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	1.3.3.							-																	•		14
1.4.												•		•			•	•							•	•	16
	1.4.1.																								•		16
	1.4.2.									-															•		18
	1.4.3.																								•		20
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	2.1.3.							•	•		•	•	•	•	•												24
2.2.										•	•	•	•	•	•												27
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	2.2.2.																								_		28

	2.2.3.		•	 	 29
	2.2.4.		 	 	 30
2.3.			 	 	 31
3	•			 	 32
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[1, . 30 - 31], [8, . 30] [1, . 31] **«**) **».** [8, . 30], [9, .6]) (PMBOK [10, .8], PMBOK 5 [11],

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[13], [12]. 1.3. [8, .14] 1.3.1. 2006 . [4, . 27]. [8, . 15],), *EPC* (c BPMN (). [8, . 15]

Technique) IDEF (Integration Definition for Functional Modeling).

SADT (Structured Analysis and Design

[8, .17] cUML (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; T; 2. 3. I; 4. O.

13

[14, .18] G = V, A, $a_i \in A$. $v_i \in V$ V*P* () T(). 1.3.3. BPMN. BPMN OMG BPMN. BPMN ([15, .26]

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BPMN, ,

:[15, .30]
1. (flow objects);

2. (data);

3. (connecting objects);

4. (swimlane);

5. (artifacts).

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YAWL YAWL (Yet Another Workflow Language)

(Aalst) (Hofstede) 2003

[16],

YAWL

[16, c. 3] YAWL, [16, . 10], YAWL 1.3.2 13). **1.4.** 1.4.1. WfMC [17, .9] (Workflow) (workflow engine). , ,

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Workflow- . - Workflow, [19,

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(agility) - , [36], [37],

[38] [35], [32] workflow, [39] (. [40], [41]) c workflow

[42, .95] (. .44).

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. [43], [44]

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—eTOM [45] SCOR [46]

. , APQC [47].

2.2. 2.2.1. Gartner Inc. (. [48]) Forrester Research [49]) 2009 - 2013 . [48], [49], The Forrester Wave [50], [51], [52], [53], Gartner Magic Quadrant [54], [55], [56], [57]. : PegaSystems, IBM, Appian, Progress Software, Metastorm

: Fujitsu, EMC, Global 360, Bosh Software Innovations

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; : Tibco Software, Software AG, SAP —

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: Appian BPM Suite[58], OpenText MBPM

Tibco Active Matrix BPM [63]; : jBPM [64], BonitaBPM [65], Taverna Workflow [66], Activiti BPM [67], Pegasus [68], Intalio BPMS [69]. 10-).

[59], Cordys BPMS [60], Pegasystems BPM [61], Fujitsu Interstage BPM [62],

2.2.3.

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, , OpenText (Cordys BPMS, MBPM), Appian.
, OpenText Appian

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(Taverna Workflow, Pegasus),

(jBPM, Activiti)

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Appian OpenText MBPM,

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VERAM [73], GERAM.

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1.						
	:	:	, 2006	528.		
2.	Davenport T. H. Pr	ocess Inno	vation: Reen	gineering Work	through Inf	ormatio
	Technology. Boston	, MA, USA	: Harvard B	usiness School I	Press, 1993.	
3.				:		
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7.	•			//		1000
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0			•			
8.	- , 2013.			:	•	

- 9. Wysocki R. K. Effective Project Management. Traditional, Agile, Extreme. 6th edition edition. Indianapolis: John Wiley & Sons, Inc., 2012. P. 710.
- Institute P. M. A Guide to the Project Management Body of Knowledge (PMBOK Guide) Third Edition. Project Management Institute, 2004. P. 388.

11. I	nstitute P. M. A Guide to the Project Management Body of Knowledge (PMBOK
C	Guide) - Fifth Edition. Project Management Institute, 2004. P. 388.
12.	:
<	< - >>, 2004 I 400.
13.	
14.1	
15. C	Group O. M. Business Process Model and Notation (BPMN) Version 2.0. 2011. . http://www.elma-bpm.ru.
	W. van der Aalst A. t. H. YAWL: Yet Another Workflow Language (Revised Version). Queensland University of Technology, Brisbane, 2003.
Is	Coalition W. M. Workflow Management Coalition. Terminology & Glossary. ssue 3.0 edition. Hampshire, United Kingdom: Workflow Management Coalition, 999. P. 65.
	Wil van der Aalst K. M. v. H. Workflow Management. Massachusetts, London: The MIT Press Cambridge, 2002. P. 363.
19.	· · · · · · · · · · · · · · · · · · ·
	Bragonier D. WORKFLOW IN A NEW AGE // CA Magazine. 2013. Vol. 146, no. 7. P. 30 34.
	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. Gunasekarar 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-Kniffe Press Tampa, 2003.	3 1
26.	. : , 2001 336.	
27.	,	//
	. 2003. Vol. 4. P. 8993.	
28.	: - , 2009 120.	
29.	D. Duarte N. S. Mastering virtual teams: strategies, tools, and techiques the succeed. New York: Jossey-Bass Inc., 2001. P. 256.	aı
30.		
31.		

32. Druker P. Knowledge-Worker Productivity: The Biggest Challenge. The Regents of the University California, 1999.

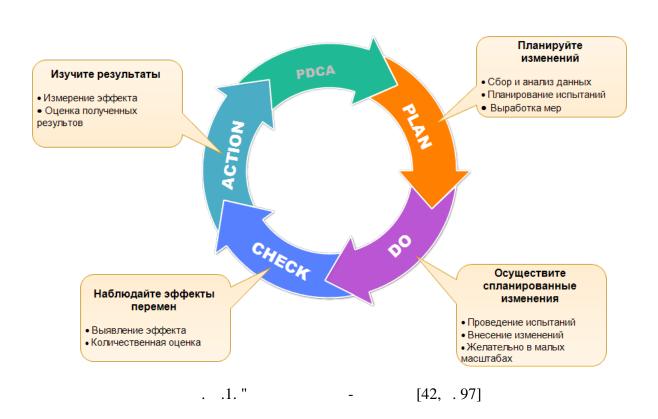
- 33. T. Davenport S. J. Knowledge Work Process // Sloan management review. 1996.
- 34. Davenport T. Process Management for Knowledge Work // Handbook on Business Process Management / Ed. by M. R. J. Brocke. Berlin, Heidelberg: Springer, 2010. No. 1. P. 17 -- 36.
- 35. AIIM. Adaptive Case Management. ISIS Papyrus America, Inc., 2010. URL: http://www.masteringtheunpredictable.com.
- 36. L. Sanchez R. N. A review of agile manufacturing systems // International Journal of Production Research. 2001. Vol. 39, no. 16. P. 3561 -- 3600.
- 37. Hugos M. Business Agility. Sustainable Prosperity in a Relentlessly Competitive World. John Wiley & Sons, Inc., 2009.
- 38. K. Swenson N. P. Taming the Unpredictable. Future Strategies Inc., 2011. URL: http://www.masteringtheunpredictable.com.
- 39. W. Aalst T. B. Adaptive Workflow // Enterprise Information Systems / Ed. by J. Filipe. Springer Netherlands, 2000. P. 63 -- 70.
- 40. P. Dadam M. R. ADEPT2. Next Generation Process Management Technology. 2007.
- 41. P. Dadam M. R. From ADEPT to AristaFlow BPM Suite: A Research Vision has become Reality // Business Process Management Workshops. 2010.
- 43. O. Barros C. J. Enterprise and process architechture patterns // Business Process Management Journal. 2011. Vol. 17, no. 4. P. 598 -- 618.
- 44. Barros O. Business process patterns and frameworks: Reusing knowledge in process innovation // Business Process Management Journal. 2007. Vol. 13, no. 1. P. 47 -- 69.

- 45. URL: http://www.tmforum.org/businessprocessframework/1647/home.html (: 14.12.2013).
- 46. URL: http://www.supply-chain.org/scor/ (: 14.12.2013).
- 47. URL: http://www.apqc.org/process-classification-framework (: 14.12.2013).
- 48. Gartner Inc. URL: http://www.gartner.com/technology/about.
 jsp (: 17.12.2013).
- 49. Forrester Research. URL: http://www.forrester.com/aboutus (: 17.12.2013).
- 50. Vollmer K. The Forrester Wave: Itegration-Centric Bussiness Process Management Suites, Q4 2008: Tech. rep.: Forrester Research, Inc., 2008.
- 51. Richardson C. The Forrester Wave: Bussiness Process Management Suites, Q3 2010: Tech. rep.: Forrester Research, Inc., 2010.
- 52. C. Richardson D. M. The Forrester Wave: BPM Suites, Q1 2013: Tech. rep.: Forrester Research, Inc., 2013.
- 53. C. Clair D. M. The Forrester Wave: Dynamic Case Management, Q1 2011: Tech. rep.: Forrester Research, Inc., 2011.
- 54. J. Hill E. D. M. K., M. Cantara. Magic Quadrant for Business Process Management Suites: Tech. rep.: Gartner, Inc., 2007.
- 55. J. Hill M. D. P., M. Cantara. Magic Quadrant for Business Process Management Suites: Tech. rep.: Gartner, Inc., 2009.
- 56. J. Sinur J. H. Magic Quadrant for Business Process Management Suites: Tech. rep.: Gartner, Inc., 2010.

57. J. Sinur J. H. T. J., W. Schulte. Magic Quadrant for Intelligent Business Process Management Suites: Tech. rep.: Gartner, Inc., 2012. 58. Appian BPM Suite. URL: http://www.appian.com/bpm-software/bpm-suite.jsp : 17.12.2013). (59. OpenText http://www.opentext.com/What-We-Do/ MBPM. URL: Products/Business-Process-Management/Business-Process-Management-BPM/ OpenText-MBPM (: 17.12.2013). **BPM** Suite. URL: 60. Opentext Cordys http://www.cordys.com/ bpms-business-process-management-suite (: 17.12.2013). **URL**: 61. PegaSystems **BPM** Suite. http://www.pega.com/ business-process-management-suite (: 17.12.2013). 62. Fujitsu Interstage BPM Suite. URL: http://www.fujitsu.com/global/services/ software/interstage/solutions/bpmgt/bpm/ (: 17.12.2013). 63. Tibco ActiveMatrix URL: https://docs.tibco.com/products/ BPM Suite. tibco-activematrix-bpm-2-2-0 (: 17.12.2013). 64. JBoss Community jBPM Suite. URL: http://www.jboss.org/jbpm/ (: 17.12.2013). http://www.bonitasoft.com/ (65. Bonitasoft BPM. URL: 17.12.2013). 66. Taverna Workflow Management System. URL: http://www.taverna.org.uk/ (: 17.12.2013). URL: http://www.activiti.org/ (67. Activiti BPM Platform.

17.12.2013).

- 68. Pegasus Workflow Management System. URL: http://pegasus.isi.edu/ (: 17.12.2013).
- 69. Intalio BPM Suite. URL: http://www.intalio.com/products/bpms/overview/ (: 17.12.2013).
- 70. Zachman J. A framework for information systems architecture // IBM Systems Journal. 1987. Vol. 26, no. 3. P. 276 -- 292.
- 71. Group T. O. The Open Group Architecture Framework (TOGAF): Tech. rep.: The Open Group, 2009.
- 72. Force I.-I. T. GERAM: Generalised Enterprise Reference Architecture and Methodology: Tech. rep.: International Federation for Information Processing, 1999.
- 73. A. Zwegers J. V., M. Tolle. VERAM: Virtual Enterprise Reference Architecture and Methodology: Tech. rep.: Technical University of Denmark, 2003.



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Appian BPM Suite	9	8	9	7
OpenText MBPM	8	7	8	10
Cordys BPMS	10	8	6	9
Pegasystems BPM	10	9	10	9
Fujitsu Interstage BPM	7	7	6	5
Tibco Active Matrix BPM	6	10	9	9
jBPM	8	7	8	7
BonitaBPM	8	8	10	7
Taverna Workflow	5	10	6	7
Activiti BPM	7	6	7	5
Pegasus	5	10	8	8
Intalio BPMS	9	6	8	5

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	Des	Org	Ctrl	Res
Appian BPM Suite	8	5	8	6
OpenText MBPM	7	8	6	7
Cordys BPMS	3	10	3	1
Pegasystems BPM	4	10	5	9
Fujitsu Interstage BPM	8	5	8	8
Tibco Active Matrix BPM	0	1	2	0
jBPM	2	6	2	0
BonitaBPM	7	5	3	3
Taverna Workflow	3	2	4	0
Activiti BPM	0	2	0	2
Pegasus	1	0	1	0
Intalio BPMS	1	1	3	1

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