



Resultmaker Online Consultant™

Presentation for PhD seminar
2008-04-02

Presentation Overview

Resultmaker

- profile
- references
- research activities

The Online Consultant

- product architecture
- key primitives of OC
- The Process Matrix and Loan Application Example
- Formalization of OC primitives
- Demo

Discussion

Resultmaker Company profile + references

A Danish software & consulting company 2000.

Actively in Danish Public sector since 2003

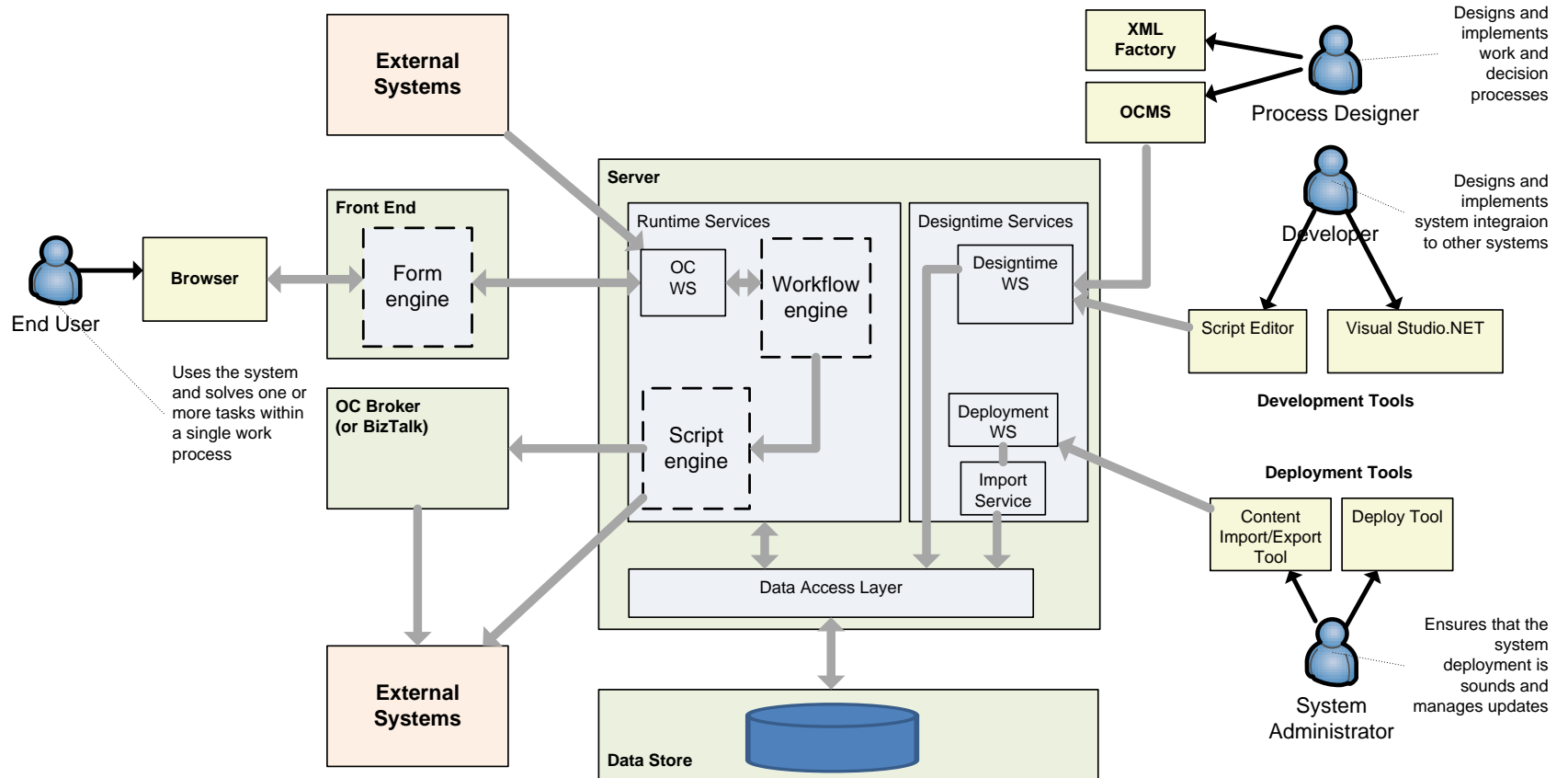
References

- Virk.dk:- A Full-Scale Government-to-Business Platform
- Sickness Pay Reimbursement System(sygedagpenge)
- Digital Building Permit – Frederiksberg Municipality
- Polish Electronic Health Record project (“EHR-PL”) in 2008
- Part of Microsoft's global Citizen Service Platform

Resultmaker Research Activities

- Co-funded 2 PhD scholarships with ITU
- Industrial PhD scholarship with ITU
- Industrial partner in Trustworthy Pervasive Healthcare Services (TrustCare)

The Online Consultant - Product architecture



The Online Consultant - key primitives

Activities

- run parallel and any number of times
- Types
 - eForm Activity
 - Invitation Activity
 - Signing Activity
 - External Activity

Transactions

- commit /abort, but no roll back
- compensating logic when abort

Roles/Resources

- access rights on activities
- Read, Write, Deny

Shared Data store

The Online Consultant – control flow primitives

Activity Condition

- boolean expressions referring to variables from shared data store.
- inclusion of activity can change over within the life time of workflow instance.

Predecessors

- Sequential: ($A < B$), then B can only execute after A finishes execution.
- Logical: ($A * < B$), if A becomes active and (re-)executed, then B must also be re-executed.

Dependency Expressions

- expressions over variable from shared data store.
- Any change in value of dependency expressions cause reset of activity.

The concept in Resultmaker Process Matrix™

Roles and process responsibilities

Flow logic (Predecessors)

Variant logic (purposes)

Questionnaires, rule engines, script logic etc.

Aktivitet	Roller / Aktører				Pre-dec. (bold = logisk, ellers kun rækkefølge)	Purposes [Startes med B aktiv, evt. D-G]											Rule	Questionnaire ref. / Aktivitetsspec. / [Kommentar]
	Bruger.	System ejer	Udp. af sys. ejer	Drift. ansv.		A	B	C	D	E	F	G	H	I	X			
1 Ændringsgodkendelse																		
1.1 Statistik																		
1.2 Ændringsønske	U	U	U															Hvis bruger ikke har godkendelses rettigheder (set I)
1.3 Godkendelse		U			1.2												I	Godkendelse (set H)
1.4 Beskrivelse af ændrings-anmodning			U		1.2, 1.3		B						H					And Krav fra projektmødelen/Driftshåndbogen
1.5 Løbende dialog			U				B						H			X		And Review af source koden
1.6 Invitation af [i] [n, w, j]					1.4								H					
1.7 Modtager besked om ændrings-anmodning				U	1.4								H					Afgør opfyldt krit. (evt.: set A, reset B)
1.8 Foretag korrigerende handlinger				U	1.7	A							H					And Afgør testkrav (set C)
2 Pre prod					1			C					H					And
2.1 Installation Preprod			U					C										Godkend (set D)
2.2 Tlf. eller email til udpeget af systemejer			U	U	2.1			C	D									And
2.3 Samtale med leverandør			U	U	2.1			C	Not D									And Reset B
2.4 Funktionstest Preprod			U		2.1			C	D									And Godkend (set E, reset B)
3 Prod					2								H					
3.1 Installation Prod			U															Godkend (set F)
3.2 Tlf. eller email til udpeget af systemejer			U	U	3.1					F								
3.3 Samtale med leverandør			U	U	3.1					Not F								Reset B
3.4 Funktionstest			U		3.1													Godkend (set G, reset B)
3.5 Arkiv			U		3.4													

Decision Dimension

Work (process) dimension

- Activities
- Steps
- Set of activities (sub process)
- Etc.

The concept in Resultmaker Process Matrix™

Process Definition Data						Process Content Data												
Aktivitet	Roller / Aktører				Pre-dec. (test eller kun rekvirert)	Formål / Purposes [Startes med B aktiv, evt. D-G]											Questionnaire ref. / Aktivitetsspec. / [Kommentar]	
	Bruger.	System ejer	Udp. af sys. ejer	Drift. ansv.		A	B	C	D	E	F	G	H	I	X	Rule		
1	Ændringsgodkendelse																	
1.1	Statistik																	
1.2		U	U	U														Hvis bruger ikke har godkendelses rettigheder (set I)
1.3			U		1.2												I	Godkendelse (set H)
1.4	Beskrivelse af ændringsanmodning				1.2, 1.3		B						H					And
1.5	Løbende dialog						B						H			X		And
1.6	Invitation af				1.4								H					
1.7	Modtager besked om ændringsanmodning				1.4								H					Afgør opfyldt krit. (evt.: set A, reset B)
1.8	Foretag korrigerende handlinger				1.7	A							H					And
2	Pre prod				1								H					And
	Installation Preprod																	
2.2	Tlf. eller email til udpeget af systemejer				2.1													And
2.3	Samtale med leverandør				2.1													And
2.4	Funktionstest Preprod				2.1													And
3	Prod				2													
3.1	Installation Prod																	
3.2	Tlf. eller email til udpeget af systemejer				3.1													
3.3	Samtale med leverandør				3.1													Reset B
3.4	Funktionstest				3.1													And
3.5	Arkiv				3.4													Godkend (set G, reset B)

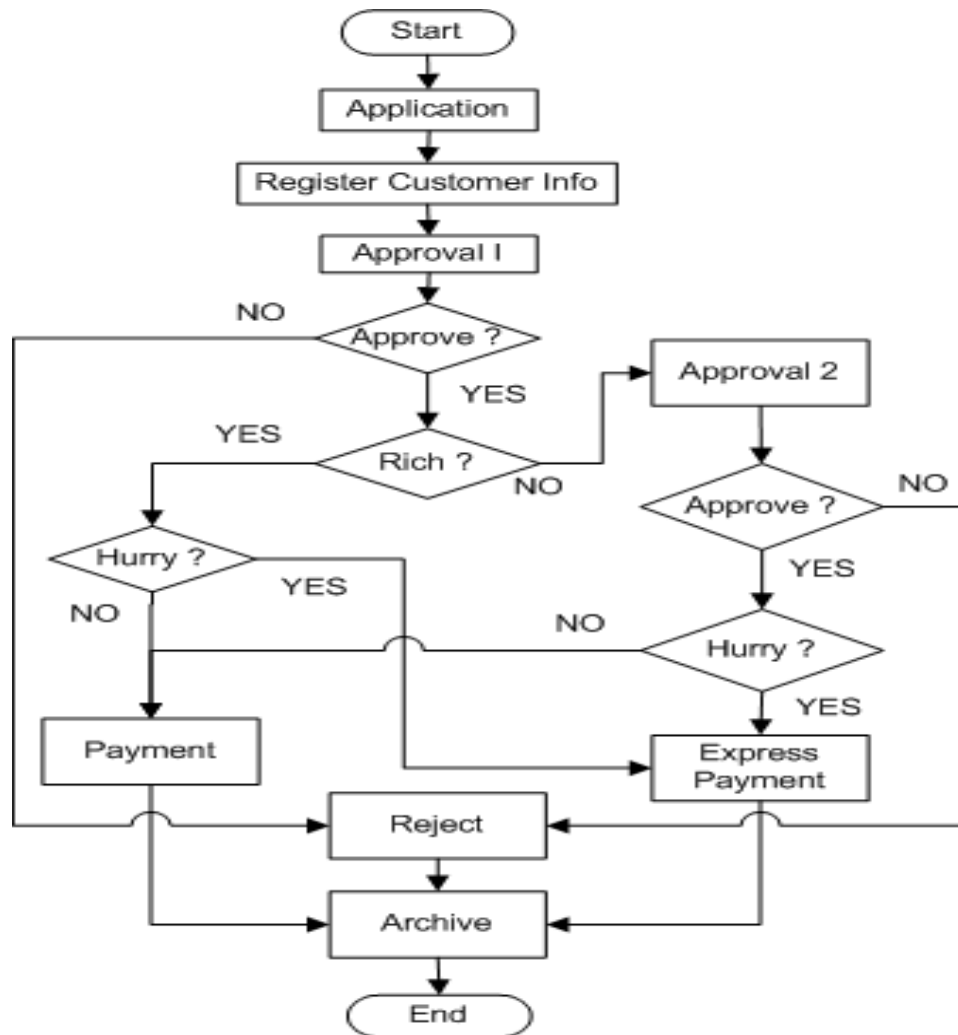
Work (process) dimension

Decision Dimension

Process Matrix for Loan Application

	Steps	Roles			Predecessors	Activity Condition
		CW	Mgr	Appl		
1.	Register Customer Info	W	W	W		
2.	Application			W	1	
3.	Approval I	W		D	* 2	
4.	Approval II		W	D	* 2	<i>-Rich</i>
5.	Payment	W			* * 3, 4	<i>-Hurry ^ Accept</i>
6.	Express Payment	W			* * 3, 4	<i>Hurry ^ Accept</i>
7.	Rejection	W			* * 3, 4	<i>-Accept</i>
8.	Archive	W		D	* * * 5, 6, 7	

Flow chart for Loan Application



Formalization of OC primitives - 1

Basic Propositions

- current activity
 - $(\text{act} == A)$
- existence formula
 - $\diamond(\text{act} == A)$
- *precedence*(*A:activity*, *B:activity*)
 - $\text{existence}(B) \implies (!(\text{act} == B) \text{ U } (\text{act} == A))$
- *response*(*A:activity*, *B:activity*)
 - $\square((\text{act} == A) \implies \text{existence}(B))$
- *succession*(*A:activity*, *B:activity*)
 - $\text{response}(A, B) \wedge \text{precedence}(A, B)$

Formalization of OC primitives - 2

Process Matrix Propositions

- $\text{act_include}(A:\text{activity})$
 - $(\text{act} == A) \Rightarrow \text{actcon}(A)$
- $\text{act_including}(A,B)$
 - $(\text{act} == A) \wedge \text{actcon}(B)$
- $\text{existence_act_including}(A,B)$
 - $\Diamond \text{act_including}(A, B)$
- Sequential predecessor
 - $\text{existence_act_including}(B, A) \Longrightarrow (!\text{act_including}(B, A) \text{ U } (\text{act} == A))$
- Logical Predecessor
 - $\Box(\text{reset}(A) \Longrightarrow \text{sequential_predecessor}(A : \text{activity}, B : \text{activity}))$
- Activity Execution
 - $(\Box \Diamond \text{executed}(A)) \vee (\Box \Diamond !\text{actcon}(A))$

Discussion

Demo & Discussion