WebSphere User Group – March 2013

Business Process Management (BPM)
When, Where and Why

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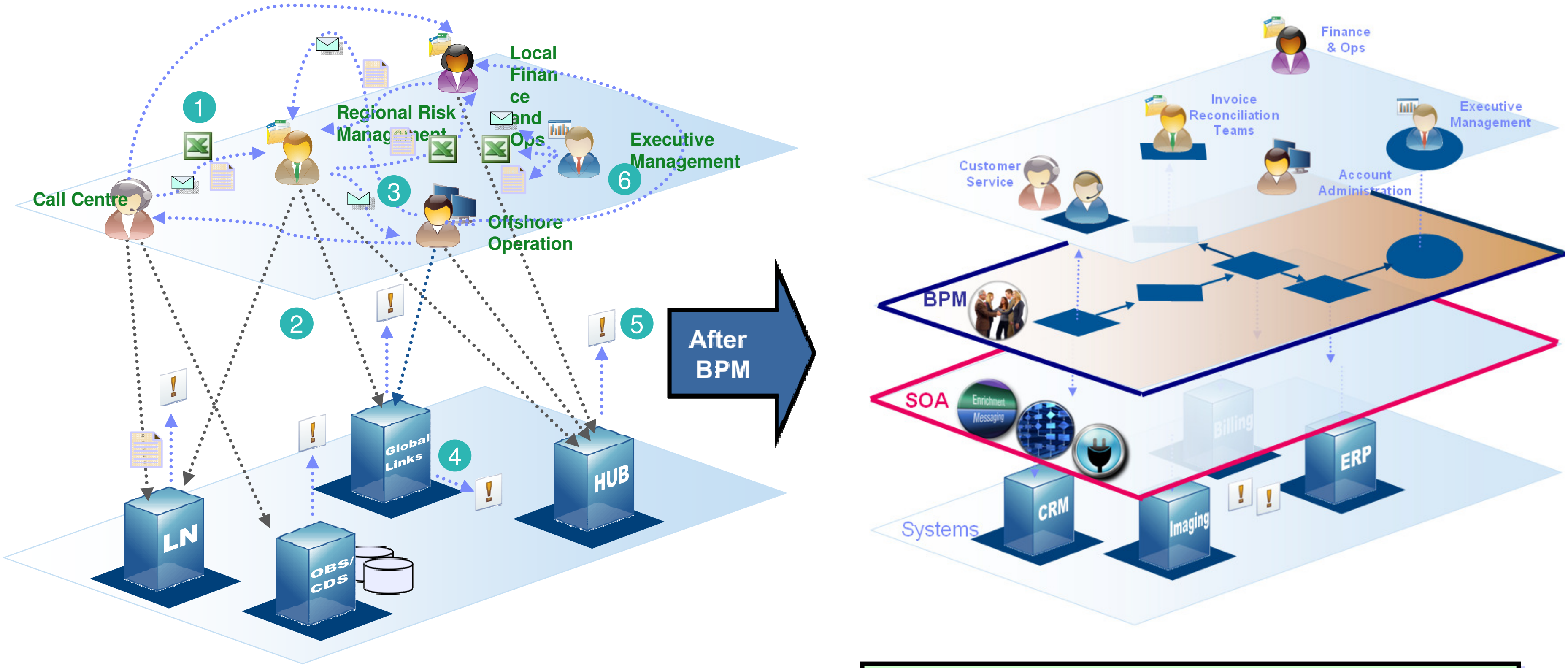
Agenda

- When?
  - How will I know when I’ve found a BPM suited problem?
- Where?
  - How do we differentiate “business process” from other forms of composition/orchestration?
  - Which layer in the architecture should they each be placed?
  - To what extent should the processes be automated?
  - To what extent should integration points be decoupled from the process?
- Why?
  - What are the key benefits derived from BPM?

Business Process Management (BPM) provides a single, executable view of the process

Current State

Future State

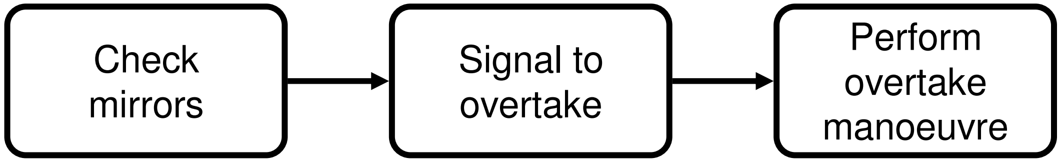


Hidden work → Process Variation → Complexity → Missing Information → Chaos

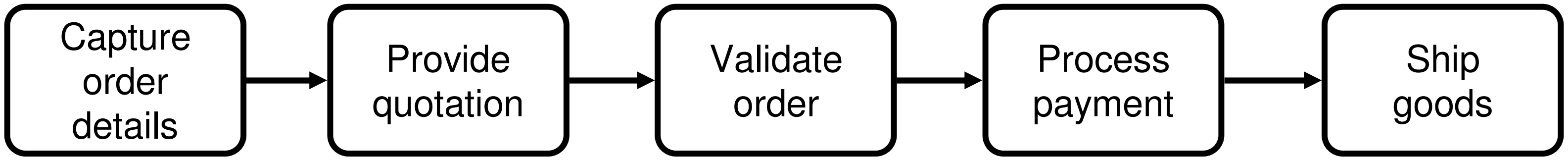
Process Definition → Management Orchestration → Defined Work Segments → Measurable Results

Definitions

- Process
  - As set of steps required to achieve a particular outcome

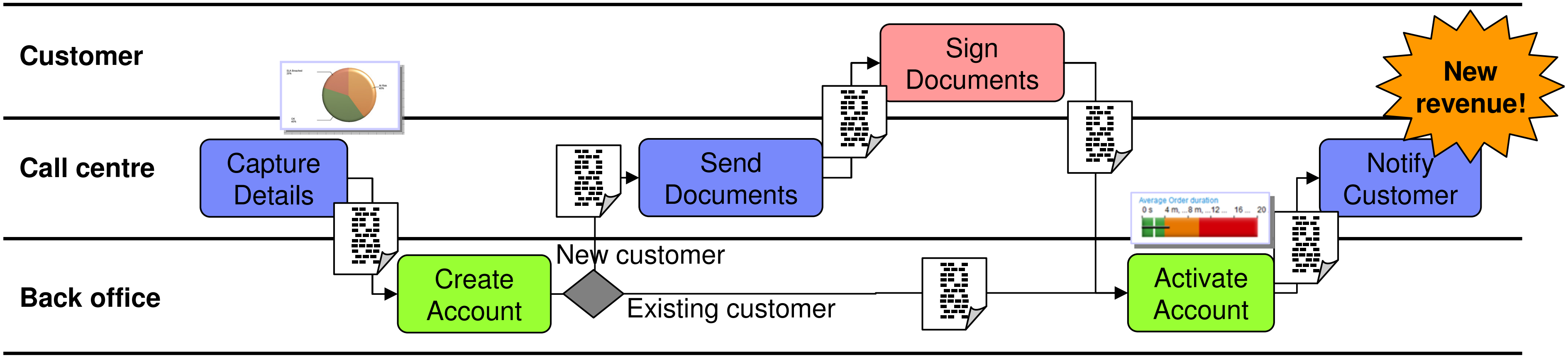


- Business Process
  - As set of business meaningful steps required to achieve a business outcome

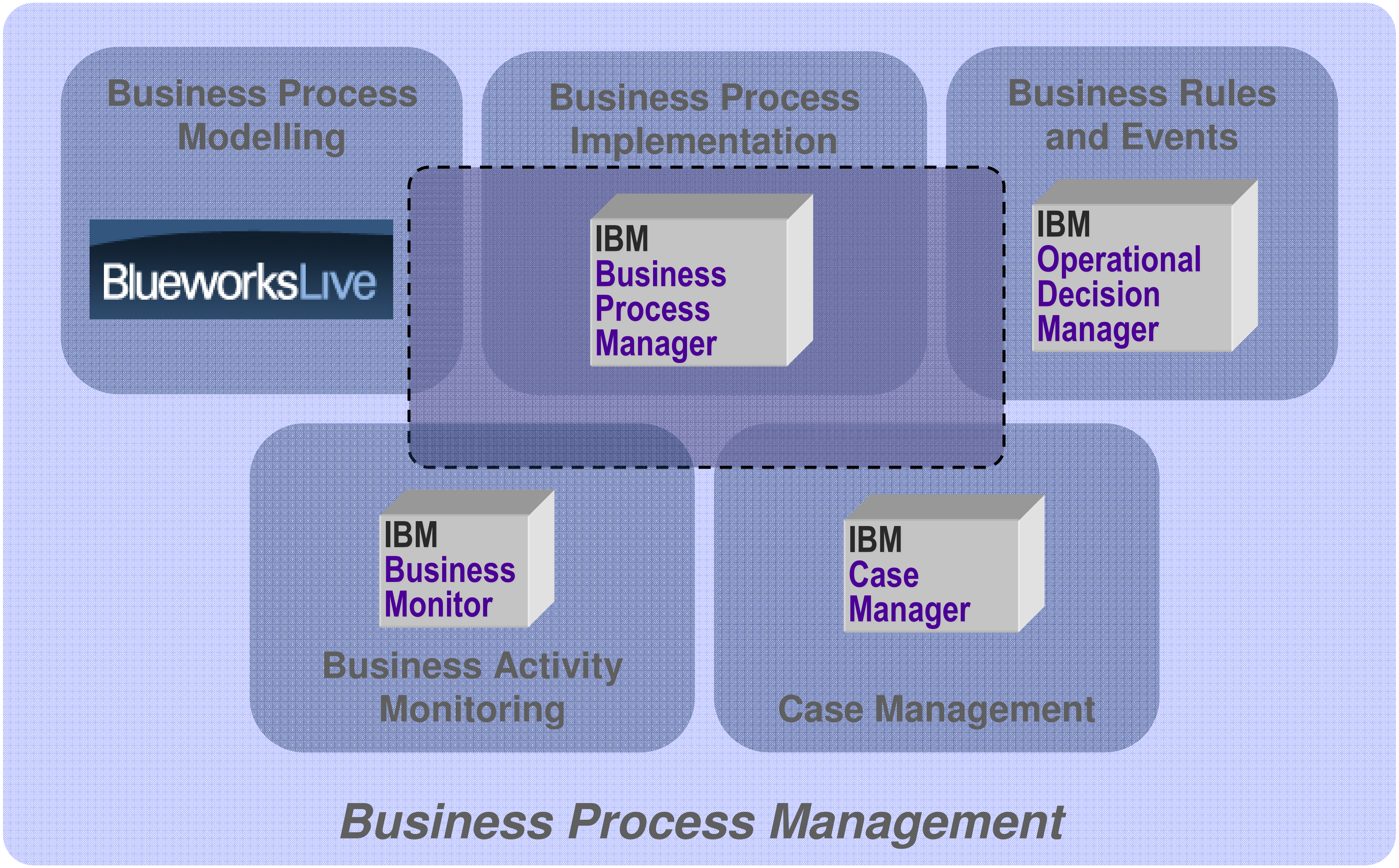


What highlights a "business process" in a **business process management** solution?

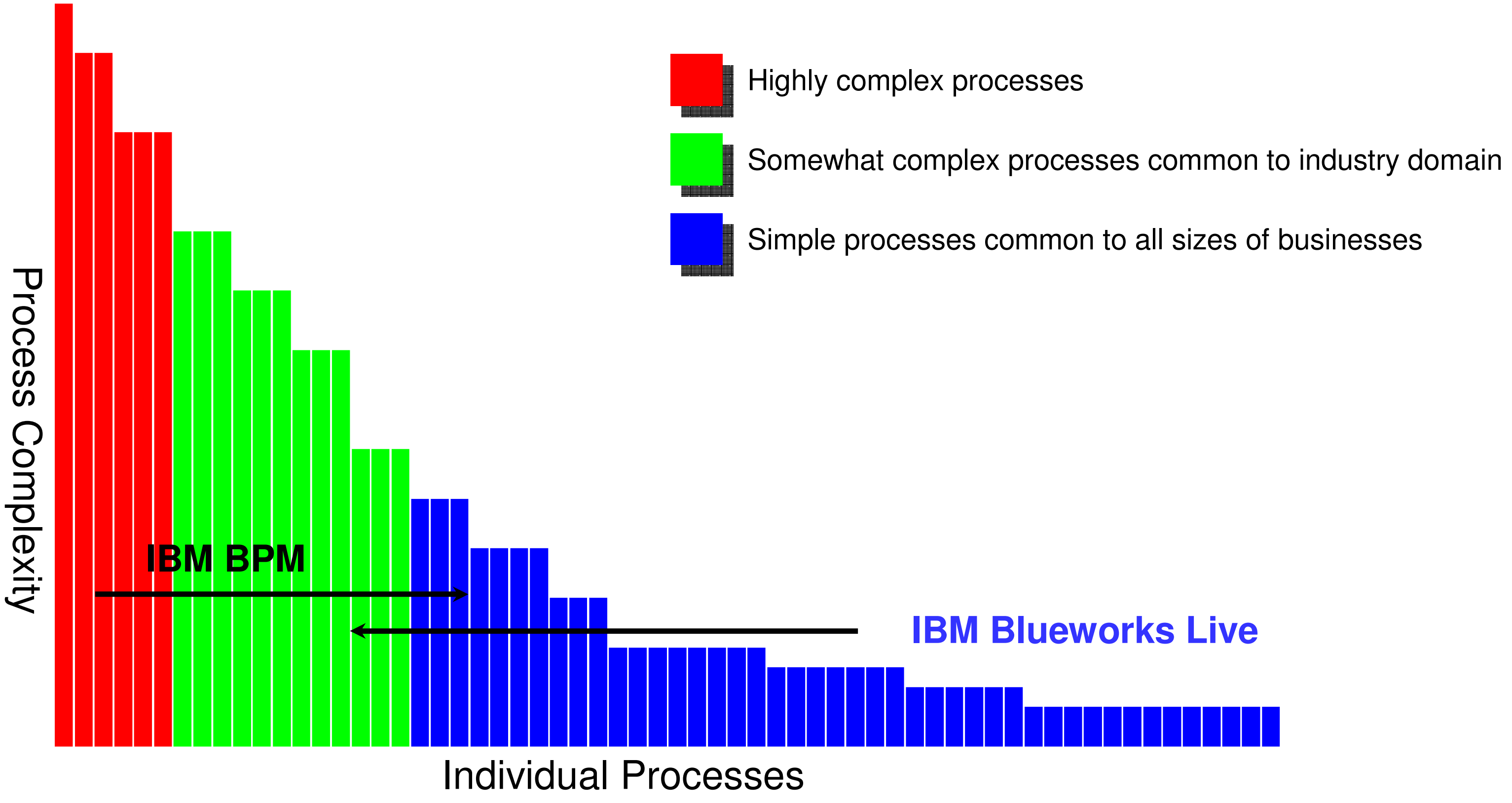
- Performing the process provides ***value to the business***
- The process follows a relatively ***structured path***
- The process contains ***individually business relevant steps***
- The steps within the process are performed by ***multiple roles/teams***.
- ***Business relevant data*** flows through the process
- The process ***changes over time*** as a result of changes in the business



BPM is more than just process automation


Business Process Modelling
BlueworksLive
Business Process Implementation
IBM Business Process Manager
Business Rules and Events
IBM Operational Decision Manager
IBM Business Monitor
Business Activity Monitoring
IBM Case Manager
Case Management
Business Process Management

Using the right tool for the job



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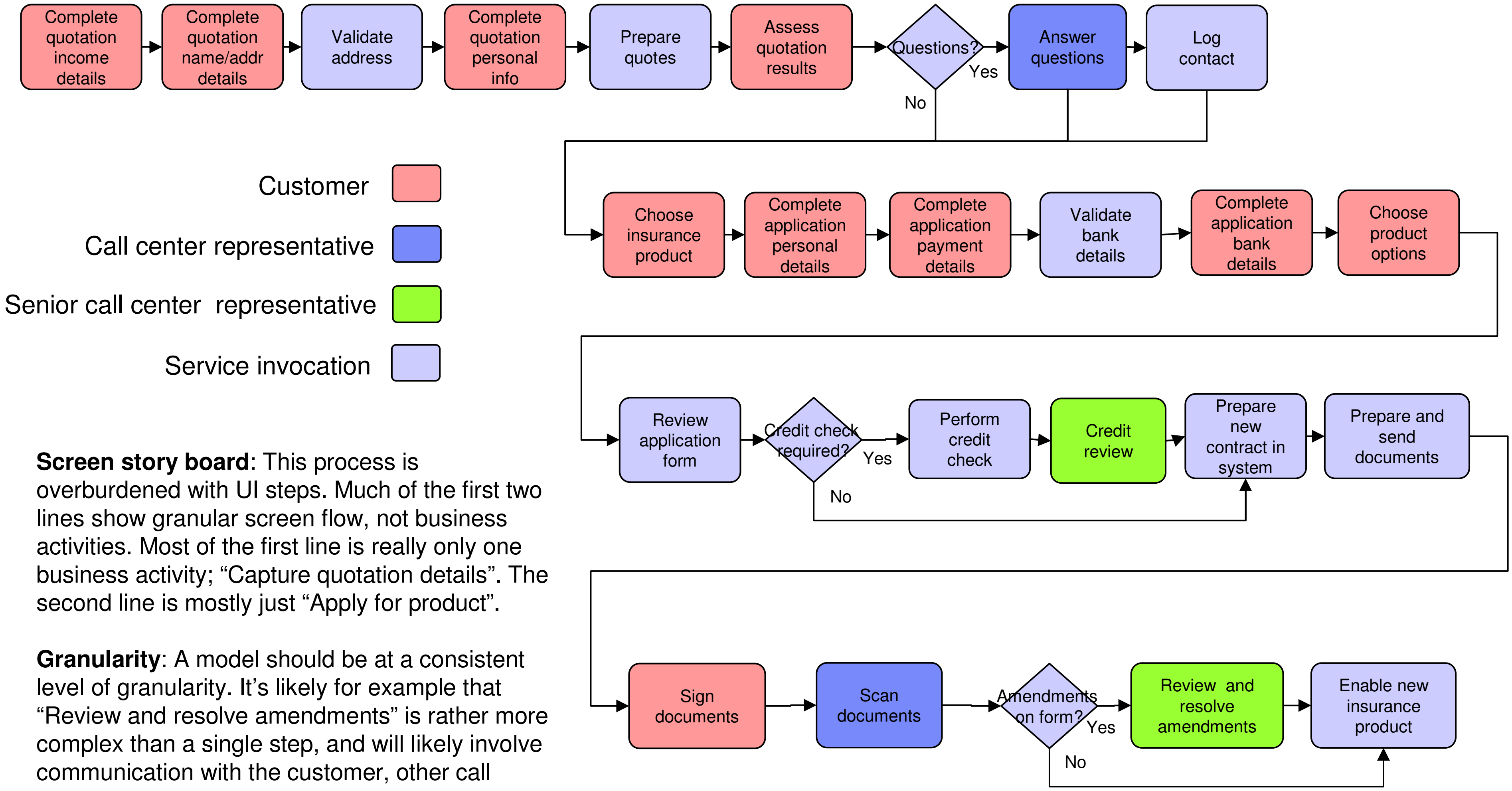
Why is this a poor example of a process model?

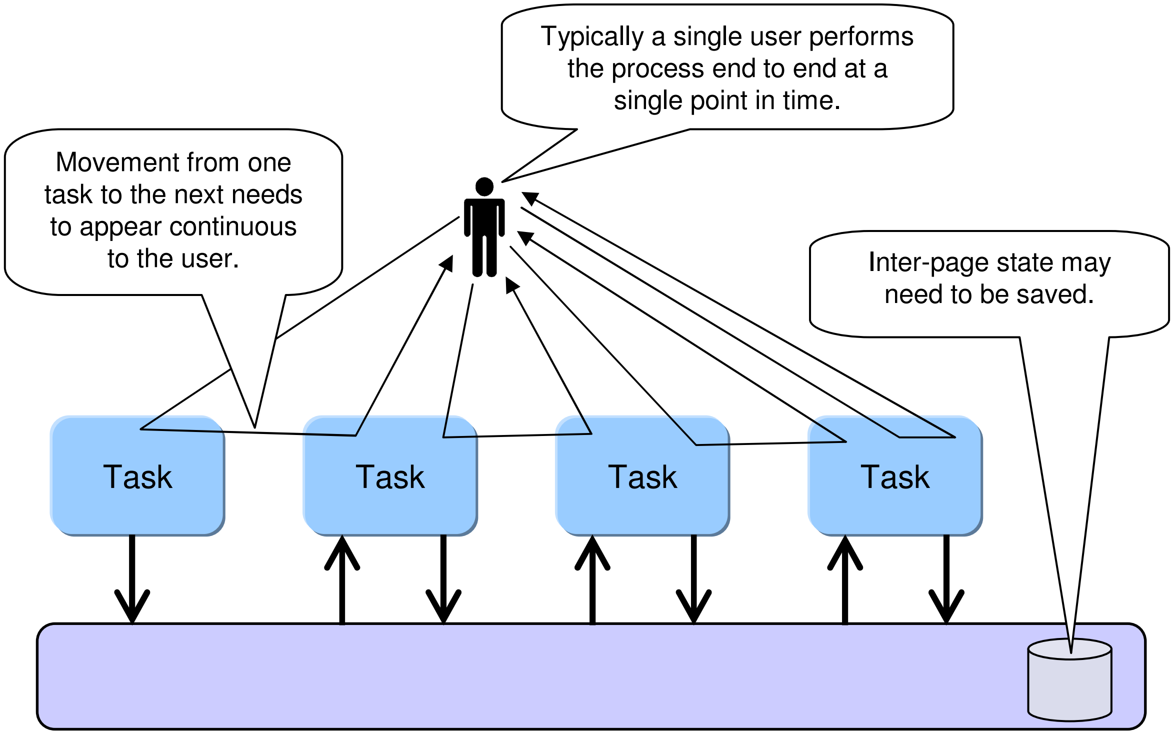

Complete quotation income details
Complete quotation name/addr details
Validate address
Complete quotation personal info
Prepare quotes
Assess quotation results
Questions?
Yes
No
Answer questions
Log contact
Customer 🟥
Call center representative 🟦
Senior call center representative 🟩
Service invocation ▢
Choose insurance product
Complete application personal details
Complete application payment details
Validate bank details
Complete application bank details
Choose product options
Review application form
Credit check required?
Yes
No
Perform credit check
Credit review
Prepare new contract in system
Prepare and send documents
Sign documents
Scan documents
Amendments on form?
Yes
No
Review and resolve amendments
Enable new insurance product

Screen story board: This process is overburdened with UI steps. Much of the first two lines show granular screen flow, not business activities. Most of the first line is really only one business activity; “Capture quotation details”. The second line is mostly just “Apply for product”.

Granularity: A model should be at a consistent level of granularity. It’s likely for example that “Review and resolve amendments” is rather more complex than a single step, and will likely involve communication with the customer, other call centre representatives, and system interaction.

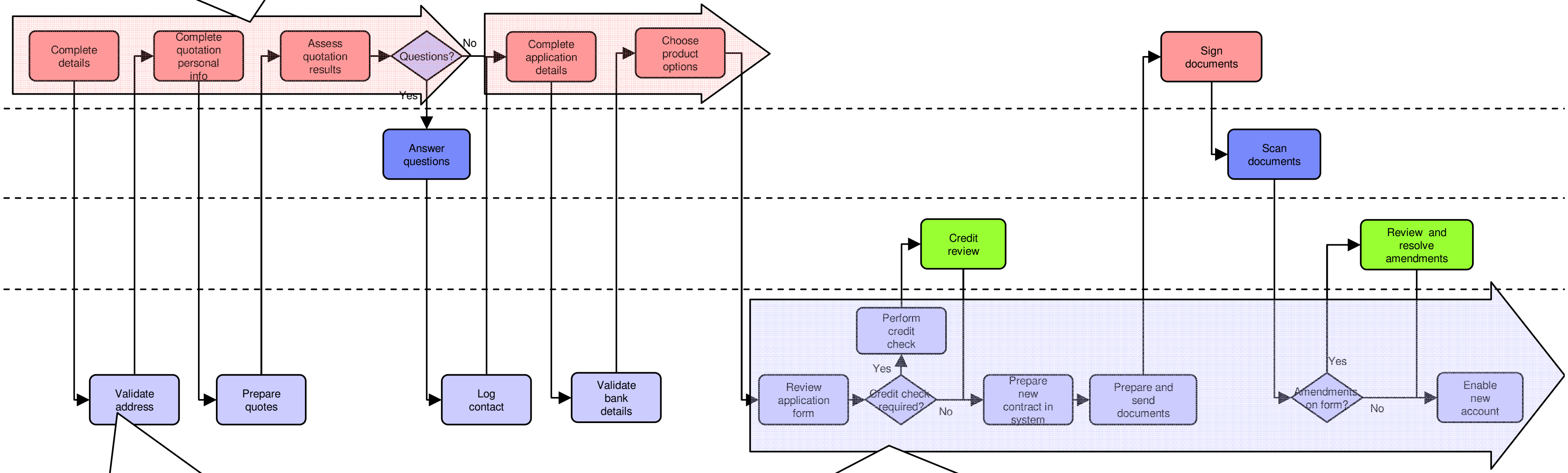
Single User Page Flow is not a Business Process

- Provides single user interaction across multiple screens.
- Screen to screen navigation is controlled by a presentation layer.
- Integration with back end systems should take page response time into account.
- Updates to back end systems need to consider error handling complications
- Should be well insulated from other types of process to guard response times and provide design clarity.
- Should typically be implemented in a presentation layer.
- In modern user interfaces, user flow is being pushed right up to the browser or the application on the device.


Typically a single user performs the process end to end at a single point in time.
Movement from one task to the next needs to appear continuous to the user.
Inter-page state may need to be saved.
Task
Task
Task
Task

Who owns the flow?

Initial data capture flow is managed by the user interface navigation, including the decision steps

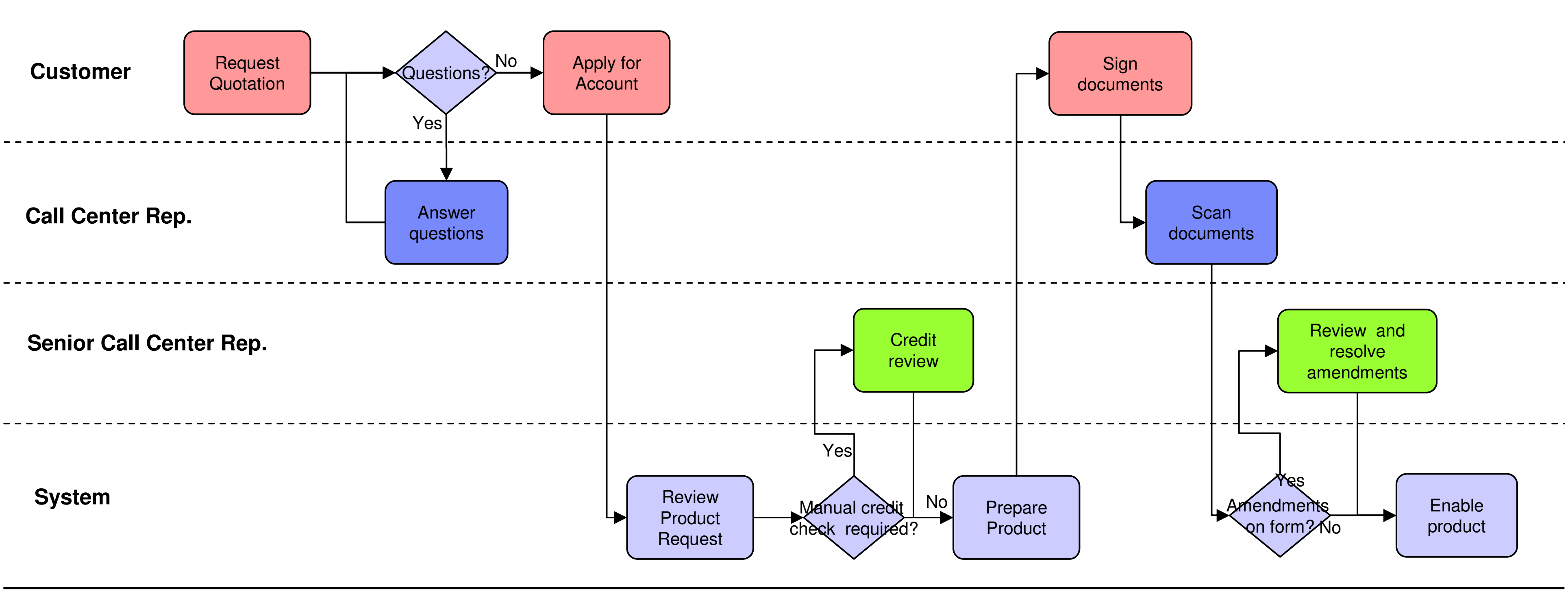


Although the system layer is involved during data capture it is simply providing services to the GUI, not controlling the flow

Throughout the tail of the process we are mostly routing discrete tasks between multiple teams. This suggests ownership of the flow in a task based process

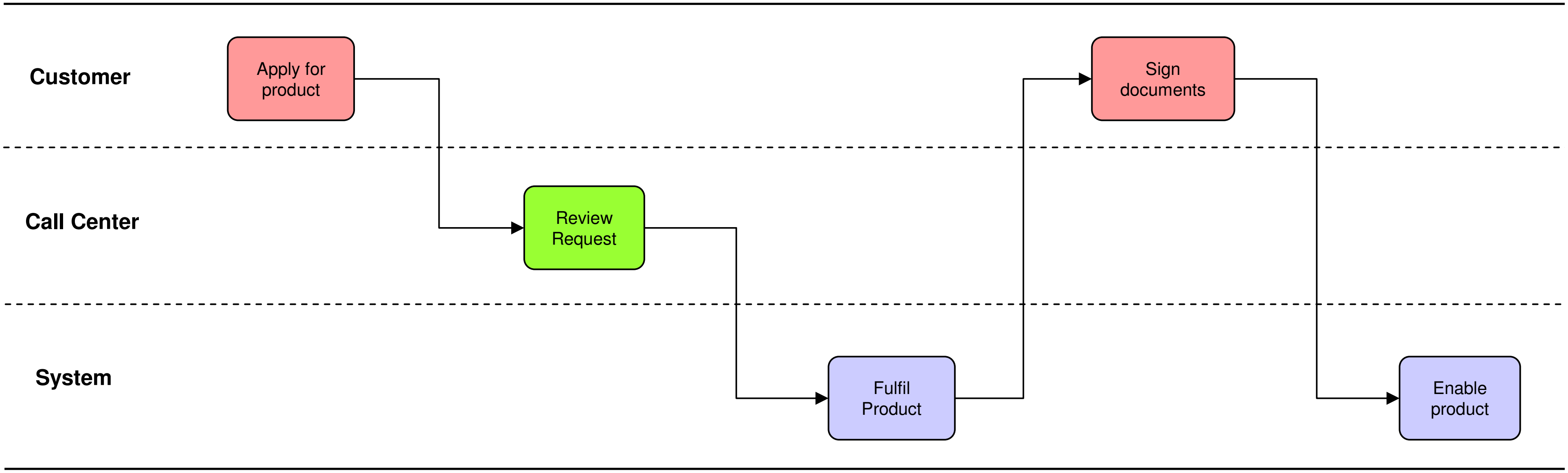
What should the high level business process have looked like?

- Consecutive UI steps have been collapsed into one
- Consecutive system steps have been collapsed into one
- System interactions performed *within* a step have been removed
- Steps typically lead to either a decision or a change of lane
- *Note: There is only one generic system lane*



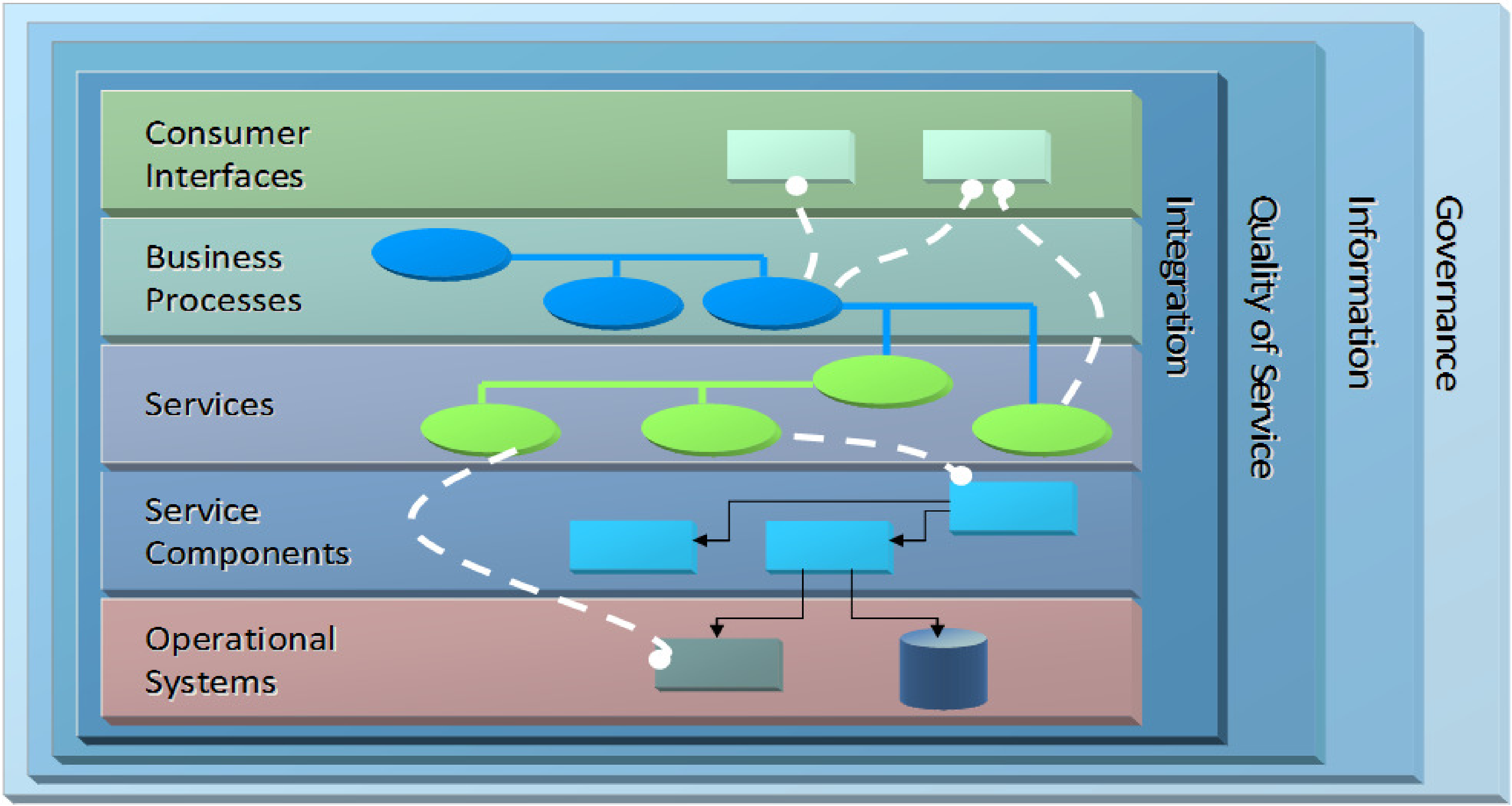
Could we simplify this process further?

A very high level view of the process



- “Constellations” have been collapsed into single steps/sub-processes
- What information do we *lose* as we abstract the process?
- To whom is this very high level process useful?

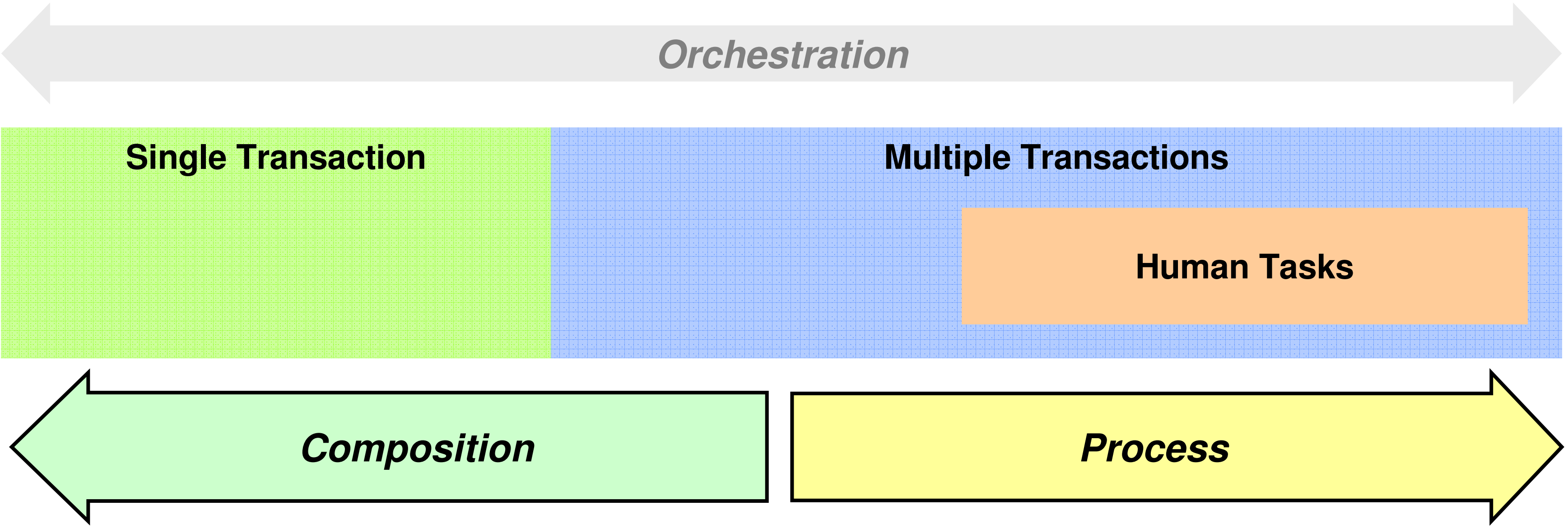
Service Oriented Architecture (SOA) Reference Architecture



(C) The Open Group 2009

https://collaboration.opengroup.org/projects/soa-ref-arch

Terminology: “Composition” vs. “Process”?



Orchestration

Single Transaction

Multiple Transactions

Human Tasks

Composition

Process

- Appear to the business as a single step.
- Do not include human interaction from the business.

- Take long enough that the business need to be aware of their intermediate in-progress states.
- Include human interaction, or interaction with slow responding systems.

“Process Implementation Types: Patterns based design for process based solutions”
http://www.ibm.com/developerworks/websphere/library/techarticles/1004_clark/1004_clark.html

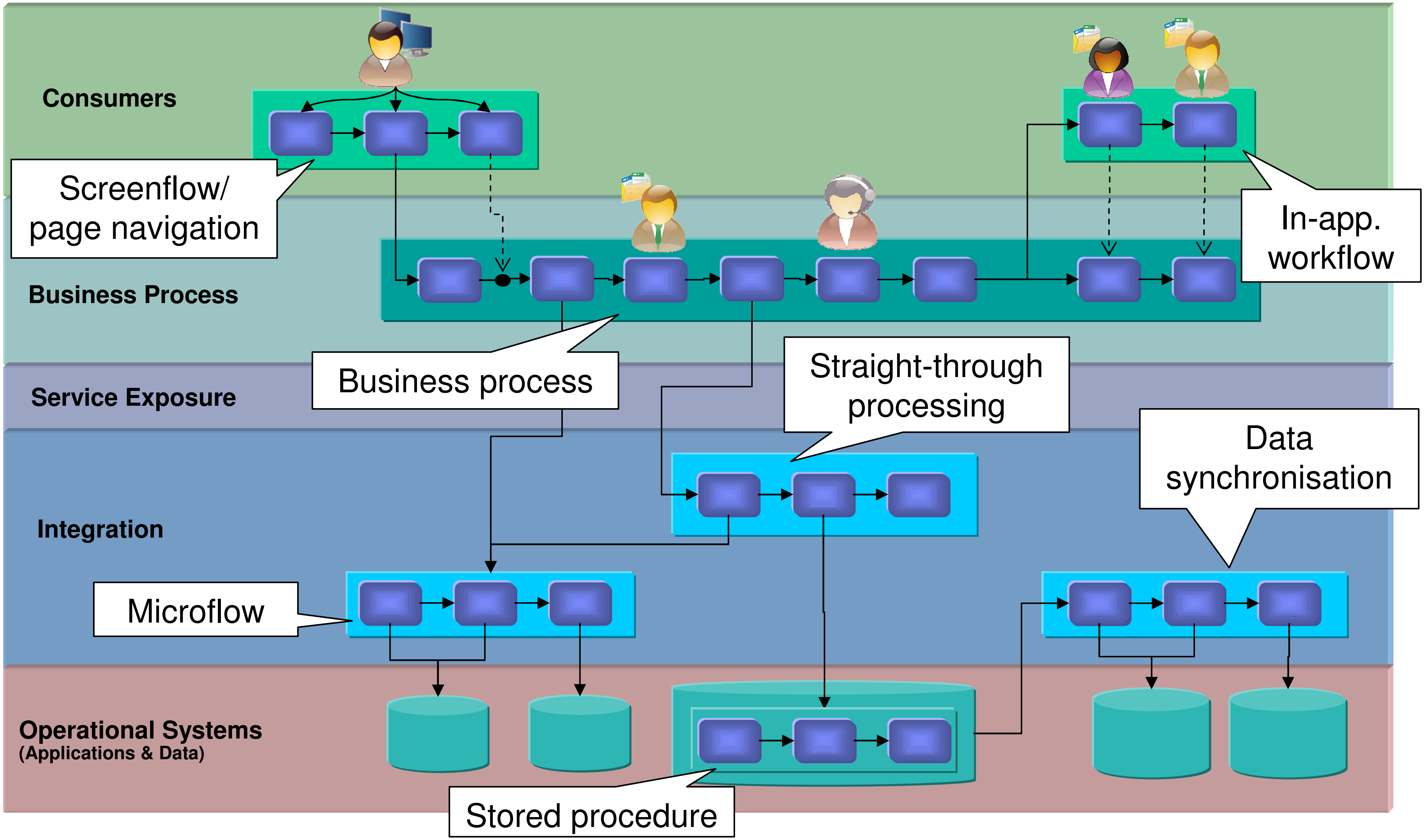
Types of Orchestration: *Process vs. Composition*

- **Process**
  - Makes calls to mature high level services
  - Often triggered (i.e. one way call) rather than invoked as a two way call
  - Where it is invoked as a two way interaction, the caller is typically asynchronous (i.e. not a user) and therefore the service level agreement is throughput based rather than response time based
  - Stateful persistence of the steps in the process
  - Events can correlate with the running process
  - Often involves human interaction to perform some tasks within the process

- **Composition**
  - Grouping of relatively granular interactions
  - Response time is the primary driver for the service level agreement
  - Common for aggregation functions
  - Some or all the granular interactions may not themselves be exposed as re-usable services
  - Generally state free
  - Never involves human interaction during the composition

Orchestration/Composition

Where *could* it occur / Where *should* it occur?



Integration orchestration vs. business orchestration

- Imagine an ideal enterprise information system.
  - It is a single system of record for all business data.
  - All the data is normalized.
  - It has appropriate APIs for every type of data access required.
  - It is infinitely fast and completely reliable.
- In this ideal system, if you find yourself doing multiple actions, you are performing **business orchestration**.
- Any orchestration done to manage the fact that the real systems are not as perfect as the ideal system above, is **integration orchestration**.

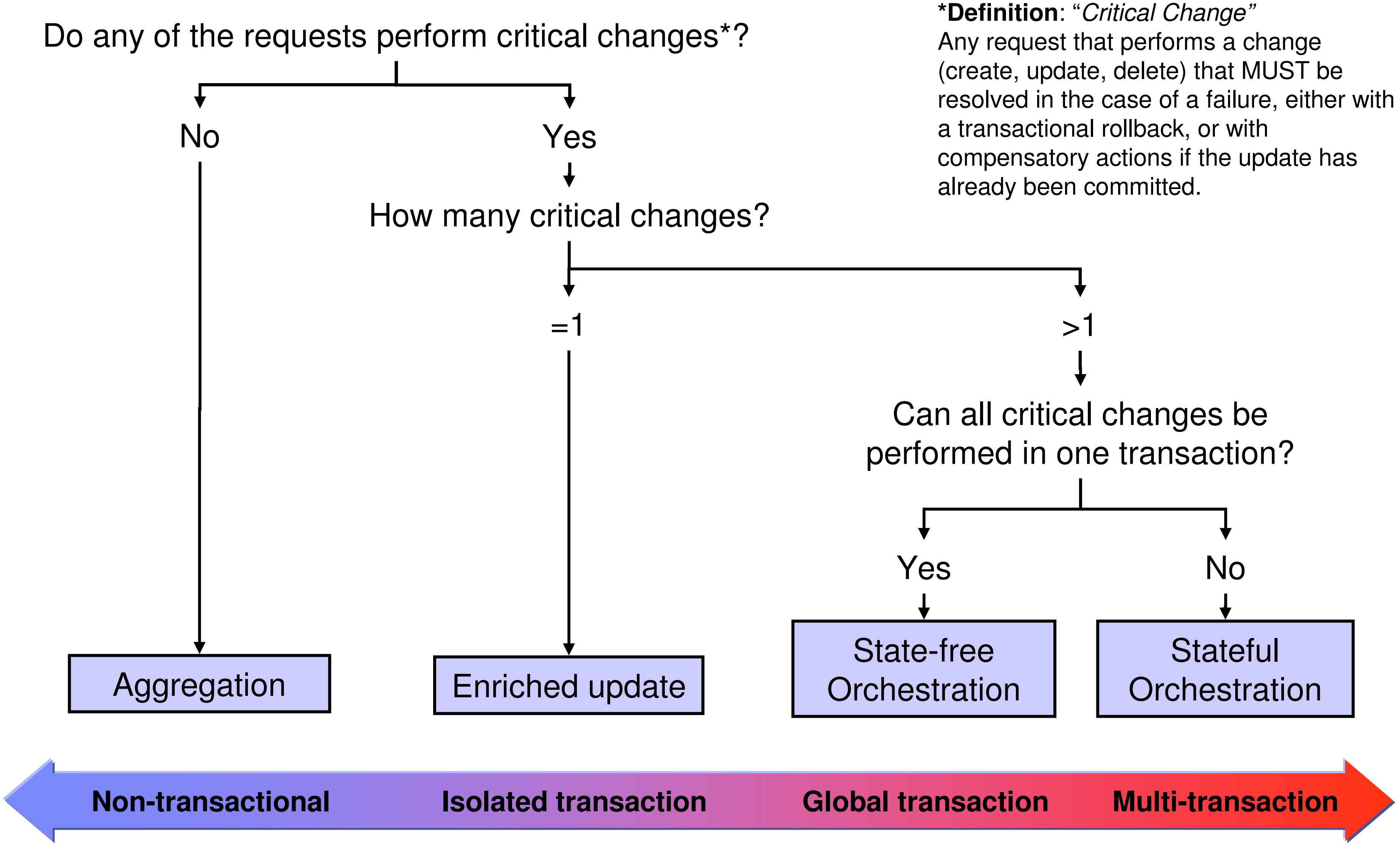
Integration orchestration examples

- Telecoms company
  - Call centre representatives needed to know 19 different systems. 4 used daily, but another 15 they used occasionally for key business processes. Previously everything was done by re-keying integration.
  - Most of the elimination of steps was due to duplication of data. At a business model level it's a single activity done by one individual.
  - The only KPI is the overall capturing and submitting of the order. Plenty of statistics can gather, but only on a single step.
  - The back end systems' API were granular, and the data was duplicated so something needed to tie them together.
- Software vendor
  - Business partners selling the vendors software had and offline system in which to enter orders. It was not directly connected to the live product and pricing information.
  - On receipt, significant validation was required. Check for valid part numbers, check they have the most recent part, perform pricing rules (we can accept the price/quote given within a range), check we have a record for the end customer details.
  - In the "perfect" system, there would be direct access to the latest data for the business data so there would be no need for any "process" to validate the order.
  - The idealised business process is just a single step Create Order, the rest is integration.
- Note that humans do integration orchestration too!
  - Swivel chair data re-keying is integration logic, even though it's done by the business.

Integration patterns involving orchestration

- Multiple invocation logic
  - Scatter gatherer
  - Aggregation
  - Enriched updates
  - Data synchronisation
  - Straight through processing
  - Command controller
- Data Consistency
  - Once only delivery
  - Idempotence
  - Optimistic/pessimistic locking
  - Compensation
  - Event sequencing
- Reliability
  - Error handling
  - Failed event management
  - Retry
  - Health check
  - Store and forward
- Large object/batch management
  - Claim Check
  - Batch Splitter
  - Batch processing
  - Batch aggregator

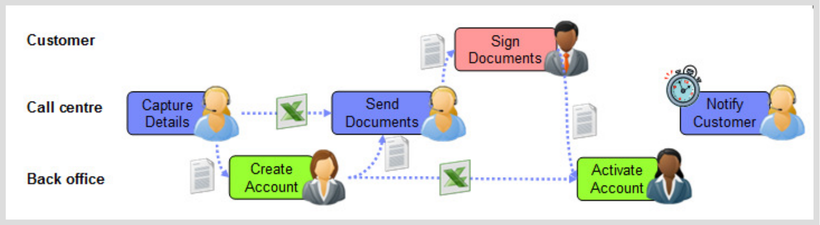
Types of orchestration in relation to transactionality



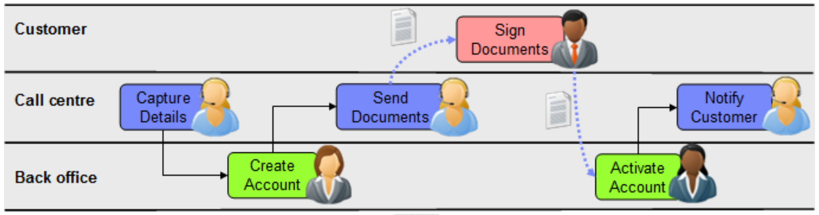
***Definition**: *"Critical Change"*
Any request that performs a change (create, update, delete) that MUST be resolved in the case of a failure, either with a transactional rollback, or with compensatory actions if the update has already been committed.

Progressive process optimisation – “The journey is the goal”

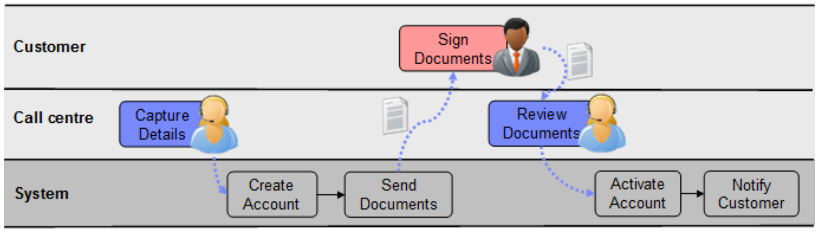
Manual process



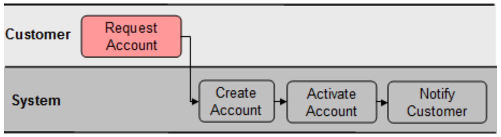
Flow automation



Task automation



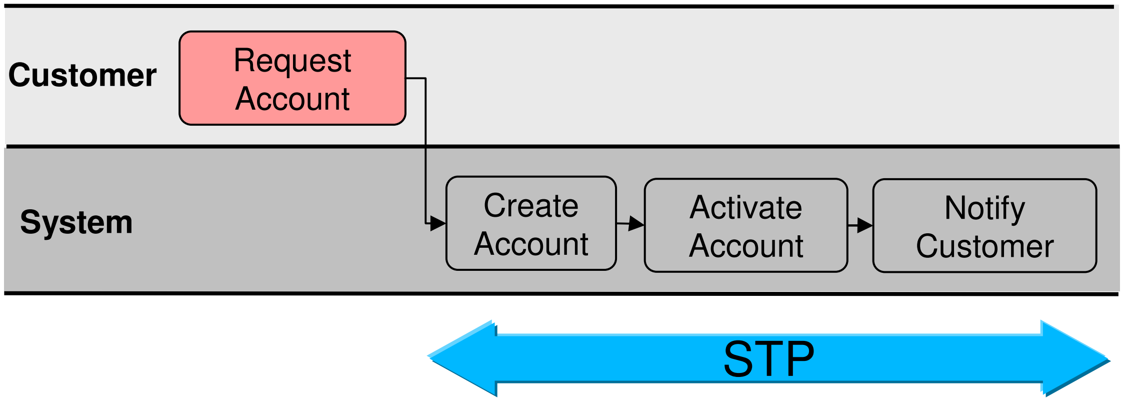
Straight through processing



“Fill in the whitespace between systems”

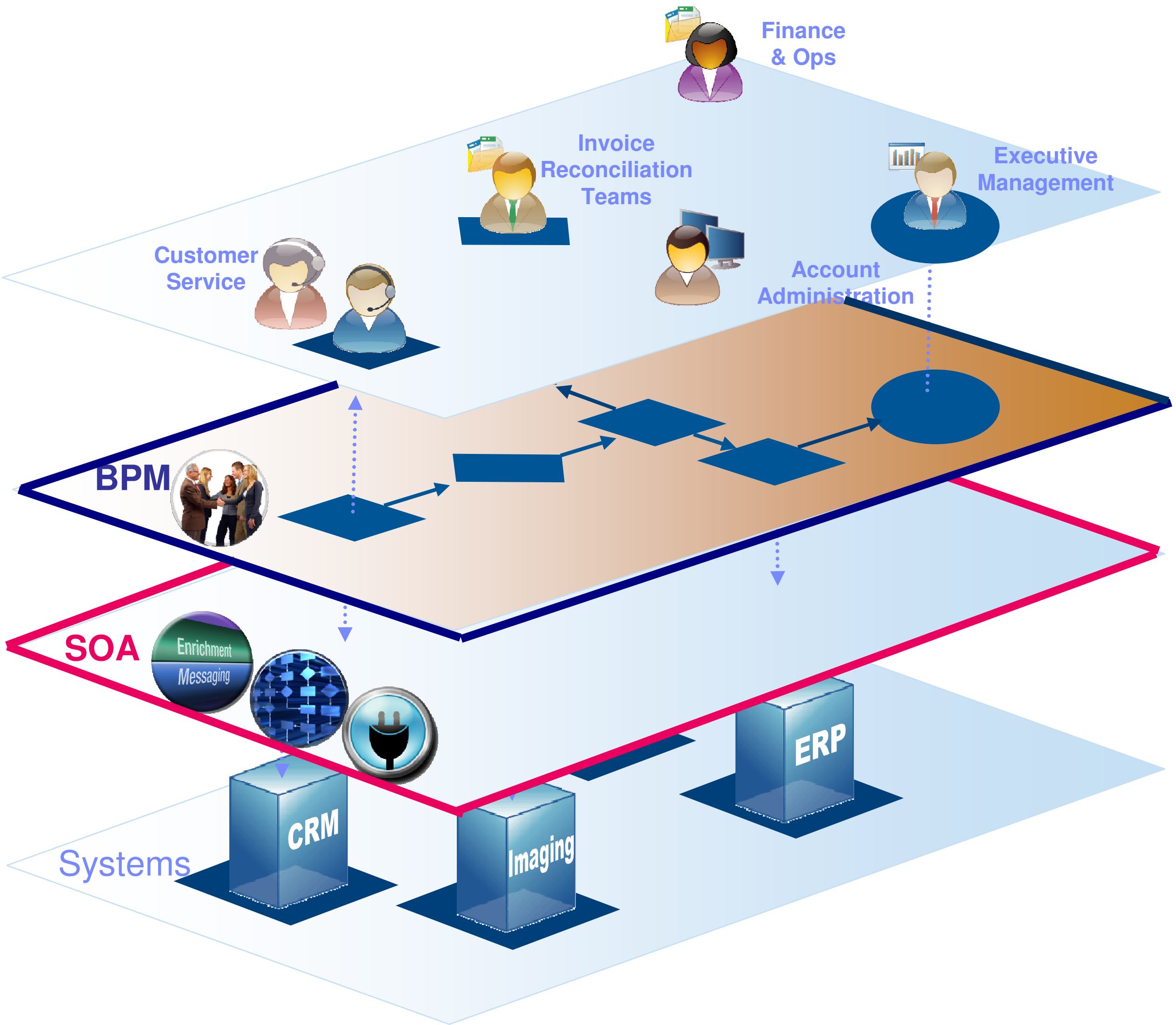
What is STP?

- STP = “Straight Through Processing”
  - The primary goal of STP is to increase throughput. The primary way to do this is removal of humans from a process. This requires both **flow** and **task** automation and also significant **re-engineering**.
  - If the end goal is STP, you **must** design for this from the start in every aspect from the way you re-engineer the flow, the services you make available to automate the tasks to the way you implement security and so on..



- STP = “Fully automated?” – Rarely
  - STPs are rarely completely automated for every path through the process, but should be **automated on the most commonly traversed paths**. Most have rarely occurring edge cases that are still handled manually.
  - Exception cases typically become exponentially harder to automate as you cater to more diverse and rare circumstances. It is critically important to evaluate the business benefit of each additional automated path.

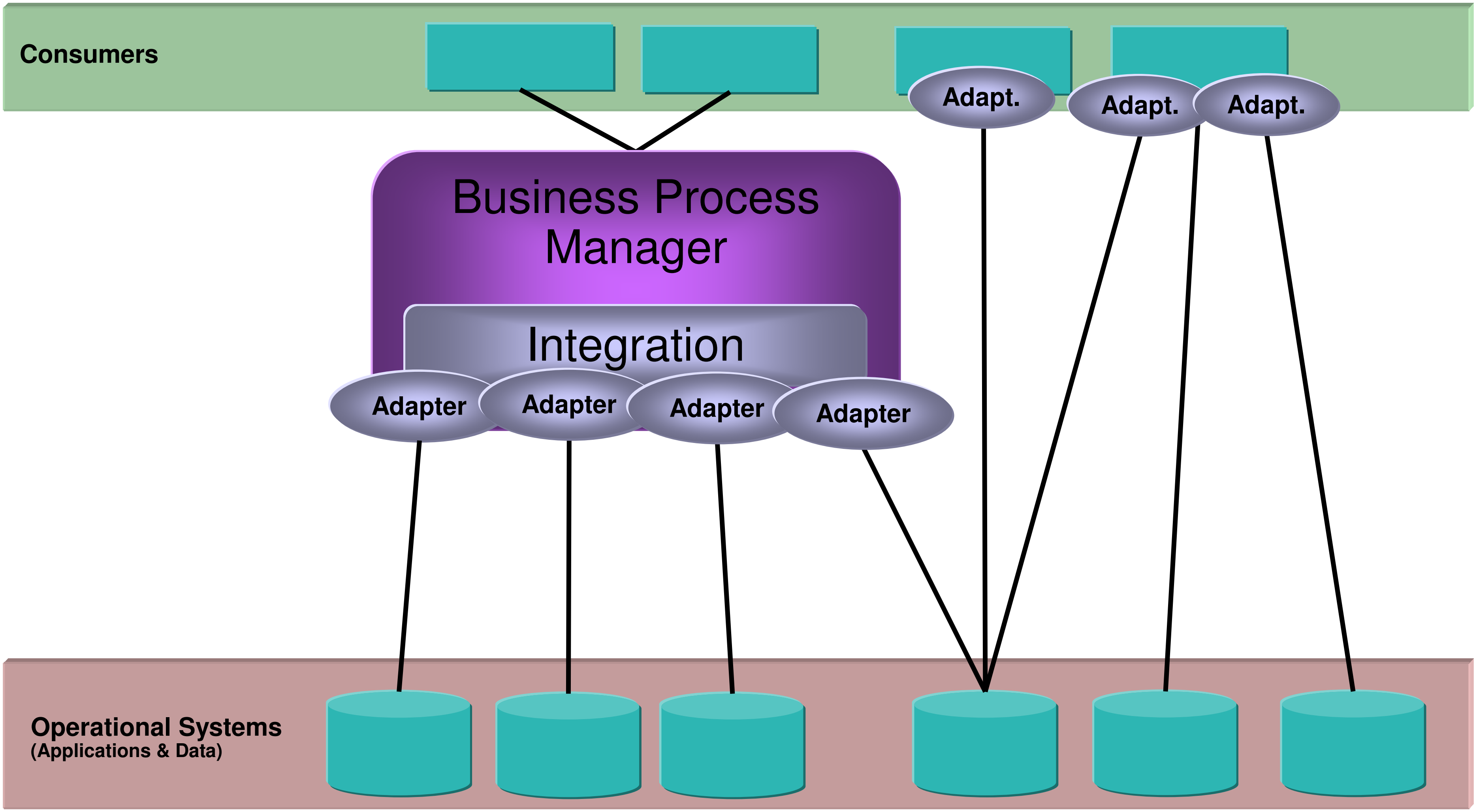
SOA isn't mandatory for BPM, but it is highly complementary



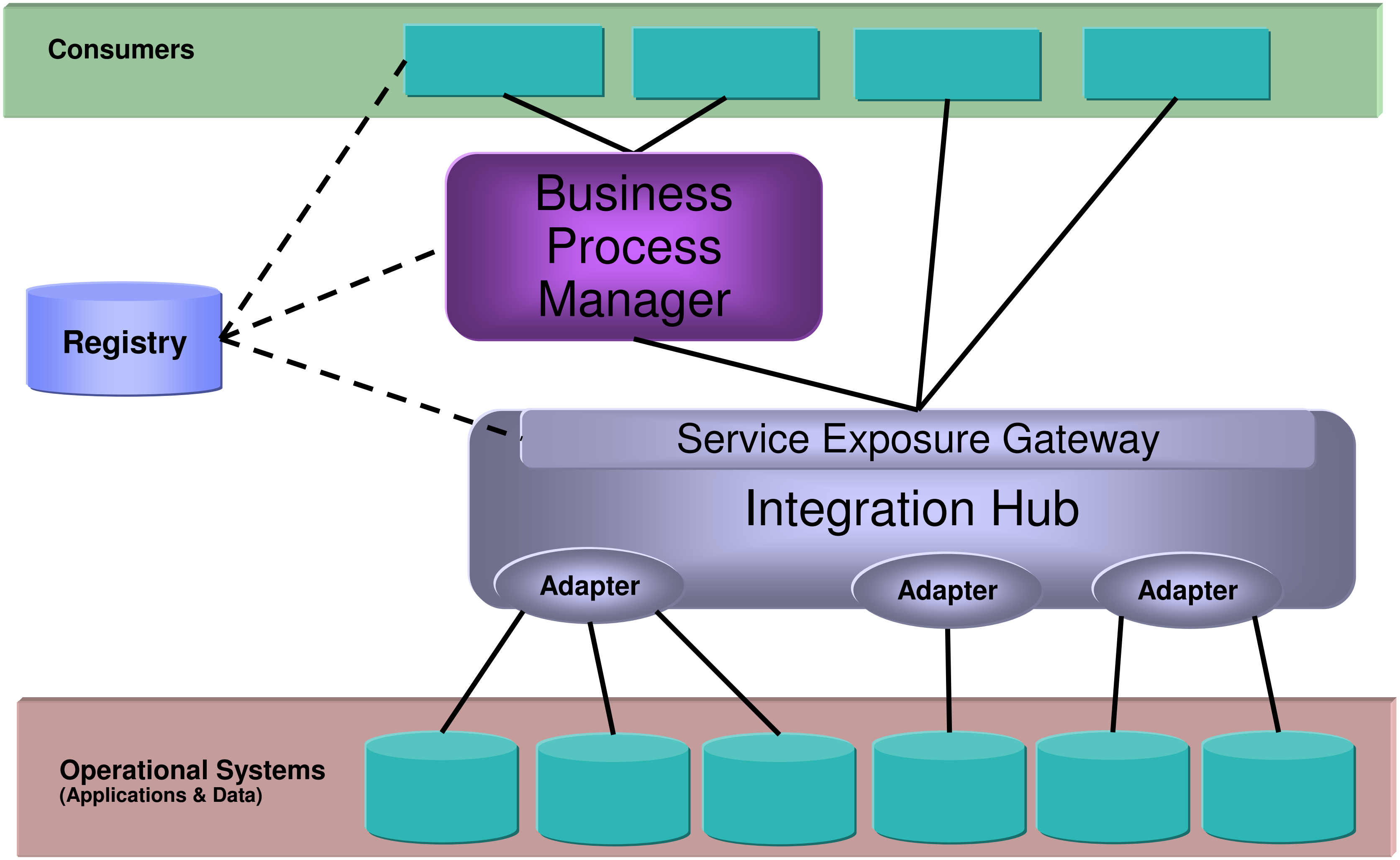
Open Service Integration Maturity Model (OSIMM)

	Silo	Integrated	Componentized	Services	Composite Services	Virtualized Services	Dynamically Re-Configurable Services
Business View	Function Oriented	Function Oriented	Function Oriented	Service Oriented	Service Oriented	Service Oriented	Service Oriented
Organization	Ad hoc IT Governance	Ad hoc IT Governance	Ad hoc IT Governance	Emerging SOA Governance	SOA and IT Governance Alignment	SOA and IT Governance Alignment	SOA and IT Governance Alignment
Methods	Structured Analysis & Design	Object Oriented Modeling	Component Based Development	Service Oriented Modeling	Service Oriented Modeling	Service Oriented Modeling	Grammar Oriented Modeling
Applications	Modules	Objects	Components	Services	Process Integration via Services	Process Integration via Services	Dynamic Application Assembly
Architecture	Monolithic Architecture	Layered Architecture	Component Architecture	Emerging SOA	SOA	Grid Enabled SOA	Dynamically Re-Configurable Architecture
Infrastructure	Platform Specific	Platform Specific	Platform Specific	Platform Specific	Platform Specific	Platform Neutral	Dynamic Sense & Respond
	Level 1	**Level 2**	**Level 3**	**Level 4**	**Level 5**	**Level 6**	**Level 7**

BPM in an immature integration architecture

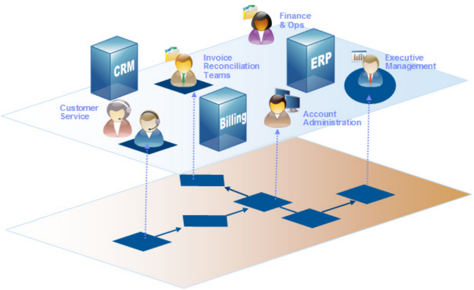


BPM in a Service Oriented Architecture

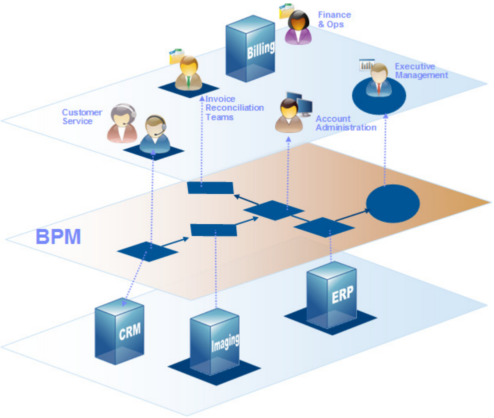


From Isolated workflow and integration and SOA to BPM

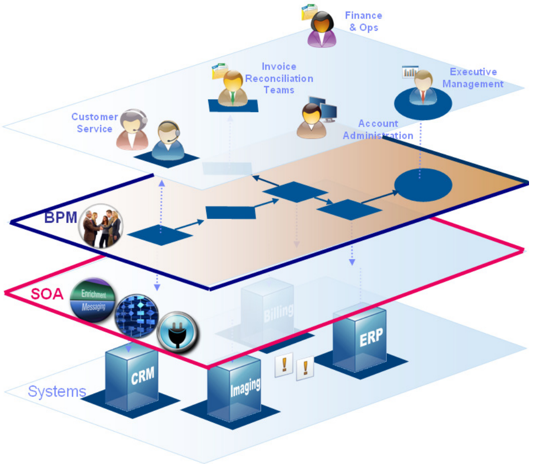
Isolated Workflow

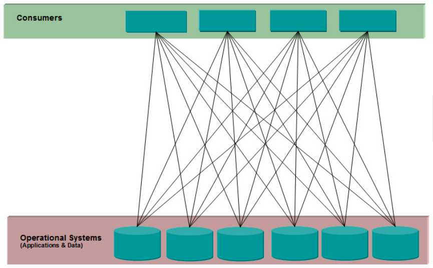


Business Process Management (BPM)

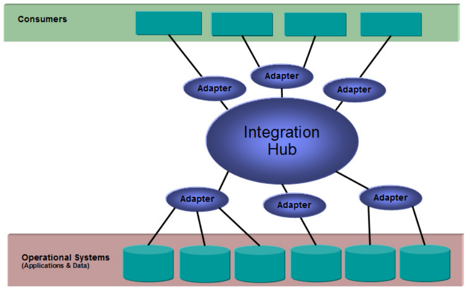


BPM + SOA

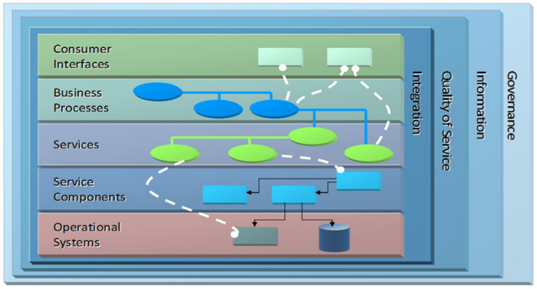




Point to Point Integration



Enterprise Application Integration (EAI)



Service Oriented Architecture (SOA)

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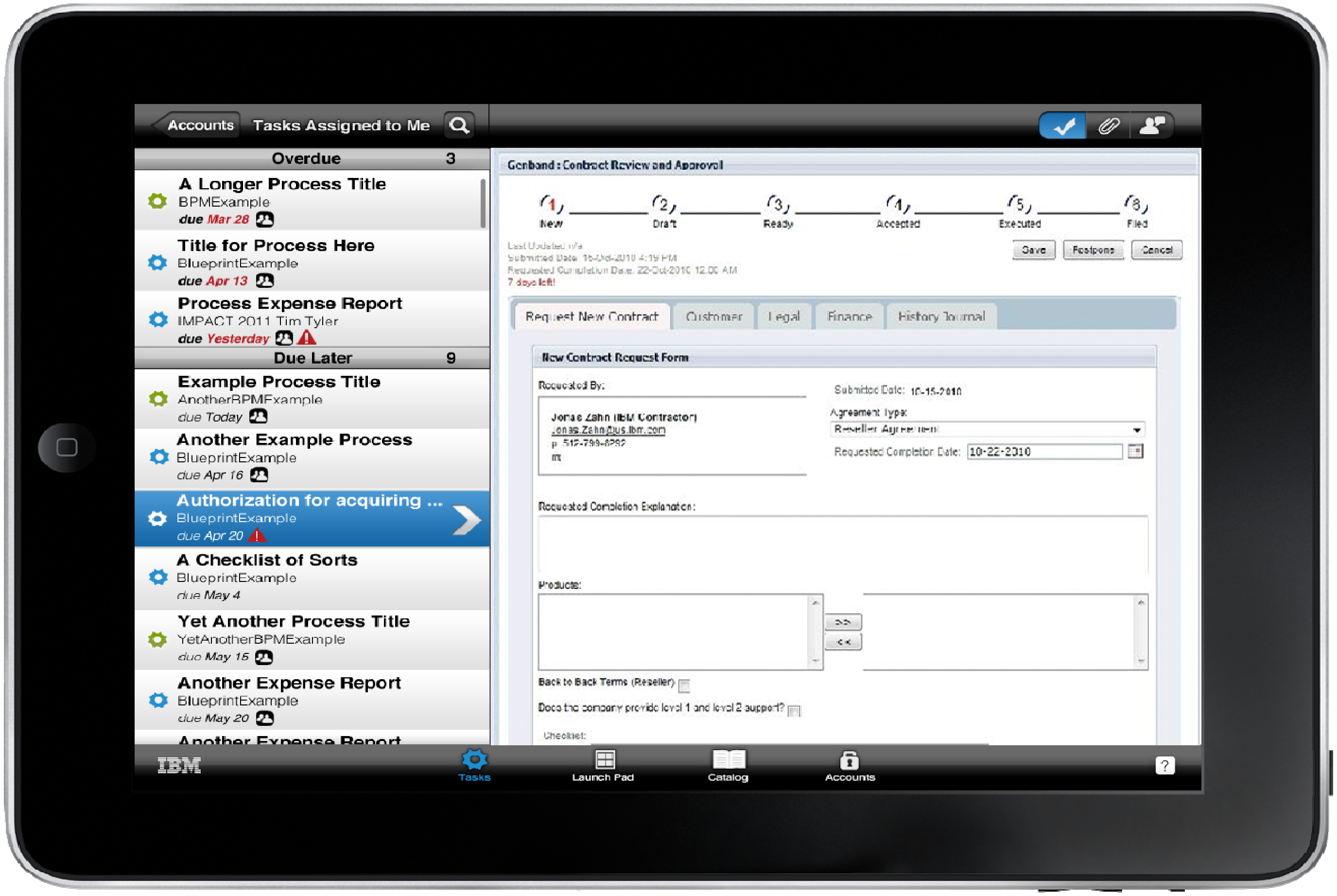
BPM benefits

- Business Agility
  - Rapid process re-engineering
  - Encode complex rules/logic
- Process Governance
  - Encoding of process versioning
  - Drive commonality in processes
  - Improve data integrity
- Operational compliance
  - Enforcement of process structure
  - Auditing of process activity
- Visibility
  - Individual process instance visibility
  - Aggregated statistics/management information
  - Single view of process
- End to end performance
  - Task flow efficiency
  - Peak load management
  - Automate manual actions
  - Event auto-correlation
- Workforce efficiency
  - Context specific user interfaces
  - Team member auto-substitution
  - Management of actions in the future
  - Parallelism of work
  - Bulk re-distribution of work
  - Virtual teams on a common process
  - Role based task assignment
  - Reduced user navigation
  - Decision Automation
  - Collaborative task completion

Business Goals for Process Optimization

- Reduce headcount
  - Handle the same amount of work with less people in order to cut costs, or free up resources for alternate work.
- Maximise high value staff
  - Free up core knowledge workers from mundane activity, to focus on higher value activities, in order to gain greater value from the investment in high cost staff.
- Increase volumes
  - Scale up the volume of process instances that can be handled in a given time in order to increase retain or increase profit margins.
- Meet performance targets
  - Focus on performance indicators such as “end to end” process time, to avoid being penalised for failing to meet service level agreements (SLAs).
- Improve user experience
  - Improve user traction with the process, in order to employee retention, and/or retain customers.

Extending BPM access to mobile



Overdue 3

A Longer Process Title
BPMExample
due Mar 28

Title for Process Here
BlueprintExample
due Apr 13

Process Expense Report
IMPACT 2011 Tim Tyler
due Yesterday

Due Later 9

Example Process Title
AnotherBPMExample
due Today

Another Example Process
BlueprintExample
due Apr 16

Authorization for acquiring ...
BlueprintExample
due Apr 20

A Checklist of Sorts
BlueprintExample
due May 4

Yet Another Process Title
YetAnotherBPMExample
due May 15

Another Expense Report
BlueprintExample
due May 20

Another Expense Report

Genband : Contract Review and Approval

Last Updated: n/a
Submitted Date: 15-Oct-2010 4:19 PM
Requested Completion Date: 22-Oct-2010 12:00 AM
7 days left!

New Contract Request Form

Requested By:
Jonas Zahn (IBM Contractor)
Jonas.Zahn@us.ibm.com
p 512-799-6282
m

Submitted Date: 10-15-2010
Agreement Type: Reseller Agreement
Requested Completion Date: 10-22-2010

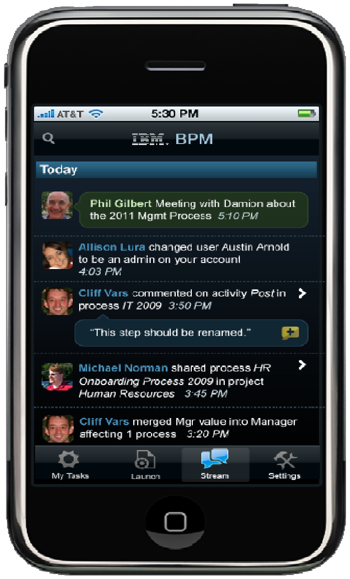
Requested Completion Explanation:

Products:

Back to Back Terms (Reseller) □

Does the company provide level 1 and level 2 support? □

Checklist:



Phil Gilbert Meeting with Damion about the 2011 Mgmt Process *5:10 PM*

Allison Lura changed user Austin Arnold to be an admin on your account *4:03 PM*

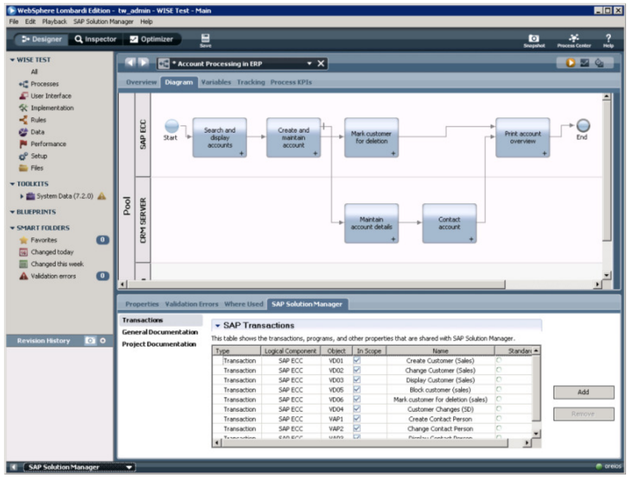
Cliff Vars commented on activity *Post* in process *IT 2009* *3:50 PM*

"This step should be renamed."

Michael Norman shared process *HR Onboarding Process 2009* in project *Human Resources* *3:45 PM*

Cliff Vars merged Mgr value into Manager affecting 1 process *3:20 PM*

IBM BPM V8 integration with SAP



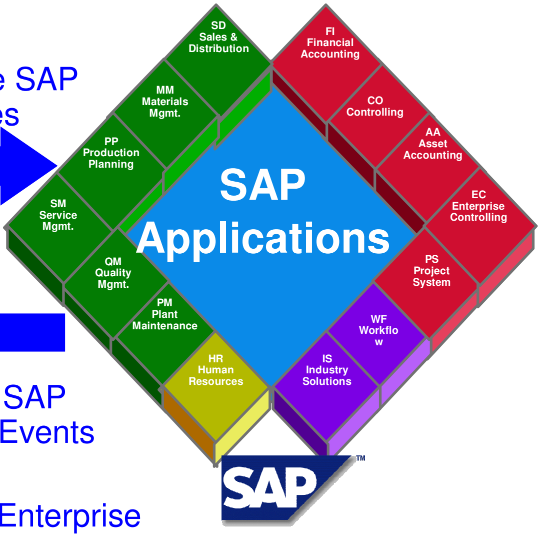
SAP Transactions

This table shows the transactions, programs, and other properties that are shared with SAP Solution Manager.

Type	Logical Component	Object	In Scope	Name	Standard
Transaction	SAP ECC	VD01	☑	Create Customer (Sales)	○
Transaction	SAP ECC	VD02	☑	Change Customer (Sales)	○
Transaction	SAP ECC	VD03	☑	Display Customer (Sales)	○
Transaction	SAP ECC	VD05	☑	Block customer (sales)	○
Transaction	SAP ECC	VD06	☑	Mark customer for deletion (sales)	○
Transaction	SAP ECC	VD04	☑	Customer Changes (SD)	○
Transaction	SAP ECC	VAP1	☑	Create Contact Person	○
Transaction	SAP ECC	VAP2	☑	Change Contact Person	○
Transaction	SAP ECC	VAP3	☑	Display Contact Person	○

Orchestrate SAP Services

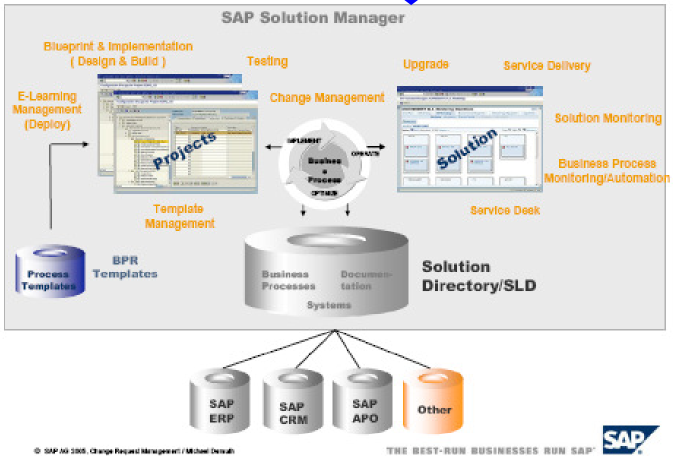
Monitor SAP Business Events

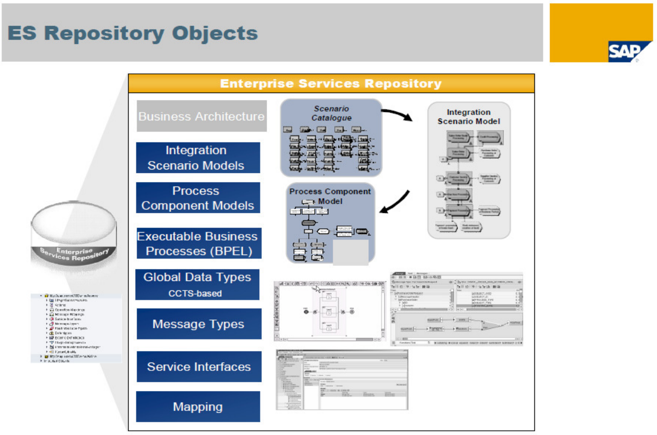


Download processes from Solution Manager

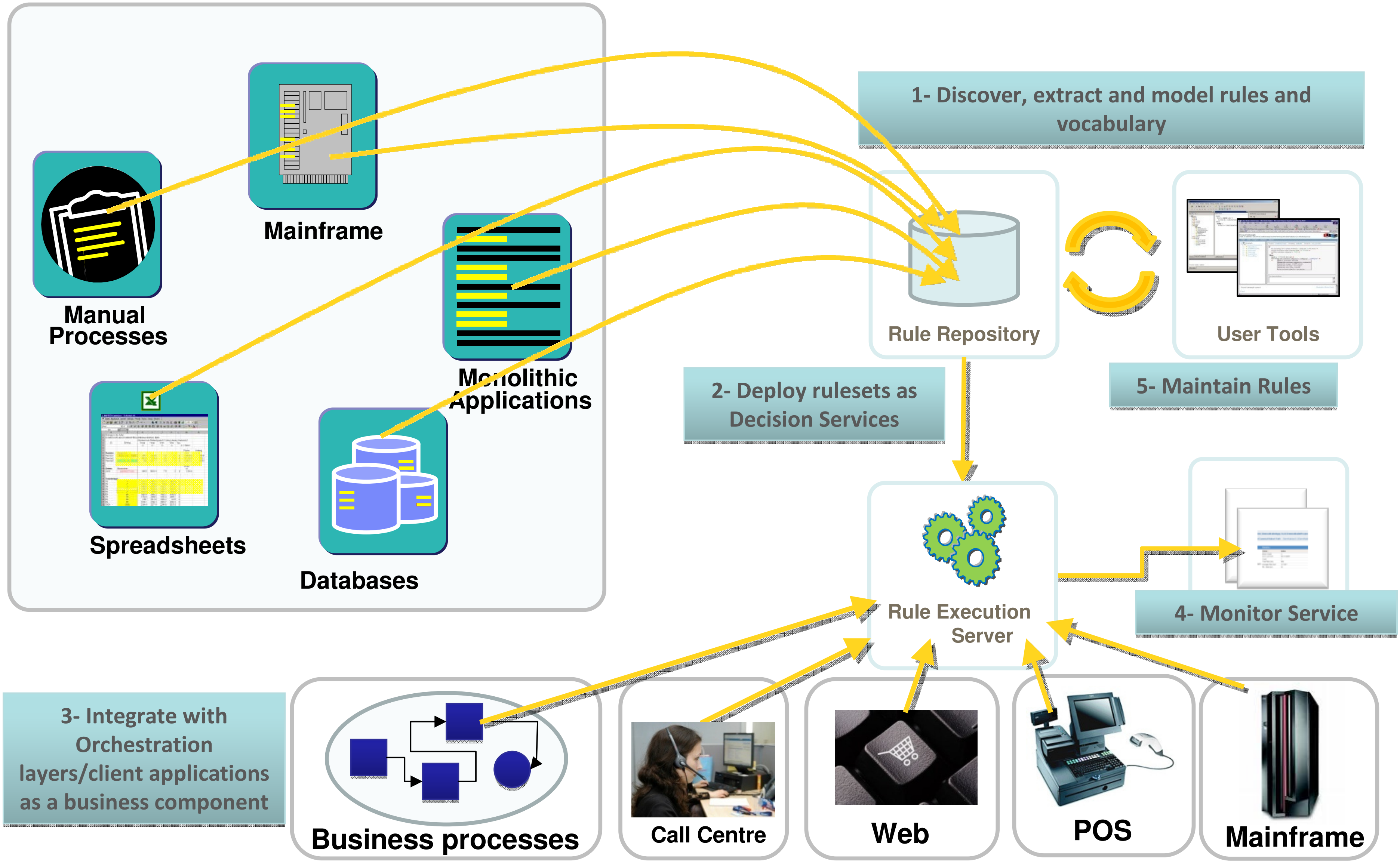
Upload processes to Solution Manager

Retrieve Enterprise Service Definitions

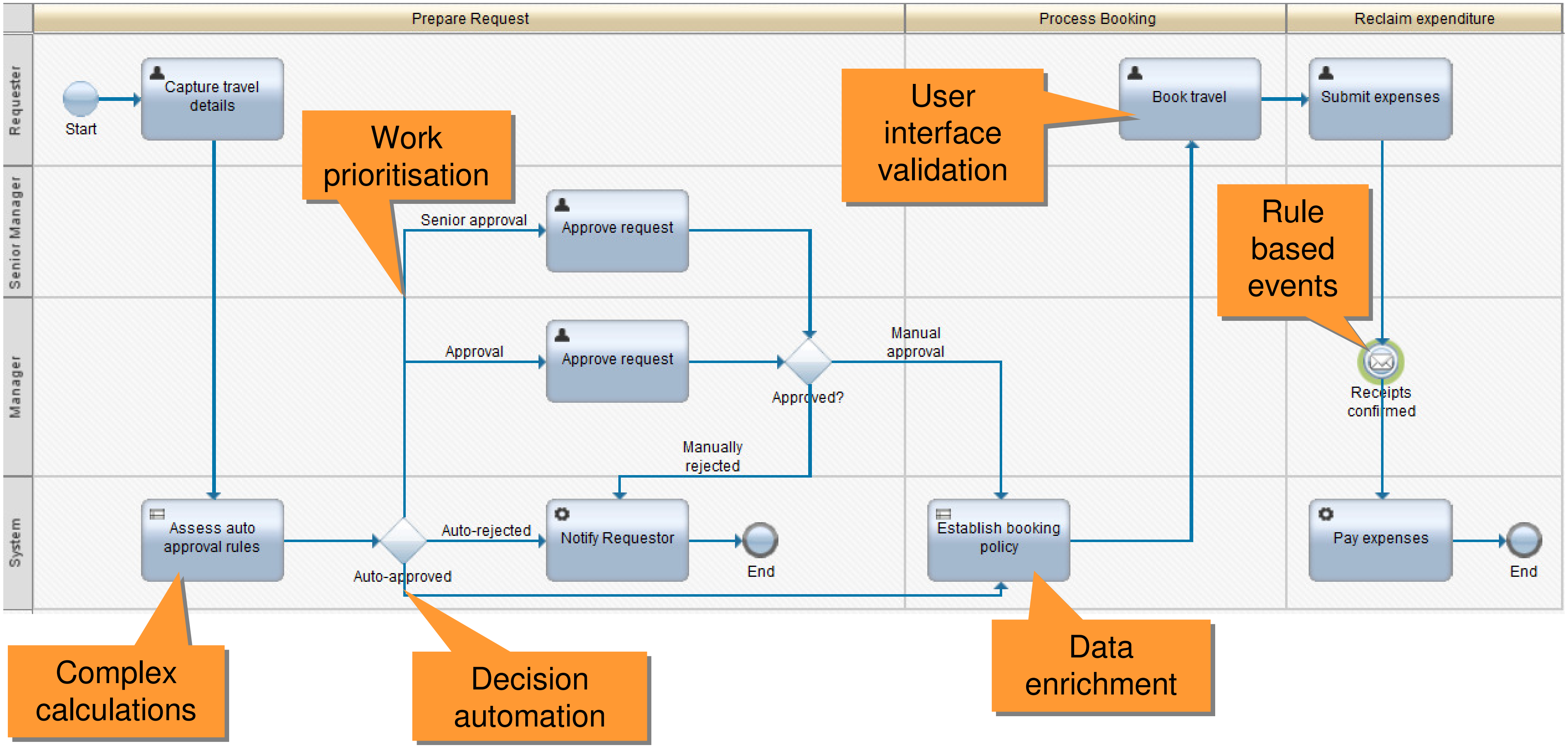




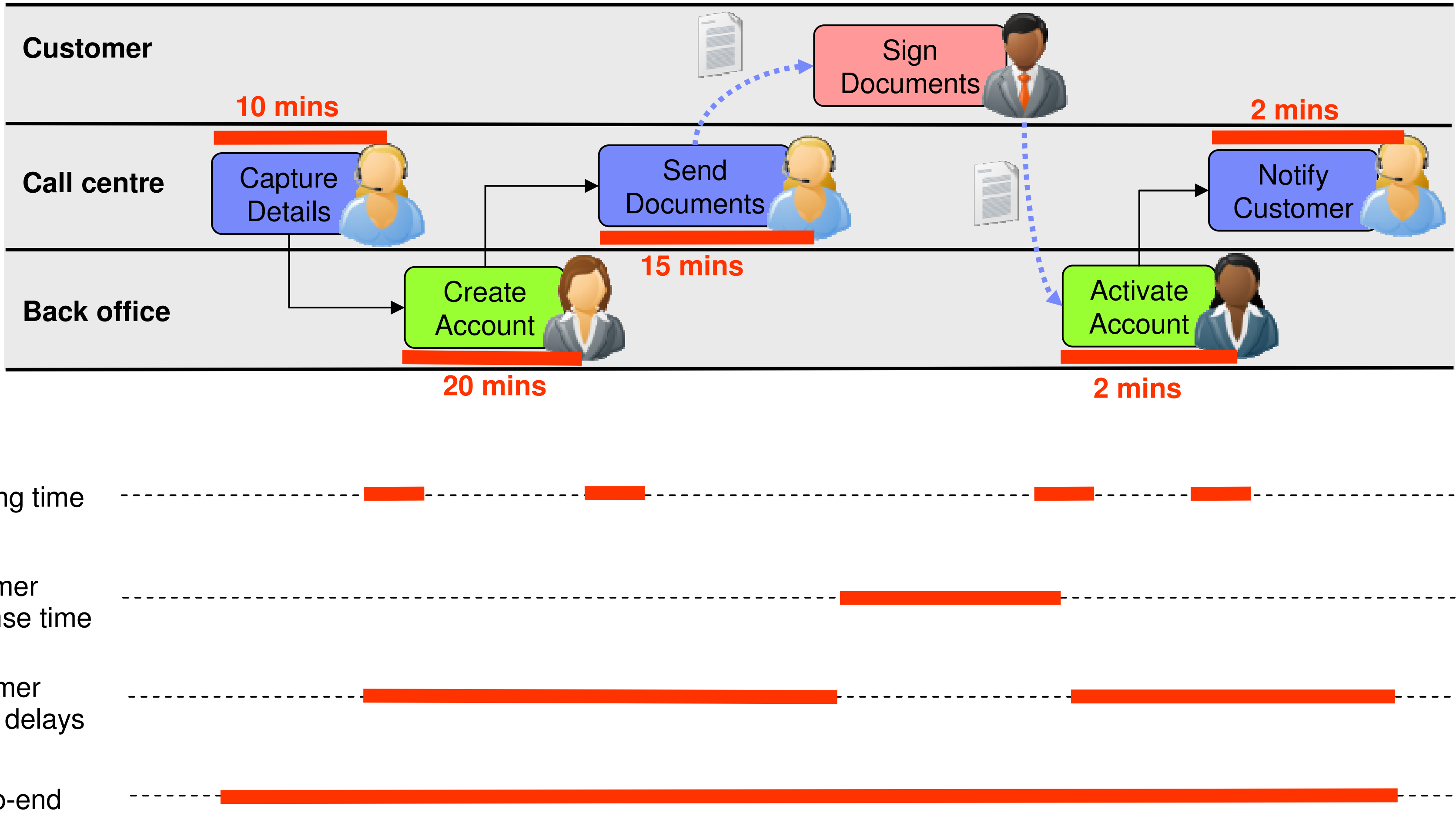
Externalising and centralising rules for re-use and agility



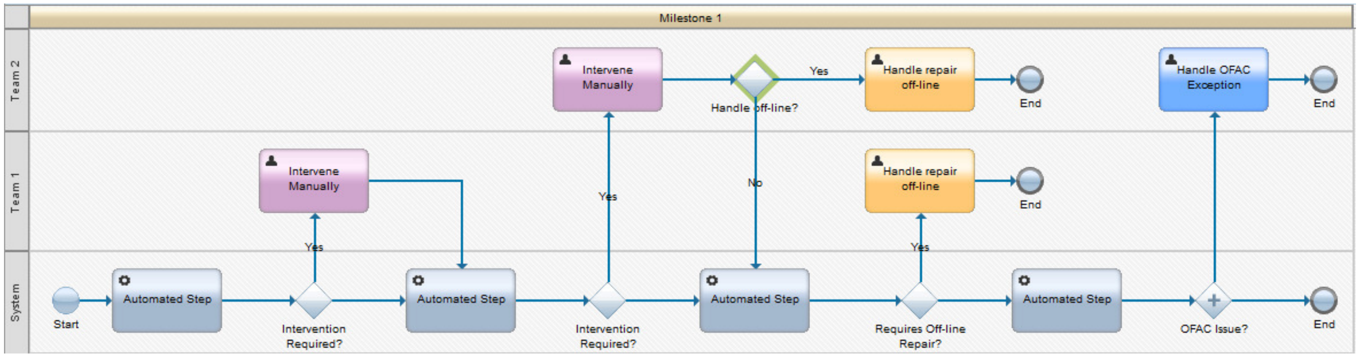
Rules in the context of BPM



BAM and BPM: Flow automation brings runtime statistics



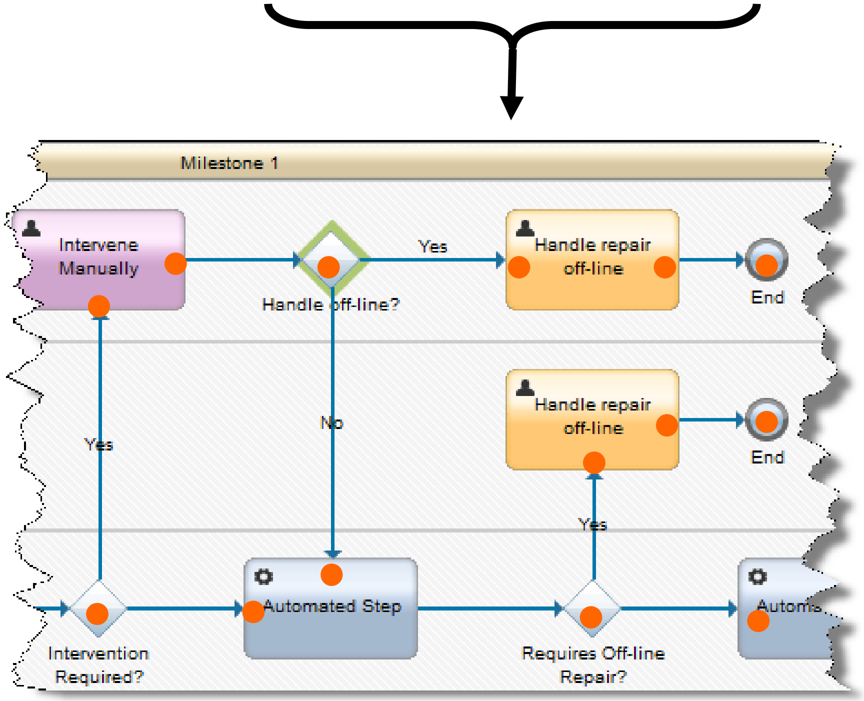
What sort of information do we capture about a process?



How long are payments taking to process today?

Where is manual work building up at the moment?

Will all of the high value transactions be completed within their SLA?



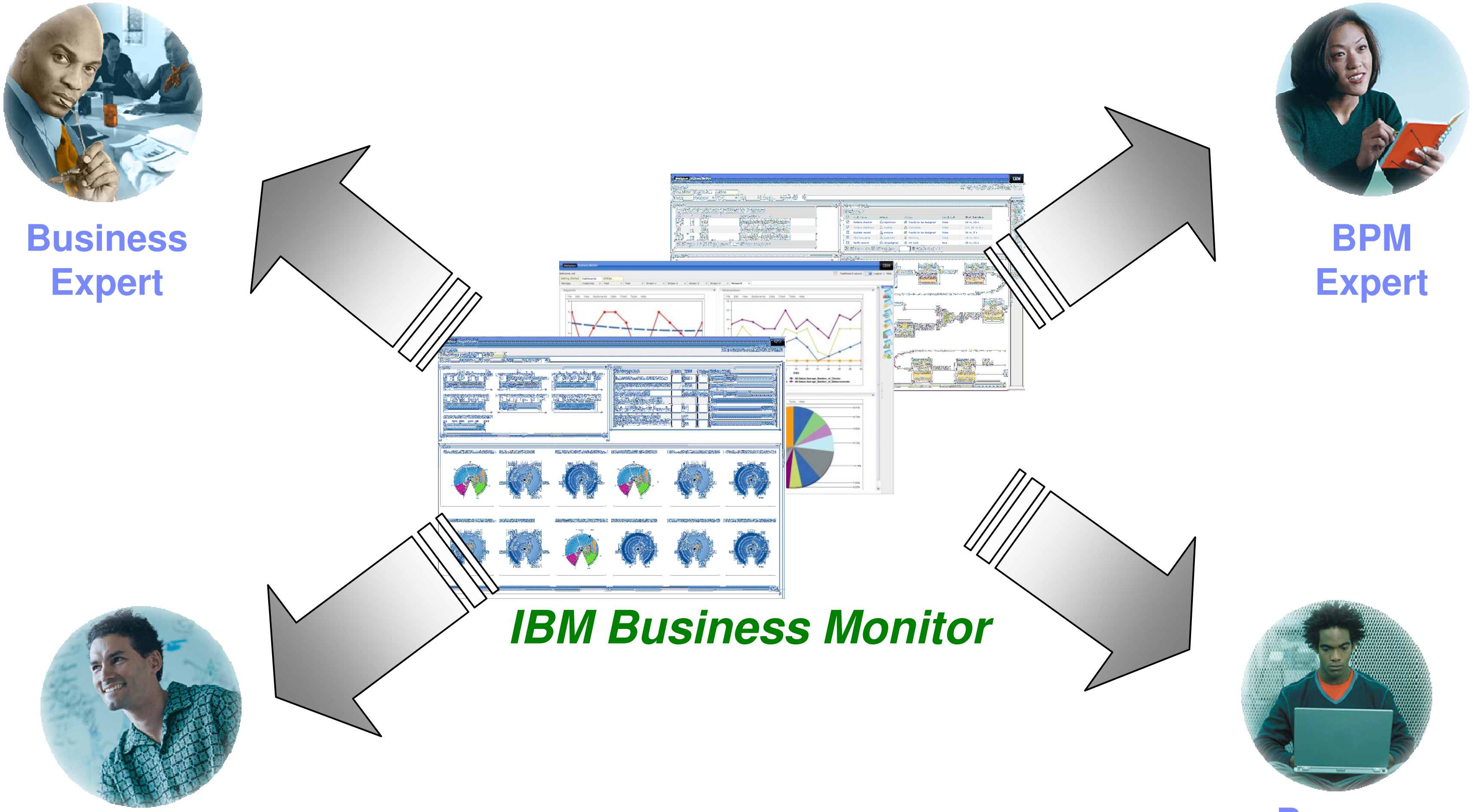
How long does it take to handle payments off-line?

What step in the processing usually results in off-line handling?

How often do we have to intervene?

Are we improving on our SLAs over time.

Customised views of information for different roles



Business Expert

BPM Expert

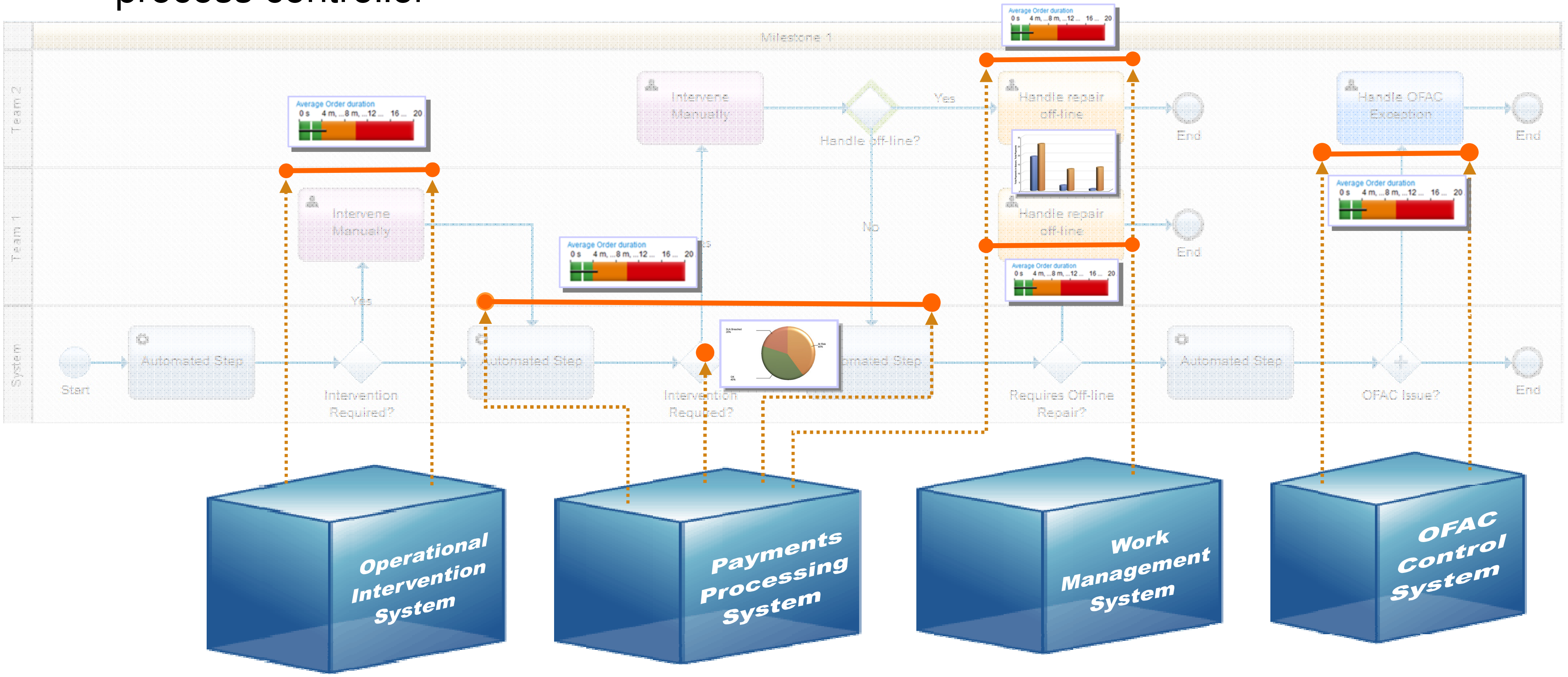
IBM Business Monitor

IT Expert

Process Users

Monitoring events from any application

- Events can be received from any application and used to show dashboards for the process
- Business monitor correlates events from different systems into common contexts
- Provides a single view of the process, even if there is actually no single process controller



BPM going forward

- Focus on mobile interaction
- Alternate adoption paths, e.g. start with monitoring
- Agility increase using rules and events
- Complementing case management

Summary

- When?
  - How will I know when I’ve found a BPM suited problem?
- Where?
  - How do we differentiate “business process” from other forms of composition/orchestration?
  - Which layer in the architecture should they each be placed?
  - To what extent should the processes be automated?
  - To what extent should integration points be decoupled from the process?
- Why?
  - What are the key benefits derived from BPM?

धन्यवाद

Hindi

多謝

Traditional Chinese

ขอบคุณ

Thai

Спасибо

Russian

Gracias

Spanish

Thank You

English

شكراً

Arabic

Merci

French

Obrigado

Brazilian Portuguese

Grazie

Italian

多谢

Simplified Chinese

Danke

German

நன்றி

Tamil

ありがとうございました

Japanese

감사합니다

Developerworks articles

- "Process Implementation Types: Patterns based design for process based solutions"
  - http://www.ibm.com/developerworks/websphere/library/techarticles/1004_clark/1004_clark.html

- Process Modeling for SOA and BPM
  - Practical advice on how Business Process Modeling maps onto a real implementation
    - Developer Works article series
      - http://www.ibm.com/developerworks/webservices/library/ar-procmod1/index.html