



KIV/SI

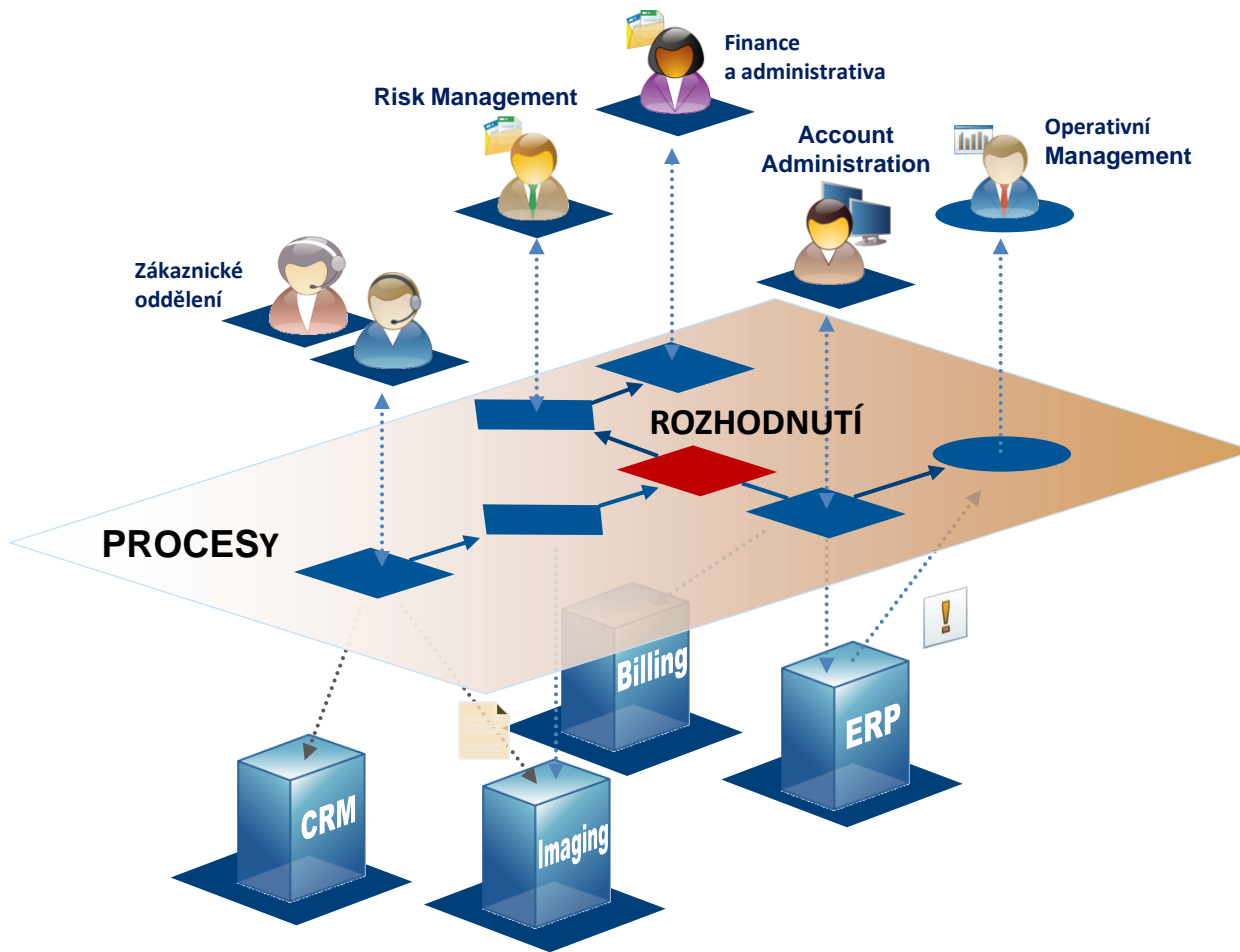
Přednáška č.7

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9.4.2012

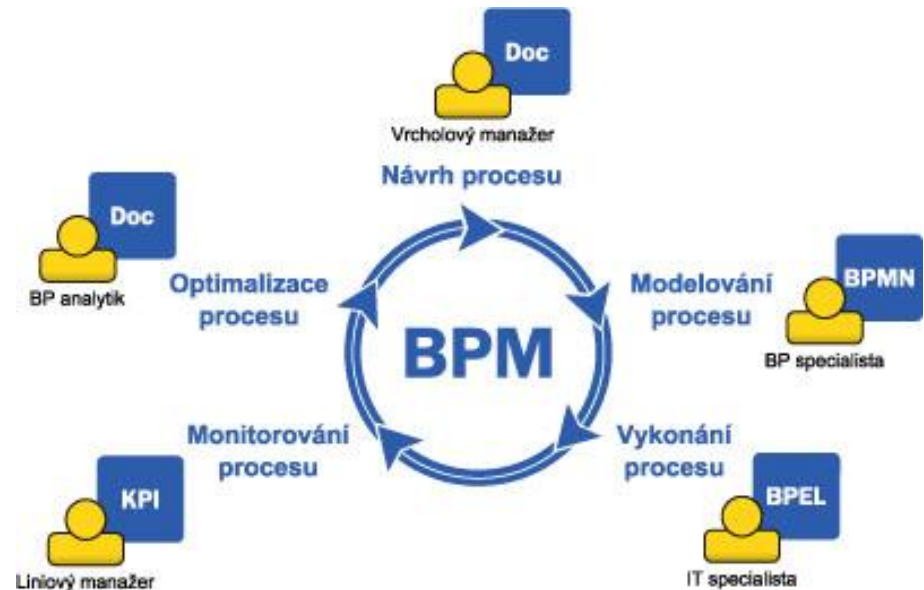
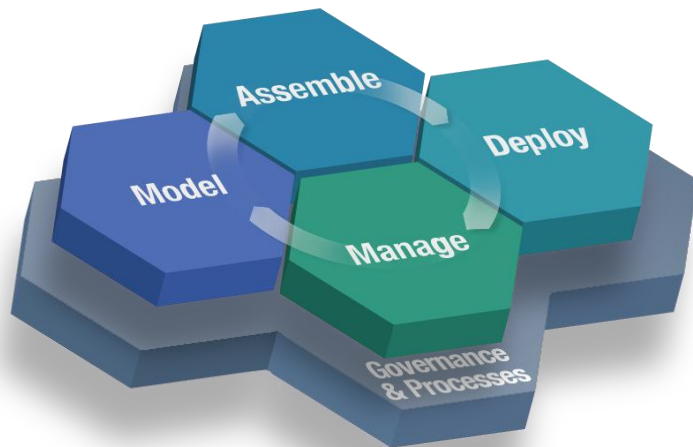
Business Process Management (BPM)



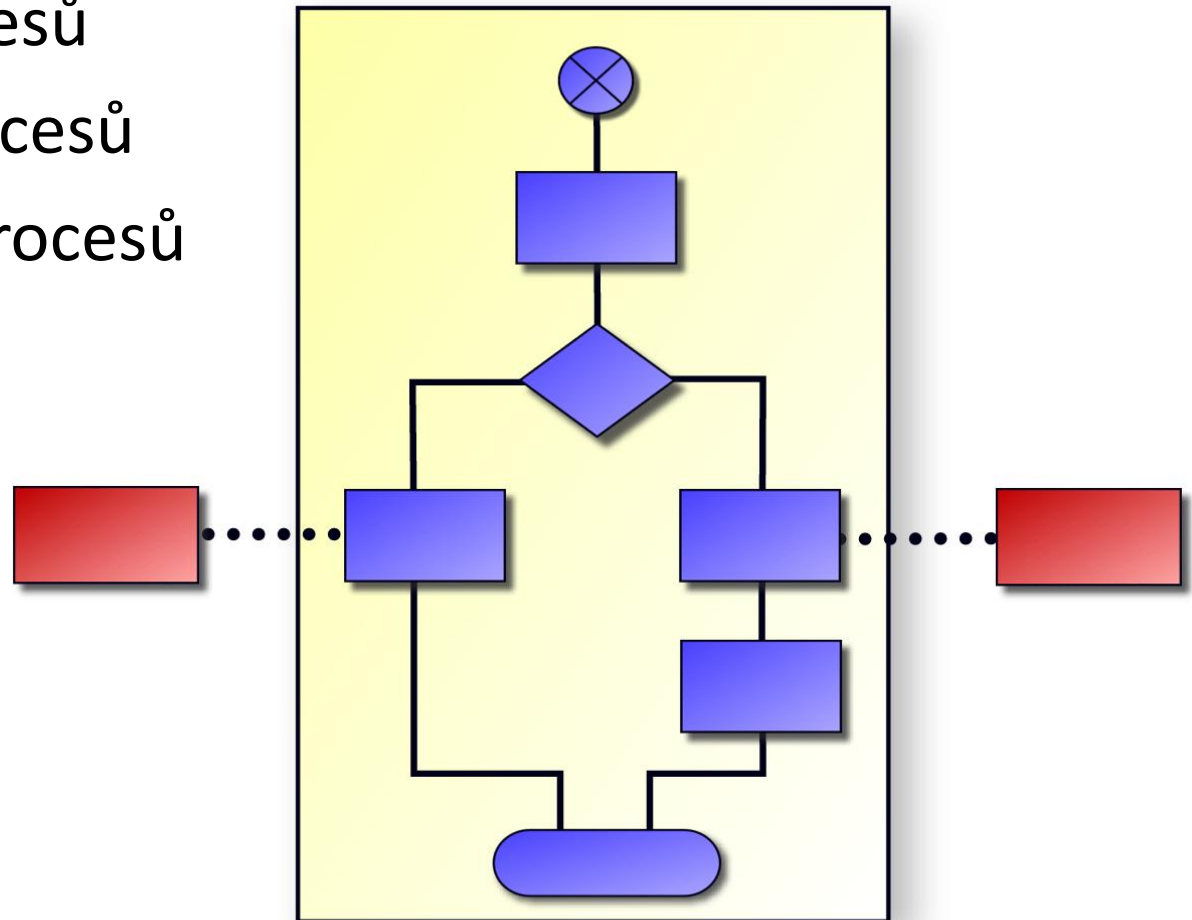


- 1 Automatizace workflow a podpory rozhodování
- 2 Omezení chyb a zlepšení konzistence procesů
- 3 Využití existujících aplikací a dat
- 4 Monitoring událostí a provádění akcí
- 5 Viditelnost a řízení v reálném čase
- 6 Sblížení světa byznysu a IT

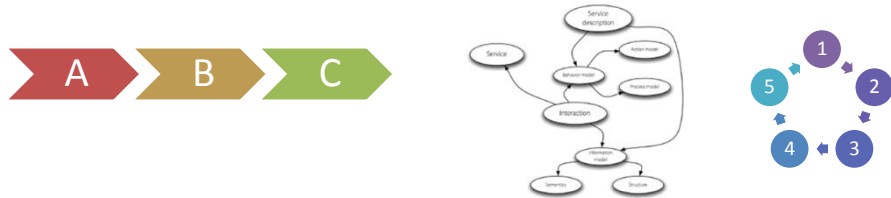
- **Business Process**
 - Sled činností, které vedou ke specifickému výsledku
 - Trvá „dlouho“, zapojení lidí (workflow)
 - Nejedná se o výrobní proces nebo řízení výroby
- **Business Process Management**
 - Systematický přístup ke zlepšování procesů v organizaci
 - Pomáhá zjednodušení a urychlení zavádění procesů v organizaci a jejich změn



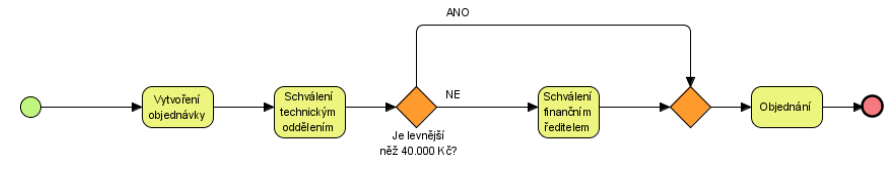
- efektivní implementace a nasazení procesů ve firmě
- přehledný diagram procesů
- monitoring procesů
- optimalizace procesů
- zefektivňování procesů



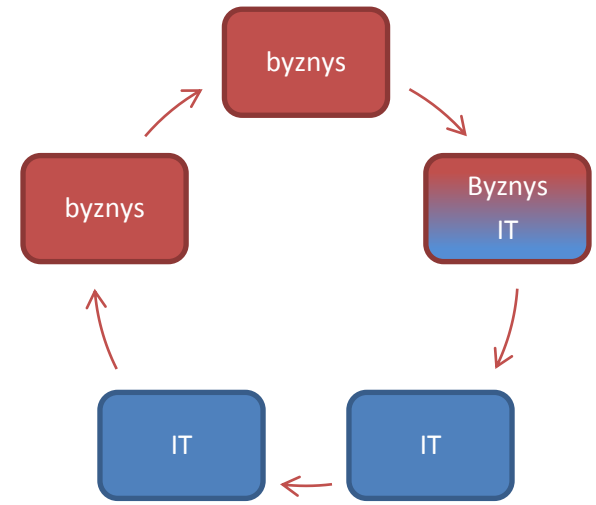
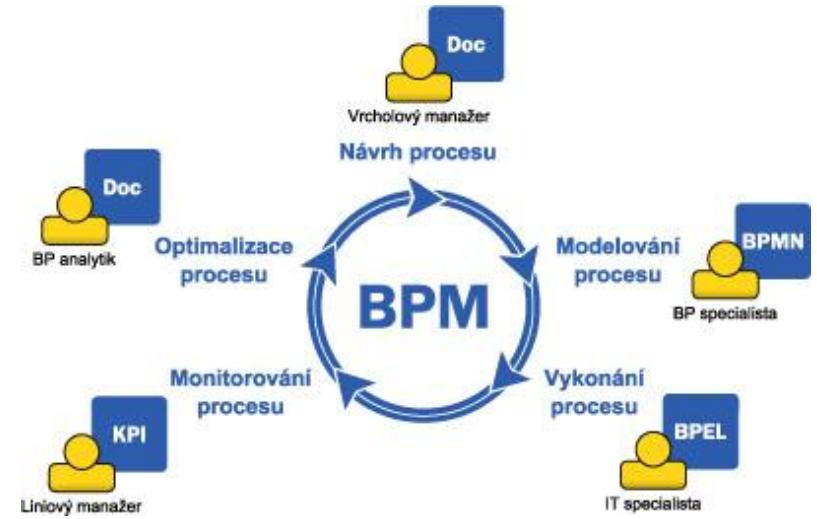
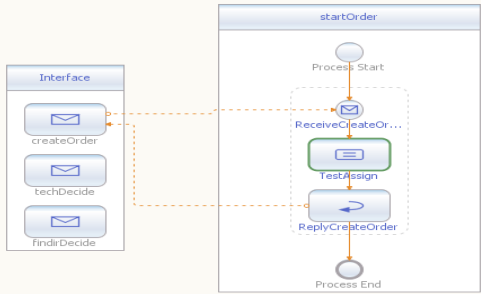
Modely srozumitelné byznys lidem



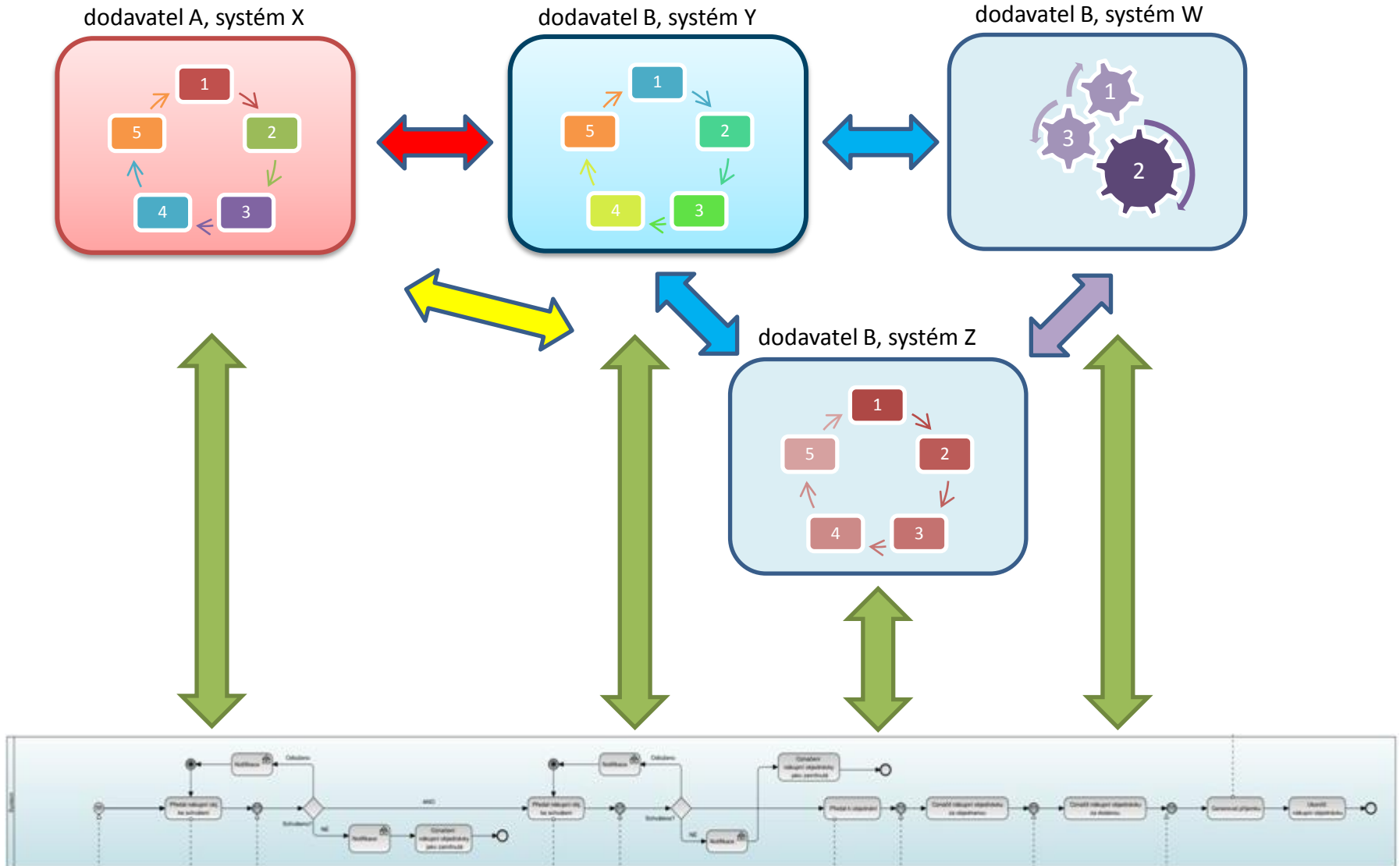
BPMN modely



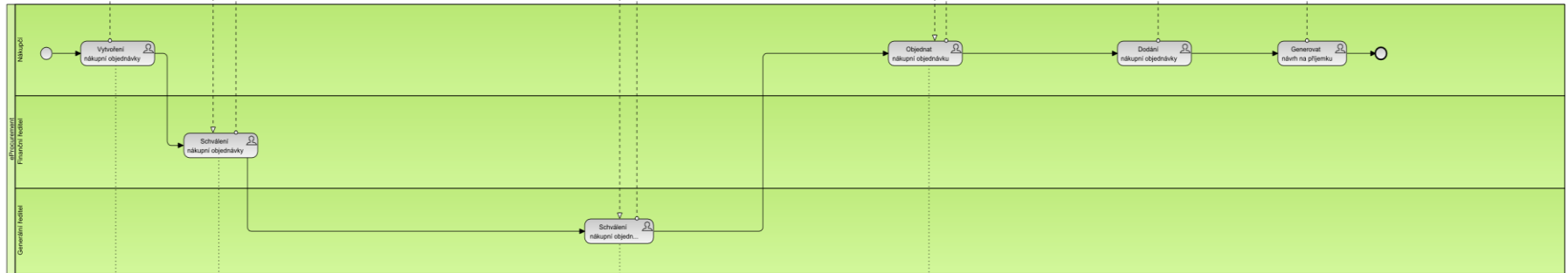
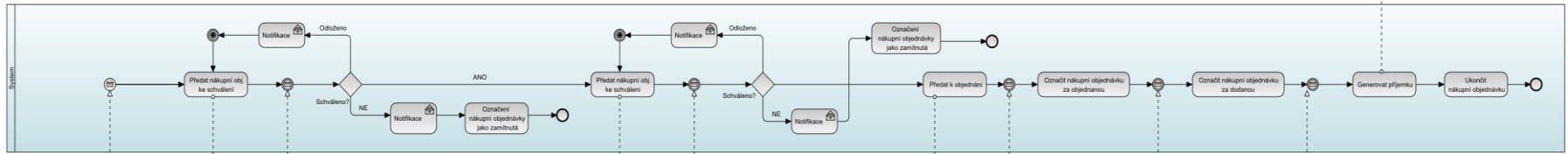
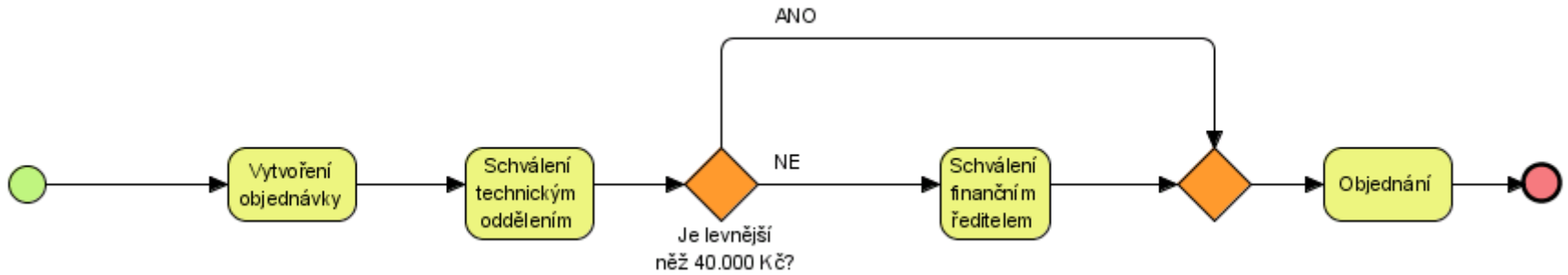
Spustitelné BPEL modely



BPM versus workflow



Ukázky procesu – notace BPMN

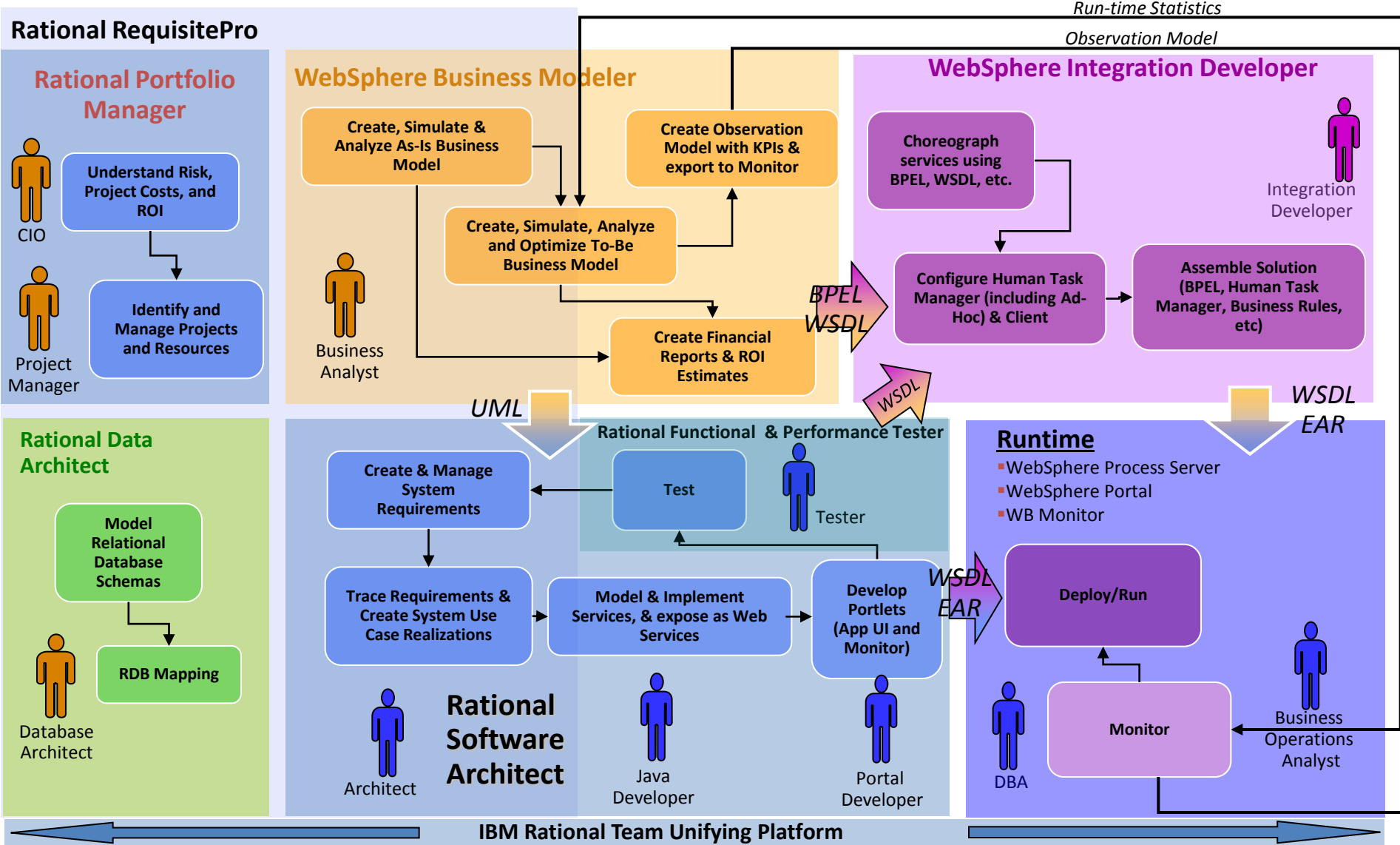


- Atributy:**
- evidenční číslo nákupní objednávky,
 - dodavatel,
 - odběratel,
 - datum dodání,
 - řádky nákupní objednávky (ID položky, kvantita, cena),
 - komentář (optional).

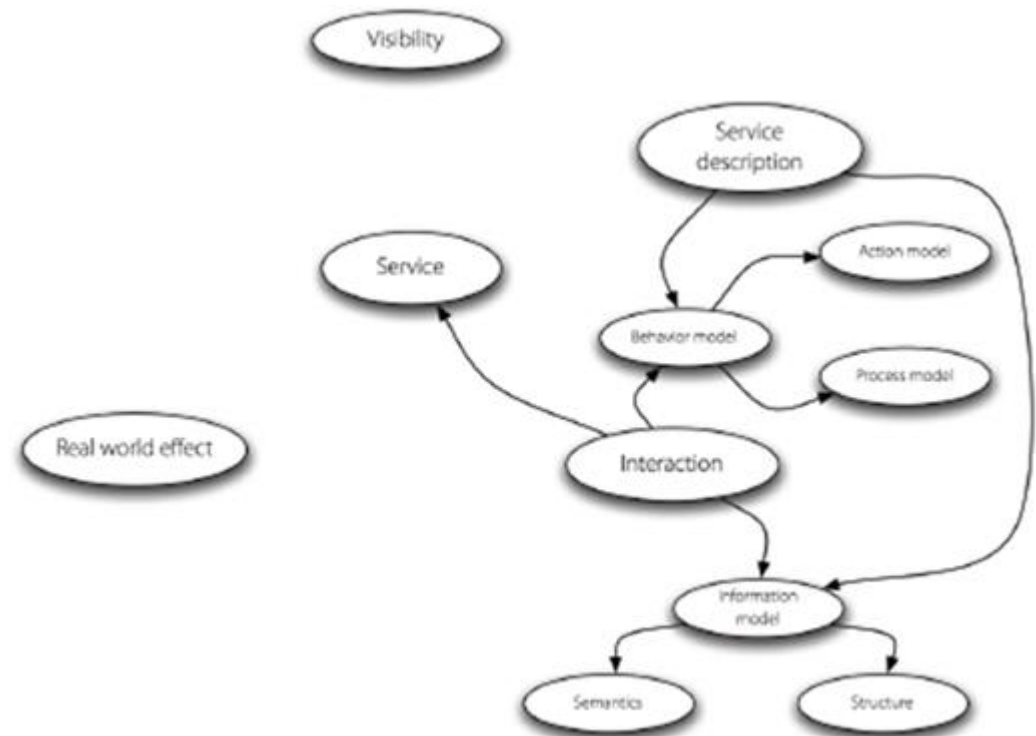
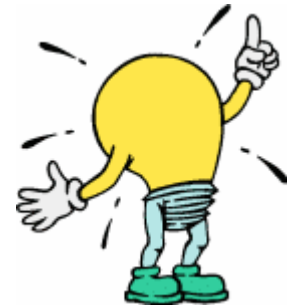
- Schválení nákupní objednávky:**
- schváleno/neschváleno/odloženo,
 - komentář (nepovinný)

Označit nákupní objednávku za objednanou

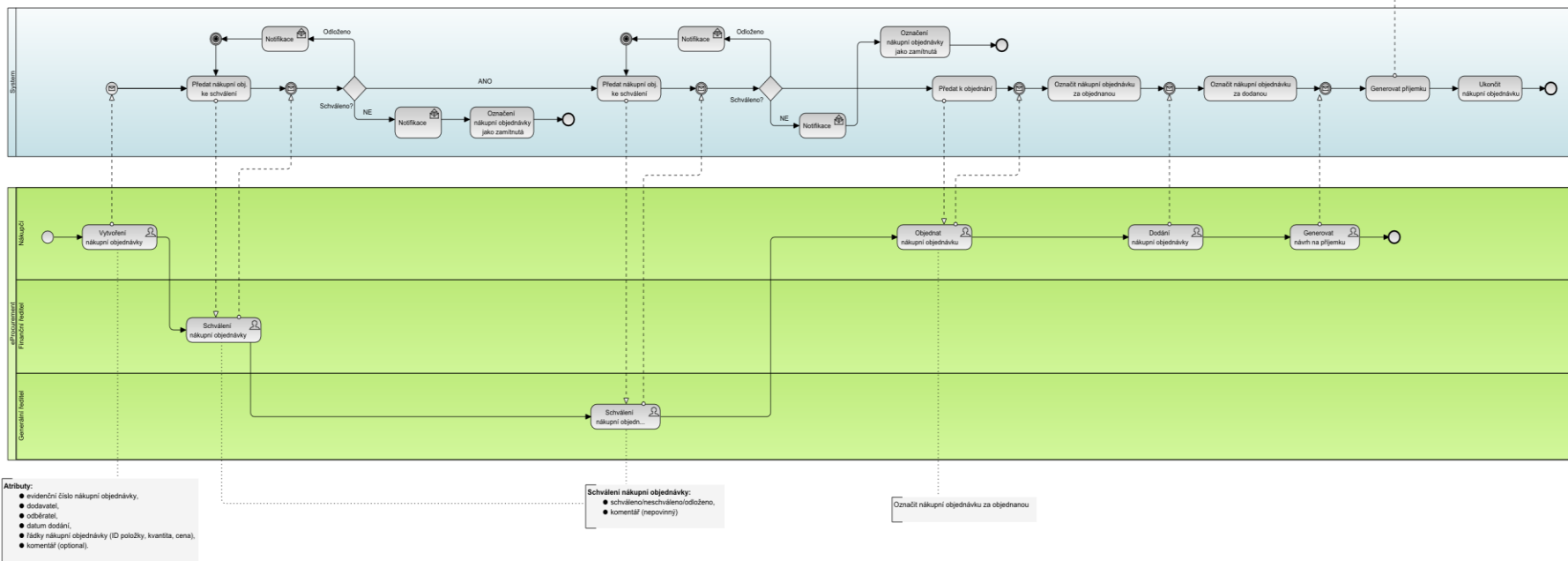
The Big Picture of SOA Development Cycle



- Analýza existujících procesů
- Jak má vypadat budoucí proces?
- Výkonnostní kritéria budoucího procesu
- Důležitá správnost a účinnost procesu
- Vlastník procesu



- Zachycení toho, co se v procesu děje
 - Čitelnost všemi účastníky životního cyklu
 - Úrovně procesního modelu
- Business Process Modeling Notation - BPMN
 - Grafická notace



Overview of WS-BPEL Basic Activities ...



Receive

Wait for a message to arrive. Optionally start a new process instance when the message arrives.



Reply

Reply to a message that was received.



Invoke

Invoke a one-way or a request-response operation offered by a partner.

Assign

Update the values of variables with new data.



Throw

Generate a fault from within the business process.



Rethrow

Rethrow a fault which was caught

New
V6



Wait

Wait for a given period or until a certain time has passed.



Compensate

Call a compensation handler

New
V6



Terminate

Immediately terminate the process instance.



Empty

A "no-op" instruction in the business process.



Sequence

Multiple activities that are performed sequentially



Flow

Multiple activities that are performed concurrently



Switch (Choice)

Select one activity branch from a set of choices



Link

Synchronize two activities in a Flow to enforce a particular execution order



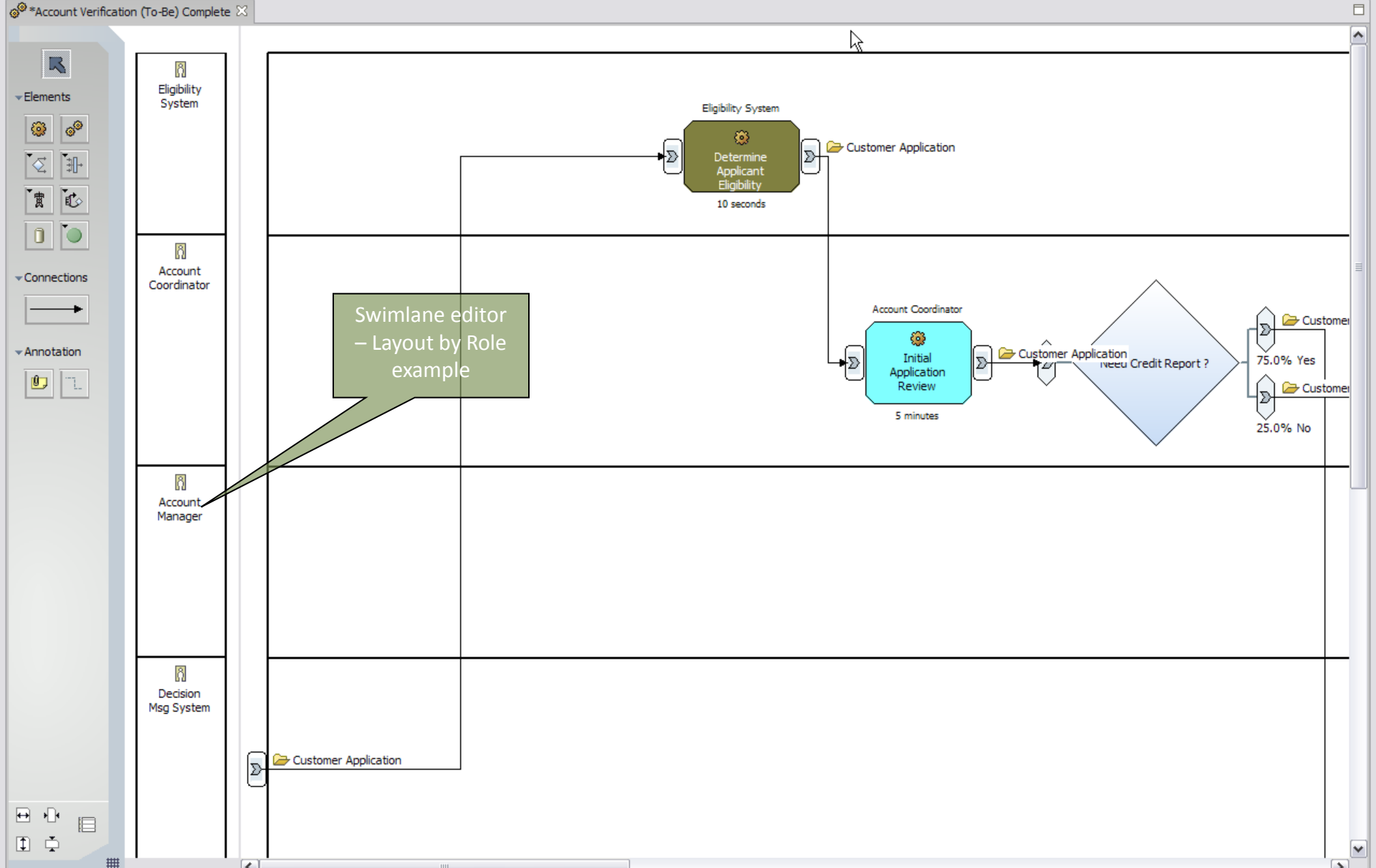
While

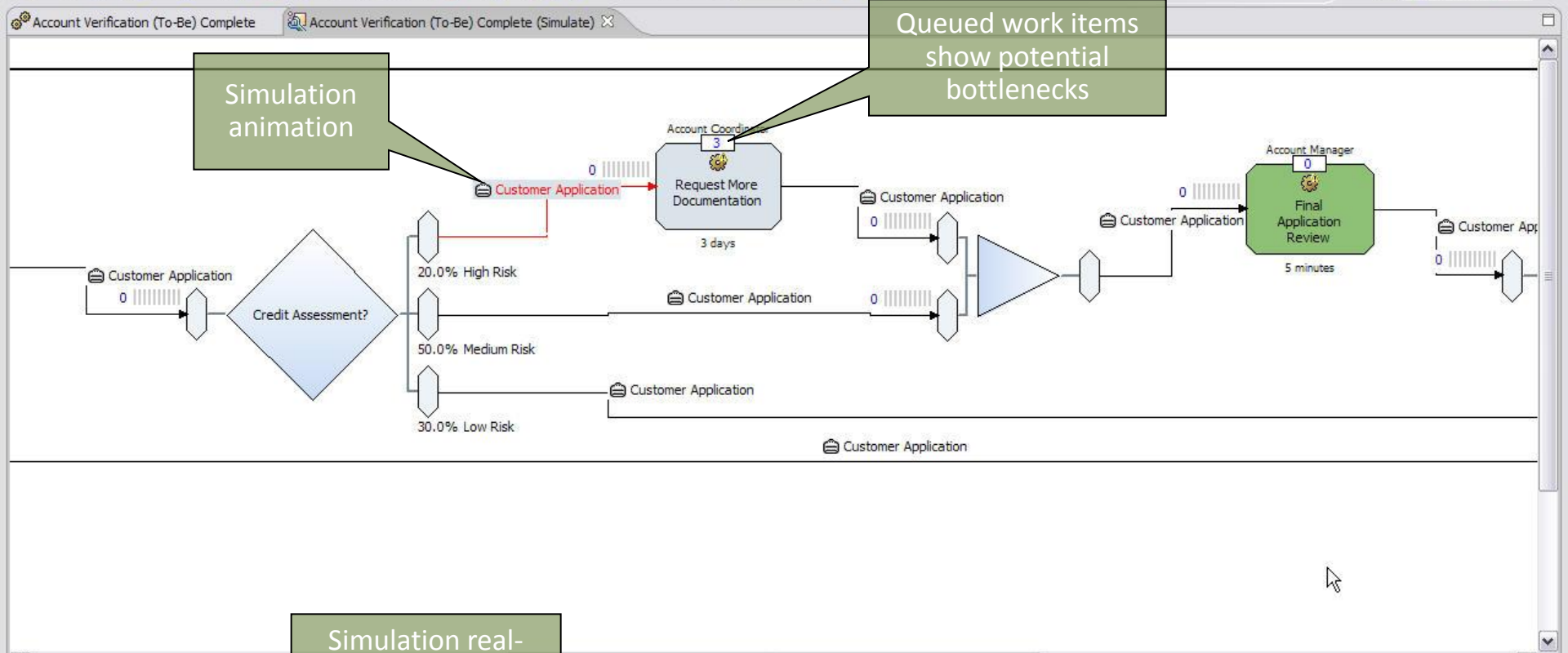
Repeat an activity until a boolean condition has been met



Pick (Receive Choice)

Block the process waiting for an incoming event from one or more sources.





Simulation animation

Queued work items show potential bottlenecks

Simulation real-time statistics

Simulation control panel

Simulation elapsed time

Simulation running

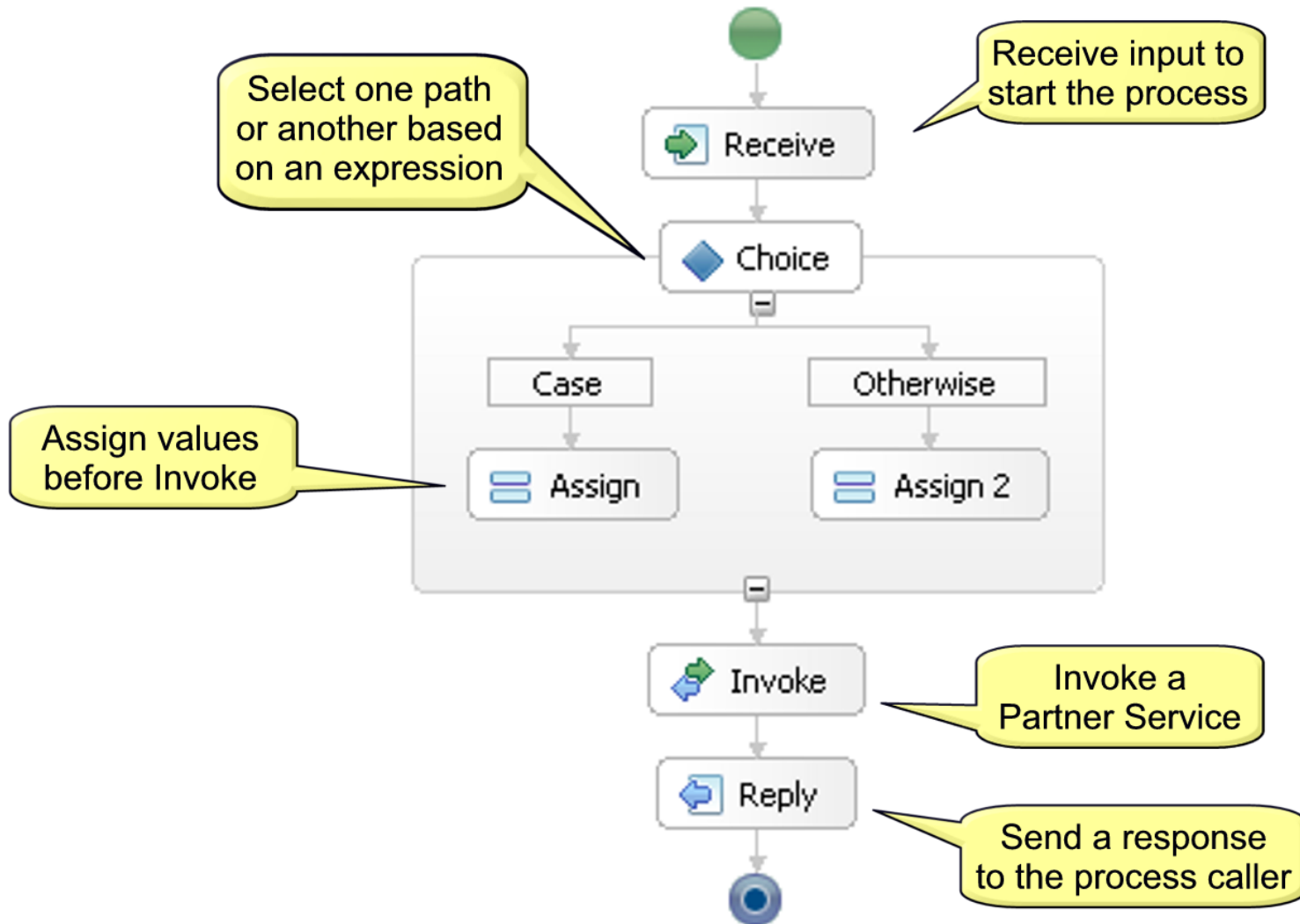
Processes Tasks Connections

Process	Task	Connections	Tokens transferred
Account Verification (To-Be) Complete Monday, June 27, 2005 7:53:59 PM EDT	Account Verification (To-Be) Complete --> ...	Approved ? --> Generate Decline	1
	Approved ? --> Merge:2		

Collect and display statistics across process instances

Elapsed time: 00:04:54

Example BPEL Process



- BPEL is described as an XML Document ...
- Not meant to be particularly human readable!

```
<sequence>
  <assign>
    <copy>
      <from variable="PO" part="customerInfo"/>
      <to variable="shippingRequest"
          part="customerInfo"/>
    </copy>
  </assign>

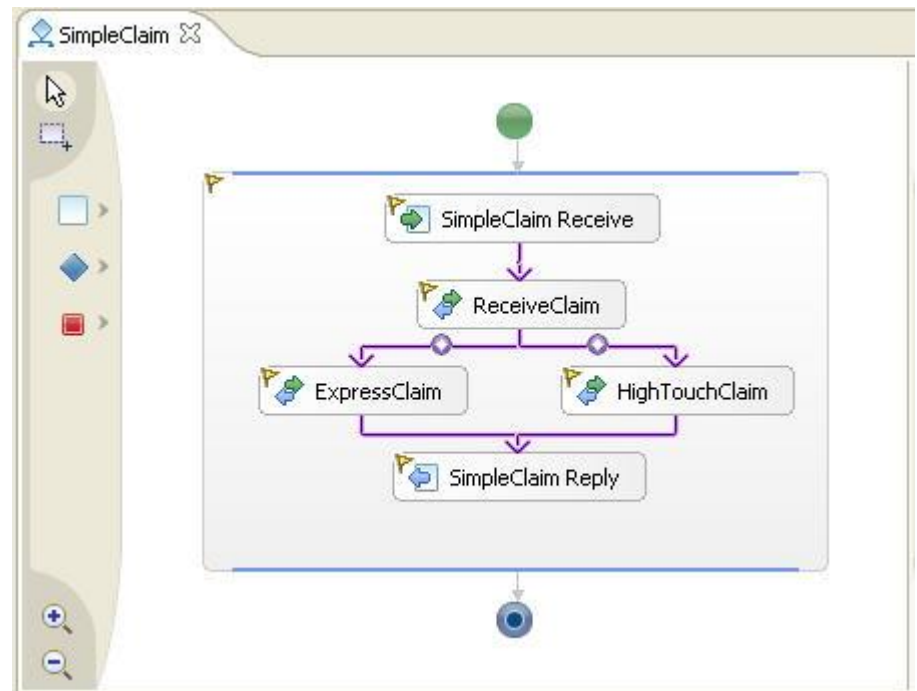
  <invoke partnerLink="shipping"
          portType="lns:shippingPT"
          operation="requestShipping"
          inputVariable="shippingRequest"
          outputVariable="shippingInfo">
```

More ...

- http://publib.boulder.ibm.com/infocenter/dmndhelp/v7r0mx/index.jsp?topic=%2Fcom.ibm.ws.icp.devbp.doc%2Fshared%2Fdev_guide%2Fdevbp%2Fr_bpprcsm_d1_k.html
- Standard notation
- KPI, swimlanes
- Business vocabulary
- Invoking services
- Error and exception handling
- Subprocesses
- Human tasks



- Business Process Executional Language
 - Rozdíl oproti BPMN
 - Převod z BPMN
 - Orchestrizace WS
 - Rozhraní BPELu
- Běhové prostředí
 - Podle výrobce BPMS
 - BPEL Engine
 - Procesní server
 - Stand-alone
- Integrace do systému
 - Frontend
 - Backend



- Řízení lidské interakce s procesy
- Ve WS-BPEL 2.0 není zahrnuto
- Rozhraní pro zakládání a zacházení s tasky
- Notifikace, eskalace, timeout, přeposílání, přílohy



Přehled úkolů k vyřízení ?

Poptávka Faktura Dobropis Záloha

Typ	Identifikace	Odkaz	Příloha	Komentář	Termín	Stav
Poptávka	INV113	ČKD Kompresory, a.s.		0 / 8	30/05/2008	Rozpracovaná
Poptávka	POP-MVA	Manzoni group	POP-MVA.zip	0 / 8	22/05/2008	Rozpracovaná
Poptávka	INV111	MAXIMA a.s.		1 / 8	30/05/2008	Rozpracovaná
Poptávka	INV112	ČKD Kompresory, a.s.		0 / 8	30/05/2008	Rozpracovaná
Poptávka	INV112	ČKD Kompresory, a.s.		0 / 8	30/05/2008	Rozpracovaná
Poptávka	POP-MVA	Manzoni group	POP-MVA.zip	0 / 8	22/05/2008	Rozpracovaná
Poptávka	POP-MVA	Manzoni group	POP-MVA.zip	0 / 8	22/05/2008	Rozpracovaná
Poptávka	GHJPQ445	ČKD Kompresory, a.s.		0 / 8	29/05/2008	Rozpracovaná
Poptávka	INV113	ČKD Kompresory, a.s.		0 / 8	30/05/2008	Rozpracovaná
Poptávka	INV113	ČKD Kompresory, a.s.		0 / 8	30/05/2008	Rozpracovaná

Řádky 1 až 10 z celkových 15 Strana 1 / 2

- Důvody monitorování
 - Podklady pro zlepšování procesu
 - Včasná detekce chyb
 - Měření výkonnosti
- Key Performance Indicators (KPI)
 - Ukazatele výkonnosti
 - Sledování obchodních cílů
 - Jejich monitorování musí mít smysl
- Business Activity Monitoring
 - Sledování KPI v reálném čase
 - Přístrojové desky (dashboards)



Příklad editace KPI

Business Measure Details - Percent of Orders Approved

Business Measure Details
Specify additional details to describe how the business measure is calculated.

Name

Type KPI Instance metric Aggregate metric Unspecified

Description

▶ Dashboard views

Specify a target value and type
The target is an exact value that the KPI should achieve.

Type:

Target value:

Specify a time period over which the business measure will be monitored

Repeating Rolling Fixed

Period type:

Base period on:
 Last full period
 Period in progress

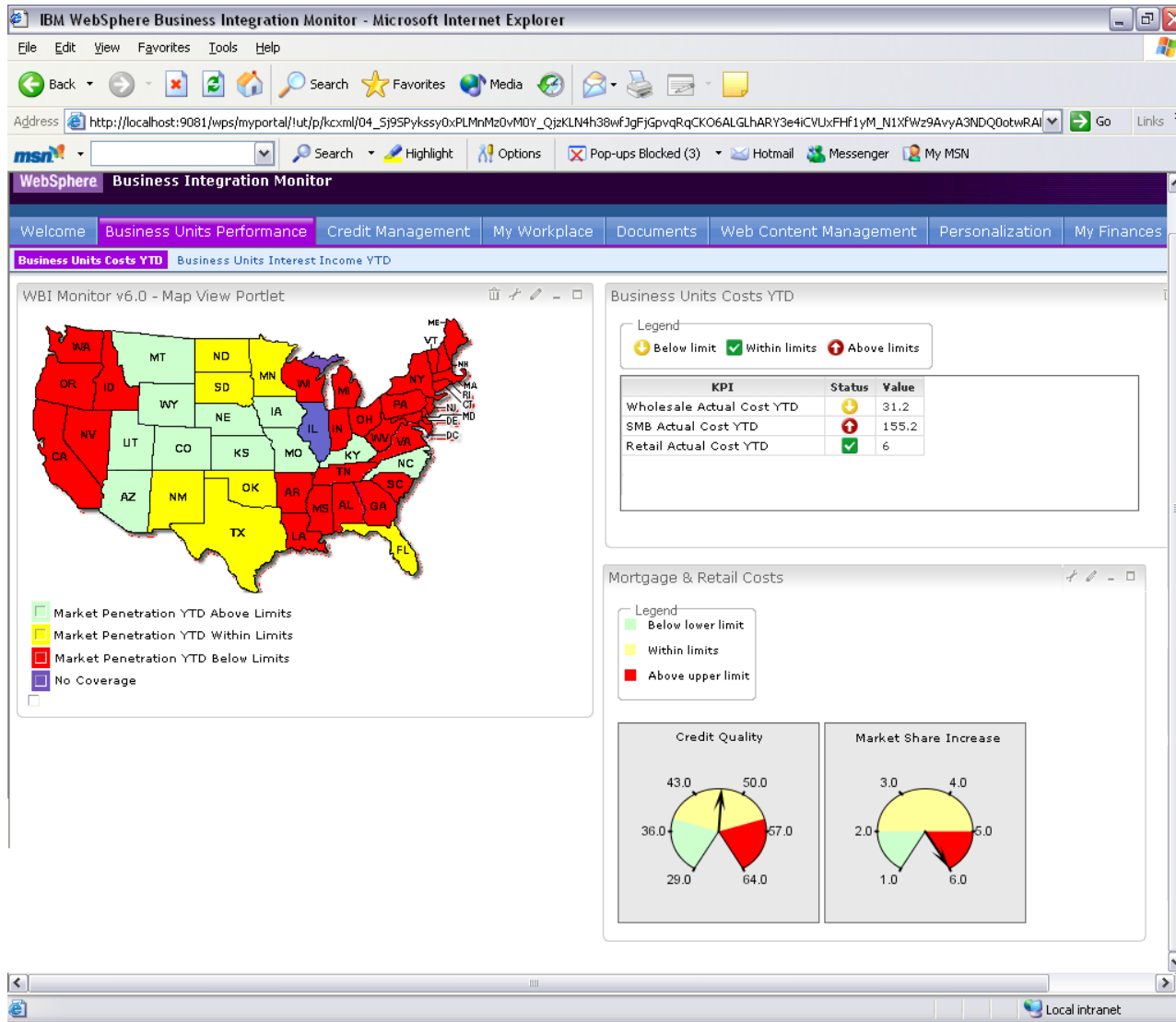
Size of period:
Number of previous days:

Base last day on:
 Previous day
 Day in progress

Start date:

End date:

OK Cancel



WebSphere Business Monitor

File Edit View Favorites Tools Help

Back Forward Stop Home Search Favorites Media

WebSphere Business Monitor Welcome, Olive. You have 5 unread mails and 3 unread alerts.

Business Dashboard Reports / Alerts Collaboration

Start Date: 2005-02-01

End Date: 2005-02-05

Frequency: Daily

Date	Ratio (%)
2005-02-01	2.55
2005-02-02	3.88
2005-02-03	2.40
2005-01-04	3.41
2005-02-05	5.61

Log Data

Date	Ratio (%)
2005-02-01	2.55 %
2005-02-02	3.88 %
2005-02-03	2.40 %
2005-01-04	3.41 %
2005-02-05	5.61 %

Key Performance Indicators	Status	Trend	Value	Target	Process
Manual Intervention Ratio	■	↑	5.61 %	< 5 %	Cleanse-Publish
Average Data Synchronization Time	■	▶	9.5 min	< 10 min	Cleanse-Publish
Synchronization Failure Ratio	■	↑	0.5 %	< 1 %	Cleanse-Publish
Synchronization Failure Recover Time	■	↑	12 min	< 30 min	Compensation H

Order Handling Process Diagram

```

graph LR
    A[Manufacturing Product Catalog (PeopleSoft)] -- "PslProductCategory" --> B[Manufacturing Data Mediation]
    B -- "ProductCategory" --> C[Cleanse-Publish Handler]
    C -- "ProductCategory" --> D{ }
    D -- "ProductCategory" --> E[Sales Data Mediation]
    D -- "ProductCategory" --> F[Marketing Data Mediation]
    D -- "ProductCategory" --> G[Global Data Mediation]
    E -- "SapProductCategory" --> H[Order Desk Product Catalog (SAP)]
    F -- "SiebelProductCategory" --> I[Marketing Product Catalog (Siebel)]
    G -- "UCCNetProductCategory" --> J[Global Repository Product Catalog (UCCNet)]
    
```

Process Owner: [Matthew Benzic](#)

Business Analyst: [Bob Adam](#)

System Administrator: [Ivan Tackett](#)

- Sledování procesů v reálném čase
- Zobrazení KPI
- Grafy, ciferníky, histogramy, tabulky, scorecards,...
- Typicky v portálu



- Key Performance Indicators
 - Jsou odvozeny od cílů
 - Měří stav dosažení cílů
- Sledování výkonnostních ukazatelů v reálném čase
- Podklady pro zlepšování procesů
- Včasná detekce problémů
- Příklady KPI
 - Průměrná délka schvalování objednávky
 - Součet cen objednávek
 - Poměr vadných výrobků
 - Návratnost investic



KUBIKI

Vítejte Vladimíre!

MAX

BAM Dashboard 1

BAM Dashboard 2

Osobní

+ Přidej stránku

MAX

Edit KPI

KPI #2902 Details

Name:

Description:

Type: TIME_DIFFERENCE

Unit:

Use groups: false

KPI Points

Unique ID	Description	Actions
end	End of process	remove
creation	Start of process	remove

Add KPI Point

Unique ID:

Description:

[Back to list of KPIs](#)

Key Performance Indicators

KPI name	Type	Description	KPI Points
Process length	TIME_DIFFERENCE	Average length of process	end creation
Sum of order prices by company	SUM	Sum of order prices grouped by ordering company	creation
Average order price	AVG	Average order price	creation
Order approval rate	COUNT	Rate of order approvals / disapprovals	creation

Create new KPI

Name:

Description:

Type:

Unit:

Use groups:

K U B I K I

Vítejte Vladimíre!

MAX

BAM Dashboard 1

BAM Dashboard 2

Osobní

+ Přidej stránku

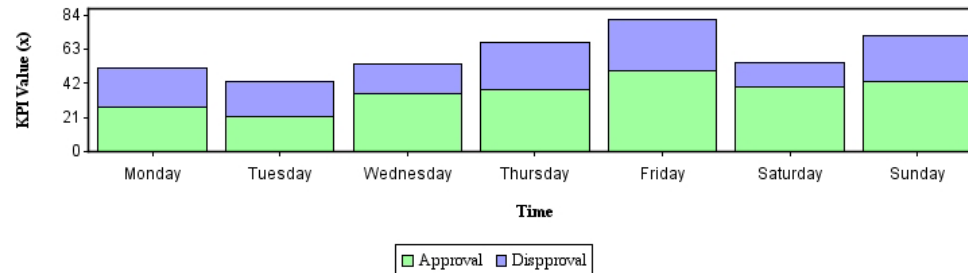
MAX

Average process length

Time	(no group)	
9.1.08	0d 4h 10m 24s	100.0%
10.1.08	1d 4h 51m 19s	100.0%
11.1.08	0d 0h 0m 0s	
12.1.08	0d 0h 0m 0s	
13.1.08	0d 11h 22m 5s	100.0%
14.1.08	0d 0h 0m 0s	
15.1.08	1d 14h 58m 29s	100.0%
16.1.08	1d 5h 20m 29s	100.0%
17.1.08	0d 12h 7m 57s	100.0%
18.1.08	1d 16h 24m 18s	100.0%
19.1.08	1d 22h 41m 31s	100.0%
20.1.08	1d 2h 25m 55s	100.0%
21.1.08	0d 0h 0m 0s	
22.1.08	1d 5h 11m 34s	100.0%
23.1.08	0d 5h 24m 45s	100.0%
24.1.08	1d 15h 34m 53s	100.0%
25.1.08	0d 15h 13m 42s	100.0%
26.1.08	1d 18h 9m 41s	100.0%
27.1.08	0d 21h 17m 57s	100.0%
28.1.08	1d 14h 52m 10s	100.0%
29.1.08	0d 14h 36m 19s	100.0%
30.1.08	0d 19h 7m 10s	100.0%
31.1.08	0d 13h 55m 5s	100.0%
1.2.08	1d 21h 54m 23s	100.0%
2.2.08	0d 21h 11m 53s	100.0%
3.2.08	0d 5h 22m 15s	100.0%
4.2.08	0d 18h 37m 39s	100.0%
5.2.08	1d 17h 40m 23s	100.0%
6.2.08	0d 0h 0m 0s	
7.2.08	0d 0h 0m 0s	
8.2.08	0d 3h 55m 27s	100.0%

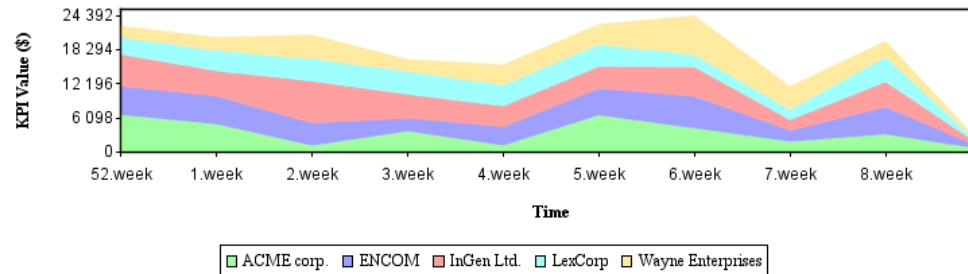
Order approval rate

Order approval rate - Days in week



Sum of order prices by company

Sum of order prices by company - Last 10 week(s)



K U B I K I

Vítejte Vladimíre!

MAX

BAM Dashboard 1

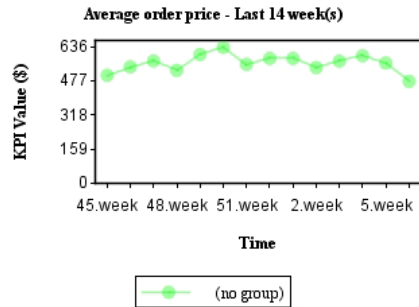
BAM Dashboard 2

Osobní

+ Přidej stránku

MAX

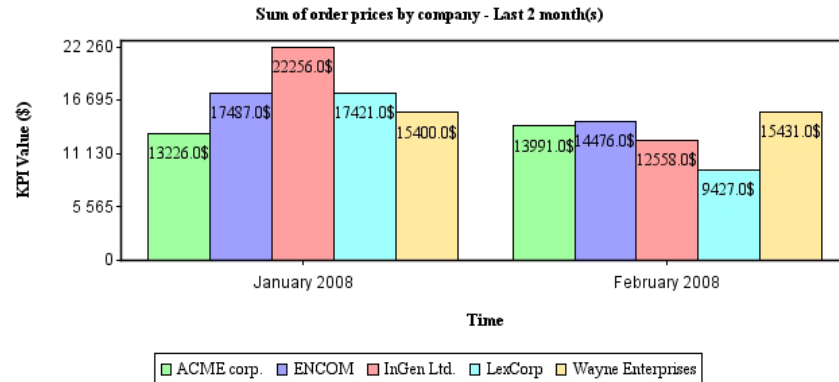
Average order price



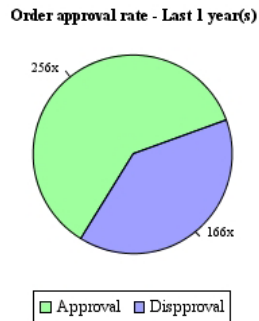
Sum of order prices by company

Time	ACME corp.		ENCOM		InGen Ltd.		LexCorp		Wayne Enterprises	
18.2.08	1115.0\$	26.87%	787.0\$	18.97%	912.0\$	21.98%	1219.0\$	29.38%	116.0\$	2.8%
19.2.08	(no data)		989.0\$	61.12%	(no data)		629.0\$	38.88%	(no data)	
20.2.08	(no data)		810.0\$	40.93%	402.0\$	20.31%	(no data)		767.0\$	38.76%
21.2.08	(no data)		827.0\$	30.85%	387.0\$	14.43%	(no data)		1467.0\$	54.72%
22.2.08	461.0\$	18.01%	1308.0\$	51.09%	(no data)		791.0\$	30.9%	(no data)	
23.2.08	229.0\$	7.08%	(no data)		1876.0\$	57.99%	924.0\$	28.56%	206.0\$	6.37%
24.2.08	1389.0\$	38.31%	138.0\$	3.81%	892.0\$	24.6%	864.0\$	23.83%	343.0\$	9.46%
25.2.08	549.0\$	33.46%	241.0\$	14.69%	361.0\$	22.0%	118.0\$	7.19%	372.0\$	22.67%
26.2.08	(no data)		(no data)		(no data)		(no data)		(no data)	
27.2.08	(no data)		(no data)		(no data)		(no data)		(no data)	

Sum of order prices by company



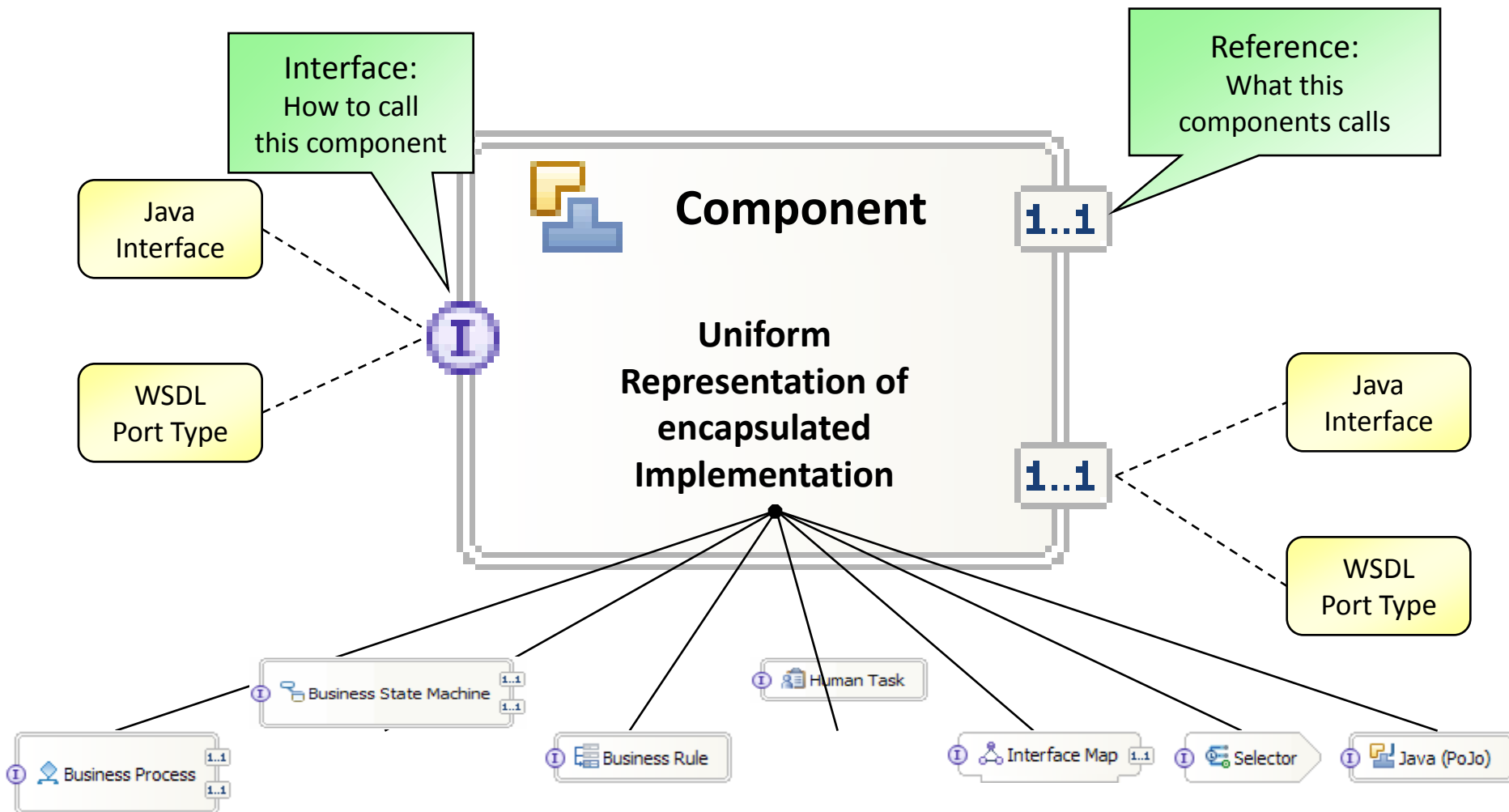
Order approval rate



- Stálé zlepšování procesu
- Podkladem sledování procesu či potřeba změny
- Postup optimalizace
 - Detekce neefektivní části procesu
 - Úzké hrdlo
 - Neefektivita
 - Nákladnost na zdroje
 - Návrh a validace změny
 - Úprava modelu procesu
 - Nasazení nové verze procesu
 - Monitorování, optimalizace, návrh změny, úprava modelu, nasazení atd.



Common Invocation Model: Service Components



Business Rules



Where Business Rules Exist

```
#ifdef __WIN__
/*
 Before performing any socket operation (like retrieving hostname
 in init_common_variables we have to call WSASStartup
 */
{
  WSADATA WsaData;
  if (SOCKET_ERROR == WSASStartup(0x0101, &WsaData))
  {
    /* errors are not read yet, so we use english text here */
    my_message(ER_WSAS_FAILED, "WSASStartup Failed", MYF(0));
    unireg_abort(1);
  }
}
#endif /* __WIN__ */

if (init_common_variables(MYSQL_CONFIG_NAME,
                          argc, argv, load_default_groups))
  unireg_abort(1); // WH1! do exit

init_signals();
if (!!(opt_specialflag & SPECIAL_NO_PRIOR))
  my_pthread_setprio(pthread_self(), CONNECT_PRIOR);
```

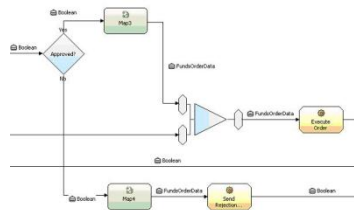
Applications



People

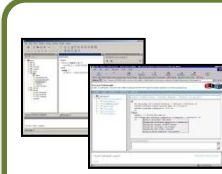


Documents



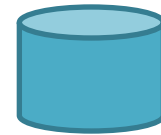
Processes

Business Rule Management System



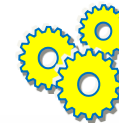
User Tools

Rules are Defined, Analyzed and Maintained



Rule Repository

Rules are Managed and Stored



Rules are Deployed, Executed and Monitored

if

all of the following conditions are true :

- the age of **the driver** is between 18 and 21
- the number of accidents **the driver** has been involved is at least 1
- the number of traffic tickets **the driver** has received is at least 1


then

add a \$ 8 surcharge to 'Auto Quote Response' , reason: "Young driver surcharge" ;

Různé podoby obchodních pravidel

Decision Rule

[definitions]
 if
 the driver is full time student
 and the driver has been convicted of a DUI ✘
 then
 set high risk driver to true [and/or] ✘
 add eligibility error: ▼ <enter a value> [±] ✘
 add eligibility error: <a string>
 [E] for each ...
 print message: <a string>
 reject this application with reason: <a string>
 set <variable> to ...



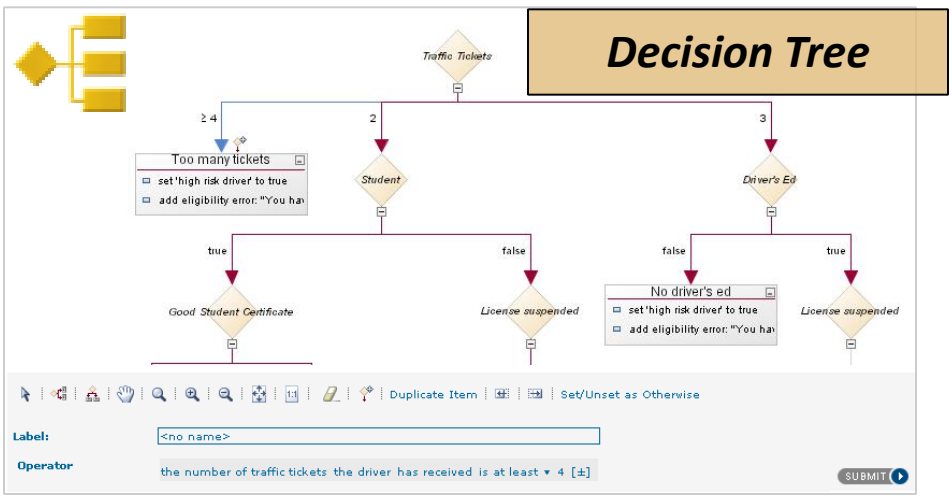
	Is Married?	Is Graduate?	Age		Dollar	Adjustment Type	Reason	
			Min	Max				
			≤ 23		23	surcharge	Driver Profile Surcharge	
		false	24	30	18	surcharge	Driver Profile Surcharge	
2	male	false	31	35	13	surcharge	Driver Profile Surcharge	
3				≤ 23		20	surcharge	Driver Profile Surcharge
4				24	30	15	surcharge	Driver Profile Surcharge
5			31	35	10	surcharge	Driver Profile Surcharge	
6			≤ 23		18	surcharge	Driver Profile Surcharge	
7			24	30	14	surcharge	Driver Profile Surcharge	
8	true	false	31	35	10	surcharge	Driver Profile Surcharge	
9				≤ 23		15	surcharge	Driver Profile Surcharge
10				24	30	10	surcharge	Driver Profile Surcharge
11	true	true	31	35	5	surcharge	Driver Profile Surcharge	
12				≤ 21		16	surcharge	Driver Profile Surcharge
13				22	27	10	surcharge	Driver Profile Surcharge
14	female	false	28	33	6	surcharge	Driver Profile Surcharge	
15				≤ 21		12	surcharge	Driver Profile Surcharge

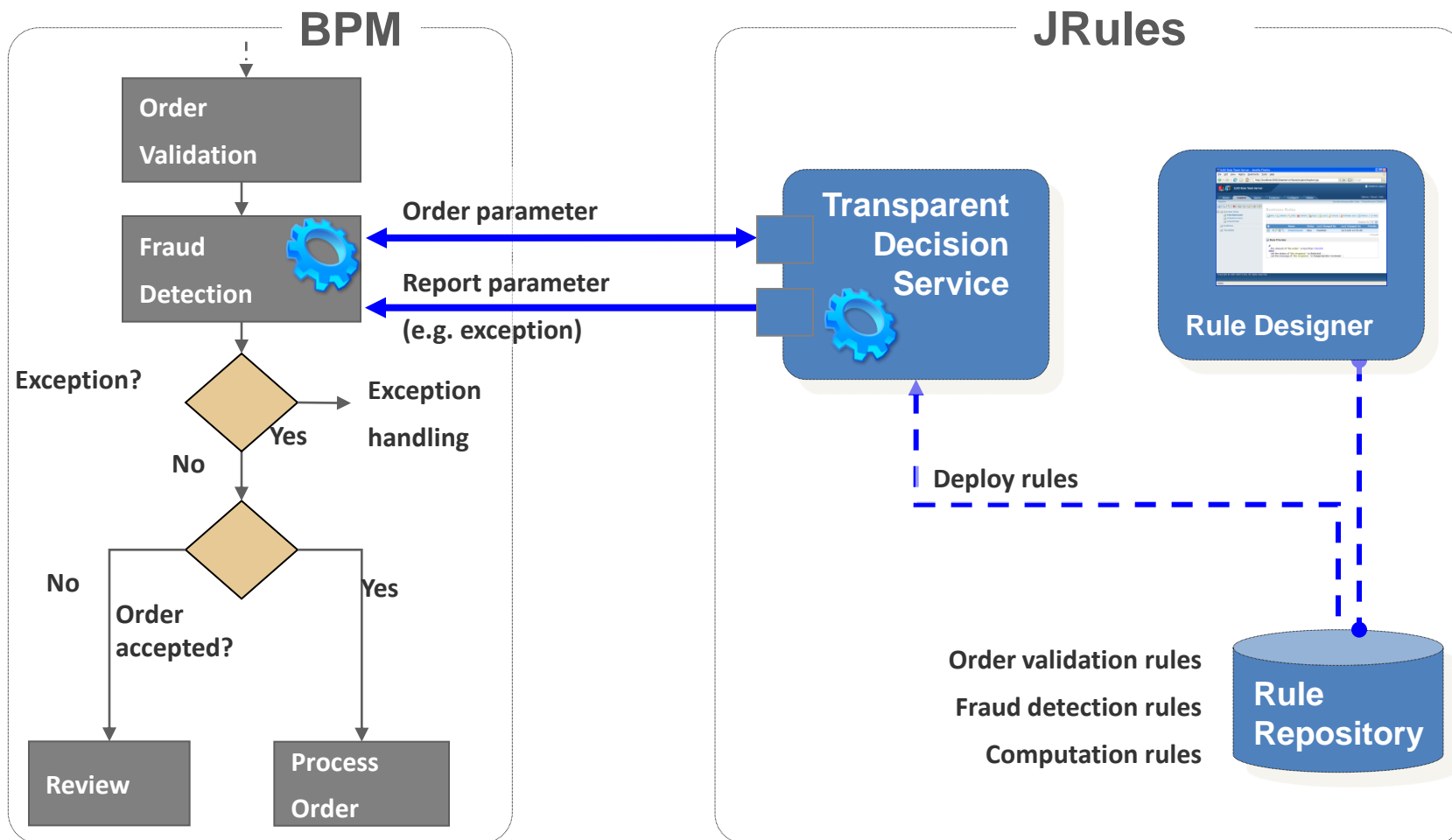
Decision Table

edit table preconditions | edit table | 0 - 15 | 15 - 30 | All

Editor

Operator: the age of the driver is at most ▼ 21 [±]





Logika v obchodních procesech se mění častěji než samotné procesy