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# Agile

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<<\_>> \_\_\_\_\_ 2013 .

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1.1.		.....	4
1.1.1.		..	4
1.1.2.	-	.....	6
1.2.		.....	9
1.2.1.		.....	9
1.2.2.		. ....	11
1.2.3.		. ....	15
1.2.4.		.....	22
1.3.	-	.....	25
1.3.1.		.....	25
1.3.2.		.....	27
1.3.3.	-	. ....	32
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3.		65
3.1.		65
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3.1.2.	-	66
3.1.3.		66
3.2.		67
3.3.		67
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	-	73
		74
		75
	<b>OMG BPMN v. 2.0</b>	78

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**1.1.**

**1.1.1.**

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 [1, . 31], [1, . 148],  
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### 1.1.2. -

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[3] - , << -

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[4, . 55]

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>>.[4, .

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ITIL [5, . 5],

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ITIL [5, . 20]

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[6, . 17 -- 18], [7]

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 [1, с. 148]. ,  
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 [8, . 110]  
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[1, . 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.

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### 1.2.1.

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[9, .6] ,

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PMBOK Guide [10, .3], -

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[11, .41],

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PMBOK [12, .8], -

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[11, .45],

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PMBOK 5 [10],

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[1, . 181]

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1.2.2.

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PMBOK [10]

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, [13, .46]

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[14, c. 91 -- 93]:

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[14, . 330 -- 336])

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[14, . 357 -- 370]

(milestone plan).

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**1.2.3.**

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*Agile*

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*Agile.*

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[14, . 34]

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[16, . 21 -- 23]

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[16], [14].

/ 12207-99 [17]

(life cycle model) << ,  
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 ( . 19.102-77 [18]) -  
 ( 34.601-90 [19]). -  
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 [20],  
 , ,  
 XP, Scrum, Crystal ., Agile  
 . -  
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 . -  
 agile ,  
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 agile- -  
 , , ,  
 .  
 , VersionOne  
 [21], 2011 -- 2012 . 48%, ,  
 , 30%;

2012 . (48%)

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## Agile

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[? ], *Agile* ( )

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Agile

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2001

17

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(K.

Beck) . (A. Cockburn).

Agile [22]

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Agile

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Agile.

[23, . 3],

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**(Scrum)** ---

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[24],

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**(Extreme Programming, XP)** ---

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[25], XP

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[13, . 110],

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**Extreme Programming (XP) ---**

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 CRC .

**Scrum ---**

30-

**Crystal methodology ---****Dynamic System Development Methodology (DSDM) ---****Rapid Application Development (RAD) ---****Adaptive Software Development ---****Lean Development ---****Feature-driven development ---****1.2.4.**

[26, . 57 -- 58]

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— (e-mail, . .)

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[26, . 57 -- 58]).

### 1.3.

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#### 1.3.1.

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9000 [27].

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( 9001 [28]),

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- ( . . : [31, . 4.8])

PDCA (Plan -- Do -- Check -- Action).

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[31].

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[31, . 205 -- 216],

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## 1.3.3.

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[4, .52] , ,

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: [4, .181]

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#### 1.3.4.

*Kaizen.*

[32, . 48 -- 49] , -

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. - ITIL [5, . 39] -

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--- (*Kaizen*). -

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<< c >> [33],

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(Toyota) [34], Nippon Steel Corp., Honda Motor Corp., Suzuki Motor Corp., Takagi Seiko [35].

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[33],

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**TQC** ( ) ---

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TPM (

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### 1.3.5.

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## 2.1.

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### 2.1.1.

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[2, .93 -- 98].

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: [36, . 13]

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## 2.1.2.



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[37, . 429]



### 2.1.3.

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[2, .14]

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[6, . 27].

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• [38]

Technique) IDEF(Integration Definition for Functional Modeling.)

UML (Unified Modeling Language).

， - ，  
ARIS(Architecture of Integrated Information Systems).

[39] -  
， -

· ， ，  
[39, . 15]  $C = (P,T,I,O)$ ,  
4- :

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

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· ( . : [?  
D) ， ，

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[39, . 18]

$G = V,A,$   $v_i \in V$   
 $a_i \in A.$   $V$  -

$P ( ) \quad T( )$ .

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 $\mu$   
 .  
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 .  
 $\mu : P \rightarrow N,$   $C, \mu.$   
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2.2.2.

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 [6, . 27],  
 -  
 ( 2006 .):

**DFD (Data Flow Diagram)** --- ,  
 ( - ).

**SADT (Structured Analysis and Design Technique)** ---  
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**ERD (Entity-Relationship Diagram) ---**

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**STD (State Transition Diagram) ---**

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UML (Unified

Modeling Language),

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UML

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: [6, . 60]

(use case diagrams) ---

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;

(class diagrams) ---

-

;

(statechart diagrams) ---

;

(activity diagrams) ---

;

(interaction diagrams) ---

-

(sequence diagrams)

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;

(collaboration diagrams)

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;

(component diagrams) ---

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(deployment diagrams) ---

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**BPMN**

**BPMN**

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**BPMN**

( .

. 78).

OMG BPMN.

**BPMN**

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[40, . 26]

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$BPMN$ ,  
 ,  
 :[40, . 30]

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

. .).  $BPMN$  , /

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

[41],

YAWL

[41, c. 3]

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YAWL,

[41, . 10]

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(extended workflow nets, EWF-nets).

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( . 2.2.1

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43).

YAWL

-

(workflow patterns).

( . ?? . ??).

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YAWL

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Workflow.

### 2.2.3.

**BPEL**

**XPDL**

**WF-XML**

## 2.3.

WORKFLOW. WORKFLOW  
WORKFLOW.

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

### 2.3.1.

BPM CBOK <<

>> [42], ABPMP (Association of Business Management Professionals).

ABPMP [42, . 24]

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- , ABPMP

CBOK [42, . 28], -

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289 -

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c- [43], 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.

Gartner[44], c

Management Suite),

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.>>[45]

- , <<

(Handbook on Business Information Systems) [46]

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: [46, . 100 -- 101]

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### 2.3.3.

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YAWL, , "

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workflow [41] 20-

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[41, . 10 -- 39] :

(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) ---



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.	
,	(Multiple
instances with a priori design time knowledge) ---	-
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.	
,	(Multiple instance
with a priori runtime knowledge) ---	-
,	,
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,	(Multiple instances without
a priory runtime knowledge) ---	-
,	,
.	
(Deffered choice) ---	-
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.	
	(Interleaved parallel routing) ---
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.	
(Milestone) ---	-
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(Cancel activity) ---

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(Cancel case) ---

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(framework)

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## 2.4. Workflow.

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

### 2.4.1.

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*WfMC.*

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ITIL [5, .84],

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[47].

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 WfMC  
 (workflow management system) , -  
 ,  
 (workflow engine).  
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 [48, . 9]. , -  
 , ITIL [5, . 65]  
 .

WfMC e WfMC Reference Model [48].  
 (workflow) -  
 , -  
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 , [48, . 8].  
 -  
 (Process Definition),  
 , WfMC - ---  
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[48, . 10]. [49, . 126] workflow

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- . Workflow -

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[47, . 31 -- 35].

1. workflow- -

--- (*cases*) ,

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2. (*task*) , -

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- (work item) (
- ) ,
- (activity)
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3. (*process*) , -
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- .
- workflow,
- .
4. (*routing*) -
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- .
- Workflow-** -
- Workflow, [49,
- . 127], ,
- .
- Workflow
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- Workflow, [49], -
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## Workflow

- [49, . 131 -- 133]

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(build time),

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(run time), -

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### 2.4.2. workflow

*Workflow.*

workflow

Cunningham LLP, Toronto,

CA Magazine [50].

[51],

Cunningham LLP

(B2B)

workflow,

"Bank Technology

News" [52], workflow-

Zagiel S.A.,

Infonomics [53].

495

AIIM

2008 -- 2009

26%

34%

24%

BPM.

64%

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(26 %).

(36 % )

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workflow

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3.1.

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3.1.1.

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[54, . 44]

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3.1.2.

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[54, . 51 -- 53],  
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( . 1.2.2 . 11), ( .  
Workflow- 2.4.1 . 61) -  
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2.3.1 . 50),  
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2.3.3 . 55) .

3.1.3.

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[56],

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### 3.2.

### 3.3.

1. . : .  
 : , 2006. . 528.
2. . . : . :  
 - , 2013. . 118.
3. Davenport T. H. Process Innovation: Reengineering Work through Information Technology. Boston, MA, USA: Harvard Business School Press, 1993.
4. . :  
 : , , 2006. . 287. . . .
5. itSMF. ITIL. itSMF Russia, 2011. .  
 . itSMF Russia.
6. . , , -  
 - : , 2006. . 240.
7. . - -  
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8. . : " 2005. . 608.
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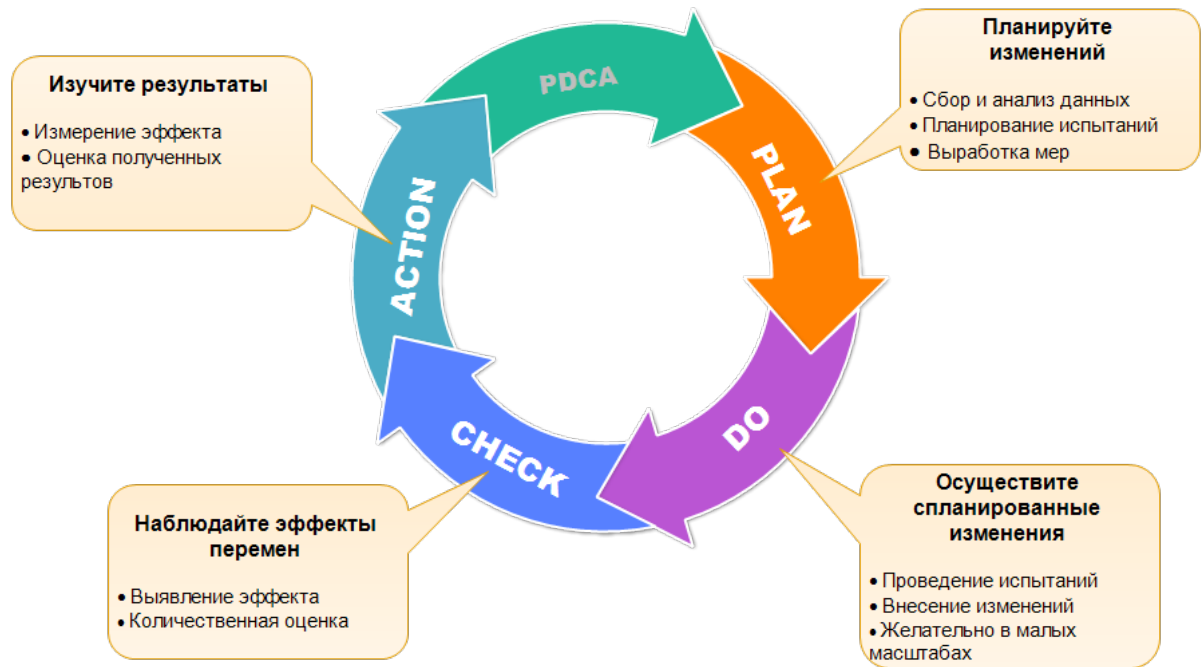
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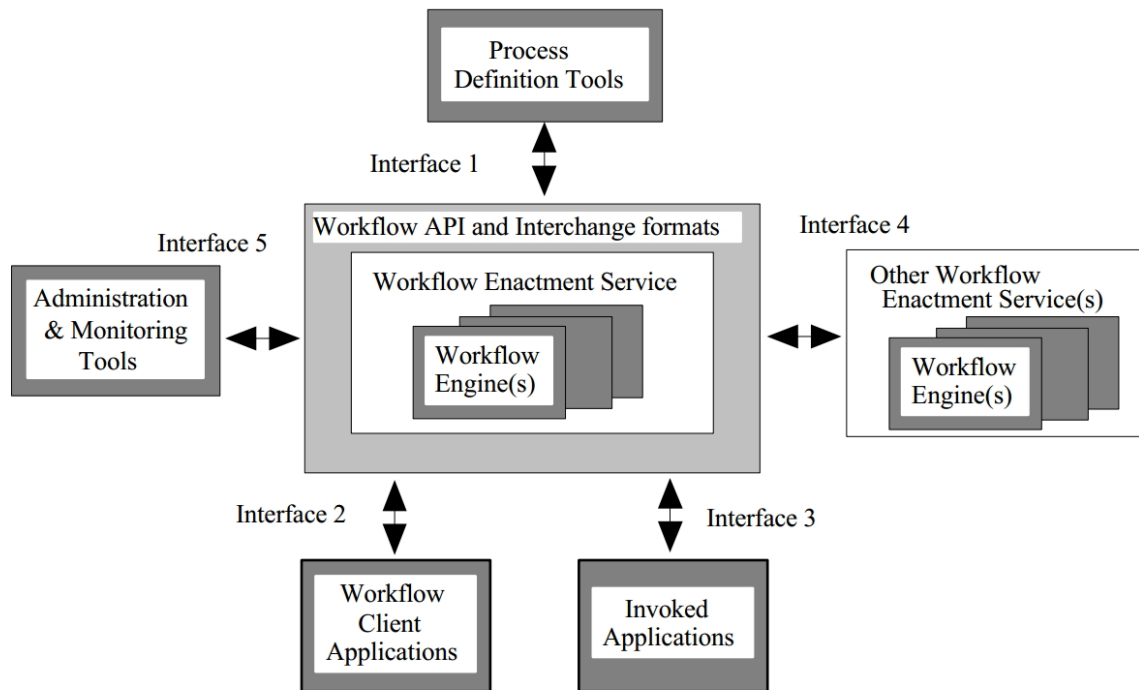


. 1. "

[30, . 97]

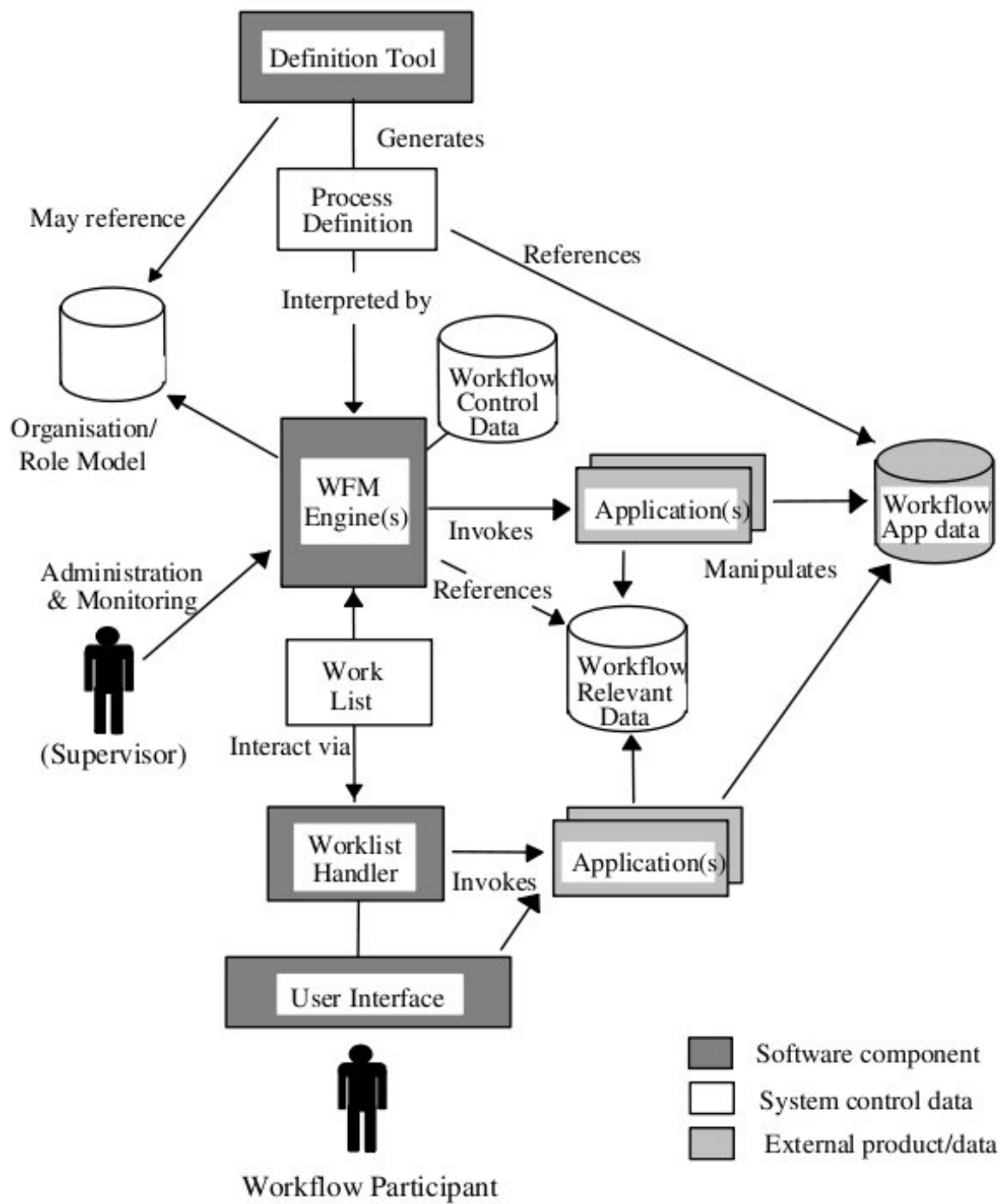
.1. - -  
[32, . 228]

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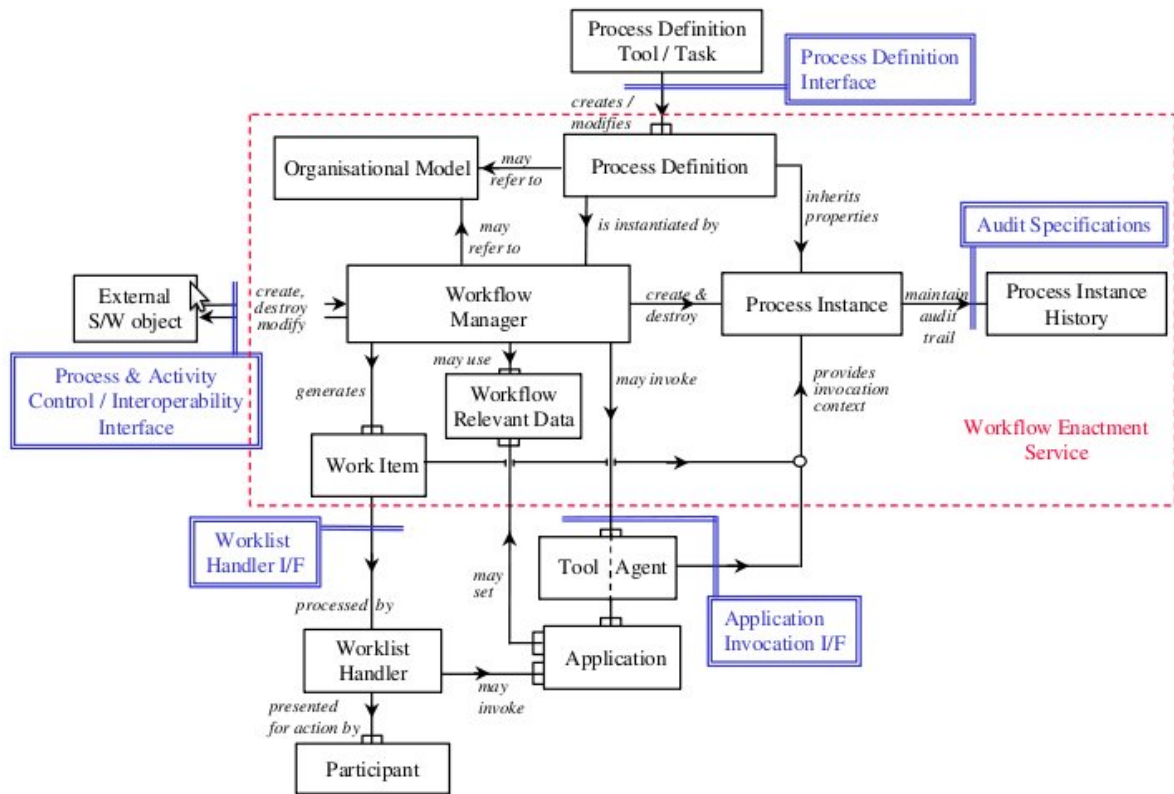
. .1. "

(Workflow Reference Model) [48, . 23]



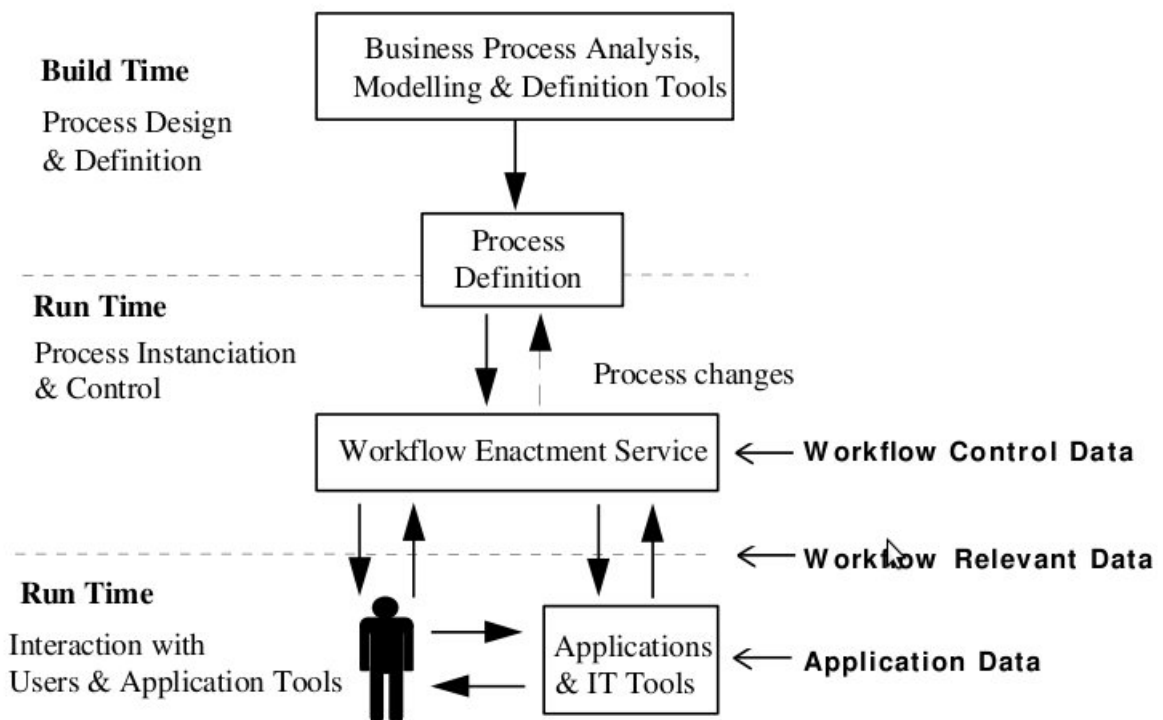
. .2.

(Generic Workflow Product Structure) [48, . 39]



### . 3. Workflow

(WFMS Components & Interfaces) [48, . 40]





### . 4.

(Types of Data in Workflow Management Systems) [48, . 44]

OMG BPMN v. 2.0


.1. OMG BPMN version 2.0 [40]

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



.1 ( )

(Gateway)	- , , , . - - .	
(Sequence Flow)	- , .	
(Message Flow)	- , .  BPMN ( - - ) ).	
(Association)	( , ) . , , ( , )	

.1 ( )

(Pool)	<div style="position: relative; height: 400px;"> <span style="position: absolute; top: 5%; left: 60%;">-</span> <span style="position: absolute; top: 8%; left: 35%;">.</span> <span style="position: absolute; top: 15%; left: 55%;">,</span> <span style="position: absolute; top: 25%; left: 30%;">,</span> <span style="position: absolute; top: 30%; left: 20%;">&lt;&lt;</span> <span style="position: absolute; top: 30%; left: 45%;">&gt;&gt; (B2B).</span> <span style="position: absolute; top: 40%; left: 25%;">.</span> <span style="position: absolute; top: 40%; left: 35%;">,</span> <span style="position: absolute; top: 45%; left: 40%;">,</span> <span style="position: absolute; top: 47%; left: 35%;">&lt;&lt;</span> <span style="position: absolute; top: 47%; left: 55%;">&gt;&gt;.</span> </div>	<div style="border: 1px solid black; padding: 5px; position: relative; height: 150px;"> <span style="position: absolute; top: -15px; left: 50%; transform: translateX(-50%); background: white; padding: 0 5px;">Name</span> </div>
(Lane)	<div style="position: relative; height: 200px;"> <span style="position: absolute; top: 50%; left: 35%;">,</span> <span style="position: absolute; top: 55%; left: 60%;">(</span> <span style="position: absolute; top: 65%; left: 55%;">).</span> </div>	<div style="border: 1px solid black; padding: 5px; position: relative; height: 100px;"> <div style="display: flex; justify-content: space-between;"> <span style="background: white; padding: 0 5px;">Name</span> <span style="background: white; padding: 0 5px;">Name</span> </div> </div>
(Data object)	<div style="position: relative; height: 200px;"> <span style="position: absolute; top: 5%; left: 60%;">-</span> <span style="position: absolute; top: 15%; left: 35%;">,</span> <span style="position: absolute; top: 25%; left: 45%;">/</span> <span style="position: absolute; top: 35%; left: 40%;">.</span> <span style="position: absolute; top: 45%; left: 55%;">,</span> <span style="position: absolute; top: 55%; left: 30%;">.</span> </div>	



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