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### 1.1. -

### 1.1.1.

31], [1, .148],

[2]

[3, .55] «

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### 1.1.2.

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( [1, с. 148], [4,

. 17], [5])

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[6, . 110]

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## 1.2.

### 1.2.1.

[8, 27],

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

• [9, . 6],  
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, PMBOK [10, . 8], -  
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 , PMBOK 5 [11], -  
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## 1.2.2.

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 [12, . 34]  
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 [13], [12].

**1.3.** -  
 [8, .14] , --  
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**1.3.1.**  
 2006 . - -  
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 , [4, . 27].  
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 [8, . 15], -  
*BPMN* ( ), *EPC* (с  
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• , [8, . 15],  
 ∴,  
 , , .  
 . SADT (Structured Analysis and Design Technique) IDEF (Integration Definition for Functional Modeling).  
 - • -  
 [8, . 17] c -  
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 UML (Unified Modeling Language).  
 - • -  
 [8, . 18]  
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 BPMN (Business Process Model and Notation), ARIS (Architecture of Integrated Information Systems), EPC ( ).

### 1.3.2.

• [14] -  
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 • , ,  
 , [14, . 15]  $C = (P, T, I, O)$ ,  
 4- :  
 1.  $P$ ;  
 2.  $T$ ;

- 3.  $I;$
- 4.  $O.$

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 [14, . 18]
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$$G = V,A,$$

$$v_i \in V \qquad a_i \in A. \qquad V$$

$$P ( \qquad ) \quad T$$

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**1.3.3.**
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**BPMN.**
 BPMN
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**BPMN.**
 BPMN

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[15, . 26]

: [15, . 30]

1. (flow objects);
2. (data);
3. (connecting objects);
4. (swimlane);
5. (artifacts).

...). BPMN, ( /

## YAWL

*YAWL (Yet Another Workflow Language)*

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(Aalst)

(Hofstede) 2003

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[16],

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YAWL

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[16, c. 3]

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YAWL,

[16, . 10],

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( . 1.3.2 . 13).

## 1.4.

### 1.4.1.

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WfMC [17, . 9]

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(Workflow)

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(workflow engine).

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Workflow, [19], -

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**Workflow-** .

workflow - ,

Cunningham LLP Zagiel S.A., [20],

[21]. Cunningham LLP

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Zagiel S.A.

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#### 1.4.2.

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. BPM- [22] -

- ( , BPMS) « ,

. BPMS

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»[23]

### 1.4.3.

PMBOK Guide [10, . 33]

[24, . 46]

[12, c. 91 - 93]),

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## 2.1.

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### 2.1.1.

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[28],

[29],

[29]

### 2.1.2.

( [30], [31])





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[32] . -

workflow, .

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c ( . [40], [41])

workflow -

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[42, . 95]

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 [43], [44]  
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 eTOM [45] — SCOR [46] —  
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 APQC [47].

## 2.2.

### 2.2.1.

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Gartner Inc. ([48]) Forrester Research [49]) 2009 – 2013 .

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[48], [49],

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The Forrester Wave [50], [51], [52], [53],

Gartner Magic Quadrant [54], [55], [56], [57].

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: PegaSystems, IBM, Appian, Progress Software, Metastorm

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: Fujitsu, EMC, Global360, Bosh Software Innovations

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: Appian BPM Suite[58], OpenText MBPM

[59], Cordys BPMS [60], Pegasystems BPM [61], Fujitsu Interstage BPM [62], Tibco Active Matrix BPM [63];

: jBPM [64], BonitaBPM [65], Taverna Workflow [66], Activiti BPM [67], Pegasus [68], Intalio BPMS [69].

### 2.2.3.

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 , OpenText (Cordys BPMS, MBPM),  
 Appian. , OpenText Appian  
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 (Taverna Workflow, Pegasus),  
 .  
 (jBPM, Activiti)

#### 2.2.4.

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 . jBPM Activiti  
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### 3.1.

#### 3.1.1.

TOGAF

TOGAF.

TOGAF 9 [71]



GERAM [72].

GERAM

GERAM

3.1.2.

Appian    OpenText MBPM,

### 3.1.3.

VERAM [73],

GERAM.

VERAM

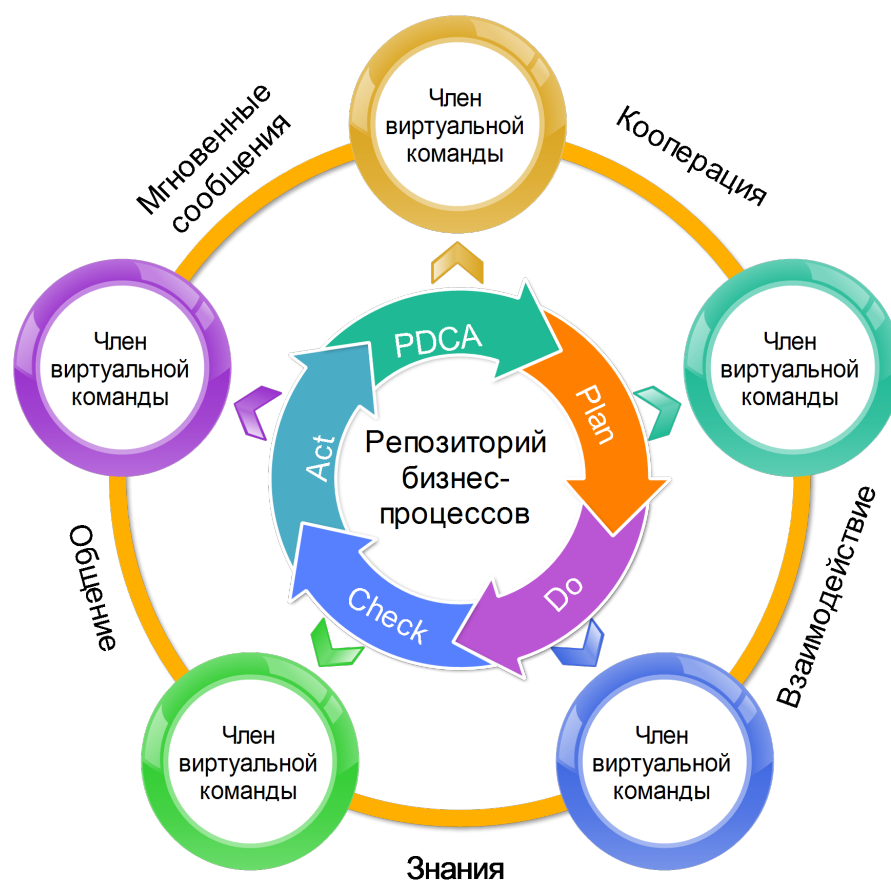
VERAM

3.1.4.

TOGAF.

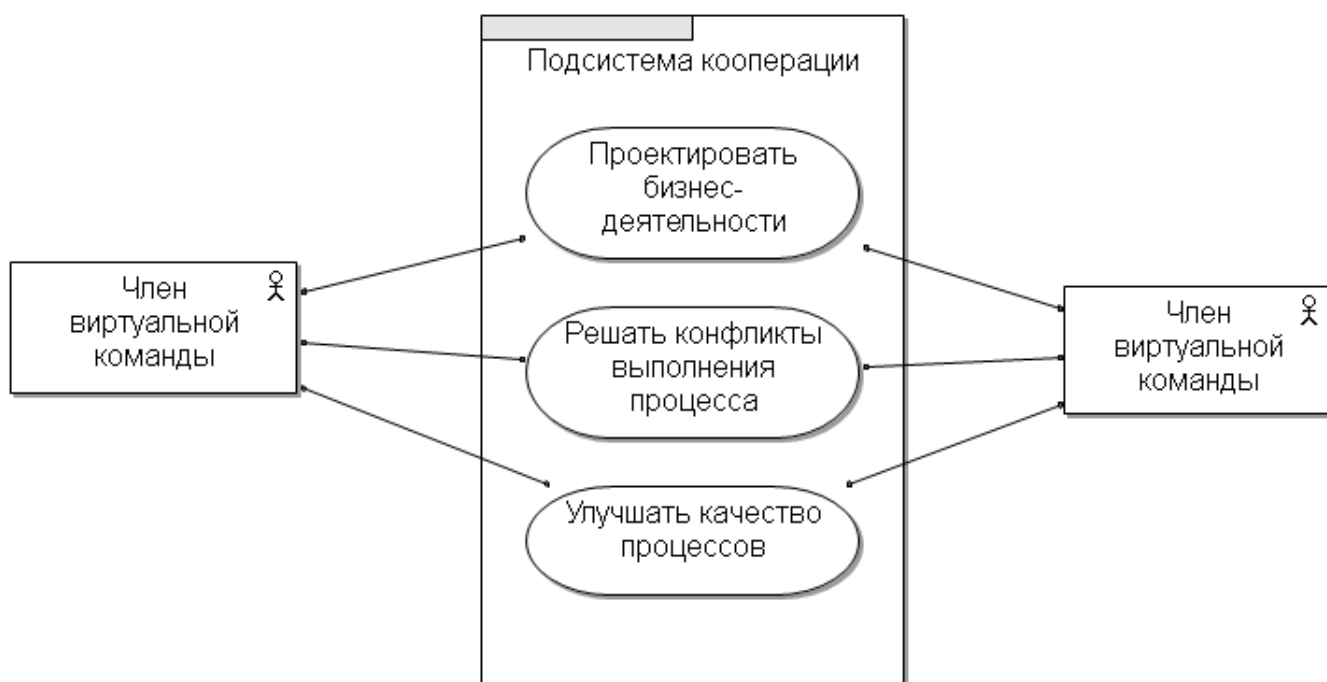
3.2.

3.2.1.



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3.1



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### 3.2.2.

#### **jBPM Activiti.**

( . 2.2.2 . 28)

#### jBPM Activiti.

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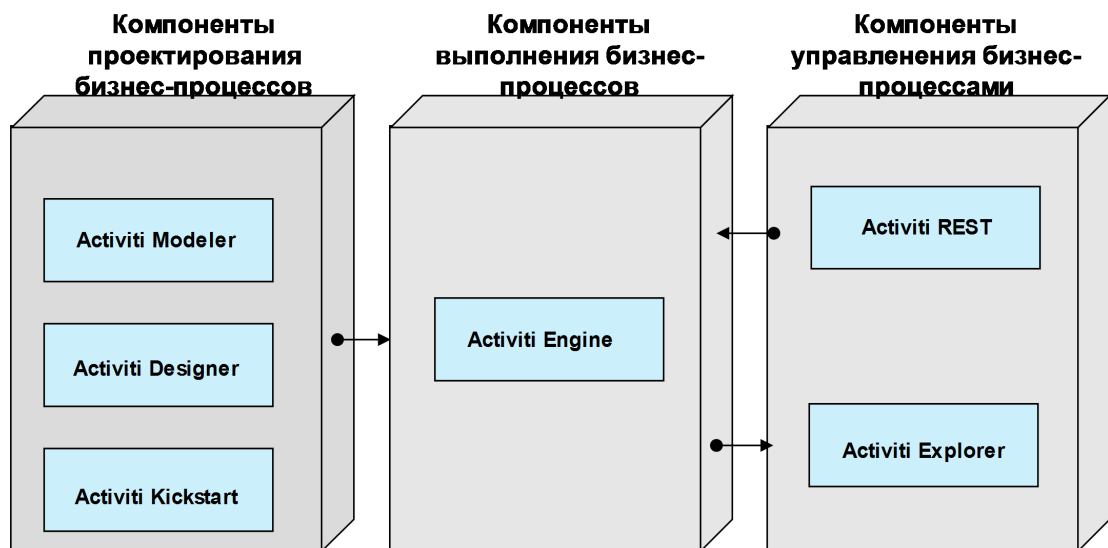
Activiti.

Activiti

(BPMN 2.0 XML),

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jBPM  
 -, jBoss  
 Drools, XML jPDL. Activiti, -  
 [67],  
 Alfresco [74],  
 -, .  
 Activiti Apache, -  
 , [75],  
 , .  
**Activiti.** Activiti -  
 - (Activiti  
 Modeler, Activiti Designer) - -  
 (Activiti Engine). . 3.3  
 Activiti.



. 3.3. "

Activiti [67]

Eclipse IDE.

BPMN 2.0 XML.

BPMN XML,

git.

git,

[76], [77],

git

XML

git

XMPP.



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XMPP

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**Openfire.**

XMPP

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[78],

OpenFire [79].

OpenFire

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Openfire

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LDAP,

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Openfire

Open Source Apache,

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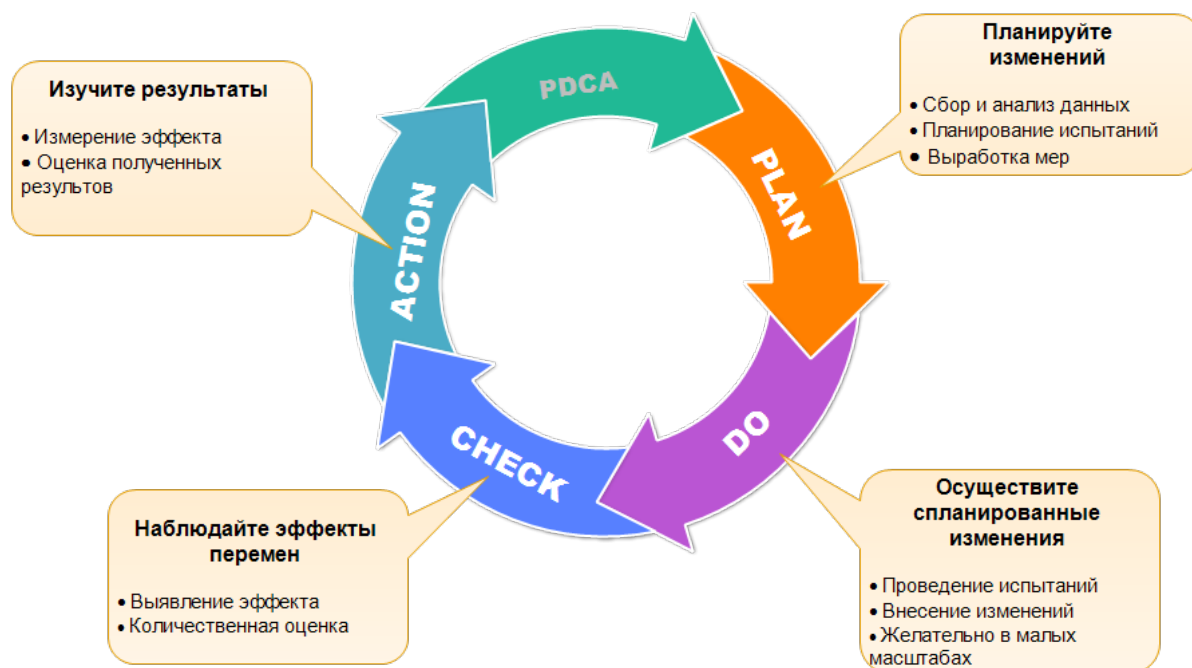
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Appian BPM Suite	9	8	9	7
OpenText MBPM	8	7	8	10
Cordys BPMS	10	8	6	9
Pegasystems BPM	10	9	10	9
Fujitsu Interstage BPM	7	7	6	5
Tibco Active Matrix BPM	6	10	9	9
jBPM	8	7	8	7
BonitaBPM	8	8	10	7
Taverna Workflow	5	10	6	7
Activiti BPM	7	6	7	5
Pegasus	5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

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	<b>Des</b>	<b>Org</b>	<b>Ctrl</b>	<b>Res</b>
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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