



INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ

## **Competence profile of the project manager in education**

### **National Institute for Further Education**



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## Introduction

Project management, project, project manager, etc., are very frequent terms nowadays. It seems that the word project can practically cover anything. What does project management really mean? Are all activities referred to as "projects" really projects? And who is the project manager, what do they do, and what is their role and responsibilities? Is everyone who has "project manager" stated on their business card really a project manager?

Project management is a relatively young field. Project management, as an area of management, or as the profession of a project manager, started to appear only in the second half of the twentieth century; in the Czech Republic only in the nineties.

Today we witness quickly changing conditions within a flood of changes. Organisations (companies, firms or institution) must react as flexibly as possible and need to act proactively to adjust to these changes, to survive and prosper, or to sustain the service purpose. Therefore it is not surprising that project management, as a tool for realising changes, is on the rise and there isn't probably a single activity that does not include project management in some form today. A significant contribution to the spread of project management into all spheres of activities was brought by the mass spread of information and communication technologies, or more precisely the creation and development of specific software solutions supporting project management.

It is only natural and right that in a certain phase of project management development a certain formalisation and standardisation of project management occurred. Gradually professional and specialised organisations were founded, such as the Project Management Association, Project Management Institute, APM Group, or in the Czech Republic the Společnost pro projektové řízení ČR (Project management organisation, Czech Republic), which started to voice its opinions on "good manners" in project management, and with the help of many professional project managers, qualitative standards were created and spread, which apply both for project management and for the role of a project manager.

Project management is a relatively extensive and demanding field. Not all projects are the same – each project is unique in its own way and brings new challenges for its contractors and for those realising the project. If we say that a project is a limited activity with regards to time, costs and resources, realised in order to reach the defined goals in the form of creating, or supplying defined outputs with regards to certain quality, norms and requirements, then it is the project manager, who is the person responsible for reaching the defined goals.

If we consider the significant variability of projects (a project is not only building a small family house or a change of information system, but also for example the development of a new drug, building an oil refinery or atomic power plant), it is obvious that the requirements on the project manager are, or can be, quite demanding. In order for project managers to succeed, they must have appropriate education and experience (i.e. qualification), which they use in their work. What are the qualifications, or their levels, that project managers should have, is the subject of so-called competence models (defining competences and their possible levels of development). Probably the most famous and wide-spread standard in this area is



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the IPMA Competence Baseline standard, localised in the Czech Republic as the National standard for project management competences for the Czech Republic. These standards define and describe general competences, applied in all areas of activities.

This work: The competence profile of a project manager in education defines specific competences that all project managers realising projects in education should have.



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## 1. Starting points, processing procedure of the Competence profile, terminology

The competence profile has to be processed within public order no. C/10/110 "Project Manager 250+ Competence profile of a project manager in education" by PM CONSULTING, s.r.o., in cooperation with the National Institute for Further Education.

### Author team

The author team included:

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**Doc. Ing. Jiří Skalický, CSc.** – Pedagogue and research assistant, expert sponsor of the project. He worked in the Škoda plant in Plzeň in heavy engineering, where he managed projects of electric drives and control systems for rolling mills; he took part in measurement and regulation projects at Kappenberger+Braun Elektrotechnik. Since 1995 he has held a position at the University of West Bohemia in the Faculty of Economics, and was also the Head of the Management, Innovation and Project Department, Vice-dean of the Research and Development Faculty; he is IPMA certified, Level D<sup>®</sup>. He mostly specialised in research and teaches a project management class.



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## Basic terminology

The term COMPETENCE<sup>1</sup> is understood by this material, in agreement with the International Project Management Association (IPMA), as the "set of knowledge, personal approach, skills and related experience that are needed to be successful in a certain role or function", in our case in the role of a project manager in education. As follows from this definition, this term does not refer to competence in the sense of "power, authority", in which it is often used and understood, but to the "competence" to perform a certain role or function. (note: The complexity of this term is also caused by the inconsistency of English terms COMPETENCY and COMPETENCE, which are both translated as "kompetence" in Czech.)

COMPETENCE MODEL (CM) of a project manager means the structured set of defined (key) competences related to the function or role of the project manager.

COMPETENCE PROFILE (CP) of a project manager in education means a comprehensive representation of levels of individual competences defined in the competence model.

The term PROJECT means a limited activity with regards to time, costs and resources, realised in order to create the defined outputs with regards to certain quality, norms and requirements.

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<sup>1</sup> Definitions of terms in this section have been taken from PITAŠ et al., *Národní standard kompetencí projektového řízení*. Brno: Společnost pro projektové řízení, 2008, p. 15.

PROJECT MANAGER (PM) is a person (usually assigned by the submitter or project management body) responsible for reaching defined project goals. The project manager personally plans and organises all project activities and also manages its realisation and leads it towards the defined goals.

Specific terminology for project management can also be taken from generally accepted international standards (esp. IPMA and PMI) and also from the Nation standard for project management competence, published by the Project management organisation, Czech Republic (see <http://www.ipma.cz> and <http://www.cspr.cz>)

*Note to English terminology: the "mother tongue" of the project management is English. For this reason the document sometimes works with the English term for the given entity or uses both terms, Czech and English, to clarify or specify the meaning.*

## Starting points and research procedure

The Competence model for the Competence profile of the project manager in education has been processed in relation to generally accepted competence standards in project management. In the Czech Republic the National standard for project management competences, version 3.1., was published in 2008 and it was prepared by the Project management organisation, Czech Republic; it is an adaptation of the International Competence Model ICB (IPMA Competence Baseline®) Version 3.0 published in 2006 by the International Project Management Association. Since the IPMA approach towards the competence structure is the most wide-spread in the whole Europe, this document also includes a table of competence links of the competence model defined by the IPMA.

The competence model takes into consideration the PMBOK® (Project Management Body of Knowledge) approach, version 4 published in 2008 by the Project Management Institute, which is currently the largest word-wide association of project managers and operates mainly in the US. The PMI approach was taken into consideration namely in the definition of professional competence structure in accordance with individual project processes managed by the project manager. **The competence model therefore incorporates both of the most significant international schools of project managements (IPMA and PMI) and is compatible with their standards.**

The team of authors also carried out research before processing the CM and studied all available competence models of not only project managers. Here are some examples:

1. Austrian standard of project management PMA PM Baseline published by PMA – PROJECT MANAGEMENT AUSTRIA, available at <http://www.p-m-a.at>.
2. Australian national standard for project management competencies published in 2008 by the Australian Institute of Project Management, available at <http://www.aipm.com.au/html/ncspm.cfm>.
3. USA National Competence Baseline v2.0 published by the American Society for the Advancement of Project Management, available at [http://www.asapm.org/resources/USA\\_NCB.pdf](http://www.asapm.org/resources/USA_NCB.pdf).



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4. Regulations of the Project Management Association of Japan for certification of project managers, available at <http://www.pmaj.or.jp/ENG/index.htm>.
5. Competence model of a project manager published by Boston University, Corporate Education Center, available at: <http://www.butrain.com/mdp/CompModel.asp>.
6. RAMBOUSKOVÁ, A. Model of competence for social-assistance professions, Master diploma thesis Olomouc: Palacký University in Olomouc, 2008.
7. Common European Framework of Reference for Languages published by the Council of Europe in 2001.
8. ČUMBOVÁ, P. The Model of Competence of School Manager, Master diploma thesis. Olomouc: Palacký University in Olomouc, 2008.

When creating the Competence model of a project manager in education, the competencies of the project manager were first identified and specified, which were then selected, adjusted and grouped together to form the required competences of the project manager in education.

Each competence in the competence profile has defined content and also the minimum required level of development for the project manager in education. Methods, techniques and tools are recommended for each competence (competence element), which are required in order to be successfully certified, including relevant modifications (with regards to the context of project management in education).

The competence profile is followed by the Methodology for competence level verification for project managers<sup>2</sup>, which consists of subjective and objective verification methods, i.e. measurement. Subjective measurement is realised by a self-assessment questionnaire, where the project manager evaluates the level of their competence in each competence area. Objective measurement is based on a test, which measures the current level of competence development in given elements in relation to the defined competence profile.

## 2. Objectives and contributions of the Competence profile

### CP Objectives

The aim of the Competence profile of a project manager in education is to support the professionalisation of education through implementation of methodologies, tools and techniques of project management.

This objective will be reached by defining the structure (model) and minimal level of competence (profile) of project managers in order to successfully manage projects in education, which will be followed in further phases of the project by a supportive tool system for project managers in education, such as full-time and distant education, coaching, etc.

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<sup>2</sup> Methodology for competence verification is the subject of another, separate document

## CP contributions for education

In a broader and long-term context the CP will help to:

- increase the competence of employees who prepare and realise projects,
- support the process of increasing the quality of management in education as a managerial group,
- increase the absorbing capacity of schools and education institutions for multi-source funding and funding through projects and eliminate risks connected with project management (e.g. the failure to utilise grants from EU funds, having to refund a grant due to mistakes made by project managers),
- reduce the error rate and increase the success rate of projects,
- make changes in the education easier through projects.

## CP contributions for school headmasters

The Competence profile will enable the school and education institution management to:

- describe requirements on the position of project managers, and subsequently choose/nominate these project managers for concrete projects,
- support the development of knowledge and skills of project managers within the organisation and their personal and professional growth,
- realise successful project as a result of more efficient selection of a project manager and a targeted development of their competences,
- obtain sufficient financial resources for the development of the organisation (e.g. from EU funds).

## CP contributions for project managers in education

The Competence profile can help the project manager in education to:

- identify their own strengths and weaknesses for project management in education and to compare them to the given "etalon" (requirement),
- identify a topic for the personal growth plan,
- measure the efficiency of educational and other supportive activities,
- gradually increase the efficiency and quality of project management through the targeted development of own competences
- increase self-confidence and self-assurance when realising the importance and value of own knowledge and experience.

### 3. Used competence model of a project manager

The competence model consists of 14 COMPETENCES divided into 3 COMPETENCE areas: the area of professional competence, social competence and context competence. Each competence includes a group specific knowledge and skills (competences), so-called competence elements. Each competence has been created in order to cover the main knowledge and skills that the project manager should have, and also to correspond with international standards and accepted methods in project management (IPMA, PMI). Professional competences are also specified with regards to the general project life cycle (initiation, planning, realisation and inspection, conclusion).

- Professional competences include a set of so-called "hard" PM competences, which are directly connected with knowledge and implementation of principles, techniques, methods and tools characteristic for project management (and for planning, organisation, management, integration, etc.).
- Social competence include so-called "soft" competences, namely behavioural and interpersonal competences, management of employees.
- Contextual competences include the ability to understand the wider environment and context, in which the project takes place, and acting in accordance with it.

The competence model is presented as a summary graphic representation (so-called "competence compass") and also in the form of a verbal content description, including a detailed specification of the concrete content of each competence and its elements.

**Summary graphic representation of competences of a project manager in education in accordance with the selected competence model**



**Factual description of competences of a project manager in education in accordance with the selected competence model**

A. Professional competences of a project manager		
1.	Project integration	The PM integrates and manages all aspects of the project,



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	management	as well as links of the projects to the near and wider environment.
2.	Project Extent Management	The PM delimits factual borders of the project and manages its content and extent.
3.	Project time management	The PM specifies the time frame of the project and manages all project activities accordingly.
4.	Project financial management	The PM coordinates and manages the financial aspects of the project.
5.	Project quality management	The PM defines, coordinates and manages quality aspects of the project and output quality.
6.	Project risks management	The PM protects the success of the project by coordinating and managing the indeterminateness, uncertainty and risks of the project; systematically searches and takes advantage of any opportunity to strengthen or improve any aspect of the project.
7.	Project change management	The PM coordinates and manages changes in the project.
8.	Working with information and documents	The PM effectively works with information and project documentation.
<b>B. Social competences of a project manager</b>		
9.	Communication and negotiation	The Pm creates and keeps the frame for effective communication within the project and between the project and its environment.
10.	Management and motivation of the project team, team work	The PM organises, manages and leads the project team in order to reach the project goals.
11.	Performance management and result orientation	The PM effectively manages their personal performance and the performance of the project team with the orientation on goals and results of the project.
12.	Avoiding and managing crises and conflicts	The PM proactively avoids any critical or conflict situations and effectively manages them if they occur.
<b>Context competences of a project manager</b>		
13.	Project management within context of the organisation	The PM understands the broader context of the environment, in which the project takes place and to which it belongs.
14.	Ethics, law and social responsibility	The PM thinks and acts in accordance with principles of the law, ethics and rules of the social and community responsibility. The PM shows respect to values related to the project and the people they come into contact with.

## Competence elements

The content of individual competences was specified within the competence elements of a project manager and it is followed by a list of used methods, procedures, techniques and principles that are recommended to project managers in education (the profile of the project manager in education).

Verification of the competence development for concrete project managers will include a test of whether the given PM has awareness, knowledge or is able to apply given methods, procedures, techniques and principles for individual competence elements.

<b>A. Elements of professional competences</b>	
1.	<p><b>Project integration management</b> <i>The PM integrates and manages all aspects of the project, as well as links of the projects to the near and wider environment.</i></p> <ul style="list-style-type: none"> <li>• Analysis and explanation of input conditions of the project (task, context, expectations and interests of stakeholders, character and influence of the environment, etc.)</li> <li>• Initiation and facilitation of the creation/commencement of the project</li> <li>• Determining/deducing (or adopting) the purpose and aims of the project</li> <li>• Integration of project plans</li> <li>• Management and coordination of project works, management of deviations and integration of changes (dynamic planning)</li> <li>• Evaluation and completion of the project</li> <li>• Orientation on the purpose, function and success of the project</li> <li>• Management of relationships with all stakeholders during the entire project life cycle.</li> <li>• Integration of third parties, or products and services of third parties, into the project.</li> </ul>
2.	<p><b>Project Extent Management</b> <i>The PM delimits factual borders of the project and manages its content and extent.</i></p> <ul style="list-style-type: none"> <li>• Delimiting the subject and borders of the project (what is and what is not the project subject)</li> <li>• Determining and keeping a factual structure of the project (logical frame, work breakdown structure)</li> <li>• Determining and planning of project outputs (project deliverables): planning project products (deliverables) and partial work packages, as well as the quality parameters of deliverables and their acceptance criteria</li> <li>• Monitoring the process of creation / delivery of outputs, their inspection</li> <li>• Maintaining and updating the project plan in accordance with the needs and development of the project</li> </ul>
3.	<p><b>Project time management</b> <i>The PM specifies the time frame of the project and manages all project activities</i></p>

	<p><i>accordingly.</i></p> <ul style="list-style-type: none"> <li>• Time framework planning (e.g. within the Feasibility study)</li> <li>• Detailed time planning (schedule): defining concrete activities and their sequences, logical and source links, source requirements, duration of activities, specification of milestones, relationship with the external environment, etc., creating a project schedule</li> <li>• Monitoring the progress in time, checking the adherence to the schedule, management of deviations (taking preventive and reparative measures)</li> </ul>
4.	<p><b>Project financial management</b> <i>The PM coordinates and manages the financial aspects of the project.</i></p> <ul style="list-style-type: none"> <li>• Assessing the financial (investment) aspect of the project (investment profitability, purposefulness of the investment with regards to the financial aspect, assessing the cost acceptability for planned project benefits, etc.) =&gt; financial chapters of the Feasibility study</li> <li>• Project costs (and profits) planning and project cash-flow planning</li> <li>• Ensuring financial resources (funding) for the project (own resources, grants, sponsors, loans, PPP_(Public Private Partnership), etc.)</li> <li>• Project costs or expenses management, financial controlling and reporting</li> <li>• Project profits or revenues management, monitoring payment transactions, etc.</li> <li>• Financial evaluation of the project</li> </ul>
5.	<p><b>Project quality management</b> <i>The PM defines, coordinates and manages quality aspects of the project and output quality.</i></p> <ul style="list-style-type: none"> <li>• Defining the factual frame for project quality management (rules, principles, quality standards, used quality norms, etc.)</li> <li>• Analysis of requirements and defining and management of deliverables quality</li> <li>• Analysis of requirements and defining and management of project management quality</li> <li>• Actions leading to quality assurance and quality control during the project – setting and using control and feedback mechanisms (e.g. testing deliverables – continual, integration, acceptance, project management audits, etc.)</li> </ul>
6.	<p><b>Project risk management</b> <i>The PM protects the success of the project by coordinating and managing the indeterminateness, uncertainty and risk of the project; systematically searches and takes advantage of any opportunity to strengthen or improve any aspect of the project.</i></p> <ul style="list-style-type: none"> <li>• Identification and assessment of risks (threats and opportunities) to the project</li> <li>• Planning preventive and corrective measures</li> <li>• Realisation of preventive measures</li> <li>• Continuous monitoring of the risk development, implementing relevant preventive and corrective measures</li> <li>• Project problem and crisis management</li> </ul>

7.	<p><b>Project change management</b> <i>The PM coordinates and manages changes in the project.</i></p> <ul style="list-style-type: none"> <li>Defining the basis for change management (delimiting project borders, project plans)</li> <li>Monitoring a) new requirements on the project, b) deviations from the project realisation plan</li> <li>Defining and collection of requirements for changes to the current project tasks/plans</li> <li>Change management application (collection, analysis, feasibility evaluation, requirements on source, etc., evaluation of the impact/effect, ensuring approval/rejection, change realisation)</li> <li>Efficient update of relevant project plans or project documentation</li> </ul>
	<p><b>Working with information and documents</b> <i>The PM effectively works with information and project documentation.</i></p> <ul style="list-style-type: none"> <li>Gathering and analysing relevant information, information synthesis and deducing observations, etc.</li> <li>Effective and efficient transmission of information</li> <li>Collecting and working with information obtained during the project (lessons learned)</li> <li>Effective and well-structured creation, updating and distribution of project documentation (both in hard and electronic copies)</li> <li>Efficient work with information systems and software applications to support the project management and team cooperation</li> </ul>
<b>Elements of social competences</b>	
9.	<p>Communication and negotiation <i>The Pm creates and keeps the frame for effective communication within the project and between the project and its environment.</i></p> <ul style="list-style-type: none"> <li>Identification and analysis of stakeholders and communication with them</li> <li>Internal communication within the project team</li> <li>Negotiating</li> <li>Marketing of project, project team and project success</li> <li>Project publicity</li> <li>Protection and defence of the project team</li> </ul>
	<p>Management and motivation of the project team, team work <i>The PM organises, manages and leads the project team in order to reach the project goals.</i></p> <ul style="list-style-type: none"> <li>Principles and methods of work activity organisation and management (roles and responsibilities, RACI matrix, organisational structures, project team organisation)</li> <li>Project team management, leadership, energisation</li> <li>Creating conditions for team work, coordination and directing team work, personal</li> </ul>
10.	

	<p>involvement within team work (working in the team)</p> <ul style="list-style-type: none"> <li>• Motivation, stimulation and evaluation of project team members</li> <li>• Situational leadership</li> </ul>
11.	<p><b>Performance management and result orientation</b> <i>The PM effectively manages their personal performance and the performance of the project team with the orientation on goals and results of the project.</i></p>
	<ul style="list-style-type: none"> <li>• Managing personal performance (personal competence of the project manager): managing personal effectiveness, time management, self-organisation, self-management and self-control, persistence and consistence, assertiveness, energisation, relaxation, etc.</li> <li>• Managing the performance of the project team</li> <li>• Orientation on project results, ability of persistent effort to reach the results, managing obstacles</li> </ul>
12.	<p><b>Avoiding and managing crises and conflicts</b> <i>The PM proactively avoids any critical or conflict situations and effectively manages them if they occur.</i></p>
	<ul style="list-style-type: none"> <li>• Continuous monitoring of all project aspects and factors influencing the project success</li> <li>• Preparedness for conflicts/crises</li> <li>• Managing critical and conflict situations (factuality, calm, judgment, protection of values and people, etc.)</li> <li>• Crisis management</li> <li>• Persistence and resistance towards stress</li> </ul>
<b>C. Elements of context competences</b>	
13.	<p><b>Project management within context of the organisation</b> <i>The PM understands the broader context of the environment, in which the project takes place and to which it belongs.</i></p>
	<ul style="list-style-type: none"> <li>• Strategy and strategic organisation management</li> <li>• Understanding changes of the wider environment and changes in the organisation (Change management); their relationship to organisation projects/programmes/portfolios</li> <li>• Operation activities, their organisation and management, process and organisation management</li> <li>• Portfolio management for project-oriented activities of the organisation (Portfolio management)</li> <li>• Management of strategic goals achievement through projects, project management of extensive projects (Programme management)</li> <li>• Coordination, management and support of projects/programmes/portfolios in the organisation; multiproject management, Project Management Office</li> <li>• Understanding the relationship between human resource management of the organisation and of the project</li> </ul>

	<ul style="list-style-type: none"> <li>• Corporate culture</li> <li>• Project culture</li> </ul>
14.	<p><b>Ethics, law and social responsibility</b>  <i>The PM thinks and acts in accordance with principles of the law, ethics and rules of the social and community responsibility. The PM shows respect to values related to the project and to people they come into contact with.</i></p> <ul style="list-style-type: none"> <li>• Ethics, morals</li> <li>• Law (namely labour and commercial law, Act on Public Contracts, etc.)</li> <li>• Social and community responsibility</li> <li>• Respecting the "equal approach"</li> <li>• Intercultural differences, their understanding and respecting</li> <li>• Occupational health and safety</li> <li>• Protection of the environment</li> <li>• Respecting and protecting values</li> </ul>

## Levels of development of competences according to the selected competence model

In order to evaluate the level of development of individual competences, the Competence model includes a five-grade scale for levels of development – see the table below. The project manager should not only have a certain set of competences but also a minimum level of development (maturity) of these competences (this is defined by the relevant competence profile).

#	DESIGNATION	SHORT DESCRIPTION
1	INCOMPETENCE	Incompetence (without any competence, unaware) The evaluated person is "untouched" (does not have any awareness about the principles, methods, tools and techniques that can be applied in the given area of knowledge)
2	AWARENESS	Basic awareness (passive knowledge) The evaluated person has basic awareness about the content and purpose of the relevant competence and is aware of some of the principles, methods, tools and techniques that can be applied in the given area of knowledge)
3	KNOWLEDGE	Competence on the level of active knowledge The evaluated person has an active knowledge of the content and purpose of the given competence, or knowledge of principles, common methods, tools and techniques that can be applied in the given area of knowledge ("knows the theory").
4	APPLICATION	Competence on the level of active knowledge and skills to apply the

	SKILLS	<p>knowledge in practice</p> <p>The evaluated person has an active knowledge of the content and purpose of the given competence (or knowledge of principles, common methods, tools and techniques that can be applied in the given area of knowledge).and can purposefully and effectively use the knowledge in real-life project management situations.</p>
5	APPLICATION SKILLS IN CONTEXT	<p>Competence on the level of active knowledge and skills to apply the knowledge within context in practice (holistic approach).</p> <p>The evaluated person has an active knowledge of the content and purpose of the given competence (or knowledge of principles, common methods, tools and techniques that can be applied in the given area of knowledge).and can purposefully and effectively use the knowledge in real-life situations of project management, also can critically evaluate/judge the suitability or adequacy of its application with regards to the situation context and is able to appropriately modify their contextual approach accordingly.</p>

### Links of the competence model to the competence structure according to the IPMA

The presented PM competence model is compatible with the competence model according to the International Project Management Association (IPMA). The table below maps the links of individual competence areas for a project manager in education to the competence structure defined by the national standard for project management competences published by the Project management organisation, o.s. in 2008, i.e. IPMA Competence Baseline® Version 3.0 published by the International Project Management Association in 2006.

Basically, it covers the basic (key) links between competences of the project manager in education and competences according to the IPMA. (Naturally, links between individual competences are multi-layered and in many situations apply across whole competence models. There is nothing wrong with not mapping individual competences by the 1:1 model, instead using 1:n or n:1, alternatively m:n in some situations.)

PROJECT MANAGER COMPETENCES IN EDUCATION		PM COMPETENCES DEFINED BY THE IPMA (ICB)
PROFESSIONAL COMPETENCES	1. Project integration management	1.01 Project management success rate
		1.14 Provision and contractual relationships
		1.12 Resources
		1.16 Inspection, management and submission of reports
		1.19 Initiation
		1.20 Completion
		3.07 Systems, products, technologies

SOCIAL COMPETENCES	2. Managing the project extent	1.03 Project requirements and goals
		1.09 Structures in the project
		1.10 Project extent and deliverables
		1.12 Resources
	3. Project time management	1.09 Structures in the project
		1.11 Project time and phase
	4. Project financial management	1.13 Costs and financing
		3.10 Finances
	5. Project quality management	1.05 Quality
	6. Project risk management	1.04 Risks and opportunities
	7. Project change management	1.15 Changes
	8. Working with information and documents	1.16 Inspection, management and submission of reports
		1.17 Information and documentation
		1.18 Communication
	9. Communication and negotiation	1.02 Stakeholders
1.18 Communication		
2.06 Openness		
2.10 Discussion		
2.11 Negotiating		
10. Management and motivation of the project team, team work	1.06 Project organisation	
	1.07 Team work	
	2.01 Leadership	
	2.02 Involvement and motivation	
	2.06 Openness	
11. Performance management and result orientation	3.08 Personal management	
	2.03 Self-control	
	2.04 Assertiveness	
	2.05 Relaxation	
	2.07 Creativity	
	2.08 Result orientation	
	2.09 Performance	
2.13 Reliability		

CONTEXTUAL COMPETENCE	12. Avoiding and managing crises and conflicts	1.04 Risks and opportunities
		1.08 Solving problems
		2.12 Conflicts and crises
	13. Project management within context of the organisation	3.01 Project orientation
		3.02 Programme orientation
		3.03 Portfolio orientation
		3.04 Realisation of project, programme and portfolio
		3.05 Permanent organisation
		3.06 Business
		3.07 Systems, products, technologies
	14. Ethics, law and social responsibility	1.14 Provision and contractual relationships
		2.14 Understanding values
		2.15 Ethics
		3.09 Health, safety, protection of life and the environment
		3.11 Law

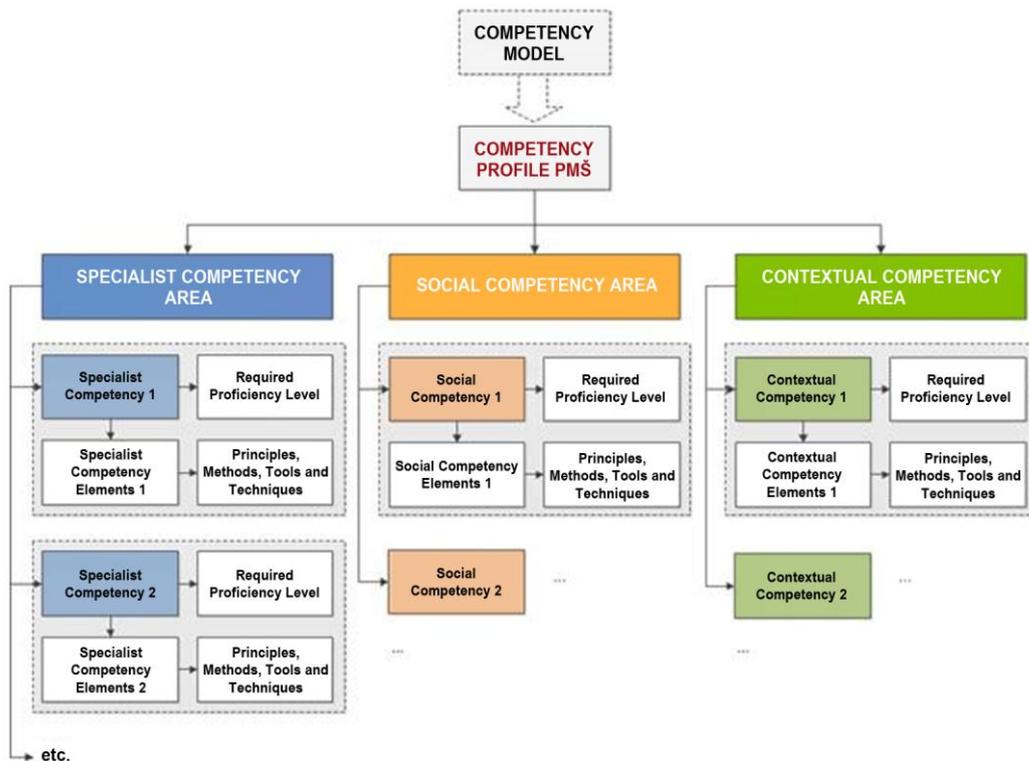
#### 4. Competence profile of a project manager in education

The above described competence model of a project manager was used to define the competence model of a project manager in education by determining concrete techniques, methods and principles, which the project manager in education should know and use on a certain level of development.

The following chart represents the hierarchy of used terms:



***"Your career as a project manager begins here!"***



Individual competence elements, together with stated techniques and required level of development, are listed below:

A. Elements of professional PM competences in education		Principles, methods, tools and techniques
1.	<p><b>Project integration management</b></p> <p><i>The PM integrates and manages all aspects of the project, as well as links of the projects to the near and wider environment.</i></p>	<p>Required level:</p> <p><b>KNOWLEDGE</b></p>
	<ul style="list-style-type: none"> <li>• Analysis and explanation of input conditions of the project (task, context, expectations and interests of stakeholders, character and influence of the environment, etc.)</li> <li>• Initiation and facilitation of the creation/commencement of the project</li> <li>• Determining/deducing (or adopting) the purpose and aims of the project</li> <li>• Integration of project plans</li> <li>• Management and coordination of project works, management of deviations and integration of changes (dynamic planning)</li> <li>• Evaluation and completion of the project</li> </ul>	<ul style="list-style-type: none"> <li>• Professional terminology used in the given area</li> <li>• Project life cycle and phases</li> <li>• Target(s) and contribution(s) of the project</li> <li>• Method of triple constraint for determining targets</li> <li>• The SMART method for determining targets</li> </ul>

	<ul style="list-style-type: none"> <li>• Orientation on the purpose, function and success of the project</li> <li>• Project resources management</li> <li>• Management of relationships with all stakeholders during the entire project life cycle.</li> <li>• Integration of third parties, or products and services of third parties, into the project.</li> </ul>	<ul style="list-style-type: none"> <li>• Logical Framework</li> <li>• System thinking principle</li> <li>• Stakeholders management</li> <li>• Communication plan</li> <li>• Project management plan</li> <li>• Change in the broad sense (what is around the project, why it was created, what is the desired output)</li> <li>• Organisational structure of the project</li> <li>• Responsibility matrix</li> <li>• Feasibility studies</li> <li>• Cost-Benefit Analysis (CBA)</li> <li>• Profitability analysis for project investments</li> </ul>
2.	<p><b>Project Extent Management</b> <i>The PM delimits factual borders of the project and manages its content and extent.</i></p> <ul style="list-style-type: none"> <li>• Delimiting the subject and borders of the project (what is and what is not the project subject)</li> <li>• Determining and keeping a factual structure of the project (logical frame, work breakdown structure)</li> <li>• Determining and planning of project outputs (project deliverables): planning project deliverables and partial work packages, as well as the quality parameters of deliverables and their acceptance criteria</li> <li>• Monitoring the process of creation / delivery of outputs, their inspection</li> <li>• Maintaining and updating the project plan in accordance with the needs and development of the project</li> </ul>	<p>Required level: <b>KNOWLEDGE</b></p> <ul style="list-style-type: none"> <li>• Professional terminology used in the given area</li> <li>• Project structure hierarchy – Work Breakdown Structure (WBS)</li> <li>• Project content and extent – Extent</li> <li>• Acceptance principles</li> </ul>
	<p><b>Project time management</b> <i>The PM specifies the time frame of the project and manages all project activities accordingly.</i></p> <ul style="list-style-type: none"> <li>• Time framework planning (e.g. within the Feasibility study)</li> </ul>	<p>Required level: <b>KNOWLEDGE</b></p> <ul style="list-style-type: none"> <li>• List of activities/tasks</li> </ul>
3.		

	<ul style="list-style-type: none"> <li>Detailed time planning (schedule): defining concrete activities and their sequences, logical and source links, source requirements, duration of activities, specification of milestones, relationship with the external environment, etc., creating a project schedule</li> <li>Monitoring the progress in time, checking the adherence to the schedule, management of deviations (taking preventive and corrective measures)</li> </ul>	<ul style="list-style-type: none"> <li>Network graph</li> <li>Analysis of resource demands including solving resource conflicts</li> <li>Time Schedule</li> <li>Gantt chart</li> <li>Milestone method, Critical path method</li> <li>Project monitoring (State methods, percentage methods)</li> </ul>
4.	<p><b>Project financial management</b> <i>The PM coordinates and manages the financial aspects of the project.</i></p>	<p>Required level: <b>AWARENESS</b></p>
	<ul style="list-style-type: none"> <li>Assessing the financial (investment) aspect of the project (investment profitability, purposefulness of the investment with regards to the financial aspect, assessing the cost acceptability for planned project benefits, etc.) =&gt; financial chapters of the Feasibility study</li> <li>Project costs (and profits) planning and project cash-flow planning</li> <li>Ensuring financial resources (funding) for the project (own resources, grants, sponsors, loans, PPP (Public Private Partnership), etc.)</li> <li>Project costs or expenses management, financial controlling and reporting</li> <li>Project profits or revenues management, monitoring payment transactions, etc.</li> <li>Financial evaluation of the project</li> </ul>	<ul style="list-style-type: none"> <li>Professional terminology used in the given area</li> <li>Project budget – created based on the WBS and list of activities</li> <li>Cost-Benefit Analysis (CBA)</li> <li>Profitability analysis for project investments</li> <li>Sustainability principles of funded projects and profitability of non-funded projects</li> <li>Principles of basic financial tools – credits, mortgages, etc.</li> <li>Overview of funding possibilities in education and mechanism of individual titles</li> </ul>
5.	<p><b>Project quality management</b> <i>The PM defines, coordinates and manages quality aspects of the project and output quality.</i></p>	<p>Required level: <b>AWARENESS</b></p>
	<ul style="list-style-type: none"> <li>Defining the factual frame for project quality management (rules, principles, quality standards,</li> </ul>	<ul style="list-style-type: none"> <li>Professional terminology used in the</li> </ul>

	<p>used quality norms, etc.)</p> <ul style="list-style-type: none"> <li>• Analysis of requirements and defining and management of deliverables quality</li> <li>• Analysis of requirements and defining and management of project management quality</li> <li>• Actions leading to quality assurance and quality control during the project – setting and using control and feedback mechanisms (e.g. testing deliverables – continual, integration, acceptance, project management audits, etc.)</li> </ul>	<p>given area</p> <ul style="list-style-type: none"> <li>• Process quality</li> <li>• Product quality</li> <li>• Steps for ensuring quality – planning, ensuring, inspection (principles)</li> <li>• Methods used in QM – e.g. FJMEA, HACCP, Cause-effect chart (Ishikawa)...</li> <li>• Pareto Analysis</li> </ul>
	<p><b>Project risk management</b> <i>The PM protects the success of the project by coordinating and managing the indeterminateness, uncertainty and risk of the project; systematically searches and takes advantage of any opportunity to strengthen or improve any aspect of the project.</i></p>	<p>Required level: <b>KNOWLEDGE</b></p>
6.	<ul style="list-style-type: none"> <li>• Identification and assessment of risks (threats and opportunities) to the project</li> <li>• Planning preventive and corrective measures</li> <li>• Realisation of preventive measures</li> <li>• Continuous monitoring of the risk development, implementing relevant preventive and corrective measures</li> <li>• Project problem and crisis management</li> </ul>	<ul style="list-style-type: none"> <li>• Professional terminology used in the given area</li> <li>• What is (and what is not) a risk</li> <li>• Risk management processes identification, evaluation, reaction and monitoring</li> <li>• Principles and methods of risk identification (expert estimate, brainstorming)</li> <li>• Principles and methods of risk analysis and evaluation (qualitative and quantitative methods)</li> <li>• Reaction strategies for risks</li> <li>• Principles for continuous reduction of risks</li> <li>• RIPRAN method</li> </ul>
7.	<p><b>Project change management</b></p>	<p>Required level:</p>

	<p><i>The PM coordinates and manages changes in the project.</i></p> <ul style="list-style-type: none"> <li>Defining the basis for change management (delimiting project borders, project plans)</li> <li>Monitoring a) new requirements on the project, b) deviations from the project realisation plan</li> <li>Defining and collection of requirements for changes to the current project tasks/plans</li> <li>Change management application (collection, analysis, feasibility evaluation, requirements on source, etc., evaluation of the impact/effect, ensuring approval/rejection, change realisation)</li> <li>Efficient update of relevant project plans or project documentation</li> </ul>	<p><b>KNOWLEDGE</b></p> <ul style="list-style-type: none"> <li>Professional terminology used in the given area</li> <li>Change management principles (knowledge of the order of individual steps of the basic process)</li> <li>Principles of impact analysis of project changes</li> <li>Project content and extent</li> <li>Project borders</li> </ul>
8.	<p><b>Working with information and documents</b> <i>The PM effectively works with information and project documentation.</i></p> <ul style="list-style-type: none"> <li>Gathering and analysing relevant information, information synthesis and deducing observations, etc.</li> <li>Effective and efficient transmission of information</li> <li>Collecting and working with information obtained during the project (lessons learned)</li> <li>Effective and well-structured creation, updating and distribution of project documentation (both in hard and electronic copies)</li> <li>Efficient work with information systems and software applications to support the project management and team cooperation</li> </ul>	<p>Required level: <b>KNOWLEDGE</b></p> <ul style="list-style-type: none"> <li>Principles for handling information in the project</li> <li>Basic project management documentation (ILP, Master plan, Meeting minutes, acceptance forms, etc) – what is the content of these documents, what is the recommended structure, etc.</li> <li>Principles, benefits and limitations of software support for project management and project documentation</li> </ul>
<p><b>B. Elements of PM social competences in education</b></p>		<p><b>Principles, methods, tools and techniques</b></p>
9.	<p>Communication and negotiation <i>The Pm creates and keeps the frame for effective communication within the project and between the project and its environment.</i></p>	<p>Required level: <b>KNOWLEDGE</b></p>

	<ul style="list-style-type: none"> <li>• Identification and analysis of stakeholders and communication with them</li> <li>• Internal communication within the project team</li> <li>• Negotiating</li> <li>• Marketing of project, project team and project success</li> <li>• Project publicity</li> <li>• Protection and defence of the project team</li> </ul>	<ul style="list-style-type: none"> <li>• Principles of running a meeting</li> <li>• Asking questions and listening</li> <li>• Principles of assertiveness</li> <li>• Principles of facilitation techniques</li> <li>• Negotiation principles</li> <li>• Principles of managing resentment towards change from team members and stakeholders</li> </ul>
10.	<p>Management and motivation of the project team, team work</p> <p><i>The PM organises, manages and leads the project team in order to reach the project goals.</i></p>	<p>Required level: <b>KNOWLEDGE</b></p>
	<ul style="list-style-type: none"> <li>• Principles and methods of work activity organisation and management (roles and responsibilities, RACI matrix, organisational structures, project team organisation)</li> <li>• Project team management, leadership, energisation</li> <li>• Creating conditions for team work, coordination and directing team work, personal involvement within team work (working in the team)</li> <li>• Motivation, stimulation and evaluation of project team members</li> <li>• Situational leadership</li> </ul>	<ul style="list-style-type: none"> <li>• Difference between management x leadership</li> <li>• Basics of work organisation</li> <li>• Differences between team-group-community</li> <li>• Phases of team development</li> <li>• Typology of team members</li> <li>• Maslowov's theory of needs</li> <li>• Principles of other motivation theories (Herzberg, etc.)</li> <li>• Provision of a feedback</li> <li>• Self-reflection</li> </ul>
11.	<p><b>Performance management and result orientation</b></p> <p><i>The PM effectively manages their personal performance and the performance of the project team with the orientation on goals and results of the project.</i></p>	<p>Required level: <b>AWARENESS</b></p>
	<ul style="list-style-type: none"> <li>• Managing personal performance (personal competence of the project manager): managing personal effectiveness, time management, self-</li> </ul>	<ul style="list-style-type: none"> <li>• Principle of importance vs. urgency (time management)</li> </ul>

	<p>organisation, self-management and self-control, persistence and consistence, assertiveness, energisation, relaxation, etc.</p> <ul style="list-style-type: none"> <li>Managing the performance of the project team</li> <li>Orientation on project results, ability of persistent effort to reach the results, managing obstacles</li> </ul>	<ul style="list-style-type: none"> <li>Delegation principles</li> <li>Principle of personal responsibility</li> <li>Conditions and environment supporting/limiting performance and creativity</li> <li>Principle of multitasking</li> </ul>
12.	<p><b>Avoiding and managing crises and conflicts</b> <i>The PM proactively avoids any critical or conflict situations and effectively manages them if they occur.</i></p>	<p>Required level: <b>AWARENESS</b></p>
	<ul style="list-style-type: none"> <li>Continuous monitoring of all project aspects and factors influencing the project success</li> <li>Preparedness for conflicts/crises</li> <li>Managing critical and conflict situations (factuality, calm, judgment, protection of values and people, etc.)</li> <li>Crisis management</li> <li>Persistence and resistance towards stress</li> </ul>	<ul style="list-style-type: none"> <li>Principle of creating conflict solutions</li> <li>Dispute spiral</li> <li>Ten commandments of crisis management</li> <li>Principles of managing stress</li> </ul>
<b>C. Elements of contextual PM competences in education</b>		<b>Principles, methods, tools and techniques</b>
13.	<p><b>Project management within context of the organisation</b> <i>The PM understands the broader context of the environment, in which the project takes place and to which it belongs.</i></p>	<p>Required level: <b>AWARENESS</b></p>
	<ul style="list-style-type: none"> <li>Strategy and strategic organisation management</li> <li>Changes in the wider environment versus changes in the organisation and change management; correspondence to projects/programmes/portfolios of the organisation</li> <li>Operation activities, their organisation and management, process and organisation management</li> <li>Portfolio management for project-oriented activities of the organisation (Portfolio management)</li> <li>Management of strategic goals achievement through projects, project management of extensive projects (Programme management)</li> <li>Coordination, management and support of projects/programmes/portfolios in the organisation; multiproject management, Project</li> </ul>	<ul style="list-style-type: none"> <li>Basic principles of strategic management (missions, visions, strategies)</li> <li>Project, programme, portfolio (definitions, differences)</li> <li>Principle of strategy realisation through programmes and projects</li> <li>Principle of project portfolio management</li> <li>Basic types of organisational</li> </ul>

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	<p>Management Office</p> <ul style="list-style-type: none"> <li>• Development of human resources and personal management</li> <li>• Corporate culture</li> <li>• Project culture</li> </ul>	<p>structures of a permanent organisation</p> <ul style="list-style-type: none"> <li>• Project management office, its possible function and forms</li> <li>• Principles of human resources management</li> </ul>
14.	<p><b>Ethics, law and social responsibility</b></p> <p><i>The PM thinks and acts in accordance with principles of the law, ethics and rules of the social and community responsibility. The PM shows respect to values related to the project and to people they come into contact with.</i></p>	<p>Required level:</p> <p><b>AWARENESS</b></p>
	<ul style="list-style-type: none"> <li>• Ethics, morals</li> <li>• Law (namely labour and commercial law, Act on Public Contracts, etc.)</li> <li>• Social and community responsibility</li> <li>• Respecting the "equal approach"</li> <li>• Intercultural differences, their understanding and respecting</li> <li>• Occupational safety and health protection, environmental protection</li> <li>• Respecting and protecting values</li> </ul>	<ul style="list-style-type: none"> <li>• Principles of ethics, social and community responsibility and protection of values</li> <li>• Ethic codex of a project manager</li> <li>• Basic overview in the labour and commercial law</li> </ul>

## 5. Conclusion

The team of authors created the competence model and subsequently the competence profile for a specific role of a project manager in education with the long-term goal to support the professionalisation of education (for example through implementation of principles, methods and tools of project management and partial goals), to define the structure and minimum level of the competences of project managers in education and to ensure appropriate development of these competences for selected project managers.

The Competence model of a project manager and Competence profile of a project manager in education consists of three competence areas: the area of professional competence, social competence and contextual competence; these three areas contain fourteen specific competences. These competences are defined by a certain set of knowledge, personal approach, skills and related experience that the project manager should have in order to fulfill their function successfully. The competence profile is based on generally accepted international standards and models (namely the IPMA model) and takes the specific context of projects and human resources in education into consideration. The verification methodology for the level of competence of a project manager in education introduces a concrete methodology for the verification of defined competences.

The creation of the competence profile is the first step for evaluating the need for development of project manager competences in education to start concrete activities (training, coaching, managed practice, etc.) leading to this development within Project Manager 250+.