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1.2.1.	-	5
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1.2.3.		-	10
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1.3.1.		14
1.3.2.		-	15
1.3.3.			18
1.3.4.		-	
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1.3.5.		20
1.3.6.		23
1.4.		
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1.4.1.		25
1.4.2.		
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1.4.3.		31
1.4.4.		35
1.4.5.		40

1.5.	42
2.	-	43
2.1.	43
2.2. Workflow.	43
2.2.1.	. -	
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2.2.2.	. -	
	48
2.2.3.	workflow. -	
	51
2.2.4.	Workflow . -	
	53
2.3.	-	54
2.3.1.	- .	
	55
2.3.2.	- -	
	58
2.4.	60
2.5.	60
3.	61
3.1.	61
3.2.	61
3.2.1.	61
3.2.2.	-	
	62
3.2.3.	63
3.3.	64

3.4.	64
3.5.	64
	65
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 ITIL [2, . 5], ,
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 - [4, . 17 -- 18], [5]
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[6, c. 148],

[6, c. 148].

[7, . 110]

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[6, . 148]

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Process Classification Framework ---

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International Benchmarking Clearinghouse ---

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eTOM --- (Enhances Telecom Operational Map),

TMForum.

BEM ---

1.2.2.

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2006 . -

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, [4, . 27].

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[8, . 15], -

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, [8, . 15] -

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SADT (Structured Analysis and Design Technique)

IDEF(Integration Definition for Functional Modeling.)

- [8, . 17]

c ,

- - .

- UML (Unified Modeling Language).

- [8, . 18]

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ARIS(Architecture of Integrated Information Systems).

[8, .14]

1.2.3.

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[4, .27],

2006 .):

DFD (Data Flow Diagram) ---

SADT (Structured Analysis and Design Technique) ---

ERD (Entity-Relationship Diagram) ---

STD (State Transition Diagram) ---

- UML (Unified Modelind Language), . , . . .

UML , : [4, . 60]

(use case diagrams) --- -

;

(class diagrams) --- -

;

(statechart diagrams) ---

;

(activity diagrams) ---

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(interaction diagrams) --- -

(sequence diagrams) -

;

(collaboration diagrams) -

;

(component diagrams) --- -

;

(deployment diagrams) --- -

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UML , -

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2004 . BPMN, BPMN 2.0 Object Management Group (OMG) . [9] 2.0 <<Business Process Model and Notation>> [10] 2011 ., . , , [8, . 71 -- 81] *EPC* (c) *BPMN* (-).

BPMN **BPMN** - - , --- - , - , - . **BPMN** (. . 70). **OMG BPMN.** **BPMN** - : () --- -- . - , , [10, . 26] -

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BPMN,

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:[10, . 30]

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

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BPMN

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 30 -- 31],
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 [8, . 27],
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 [8, . 30],
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9001 [12]), ---

9004 [13], .

[11], [12], -

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[12, . 7] ,

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[8, . 63 -- 70]

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 $(\quad, \text{RBP}),$

[3],

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(Kaizen), [14].

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(. 1.3.4 . 18; 1.3.5
. 20).

1.3.3.

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- (. 74)

1.3.4.

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" "(as is)
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[3, . 52]
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>>.[3, . 52]
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: [3, .181]

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1.3.5.

Kaizen. (continuous improvement). [15, . 48 -- 49] (Continuous Process Improvement)

ITIL [2, . 39] (Kaizen).

(Toyota) [16], Nippon Steel Corp., Honda Motor Corp., Suzuki Motor Corp., Takagi Seiko [17].

[14],

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TQC () ---

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TPM () --- -
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 , (just in time);
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. [14]

.75).

1.3.6.

[8, . 93 -- 98].

: [18, . 13]

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DocFlow Workflow ---

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1.4.1.

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[19, . 6]

PMBOK Guide [20, . 3],

[21, . 41],

[22, . 8],

[21, . 45],

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, PMBOK 5 [20],

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[6, . 181]

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1.4.2.

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, PMBOK 5 [20, . 309],

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[23, c. 91 -- 93]:

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PMBOK [20]

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[24, . 46]

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[23, . 34]

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[25, . 21 -- 23]

[23, . 102].

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[23]

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(equirisk contour method) ---

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(probablistic event analysis, PEA) ---

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ABC

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>> [23, . 340].

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[23, .

342 -- 355]

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(critical path method),

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PERT.

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[23,

. 355 -- 357],

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[23, . 330 -- 336])

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[23, . 357 -- 370]

(milestone plan).

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1.4.4.

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Agile

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Agile.

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/ 12207-99 [28]

(life cycle model) << ,

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(. 19.102-77 [29])

(34.601-90 [30]).

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Agile

Agile ([31])

Agile

2001 17 Agile

(K. Beck) (A. Cockburn). [32]

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- 3.
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Agile

: [32]

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2. , Agile, -
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, [33, . 3],

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(Scrum) ---

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[34], -

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(Extreme Programming, XP) --- -

[35], XP

[24, . 110],

agile

Extreme Programming (XP) ---

Scrum ---

30-

Crystal methodology ---

Dynamic System Development Methodology (DSDM) ---

Rapid Application Development (RAD) ---

Adaptive Software Development ---

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Lean Development ---

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Feature-driven development ---

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1.4.5.

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PMBOK Guide [22, . 33]

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[36, .57 -- 58]

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— (Work Breakdown

Structure);

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— (executive

dashboard).

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• , (e-mail, . .)

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[36, . 57 -- 58]).

1.5.

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2.1.

3.

2.2. Workflow.

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(Smith, Fingar "Business process management the third wave").

2.2.1.

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. *WfMC*. -

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, ITIL [2, . 84], -

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[37].

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WfMC

(workflow management system)

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(workflow engine).

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[38, . 9].

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ITIL [2, . 65]

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WfMC

e WfMC Reference Model [38].

(workflow)

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.[38, . 8].

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(Process Definition),

, WfMC - ---
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 , -
 [38, . 10]. [39, . 126] workflow
 () , ,
 - . Workflow -
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[37, . 31 -- 35].

1. workflow- -
 --- (*cases*) ,
 . :

 .
 () --- -
 --- .

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 .

2. (*task*) , -
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 - ().
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, () .

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(work item) (

) ,

(activity)

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3. (*process*) , -

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workflow,

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4. (*routing*) -

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Workflow-

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Workflow, [39,

. 127], , ,

Workflow

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Workflow,

[39],

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Workflow

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[39, . 131 -- 133]

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(build time),

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(run time),

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2.2.2.

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workflow.

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YAWL,

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workflow [40]

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[40, . 10 -- 39]

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(Sequence) ---

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(Parallel split) ---

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(Synchronization) ---

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(Exclusive choice) ---

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(Simple merge) ---

.

(Multi-choice) ---

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(Synchronizing merge) ---

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(Multi-merge) ---

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(Disctiminator) ---

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(Arbitrary cycles) ---

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(Implicit termination) ---

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(Multiple instances without synchronization) ---	(Multiple instances without synchronization) ---	-
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instances with a priori design time knowledge) ---	(Multiple instances with a priori design time knowledge) ---	-
.	.	-
with a priori runtime knowledge) ---	(Multiple instances with a priori runtime knowledge) ---	-
.	.	,
a priori runtime knowledge) ---	(Multiple instances without a priori runtime knowledge) ---	-
.	.	,
(Deferred choice) ---	.	-
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.	(Interleaved parallel routing) ---	-
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(Milestone) ---	(Milestone) ---	-

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(Cancel activity) ---

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(Cancel case) ---

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2.2.3.**workflow.****BPMN**

(workflow)

Workflow Management Coalition (WFM

Coalition).

WfMc

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workflow.

YAWL*YAWL (Yet Another Workflow Language)*

(Aalst)

(Hofstede) 2003

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[\[40\]](#),

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YAWL

[40, c. 3]

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>> (. 2.2.3 . 53).

YAWL

(workflow patterns).

(. ?? . ??).

WSPD

OMG JoinFlow

EFC

WF-XML

SWAP

BPEL

XPDL

() . -
- . -

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[37]

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2.2.4. Workflow

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workflow --

Cunningham LLP,

Toronto,

CA Magazine [41].

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[42], Cunnigham LLP

(B2B)

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workflow,

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"Bank Technology

News" [43], workflow-

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Zagiel S.A.,

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Infonomics [44]. -

495

AIIM

, 2008 -- 2009 . ,

26%

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BPM.

64%

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(26 %).

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(36 %)

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workflow

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2.3.

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WORKFLOW. WORKFLOW

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WORKFLOW.

(Smith, Fingar "Business process management the

third wave").

2.3.1.

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BPM CBOK <<

- >> [45], ABPMP (Association of Business Management Professionals).

ABPMP [45, . 24]

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- , ABPMP

CBOK [45, . 28],

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 289 -
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 c- [46], 20 -
 - :
 (design model, DesM) ---
 ;
 (discover model from event
 data, DiscM) --- ;
 (select model for collection, SelM) --- -
 ;
 (merge models, MerM) ---
 ;
 (compose models, CompM) --- -
 ;
 (design configurable model, DesCM) --- -
 , ;
 (merge models into configurable model, MerCM)
 --- -
 ;

(configure configurable model, ConCM) ---	-
	;
(refine model, RefM) ---	-
	;
(enact model, EnM) ---	
	;
(log event data, LogED) ---	
-	;
(monitor, Mon) ---	-
	.
(adapt while running, AdaWR) ---	
,	;
(analyze performance based on model,	
PerfM) ---	-
	.
(verify model, VerM) ---	-
	;
(check conformance using event data, ConfED)	

	;
(analyze performance using event data, PerfED)	
(repair model, RepM) ---	-
	;

(extend model, ExtM) ---

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(improve model, ImpM) ---

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2.3.2.

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IT

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Gartner[47], *c*

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(. Business Process

Management Suite),

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BPM-

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. BPMS

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.>>[48]

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(Handbook on Business Information Systems) [49]

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: [49, . 100 -- 101]

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2.4.

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 WORKFLOW.
 (Smith, Fingar "Business process management the third wave").
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3.1.

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3.2.

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3.2.1.

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[50, . 44]

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3.2.2.

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 [50, . 51 -- 53],
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 (. 1.4.2 . 27), (.
 Workflow- 2.2.1 . 46)
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 2.3.1 . 56),

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2.2.2 . 48) .

3.2.3.

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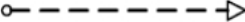
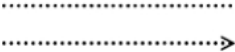
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OMG BPMN v. 2.0

.1. OMG BPMN version 2.0 [10]

(Event)	<p>---</p> <p>,</p> <p>-</p> <p>.</p> <p>-</p> <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>,</p> <p>:</p> <p>(SubProcess) (Task).</p> <p>,</p> <p>.</p> <p>,</p> <p>,</p> <p>.</p>	




.1 ()

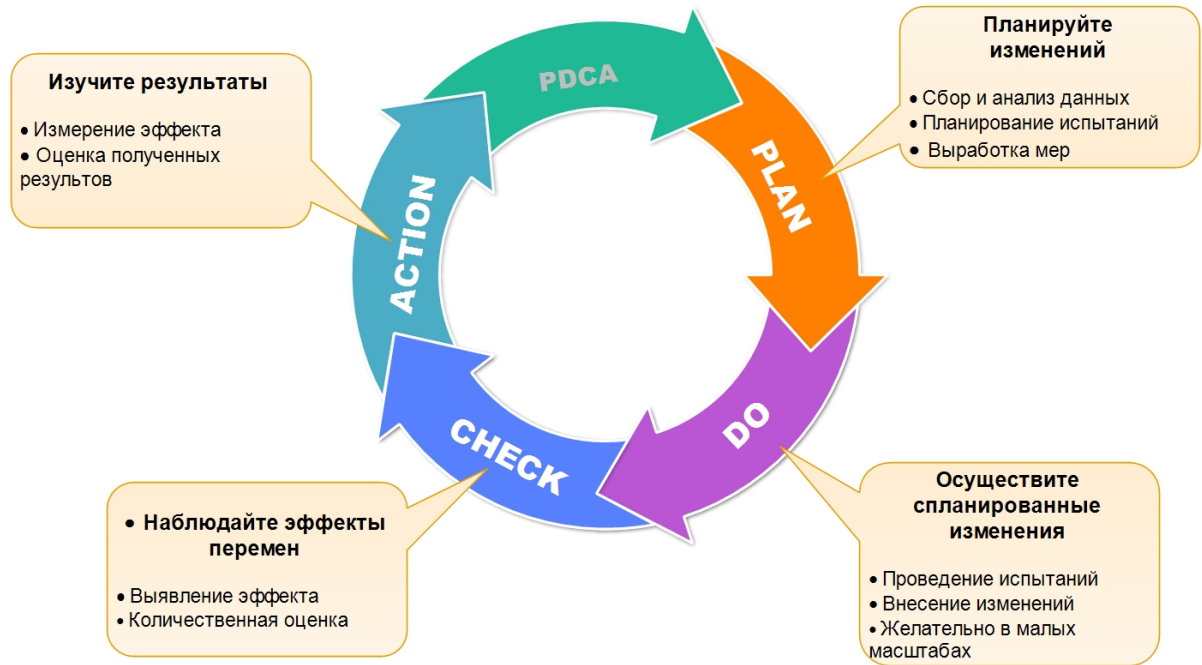
(Gateway)	<p>- , . , - .</p>	
(Sequence Flow)	<p>- , - .</p>	
(Message Flow)	<p>- , BPMN (-).</p>	
(Association)	<p>(,) , (,).</p>	

.1 ()

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

.1 ()

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

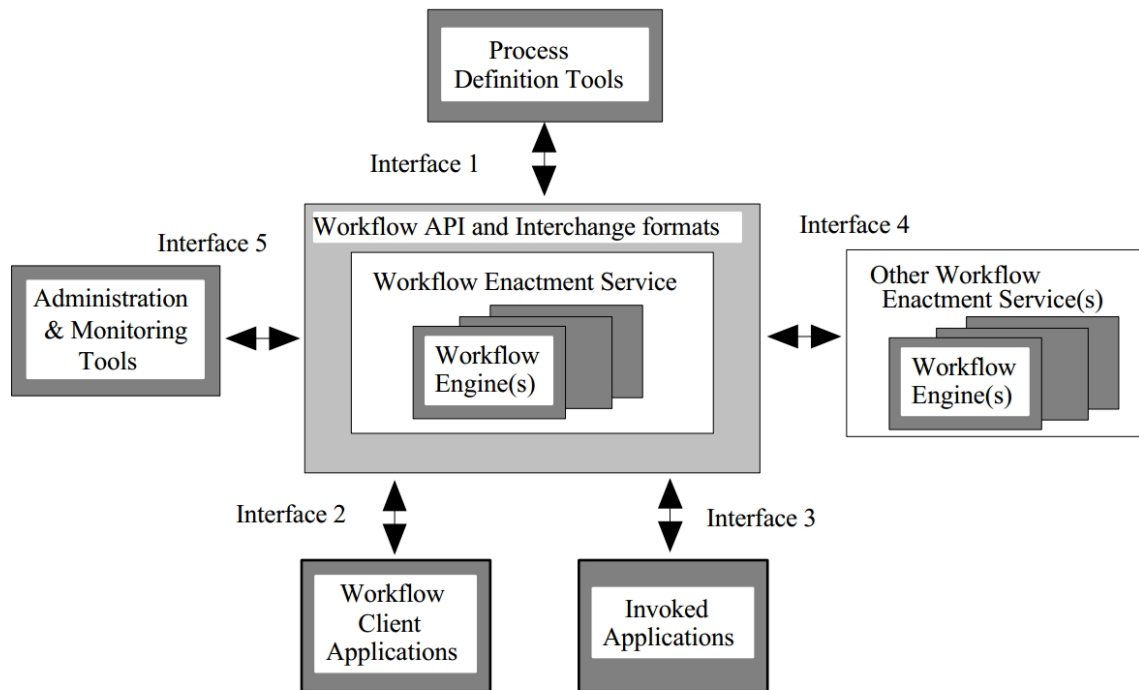


. .1. "

[53, . 97]

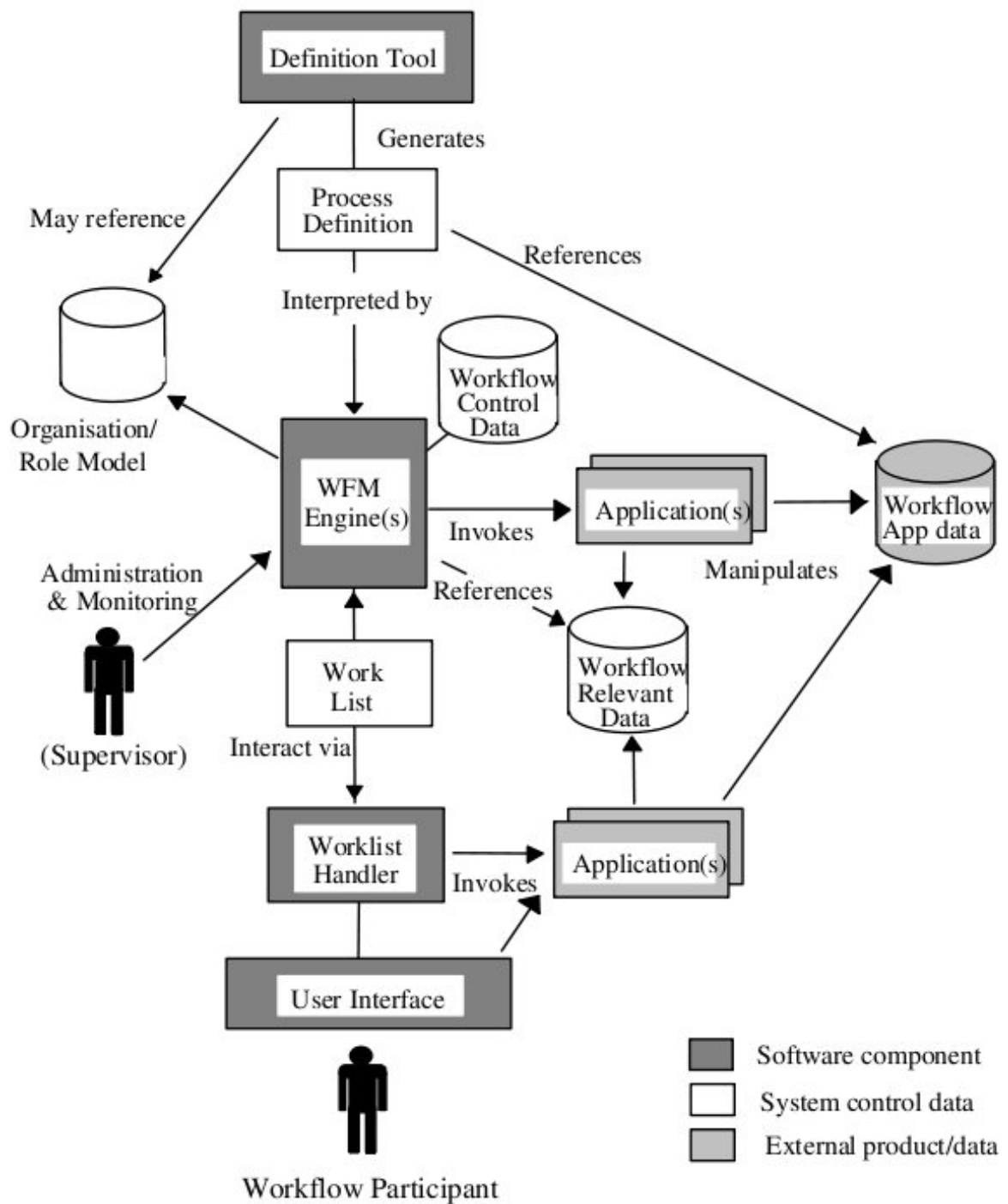
.1. - -
[15, . 228]

-	-
- (). , . .	- - . . . (). - . .
: .	: .



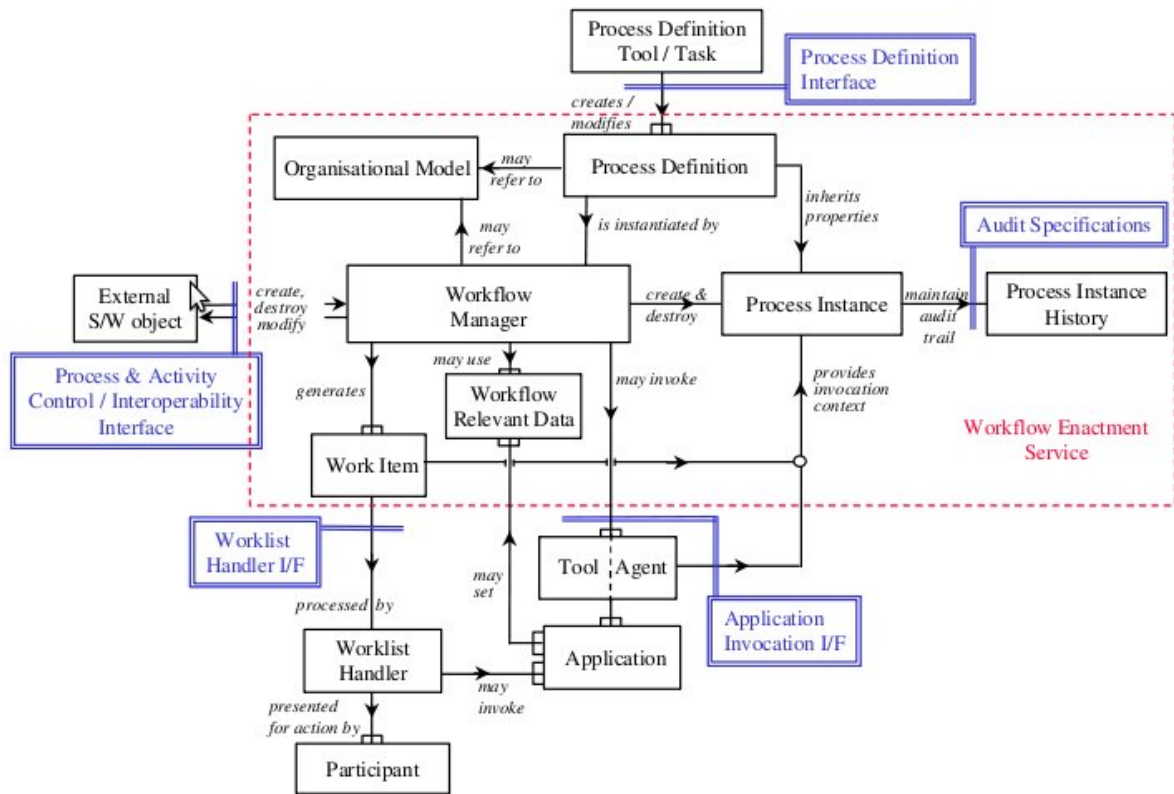
. .1. "

(Workflow Reference Model) [38, . 23]



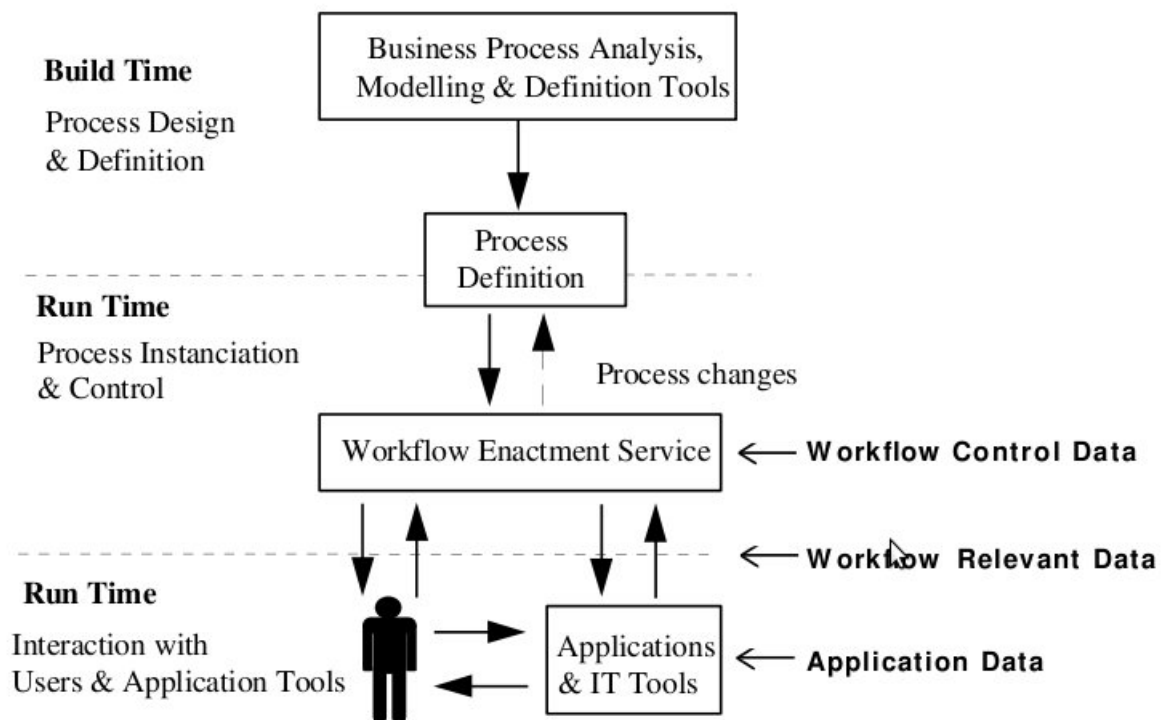
. .2.

(Generic Workflow Product Structure) [38, . 39]



3. Workflow

(WFMS Components & Interfaces) [38, . 40]



4.

(Types of Data in Workflow Management Systems) [38, . 44]