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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
2.2.	29
2.2.1.	29
2.2.2.	30
2.2.3.	32
2.2.4.	33

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3.1.	34
3.1.1.	34
3.1.2.	...	35
3.1.3.	36
3.1.4.	36
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[9, .31], [9, .148],
[9, .076] ,
[9, .041]
[9, .020]

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[11, . 55] « - — ,

». [11, . 55]

1.1.2. -

- (. [9, c. 148],

[7, . 17], [10]) :

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[14, . 110]

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1.2.

1.2.1.

[16],

[17, . 27],

[9, . 30 - 31], [17, . 30]

[9, . 31]

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[17, . 30],

[78, . 6]

PMBOK [45, . 8],

1.2.2.

. 34]

1.3.

[17, . 14]

1.3.1.

2006 .

[7, . 27].

[17, . 15], --
 — *BPMN* (), *EPC*
 (c).

. , [17, .
 15], :,
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. SADT (Structured
 Analysis and Design Technique) IDEF (Integration Definition for Functional
 Modeling).

- . - -
 [17, . 17] c
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- . - -
 UML (Unified Modeling Language).

- . - -
 [17, . 18] -
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BPMN (Business Process Model and Notation),
 ARIS (Architecture of Integrated Information Systems), EPC (
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1.3.2.

. [13]

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, [13, . 15]
 $C = (P, T, I, O)$, 4- :

1. P ;
2. T ;
3. I ;
4. O .

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[13, . 18]
 $G = V, A$,

$v_i \in V$ $a_i \in A$. V
 $P ($)
 $T ($).

1.3.3. -

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BPMN. BPMN - ,

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OMG BPMN.

BPMN

[58, . 26]

: [58, . 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
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[77],
, YAWL
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[77, c. 3] :
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YAWL, [77, . 10], -
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YAWL -
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YAWL (. 1.3.2 . 14).

1.4.

1.4.1.

WfMC [29, . 9]

(Workflow)

(workflow engine).

[19, . 31 -- 35], workflow-

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Workflow- .

Workflow, -

[4, . 127], , ,

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Workflow- .

workflow - , -

Cunningham LLP Zagiel S.A.,

[25], [20]. Cunningham LLP

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1.4.2.

Zagiel S.A.

BPM-

[24]

(, BPMS)

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. BPMS

»[55]

1.4.3.

PMBOK Guide [45, . 33]

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[5, c. 91 - 93]),

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 — [35], -
 [73], [33],
 [51].

2.1.3.

(agility) - .

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 [35] .
 workflow, .
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 [76]
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 c (. [60], [61])
 workflow -
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 , [6, . 95] -
 (. . 54).

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 [57],
 [22] —
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 eTOM [74] — SCOR [54]
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 , APQC [21].

2.2.

2.2.1.

Gartner Inc. ([31]) Forrester Research [66]) 2009 – 2013

[31], [66],

The Forrester Wave [75], [67], [27], [26],

Gartner Magic Quadrant [46], [47], [48], [49].

: PegaSystems, IBM, Appian, Progress Software,

Metastorm —

: Fujitsu, EMC, Global360, Bosh Software Innovations

2.2.2.

:

: Appian BPM Suite[30], OpenText MBPM [71], Cordys BPMS [70], Pegasystems BPM [62], Fujitsu Interstage BPM [39], Tibco Active Matrix BPM [72];

: jBPM [50], BonitaBPM [23], Taverna Workflow [56], Activiti BPM [68], Pegasus [64], Intalio BPMS [69].

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2.2.3.

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

2.2.4.

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jBPM	Activiti		,	-
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TOGAF. TOGAF 9

[40]

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GERAM [36].		GERAM	
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Appian	OpenText MBPM,		
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3.1.3.

VERAM [18],

GERAM.

VERAM

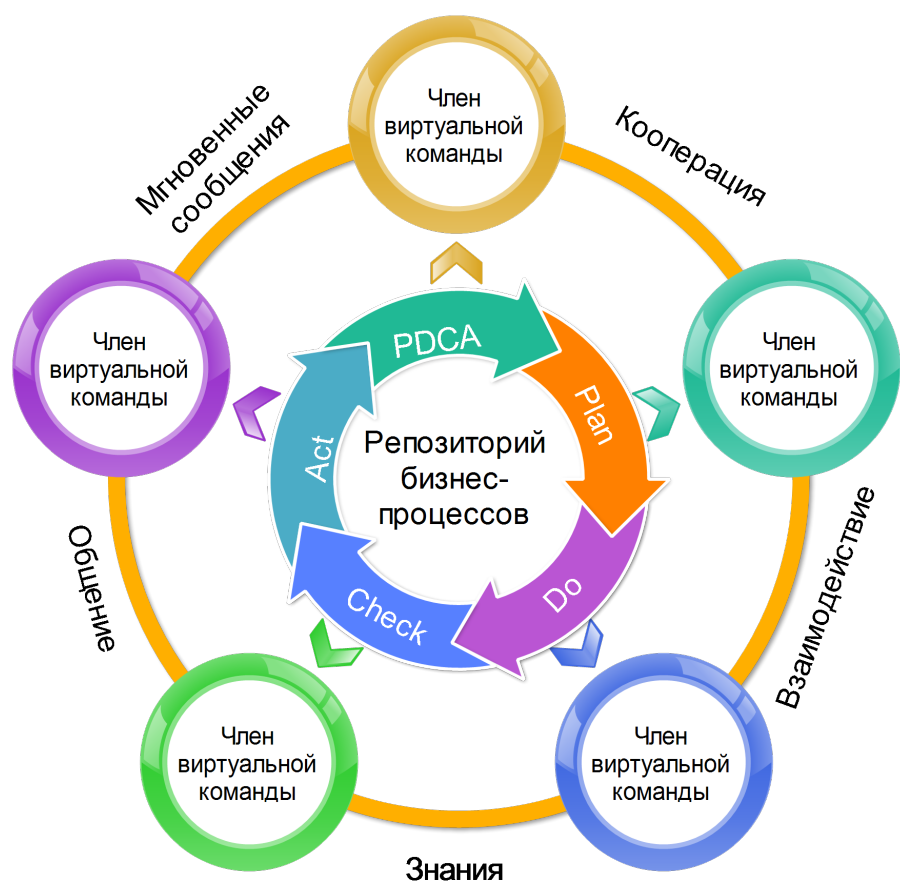
VERAM

3.1.4.

TOGAF.

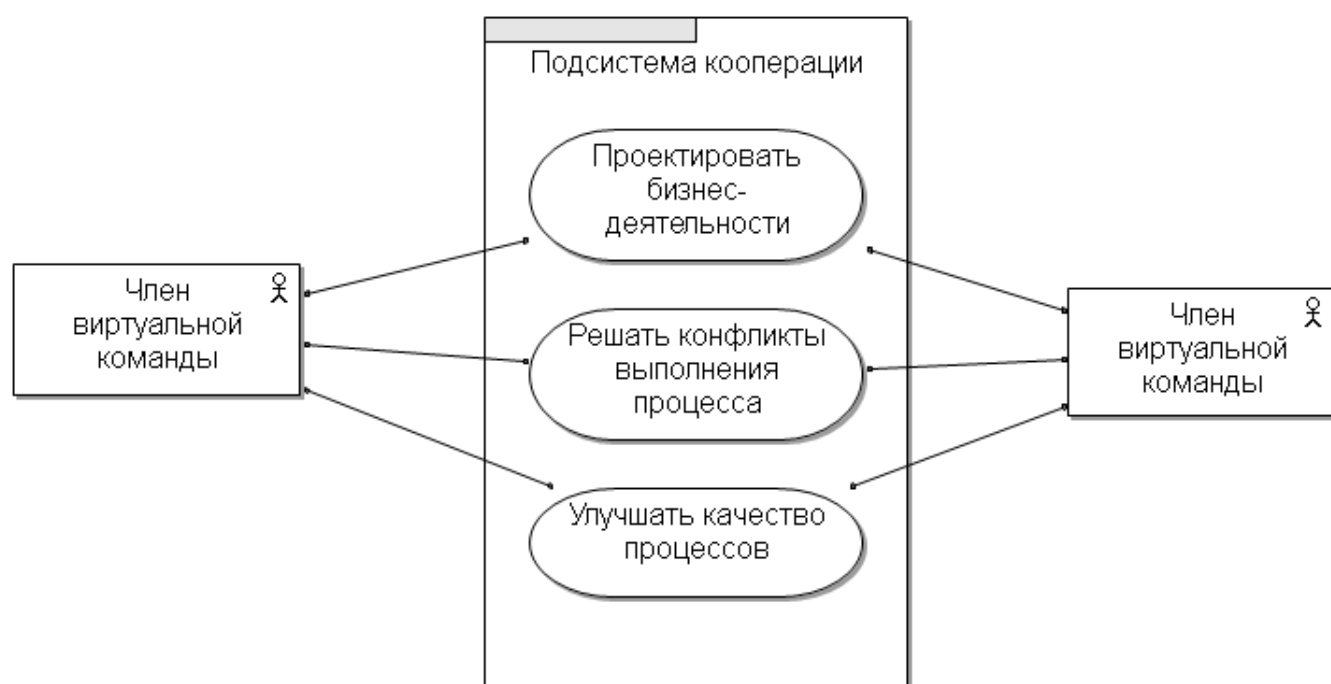
3.2.

3.2.1.



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3.2.2.

jBPM Activiti.

(. 2.2.2 . 30)

jBPM Activiti.

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Activiti.

Activiti

(BPMN 2.0 XML),

jBPM

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jBoss Drools,

XML

jPDL.

Activiti,

[68],

Alfresco [43],

Activiti

Apache,

[37],

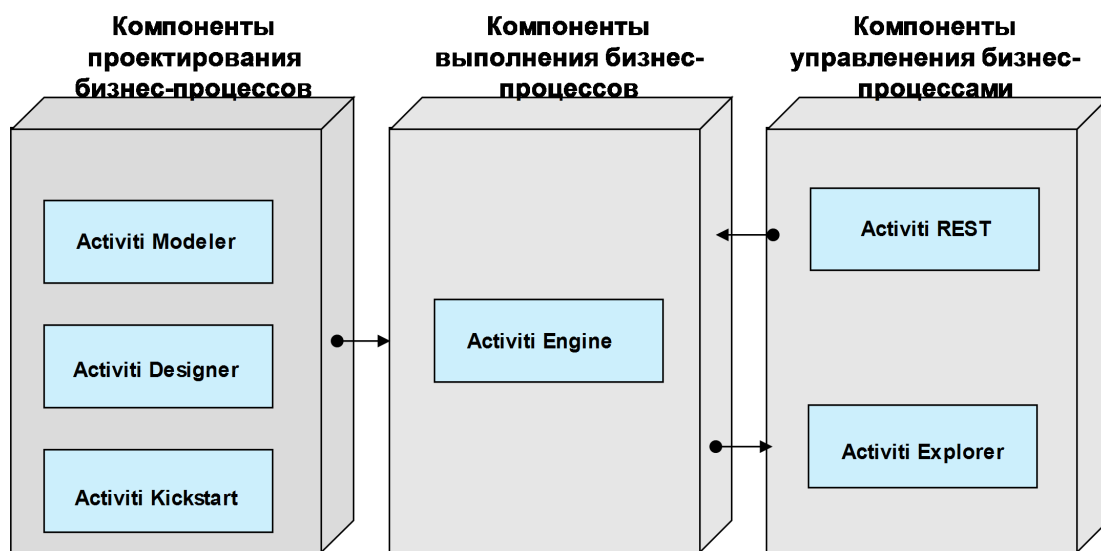
Activiti.

Activiti

(Activiti Modeler, Activiti Designer)

(Activiti Engine). 3.3

Activiti.



3.3. "

Activiti [68]

Eclipse IDE.

BPMN 2.0 XML.

BPMN XML,

git.

git,

[59], [63],

git

XML

git

XMPP.

XMPP

.	Openfire.	XMPP	-
			.
			[38],
			OpenFire [65].
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LDAP,			
	. Openfire		Open Source Apache,
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BPM. BPMS (- ,) // [-
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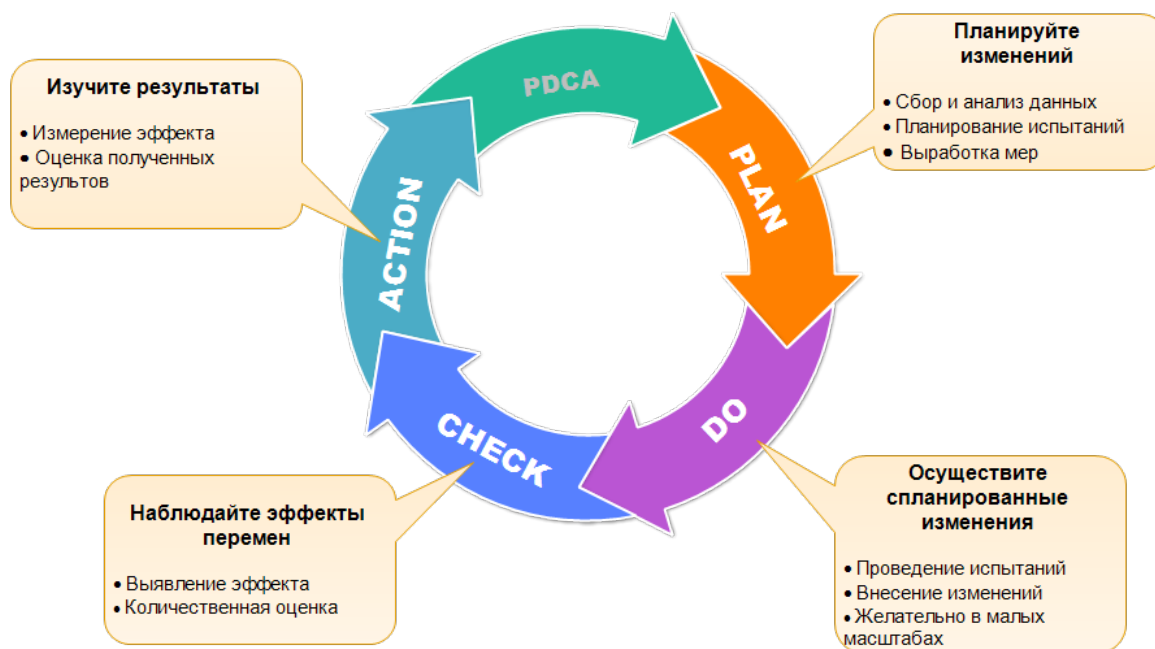
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[6, .97]

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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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