

, << >>

-

Agile

4013 -2

230105 65 -

_____ . .
() _____ . .
_____ . . . , . .

<<_>> _____ 2013 .

_____ . . .

, 2013

.....	4
1. . . .	8
1.1. -	8
1.1.1. -	8
1.1.2. -	9
1.2.	10
1.2.1.	10
1.2.2.	12
1.3. -	13
1.3.1.	13
1.3.2.	14
1.3.3. -	15
1.4.	18
1.4.1.	18
1.4.2. -	20
1.4.3.	21
2.	23
2.1.	23
2.1.1.	23
2.1.2.	25
2.1.3.	26
2.1.4.	27
2.1.5.	27
2.1.6. -	28
2.2.	29

2.2.1.	.....	29
2.2.2.	.....	29
2.2.3.	.....	30
2.2.4.	.....	30
2.3.	.....	30
3.	.....	31
	.....	32
	.....	33
	.....	38
	OMG BPMN v.2.0	40
	-	44

XXI

•

•

•

•

•

•

•

,

•

9

,

•

•

•

•

,

•

•

,

9

•

•

.

1.

•

2.

•

3.

•

4.

•

5. .
6. -
- .
 7. .
 - :
1. ,
 - .
2. - -
 - .
3. ,
 - .
4. ,
 - .
5.
 - .
6. -
 - .
 - ,
 - .
 - ,
 - .
 -
 - ,

.

-

.

-

-

,

,

.

1.1. -

,
- . -
-
- , .

1.1.1. -

, -
,
- , [1, .
31], [1, . 148],

,
,
[2] - , << -

-
.
-
,

— >>. [3, . 55]

<< - — ,
>>.[3, .

55]

1.1.2.

-

-

(. [4, . 17 --

18], [5], [1, c. 148])

:

-

,

,

.

,

,

.

-

,

-

,

.

-

,

.

-

,

-

,

.

-

,

-

,

.

-

—

,

-

-

.

-

-

,

,

,

.

,

-

,

,

-

.

$[6, \cdot 110]$

•

—

 \vdots , , , .

()

•

—

2

2

• •

1.2.

1.2.1.

•

—

2

[7],

2

—

,

•

—

,

—

•

—

2

—

2

2

•

—

,

2

[8, .27],

[1, .30 -- 31], [8, .30]

[1, . 31]

<<

()

>>.

[8, . 30],

[9, .6]

PMBOK [10, . 8],

PMBOK 5 [11],

1.2.2.

[12, . 34]

()

• -
 , ,
 ;

, -
 . , ,
 ,

.
 .
 -
 ,

[13], [12].

1.3. -

[8, .14] , --

, , , -
 - .

1.3.1.

2006 . - -

-
 , [4, . 27].

- , -

- .

[8, . 15], - —

BPMN (), *EPC* (c

).

, [8, . 15]

, . . . -

, , .

-

. SADT (Structured Analysis and Design Technique) IDEF(Integration Definition for Functional Modeling.)

- -

[8, . 17] c -

, - -

- . -

UML (Unified Modeling Language).

- -

[8, . 18]

, - ,

.

, - , -

BPMN (Business Process Model and Notation), ARIS (Architecture of Integrated Information Systems), EPC ().

1.3.2.

[14] -

, -

. , ,

, [14, . 15] $C = (P, T, I, O)$,

4- :

1. P ;

- 2. T ;
- 3. I ;
- 4. O ;

, ,

.

-

,

-

-

. [14, . 18]

$G = V, A,$ -

$v_i \in V$

$a_i \in A.$

V $P ($

) $T($).

.

1.3.3. -

-

-

.

BPMN **BPMN** - , -

—

- , -

- , -

.

BPMN

(. . 40).

OMG BPMN. BPMN

- :

() —

. - ,

,

. [15, . 26]

/

.

—

,

-

.

,

.

—

,

.

-

,

—

.

BPMN,

,

,

-

—

.

,

-

:[15, . 30]

1. (flow objects);

2. (Data);

3. (connecting objects);
4. (swimlane);
5. (artifacts).

(,
 .). BPMN , /
 .
 , , .
 -
 .

YAWL *YAWL (Yet Another Workflow Language)* -
 (Aalst) (Hofstede) 2003

[16], ,

YAWL

, ,

[16, c. 3] :

- -
 .
- ,
 ,
 .
- .

YAWL, [16, . 10] -

, .

(1.3.2.14).

1.4.

1.4.1.

WfMC
Workflow), WfMC [17, .9],
,
,
(workflow engine).
,
,

. , -
, -
- ,
- ,
- ,
- ,
[18, .31 -- 35], workflow-

· · · · · :

— , —

·

() —

·

—

· , —

·

Workflow

Workflow, [19, . 127],

· , —

· Workflow —

· ,

·

,

·

Workflow, [19], —

:

— , ,

· , ·

—

· , ·

— , —

· , —

·

—

,

· ·

Workflow-

workflow

-

Cunningham LLP Zagiel S.A., ,

[20], [21]. Canningham LLP

,

,

.

Zagiel S.A.

,

,

.

1.4.2.

-

BPM- [22]

- (), << , -

,

,

. BPMS

- ,

.>>

,

- , <<

>> (Handbook on Business Information

Systems) [23]

,

-

.

-

$$\vdots$$

,

—

•

—

.

,

—

,

•

—

•

,

—

•

—

•

—

•

—

•

—

,

•

2

•

1.4.3.

—

.

•

2

, .
, .

.
,

e

.

-

. -

, [24, . 46]

[12, c. 91 -- 93]), :

- ;
- ;
- ;
- ;
- , ;
- , ;
- ;
- ;

2

•

[25]

,

-

•

,

•

-

•

-

,

-

•

,

•

2.1.

-

•

2.1.1.

([26], [27])

-

•

-

•

•

-

2.1.2.

[30], [31], -

.
 , [30], [31],
 ,
 ,
 ,
 .
 .
 ,
 (pull)
 .
 ,
 .

2.1.3.

(agility)
 , [32], [33],
 ,
 ,
 .
 . ADEPT2, [34], [?],
 .
 .
 ADEPT2
 ,
 .

2.1.4.

, [\[35\]](#) [\[36\]](#), --
 ,
 - .
 [\[37\]](#)
 .
 workflow, -
 . ,
 ,
 .
 [\[38\]](#)
 -
 , .
 c (. [\[39\]](#), [\[40\]](#))
 workflow
 .

2.1.5.

-
 - [\[41\]](#), .95]
 . -
 (.
 . [44](#)),
 :
 — ,
 ; -
 , -
 .

2.1.6.

SCOR [45]

APQC [46].

—eTOM [44]

[42], [43]

2.2.

2.2.1.

,

[47],

:

—

2.2.2.

,

[47],

:

—

2.2.3.

,

[\[47\]](#),

:

—

2.2.4.

,

[\[47\]](#),

:

—

2.3.

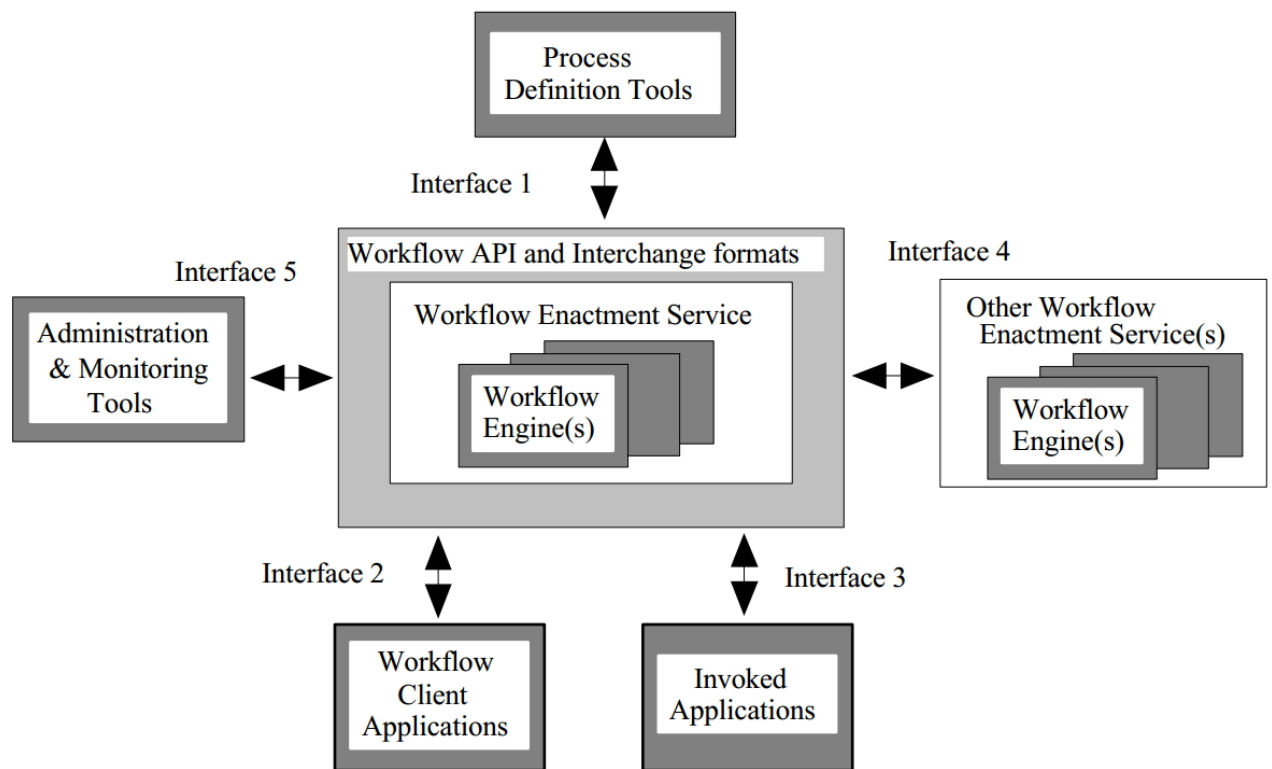
1. : : .
: , 2006. . 528.
2. Davenport T. H. Process Innovation: Reengineering Work through Information Technology. Boston, MA, USA: Harvard Business School Press, 1993.
3. : :
: , 2006. . 287. . . .
4. , , -
- : , 2006. . 240.
5. - -
: : , 1997. . 224. . . .
6. : " 2005. . 608.
7. // —
: . , . , . , 1923.
- .
8. : :
- , 2013. . 118.
9. Wysocki R. K. Effective Project Management. Traditional, Agile, Extreme. 6th edition edition. Indianapolis: John Wiley & Sons, Inc., 2012. P. 710.
10. Institute P. M. A Guide to the Project Management Body of Knowledge (PMBOK Guide) - Third Edition. Project Management Institute, 2004. P. 388.

11. Institute P. M. A Guide to the Project Management Body of Knowledge (PMBOK Guide) - Fifth Edition. Project Management Institute, 2004. P. 388.
12. . . . - :
<< - >>, 2004. . I. . 400.
13. - : , 2006.
. 400.
14. . . . : ,
1984. . 264. . .
15. Group O. M. Business Process Model and Notation (BPMN) Version 2.0. 2011.
. <http://www.elma-bpm.ru>.
16. W. van der Aalst A. t. H. YAWL: Yet Another Workflow Language (Revised Version). Queensland University of Technology, Brisbane, 2003.
17. Coalition W. M. Workflow Management Coalition. Terminology & Glossary. Issue 3.0 edition. Hampshire, United Kingdom: Workflow Management Coalition, 1999. P. 65.
18. Wil van der Aalst K. M. v. H. Workflow Management. Massachusetts, London: The MIT Press Cambridge, 2002. P. 363.
19. ,
: . . : , 2007. . 336.
20. Bragonier D. WORKFLOW IN A NEW AGE // CA Magazine. 2013. Vol. 146, no. 7. P. 30 -- 34.
21. Adams J. A SMOOTHER FLOW OF WORK // Bank Technology News. 2012. Vol. 25, no. 8. P. 22 -- 25.

22. BPM. BPMS (- ,).
URL: <http://abpmp.org.ru/resource/bpm-glossary> (: 29.11.13).
23. M. El-Mekawy N. A., K. Shahzad. Modeling and Managing Business Processes // Handbook on Business Information Systems / Ed. by M. S. A. Gunasekaran. Singapore: World Scientific Publishing Co., 2010. P. 943.
24. Charvat J. Project management methodologies: selecting, implementing, and supporting methodologies and processes for projects. Hoboken, New Jersey: John Wiley & Sons, Inc., 2003. P. 264.
25. H. Smith P. F. Business process management: the third wave. Meghan-Kniffer Press Tampa, 2003.
26. . : , 2001. . 336.
27.
//
. 2003. Vol. 4. P. 89--93.
28. . - : -
, 2009. . 120.
29. D. Duarte N. S. Mastering virtual teams: strategies, tools, and techniques that succeed. New York: Jossey-Bass Inc., 2001. P. 256.
30. . . : . :
- , 2002. . 504.
31. ()
, 2005. . 260.
32. L. Sanchez R. N. A review of agile manufacturing systems // International Journal of Production Research. 2001. Vol. 39, no. 16. P. 3561 -- 3600.

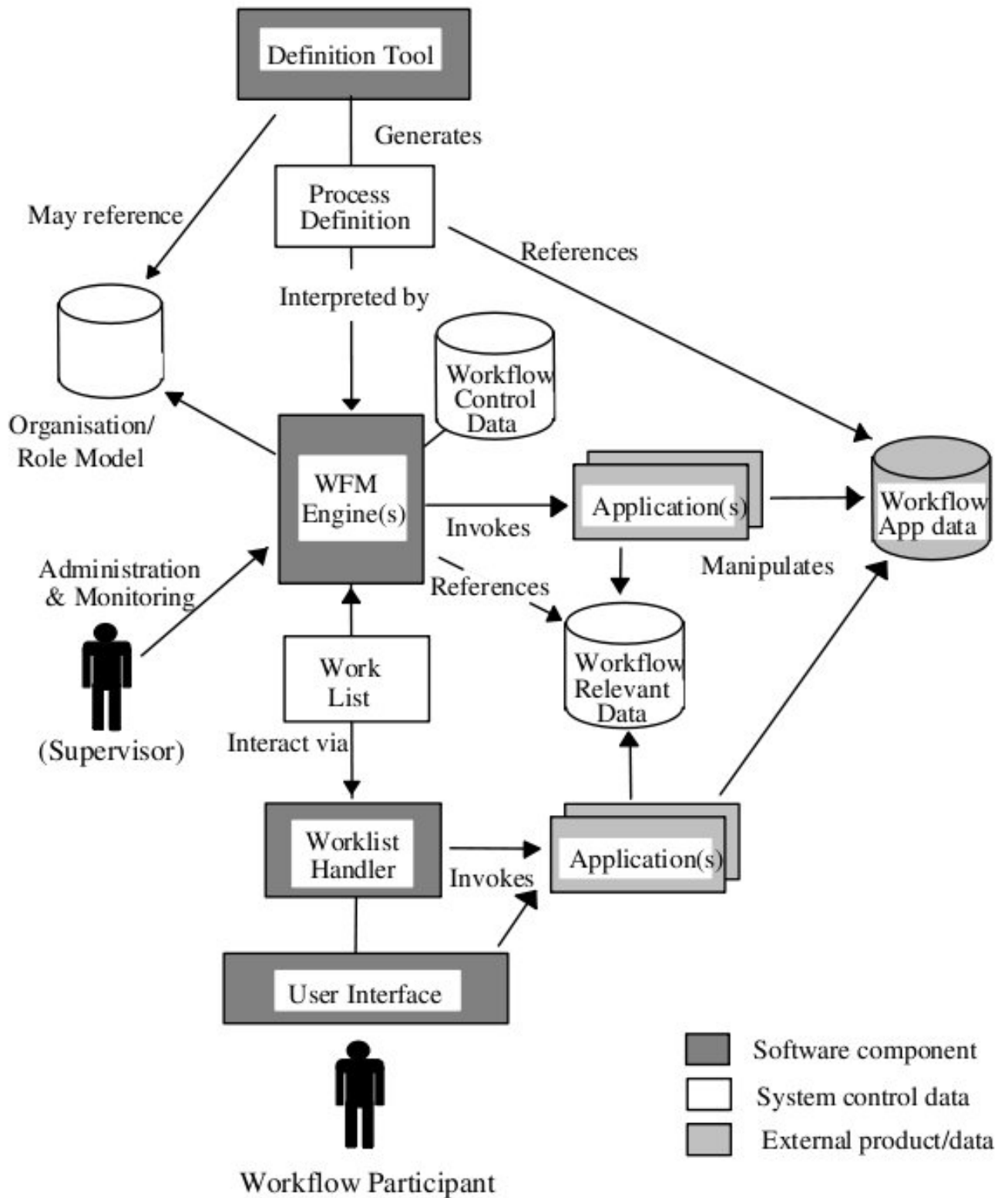
33. Hugos M. Business Agility. Sustainable Prosperity in a Relentlessly Competitive World. John Wiley & Sons, Inc., 2009.
34. J. Cardoso W. v. d. A. Handbook of Research on Business Process Modeling. Information Science Reference, 2009.
35. K. Swenson N. P. Taming the Unpredictable. Future Strategies Inc., 2011. URL: <http://www.masteringtheunpredictable.com>.
36. AIIM. Adaptive Case Management. ISIS Papyrus America, Inc., 2010. URL: <http://www.masteringtheunpredictable.com>.
37. Druker P. Knowledge-Worker Productivity: The Biggest Challenge. The Regents of the University California, 1999.
38. W. Aalst T. B. Adaptive Workflow // Enterprise Information Systems / Ed. by J. Filipe. Springer Netherlands, 2000. P. 63 -- 70.
39. P. Dadam M. R. ADEPT2. Next Generation Process Management Technology. 2007.
40. P. Dadam M. R. From ADEPT to AristaFlow BPM Suite: A Research Vision has become Reality // Business Process Management Workshops. 2010.
41. e . . : , 2007. . 370.
42. O. Barros C. J. Enterprise and process architecture patterns // Business Process Management Journal. 2011. Vol. 17, no. 4. P. 598 -- 618.
43. Barros O. Business process patterns and frameworks: Reusing knowledge in process innovation // Business Process Management Journal. 2007. Vol. 13, no. 1. P. 47 -- 69.
44. URL: <http://www.tmforum.org/businessprocessframework/1647/home.html> (: 14.12.2013).

45. URL: <http://www.supply-chain.org/scor/> (: 14.12.2013).
46. URL: <http://www.apqc.org/process-classification-framework> (: 14.12.2013).
47. The Forrester Wave™: BPM Suites. <http://www.forrester.com/The+Forrester+Wave+BPM+Suites+Q1+2013/fulltext/-/E-RES88581?isTurnHighlighting=false&highlightTerm=BPM%20Suites>.





. .1. "

(Workflow Reference Model) [17, . 23]



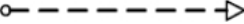
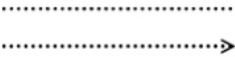


OMG BPMN v. 2.0

.1. OMG BPMN version 2.0 [15]

(Event)	<p>--- , -</p> <p>- -</p> <p>. -</p> <p>() (</p> <p>).</p> <p>,</p> <p>.</p> <p>- ,</p> <p>: (Start),</p> <p>(Intermediate)</p> <p>(End).</p>	
(Activity)	<p>--- , -</p> <p>, -</p> <p>- .</p> <p>,</p> <p>().</p> <p>,</p> <p>:</p> <p>(SubProcess) (Task).</p> <p>,</p> <p>.</p> <p>,</p> <p>,</p> <p>.</p>	




.1 ()

(Gateway)	<p>- , . , , , .</p> <p>-</p>	
(Sequence Flow)	<p>- ,</p> <p>-</p>	
(Message Flow)	<p>- ,</p> <p>BPMN</p> <p>(-</p> <p>-).</p>	
(Association)	<p>(,</p> <p>)</p> <p>,</p> <p>,</p> <p>(,</p> <p>).</p>	

.1 ()

(Pool)	<div> <div>.</div> <div>,</div> <div><<</div> <div>>> (B2B).</div> </div>	<div> <div>Name</div> <div></div> </div>
(Lane)	<div> <div>,</div> <div>(</div> <div>)</div> </div>	<div> <div>Name Name</div> <div>Name Name</div> </div>
(Data object)	<div> <div>,</div> <div>/</div> </div>	

.1 ()

(Message)	<p>business PartnerRole business PartnerEntry).</p>	
(Group)		
(Text Annotation)	BPMN	



. .1. "

[41, . 97]