

FOR OMG BPM/SOA INTEGRATION WORKING GROUP

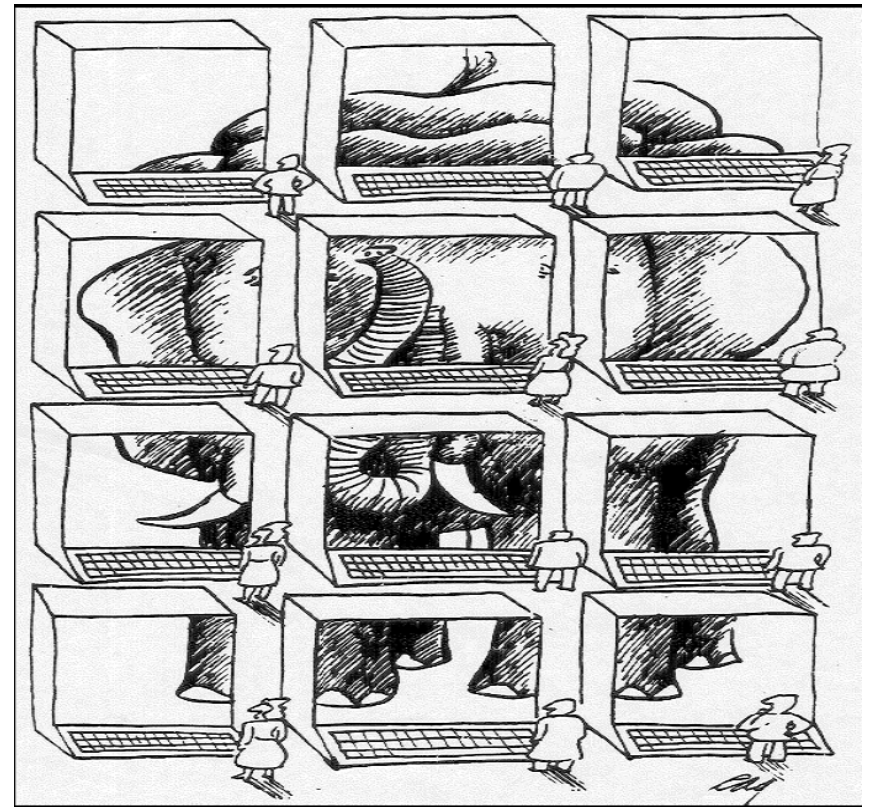
EXAMPLES OF BPM + SOA JOINT WORK

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The main problem of BPM and SOA – too many internal stakeholders

- top managers
- enterprise architects
- business line managers
- process owners
- super-users
- normal users
- project managers
- business analysts
- IT managers
- IT architects
- IT developers
- IT operators



System architecture view of an enterprise

- Dynamic set of artefacts/assets/primitives
- Artefacts are interconnected and interdependent
- We have to anticipate potential changes:
 - policies, compliance, technology, etc.
- Implementation of such changes necessitates the evolution of some artefacts and the relationships between them
- It must be easy to modify all artefacts and relationships without causing any unexpected side effects

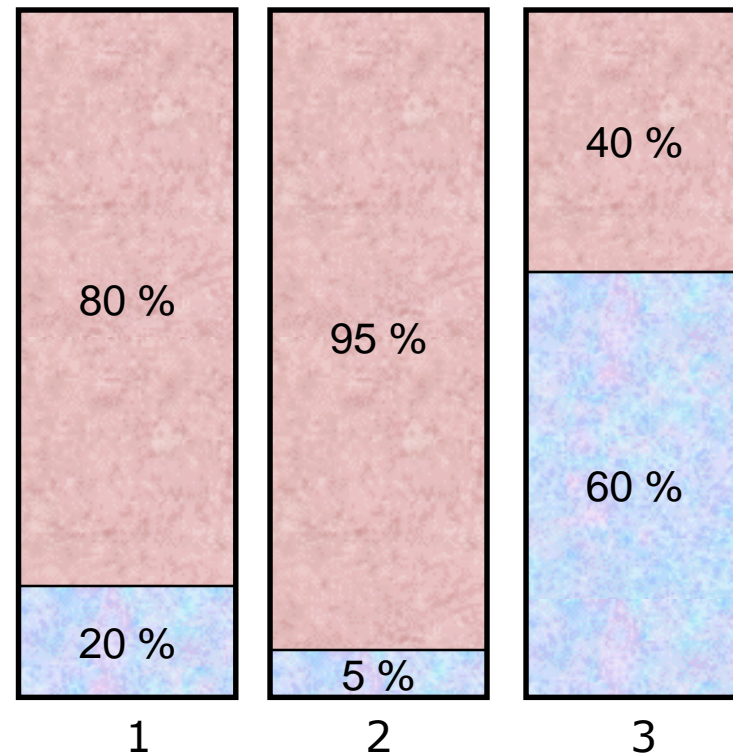


Enterprise business systems need to be adaptive

- Different estimations of the development/maintenance life-cycle cost ratio

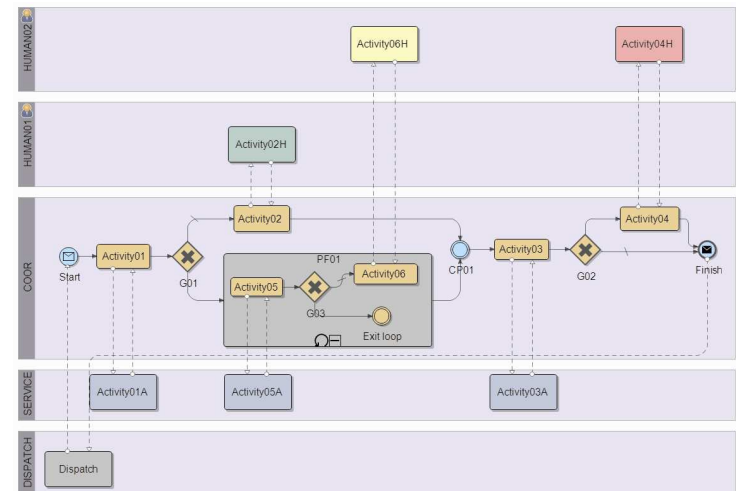


- 1 – Estimated average in the IT industry
- 2 – A real scenario (governmental client)
- 3 – Estimated by an IT staff member



Business processes are complex relationships between artefacts

- Who (*roles*) is doing What (*business objects*), When (*coordination of activities*), Why (*business rules*), How (*business activities*) and with Which Results (*performance indicators*)
- Extra artefacts
 - Events
 - Audit trails
 - Two types of business object
 - data structures
 - documents





BPM is a tool for improving enterprise business performance

BPM is a tool for improving enterprise business performance (used for managing enterprise processes)

A natural evolution of BPR, Lean, ISO 9001, 6 Sigma

The aim is to have a single description of business processes:

- model in design
- input for project planning and execution
- executable program for coordination of work
- documentation for all staff members
- basis for management decisions

A multitude of tools “handle” processes

BPM as software: BPM suite (BPMS)

An enterprise portfolio of the business processes as well as the practices and tools for governing the design, execution and evolution of this portfolio

Any process-centric enterprise has BPM but how can we **industrialise** this BPM?



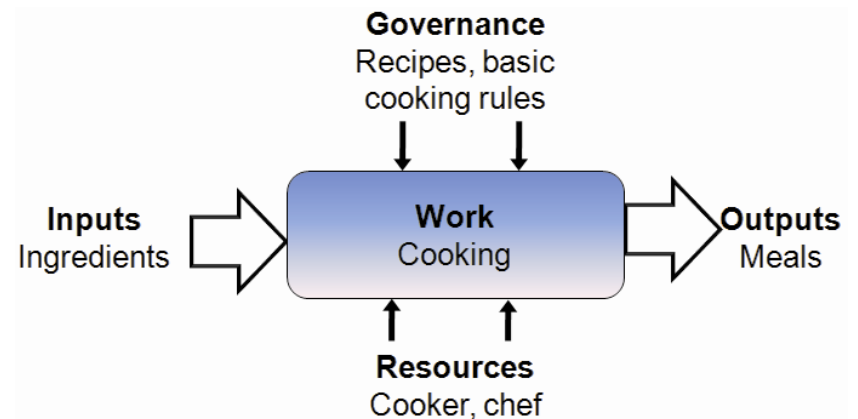
Service-Oriented Architecture (SOA)

- Definition
 - architectural approach for constructing software-intensive systems from a set of universally interconnected and interdependent services (operationally independent functional units)
- Advantages
 - use of standard and pre-fabricated building blocks
 - high level of system flexibility
 - reducing complexity



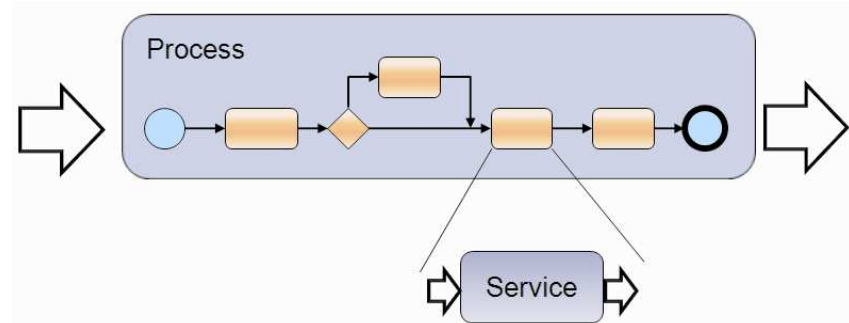
Services and processes (1)

- **Services** are considered to be explicitly-defined and operationally-independent units of functionality
- There is a formal description of the service provided between the service provider and the consumer
- Operational independence means that problems in one service do not affect the functioning of another service
- Implementation of services is not visible and does not need to be



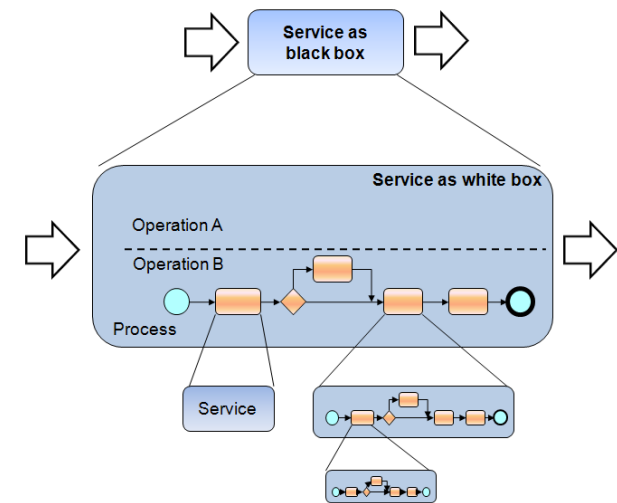
Services and processes (2)

- **Processes** are considered to be an explicitly-defined coordination of services to create a particular outcome
- There is a formal description of the relationship between the various services
- Coordination means that processes serve as a conductor to manage bigger services which are constituted from smaller services



Synergy between BPM and SOA – structuring relationships (1)

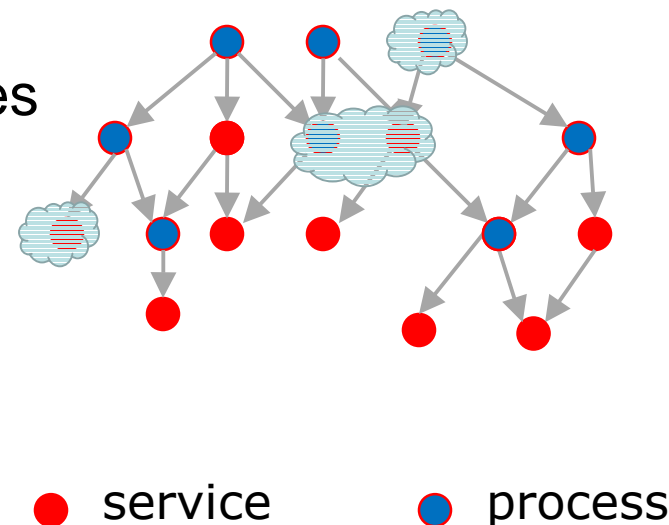
- BPM, by revealing the artefacts and the relationships between them, provides the necessary context (e.g. granularity) for the definition of services
- SOA provides recommendations for the implementation, execution and governance of services
- BPM+SOA enable flexible, explicit and executable models of an enterprise





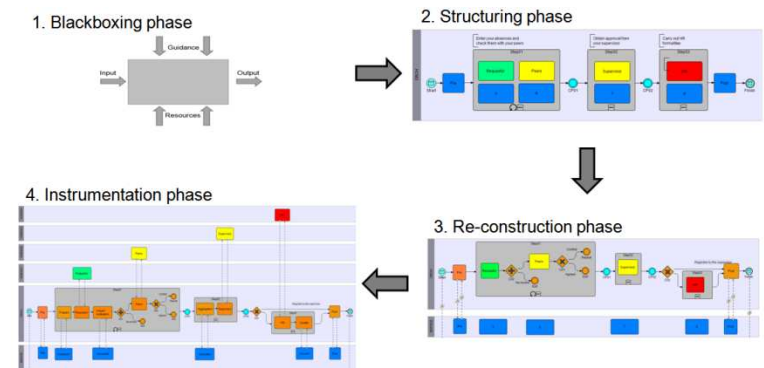
Synergy between BPM and SOA (2) – structuring relationships

- Each enterprise is a complex, dynamic, unique and “fractal” relationship between services and processes
 - All processes are services
 - Some operations of a service can be implemented as a process
 - A process includes services in its implementation



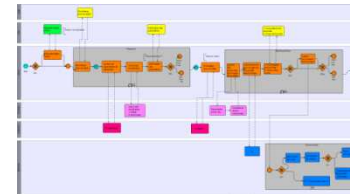
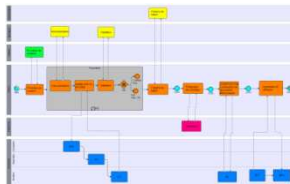
Example – mutual structuring of processes and services

- Classification of BPM artefacts
 - defining services for their implementation
- A modelling procedure
 - four-phase guidance to produce executable models
 - diagramming style
 - naming conventions
 - several practical patterns
- Promotion of joint work between the business and the IT
- Quick iterations for building an operational prototype



Example – selection of a single tool

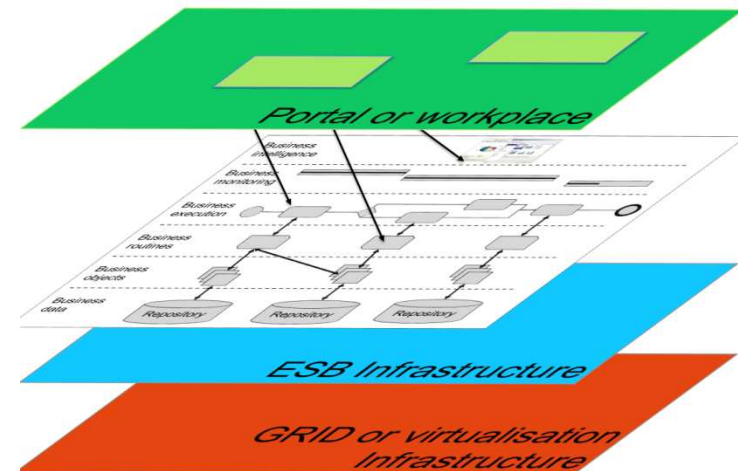
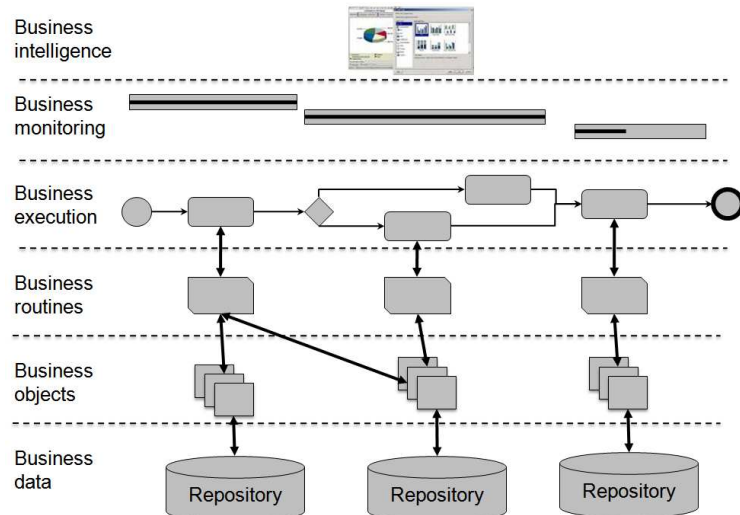
- Situation
 - 30 different tools in use for electronic publishing
- Task
 - Define criteria for the selection of a single tool
- Action
 - Use a common business process modelling procedure



- Result (after several meetings)
 - agreed list of services generated to act as selection criteria

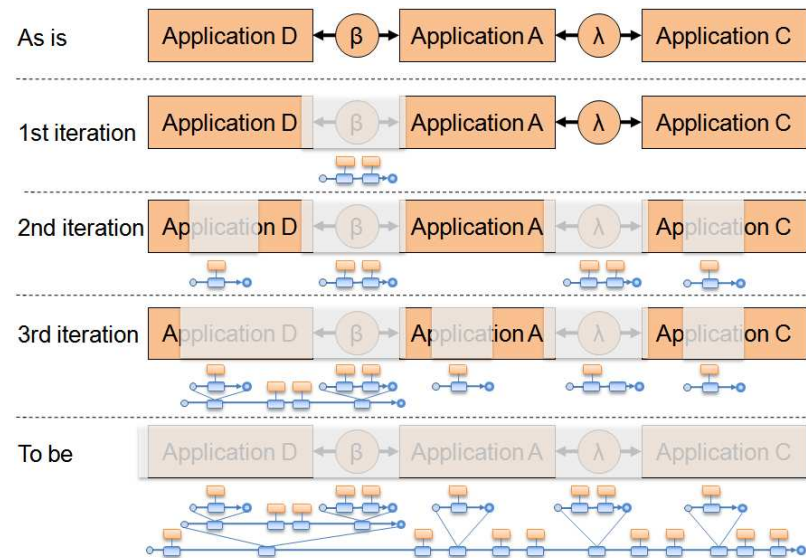
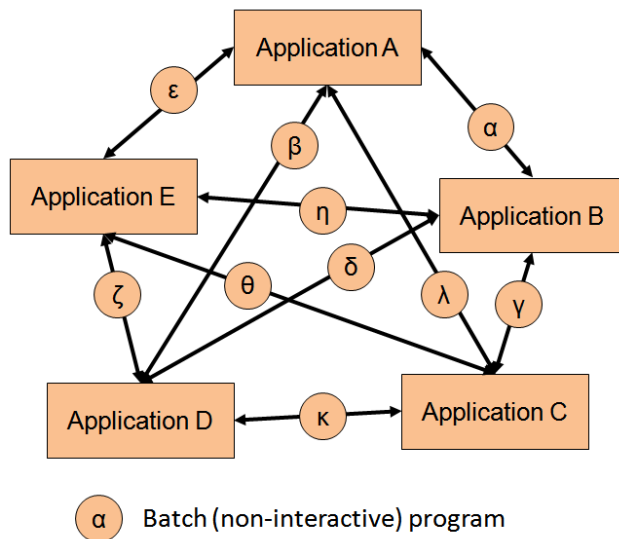
Example – improving a complex production system (1)

- Architecting for flexibility
- Versioning of everything
- Coordination of services via forms and processes
- Comprehensive and constant monitoring of services



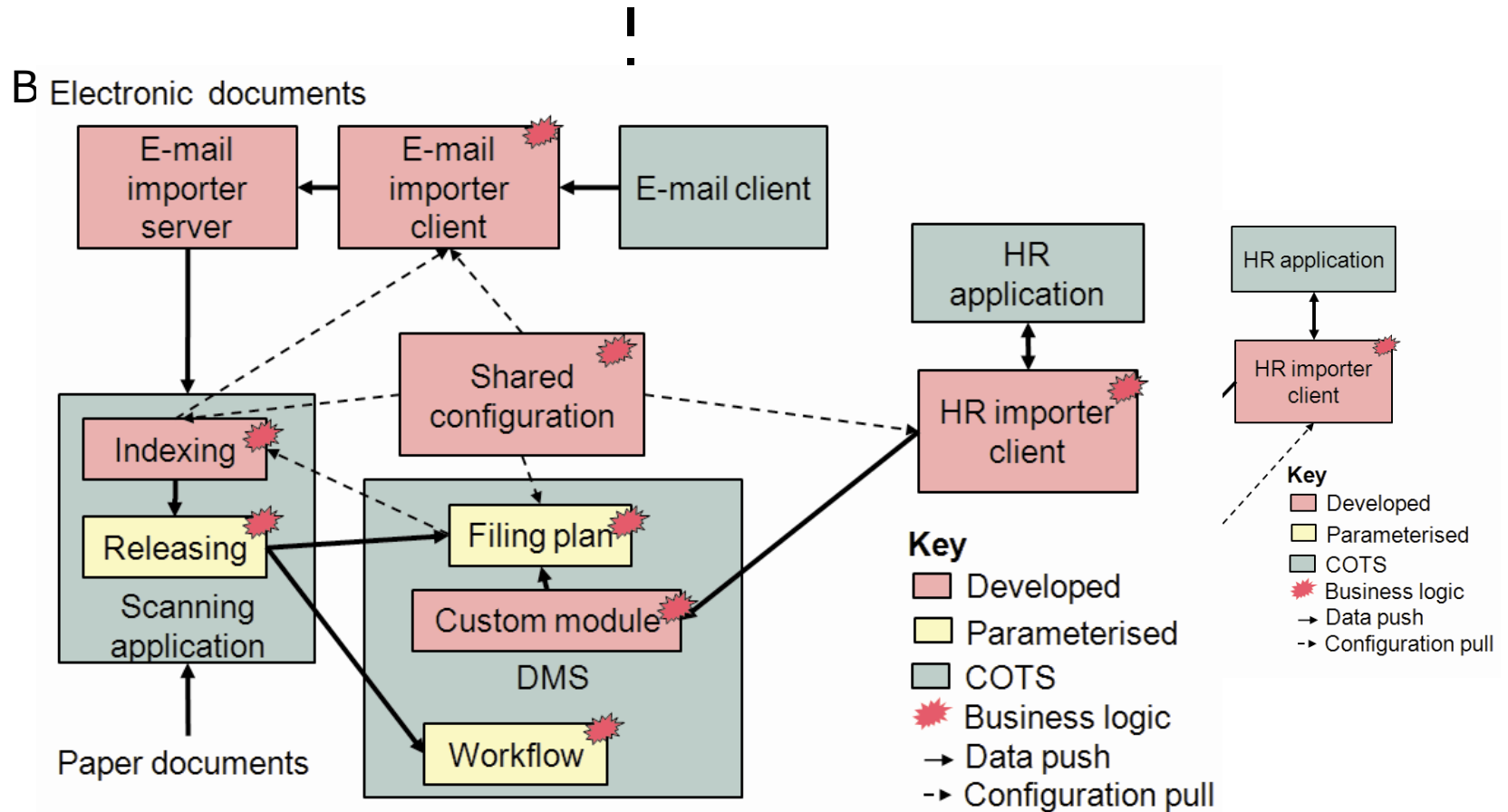
Example – improving a complex production system (2)

- Incremental transformation from typical inter-application data flows to end-to-end coordination of services



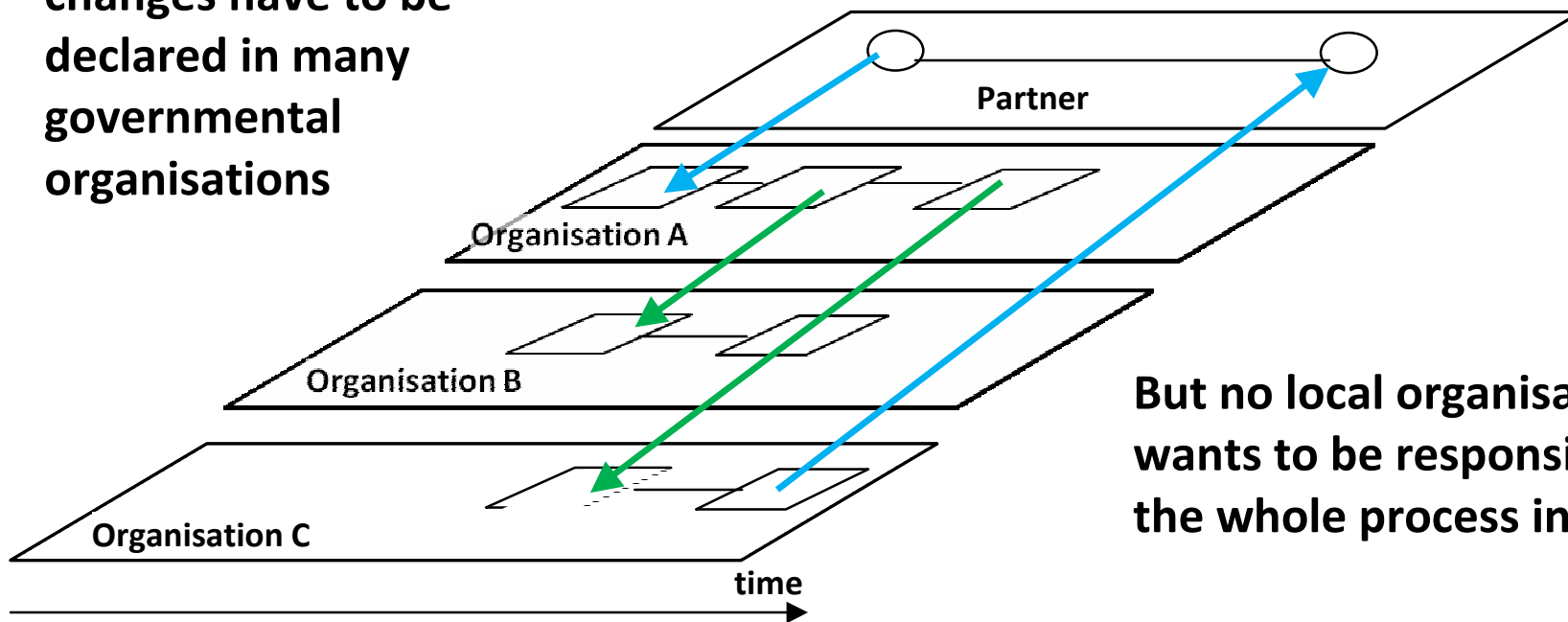


Example – adding flexibility to an enterprise application



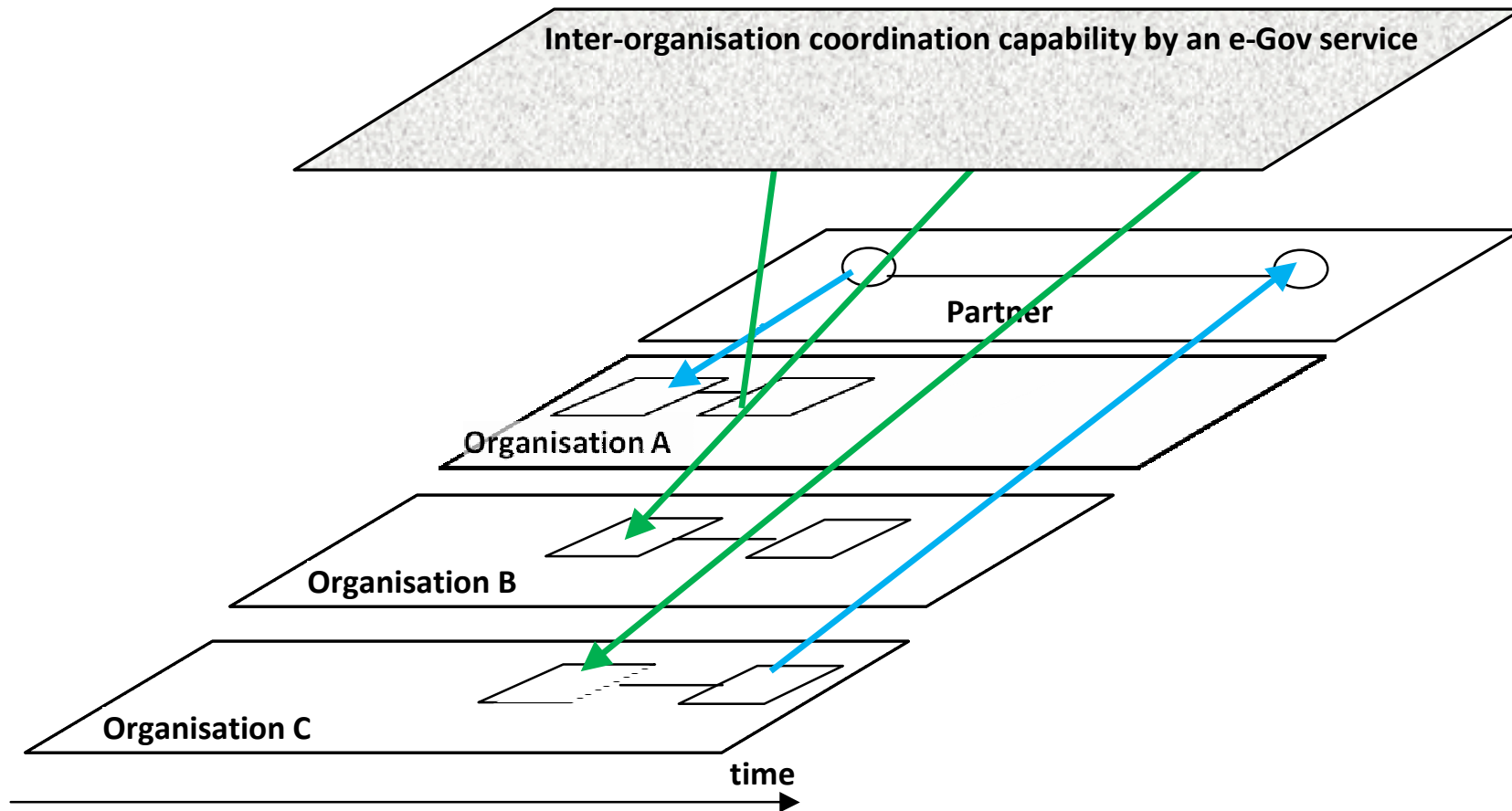
Example – an e-Gov goal is to help partners work with the government (1)

For example, a partner's changes have to be declared in many governmental organisations



But no local organisation wants to be responsible for the whole process instance

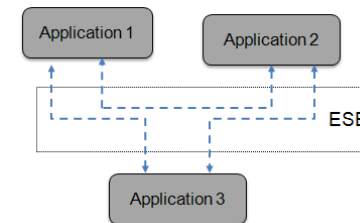
Example – an e-Gov goal is to help partners work with the government (2)



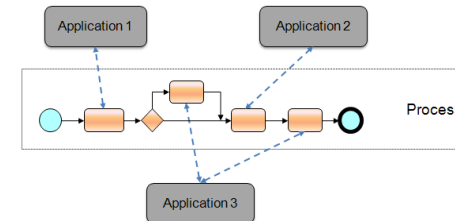
Example – improving a core business application

- Situation
 - some “pieces of work” are being lost in a chain of applications
 - ESB is not enough
- Task
 - coach how to apply new technologies
- Action
 - make the business process explicit
 - mix BPM, BAM, BEM, CEP

ESB-centric view: only flow of data



Process-centric view: both flow of control and flow of data



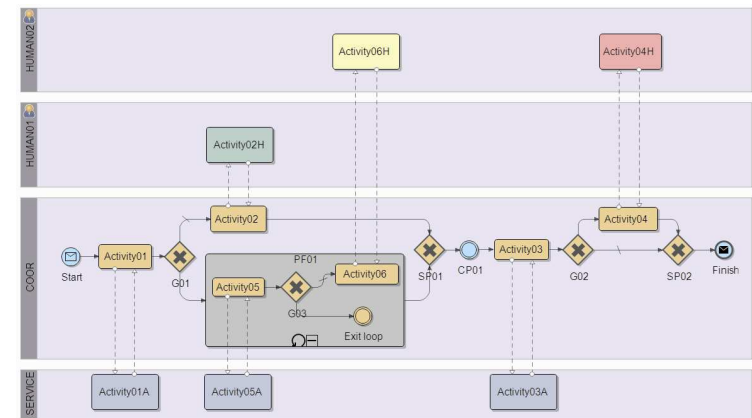
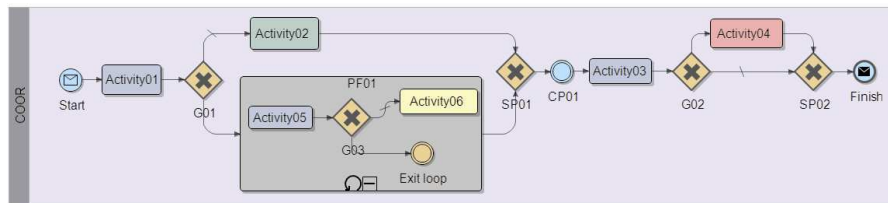
Primary importance: the result of working together, but not individual exchanges

Use of business processes to make coordination explicit

- Why do we need explicit coordination?
 - better control and traceability
 - better governance
 - more predictable results
 - better testability
 - makes relationships explicit
- Coordination between
 - enterprises, departments, people, systems, forms
- Note: special thanks to the events in BPMN

Making coordination explicit (1)

- Q: Is an extra pool, e.g. “automated system” or “executable flow”, useful?
- A: Use a “coordination pool” to define “**How** the job is done irrespective of **Who** performs the task”

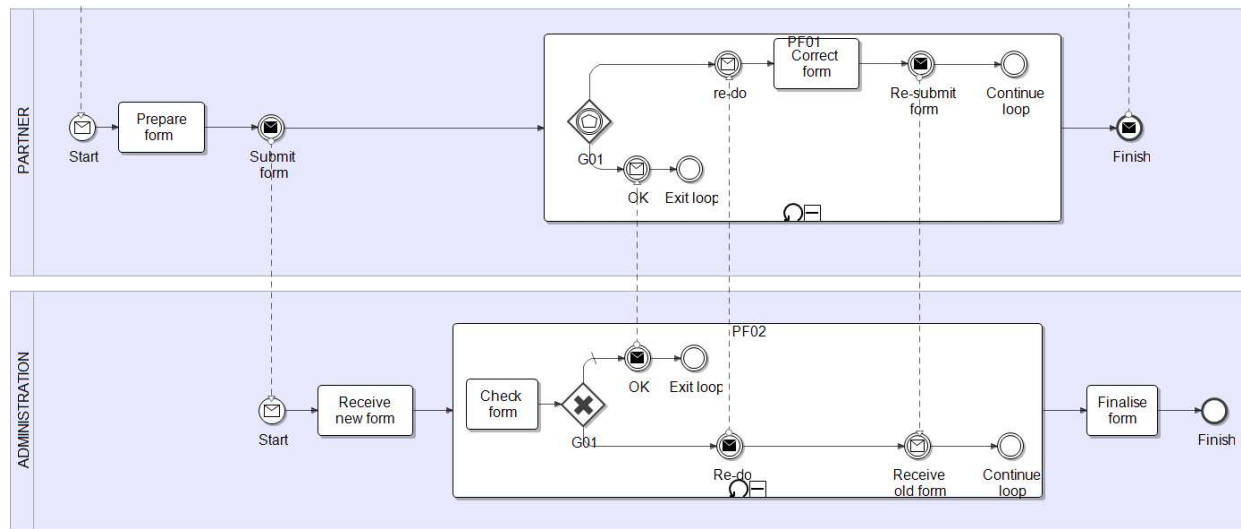


Making coordination explicit (2)

- Q: How many “coordination pools” should be used in any particular diagram: 0, only 1 or many?
- A: As many as necessary – coordination may not be centralized (e.g. like in an orchestra), but shared (e.g. like in a “Submission Interface” pattern)

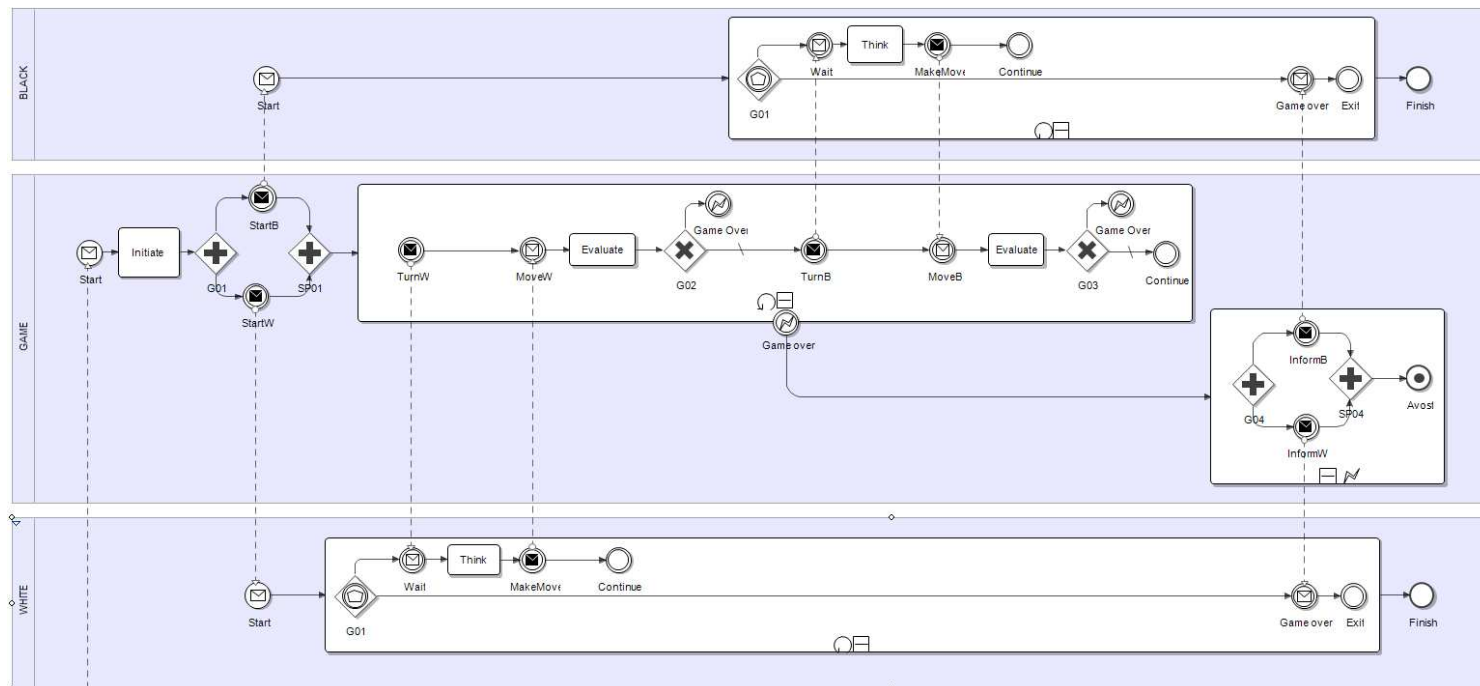
External participant

Internal service



Making coordination explicit (3)

- An extra pool defines rules for coordination between independent parties (e.g. “Game as a process” – three coordination pools)



Making coordination explicit (4)

- Q: Should the behavior of an external participant (e.g. a customer) be explicitly modelled?
- A: Yes, because it helps an enterprise understand how its customers see the enterprise and thus gives some ideas about how to improve customer experience
- <http://www.slideshare.net/Olbrich/process-experience-the-coffee-example-2103831>

Making coordination explicit (5)

- Different coordination logic:
 - Template-based (or static coordination)
 - Token-based (or dynamic coordination)
 - Event-based (or non-structured coordination)
 - Instance-based (or networked coordination)
- To illustrate the logic of instances, see the pattern SOS (from www.slideshare.net/samarin)

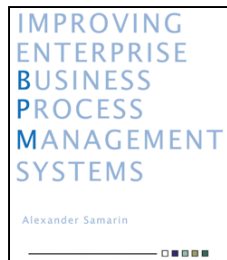
Synergy between BPM, SOA and EA

- BPM
 - reveals the artefacts and their relationships
 - provides an interface with the business
- SOA
 - implementation, execution and monitoring of services
 - evolution and governance of services
- EA
 - organizes everything as an applied science
- BPM + SOA + EA
 - improved understanding between the business and the IT
 - explicit and executable models of an enterprise
 - significant reduction of barriers for business agility

Extra materials

- <http://www.slideshare.net/samarin>
 - How to use BPMN for modelling business processes
 - Animated patterns
 - Submission Interface (SI)
 - Synchronisation Of Sources (SOS)
- Blog <http://improving-bpm-systems.blogspot.com/>
 - BPM reference model

- Book





Thank you!

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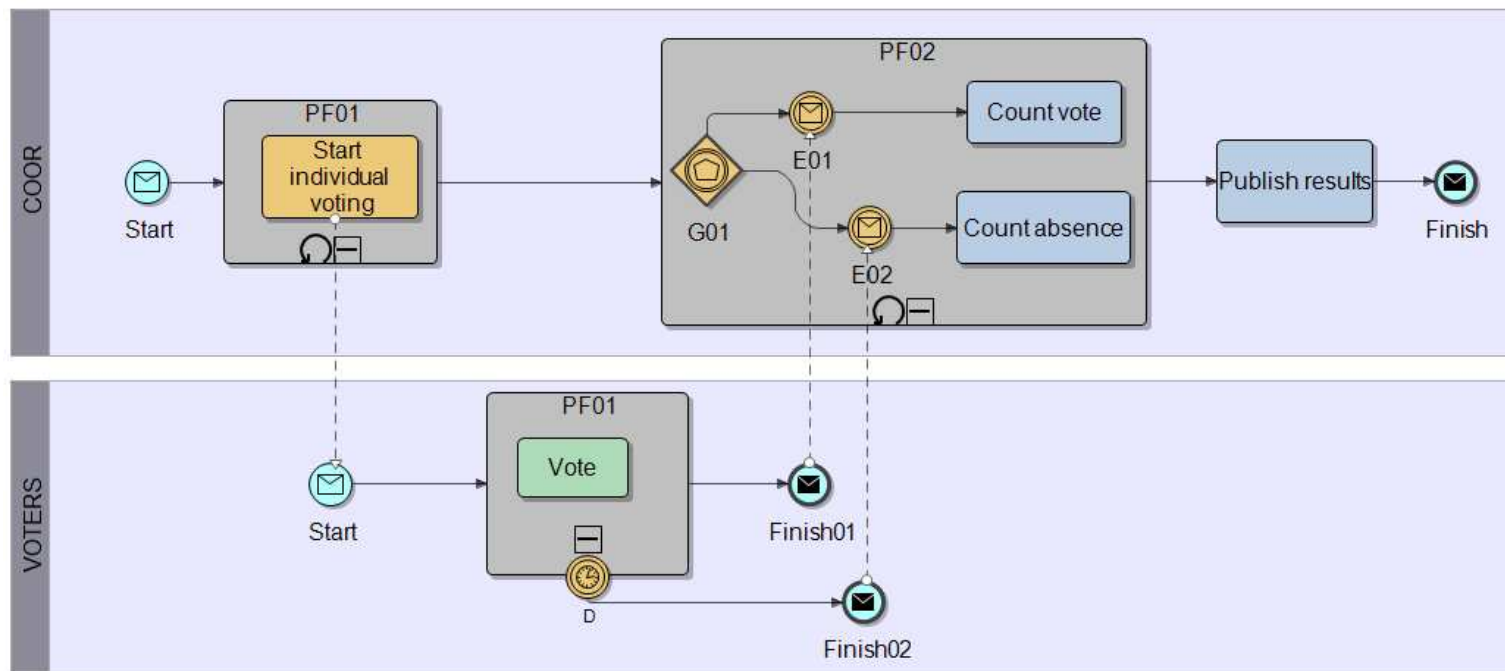
www.improving-BPM-systems.com

Ratio between templates and instances

- Template: 1, Instance: N → classic workflows
- Template: 1, Instance: 1 → projects, e.g. a personal vacation trip
- Template: 0, Instance: 1 → plan as you go

Making coordination explicit (5)

- Advanced Voting Solution pattern:
many instances of the pool “VOTERS”
for each instance of the pool “COOR”



Consider coordination

- Weak coordination vs. strong coordination
 - Army, Research, Administration, Rock climbing, Sports team, Orchestra
- Coordination may change over time (e.g. a crisis situation)
- Important
 - to anticipate correctly the level of coordination required for that process
 - to implement this level using an appropriate coordination technique
 - to provide a simple way to switch from one coordination technique to another (similar to changing gear as a function of the driving conditions)