Events, Rules and Processes

Why you need all 3

Paul Vincent
CTO Business Rules and CEP

Background

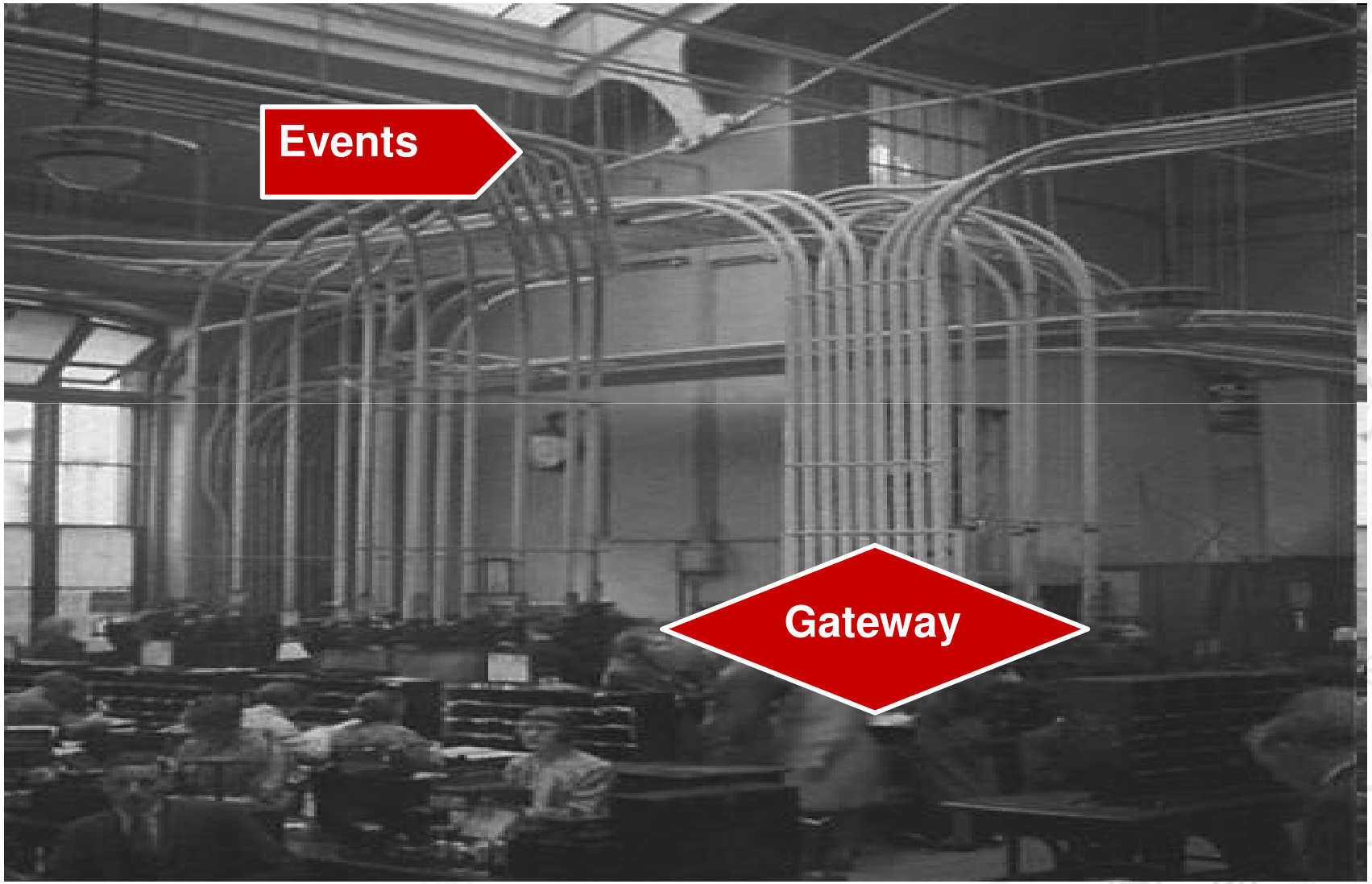
1. TIBCO is known more as an enterprise middleware company, providing MOM, BPM and SOA software tools
2. TIBCO is organised into SOA/MOM, BPM and Business Optimization groups: the latter covers BI, analytics, CEP, MDM, etc...
3. TIBCO customers exploit many combinations of these tools: CEP driving BPM, MDM driving CEP, CEP analysing BPM+SOA, CEP driving SOA etc
4. This presentation is from the viewpoint of the events and rules aspects of business processes ...

What do we mean by Business Processes?

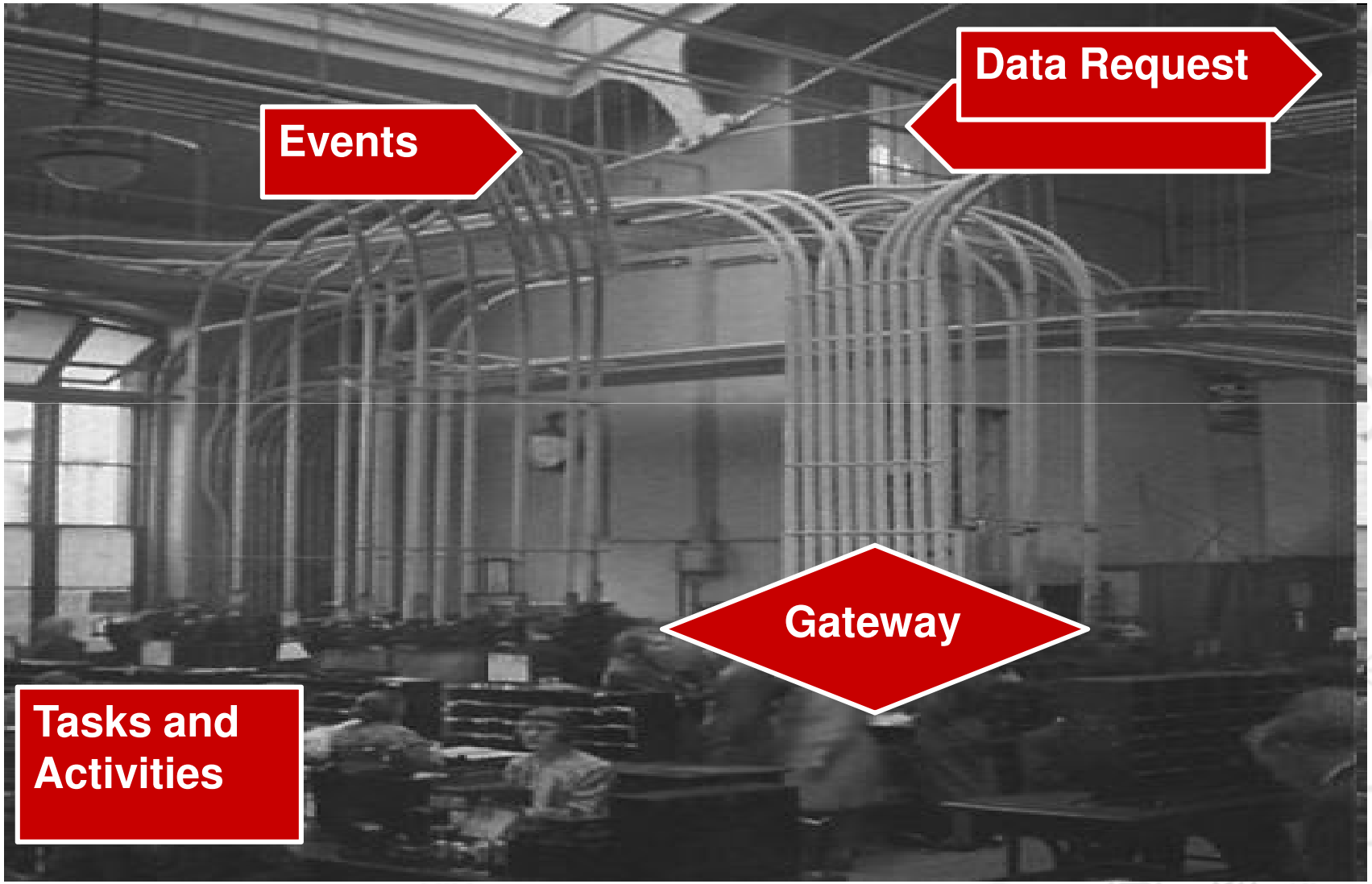
Traditional Business Processing

Traditional Business Processing

Traditional Business Processing



Traditional Business Processing



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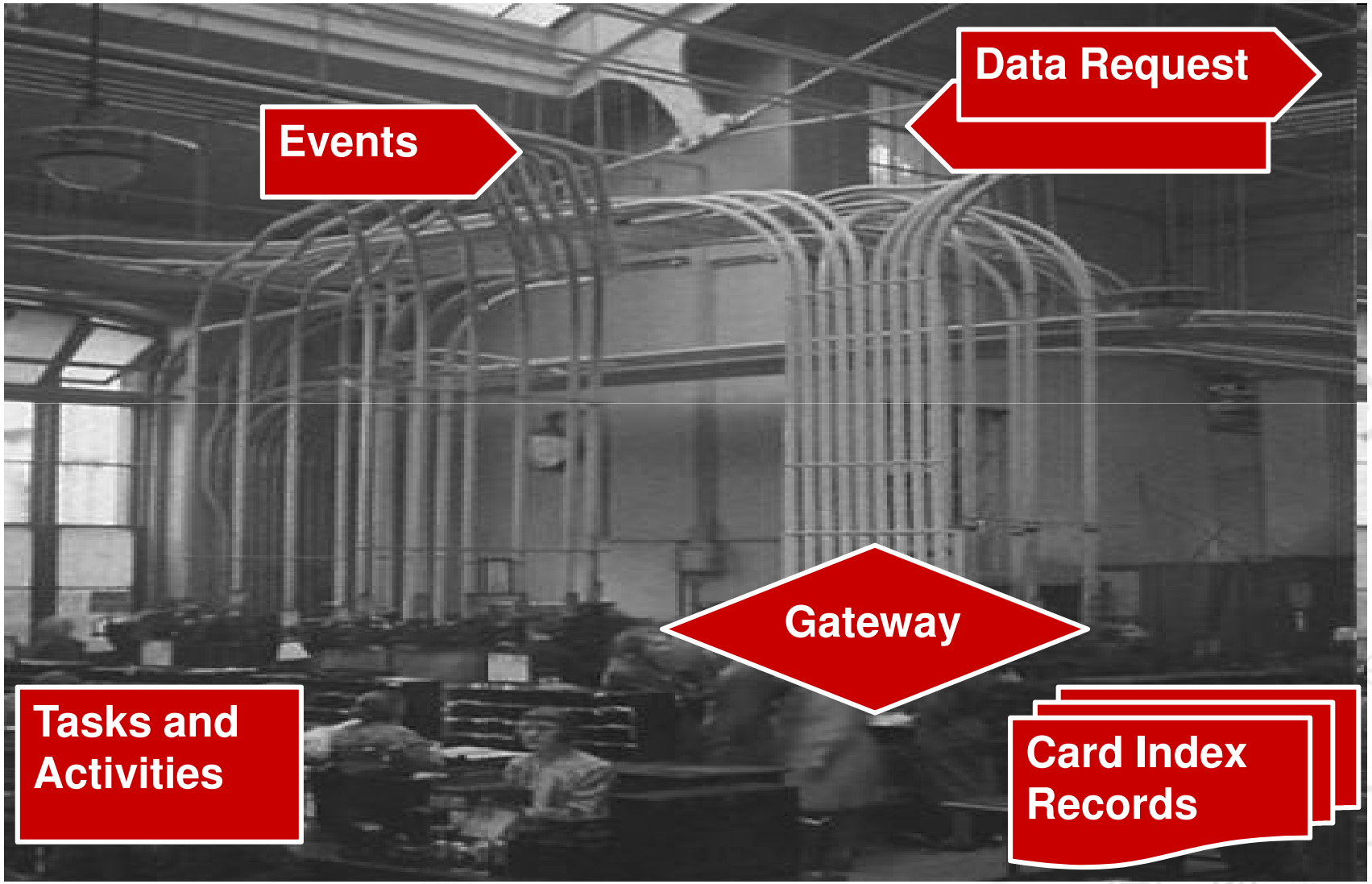
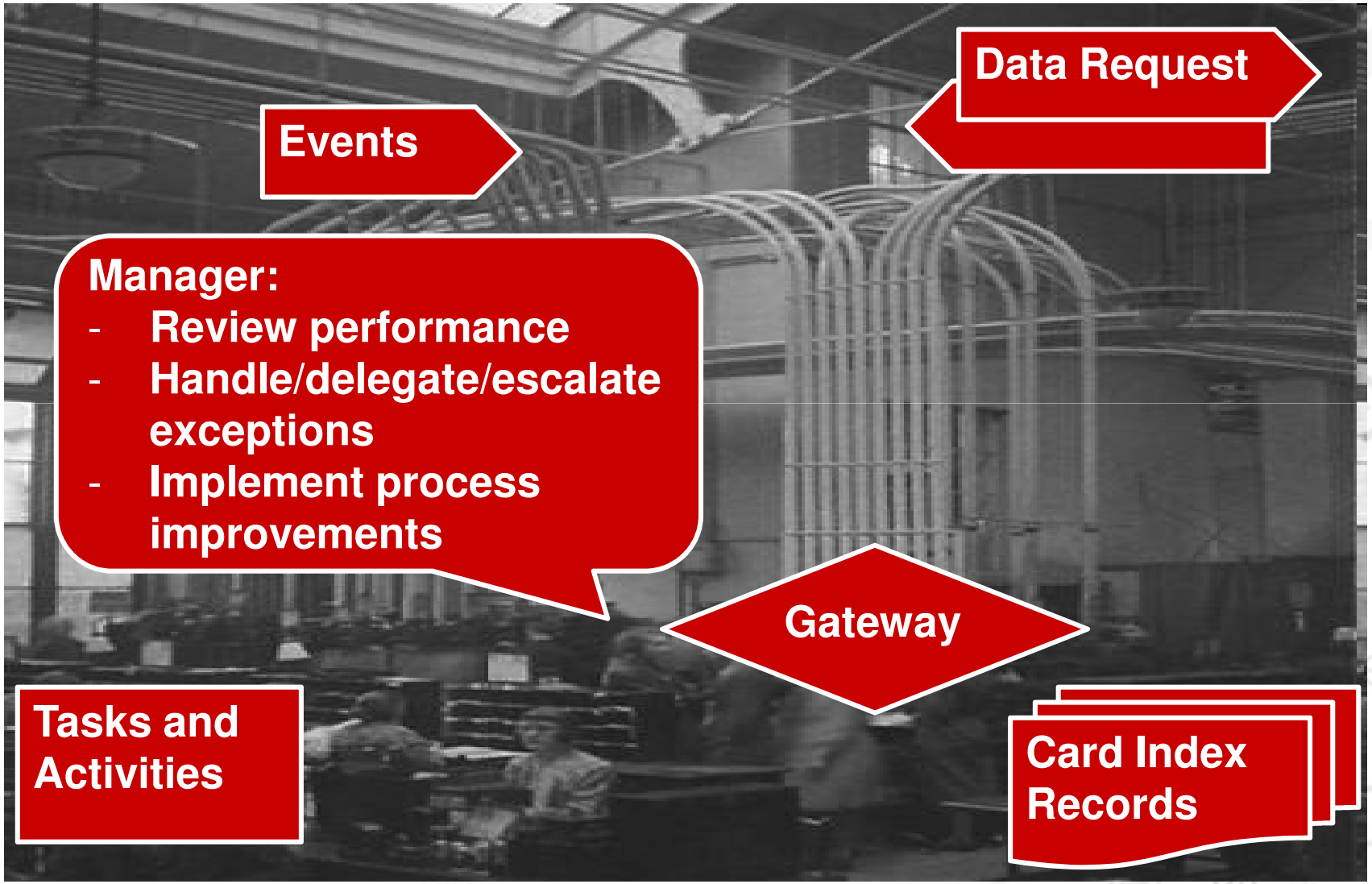
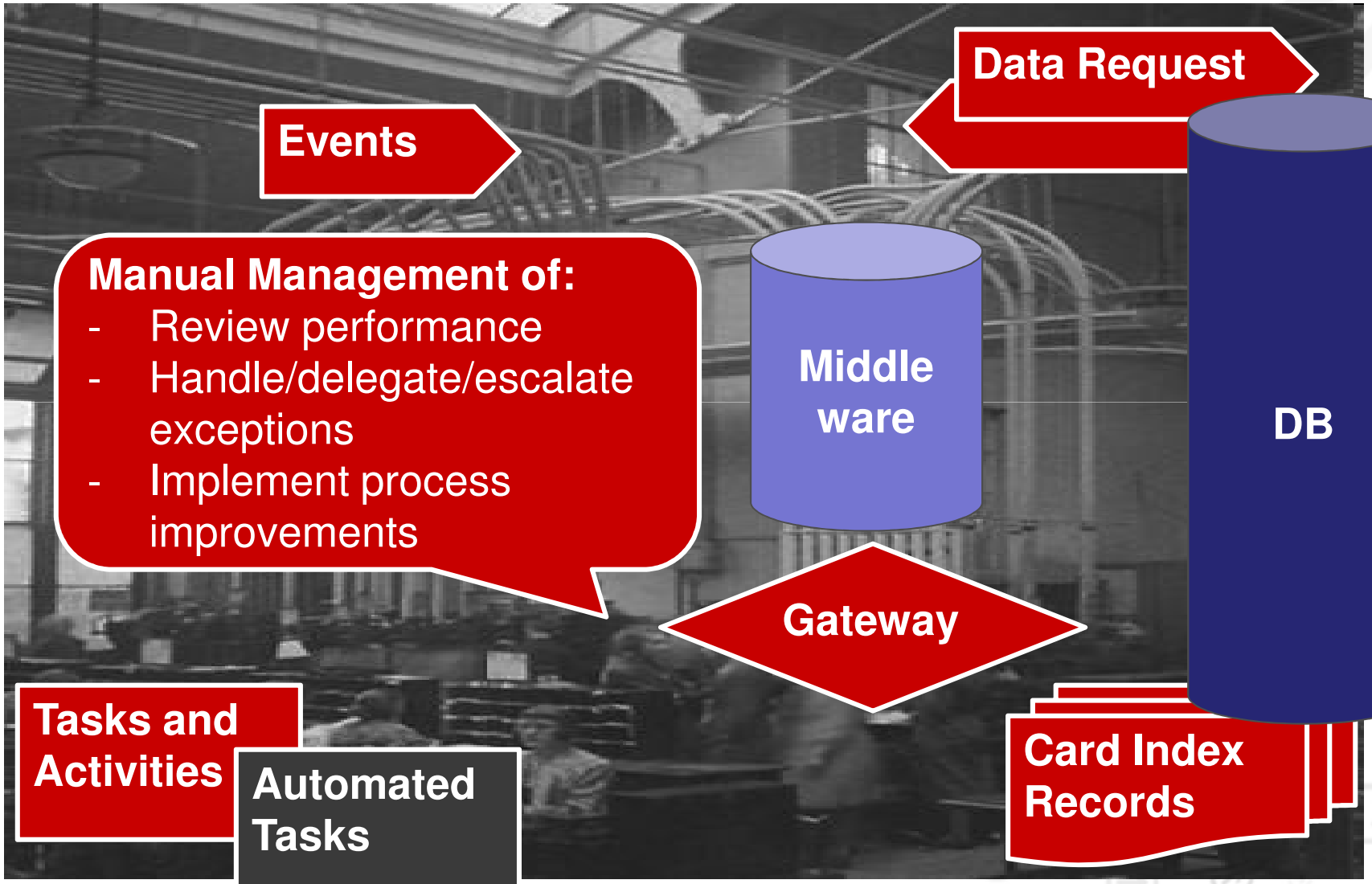


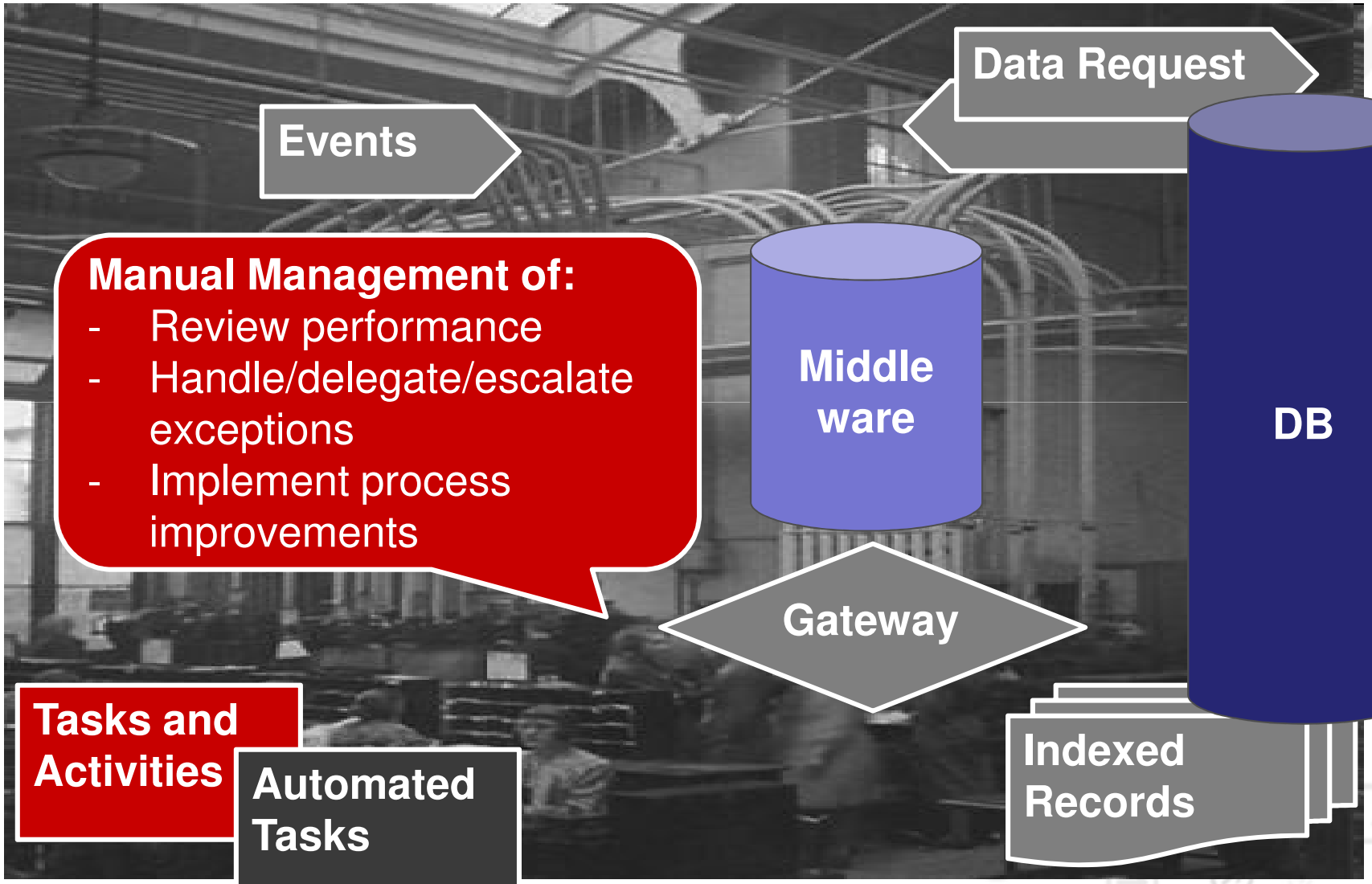
Traditional Business Processing



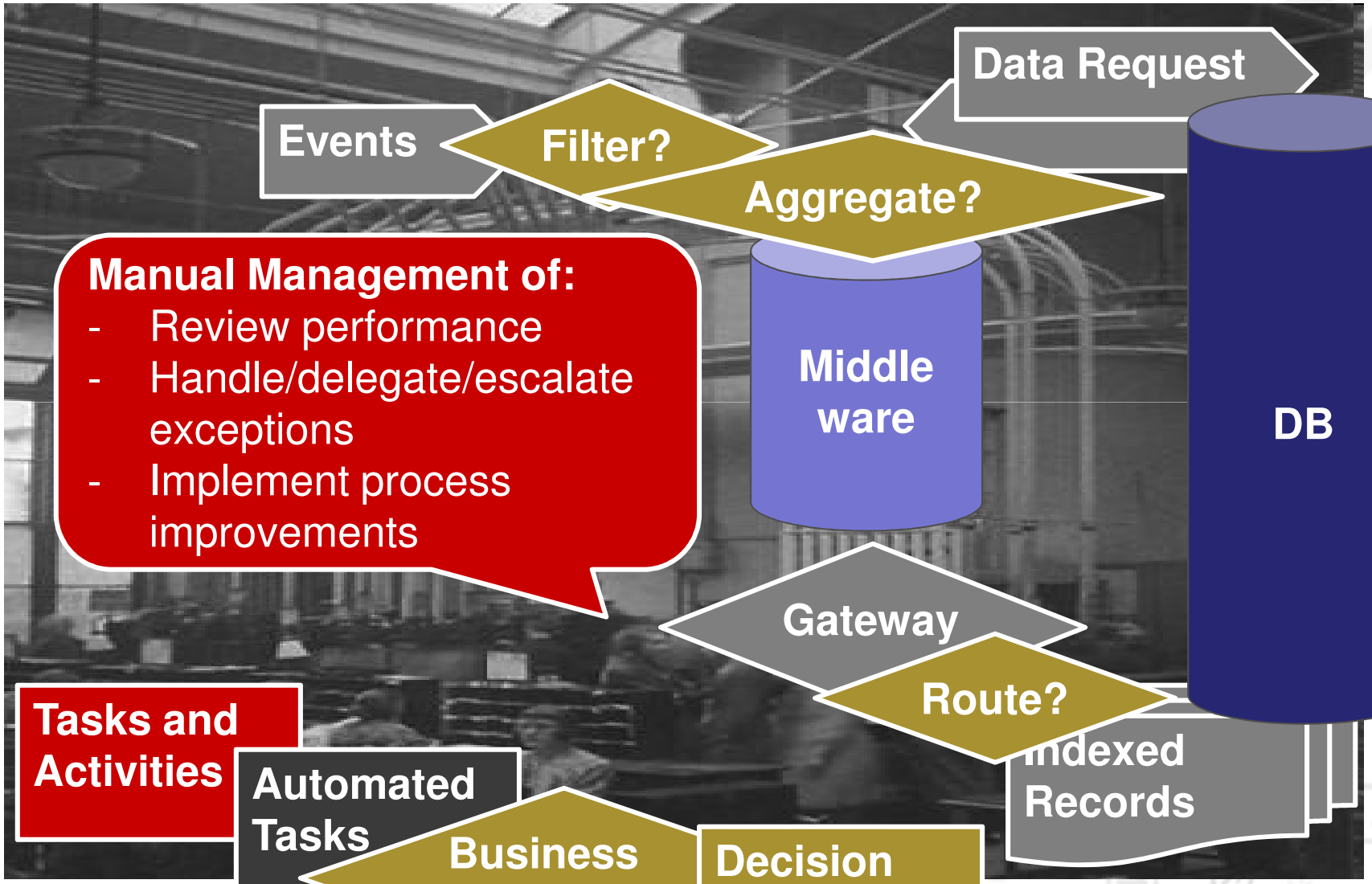
Mirrored in Current IT Practices



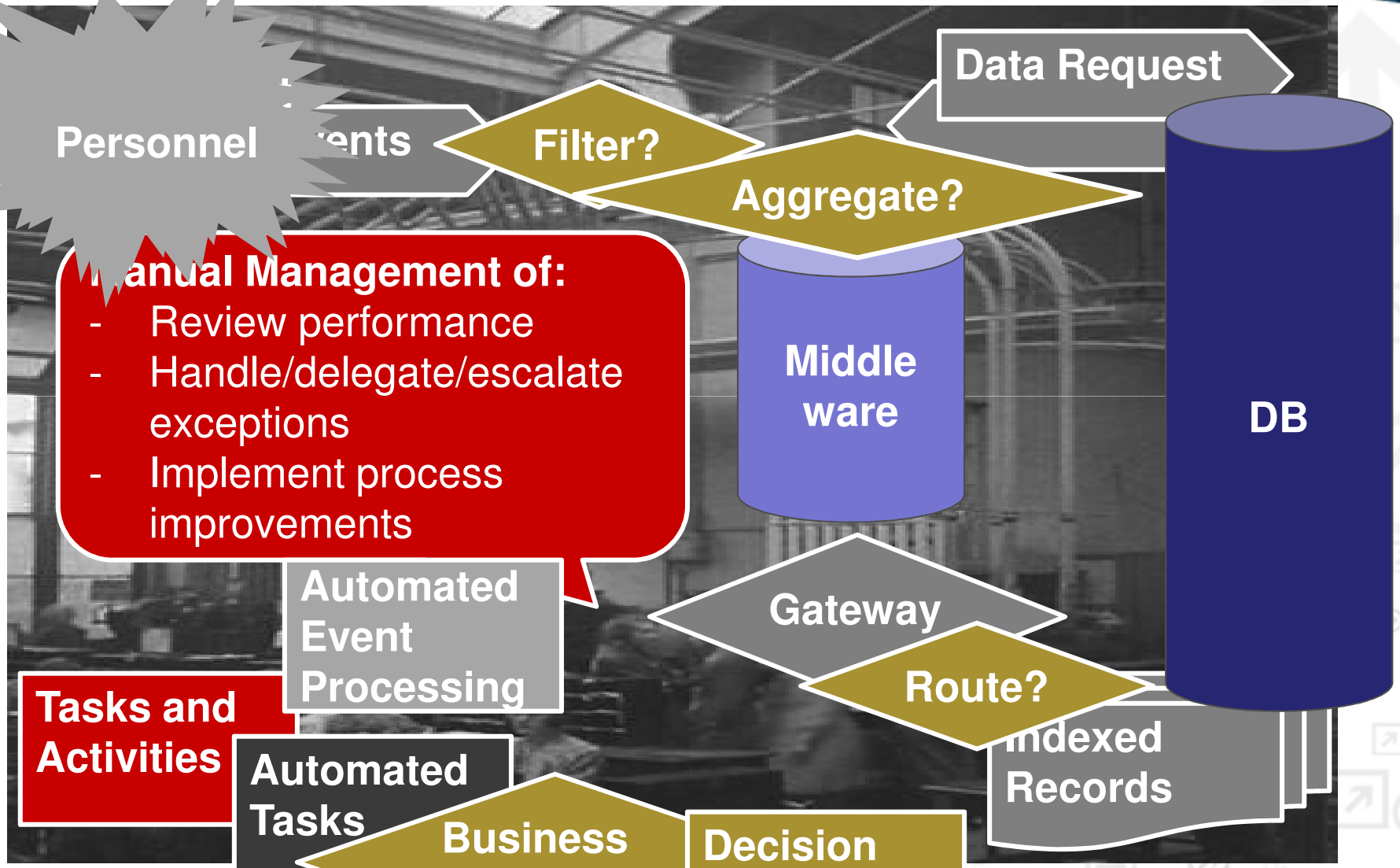
Today's BPM



Where are the Rules?



Where are the Events?



Why do we want Events in Business Processes?

Business Processes today

- **Traditional IT: the domain of custom applications, modelled via UML tools**
  - GOOD FOR: any type of process
  - PROBLEM: development cost, maintenance cost
- **Modern IT: the domain of BPM suites and BPMN modelling together with SOA**
  - GOOD FOR: orchestrated / workflow processes
  - PROBLEM: flexibility vs complexity, control, metrics

BPM

1. **“BPM” has come to mean some or all of...**
   I. Process Automation
   II. Business Control of process definition and change
   III. Process Modelling → Execution
   IV. Process (Performance) Monitoring
2. **“BPM” remains somewhat “weak” on...**
   I. Combining all of the above
   II. Dynamic / ad-hoc processes
   III. “Knowledge-intensive” / “intelligent” processes

Business Processes tomorrow...

- **Traditional IT: the domain of custom applications, modelled via UML tools**
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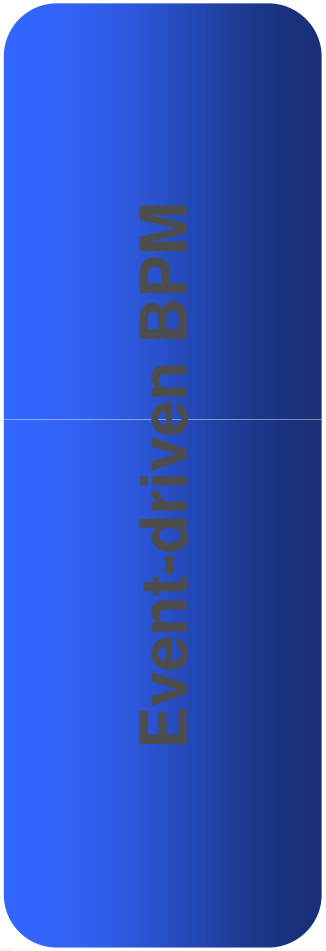
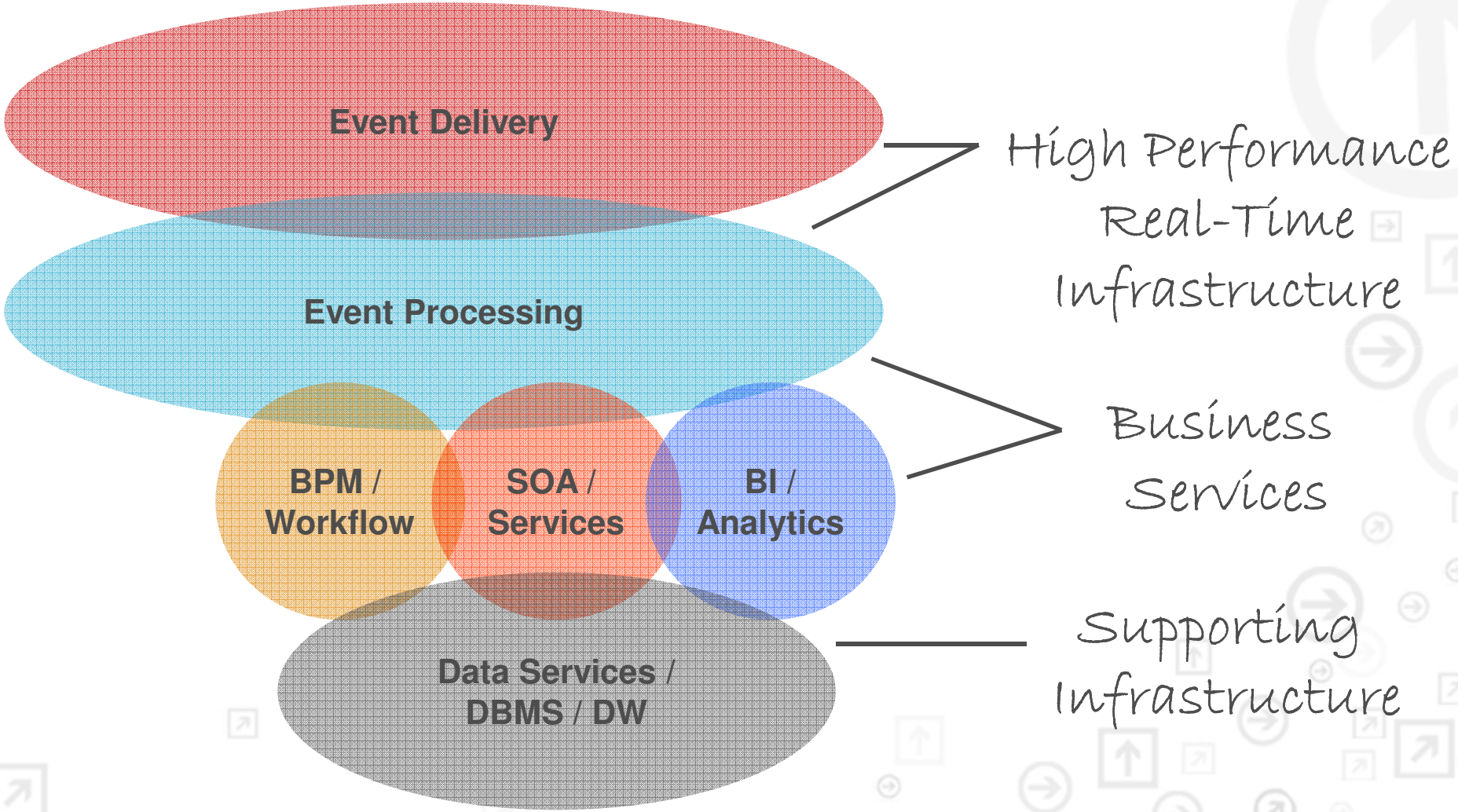
  - GOOD FOR: orchestrated / workflow processes
  - PROBLEM: flexibility vs complexity, control, metrics
- **Future IT: Enterprise Business Processes:**
  - NEED: high abstractions, high performance, flexible models, performance monitoring / BAM, complex business events, business control etc

Business Processes will be more event-aware



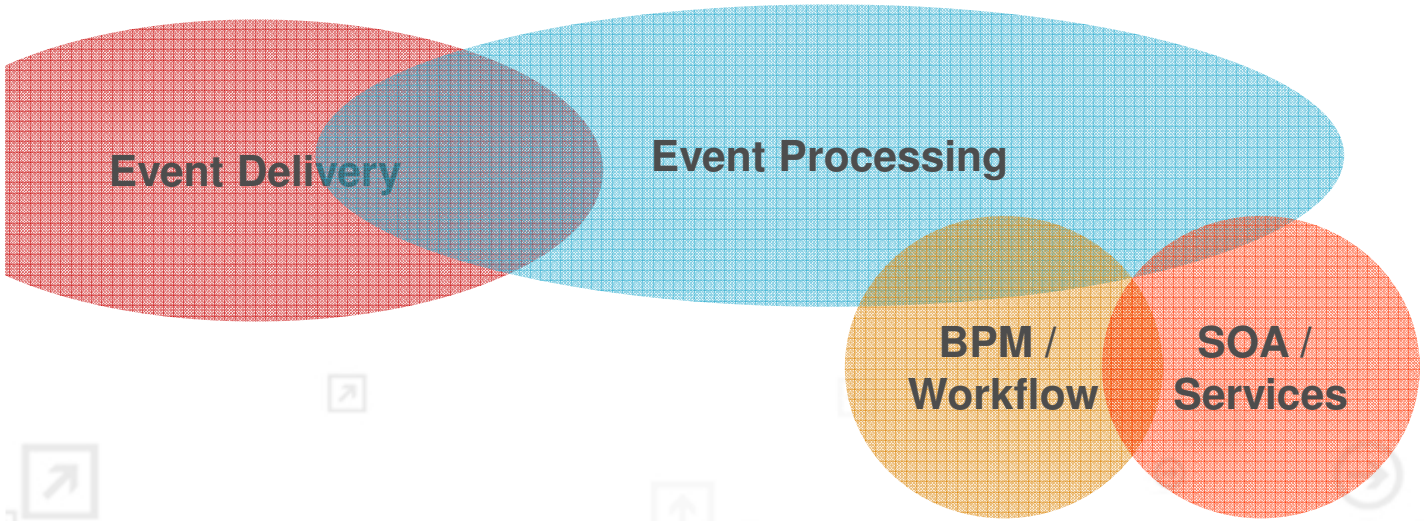
- Managed business processes / workflows
- Service-oriented / shareable services
- Flexible business logic / business rules
- Built-in KPI / metrics / performance monitoring
- Complex event patterns and choreographies
- Dynamic ad-hoc processes
- Real-time performance

Enterprise Event Processing: integrating the event view

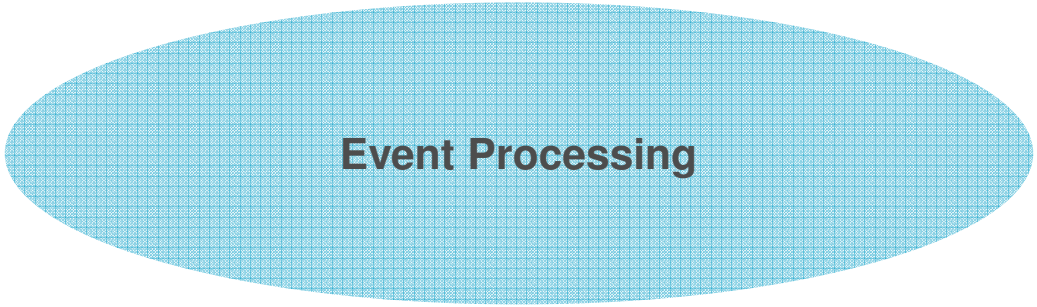


Enterprise Event Processing: business advantages

- Support synchronous and asynchronous events from the business
- Dynamically invoke appropriate workflows / processes / services over time
- Include events from Business Activity Monitoring / KPIs

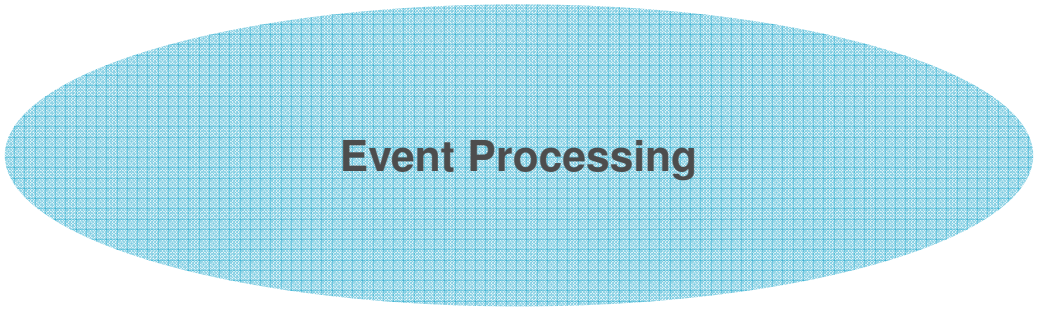


Enterprise Event Processing: technical advantages?



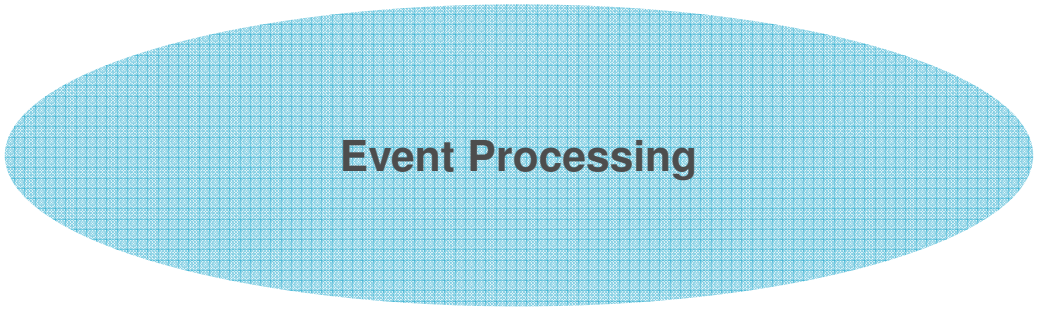
1. **Single, multiple and continuous event processing**
   - Includes
     - Filtering / cleansing / routing of events
     - Exception events
     - Performance / KPI events
     - General complex / aggregate events

Enterprise Event Processing: technical advantages?



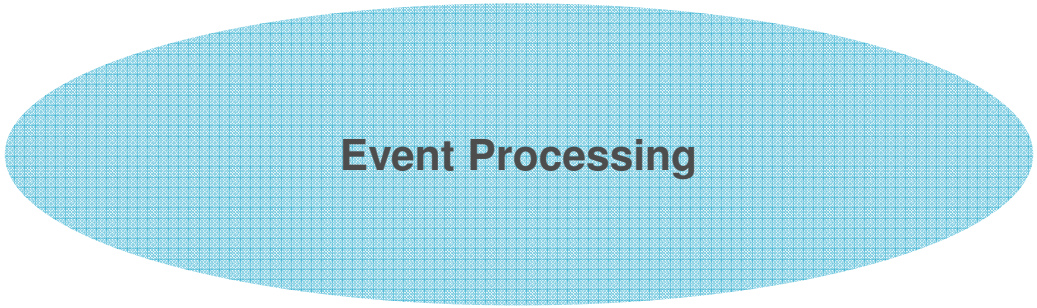
1. Single, multiple and continuous event processing
2. **State management for processed assets / artifacts**
   - Lifecycles of entities across process, such as case management

Enterprise Event Processing: technical advantages?



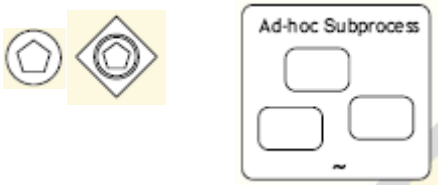
1. Single, multiple and continuous event processing
2. State management for processed assets / artifacts
3. **Rule and decision processing**
   - Decisions inside processes
   - Decisions controlling processes (start / stop / reselect / create ad-hoc)
   - Business control of decisions

Enterprise Event Processing: technical advantages?



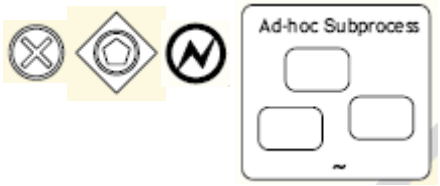
1. Single, multiple and continuous event processing
2. State management for processed assets / artifacts
3. Rule and decision processing
4. **Multiple event channels**
   - System and Business
   - Inputs from across the “event cloud”

Event Processing touchpoints with BPMN models



Many process-driving events are in reality abstract events

EP can handle these based on collections, time, etc

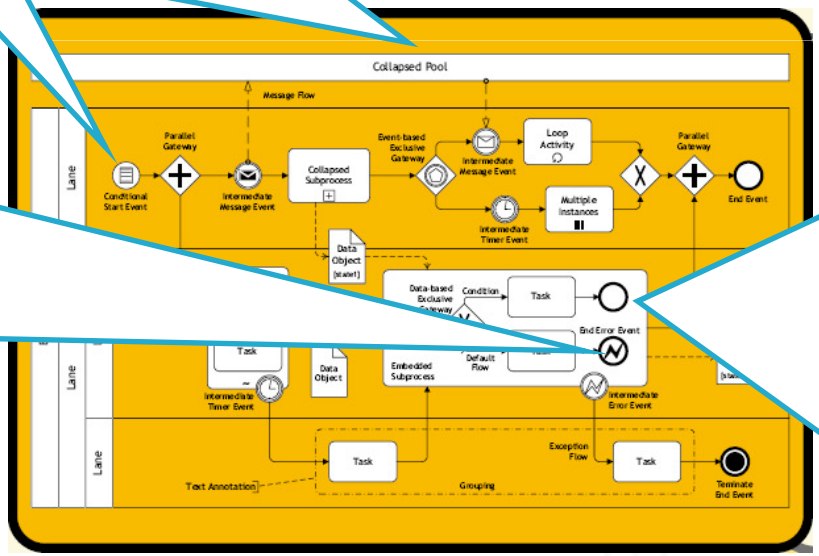


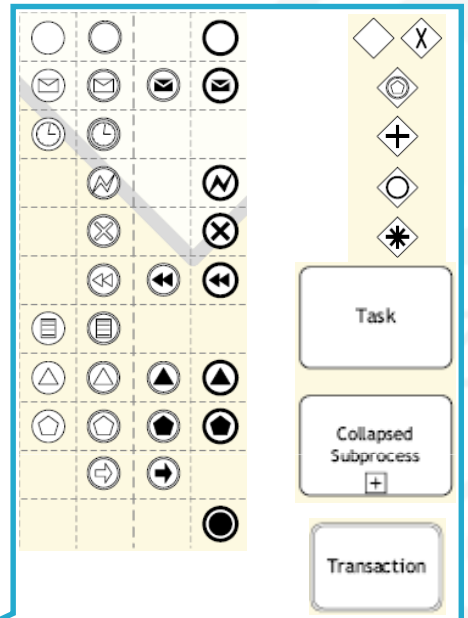
Many exceptions are "cross process" and based on patterns of multiple events

EP can monitor process exception events across processes / instances

Many process diagrams cannot easily handle complexities such as case-management, cross-process inference rules, etc

EP can usefully "drive" BPM





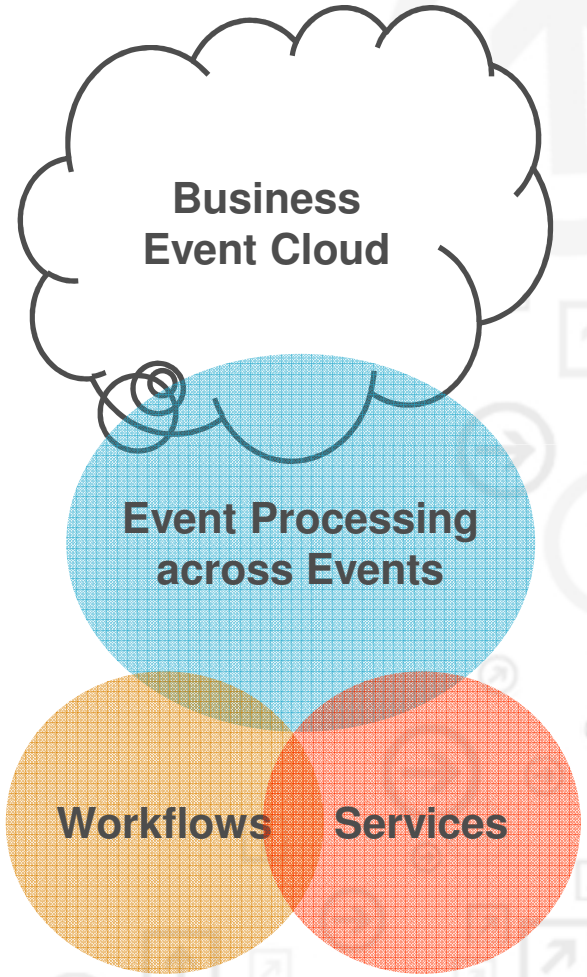
Monitoring process events for business monitoring is essential for process improvement

EP can monitor process runtime events across processes / instances

BPMN content from HPI BPMN1.1 poster - bpt.hpi.uni-potsdam.de

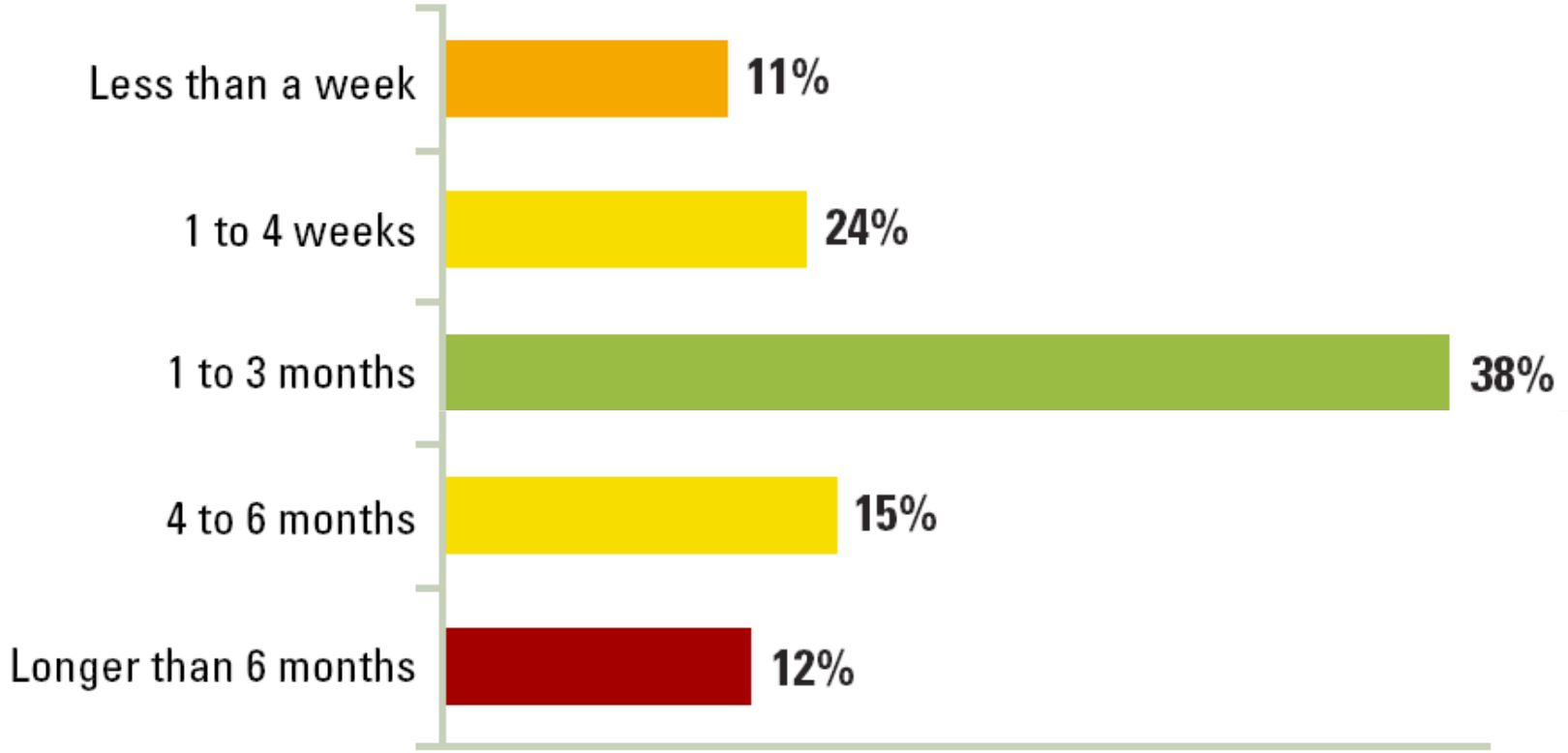
= Event-driven Business Processes

- Process modelling is more than workflow / orchestrations
- Complex and continuous event processing paradigms provide real-time management and control
- Events drive in-flight process change as well as progression
- Enterprise requirements include high performance / real-time event handling and appropriate infrastructure



Why do we want Rules in Business Processes?

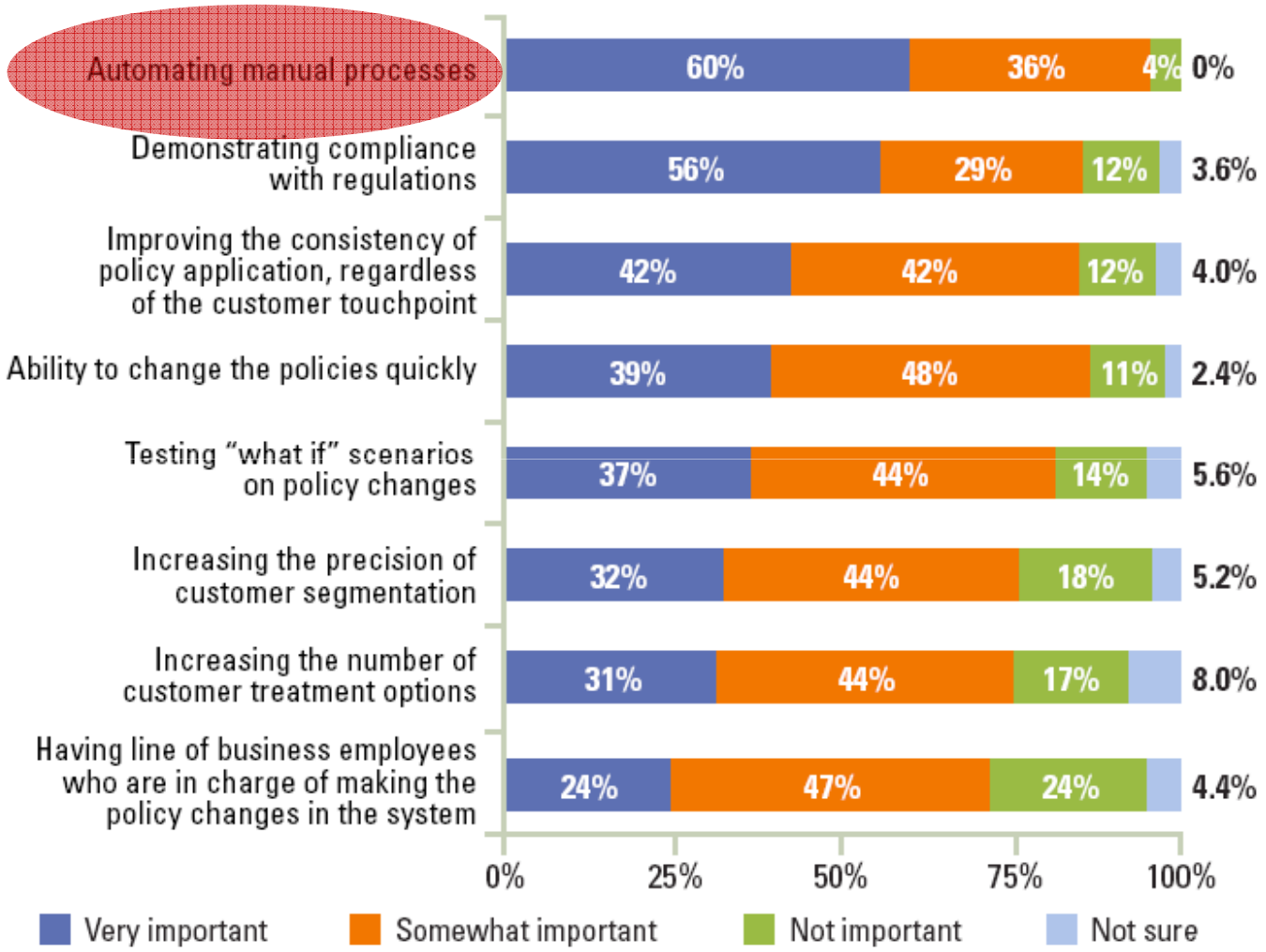
Drivers for Business Rules



HOW LONG DOES IT TYPICALLY TAKE FOR NEW BUSINESS POLICIES TO BE CODED AND PUT INTO PRODUCTION? N = 250

Source: IntelligentEnterprise.com Survey 2007, n=200

What's important?



PLEASE RATE THE IMPORTANCE OF THE FOLLOWING? N = 250

Source: IntelligentEnterprise.com Survey 2007, n=200

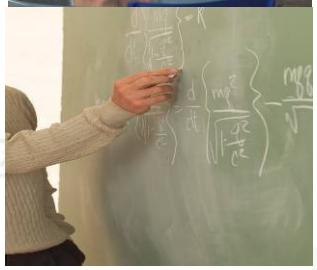
Rules, rules, everywhere

Data aquisition

Data processing

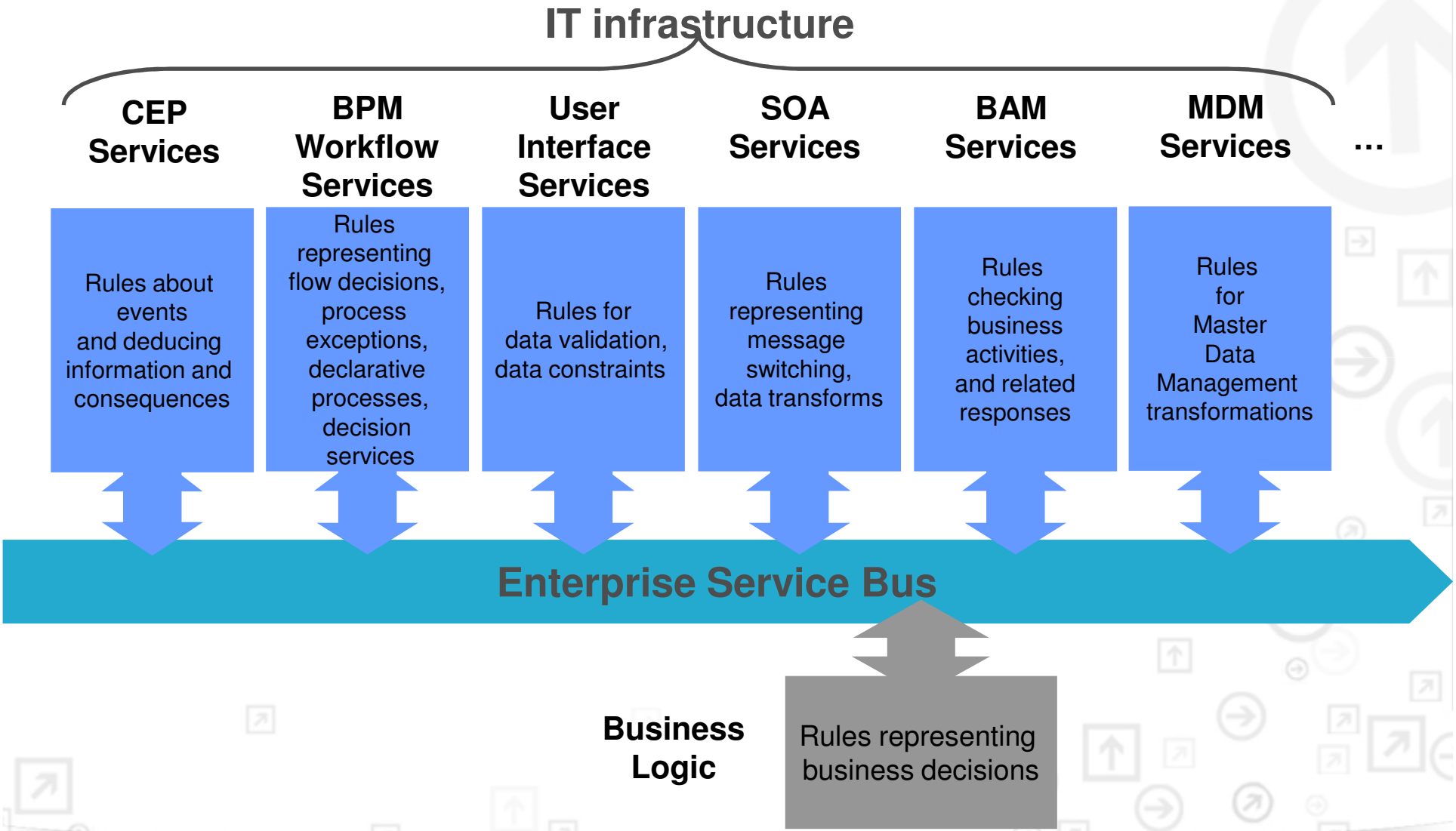
Workflow

Business logic



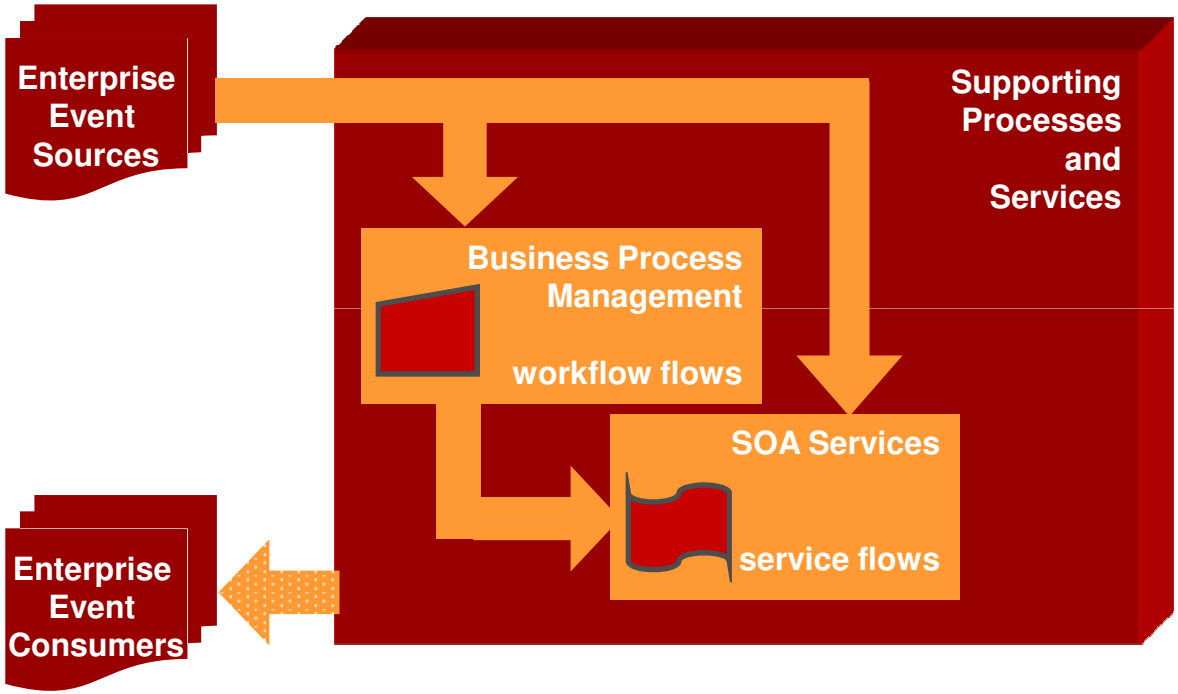
- Data relationships
- Data constraints
- Business calculations
- Process exceptions
- Business decisions
- Compliance regulations
- Etc etc

Rules in IT

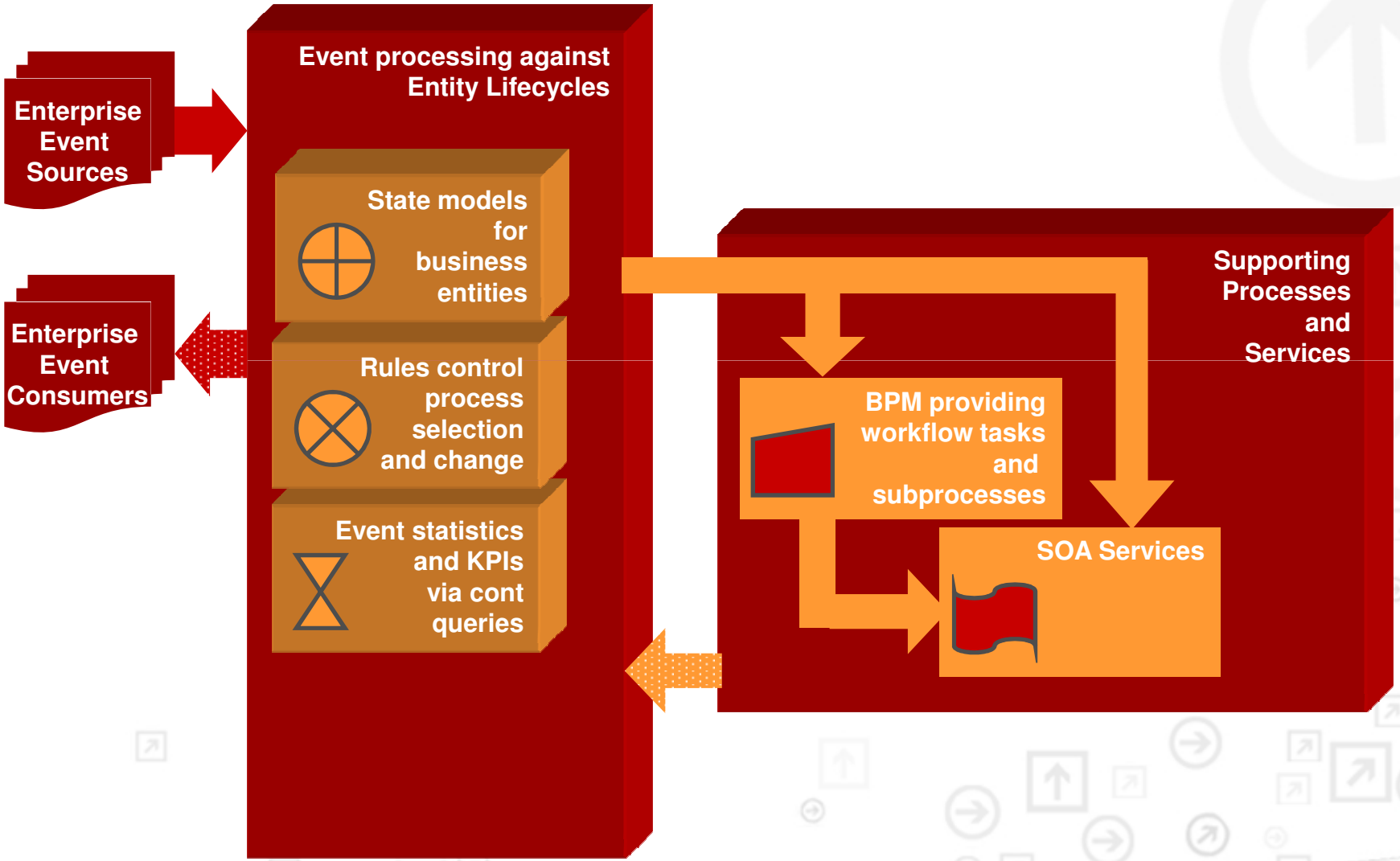


What are the Implementation Patterns?

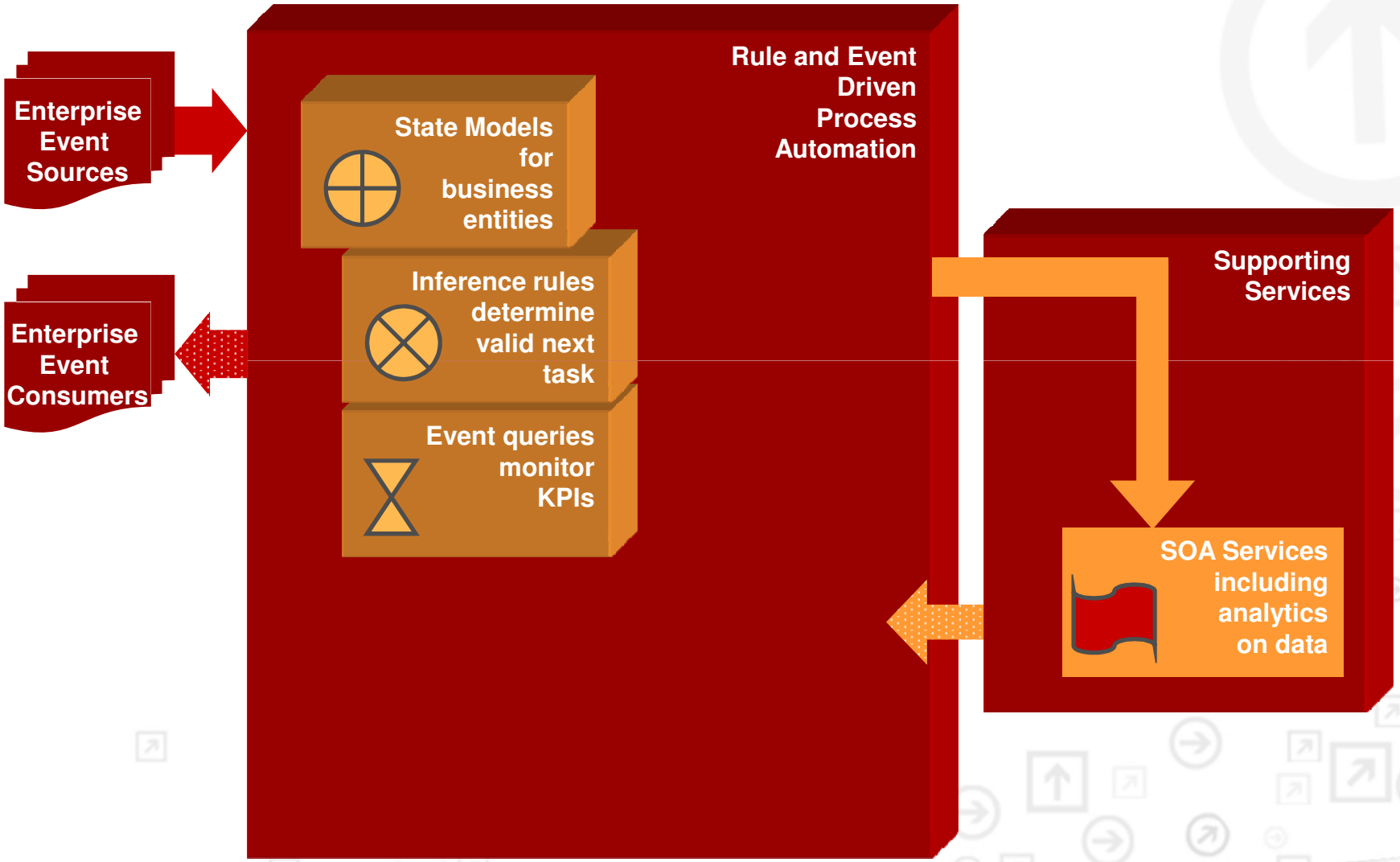
Patterns: Simple BPM + SOA



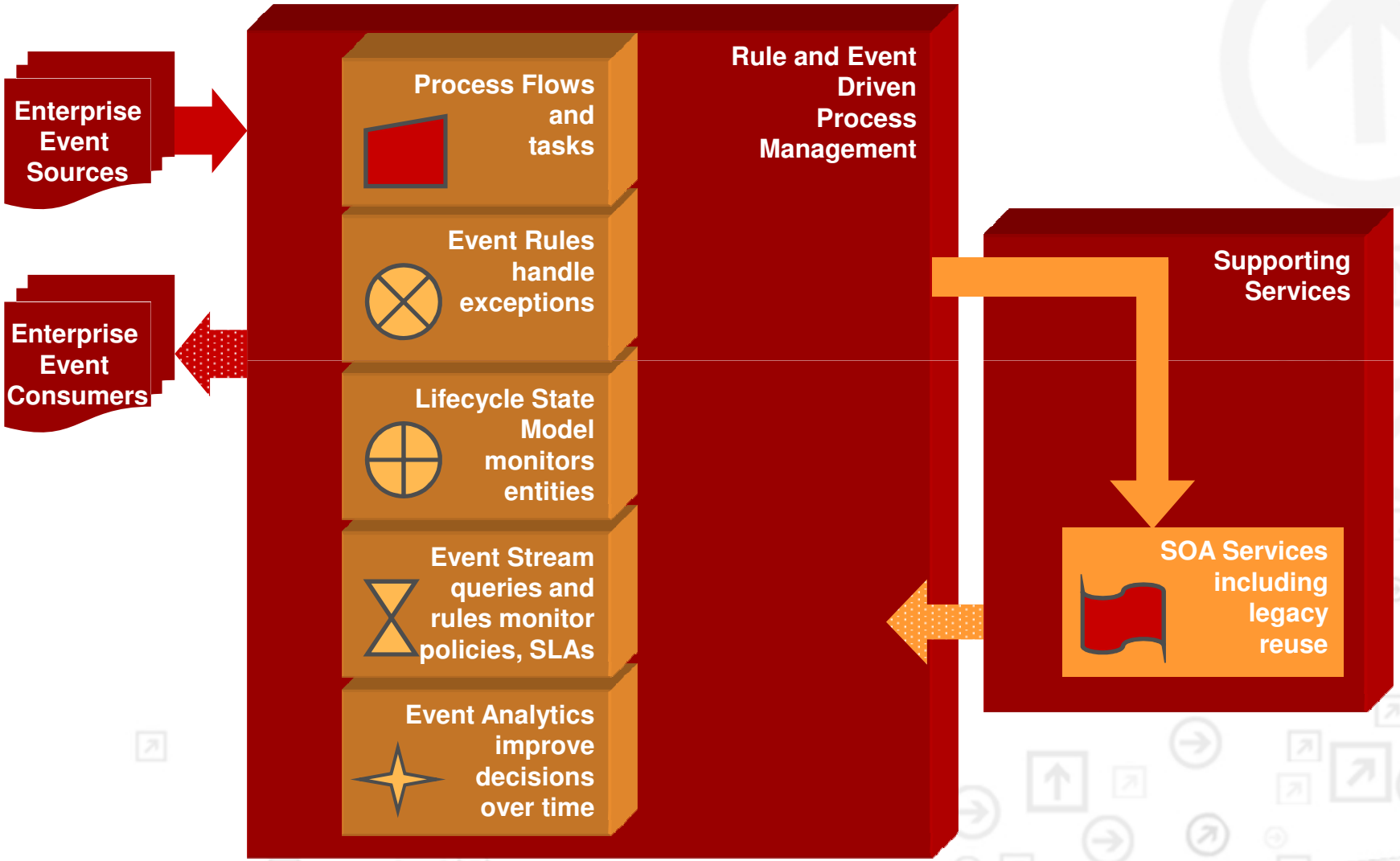
Patterns: CEP-supported BPM and SOA



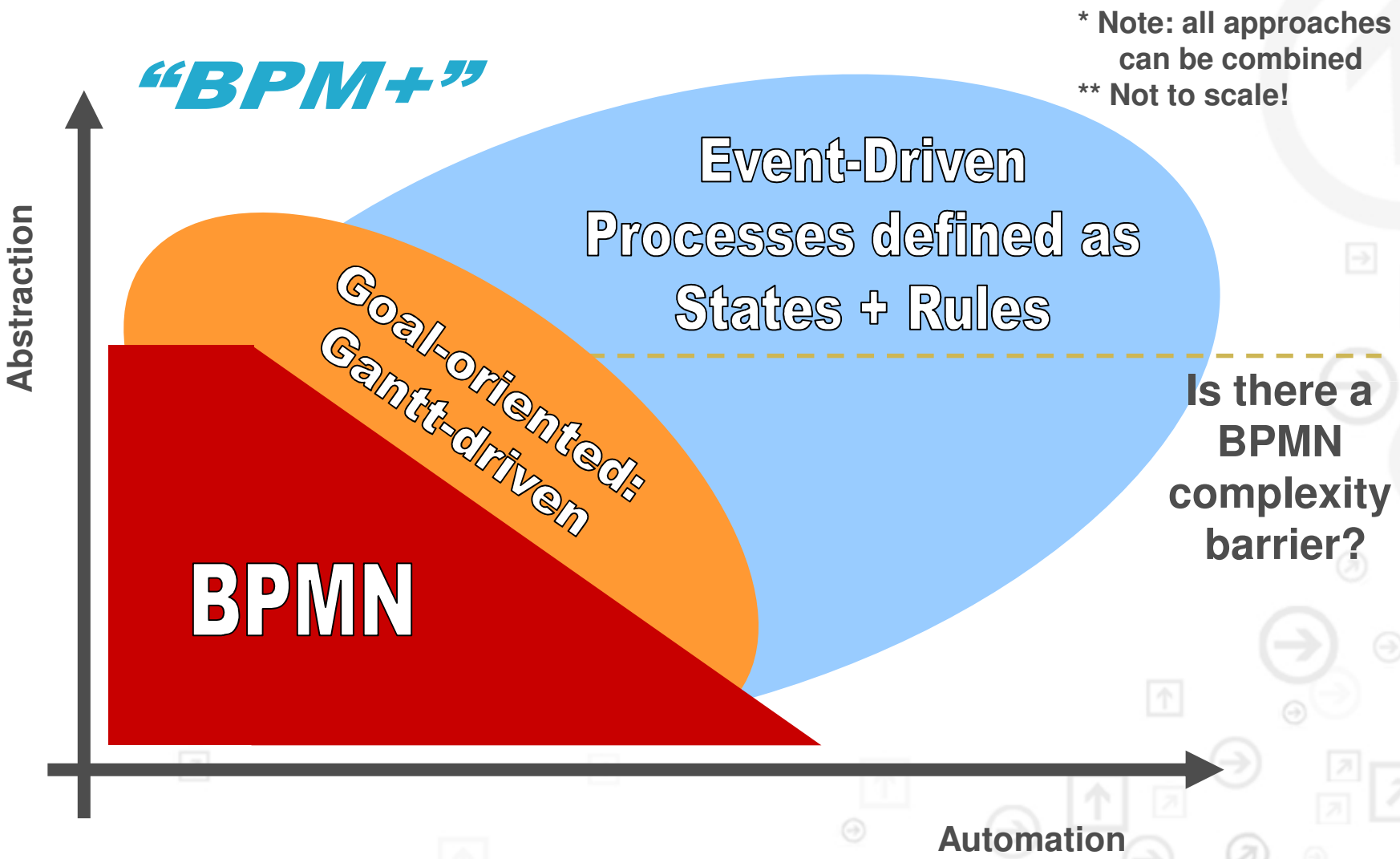
Patterns: CEP-provided process control



Patterns: hybrid event-driven processes and rules



Example BPM Options (at TIBCO)



Sample “edBPM” Use Case

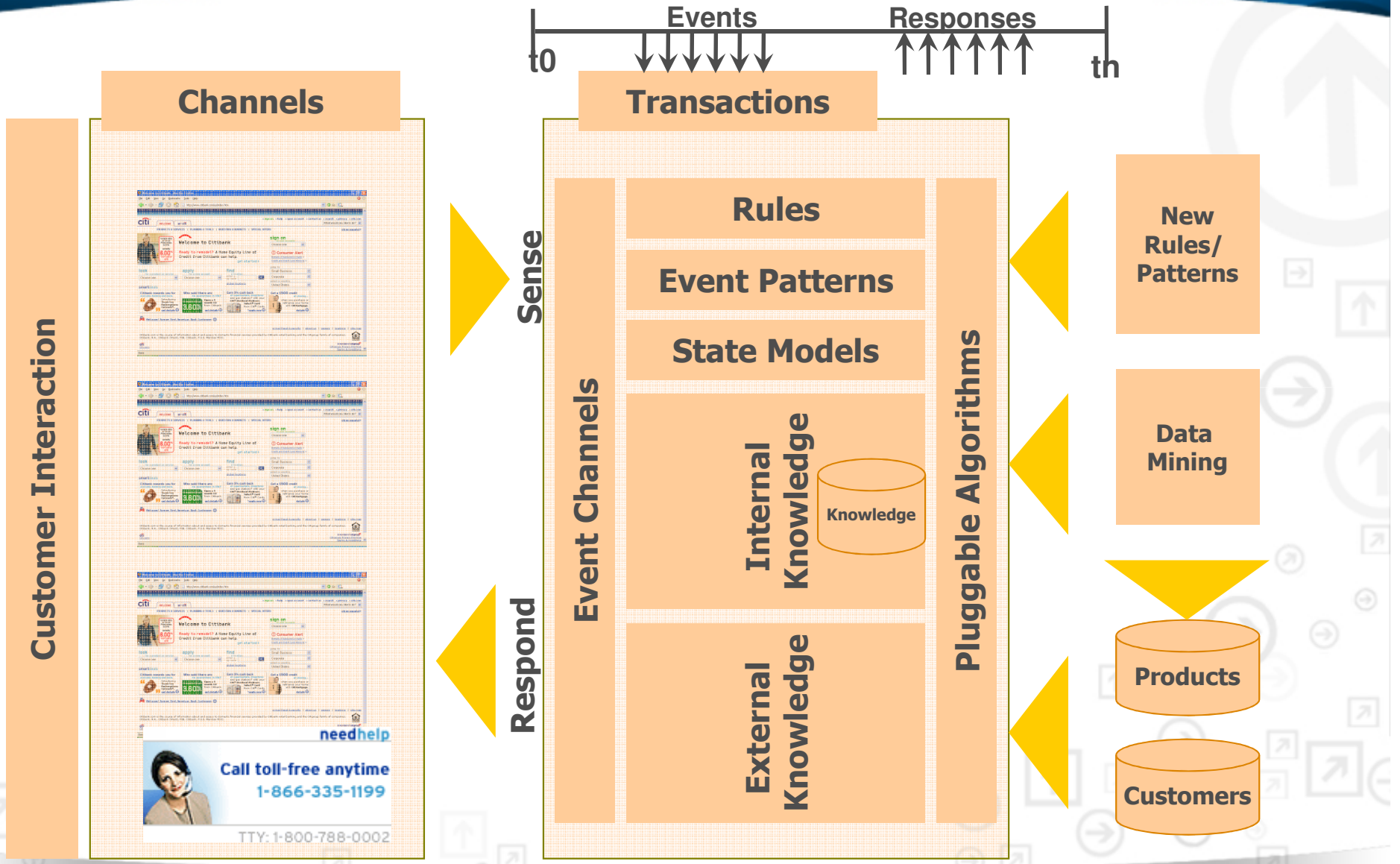
Banking Personalization Example

- **Problem: Personalization of marketing and CRM**
  - Customer “lifecycle” events drive needs and interest in financial services
  - Awareness of customer situation can be implied from data mining, analysis, etc
  - Requirement: means of providing customer-relevant communications, assistance, offers etc
- **Wider Problem: intelligent CRM**

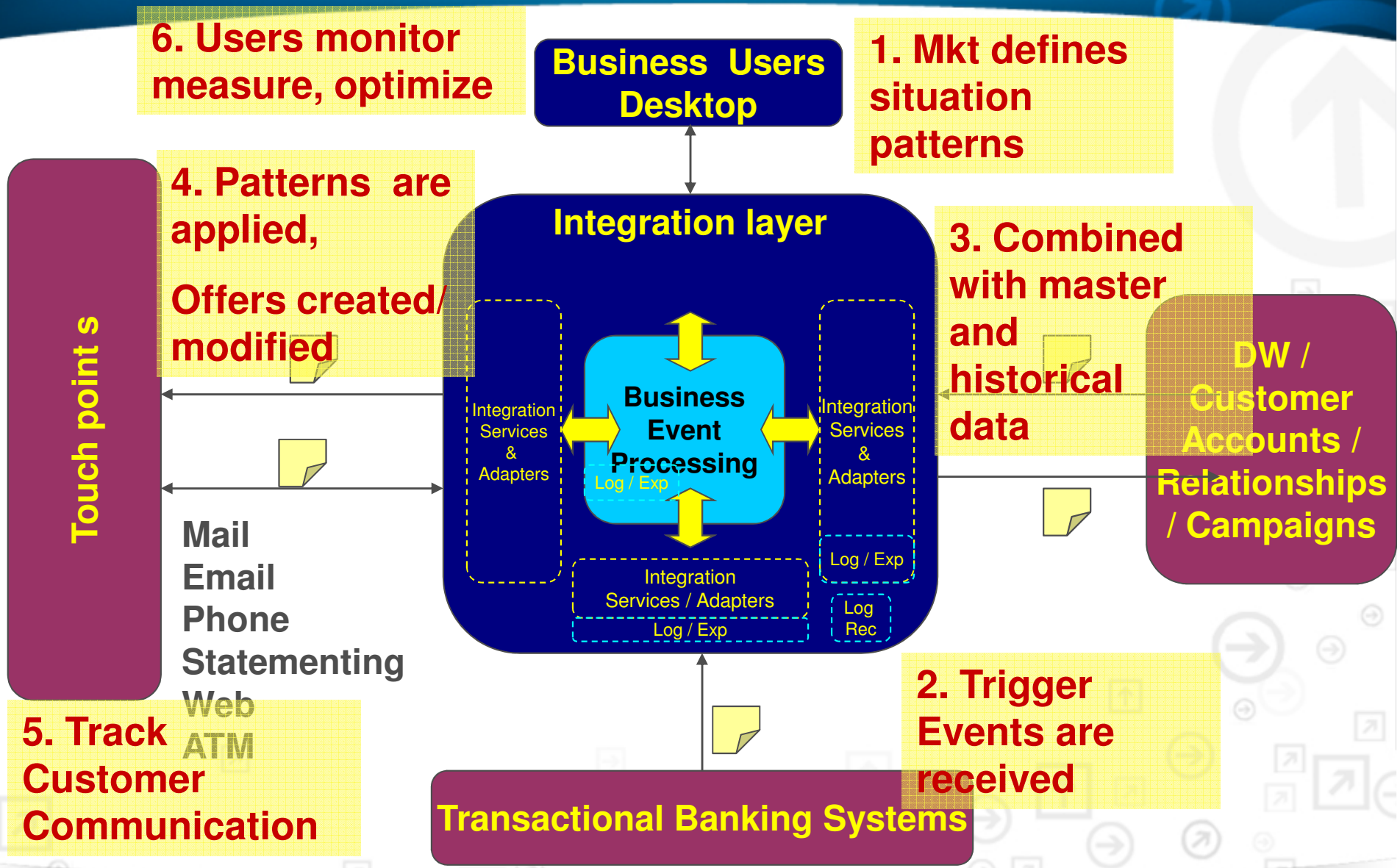
Bank Customer Interaction Management

- **Goal: to provide relevant advice to customers during multiple interactions across various + multiple channels**
- **Relevant**
  - Requires knowledge of customer, current financial status, history of interactions, soft-data (e.g. life events), in real-time or as batch
- **Advice**
  - Offers/promotions/campaigns that are targeted at a particular customer (e.g. travel insurance promotion, session w/ financial advisor)
- **During interactions / across channels**
  - Whatever the interaction is (service call or request for info)
  - Relevant advice must be generated during the customer's attention span and presented in real-time in the relevant medium
- **Supporting multiple channels**
  - Web, phone, ATM, agent, etc.

Customer Interaction Management Example



Architecture & Interfaces



Sample for Pattern-Rule: Mortgage offer

Marketing defines campaign rules:

IF Customer has large funds-in transaction (> 10 K)

AND Customer also uses mortgage calculator on web-site

AND both events happen within 1-2 days

AND customer profile matches basic eligibility criteria (delinquency, blocked, est. affluence, opt-out)

THEN

Create “Mortgage offer” for customer in central palette

with highest priority

available through channels Web, Call-Center, Sms, ATM, Telemarketing

Additional Banking edBPM/CRM Uses

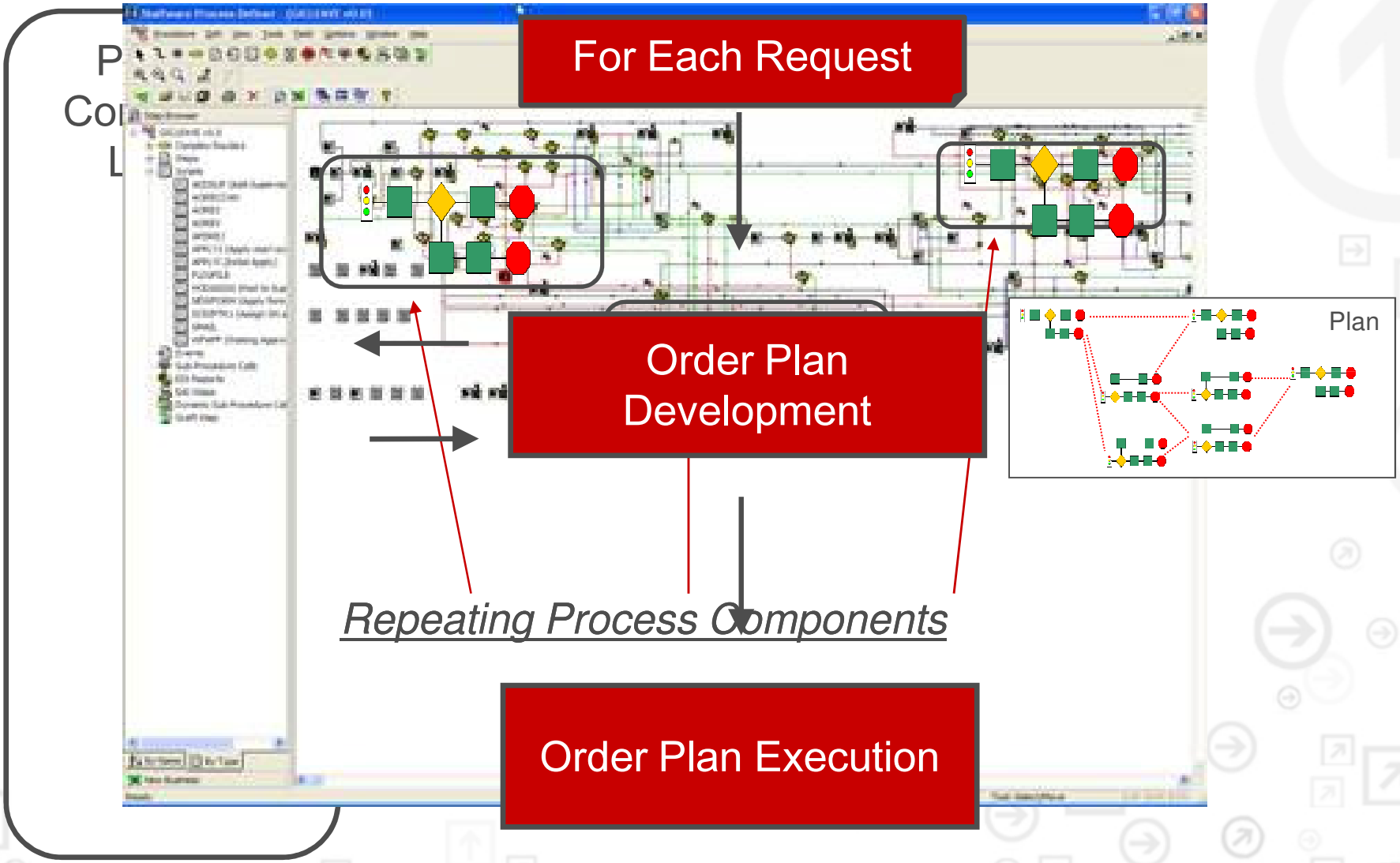
- New Mover detected → Personal loan
- Flight ticket purchase → Travel insurance
- Outbound Contact failed → Service offer to supply contact details
- Major credit card transaction → Conversion into loan installment
- Significant Funds-In transaction detected → time deposit offer
- ...

Example “State of the Art” edBPM Application

Advanced Fulfilment Framework

- **Problem: Fulfilment of complex product orders that are likely to change during the lifetime of the contract**
  - Processes need to “dynamic” in multiple ways
  - Events cause process changes

Main Approach: Goal-Driven BPM



Goal-Driven BPM: example process

Order Entry

1

2 types or process …
- **Manual (human)**
- **Automated (straight-through)**

3 types of dynamic process…
- **Manual**
- **Template**
- **Automatic**

Order Request

Orders

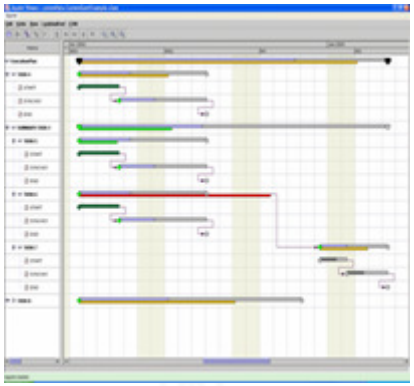
3. Order Plan Development

4. Order Plan Execution

5. Order Complete

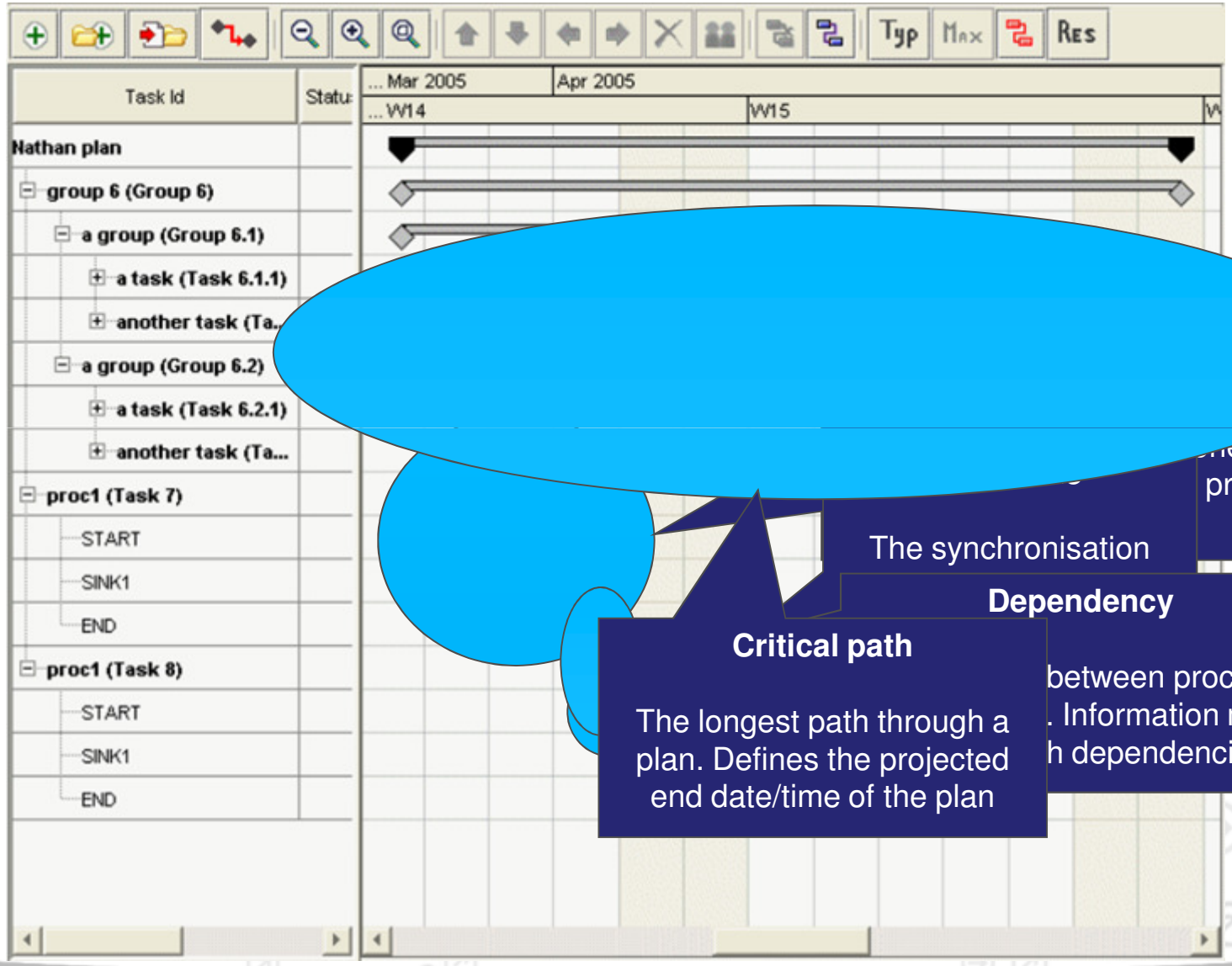
Rules

2. Identify & Start Fulfillment Process

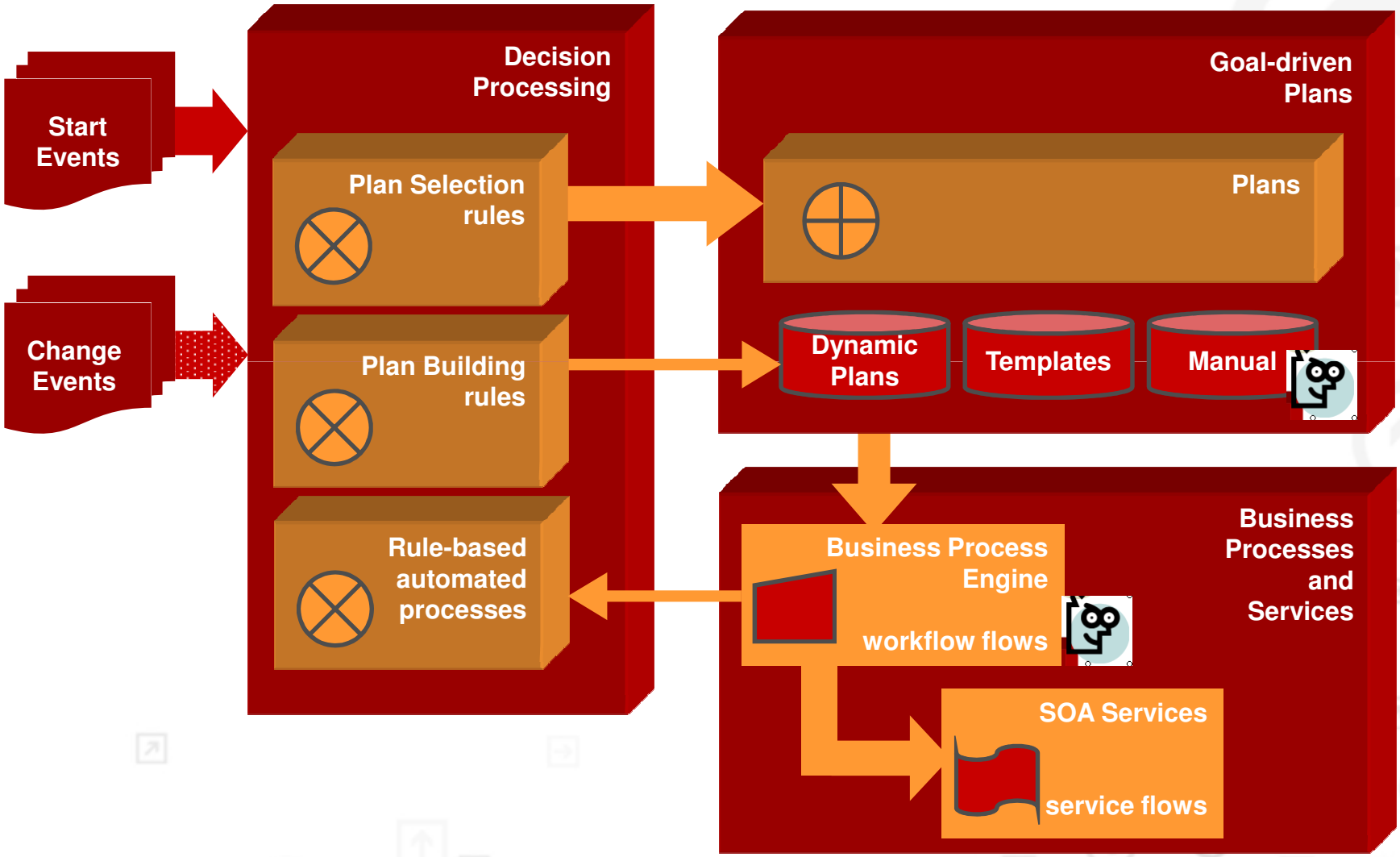


Order Plan

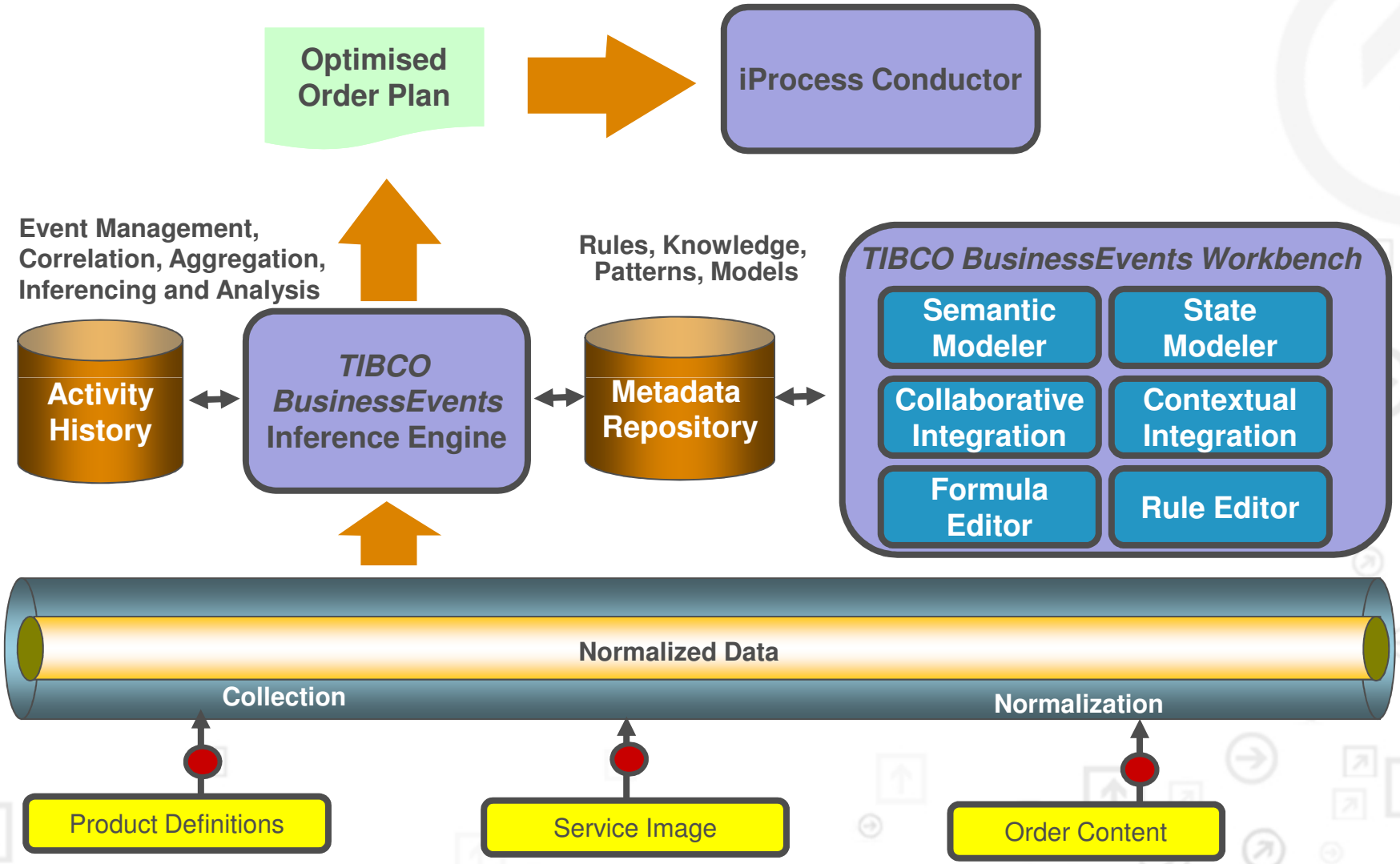
An example Order Plan



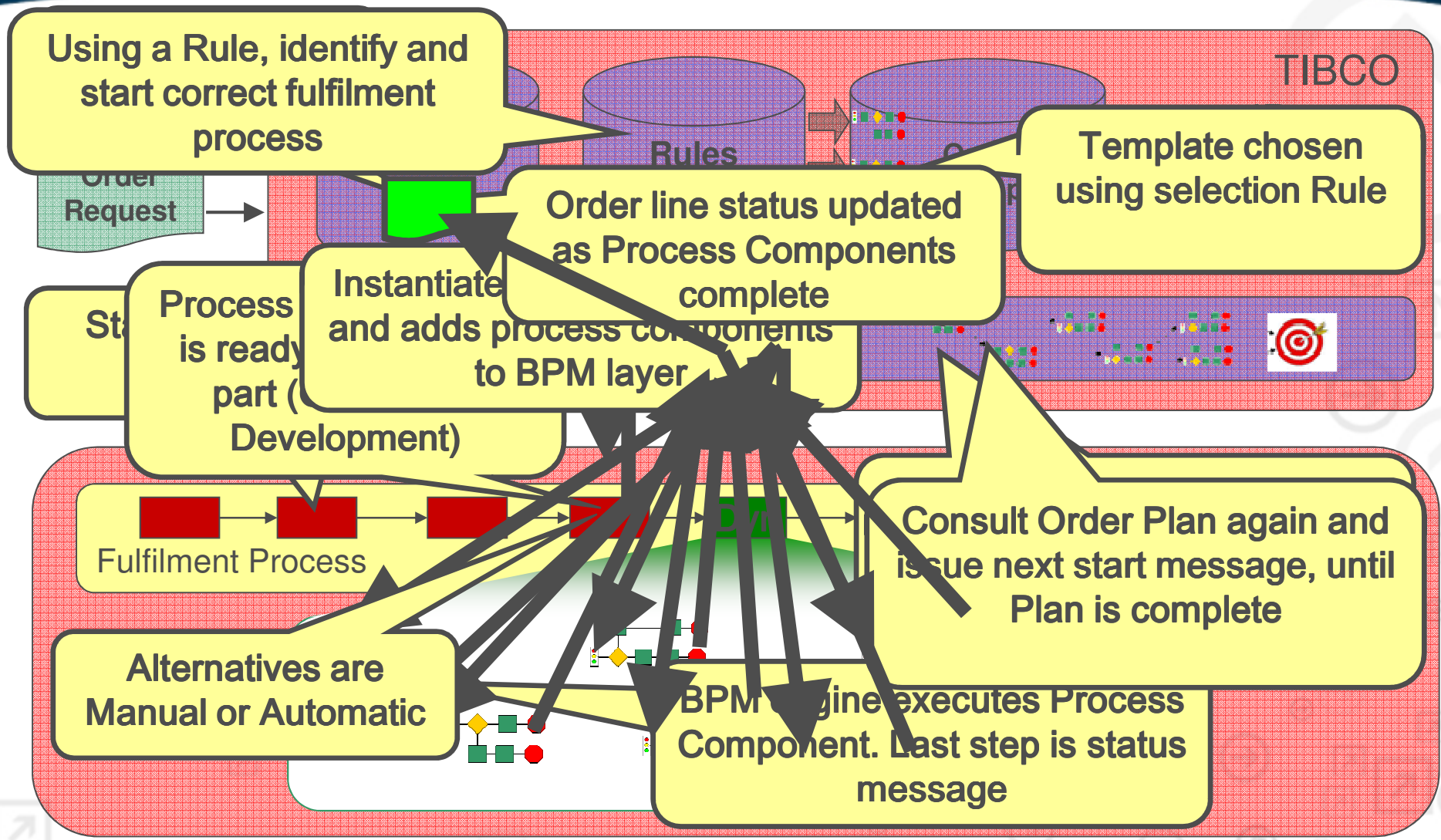
Pattern: Goal-Driven Dynamic Processes



TIBCO implementation

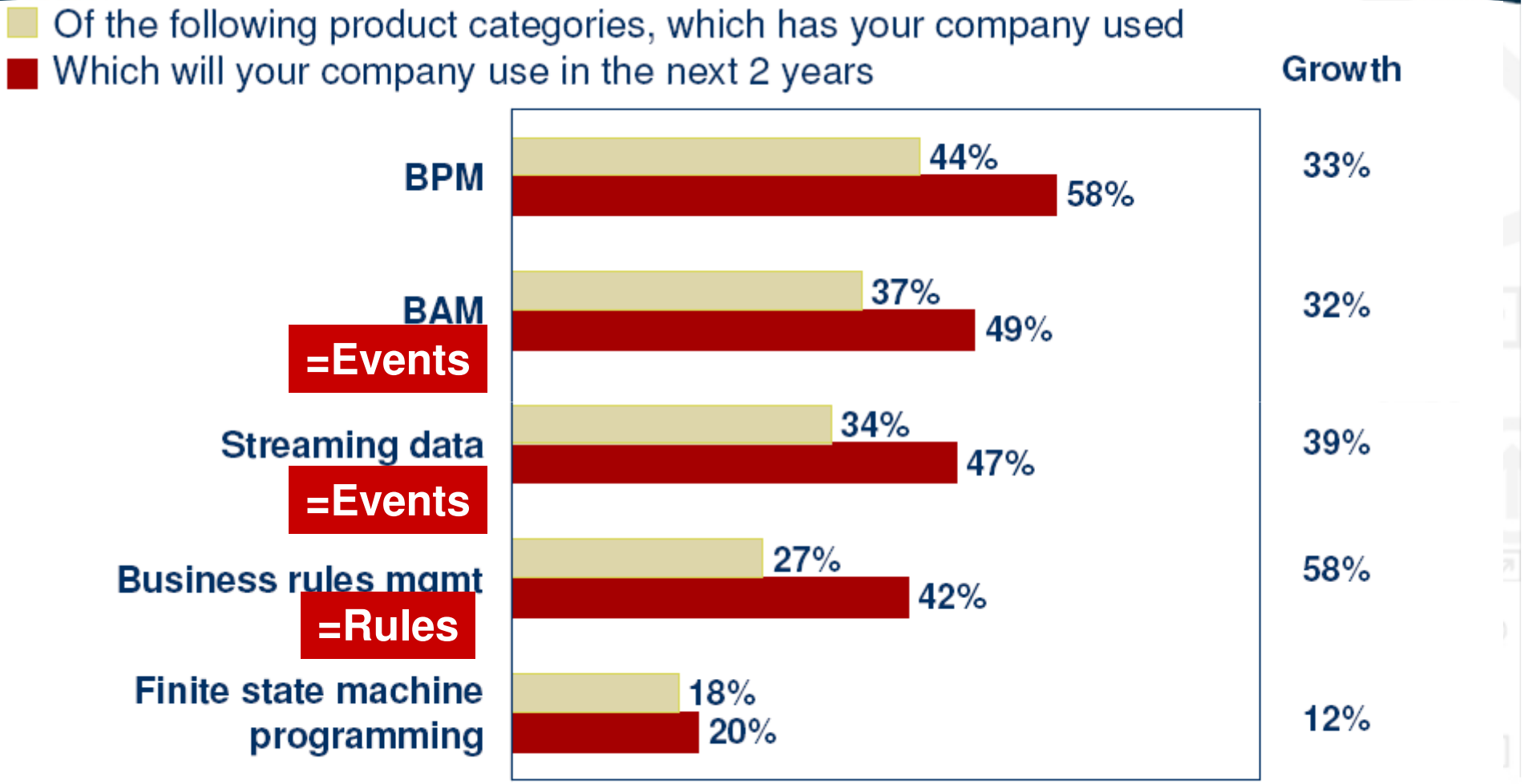


Operation of Dynamic Fulfilment Process



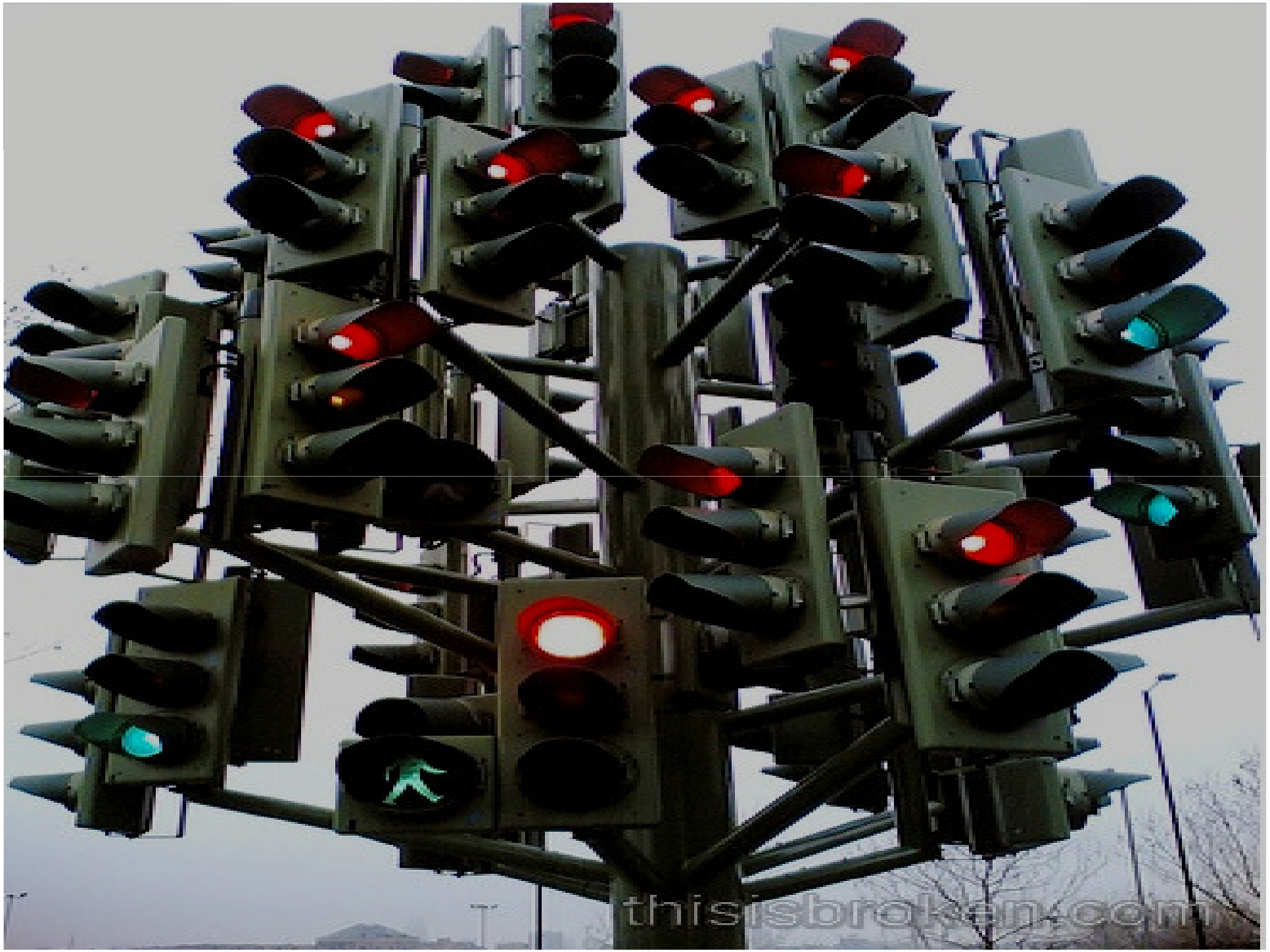
Summary

Market drivers



Source: IDC 2007 Mission Critical Study, N=500

TIBCO The Power of Now®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