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Agile

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<<_>> _____ 2013 .
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1.1.

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1.2. - . .

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1.2.1. - .

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. [1] - ,
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ITIL [2,   . 5],   ,

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.   -   ITIL [2,   . 20]

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,   .   [3,   .

55] <<   -   ---   ,

>>.[3,   .

55]

-                              [4,   . 17 -- 18], [5]

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   [6, c. 148],   -

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         [6, c. 148].   ,

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         [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.   -

-                    .   .   -
-                    .

2006 .   -   -
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,   [4,   . 27].
-                         ,   -
-            .

[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]
,
-                    ,

. ,   -

-        ,   ARIS(Architecture of Integrated

Information Systems).

                        [8, . 14]   ,   --

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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) --

;

(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   -   -

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                        -              ,   -

              -              .

                      BPMN

            (.   . 70).

                                            OMG BPMN.   BPMN

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            (   ) ---   --

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                                        .   [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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1.3.1.

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30 -- 31],   -

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,   [6,   . 31], [6,   . 148],   -

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[8, .27],

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[8, . 30],   -   ,

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1.3.2.   -   .

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9000 [11].

9000   (

9001 [12]),   ---

9004 [13],   .

[11], [12],   -

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[12, . 7]   ,

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FAST ---   -

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                -                    (, RBP),

                    [3],   ,   -

(Kaizen), [14].

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(. 1.3.4 . 18; 1.3.5

. 20).

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1.3.3.

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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.   .

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Kaizen.   .

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(continous

improvement).   [15, . 48 -- 49]   ,   -

(Continuous Process Improvement)

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.   -   ITIL [2, . 39]   ---   -

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---   *(Kaizen).*

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<<   :   >> [14]   -

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<<   c   >> [14],

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

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[14],   :

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TQC (   ) ---   -

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TPM (   ) ---

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,   (just in time);

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. [14]

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1.3.6.

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[8, . 93 -- 98].

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: [18, . 13]

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DocFlow   Workflow ---

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1.4.   .

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1.4.1.   .

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[19,   . 6]   ,   -

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PMBOK Guide [20, . 3], -

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[21, . 41],

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. [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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[23, . 34]

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[25, . 21 -- 23]

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1.4.3.

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[26,   . 41],   ,
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51897-2011 [27]   <<   -
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[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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. 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.

Agile . *Agile.*

/ 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]   (   )

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Agile   ,

2001   17

,   .   (K.

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

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1.   .

2.   .

3.   .

4.   .

Agile   -

: [32]

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,   [33,   . 3],

:

(Scrum) ---

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.   scrum,   -

[34],   -

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(Extreme Programming, XP) ---   -

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[?], XP   -

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[24, . 110],   agile

:

Extreme Programming (XP) ---   -

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Scrum ---   30-   ,

,   .

Crystal methodology ---   ,

,   -   ,   .

Dynamic System Development Methodology (DSDM) ---

,   ,

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Rapid Application Development (RAD) ---   ,

,   -

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Adaptive Softwate Development ---   ,

,   .

Lean Development --- , ,

, , .

Feature-driven development --- ,

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1.4.5.

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PMBOK Guide [22, . 33]

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[35, . 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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[35, . 57 -- 58]).

1.5.

1.

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2.1.

3.

2.2. Workflow.

, ;

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

2.2.1. .

. *WfMC*. -

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, ITIL [2, . 84], -

<< , , , ,

, ( )

>>.

[36].   -

                                                          -

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                                 .

                          WfMC

(workflow management system)   ,   ,   -

                                                                     ,

                                              (workflow engine).

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          ,   -

                 .   -

              ,   ,

                       [37, . 9].   ,   -

                                   ,   ITIL [2, . 65]

           .

          WfMC   e WfMC Reference Model [37].

      (workflow)   -

         ,   ,   -

                       ,   .[37, . 8].

          -

(Process Definition),   .

,   WfMC   -   ---

,   -   ,

,   -

[37, . 10].   [38, . 126]   workflow

(   )   ,   ,

-          .   Workflow   -

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-          .

[36, . 31 -- 35].

1.   workflow-   -

---   (cases)   ,

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(   ) ---   -

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2.   (task)   ,   -

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-                      (   ).

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46

,   (   )   .

. -

(work item)   (

)   ,

.   (activity)

,   .

3.   *(process)*   ,   -

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,   .

workflow,

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4.   *(routing)*   -

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Workflow-   -
Workflow,   [38, .
127],   ,   ,
.   Workflow

-          ,

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Workflow, [38], -

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Workflow

- [38, . 131 -- 133]

:

(build time), -

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- .

(run time), -

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2.2.2. . .

workflow. .

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YAWL, ,"

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( ) .

workflow [39] 20-

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. " -

" ,

, . -

[39, . 10 -- 39] :

(Sequence) --- , -

-

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(Parrallel split) ---

, .

(Syncronization) --- -

.

(Exclusive choice) --- ,

.

(Simple merge) ---

.

(Multi-choice) --- , -

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(Synchronizing merge) ---

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(Multi-merge) --- ,

.

(Disctiminator) --- , -

.

(Arbitrary cycles) --- ,

.

(Implicit termination) --- -

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, -

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(Multiple instances without syncroni

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-

.

,   (Multiple instance

with a priori design time knowledge) ---

,   -

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,   (Multiple instances

with a priori runtime knowledge) ---   -

,   ,   ,

.

,   (Multiple instances without

a priory runtime knowledge) ---   -

,   ,

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(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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(   )   .

2.2.3.   workflow.

BPMN

(workflow)

Workflow Management Coalition (WFM

Coalition).   WfMc   -

,   workflow.

YAWL

YAWL (Yet Another Workflow Language)

(Aalst)   (Hofstede)   2003   -

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[39],   ,

YAWL

.   ,   ,

[39, с. 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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-            .

[36]

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2.2.4.   Workflow   .

workflow   --

Cunningham LLP,

Toronto,   CA Magazine [40].   ,

[41], Cunnigham LLP

,   (B2B)

,   ,   ,   .

workflow,   ,

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"Bank Technology

News" [42], workflow-   -

Zagiel S.A.,

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,   Infonomics [43].   -

495   AIIM

,   2008 -- 2009   .   ,

26%

,   34%

,   24%   BPM.

64%

-                                    ,   .   ,

-

(26 %).   ,   ,

(36 %   )

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workflow

,   .

2.3.   -

.   WORKFLOW. WORKFLOW

,   WORKFLOW.

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

2.3.1.   -   .

-                      ,

BPM CBOK <<

-              >> [44],   ABPMP (Association

of Business Management Professionals).

ABPMP [44,   . 24]

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-              (   )

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-                ,   ABPMP

CBOK [44,   . 28],   -

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289   -

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c-   [45],   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) ---

,   ;

(improve model, ImpM) ---

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-                        ,   -

-            .

2.3.2.   -

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.   IT

Gartner[46], *c*   -   (. Business Process

Management Suite),

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,   ,   ,   ,

.   BPM-   -

-                    (   ),

<<   ,   ,   ,

. BPMS

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-            ,

.>>[47]

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-            ,   <<   >>

(Handbook on Business Information Systems) [48]   -

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: [48, . 100 -- 101]

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- - (SOA)

:[44]

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2.4.

. , BPMS 2 .

WORKFLOW. -

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

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2.5.

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3.1.

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3.2.

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3.2.1.

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[49, . 44]   :

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3.2.2.

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[49, . 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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3.2.3.

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3.3.

3.4.

3.5.

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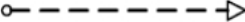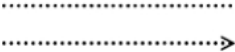
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OMG BPMN v. 2.0

.1.   OMG BPMN version 2.0 [10]

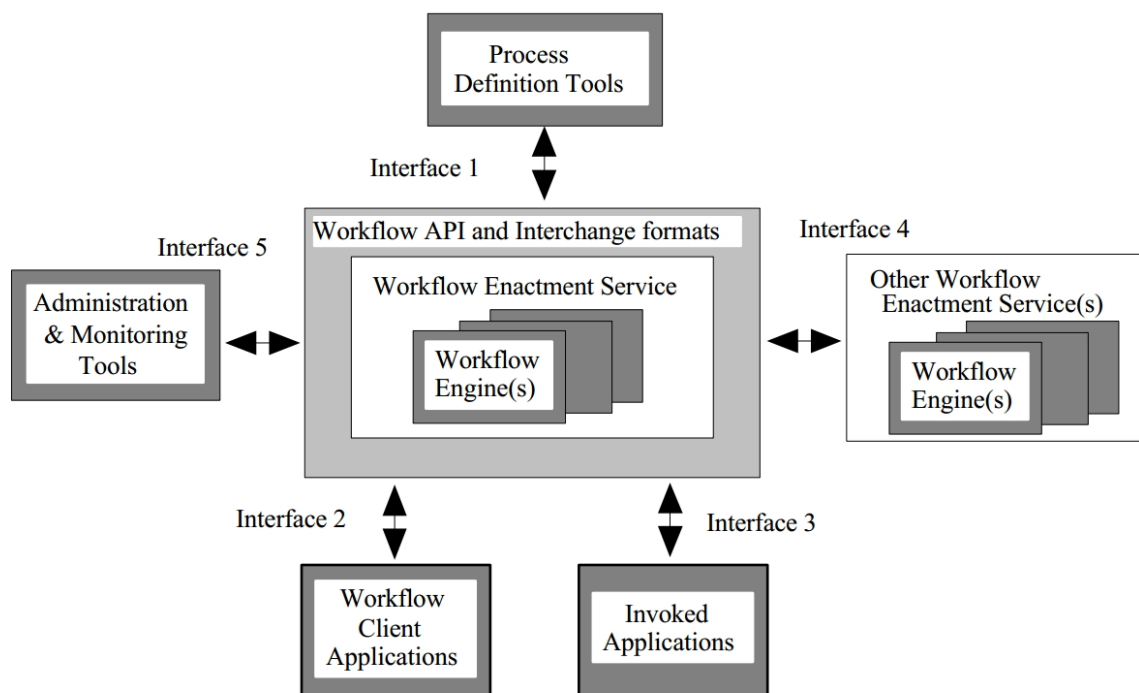|		

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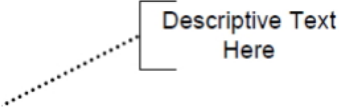
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- (Message Flow)	- , . BPMN (- -). - - -	o – – – – –▷
(Association)	(,) . , , (,). - - - , .	·············· ···············▷

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[15, . 228]

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: WfMS, WfMC, Workflow management system,   workflow,

,   Workflow. [37]

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(Workflow Reference Model) [37,   . 23]
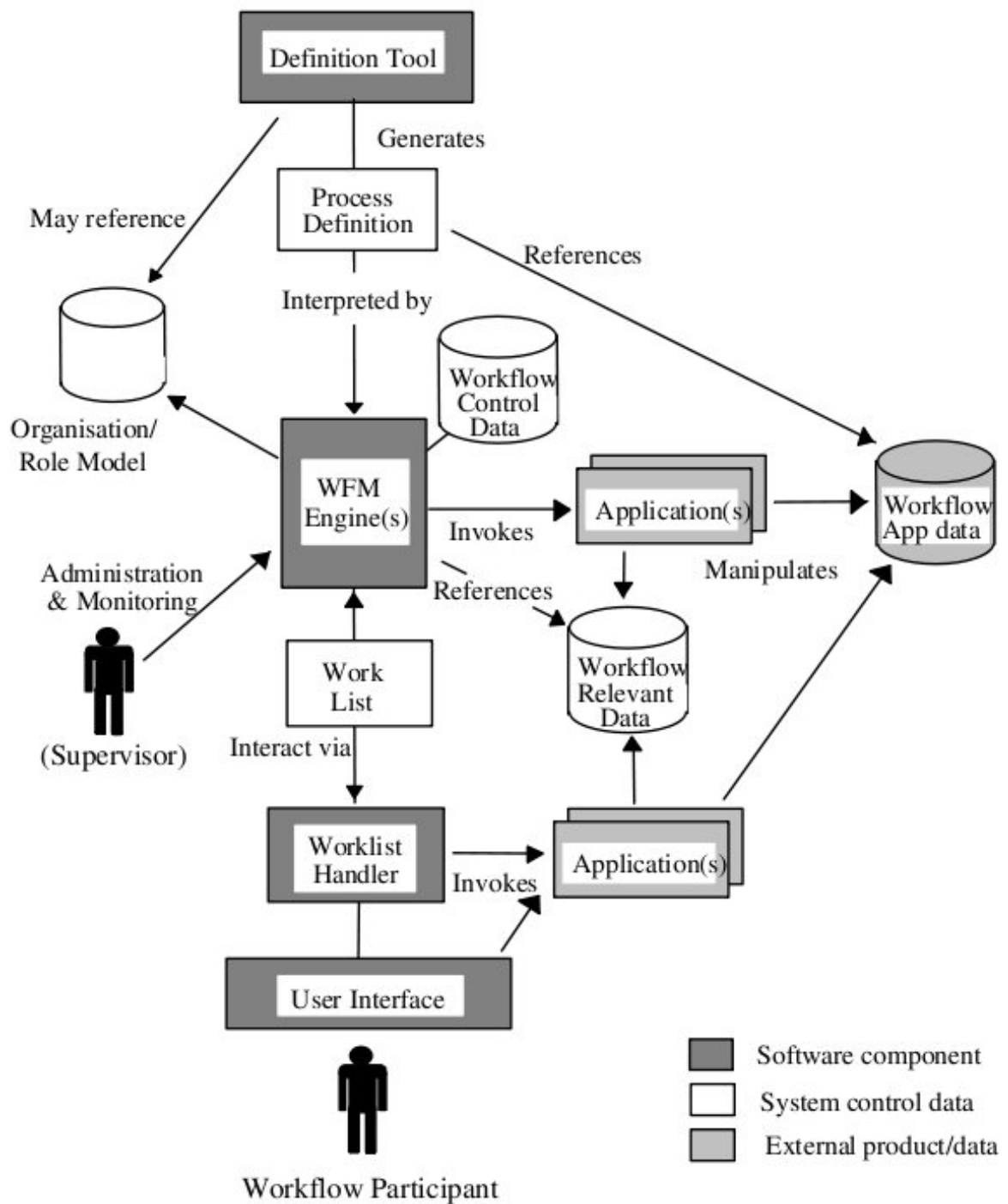
. .2.

(Generic Workflow Product Structure) [37, . 39]
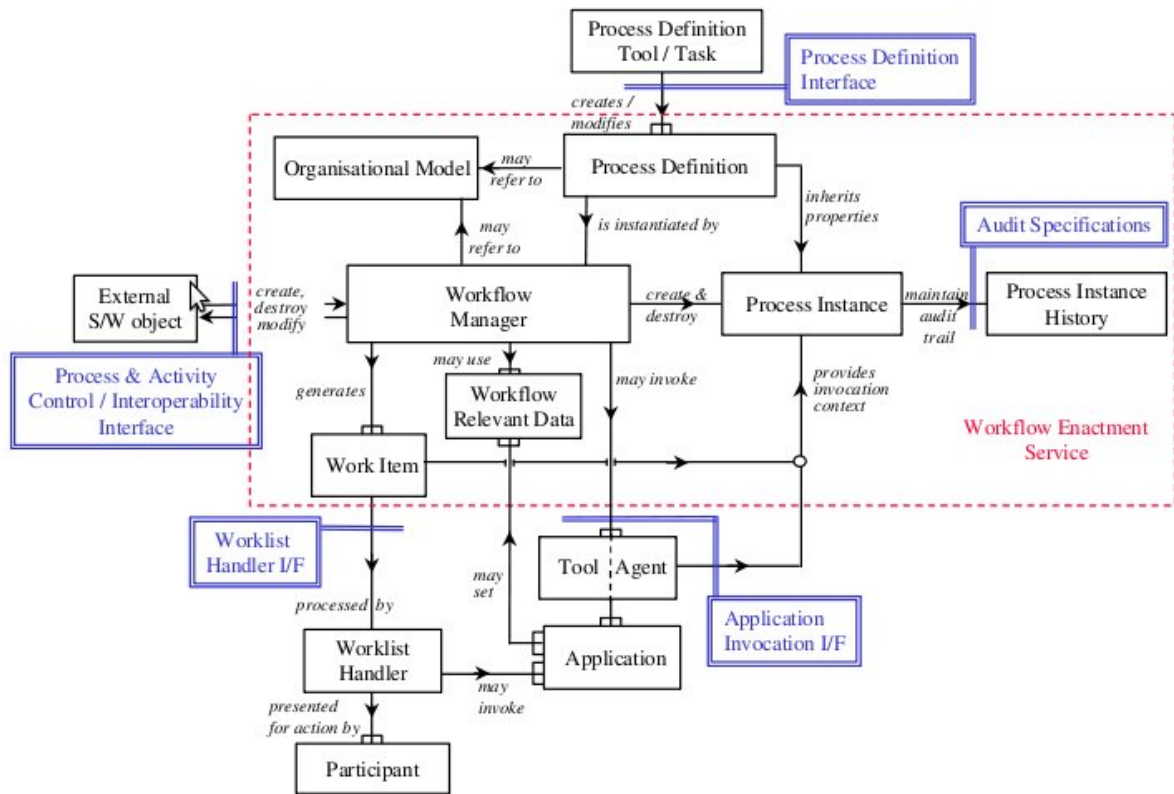
. .3. Workflow
(WFMS Components & Interfaces) [37, . 40]
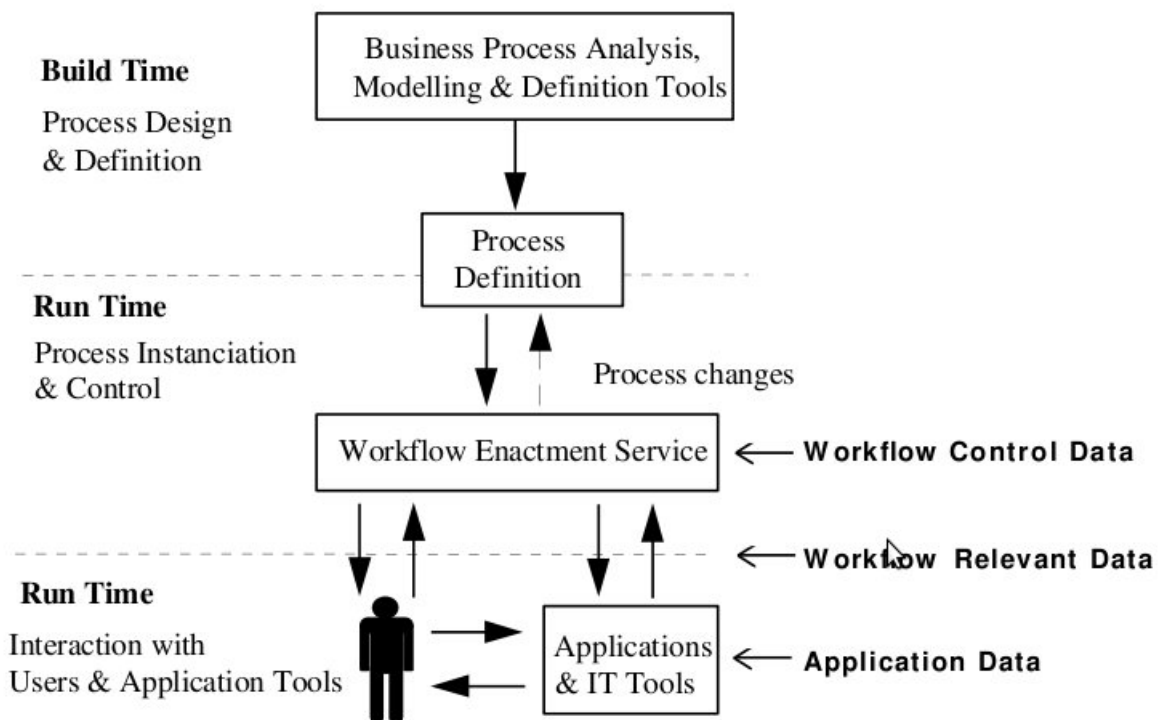
. .4.
(Types of Data in Workflow Management Systems) [37, . 44]