

TM



EUCIP

European Certification of
Informatics Professionals

EUCIP Information Systems Project Manager

Elective Level Profile Specification

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Short Description

A EUCIP Information Systems Project Manager is expected to be very effective in organising people and technical resources to achieve essential project goals in compliance with agreed constraints on quality, time and costs.

This requires a specific competence in project management techniques (both in case of packaged solutions and custom development) and a broad knowledge of ICT and Information Systems.

This profile requires a minimum work experience of **48** months in a compatible job role; if this requirement is not fulfilled, the candidate might be certified as an Information Systems **Associate** Project Manager.

Tasks Overview

The main focus of an IS Project Manager's tasks is to enable the people of the project team to work efficiently on the right topics and to influence positively all stakeholders, to make sure that the constraints concerning quality, time and cost budgets are met.

Takes responsibility towards all project stakeholders: to the client organisation (either employer or external customer), to the project organisation (steering committee, project team, key users, etc.), to the final users and to the contractors.

Develops and conducts iteratively plans for subsequent project phases.

Identifies, mitigates and manages project risks in order to avoid that risks turn into project problems.

Performs assessments and monitoring of project phases in order to deduct metrics about the performance of the each project activities, project disciplines and project phases.

Motivates team members for efficient working.

Solves communication problems between groups of team members and other project stakeholders if necessary.

Negotiates and concludes contracts within the groups of project teams as well as with subcontractors and external vendors.

Keeps track of all budgets (with respect to time and money).

Manages arising changes (because of e.g. technical reasons as well as because of commercial reasons or any other reason).

Manages the compatibility of created project artefacts, representing the results of the project activities.

Essential Behavioural Skills [4]¹

The IS Project Manager role requires a good general knowledge, a standing learning attitude, a brilliant oral and written expression, and a very wide range of more specific behavioural skills.

Cooperative approach and behaviour are required in order to be able to form and to keep a winning and powerful team. Therefore, understanding for the real needs and thinking of the project team is essential.

Attention, ability to collect information, keen organisational and commercial sensitivity are required to understand quickly and deep the needs of the clients and other relevant stakeholders.

¹ numbers in brackets represent EUCIP points

Open minded vision, analytical and synthetic intelligence, imagination and proactivity are required to conceive and validate solutions.

A persistent goal-driven approach, flexibility, determination, planning and control aptitude, teambuilding and leadership are required to achieve actual results.

Attention to detail, a logical-minded and goal-driven approach, flexibility, determination, planning and control aptitude, teambuilding and leadership are required to achieve effective results.

Detailed Skills Required

Deep competence level [12,5]

Remark: the first 9 competence categories below (A5.04 - A5.12) correspond to the areas described by the Project Management Institute in “A Guide to the Project Management Body of Knowledge (PMBOK® Guide)- Third Edition”, Project Management Institute, Inc., 2004². This systematic frame for project management processes has been used as a reference; further detailed descriptions can thus be found in PMBOK.

A5.04 Integration management [1]

- Develop a project charter.
- Develop a preliminary project scope statement.
- Develop a project management plan including a measurement plan.
- Direct and manage the project execution.
- Monitor and control the project work.
- Perform an integrated change control.
- Close the project.

A5.05 Scope management [1]

- Plan and define the scope of the project.
- Create a work breakdown structure (down to single activities) as a basis for time and cost estimation.
- Control and verify scope while the project is running.

A5.06 Time management [1]

- Define the activities as detailed as necessary for estimation.
- Bring all the defined activities in a feasible sequence.
- Estimate the resources and the duration of the defined activities.
- Develop an optimal and/or possible schedule; think about best case and worst case scheduling.
- Control the schedule and measure progress while the project is running.

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A5.07 Cost management [1]

- Calculate the project requirements in terms of key resources, duration and distribution over time.
- Calculate the necessary cost budgets.
- Control costs and budgets while the project is running.

A5.08 Quality management [1]

- Define and develop a quality plan in compliance with agreed standards and possible project-specific needs.
- Perform quality assurance procedures.
- Perform quality control procedures.

A5.09 Human resource management [1]

- Plan the necessary human resources and define the project organisational structure.
- Acquire a sufficiently qualified project team and assign each member a role and specific tasks.
- Develop and keep a powerful and motivated project team.
- Manage and keep track of the needs of the project team.

A5.10 Communication management [1]

- Plan effective communication within the project team and with all stakeholders of the project.
- Organize an appropriate and timely distribution of all relevant information.
- Organize and manage reports on project performances.
- Manage the involvement of stakeholders as appropriate in each project phase, from initial preparation to administrative closure.

A5.11 Risk management [1]

- Define an agreed-upon strategy for managing risks and responding to them.
- Identify risks and rank them in a list.
- Perform qualitative risk analysis.
- Perform quantitative risk analysis.
- Monitor and control risks while the project is running.

A5.12 Procurement management [1]

- Plan purchases and acquisitions as necessary for the project.
- Plan contracting of specified project parts and describe requirements in clear documents (requests for proposals).
- Request and collect responses from candidate suppliers.
- Select suppliers.
- Perform administration of contracts.
- Close contracts.

A5.13 Project Management tools [2]

- Make professional use of appropriate software tools for Project Management, including the following functions:
 - o definition and maintenance of a general Work Breakdown Structure, including identification of milestones

- definition and maintenance of project activities, including planned timing and actual progress tracking
- definition of precedence constraints between activities; maintenance of such dependencies and rescheduling; project representation through diagrams (Gantt, PERT etc.)
- resource allocation, tracking of actual effort and utilization statistics
- cost budgeting and tracking.
- Evaluate strengths and weaknesses of specific PM tools like Artemis, Primavera or Microsoft Project.
- Evaluate pros and cons of using generic software applications (e.g. spreadsheets) instead of structured PM tools in small projects.

B1.08 Software engineering principles [1,5]

- Understand roles of the software engineering process (project manager, software developer, maintenance staff, quality assurance and the user).
- Understand software development life cycle models and their applications.
- Understand and apply software development estimation techniques
- Understand and apply principles of software Project Management
- Understand Risk Management
- Understand Quality Assurance
- Understand Configuration Identification, Control and Auditing
- Understand Configuration Status Accounting
- Understand and apply Software Estimating Techniques and Metrics

Incisive competence level [15,5]

B1.01 System development lifecycles [1,5]

- Understand the differences between Business Analysis, Systems Analysis and Systems Design.
- Investigate and document an existing system.
- Produce a requirements definition for a business system.
- Create Business System Options and present them to the business.
- Identify tasks/disciplines involved in management of systems development.
- Justify the use of a specific systems methodology.
- Use relevant (to Business and Systems Analysis) development techniques.
- Explain the lifecycle of a project to business users.
- Use formal approaches for ensuring best practice in the System Development process.
- Understand the rationale for a particular Systems Development (SD) method and where it is used.
- Appreciate the scope and limitations of SD method in the project lifecycle.
- Understand and work within a standard development framework (e.g. SSADM).

- Appreciate the need for specific techniques in the SD process.
- Evaluate the suitability of differing system development approaches for a particular project scenario.
- Harmonise roles and responsibilities of the various specialists in each of the main lifecycles for system development.
- Use well known approaches to providing detailed SD Lifecycle products, e.g. textual, diagrams, prototypes.
- Create different modelling views of a business system (e.g. static data, behaviour, user centred, process).

A6.01 Managing business change [1]

- Develop a communication plan to facilitate organizational changes
- Foster innovation by an appropriate evaluation system for IT staff
- Promote training to facilitate the change
- Identify organizational and technological drivers of resistance to change
- Understand human behaviour and its impact on business change
- Create a plan to overcome resistance to change from the business, including “selling” the benefits of new technology
- Make effective use of Audio-Visual tools in making the case for change within an organisation
- Explain to non-IT staff the role of IT in achieving corporate aims, and its place within the organisation
- Ensure that the case for change is presented effectively, using modern delivery techniques
- Evaluate the Impact of an IT solution on the Business, its Customers/Suppliers, Staff, Internal processes etc
- Select between Programmes and Projects for Business Change
- Organise the delivery of user training for both new business processes and the use of any underpinning ICT services
- Control the interfaces between Business Change projects and enabling IT projects
- Identify cultural, organisational and business constraints affecting options for change
- Establish an understanding of business aims and develop alternative processes to achieve them
- Assess the risks, costs and potential benefits of alternative business process designs.

A4.01 New technology opportunities and the matching of these to business needs [2]

- Analyse business processes and compare them against alternative solutions proposed by standard software packages (“best practice” approach).
- Evaluate various options for the “virtual organisation” within a business scenario.
- Establish a business case for moving from a “segregated” sales and marketing strategy to the “unique customer” approach in a given organisation.
- Produce a report on the effects of globalisation for an organisation.
- Evaluate the Internet as a tool for creating new opportunities for an organisation.

- Evaluate extranets as a tool for achieving efficiencies in customer/supplier interaction.
- Produce an impact analysis for an organisation related to the increased use of e-business mechanisms.
- Evaluate a project which used IT as the enabler for significant business change.
- Produce a report documenting the major features of Customer Relationship Management tools.
- Compare the features offered by two major Supply Chain Management packages.
- Evaluate the case for using Enterprise Resource Planning tools for a given business scenario.
- Compare the strengths and weaknesses (from a business viewpoint) of developments in IT technical architectures (e.g. web based vs. "2 tier" client server).
- Evaluate the case for using Document Management systems.

A1.01 Business activity and business process modelling [1,5]

- Understand the Rationale for Business Activity Modelling.
- Perform Internal Environment Analysis (e.g. MOST).
- Perform External Environment Analysis (e.g. PESTLE).
- Use SWOT Analysis.
- Perform Business Viewpoint Analysis.
- Define Business Activities for an organisation.
- Define CSFs and KPIs for a business change.
- Formalise Business Rules within an organisational unit.
- Define Information Support needed for the defined activities.
- Perform conflict resolution between perspectives.
- Create Rich Pictures to describe a business scenario.
- Utilise the Soft Systems Approach to developing an Information System.
- Evaluate alternative ways of modelling business processes; e.g. Data Flow Diagrams, PHD, Process Dependency, Event Models.
- Conform to the syntax of business process modelling.
- Document Information flows (sources, destinations).

A4.02 Package selection and implementation lifecycle [1]

- Define a framework for effective package selection.
- Identify, investigate and assess potential package suppliers.
- Evaluate a software package against defined requirements.
- Present recommendations concerning the "fit" of the software package to agreed functional and non-functional requirements.
- Evaluate the advantages and disadvantages of the package approach.
- Evaluate the human, technical and financial implications of a decision to outsource development/buy a package solution.
- Apply a checklist of factors to a decision on in-house development vs. package procurement.
- Work within a framework for package selection.
- Understand the impact on package selection of Prototyping approaches.

- Acquire an understanding of the software package market in a particular business context.
- Produce a High Level Functional Model for a system.
- Contribute to identifying potential package suppliers.
- Contribute to the production of Invitations to Tender (ITTs) and questionnaires.
- Investigate suppliers.
- Assist in the creation of Supply Contracts and Support Agreements.
- Perform cost comparisons – purchase and support.
- Document the functional match of a package solution.
- Contribute to gap analysis for a package selection.
- Use a weighted scorecard approach to evaluation.
- Present the recommendation for a specific package solution.
- Assist in the implementation of packages.
- Liaise with procurement staff for package purchase.
- Define the modified business processes required in a package solution.
- Appreciate the issues with tailoring the package software.
- Contribute to long term supplier management.
- Appreciate the advantages/disadvantages of packages.

A5.02 Estimating for System Development [1]

- Use a variety of estimating approaches and apply them to a practical project.
- Understand the importance of estimating and measurement.
- Distinguish between top-down and bottom-up estimating.
- Contribute to “estimating by analogy”.
- Contribute to Delphi estimating.
- Contribute to estimating by the analysis percentage effort method.
- Appreciate the principles of Function Point Analysis (FPA).
- Contribute to FPA estimates by using formal counting rules.
- Assist in defining effort estimates and elapsed duration estimates.
- Appreciate the use of Line Count Cost Models.
- Contribute to building Work Breakdown structures and hence estimating for software development projects.
- Appreciate the impact of timeboxing and RAD on estimating.
- Evaluate the factors affecting productivity in IS development.
- Contribute to collecting and analysing project statistics/metrics.
- Contribute to the use of metrics to improve project estimation.

A1.02 Requirements engineering [1]

- Distinguish between Functional and Non-Functional requirements.
- Use What, Why, How questioning to elicit requirements.
- Differentiate between requirements and project constraints.
- Identify the Actors in the Requirements Management process: Domain Expert, End User, Requirements Engineer, and Developer.
- Perform requirements elicitation.
- Perform Problem and Business understanding activities.
- Understand the needs and constraints of stakeholders.

- Use Creative thinking and related techniques (e.g. interviews and scenarios, observation, prototyping, workshops, generic requirements for industry sector).
- Prioritise Requirements (e.g. 80/20, MoSCoW, Needs and Musts).
- Resolve overlapping requirements.
- Judge whether a problem is a cause or symptom.
- Resolve conflicting requirements.
- Reduce ambiguity of requirements .
- Ensure Testability of requirements.
- Support requirements validation via reviews and prototyping.
- Achieve Requirement Refinement.
- Manage the requirements definition process.
- Differentiate between stable and volatile requirements.
- Apply versioning principles to requirements documents.
- Establish traceability and ownership of requirements.
- Use CASE Tools for requirements management.
- Act as an effective member of a team involved in eliciting and recording user requirements for an Information System.
- Apply a range of elicitation techniques effectively.

B3.03 Software Development process [1]

- Write documentation: proper formats, tools, internal documentation.
- Develop formal methods, use tools and environments for software engineering, recognise the role of programming paradigm and process maturity.
- Perform Rapid Prototyping.
- Perform testing/acceptance/deployment procedures:
 - o development of major UI components
 - o development of prototypes to explore any other system uncertainties like response time, scalability etc.
- Apply methods and techniques for planning and monitoring progress of projects. Examples: work breakdown structures, critical path analysis, conflict resolution.
- Correct course and control changes, according to the Change Control Process.
- Apply a proper coding process in a development environment aimed at a massively parallel execution, as well as for embedded systems, real time response systems and very high availability systems.
- Conduct acceptance testing.
- Identify milestones.
- Test functionality, system stress and load.
- Use commercial tools packages for various types of testing and bug tracking.
- Build an acceptance test.
- Support deployment and hand-over.
- Provide application and technical support.

B1.05 Systems design and implementation [1]

- Identify the tasks involved in implementing and designing an IT system.
- Evaluate the business benefits of database technologies, data warehousing and data mining tools.
- Understand the contents of a system specification.
- Understand function specifications.
- Appreciate the need for (and constraints on) Physical Design of Databases (e.g. tables and indexes).
- Perform Forms Design for a business system.
- Contribute to design of screens and dialogues.
- Contribute to recovery and contingency plans.
- Ensure that audit of an Information System is possible.
- Define system controls for an Information System.
- Define the data integrity needs for an IT System.
- Understand Technical System Options and assist the business in evaluation.
- Employ relevant methods of changeover to new systems.
- Contribute to System Review (post implementation).
- Detail the need for design of security, confidentiality and privacy in a system.
- Produce an implementation plan and assist with business implementation and system review.

B3.05 Principles of Testing [1,5]

- Explain the principles of Testing.
- Maintain the importance of Testing in the Lifecycle.
- Understand Dynamic Test Techniques.
- Apply Test Management Standards.
- Use Static Testing Techniques.
- Understand core testing terminology (e.g. Expected Results, Expected Information).
- Appreciate the economics of Testing.
- Perform High Level Test Planning.
- Organise User Acceptance Testing (UAT).
- Ensure Functional and Non-Functional UAT is completed.
- Contribute to Dynamic Testing (Black Box).
- Contribute to Test Management (e.g. organisation, estimating, resourcing).

C7.03 Change and configuration management [1]

- Describe a structured approach to Configuration Management.
- Coordinate and control the steps of system development.
- Administer versions of artefacts.
- Control access to artefacts.
- Administer dependencies between (versions of) artefacts.
- Define and administer reproducible products (baselines).
- Administer development states of artefacts.
- Ensure that a consistent version of the system exists at any time.
- Describe a structured approach to Change Management.
- Collect change requests.
- Evaluate change requests and commit on schedules.

- Drive the execution of changes.
- Test the results of changes done on the various artefacts.

B1.13 Managing a development environment [1]

- Organize a development environment by establishing a workflow.
- Control and understand the software development work and the resulting artefacts.
- Define processes and tools that support the organisation in applying the proper development workflow:
 - o select and acquire tools
 - o set up and configure tools to suit the organisation
 - o configure the development processes in order to suit the organisation
 - o timely improve the development processes
 - o arrange services to support the processes: the IT infrastructure, account administration, backup, etc.

B1.14 System deployment methods [1]

- Organize the deployment of a system, i.e. the delivery of it to the users in the target client organisation.
- Control and understand the business application of artefacts resulting from software development.
- Organise deployment workflow and product roll-out activities, including:
 - o testing the software in its final operational environment (beta test)
 - o packaging the software for delivery
 - o software distribution
 - o software installation and configuration
 - o data population, both through new data entry activities and through migration from legacy system files or databases
 - o training the users
- Support the client organisation in planning and acting the operational start-up of the new system.
- Organise and control initial support service provision during system start-up.

External references to SFIA[®] version 3 by the SFIA Foundation

Skill 36: Project management

“The management of projects, typically (but not exclusively) involving the development and implementation of business processes to meet identified business needs, acquiring and utilising the necessary resources and skills, within agreed parameters of cost, timescales and quality.”

Levels 4 and 5

Skill 66: Project office

“The provision of support and guidance on project management processes, procedures, tools and techniques to programme and project managers and their teams. The use of project management software. The development, production and maintenance of time, resource, cost and exception plans. The tracking and reporting of progress and performance of projects, including those performed by third parties under contract. The maintenance of programme and/or project files. The servicing of project control boards, project assurance teams and quality review meetings. The analysis of performance and the maintenance of metric data and estimating models. The administration of project change control, including use of configuration management systems.”

Levels 4 and 5

Skill 17: Systems development management

“The management of resources in order to plan, estimate and carry out programmes of systems development work to time, budget and quality targets and in accordance with appropriate standards.”

Level 5

Skill 31: Systems integration

“The incremental and logical integration and testing of components and/or subsystems and their interfaces in order to create operational systems.”

Levels 4 and 5

Skill 41: Stakeholder relationship management

“The coordination of relationships with and between key stakeholders, during the design, management and implementation of business change.”

Level 5

Skill 60: Supplier relationship management

“On behalf of a client organisation, the sourcing and management of external suppliers to ensure successful delivery of products and services.”

Levels 4 and 5

External references to AITTS by the German Government – *Arbeitsprozessorientierten Weiterbildung in der IT-Branche*

Profil 2.1: IT Project Coordinator (IT-Projektkoordinator/in)

“IT Project Coordinator leiten IT-spezifische Projekte oder Teilprojekte mit vorgegebenen Zielsetzungen und Ressourcenrahmen.”

External references to Nomenclature 2005 by CIGREF (club informatique des grandes entreprises françaises)

Métier 1.6: Responsable de projet « Metier »

“Le responsable de projet métier assume la responsabilité fondamentale du projet dans toutes ses dimensions (stratégiques, commerciales, financières, humaines, juridiques, organisationnelles, techniques...).

Il pilote l'ensemble du projet dans toute sa complexité (multiplicité des parties prenantes, intérêts souvent divergents...).

Il est le garant de l'enjeu stratégique du projet pour le métier, l'entreprise ou des tiers.”

Métier 4.1: Chef de projet « Maîtrise d'œuvre »

“Fondamentalement, il est responsable sur le terrain de l'obtention, à la fin du projet, d'un résultat optimal et conforme au référentiel établi par (ou pour) le maître d'ouvrage au point de vue qualité, performances, coût et délai.”