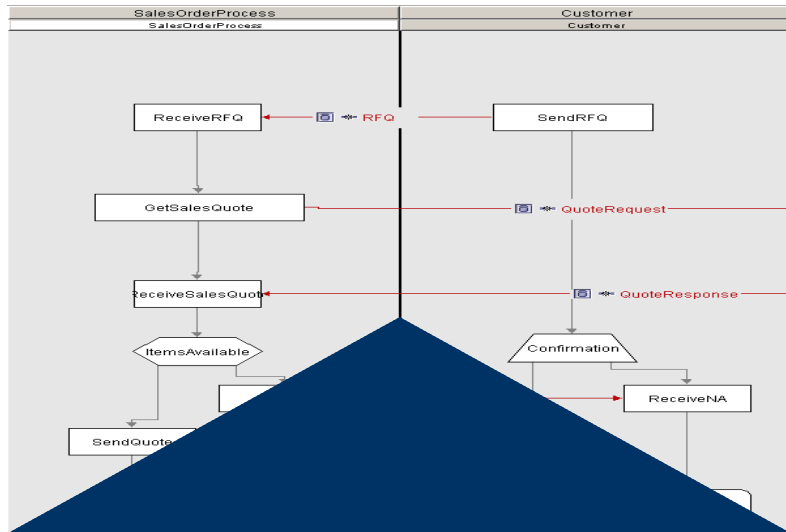
Messages indicate communications between processes



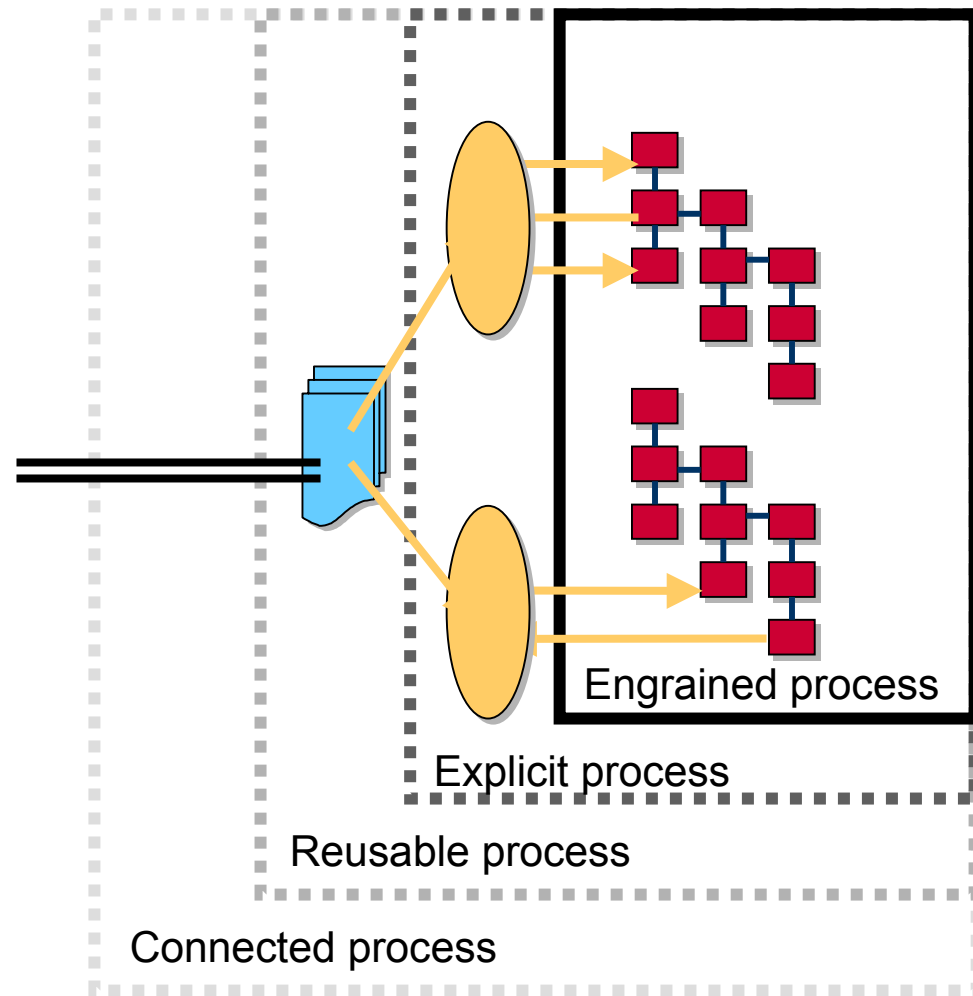
Window lists validation errors Swimlanes describe participants

White bar indicates the active swimlane

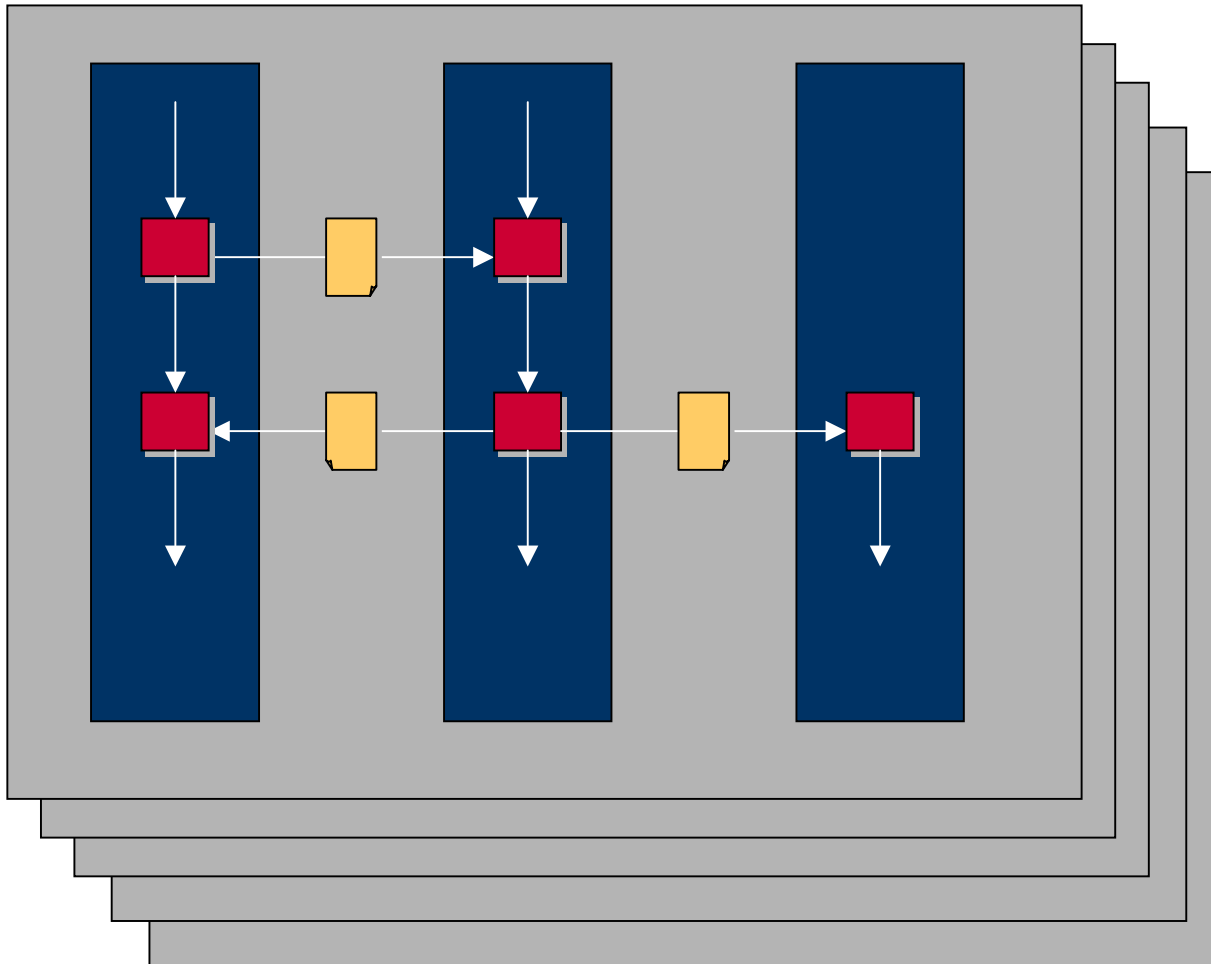
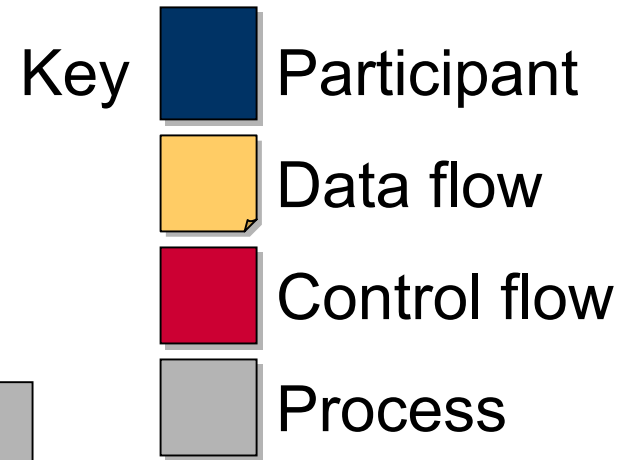


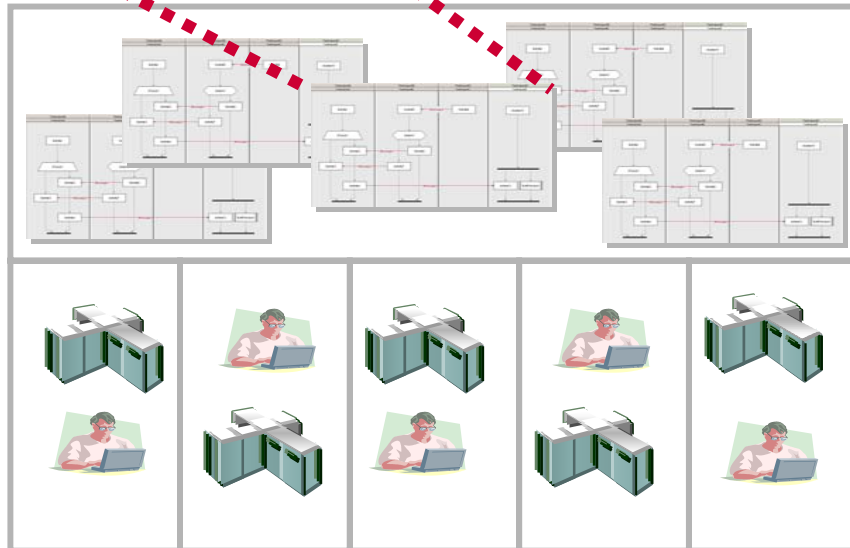
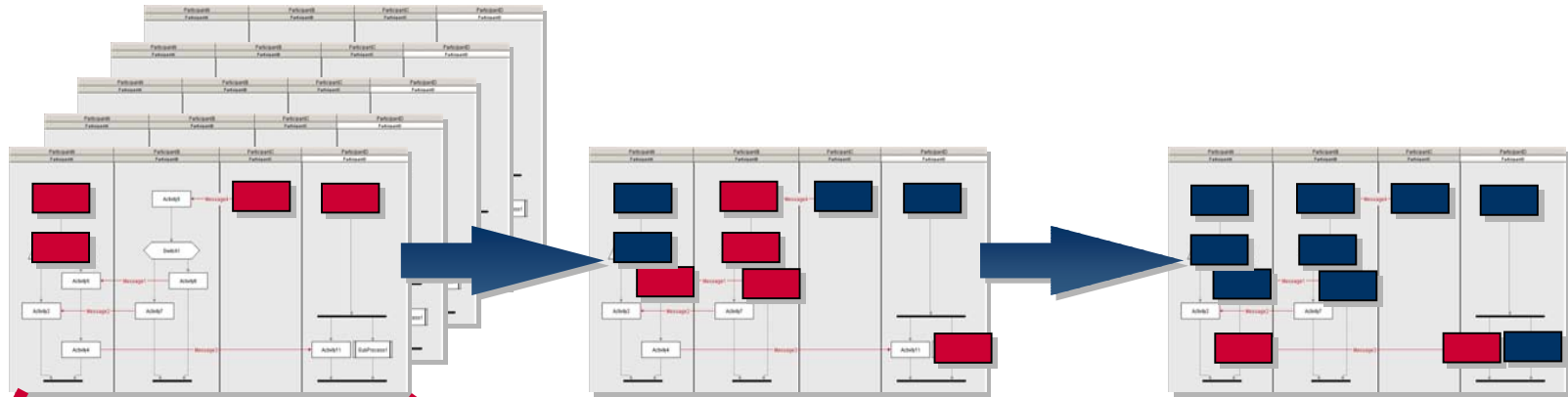


- Connection
- Introspection
- Projection
- Participation



Process perspective

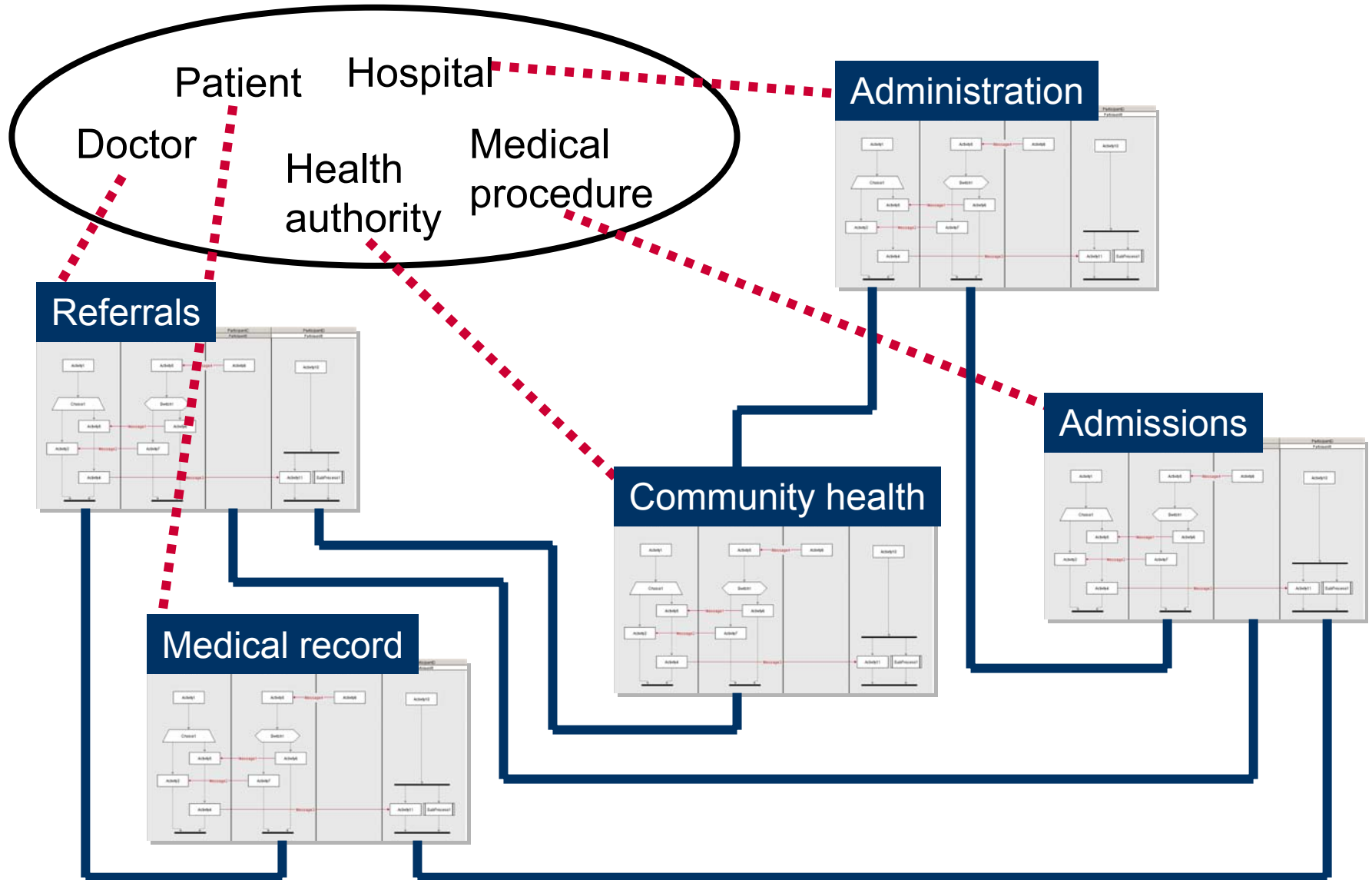




End to end
Process
design

Discrete
functional
components

Medical ecosystem



Business Process Management Initiative (BPMI.org)

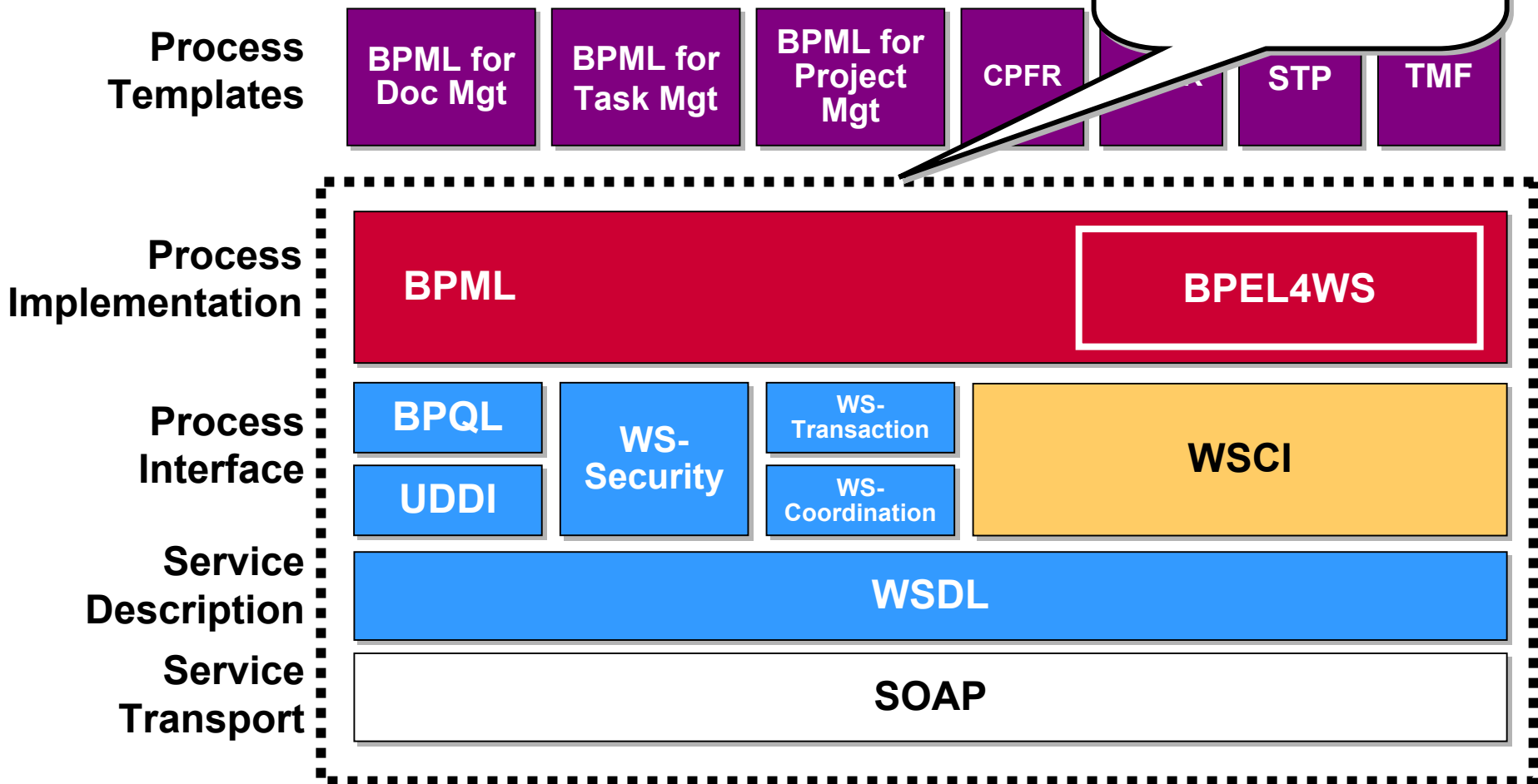


BPML.org update

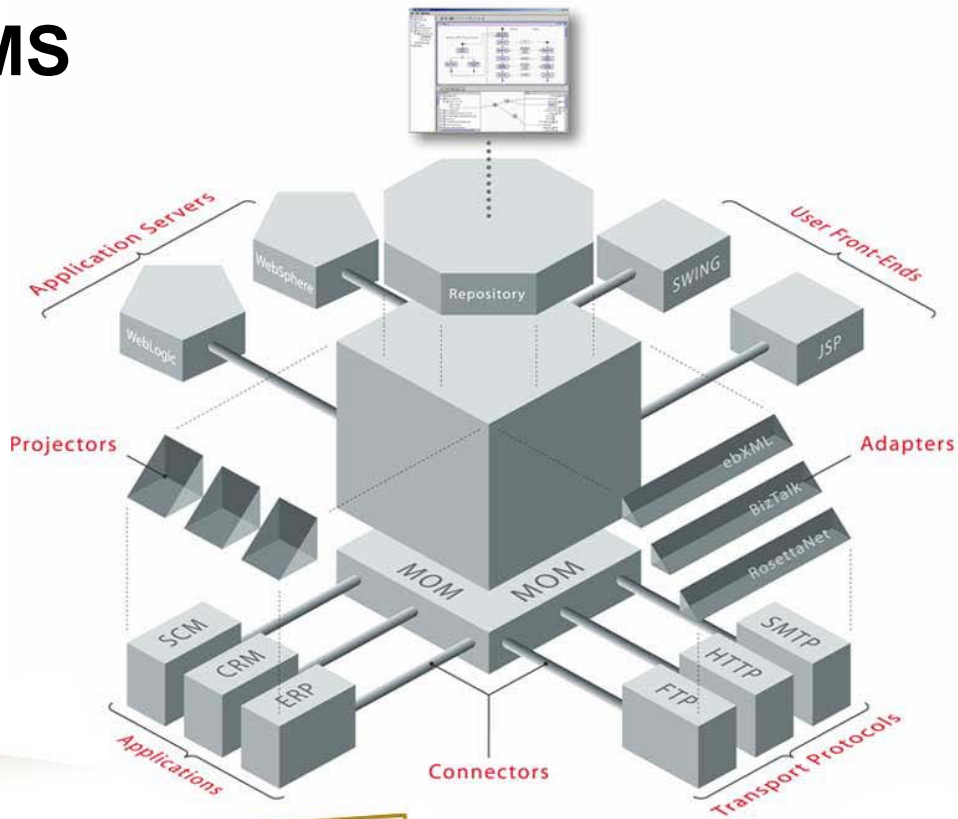
- **BPML 1.0 Released**
- **BPML 1.0 Voted by members as an Approved Recommendation**
- **2003 Board of Directors Elected**
 - **Computer Sciences Corporation, IDS-Scheer, Intalio, SAP, SeeBeyond, Sterling Commerce, Versata**
- **2003 Elected Chairs**
 - **Computer Sciences Corporation, Intalio**
- **Accelerating industry convergence**
 - **“IBM and Microsoft combine XLANG and WSFL to create BPEL4WS”**
 - **WSCI based on BPML submitted to W3C WS-CHOR**

Today's BPM Standards Stack

Customers want Web services INSIDE the BPMS



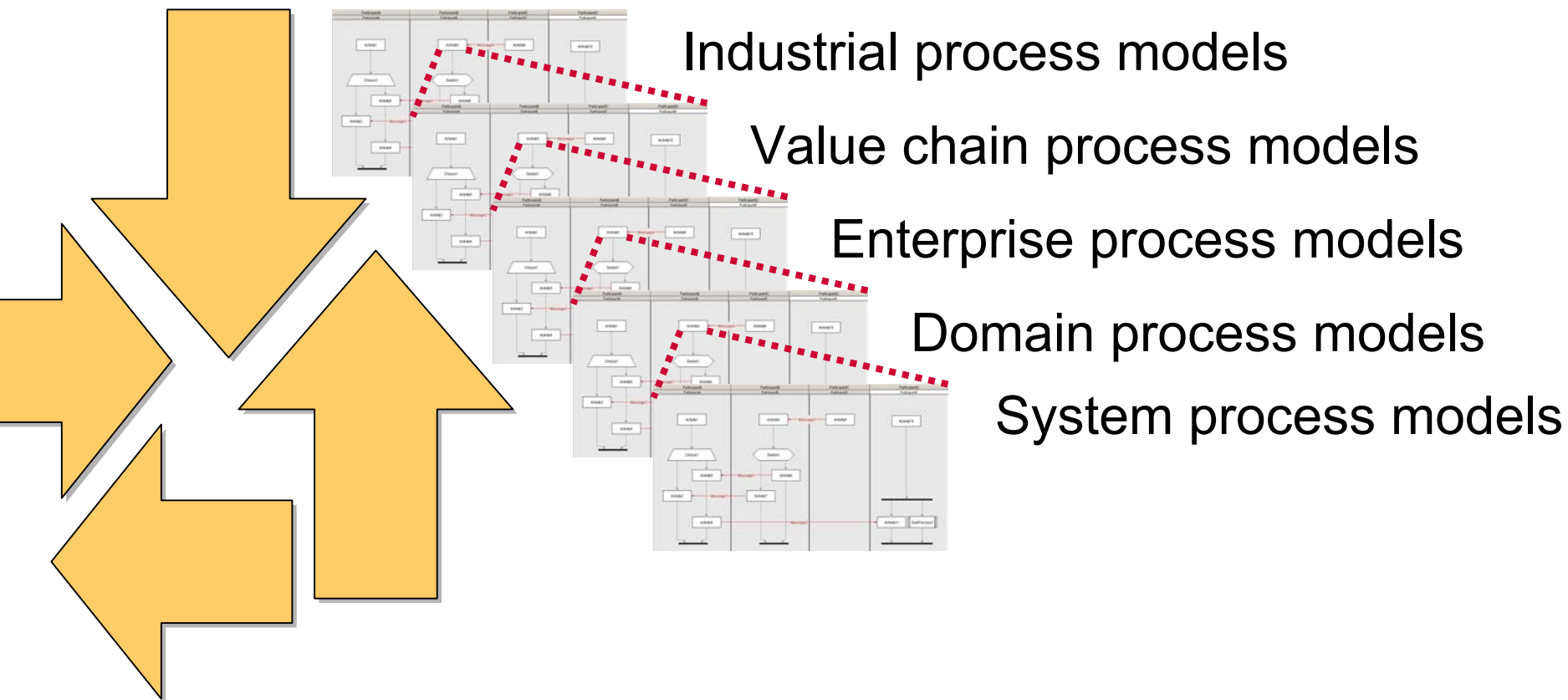
Process Models Meet BPMS



IDS Scheer and Intalio Extend Relationship to Develop Joint Business Process Management Solution

IDS Scheer the leading provider of business process excellence services and tools, today announced that IDS Scheer Inc., Philadelphia, USA, has extended its relationship with Intalio, a most important developer of business process management software. Through the agreement, IDS Scheer and Intalio will develop a joint solution to integrate the Intalio n3 Business Process Management System into ARIS to offer a complete solution to design, implement, execute, and manage intra- and inter-enterprise processes using IDS Scheer's award-winning ARIS Tools.

BPML processes are schemas for integrated systems



Total cost of process ownership

What if this process could be deployed under that time frame?

..... Process design to production time

What if this process could be deployed under that budget?

..... Process design to production cost

What if this process could be fully automated?

..... Process design automation coverage

What if this process could be tailored to each customer's needs

..... Process customisation level

What if this process could be completed in 1 day instead of 3?

..... Process completion time

What if this process could be updated on a daily basis?

..... Process life-cycle continuity

What if this process could be executed with 10 times fewer errors?

..... Process transactionality level

What if this process could involve these partners

..... Process value-chain coverage



Questions?

“Be careful what you wish for,
because you might just get it

...

Now, the naked organization itself
is all that lies between business
change and innovation”

– bpm3.com

www.bpm3.com/yankee for these slides