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**EUCIP**

European Certification of  
Informatics Professionals

# EUCIP Information Systems Analyst

## Elective Level Profile Specification

*Version 2.4, February 2007*

### **Short Description**

**A EUCIP Information Systems Analyst is expected to be very effective in identifying requirements for ICT systems and defining models of information flows and business objects. A wide and thorough ICT competence has to be combined with the ability to interact with users and colleagues.**

This profile requires a minimum work experience of **36** months in a compatible job role; if this requirement is not fulfilled, the candidate might be certified as an **Associate** Information Systems Analyst.

## Tasks Overview

Assists in defining, planning and justifying (in business terms) projects to develop/implement automated and non-automated components of new or changed processes.

Takes responsibility for several stages of the life cycle for software development of systems covering: investigation, analysis, user acceptance testing, implementation and maintenance.

Produces high quality documents and written reports, describing organisational and/or technical topics in a clear and concise style; takes account of applicable standards, methods and tools, including prototyping tools where appropriate.

Contributes to project and quality plans, taking account of the requirements for functionality versus the constraints of time, cost and quality.

Prepares, or contributes to, cost benefit and risk analyses.

Plans and manages effective communication sessions (i.e. various types of formal and informal meetings, training, presentations, demonstrations, brainstorming etc.) showing strong relational skills, goal-orientation, a problem solving attitude and a full mastery of business communication techniques.

Within a project environment, assists in the investigation of application data requirements, documenting them according to the required standards utilising the prescribed methods and tools.

Within a project environment, applies data analysis and data modelling techniques, based upon a general understanding of the business process, to establish, modify or maintain data structures and its associated components (entity descriptions, relationship descriptions, attribute definitions).

Assists in the quality assurance of project developed data structures and associated components.

Reviews logical system designs showing for example: processes, objects, data flows, inputs, stored data and outputs. Assists in the identification of common processes.

Reviews outline system specifications covering for example: objectives, scope, constraints (such as performance, resources etc.), hardware, network and software environments, main system functions and information flows, data load and implementation strategies, phasing of development, requirements not met, and alternatives considered.

Assists in the assessment and selection of suitable software packages to meet all or parts of specified requirements. Provides competent advice on integration of commercial software packages and suites (e.g. ERP, CRM, SCM, BI) supporting administrative, operational and decision processes.

Works within client organisation (either as an employee or as an external provider) to map out and streamline business processes, functions, procedures and workflows

through consistent modelling techniques, including benchmarking against best practices of business processes in relevant industries.

Works with other specialists (such as Business Analyst, Project Manager, IT Systems Architect etc.) to investigate operational requirements and problems in the client organisation, defining how improved information systems can enhance the business.

Assists clients/users in defining acceptance tests for automated systems, and takes full responsibility for their proper execution.

## **Essential Behavioural Skills [ 3 ]<sup>1</sup>**

The Information Systems Analyst role requires good general knowledge, excellent oral and written expression, and a wide range of more specific behavioural skills.

Excellent listening skills, ability to collect information plus organisational sensitivity are required to understand the client's needs quickly.

Strategic vision, analytical and synthetic intelligence, imagination and proactivity are required to formulate and validate solutions.

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.

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<sup>1</sup> numbers in brackets represent EUCIP points

## Detailed Skills Required

### **Deep competence level [ 16,5 ]**

#### **A1.02 Requirements engineering [ 2 ]**

- 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.

#### **B2.01 Information modelling techniques and tools [ 1,5 ]**

- Investigate existing systems and define elements of logical data design for required systems.
- Contribute to schema definition for a given business scenario.
- Use both top-down and bottom-up modelling of data.
- Understand the concepts of entity relationship modelling.
- Use entity relationship modelling or class modelling to outline the information requirements of a new business system.
- Use recognised entity modelling techniques to construct a data model reflecting the business needs of the organisation.
- Contribute to data key identification and design.
- Assist in the creation of a Data Catalogue.
- Validate data models from a business processing perspective.
- Specify the requirements for security and integrity of data in a business scenario; requirements should cover integrity, loss of data consistency, logical errors, system errors, hardware failures, human error.

### **B1.01 System development lifecycles [ 2,5 ]**

- 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).

### **B1.02 User centred analysis and development [ 1,5 ]**

- Analyse and contribute to the design of Information Systems which reflect the way users wish to work to support their business.
- Perform user analysis and establish usability criteria, which can be used to measure the success of new systems.
- Model business tasks and use these models as a basis for prototyping and user interface design.
- Use User Analysis, Work Practice Models, Task Modelling, Job Design, or equivalent techniques.
- Appreciate the role of User Centred techniques in System Development.
- Perform Work Practice Modelling using concepts such as actor, task, business event, task scenario, user role, user class, user object, common subtask.
- Map Business Activities onto the organisational structure.
- Create required task models, plans and scenarios.
- Contribute to identifying and specifying task-supporting IT software functions.

#### **A4.02 Package selection and implementation lifecycle [ 1,5 ]**

- 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 [ 1,5 ]**

- 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.

**B1.03 RAD approaches to the system development lifecycle [ 1,5 ]**

- Understand key features of Rapid Application Development (prototyping, iteration, incremental development/delivery, user involvement, empowerment, timeboxing, and prioritisation).
- Apply key principles and Critical Success Factors for RAD projects.
- Define the actors in a RAD project.
- Understand the SD Lifecycle for a RAD approach.
- Work within a standard RAD framework (e.g. DSDM).
- Evaluate Prototyping Approaches and Opportunities.
- Appreciate the different types/purposes of Prototyping.
- Perform business and IS Modelling in RAD projects.
- Use Facilitation skills and obtain consensus.
- Contribute to testing in RAD projects.
- Assist the Project Manager in managing RAD risks.
- Contribute to Estimating and Timeboxing Management in RAD.
- Define the principles, advantages and disadvantages of the RAD approach.
- Describe different approaches to prototyping and explain where each approach might be applied.
- Identify key factors in the success of a Facilitated Workshop.
- Describe a framework for managing a RAD team.
- Contribute effectively to a RAD team.
- Identify appropriate applications for the RAD approach within an organisation.

**B1.04 Tools and techniques for development, testing and implementation of IT systems [ 1,5 ]**

- Use system development tools for business modelling, requirements management and acceptance testing.
- Use relevant tools for automated testing (e.g. CAST).
- Use tools to support systems implementation and testing (e.g. rollout tools).
- Use relevant tools to perform security code review.
- Take responsibility for "end user" training and support documentation.
- Collaborate with Service Management to establish a user support structure (e.g. IT Service Desk).

**B1.05 Systems design and implementation [ 1,5 ]**

- 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.

**B1.06 Object oriented approach to systems analysis [ 1,5 ]**

- Act as an effective member of a team involved in analysis using an OO approach.
- Appreciate how the system design approach in the OO paradigm differs from other approaches.
- Use the main OO analysis modelling types and show how they relate to each other.
- Evaluate the benefits of the OO approach to analysis (business and systems).
- Appreciate the use of the OO Model types in UML.
- Use UML Analysis models.
- Perform Business domain modelling (in UML).
- Contribute to Activity Modelling (in UML).
- Create Use Cases in requirements gathering.
- Appreciate UML Dynamic Modelling techniques (e.g. STDs, Sequence and Collaboration diagrams).
- Appreciate UML Design and Architecture Modelling.
- Evaluate OO lifecycles, and development environments from the business view.

## **Incisive competence level [ 12,5 ]**

### **A3.01 Accounting and financial management [ 1 ]**

- Use basic accounting concepts and terminology; e.g. capital, accounts, cash flow, financial cycle, profit/loss, balance sheet.
- Understand the need for management accounting, reporting and financial management
- Appreciate differing types of cost and methods of costing.
- Understand the principles of budgeting and management control
- Calculate the requirements in terms of key resources, duration and distribution over time for a given business case
- Calculate the necessary cost budgets in respect of a business plan
- Understand the basics of cost allocation and variance analysis
- Measure Business Performance using well known approaches; e.g. turnover/profit, investment appraisal, key financial performance ratios (e.g. ROCE, liquidity).

### **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).

### **A2.01 Information Systems in the business environment [ 1 ]**

- Explain the nature of Management Information in the planning and control of organisations.
- Define the strategic role of Information Systems (IS).
- Demonstrate a detailed understanding of common business functions.
- Describe why an IS Strategy is needed.
- Contribute to the development of an IS Strategy.
- Relate IS Strategy to Business Strategy.

### **A1.03 Organisational strategies and related IT system selection [ 1 ]**

- Classify organisations based on their type, internal structure, legal status etc.
- Evaluate the role IT plays in different types of organisation.

- Evaluate the impact of different organisational structures on the management of IT.
- Evaluate Corporate Mission Statements and their IT implications.
- Build a business plan for a particular organisation.
- Evaluate the major techniques for building a business strategy.
- Involve functional managers and key users to identify the key business needs
- Propose new technical & organizational tools to improve office automation and productivity (e-mail, document/content management, cooperative workflow with external partners)
- Identify IT solutions for factory automation
- Outline the IT needed to deliver a given business plan.
- Select a portfolio of computer support tools for management of an organisation.
- Contribute to an overall strategy for leveraging of organisational knowledge, memory and learning.
- Use well-known decision making and problem solving techniques.
- Select suitable Management Information Systems (MIS) software for an organisation.
- Evaluate the usefulness of different IT-based workflow systems.
- Compare the effectiveness of virtual team working and physically co-located team working.
- Establish a collaborative structure, using relevant technology.
- Evaluate implementations of collaborative technologies.
- Evaluate the link between an IT strategy and the business strategy.
- Design appropriate matches between organisational need and IT provision.
- Identify the strengths and weaknesses of MIS, On-line Transaction Processing (OLTP) and related system types.
- Contribute to the specification of a Data Warehousing system to support Business Intelligence (analytics) users.

**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.

**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).

**C7.01 IT service delivery [ 1 ]**

- Contribute to the creation, via cost-based negotiation, of Service Level Agreements by stating business quality requirements for the specified service.
- Contribute to the organisational Capacity Plan by eliciting predictions of service usage (both existing and planned).
- Contribute to the Business Continuity Plan for an organisation, by specifying threats to and the recovery needs of each service offered by the organisation to its customers.
- Evaluate risk reduction and contingency options prepared by Service Management staff within an organisation.
- Contribute to Continuous Service Improvement plans on behalf of the business.
- Evaluate the various options for Service Desk support suggested by IT Service Management.
- Ensure full support for new services is in place before system implementation is completed.
- Liaise with Service Management staff over the technical impact of requested business changes to existing services.
- Contribute to business impact analysis of all requests for change to a service.
- Assist the business in specifying requests for change to existing services (using ITIL<sup>®</sup> standards or equivalent).

**A5.01 Project Management essentials [ 1,5 ]**

- Define the role of the various specialists in a typical project organisation structure (e.g. Rational Unified Process, PRINCE2, etc.).
- Contribute to the IS project plan for a given business scenario.
- Contribute to risk analysis of a project proposal, concentrating on business risk.
- Use standard approaches to evaluate a project plan from the business viewpoint.
- Assist in defining the phases within a project and the role of the business analyst in those phases.
- Assist in the creation of constraints and the definition of milestones, checkpoints and reviews for a project.
- Define Corporate Standards for the documentation of business analysis deliverables in a project.
- Contribute to quality assurance processes within a project, from a business perspective.

**B4.01 Web site development and usage [ 1 ]**

- Use a framework that covers the full website development process.
- Contribute to policy on the construction of an organisation's website, with particular reference to ease of use and adherence to standards.
- Evaluate the benefits gained and the costs incurred in using multimedia presentation techniques on a website for an organisation.
- Define measurable goals and objectives for websites.
- Apply best practice Web Site Design Principles to projects.
- Appreciate the reasons for bad web site design.
- Use a well-known website development framework.
- Appreciate the different roles in web site development.
- Contribute to defining web site goals and objectives.
- Define the target audience for a web site.
- Define usability requirements via Use Cases and scenarios.
- Perform information analytical design (types, chunks, relevance, labelling, consistency, multimedia, accessible detail, hierarchy of information).
- Contribute to organising content into web pages.
- Define web site structures.
- Create a User Conceptual model and contribute to a site navigation model.
- Appreciate the visual impact (consistency, legibility, model elegance) of a web presence.
- Evaluate graphics usage and animation.
- Specify response times and evaluate technology issues with these needs.
- Contribute to testing the web site and usability inspection.
- Perform Benefits Realisation (implementation, promotion, evaluation, evolution).
- Appreciate Web Technology features (components: browsers, servers, linking to data sources, security, tools).

- Analyse, structure and present information in a way that meets the specific needs of the audience and their business scenarios.
- Organise information so that it is easy to access and navigate for use on a website.
- Present information in a visually appealing way to ensure consistency and effectiveness.
- Undertake usability inspections and reviews.
- Ensure benefits are realised from the development of websites.
- Contribute to user interface and web design by having an understanding of basic communications theory, the use of story boards, rough drafts etc. and the need for iterative development and testing.
- Contribute to the building of an organisation's website, in particular, assist in identifying target user characteristics and needs.
- Evaluate websites from the business/user perspective, placing emphasis on ease of navigation, clarity and scarcity of information presentation, and on the use of business driven standards for colour, fonts and graphics.

**A7.02 Business risk and IT security [ 1 ]**

- Specify the business need for recovery and back-up of data and for protection against viruses.
- Evaluate the need for encryption of data (at rest/in transit) in the light of network "threats" to data integrity.
- Evaluate the risks to the business caused by security threats to IS/IT.
- Contribute to a Security policy for (part of) a business organisation.



## External references to SFIA<sup>®</sup> version 3 by the SFIA Foundation

### Skill 18: Data analysis

*“The provision of specialist expertise and practical assistance in the investigation, evaluation and interpretation of data in order to ensure its coherence, availability, accuracy and security to meet information and communication systems requirements.”*

Levels 4 and 5

### Skill 19: Systems design

*“The specification and design of information systems, their components and architecture to meet defined business needs.”*

Levels 4 and 5

### Skill 34: Business analysis

*“The methodical investigation, analysis, review and documentation of all or part of a business in terms of business functions and processes, the information used and the data on which the information is based. The definition of requirements for improving any aspect of the processes and systems and quantification of potential business benefits. The creation of viable specifications and acceptance criteria in preparation for the construction of information and communication systems.”*

Levels 4 and 5

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

### Profil 1.1: IT Systems Analyst (IT-Systemanalytiker/in)

*“IT Systems Analyst modellieren Geschäftsprozesse, analysieren die daraus resultierenden Anforderungen an IT-Systeme und bilden diese in Form von Anforderungsmodellen ab.”*

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

### (?) Métier 1.4: Responsable du SI « métier »

*“Il pilote l’alignement du système d’information du métier sur les orientations stratégiques et sur les processus métiers, en proposant des scénarios d’évolution du système d’information cohérents avec les objectifs et les processus définis et en garantissant la cohérence globale et dynamique ainsi que la pertinence et la performance du SI du métier.”*