

# CMMI® oriented Organization Training CASE Development

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**The goal of the research is development of source environment for corporate training process support in organizations.**

## I. INTRODUCTION

Recently many Russian IT-companies have been following a trend of entering the world markets of software manufacturing. On one hand, it creates substantial promises, relevant to development of business and attracting global community's attention to Russian scientists and specialists, whose research is concentrated in the sphere of informational technologies. On other hand, penetrating global markets will bring intense competition from on the part of western and, lately, eastern companies. In such conditions Russian developers should comply with the market's high standards. First of all – to the qualification level of company's specialists. Therefore advanced training of personnel is one of priorities of any IT-company now.

Usually training the personnel is in the account of the company itself. Such situation generates many difficulties related primarily to the management of the process (definition of topical subject-matter, choosing qualified trainers, acquisition or development of training materials). The training activity become a complicated and time consuming task, which, among other things, holds certain risks.

There are different approaches to organizing processes, including corporate training processes (ISO 9000, ISO/IEC 12207). One of the most successful approaches, undoubtedly, is the CMMI® model (Capability Maturity Model Integration).

## II. RESEARCH GOALS

The goal of the current work is development of source environment for corporate training process support in organizations. The developed source environment in the aggregate with necessary organizational changes should simplify the training process and give the company's management adequate and reliable information on the level and the quality of knowledge and skills of the employees; it

should also increase the company's performance in general.

## III. RELATED WORKS REVIEW

The related works known from open sources can be tentatively divided into two categories:

--Systems that have training process control elements (EPR-systems: Adempiere, GNU Enterprise, ERP5, Openbravo, Pentaho etc.);

--Systems, that can be adjusted to solve that problem (electronic document management systems: NauDoc, Globus Professional Free Edition etc.).

The common flaws of these types of systems are: redundancy in respect to the considered problem, lack of CMMI® support, high adjustment and maintenance costs.

At the present moment there are no corporate training process support systems known from open sources.

## IV. TARGET SETTING

### A. Problem Domain

The problem domain is the process of corporate training, presented in accordance with CMMI®. The base elements of the problem domain are special goals, practices, work products and relations between them.

### B. Requirements To The Training Process Support Source Environment

In accordance with CMMI®, the environment must provide the execution of two main working stages:

- 1) Establish an Organizational Training Capability (SG1)
- 2) Provide Necessary Training (SG2)

At the stage of determination of training capability, the source environment should:

- 1) Establish the strategic training needs (SP.1.1)
- 2) Determine which training needs are the responsibility of the organization (SP.1.2)
- 3) Establish an organizational training tactical plan (SP.1.3)
- 4) Establish training capability (SP1.4)

The requirements to the stage of carrying out the training process are defined in a similar manner.

The result of the system work at each stage and substage shall be the creation of documentation developed according to the following recommended work products:

- 1) Training needs
- 2) Assessment analysis
- 3) Common project and support group training needs
- 4) Training commitments
- 5) Organizational training tactical plan
- 6) Training materials and supporting artifacts
- 7) Delivered training course
- 8) Training records
- 9) Training updates to the organizational repository
- 10) Training-effectiveness surveys
- 11) Training program performance assessments
- 12) Instructor evaluation forms
- 13) Training examinations

Each document should be produced according to the corresponding template. The working document template determines the document structure and its formatting. The source environment should include the opportunity to determine templates for each document and contain a set of default templates.

The documentation used in the source environment can fall into two categories:

- 1) Incoming documentation: information on the training needs, training-effectiveness surveys and others.
- 2) Documentation developed in the course of designing and carrying out trainings: Assessment analysis, Organizational training tactical plan and others.

Special instructions for developing the documentation for the second category should be created. “Instruction on carrying out the training needs assessment” or “Recommendations on creating the organizational training tactical plan” can be examples of such instructions. These instructions are part of the source environment and can be modified in accordance with the peculiarities of the organizational process.

## V. PROBLEM SOLVING

### A. The Documentation To Be Used In The Training Process

The templates have been created for the following documents: Training needs, Common project and support groups training needs, Training commitments, Organizational training tactical plan, Training materials, Training records.

Figure 1 shows the template for the document «Information on the Training Needs”.

### B. System Architecture

The system was designed on the basis of the above described requirements:

- 1) Entity-Relation Diagram of the upper level (Figure 2)
- 2) Entity-Relation Diagram showing the process of gathering and processing the needs
- 3) Entity-Relation Diagram of the strategic plan
- 4) Entity-Relation Diagram of the training quality assessment
- 5) Upper level class diagram (Figure 3)
- 6) Class diagram of the trainers management subsystem
- 7) Class diagram of the students management subsystem
- 8) Class diagram of the training materials management subsystem
- 9) Class diagram of the training subsystem
- 10) Class diagram of the management subsystem for gathering and processing the training results

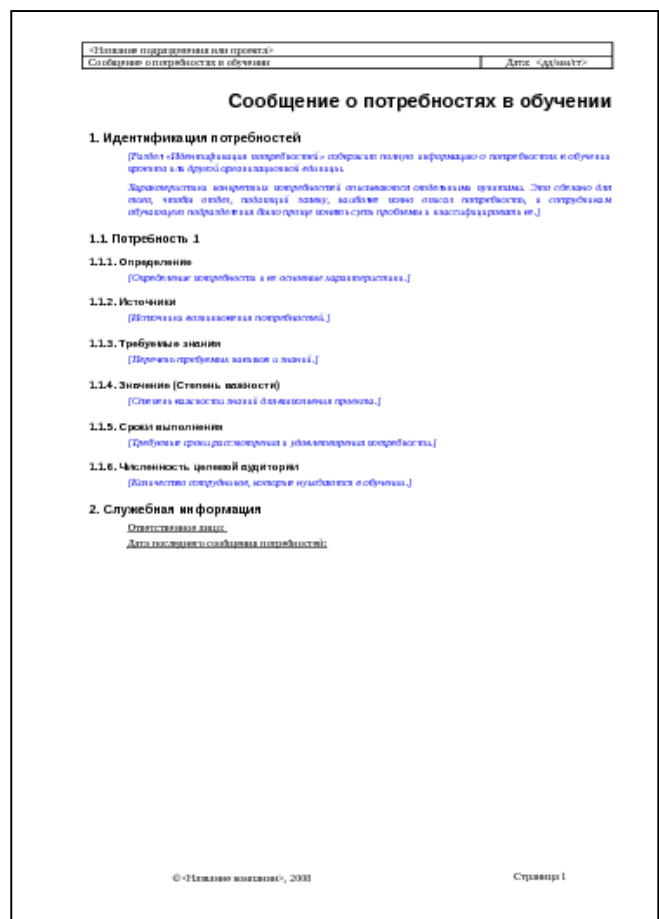


Figure 1. Document Template “Information on the Training Needs”

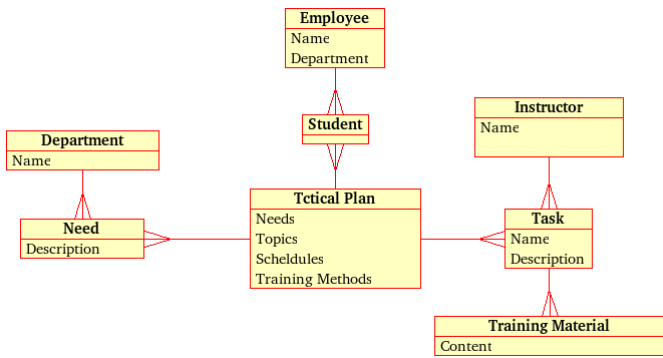


Figure 2 Diagram Entity-Relation Diagram of the upper level

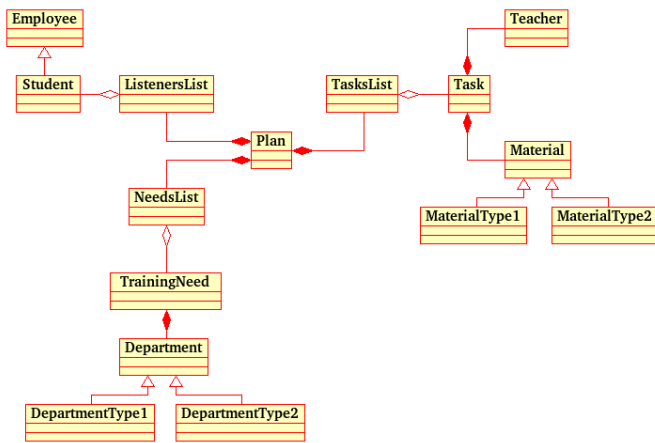


Figure 3 Upper Level Class Diagram

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REFERENCES

[1] CMMI® for Development, Version 1.2.