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Acronyms & Vocabulary

ACRONYM/TERM	EXPLANATION
ICT	Information Communication Technology
iPro	iProfessional Project
CSR	Corporate Social Responsibility
VET	Vocational Education Training
DG	Directorate General
HEI	Higher Education Institution
SME's	Small Medium Business
WP	Work Package
M1, M2, etc	Month 1, Month 2
IPS	Institute for Postgraduate Studies at UNWE
ITPIO	Institute for Training of Personnel in International Organisations
ATiT	Audio-visual Technologies Informatics and Telecommunications
TC	Telecentar
IADT	Institute of Art, Design & Technology
AW	ActiveWatch
ULO	University of Lodz
TUCEP	Tiber Umbria Comett Education Programme
VGTU	Vilnius Gediminas Technical University



1. Executive summary

The iProfessional Competence Framework (iPCF) is a reference framework of competences required by professionals in the field of digital multimedia and arts. The iPCF defines a set of knowledge and skills needed to achieve measurable outputs according to the new professional standards on the global market. This framework includes creative, technical and business competencies that can be used by education and training providers as guidelines to define learning outcomes and develop curricula for digital multimedia professionals, including teachers and trainers. The iPCF can also be used by employers in production companies as a reference tool in development and management of human resources.

Multidisciplinary framework structure incorporates key domains and subdomains of competencies needed to create and market digital multimedia content. In order to ensure compatibility with the existing competence frameworks, the iPCF is linked to the European Qualifications Framework¹, Framework for Qualifications of the European Higher Education Area², European Framework for Key Competences for Lifelong Learning³, European e-Competence Framework⁴ and the multilingual classification of European Skills, Competences, Qualifications and Occupations⁵.

A modular approach is used to break down the competence framework in smaller units that can be easily modified or replaced by new units in order to address rapid technological changes and meet the new media industry needs. It takes into account the requirements and constraints of the education and training providers in relation to the national, regional or institutional context. The competence modules can be used as simple building blocks in development of the learning outcomes and the new education and training curricula.

2. The iPCF competence domains

One of the key labour market demands in the new media sector is a demand for professionals with multiple sets of knowledge and skills that previously belonged to separate media sectors and different occupations. Convergence of information and communication, graphics and audio-visual

¹ <http://ec.europa.eu/ploteus/content/descriptors-page>

² <http://www.ehea.info/article-details.aspx?ArticleId=65>

³ <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32006H0962&from=EN>

⁴ <http://www.ecompetences.eu/>

⁵ <https://ec.europa.eu/esco/home>



technologies have additionally blurred borders between the sectors. These changes have enabled simultaneous production and distribution of multimedia content on old and new media platforms. Highlighting complexity of the new media environment, the first iPCF domain **Digital Multimedia Technology** includes subdomains of digital photography, audio, video, film, television, radio, graphic and web design, 2D and 3D animations, mobile applications, computer games, coding and cross-media publishing.

According to the European Framework for Key Competences for Lifelong Learning, 'Digital competence' involves the confident and critical use of information and communication technologies (ICT) for work, leisure and communication. It is underpinned by basic skills in ICT: the use of computers to retrieve, assess, store, produce, present and exchange information, and to communicate and participate in collaborative networks via the Internet.

SMEs represent 99.8% of all enterprises of the European Union and employ 67% of workers. 45% of employees work in micro-enterprises employing less than 10 workers. Between 2002 and 2010, small and medium enterprises have opened 85% of the total number of new jobs in the EU. Companies with one or two employees are the most common form of multimedia entrepreneurship. These are project-based companies, which depend on individual talent and risk-taking in innovative ventures. In order to improve employability of students upon completion of their vocational and/or higher education, the second and third iPCF domains reflect the labour market demands for business competencies.

The second iPCF domain is the **Project Management**. In addition to addressing operational demands of the multimedia production companies, project management knowledge and skills can facilitate development of learning to learn competencies. In the European Framework for Key Competences for Lifelong Learning 'Learning to learn' is defined as the ability to pursue and persist in learning, to organise one's own learning, including through effective management of time and information, both individually and in groups. Formal and non-formal learning education and training providers can utilize project management competencies in project based learning, which practically simulates predominant working conditions on the labour market. The iPCF Project Management subdomains include scope, time, costs, quality, resource, risk and communications management.

The third iPCF domain is the **Entrepreneurship**. The European Framework for Key Competences for Lifelong Learning describes 'Sense of initiative and entrepreneurship' as an individual's ability to turn ideas into action. It includes creativity, innovation and risk-taking, as well as the ability to plan and manage projects in order to achieve objectives. Although the project management and



entrepreneurship competences overlap in many aspects, the iPCF is putting emphasis on strategic management, financial issues, legal issues, marketing and stakeholder management subdomains, particularly important to micro and small entrepreneurs in the creative media industry.

3. The iPCF competence levels

The iPCF is providing vocational and higher education institutions with tools to develop education and training to professionals with different levels of authority and autonomy in implementing multimedia projects. The iPCF includes two proficiency levels equivalent to levels 3-6 of the European Qualifications Framework (EQF) and levels e-1 to e-3 of the European e-Competence Framework.

The iPCF Level A competencies correspond to levels 3-4 of the EQF, while iPCF Level B competencies correspond to levels 5-6 of the EQF. The EQF levels 3-4 are mainly related to competencies developed in vocational education and training and they are often referred to as an associate or entry level competences. The EQF levels 5-6 describe professional competencies and they correspond to the short and first cycle qualifications in the Framework for Qualifications of the European Higher Education Area.

The iPCF Level B =

EQF Level 3 competencies enable individuals to take responsibility for completion of tasks in work or study; adapt own behaviour to circumstances in solving problems.

+ EQF Level 4 competencies enable individuals to exercise self-management within the guidelines of work or study contexts that are usually predictable, but are subject to change; supervise the routine work of others, taking some responsibility for the evaluation and improvement of work or study activities.

The iPCF Level A =

EQF Level 5 competencies enable individuals to exercise management and supervision in contexts of work or study activities where there is unpredictable change; review and develop performance of self and others.

+ EQF Level 6 competencies enable individuals to manage complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work or study contexts; take responsibility for managing professional development of individuals and groups.



The EQF Levels 1-2 and 7-8 were not included in the iPCF because they go beyond the scope of education and training facilitated by the iProfessional project.

4. The iPCF knowledge and skills examples

In the context of EQF, knowledge is described as theoretical and/or factual. Skills are described as cognitive (involving the use of logical, intuitive and creative thinking), and practical (involving manual dexterity and the use of methods, materials, tools and instruments). The iPCF forms include lists of 5-10 knowledge and skills examples.

In order to simplify development of learning outcomes within the education and training curricula, the iPCF knowledge examples are described by using taxonomic elements from the cognitive domain of the **Bloom's Digital Taxonomy**⁶ - remembering, understanding, applying, analysing, evaluating and creating. Each of the taxonomic elements listed from lower to higher order thinking skills has a number of key verbs associated with it. These verbs will be used for describing the iPCF skills examples. The taxonomy of learning objectives was originally developed in 1956, revised in 1990 and recently adopted for use in the era of digital technologies.

Lower Order Thinking Skills (LOTS)

- Remembering - recognising, listing, describing, identifying, retrieving, naming, locating, finding, bullet pointing, highlighting, bookmarking, social networking, social bookmarking, local bookmarking, searching, googling
- Understanding - interpreting, summarising, inferring, paraphrasing, classifying, comparing, explaining, exemplifying, advanced searching, Boolean searching, blog journaling, tagging, categorising and tagging, commenting, annotating, subscribing
- Applying - implementing, carrying out, using, executing, running, loading, playing, operating, hacking, uploading, sharing, editing
- Analysing - comparing, organising, deconstructing, attributing, outlining, finding, structuring, integrating, mashing, linking, reverse-engineering, cracking, mind-mapping
- Evaluating - checking, hypothesising, critiquing, experimenting, judging, testing, detecting, monitoring, blog/vlog commenting, reviewing, posting, moderating, collaborating, networking,

⁶ <http://edorigami.wikispaces.com/Bloom%27s+Digital+Taxonomy>



reflecting, alpha & beta testing, validating

- Creating - designing, constructing, planning, producing, inventing, devising, making, programming, filming, animating, blogging, video blogging, mixing, remixing, wiki-ing, publishing, videocasting, podcasting, directing/producing, creating or building mash ups

Higher Order Thinking Skills (HOTS)

5. The iPCF job examples

The main reference point for the iPCF job examples will be the European Skills, Competences, Qualifications and Occupations (ESCO). The ESCO classification identifies and categorises skills, competences, qualifications and occupations relevant for the EU labour market and education and training.

The job examples for the iPCF Level B can be found in the following ESCO occupation groups:

- Technicians and associate professionals - Information and communications technicians - Information and communications technology operations and user support technicians - Web technicians
- Technicians and associate professionals - Information and communications technicians - Telecommunications and broadcasting technicians - Broadcasting and audio-visual technicians
- Technicians and associate professionals - Information and communications technicians - Telecommunications and broadcasting technicians - Telecommunications engineering technicians

The job examples for the iPCF Level B can be found in the following ESCO occupation groups:

- Professionals - Legal, social and cultural professionals - Creative and performing artists - Visual artists
- Professionals - Legal, social and cultural professionals - Creative and performing artists - Film, stage and related directors and producers
- Professionals - Information and communications technology professionals - Software and applications developers and analysts - Web and multimedia developers



6. The iPCF form example

iPCF Domain:	Digital Multimedia Technology		
iPCF Subdomain:	Digital Photography		
Description:	Digital photography is a creative process of capturing, editing, storing and distributing digital images for print and electronic media platforms.		
Proficiency level:	iPCF A	iPCF B	
Knowledge and skills examples:			
K1	Understand camera optics	S1	Plan lighting setup
K2	Apply composition principles	S2	Take photos
K3	Analyse digital images	S3	Edit digital images
K4	Create portrait photo	S4	...
K5	...	S5	
Job examples: Photographer, Lighting technician, Video cameraman, Video editor...			



7. Competence gap analyses and curriculum recommendations

An important observation from the iPro survey is the fact that a very large portion of the target group (professionals in the digital media and arts sector) did not have any education in the area of digital media and arts at all. People appear to be receiving formal training on-the-job, but this training does not seem to meet their professional expectations (1 out of 3 professional workers described themselves as being not satisfied with the preparation for their job). For this substantial group, specific training programmes may be required, and again according to the survey HEIs are the most preferred option to provide these programmes (CPD or other).

It was never the intention of the survey to detect the domain specific education requirements as they are normally already provided in existing HEI programmes and students or professionals that are seeking this type of education should normally be able to find these programmes in the specialisation they require. The list below therefore is not based on the outcomes of the survey but on an exploration of how HEIs are meeting what they assume on the basis of their own market and target studies is required by today's students and employers.

According to the results of the iPro survey, the preferred options for education and training for the competences and skills related to the professional domain of digital media and arts are the integration of practical learning experiences, project work and practical courses, learning on the job, and/or longer internships within relevant organisations and companies. Trainees and students prefer to have training and education from practitioners which are grounded in professional practice, making use of up to date curricula and methods.

Project management training has an immediate impact on the quality of Project management and especially on the quality of the deliverables. Generally the project management training covers the following courses: Creating Solutions; Principles of Project Management; Principles of Project Management Workshop; Leading High Performance Teams; Project Risk Management; Project Management Simulation; Executive View of Project Management; Tools supporting project management. On the higher level of training it could be added the courses for Project management methodologies, Project management Scheduling, Portfolio management, as well as all courses provided for the certification in the scope of Project Management Institute (PMI).

For the purpose of creation of projects with Digital Media and Art components, additional training / education have to be provided, related to introduction to tools for Digital Media and Art components creation, for selection of those tools, for the purpose and usage of tools for creation of those components, for effective development of those components, for quality of the



developed components from those tools, etc. It shouldn't be forgotten the courses of the computer environments (Operating systems, Utilities), Web design, Art design, and similar design trainings (such as Graphic Design; Online Web Design; Multimedia – principles, tools, creativity; Web Development; Animation; Make 3D Animation; Shooting high-quality clips via smart phones) as pre-requisites to those courses.

Many students learn best from experience or 'doing'. We recommend that students gain hands-on business experience that is work based and simulates real world scenarios, e.g. spending time in each (sub-domain) department of a new media and arts business to gain a holistic view of the world as an entrepreneur.

A new blended learning approach in entrepreneurship education is required aimed at crafting more passion-based learning for the student for an enhanced learning experience. In essence the goal of the new curriculum is to develop an entrepreneurial mind-set. This will encourage students to develop self-awareness of their own enterprising and entrepreneurial skills that in turn should foster self-discipline and motivate them to turn their own ideas into actions with end results

An integral part of our curriculum design is the capability for all stakeholders to respond to the rapid changes in the business world of new media and arts. A blended learning approach (online and offline) where instruction can accessed remotely using learner-centred problem based learning (PBL) that can be continued in the classroom with the guidance of the instructor is at the core of the iPCF model.

8. Digital multimedia technology competence domain

iPCF Domain:	Digital Multimedia Technology		
iPCF Subdomain:	Digital Photography		
Description:	Digital photography uses digital cameras as opposed to photographic film to capture (still) images. Images are captured, digitized and then stored, processed, edited and finally published or printed in analogue or digital format.		
Proficiency Level:	iPCF A	iPCF B	
Knowledge and skills examples:			
K1	Knowledge of the history of arts and photography	S1	Apply Photoshop and other processing tools



K2	Understand the working of eye and brain	S2	Apply colour management and printing
K3	Understand the physics of light and optics	S3	Operate and maintain digital cameras
K4	Understand electronics and digital processes	S4	Design and set up light concepts
K5	Analyse image composition	S5	Create and present a portfolio
K6	Understand basics of informatics		
<p>Job examples: photographer, photo reporter, photojournalist, photo artist, photo editor, photo processing engineer, retoucheur, quality inspector, commercial representative, photo shop owner, sales person, image editor, photo scout.</p>			

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Proficiency Level:	iPCF A	iPCF B	

Knowledge and skills examples:

K1	Knowledge of arts, culture and photography	S1	Initiate and manage a photo project
K2	Understand ethics of photographic media	S2	Design and implement a visual campaign
K3	Understand workflows in photography	S3	Create a brand with images
K4	Analyse the photographic market	S4	Explain and communicate a visual concept
K5	Understand the photographic profession	S5	Evaluate the photographic work of others
<p>Job examples: independent photographer, head photographer, studio owner/photographer, chief photo editor, chief image editor, head of photo agency, image bank owner, broker, agent, curator, art director, photo anthropologist, entrepreneur.</p>			

iPCF Domain:	Digital Multimedia Technology
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iPCF Subdomain:	Digital Audio		
Description:	Digital audio consists of the production or reproduction of sound for a live audience or a recording on audio, film or video, like for live events, using sound reinforcement systems or transmission and distribution systems such as disk, web, radio or TV. Professional audio includes broadcast radio, audio mastering in a recording studio, television studio, sound reinforcement such as a concerts, DJ performances, but also audio composition, soundscapes, audio sampling, public address, surround sound movie theatres, etc.		
Proficiency Level:	iPCF A	iPCF B	

Knowledge and skills examples:

K1	Understand audio-visual communications	S1	Select and set up microphones
K2	Understand basic acoustics	S2	Record, mix and finalise simple audio recordings
K3	Understand the human voice	S3	Edit and process audio recordings and files
K4	Knowledge of music and music instruments	S4	Monitors, analyse and correct audio recordings
K5	Understand electronics	S5	Sync audio recordings with other sources
K6	Understand the working of different microphones, recorders and playback systems	S6	Choose and create effects
K7	Understand the analogue and digital signals	S7	Work with digital audio processors (ProTools etc.)

Job examples: audio engineer, audio mixer, assistant producer, sound recordist, assistant sound engineer, boom operator, assistant sound editor, roadie, theatre technician

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Proficiency Level: iPCF A		iPCF B	
Knowledge and skills examples:			
K1	Understand the music business	S1	Produce and master a music track or sound track
K2	Understand the production process in radio, TV, film and web	S2	Manage a team of sound engineers
K3	Knowledge of the history of arts, theatre, mass communications, multimedia and music	S3	Mix and monitor a complex live music performance
K4	Knowledge of the music composition	S4	Operate MIDI peripherals and systems
K5	Understand the neurology and psychology of perception and acoustics	S5	Design the sound track and assets for a game or an animated movie
K6	Understand digital processes	S6	Create a soundscape or signature sound
K7	Understand electronic music	S7	Manage and operate a recording studio, also virtual studio
K8	Understand programming	S8	Compose a n electronic music piece
K9	Knowledge of the architectural aspects of acoustics		
Job examples:			

iPCF Domain:	Digital Multimedia Technology		
iPCF Subdomain:	Digital Video		
Description:	<p>Digital video is a type of digital recording system that works by using a digital rather than an analogue video signal.</p> <p>The terms camera, video camera, and camcorder are used interchangeably in this article. Digital video cameras come in two different image capture formats: interlaced and deinterlaced / progressive scan.</p>		
Proficiency Level: iPCF A		iPCF B	
Knowledge and skills examples:			
K1	Knowledge of sound recording, editing and processing techniques	S1	Operate video cameras/camcorders



K2	Knowledge of basic properties: regarding interlacing, properties of compressed video, more on bit rate and BPP	S2	Produce digital videos according different techniques
K3	Understanding of technical overview	S3	Make a video coding
K4	Knowledge of storage formats: encoding, tapes, discs	S4	Edit and manipulate images
K5	Systematic understanding of technical and commercial context	S5	Perform editing operations
Job examples: digital marketing manager, head digital marketing assistant, broadcast engineer, video producer, social media specialists, social media specialists.			

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Proficiency Level:	iPCF A	iPCF B	

Knowledge and skills examples:

K1	Knowledge of different techniques for digital videos creativity	S1	Initiate and manage a digital video project
K2	Knowledge of DisplayPort, digital component video, unified display interface, fire wire, etc.	S2	Optimize parameters that affect the quality and file audio recordings
K3	Knowledge of different interfaces: high-definition multimedia interface, digital visual interface, serial digital interface, unified display interface	S3	Access and capture video clips from a variety of sources
K4	Video content analytics: functionalities and commercial applications	S4	Manipulate motion/transform settings
K5	Video content mining	S5	Apply appropriate video compressions to fit media delivery (e.g., mpg, mov)

Job examples: head digital marketing manager, director of social media strategy, chief image editor,



filmmaker, recording studio, live sound engineer, music production

iPCF Domain:	Digital Multimedia Technology
iPCF Subdomain:	Film
Description:	A film, also called a movie or motion picture, is a series of still images which, when shown on a screen, creates the illusion of moving images due to the phi phenomenon. This optical illusion causes the audience to perceive continuous motion between separate objects viewed rapidly in succession. A film is created by photographing actual scenes with a motion picture camera; by photographing drawings or miniature models using traditional animation techniques; by means of CGI and computer animation; or by a combination of some or all of these techniques and other visual effects.
Proficiency Level:	iPCF A iPCF B

Knowledge and skills examples:

K1	Understanding of film language and montage	S1	Perform lighting activities for a film production
K2	Knowledge of film production: crew, technology, independent, open content film, fan film	S2	Apply different cinematic techniques
K3	Knowledge of animation	S3	Make open content films/independent film/education films
K4	Understanding of cinematic techniques	S4	Operate video camera and digitize video
K5	Knowledge of lost and web films	S5	Perform editing operations

Job examples: films producer, program manager, audio designer, writer, co-executive producer, TV and radio assistant, online media assistant, media researcher, producers, cinematographers, sound designers and editors.

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by photographing drawings or miniature models using traditional animation techniques; by means of CGI and computer animation; or by a combination of some or all of these techniques and other visual effects.

Proficiency Level: **iPCF A** iPCF B

Knowledge and skills examples:

K1	Knowledge the film industry	S1	Initiate and manage multi-disciplinary film production projects
K2	Understanding of 4D seats and 3D sound	S2	Initiate and manage creative collaboration among practitioners and critics
K3	Knowledge the film analytics	S3	Execute pre-production, production, and post-production tasks for the area of gripping
K4	Knowledge the predictive analytics	S4	Compare the differences between studio production and field production
K5	Knowledge of different techniques for films production creativity	S5	Define the specific technical processes used by the camera, grip, lighting, sound, art, costume, special effects, make up, and editing departments

Job examples: filmmakers, head of production for Films, director, TV and radio specialist, online media specialist.

iPCF Domain: Digital Multimedia Technology

iPCF Subdomain: **Television**

Description: Television (TV) is the mass telecommunication medium for transmission of moving images and sound in direct (live) or delayed (pre-recorded). Since the 1950s, television has been the most popular mass medium for public opinion, news and entertainment. Viewers watch live news journals, sports, talk shows, performances, movies and series. Media services such as YouTube, iTunes, Netflix use the Internet increasingly to deliver an online television-like experience that is no longer a broadcast service but personalised and on demand. Television can be transmitted over-the-air, by cable, IP or satellite systems in analogue or (increasingly) digital formats.

Proficiency Level: iPCF A **iPCF B**

Knowledge and skills examples:

K1	Understand basic audio-visual technologies	S1	Apply photography for creative imaging
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K2	Knowledge of the history of film and TV	S2	Create a simple scenario or screen play
K3	Knowledge of the basics of audio technology and recording	S3	Plan a small AV production
K4	Understand the basics of lighting and lighting technologies	S4	Make a personal documentary or travelogue
K5	Knowledge of the history of modern times and philosophy	S5	Operate a TV camera
K6	Knowledge of the modern arts and culture	S6	Edit a video
K7	Understand the basics of editing and montage	S7	Engineer and mix a sound track
K8	Understand the theory of scenario writing	S8	Light a TV scene
K9	Analyse the management of an AV production		
Job examples: director, direction assistant, production assistant, TV camera person, TV sound engineer, TV lighting engineer, TV editor or switcher, shader, script writer, video maker.			

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Proficiency Level:	iPCF A	iPCF B

Knowledge and skills examples:

K1	Understand narrative and narratology	S1	Direct a documentary
K2	Analyse films and TV programmes	S2	Create a web documentary
K3	Investigate and research a subject for a documentary	S3	Direct a team with technicians and actors



K4	Understand psychology and cognitive aspects of TV	S4	Pitch a production proposal
K5	Understand the theory and practise of acting	S5	Apply techniques for script doctoring
K6	Create an artistic statement or profile	S6	Develop a budget and planning
K7	Understand the economics of TV and AV production	S7	Create a cross medial programme
K8	Understand the role and position of online technology for TV	S8	Set up an Internet channel for video distribution
K9	Understand media and IPR law		
Job examples: studio owner, programme editor, director, producer, curator, station manager, multimedia producer, TV critic, script writer, script doctor			

iPCF Domain:	Digital Multimedia Technology
iPCF Subdomain:	Radio
Description:	Radio broadcasting is one-way transmission of audio (voice, sound, music) towards a wide audience. Radio or audio broadcasting can be done via the airwaves (short, medium and long waves, AM, FM, DAB), cable, satellite and internet (via streaming media on the Internet). The signal types can be either analogue or digital audio. There are several types of radio stations such as public, commercial, educational or community radio, student radio or hospital radio. Radio can have like TV many different programme formats like live broadcasting or pre-recorded material, news casts, reportages, radio plays, music programmes etc. Radio stations are increasingly automated.
Proficiency Level:	iPCF A iPCF B

Knowledge and skills examples:

K1	Understand audio technology and recording technologies	S1	Be able to record a simple recording
K2	Knowledge of the history of mass media and radio	S2	Be able to edit a simple audio programme
K3	Knowledge of the history of philosophy and politics	S3	Be able to compose a simple radio programme
K4	Knowledge of the basics of interview and reportage	S4	Be able to coach a voice recording



K5	Knowledge of the history of arts and music	S5	Be able to define and conceive a radio programme
K6	Understand the basics of vocal technique	S6	Be able to operate a small audio recording studio
K7	Recognise modern music: pop, jazz and experimental	S7	Be able to create a radio fiction programme
K8	Understand the creative side of radio	S8	Be able to do research and redaction of a journal or magazine
K9	Understand the basics of electronics and IT	S9	Be able to operate a range of transmission technologies
K10	Knowledge of the various transmission technologies	S10	Be able to design or diagnose transmission chains
Job examples: radio engineer, audio engineer, studio engineer, audio recordist, voice coach, sound engineer, PA engineer, transmission engineer, audio artist, music manager, road manager.			

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Proficiency Level:	iPCF A	iPCF B

Knowledge and skills examples:

K1	Understand all aspects or radio production	S1	Be able to research the artistic aspects of audio
K2	Understand the legal issues related to radio: journalistic, advertisement, IPR etc.	S2	Be able to do a radio interview
K3	Understand the business and economics of radio broadcasting	S3	Be able to lead a complex radio production team from concept to broadcast



K4	Understand the principles of radio drama	S4	Apply IT for studio and broadcast automation
K5	Carry out research in politics		
K6	Explore and detect new developments in radio		
K7	Understand cultural and societal implications of mass media		
Job examples: radio maker, radio director or producer, station manager, radio journalist, radio reporter, media consultant, impresario, media agent, media regulator.			

iPCF Domain:	Digital Multimedia Technology
iPCF Subdomain:	Graphic Design
Description:	Graphic design is the art of visual communication using type, space and image. Graphic design uses various methods to create and combine words, symbols, and images to create a visual representation of ideas and messages. A graphic designer may use a combination of typography, visual arts and page layout techniques to produce a final result. Common uses of graphic design include identity (logos and branding), publications (magazines, newspapers and books), print advertisements, posters, billboards, website graphics and elements, signs and product packaging.
Proficiency Level:	iPCF A iPCF B

Knowledge and skills examples:

K1	Understand the basics of research techniques	S1	Be able to identify the essential elements of a message, brand or product
K2	Understand iconology	S2	Be able to translate the essence of an asset into an image or other expression
K3	Understand human sciences (psychological, cognitive and neurobiological sciences)	S3	Be able to analyse images
K4	Knowledge of the history of arts	S4	Be able to create a visual image for an asset
K5	Knowledge of the modern and contemporary arts	S5	Be able to draw and design
K6	Master typology	S6	Create illustrative, interactive, graphic and



			advertising designs
K7	Master the technology of imaging	S7	Be able to design a campaign
K8	Understand general principles of visual communication		
K9	Knowledge of the principles of perception		
K10	Apply principles of design based design		
K11	Understand strategies of communication		
Job examples:			

iPCF Domain:	Digital Multimedia Technology
iPCF Subdomain:	Graphic Design
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Proficiency Level:	iPCF A iPCF B

Knowledge and skills examples:

K1	Understand psychology of perception, learning and use	S1	Be able to design a campaign
K2	Understand public spaces	S2	Be able to draft a campaign with sketches, photography
K3	Understand interaction between word and image	S3	Carry out an ethnographic research path
K4	Explore the vision and impact of art	S4	Be able to pitch and present ideas and projects
K5	Understand the relationship between art, object, design and society	S5	Be able to manage a campaign team or design bureau
K6	Understand new media and innovative		



	technologies		
K7	Understand the business and economics of design and graphics design		
K8	Understand the interplay between graphics, illustration, interaction, advertisement, communication		
Job examples: art designer, graphics designer, graphics bureau owner/manager, campaign designer, brand creator, campaign director, PR manager, brand manager.			

iPCF Domain:	Digital Multimedia Technology		
iPCF Subdomain:	Web Design		
Description:	Web design is the production and maintenance of websites and includes graphic design, interface design, programming and authoring, design of the user experience and integration of analysis tools such as search engine optimization. Web design increasingly becomes also web engineering in the sense that many sites are database driven or are based on content management platforms. It can include in that case e-commerce, security, marketing, communication and other elements.		
Proficiency Level:	iPCF A	iPCF B	

Knowledge and skills examples:

K1	Understand ICT	S1	Can apply image processing and graphics design
K2	Knowledge of the basic programming languages for web development	S2	Can apply lay out and typography
K3	Can identify and evaluate errors in systems	S3	Can integrate new technologies
K4	Knowledge of the history and evolution of the Internet, web design and ICT in general	S4	Can code in the key web development languages HTML, CSS, JS, PHP etc.
K5	Understand ergonomics and usability	S5	Can select and use the right WYSIWYG editors
K6	Knowledge of the basics of neurobiology	S6	Can write computer applications
K7	Knowledge of the basics of professional and B2B or B2C web applications and services such as e-commerce, eLearning,	S7	Can set up and manage databases (SQL server, Oracle, ...)



	e-government etc.		
K8	Knowledge of the history of art and applied arts	S8	Can design a pleasing and suitable graphical concept
K9	Knowledge the basics of audio, video, animation	S9	Can specify or create a multimedia object with audio, video and/or animation
K10	Knowledge of the basics of new mobile technologies	S10	Can prepare documents for press
Job examples: web designers, interaction designers, usability designers, e-commerce designers, internet marketers, SEO engineer, copywriters, user experience designer, web developer, game developer, CMS developer, programmer, web master, support engineer			

iPCF Domain:	Digital Multimedia Technology
iPCF Subdomain:	Web Design
Description:	Web design is the production and maintenance of websites and includes graphic design, interface design, programming and authoring, design of the user experience and integration of analysis tools such as search engine optimization. Web design increasingly becomes also web engineering in the sense that many sites are database driven or are based on content management platforms. It can include in that case e-commerce, security, marketing, communication and other elements.
Proficiency Level:	iPCF A iPCF B

Knowledge and skills examples:

K1	Understand web management	S1	Can plan and manage a project from concept to delivery and support
K2	Understand the principles of online presence within business and marketing	S2	Can plan and manage a web design company
K3	Can research, understand, formulate and present online services	S3	Can optimise web services and online services in general
K4	Understand all levels and methods of evaluation and testing of IT applications and services	S4	Can create an online brand and set up an online branding campaign
K5	Can research, understand and scope of innovative and emerging technologies	S5	Can write technical and conceptual service documentation and specification
K6	Understands the issues and possibilities of	S6	Can design and interpret a usability test



	cross media design and development		
K7	Knowledge of the economics and business processes of online services and applications	S7	Can manage and support multidisciplinary team in its development work
K8	Knowledge of the basics of psychology and sociology in relation with ICT	S8	Can integrate social media in campaigns
Job examples: web architect, web design team leader, director of web design office, online brand manager, CIO, CTO			

iPCF Domain:	Digital Multimedia Technology		
iPCF Subdomain:	2D/3D Animations		
Description:	Animation is the art of media that creates the illusion of motion and change by means of the rapid succession of different static images (25 or more per second). Animations can be recorded in an analogue manner, such as on flip book, film or video, or digitally, such as animated GIF, Flash, HTML animation or digital video. Animation uses stop motion animation of two and three-dimensional objects, such as cells, puppets, objects or figurines, or can be created entirely digitally in 2 or 3D by means of computer graphics. Animation can be used by itself or as part of a multimedia object like a web site.		
Proficiency Level:	iPCF A	iPCF B	

Knowledge and skills examples:

K1	Knowledge of the history of animation	S1	Can do image capture in spatial dimensions
K2	Understand animation techniques in 2D	S2	Can create sound track for animation
K3	Understand animation techniques in 3D	S3	Can make sketches based on models or perception
K4	Understand the basics of animation	S4	Can create decors for animated movies
K5	Understand audio for movies and animation	S5	Can edit a movie, can make a decoupage
K6	Knowledge of the audio technology for movies and animation	S6	Can create a scenario or concept
K7	Knowledge of grammar of animation movies	S7	Can create a storyboard

K8	History of politics and philosophy	S8	Can composite images and animated movies
K9	Knowledge of graphics techniques and applied graphics	S9	Can create a 3D model for animation
K10	Understand all production issues of an animation movie	S10	Can produce a stop motion movie
K11	Understand the basics of biomechanics		
K12	Knowledge of arts history, modern art and context		
<p>Job examples: animator, story board designer, graphics artist, comics' artist, leads designer, credits designer, 2D animator, 3D animator, stop motion film maker, cell animator, animation camera operator, computer animator, flash designer, animation editor, animation audio designer.</p>			

iPCF Domain:	Digital Multimedia Technology	
iPCF Subdomain:	2D/3D Animations	
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Proficiency Level:	iPCF A	iPCF B

Knowledge and skills examples:

K1	Understand concepts and scenarios	S1	Produce an animated movie
K2	Research current arts, politics and philosophy	S2	Manage a team that produces an animated movie
K3	Understand production issues of animation	S3	Create a concept and style for an animate movie or series
K4	Understand the economics and business of animation		
K5	Research interdisciplinary aspects of arts		



and culture		
Job examples: animation movie director, animation movie producer, animation studio manager, head animator, animation planner, animation scenario designer, animation planner.		

iPCF Domain:	Digital Multimedia Technology	
iPCF Subdomain:	Mobile Applications	
Description:	Mobile applications are computer programs designed to run on smartphones, tablet computers and other mobile devices. Mobile applications are usually distributed by platforms from the owner of the mobile operating system, such as the Apple App Store, Google Play, Windows Phone Store, and BlackBerry App World. Mobile applications are offered for productivity and information retrieval, including email, calendar, contacts, stock market, weather information, mobile games, GPS and location-based services, banking, ticket purchases and recently mobile medical application etc.	
Proficiency Level:	iPCF A	iPCF B

Knowledge and skills examples:

K1	Understand the basics of software development	S1	Being able to solve computing problems with mathematics
K2	Understand algorithms and formal logic	S2	Apply statistics, algebra, geometry and trigonometry
K3	Understand the digital world	S3	Be able to develop a theoretical model of a mobile service or solution
K4	Knowledge of the fundamentals of computer science	S4	Be able to analyse the requirements of a real world mobile solution or model
K5	Be able to analyse problems and develop solution	S5	Apply languages such as Java, etc. in a real world project
K6	Knowledge of the fundamentals of networking and mobile networking	S6	Be able to involve users in the design and evaluation of a mobile service or solution
K7	Understand the basics of mobile devices	S7	Be able to apply basic security and support measures to a mobile service or solution
K8	Understand the various platforms, their architecture, organization, patterns and programming mechanisms	S8	Understand the key forces and constraints acting on handheld devices and know how to accommodate these when designing and building mobile applications.



K9	Knowledge of the common mobile Operating Systems	S9	Use the various platforms effectively to develop their own applications
K10	Knowledge of the user interface design	S10	Use development tools, such as those found in developer's toolkits to efficiently create, understand, debug and optimize mobile applications.
K11	Understand multi touch as a user interface	S11	Know where to find additional sources of information to understand and solve problems.
K12	Basics of graphics design, animation and multimedia	S12	Be able to test and evaluate mobile applications
Job examples: app designer, mobile application designer, app tester, mobile game designer			

iPCF Domain:	Digital Multimedia Technology
iPCF Subdomain:	Mobile Applications
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Proficiency Level:	<u>iPCF A</u> iPCF B

Knowledge and skills examples:

K1	Understand the basics of mobile data management	S1	Diagnose and apply security for mobile applications
K2	Understand the economic and business aspects of mobile application development and engineering	S2	Manage a mobile application development project
K3	Understand the ethics and politics of data and information	S3	Set up and manage a mobile application distribution
K4	Understand game design and user interaction	S4	Be able to specify and analyse users or customers' requirements



K5	Understand issues of enterprise wide mobile application management	S5	Create functional specifications
K6	Research, analyse and understand innovation		
Job examples: mobile app developer, mobile app distributor, mobile business developer			

iPCF Domain:	Digital Multimedia Technology		
iPCF Subdomain:	Computer Games		
Description:	<p>A computer game is a computer-controlled game where players interact with objects displayed on a screen for the sake of entertainment.</p> <p>Computer game also includes games which display only text or which use other methods, such as sound or vibration, as their primary feedback device, or a controller (console games), or a combination of any of the above.</p>		
Proficiency Level:	iPCF A	iPCF B	

Knowledge and skills examples:

K1	Knowledge of computer games platforms	S1	Apply computer games and other processing tools according to different genres
K2	Understand the computer games classifications	S2	Operate and maintain computer games
K3	Knowledge of different types of computer games: casual, serious, educational	S3	Design concepts of different types of computer games
K4	Understand computer games platforms	S4	Apply computer games in different environments
K5	Knowledge of commercial aspects of computer games	S5	Design computer games modifications
Job examples: graphics specialist, graphics programmers, game artist, creative writer, level designer, game tester.			

iPCF Domain:	Digital Multimedia Technology		
iPCF Subdomain:	Computer Games		



Description:	<p>A computer game is a computer-controlled game where players interact with objects displayed on a screen for the sake of entertainment.</p> <p>Computer game also includes games which display only text or which use other methods, such as sound or vibration, as their primary feedback device, or a controller (console games), or a combination of any of the above.</p>
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Proficiency Level:	iPCF A	iPCF B
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Knowledge and skills examples:

K1	Knowledge of computer games platform characteristics	S1	Apply different computer games platforms
K2	Understanding of computer gaming technologies	S2	Operate and maintain computer games
K3	Understanding of computer games hardware and software	S3	Develop 3D content creation
K4	Knowledge of computer game multiplayer	S4	Skills to game hardware and platforms
K5	Knowledge of computer game behavioural effects	S5	Design networked, multiplayer games graphics, animation, physics, and simulation programming

Job examples: game producer, game tester, programmer, graphic designer.

iPCF Domain:	Digital Multimedia Technology
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iPCF Subdomain:	Programming
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Description:	<p>Computer programming or coding is a process that leads from an original formulation of a computing problem to executable computer programs. Programming involves activities such as analysis, developing understanding, generating algorithms, verification of requirements of algorithms including their correctness and resource consumption, and implementation of algorithms in a target programming language.</p>
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Proficiency Level:	iPCF A	iPCF B
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Knowledge and skills examples:

K1	Understand the fundamentals of mathematics	S1	Being able to solve computing problems with mathematics
K2	Understand algorithms and formal logic	S2	Apply statistics, algebra, geometry and trigonometry



K3	Understand the digital world	S3	Be able to develop a theoretical model of a service or solution
K4	Knowledge of the basics of ICT in general	S4	Be able to analyse the requirements of a real world solution or model
K5	Knowledge of the fundamentals of computer science	S5	Apply languages such as C, C++, C#, Java, Python, Perl, JavaScript, etc. in a real world project
K6	Be able to analyse problems and develop solution	S6	Be able to involve users in the design and evaluation of a service or solution
K7	Understand the basics of software development	S7	Be able to apply basic security and support measures to a service or solution
K8	Knowledge of the fundamentals of networking		
K9	Understand the basics of robotics		
K10	Knowledge of the common programming languages		
Job examples: programmer, web developer, coder, data format designer, application tester, application security tester			

iPCF Domain:	Digital Multimedia Technology	
iPCF Subdomain:	Programming	
Description:	Computer programming or coding is a process that leads from an original formulation of a computing problem to executable computer programs. Programming involves activities such as analysis, developing understanding, generating algorithms, and verification of requirements of algorithms including their correctness and resource consumption, and implementation of algorithms in a target programming language. Source code is written in one or more programming languages (such as C, C++, C#, Java, Python, Smalltalk, JavaScript, etc.). The purpose of programming is to find a sequence of instructions that will automate performing a specific task or solving a given problem. The process of programming thus often requires expertise in many different subjects, including knowledge of the application domain, specialized algorithms and formal logic.	
Proficiency Level:	iPCF A	iPCF B

Knowledge and skills examples:



K1	Understand the basics of data management	S1	Be able to apply advanced routing procedures
K2	Knowledge of digital forensics	S2	Manage a large software development project
K3	Understand information security	S3	Manage systemic change by inquiry, action and interaction
K4	Understand the economic and business aspects of software development and engineering	S4	Diagnose and apply network security in complex systems
K5	Understand the ethics and politics of data and information	S5	Solve problems and apply improvement, quality assurance and other approaches
K6	Analyse an understand innovation		
K7	Understand strategic thinking and tools for change management		
K8	Have notions of artificial intelligence		
Job examples: software development manager, software architect, software quality assurance manager, CIO, CTO			

iPCF Domain:	Digital Multimedia Technology
iPCF Subdomain:	Communication and multimedia design, cross-media Publishing
Description:	Communication and media design, cross-media publishing and digital publishing refer to the use of media in the field of advertising, public relations, corporate design, integrated communication applying different media (print, online, mobile, etc.). This adopts text, images, video, audio and other graphical elements interactively and interchangeably in diverse technologies such as content management systems, typography and brand design, DTP systems, online services, games and mobile applications as well in mass communications, appearances in public space and arts.
Proficiency Level:	iPCF A iPCF B

Knowledge and skills examples:

K1	Understand the basics of graphics and text design	S1	Be able to visualise a concept or idea
K2	Understand the basics of photography, audio and video	S2	Can articulate an abstract concept into a concrete project



K3	Understand user based design principles	S3	Can integrate multiple technologies in a single project
K4	Understand how visualisation technologies work	S4	Can design simple interactions
K5	Understand interaction technologies	S5	Can build a physical interface
K6	Knowledge of sociology and philosophy	S6	Can design a creative representation in a self-selected format
K7	Understand the laws of physics related to perception and senses in general	S7	Can collaborate in a team of interdisciplinary people
K8	Analyse images and audio-visual representations	S8	Can describe and report on a project in a comprehensive manner
K9	Knowledge of the history of new media	S9	Can select between creative techniques and can do research in the use of applicable technologies or tools
K10	Knowledge of the basics of psychology and neurobiology	S10	Can build a simple game
K11	Knowledge of the basics of animation and scripting	S11	Can produce a narrative for a multimedia product
K12	Knowledge of the theory of media and culture as well as of current history and arts		
K12	Understand marketing		
K13	Knowledge of the ICT and communication in general		
<p>Job examples: online marketer, e-advertiser, art director, animator, brand manager, content strategist, copywriter, creative director, graphic designer, illustrator, industrial designer, information architect, information graphics designer, instructional designer, marketing communications expert, artist, presentation designer, event director, technical writer, game designer, app designer, multimedia designer, interaction designer, virtual campaigner.</p>			

iPCF Domain:	Digital Multimedia Technology
iPCF Subdomain:	Communication and multimedia design, cross-media Publishing
Description:	Communication and media design, cross-media publishing and digital publishing refer to the use of media in the field of advertising, public



		relations, corporate design, integrated communication applying different media (print, online, mobile, etc.). This adopts text, images, video, audio and other graphical elements interactively and interchangeably in diverse technologies such as content management systems, typography and brand design, DTP systems, online services, games and mobile applications as well in mass communications, appearances in public space and arts.	
Proficiency Level:		iPCF A	iPCF B
Knowledge and skills examples:			
K1	Understands the processes of media, arts and culture	S1	Can manage an event from concept to delivery
K2	Understand the economical, societal and commercial issues related to multimedia and creative arts	S2	Can manage a team of multidisciplinary people in the creation of a multi media event of artefact
K3	Can research games and other interactive representations in different application domains	S3	Can articulate a public statement by means of a multimedia artefact or event
K4	Understands narrative processes and the basics of digital storytelling	S4	Can document, justify and defend expressions of digital or multimedia arts or appearances
K5	Understand the power of different media in the public realm		
Job examples: brand manager, artist, creative campaign director, environmental artist, PR manager, online business manager, digital agent, publisher.			

9. Project management competence domain

iPCF Domain:	Project Management		
iPCF Subdomain:	Project Scope Management		
Description:	The work that needs individuals to take responsibilities to accomplish for delivering a Digital Media and Arts system / product / service with the specified features and functions.		
Proficiency Level:	iPCF A	iPCF B	
Knowledge and skills examples:			
K1	Identification of Digital Media and Art	S1	Creation of a method for evaluation of



	components, crucial for the scope of the project		digital media and art components from time consuming and cost for the final project results
K2	Definition of task deliverables, forming the project multimedia results	S2	Selection of tasks delivering multimedia results in the project critical paths
K3	Identification of tasks forming project scope	S3	Selection of tasks forming project scope, which are related to the most crucial multimedia components, and at the same time are part of the project critical paths
K4	Selection of Digital media and Art components, core for the project features and functions	S4	Procedure for selection of digital media and art components, core for the project features and functions, based on experienced creative and intuitive thinking
K5	Identification of human resources responsible for delivering of Digital media and art components, crucial for the scope of the project	S5	Ranking of human resources, creating digital media and art components, with closed to or higher that 100% utilisation
Job examples: solution architects for complex digital media and art projects			

iPCF Domain:	Project Management
iPCF Subdomain:	Project Scope Management
Description:	Part of general project planning that involves determining and documenting a list of specific project goals, deliverables, tasks, costs and deadlines.
Proficiency Level:	<u>iPCF A</u> iPCF B

Knowledge and skills examples:

K1	Lesson learned for bad scope management	S1	Ranking of project tasks according to the risks for time, cost and resource usage
K2	Best practices for good scope management	S2	Ranking of digital media and art components from project goals, deliverables, tasks, costs and deadlines
K3	Set of documents specifying project goals, deliverable, tasks, costs and deadlines	S3	Creation of templates for documents specifying project goals, deliverable, tasks, costs and deadlines, underlining the creation of digital media and art components



K4	Selection of Digital Media and Art components, core for the project cost	S4	Ranking of project tasks risks according to time consuming, budget consuming and resource consuming, underlining the creation of digital media and art components
K5	Level on which different stakeholders will sign-off procedures for project-ending	S5	Ranking the risks of delivery of digital media and art components and correlate them to the sign-off stakeholders
Job examples: project managers for digital media and art projects			

iPCF Domain:	Project Management		
iPCF Subdomain:	Project Time Management		
Description:	Defines the relationships and interdependences in the times of creation of Digital Media and Art components		
Proficiency Level:	iPCF A	iPCF B	

Knowledge and skills examples:

K1	Define the time duration of usage of each technology tools for creation of Digital Media and Art component	S1	Ranking all proposed for usage tools according to the average time required to create a digital media and art components
K2	Creation of linked sequences between the usage of the different tools for creation of Digital Media and Art component	S2	Create the pre-requisites and compulsory sequences of using of the proposed to apply tools
K3	Identification of tools for buying / renting for creation of Digital Media and Art component, leading to decreasing the time duration of the critical tasks paths	S3	Identification of missing tools for creation of all digital media and art components in the project. List of possible open source new tools. List of possible new tools for buying and/or renting.
K4	Based on required training / education of members of the team, defining and redefining of the time duration of the critical tasks paths	S4	Creation of a method for selection of needed training / education of members of the team, based on the project requirements and team capabilities
K5	Creation of time sequences for each tool, for each member of the team and for time interdependency	S5	Creation of extended time schedule for each team member of the project, incorporating the duration of the training / education.
Job examples: project architect, project solution architect, project technology officer			



iPCF Domain:	Project Management
iPCF Subdomain:	Project Time Management
Description:	Being the time one of the 2 most critical resources (with the cost), defines the dates to prepare the expected deliverables
Proficiency Level:	iPCF A iPCF B

Knowledge and skills examples:

K1	Breaking the high-level requirements into high-level tasks and sub-tasks, every one delivering Digital Media and Art components	S1	Breaking the project requirements into high-level tasks, having a delivery in each one. braking the high-level tasks into tasks with foreseeable for the developers durations
K2	Creation of sequence and parallel paths of tasks, having in mind the nature of the project final results, the technology requirements and pre-requisites for creation of Digital Media and Art components	S2	Creation of method for selection between sequence of all tasks and parallel execution of all tasks with focus – decreasing the cost, consistent usage of the resources, new training / education of the team
K3	Dedication of human and technological resources for creation of the Digital Media and Art components, taking into account the specifics of the knowledge of the people in the team	S3	Creation of a list for the skills of the team for digital media and art components development and a list of all requires skills for the project
K4	Identification of the required formal and informal training/education of the member of the team	S4	Creation of a table with the required training / education per team member, preferred formal / informal training / education per team member and possible time frames for training / education
K5	Identification of the time duration of each task, taking into account the required training/education	S5	Creation of time frames for possible training / education per task, having in mind the time limits of each project task

Job examples: project manager for digital media and art projects

iPCF Domain:	Project Management
iPCF Subdomain:	Project Costs Management



Description:	Knowing the financial and human resources required to complete a project within an approved budget, create a special focus on the cost of development of Digital Media and Art components		
Proficiency Level:	iPCF A	iPCF B	

Knowledge and skills examples:

K1	Defining for each high-level task how much costs the time extension or time decreasing of the task	S1	Establishment of a method for creation of average rate per person for a high-level task
K2	Defining the project cost of training / education of the project team against outsourcing (contracting) the appropriate activities	S2	Creation of a method for calculation of Total cost of ownership (TCO) for the different training / education
K3	Creation of comparative evaluation for applying the required training / education for the different categories of team members from cost and time point of view	S3	Establishment of the cost for training of each category team member for appropriate training / education
K4	Defining the cost of used tools for creation of Digital Media and Art components per task	S4	Creation of a method for calculation of Total cost of ownership (TCO) for each tool for creation of digital media and art components in the project
K5	Establishment of the project cost for creation of all Digital Media and Art components	S5	Creation of a method for calculation of Total cost of ownership (TCO) for creation of a digital media and art component

Job examples: digital media and art solution manager, responsible for project cost, related to the creation of such components

iPCF Domain:	Project Management		
iPCF Subdomain:	Project Costs Management		
Description:	A method that uses technology to measure cost and productivity through the full life cycle of project		
Proficiency Level:	iPCF A		iPCF B

Knowledge and skills examples:

K1	Planning and visioning the cost for the project	S1	A software tools for evaluation the planned cost for the project
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K2	Estimating the cost of each task	S2	Establishment of a method for calculation of the cost per task, taking into account the defined rates per team member and the cost of used tools for development of digital media and art components
K3	Determining the project budget	S3	Using best-guess estimated costs, applying the necessary budget buffers, and having in mind the vision project cost, to rearrange the human and tool resources for the final project budget
K4	Identification of the cost project risks	S4	Creation of list of cost project risks, the cost related to the tasks in each risk-item (with special focus on tools and needed training / education), and the possible budget buffers, to identify the level of the risk for the project budget
K5	Controlling the project cost	S5	Identification of points to monitor the cost usage – per task, per risk, per project during of the project execution
Job examples: member of a complex project management team responsible for project budget and its risk management			

iPCF Domain:	Project Management
iPCF Subdomain:	Project Quality Management
Description:	<p>The process for ensuring that all project activities necessary to design, plan and implement a project are effective and efficient with respect to the purpose of the objective and its performance, with special focus on activities related to creation of digital media and art components.</p> <p>Project Quality Management includes the processes required to ensure that the project will satisfy the needs for which it was undertaken. It includes “all activities of the overall management function that determine the quality policy, objectives, and responsibilities and implements them by means such as quality planning, quality control, quality assurance, and quality improvement, within the quality system”.</p>
Proficiency Level:	iPCF A iPCF B

Knowledge and skills examples:

K1	Creation of Customer (sponsor) satisfaction report	S1	Defining project expectations
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K2	Creation of satisfaction report for the developed Digital Media and Art components	S2	Defining expectations for evaluation (not measurement) of the developed Digital Media and Art components, with signed reports for interim acceptance of the components' development
K3	Identification the Cost for Quality	S3	Specify money spent during the project to avoid failures and money spent during and after the project because of failures
K4	Creation of a procedure for Continuous Improvement	S4	Selection of an approach based on the methods Six Sigma and Total Quality Management (TQM)
K5	Providing Independent Verification and Validation	S5	Establishing of evaluation of project deliverables by an independent organization, to confirm they meet specified requirements (verification), with focus on the developed components for digital media and art
K6	Knowledge of quality standards	S6	Undertake project quality planning
K7	Knowledge of quality planning, assurance and control and theirs tools and techniques	S7	Apply quality tools and techniques to manage quality
K8	Understanding of quality management software	S8	Undertake quality control and monitoring
K9	Understanding of factual approach to decision making	S9	Identify mutually beneficial stakeholders relationships
K10	Knowledge of quality process improvement and continual improvement	S10	Identify which quality standards are relevant to the project and determining how to satisfy them
Job examples: quality manager; Six Sigma specialist; TQM specialist, manager, quality manager, project manager, quality assurance specialist.			

iPCF Domain:	Project Management
iPCF Subdomain:	Project Quality Management
Description:	The process for ensuring that all project activities necessary to design, plan and implement a project are effective and efficient with respect to the purpose of the objective and its performance, with special focus on activities related to creation of Digital Media and Art components.



Project Quality Management includes the processes required to ensure that the project will satisfy the needs for which it was undertaken. It includes “all activities of the overall management function that determine the quality policy, objectives, and responsibilities and implements them by means such as quality planning, quality control, quality assurance, and quality improvement, within the quality system”.

Proficiency Level: iPCF A iPCF B

Knowledge and skills examples:

K1	Creation of quality plan	S1	Defining a set of actions to run during the entire project execution to ensure its quality, starting from the project goals and including list of events for documenting, raised risks, methods for tests and methods for predict the generation of the deliverables
K2	Defining quality assurance	S2	Establishment of metrics to determine whether or not the quality plan is proceeding in an acceptable manner
K3	Defining the role and essence of the quality control	S3	Identification of operational techniques to ensure quality standards
K4	Quality management for the entire project as whole	S4	Selection of processes that will be applied at the project start and the project end
K5	Quality management of the created digital media and art components	S5	Selection of processes and criteria to evaluate the created digital media and art components
K6	Knowledge about project quality standards, assurance and control	S6	Create quality management plan
K7	Understanding of quality management intelligent systems	S7	Evaluate overall project performance on a regular basis to provide confidence that the project will satisfy the relevant quality standards
K8	Understanding of prominent quality models	S8	Elicit and prioritize quality requirements
K9	Understanding of project quality planning, assurance, controls tools and techniques	S9	Apply quality strategies and skills to real-world scenarios
K10	Understanding of system approach to quality management	S10	Monitoring specific project results to determine if they comply with relevant quality standards and identifying ways to eliminate causes of unsatisfactory



			performance
Job examples: quality manager as part of the project management team, quality thinkers, quality manager, quality controller, quality inspector, quality control manager, project manager.			

iPCF Domain:	Project Management		
iPCF Subdomain:	Project Resource Management		
Description:	Efficient and effective deployment of an organization's resources when they are needed		
Proficiency Level:	iPCF A	iPCF B	

Knowledge and skills examples:

K1	Definition and categorisation of the resource pool into sub-pools by resource types	S1	Creation of spreadsheets for the resource sub-pools and summarising them for the entire pool, with resource category and utilisation during the project execution
K2	Creation of a special resource sub-pool for the tools creating digital media and art components	S2	Creation of a ration utilisation against the cost of each tool for Digital Media and Art components creation
K3	Scheduling the utilisation of the resource pool	S3	Using of software tools for specifying and scheduling the resources
K4	Monitoring the utilisation of the resource pool during the fixed period of the project execution	S4	Creation of tables and dashboards presenting the resource utilisation
K5	Creation of a list of new achieved knowledge during the project from formal and/or informal training / education	S5	Creation of a list of new achieved skills during the project from formal and/or informal training / education

Job examples: solution architect for creation of digital media and art components

iPCF Domain:	Project Management		
iPCF Subdomain:	Project Resource Management		
Description:	Allocation and reallocation of project resources - people, materials, equipment, and tools for Digital Media and Art creation		
Proficiency Level:	iPCF A	iPCF B	

Knowledge and skills examples:

K1	Dealing with unknowns in consistency of team members pool during the entire project duration	S1	Development of resource plan for each high-level task
K2	Dealing with unknowns in consistency of needed person knowledge and skills from the Initiation phase	S2	Creation of resource plans for each high-level task with less than 100% person utilisation
K3	Dealing with unknowns in required resources based on project scope changes during the project execution	S3	Creation a spare resource pool for human skills closed to the required in the project, covering possible scope changes during the project execution. The cost of this spare resource pool have to be covered by the project risk management
K4	Dealing with unknowns in the behaviour and the created results from the tools for creation of digital media and arts components	S4	Establishment a list of alternative tools for each used tool for creation of digital media and art components
K5	Dealing with unknowns in the training / education results from team members during the project execution	S5	Creation of interviews with team members during the training / education process to evaluate the expected final results from the training / education

Job examples: digital media and art architect as part of the project management team

iPCF Domain:	Project Management	
iPCF Subdomain:	Project Risk Management	
Description:	Project risk management as method for monitoring the project execution for the purpose to deliver all project expectations	
Proficiency Level:	iPCF A	iPCF B

Knowledge and skills examples:

K1	Communicate the project risk with the project sponsor	S1	Creation of a dashboard for the initiated risks, there level of severity with start point and current point (during the project execution)
K2	Identify risk owner with specially selected people with high-tech knowledge to deal with the tools for creation of digital media	S2	Creation of selection criteria for people capable to implement the tools for creation of digital media and art



	and art components		components
K3	Prioritize the project risks for the tools for creation Digital Media and Art components	S3	Identification of level of risk for applying tools for creation digital media and art components
K4	Creation of risk register	S4	Registering as a electronic log all events related to a risk
K5	Creation of procedures for diminishing the risks of using tools for creation digital media and art components	S5	Defining diminishing steps of the risk for implementing all tools for creation digital media and art components in the project
Job examples: risk manager for applying tools for creation digital media and art components			

iPCF Domain:	Project Management	
iPCF Subdomain:	Project Risk Management	
Description:	Managing project risk as uncertain events or conditions that, if they occurs, have a positive or negative effect on a project's objectives'	
Proficiency Level:	iPCF A	iPCF B

Knowledge and skills examples:

K1	Risk identification	S1	Identification of events leading to a risk
K2	Qualitative risk analysis	S2	Selection of levels of risk from the point of view of the current project
K3	Quantitative risk analysis	S3	Selection of levels for each risk, taking into account the tools for creation Digital Media and Art components
K4	Planning risk responses	S4	Creation of a list of action for the risks (with high severity) of using tools for creation Digital Media and Art components, when these risk happens
K5	Monitoring and controlling risks	S5	Creation of a list of fact through which to form a view for possible arising a risk for each different risk, from using tools for creation Digital Media and Art components
Job examples: project manager with special focus on risk management			



iPCF Domain:	Project Management	
iPCF Subdomain:	Project Communications Management	
Description:	Establishment of levels, types and documents for communication during the project execution	
Proficiency Level:	iPCF A	iPCF B

Knowledge and skills examples:

K1	Creation of periods for reporting to the project sponsor	S1	Criteria for selection of periods for reporting to the project sponsor, starting from 1 week until the period of bigger duration of a high-level task
K2	Creation of a list of project groups exchanging information internally during the project execution	S2	Selection of groups for communication for each used tool for creation Digital Media and Art components
K3	Creation of channels for communication between the groups in the project	S3	Establishment of asynchronous and synchronous channels, defining period for response for the asynchronous channels and the type of synchronous channel
K4	Creation of a special channel for real time communication inside the project team for problems using tools for creation Digital Media and Art components	S4	Selection of a tool for sharing computer screens for possible support and/or exchange of opinions during problems of using tools for creation Digital Media and Art components
K5	Creation of a list of companies for possible consultations for each tool for creation Digital Media and Art components	S5	Selection of providers for alternative tolls of each used tool for creation Digital Media and Art components, applying commercial and non-commercial tools providers

Job examples: member of project management group, responsible for the communications

iPCF Domain:	Project Management	
iPCF Subdomain:	Project Communications Management	
Description:	A systematic planning, implementing, monitoring, and revision of all the channels of communication with all necessary information	
Proficiency Level:	iPCF A	iPCF B



Knowledge and skills examples:

K1	Identification of the information which have to be exchanged between different groups in the project team	S1	Definition of the documents for exchange: Basic information; Document protection; Edit history; Document properties; and Tools used for creation of those documents
K2	Identification of the meetings between the project sponsor and the project management team and their agenda	S2	Creation of a list for the meetings between the project sponsor and the project management team on the Initiation phase level, as well as a procedure for scheduling additional meetings
K3	Defining the scope of documents that have to be exchanged between the project sponsor and the project management team	S3	Generation of list of documents for exchange of information with structure of each document
K4	Creation of special reports to the project sponsor for using tools for creation Digital Media and Art components	S4	Defining a list of possible reports with structure of each one
K5	Generation of list of responsible team members, creating the information between the groups in the project team and with the sponsor	S5	Identification of criteria for selection of team members responsible for the communication during the project execution

Job examples: head of a team project management

10. Entrepreneurship competence domain

iPCF Domain:	Entrepreneurship
iPCF Subdomain:	Strategic Management
Description:	Relevant to all entrepreneurs managing in the digital media creative industries, etc.
Proficiency Level:	iPCF A iPCF B

Knowledge and skills examples:

K1	Case Studies: know how local and international successful innovative business's in the creative industries started – seek out mentors	S1	Know the core business of Google, Facebook, LinkedIn, PayPal, Apple, Microsoft
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K2	Case Studies: understand your specific business environment	S2	Do some initial market research on business topic area in your area
K3	Understand your company's core competencies requirements and unique selling point in a particular target sector	S3	Conduct feasibility study
K4	Networking: analyse and identify new competitors and potential collaborators	S4	Check out existing local competitors
K5	Evaluate the collective special knowledge of company employees or prospective employees	S5	Evaluate and identify existing in house skill sets listing strengths and weakness's
<p>Job examples: you could work in first line management roles in finance, marketing or a career in general management in film & television production; animation; photography; multimedia programming; web engineering companies; music production companies; online game development companies etc.</p>			

iPCF Domain:	Entrepreneurship
iPCF Subdomain:	Strategic Management
Description:	Relevant to all entrepreneurs managing in the digital media creative industries, etc.
Proficiency Level:	iPCF A iPCF B

Knowledge and skills examples:

K1	Based on real word problems, develop project based business model (vision) idea and company identity to stand above the opposition as domain experts in the creative industries locally and at European level	S1	Find a real world problem and solution - brainstorm and come up with ideas to create a digital media company – create mindmaps
K2	Scan the local and European environment and seek out business opportunities as domain experts	S2	Scan the internet for business ideas / opportunities
K3	Analyse market sector to identify opportunities to help ensure early success's closing sales at national and EU level	S3	Find business success stories online that could be improved... pick an example and create fictional company
K4	Continuous innovation: create a culture whereby employees anticipate competitors next innovation or move and	S4	Initiate a virtual suggestion box with incentives and provide feedback



	approach the target sector market ahead of rivals		
K5	Create schemes and financial incentives so that employees will use their special knowledge in an entrepreneurial way to the benefit of all stakeholders	S5	Initiate IT security systems to allow employees use their own personal mobile devices for work... bring your own device (BYOD) concept to enhance productivity and creativity
Job examples: entrepreneurial company owners/or shareholders in film & television production; animation; photography; multimedia programming; web engineering companies; music production companies; online game development companies etc.			

iPCF Domain:	Entrepreneurship
iPCF Subdomain:	Financial Issues
Description:	To understand the basic concepts of financial issues and accounting and to be able to apply these concepts.
Proficiency Level:	iPCF A iPCF B

Knowledge and skills examples:

K1	Understand the introduction and definition of Accounting	S1	To be able to demonstrate this understanding
K2	Understand basic book-keeping entries i.e. purchases and sales	S2	Record these transactions through a debtors, creditors and general ledger
K3	Understand the difference between fixed assets, liabilities and depreciation	S3	To be able to evaluate value and understand the importance of buying and selling and profit and loss
K4	Understanding bad debts	S4	The ability to write off a bad debt in a journal entry
K5	Analyse financial data	S5	To be able to recognise a financial concern from incomplete accounts

Job examples: finance assistants, sales person, business and administration staff, clerical support staff, accounting technicians

iPCF Domain:	Entrepreneurship
iPCF Subdomain:	Financial Issues



Description:	To understand the basic concepts of financial issues and accounting and to be able to apply these concepts, also to recognise the importance of accounting data in the decision making process		
Proficiency Level:	iPCF A	iPCF B	

Knowledge and skills examples:

K1	Understand the difference between management accounting and financial accounting	S1	To demonstrate this understanding
K2	To understand financial objectives	S2	To identify profit maximisation and growth
K3	Remember ethics and social responsibility	S3	The ability to implement ethical procedures and policies for internal and external stakeholders
K4	Understanding sources of finance	S4	Recognising the difference and benefits of short, medium and long term loans
K5	Analyse the role of accounting	S5	Prepare cost accounts and financial reporting

Job examples: finance manager, audit assistant, finance assistants, sales person, business and administration staff, clerical support staff, accounting technicians, bank support

iPCF Domain:	Entrepreneurship		
iPCF Subdomain:	Legal Issues		
Description:	Business managers should understand the basic concepts of legal issues and IPR and to be able to apply these concepts, also to recognise the importance of understand the need to engage a wider legal brief when required...		
Proficiency Level:	iPCF A	iPCF B	

Knowledge and skills examples:

K1	Know about different basic ways to form a company under local law	S1	Set up fictional companies as 1) sole trader, and 2) a partnership
K2	Understand the need for a founders or pre-formation collaborators agreement	S2	A fictional company project: use own capital or raise money to start company – this determines who owns valuable company assets as company grows –

K3	Understand intellectual property	S3	Consider future IP claims by former employees; copyright, trademarks (yours and others);
K4	Understand patent applications	S4	Apply for a provisional patent application for your project company
K5	Understand employment tax related issues specific to your business in your own country	S5	Set up a payroll system for your country e.g. in Ireland it is Pay As You Earn (PAYE)
Job examples: managers in general across the creative industries to include: audit assistants, finance assistants, sales person, business and administration staff, clerical support staff, accounting technicians, bank support			

iPCF Domain:	Entrepreneurship	
iPCF Subdomain:	Legal Issues	
Description:	Business owners/managers understand the basic concepts of legal issues and IPR and to be able to apply these concepts, also to recognise the importance of understand the need to engage a wider legal brief when required...	
Proficiency Level:	iPCF A	iPCF B

Knowledge and skills examples:

K1	Know about different basic ways to form a company under local (national) law and EU law	S1	Set up fictional companies as 1) sole trader, and 2) a partnership and trade internationally – exporting technology
K2	Understand the need for a founders or pre-formation collaborators agreement	S2	A fictional company project: use own capital or raise money to start company – this determines who owns valuable company assets as company grows –
K3	Understand intellectual property	S3	Deal with an IP claims by a former employee in the area of trademark or copyright
K4	Understand patent applications	S4	Notionally, submit a patent application that protects an innovative idea in the EU, in the United States and Worldwide
K5	Understand employment tax related issues specific to your business in your own country and one other EU country	S5	Notionally calculate and pay employment tax in another EU country for a company employee



Job examples: managers and business owners in general across the creative industries to include: audit assistants, finance assistants, sales person, business and administration staff, clerical support staff, accounting technicians, bank support

iPCF Domain:	Entrepreneurship		
iPCF Subdomain:	Marketing		
Description:	The activities of a company associated with buying and selling a product or service. It includes advertising, selling and delivering products to people.		
Proficiency Level:	iPCF A	iPCF B	

Knowledge and skills examples:

K1	Understanding the concepts of marketing	S1	To be able to demonstrate this understanding by identifying and satisfying customer needs
K2	Understanding market research	S2	Applying the most appropriate type of research method to maximise potential customers
K3	Understanding a marketing plan	S3	The ability of applying a SWOT analysis
K4	Defining product, price, promotion & place	S4	Applying the 4 P's appropriately to your Product
K5	Introduction to marketing services	S5	Identifying the services and marketing strategies
K6	Knowledge of online marketing	S6	Attending trade shows, conferences and sales meetings
K7	Knowledge of marketing project management	S7	Research and analysis of market trends
K8	Understanding of online video advertising and e-mail marketing	S8	Identify online marketing benefits
K9	Knowledge of affiliate marketing	S9	Prepare different marketing types strategies
K10	Understand market segmentation	S10	Plan campaigns and managing budgets

Job examples: marketing manager, marketing assistant, project manager, advertising advisor, market consultant, market planner, pr assistant, market researcher, public relations officer, public



affairs consultant, sales manager, advertising account executive, advertising account planner.

iPCF Domain:	Entrepreneurship	
iPCF Subdomain:	Marketing	
Description:	To learn the fundamentals of contemporary marketing theory and practice and to gain a comprehensive insight into the Marketing Services Sector	
Proficiency Level:	iPCF A	iPCF B

Knowledge and skills examples:

K1	Understanding the concept of marketing services	S1	Demonstrating and identifying this understanding by recognising business, trade, infrastructure, social and public services
K2	Understanding service consumer behaviour	S2	To be able to investigate your service consumer behaviour and identify their decision making process
K3	Understanding customer expectations of a service	S3	To be able to apply a methodology that recognises customer expectations of a service
K4	Understanding the services marketing research	S4	To be able to apply effective research methods and identify research objectives
K5	Understanding Service Strategies and Initiatives	S5	To be able to identify problems and create strategies and Initiatives
K6	Knowledge of holistic marketing and neuromarketing	S6	Initiate and manage a marketing and neuromarketing project
K7	Understand ethics of marketing/neuromarketing	S7	Develops strategies to present new business ideas
K8	Understand workflows in marketing/neuromarketing	S8	Coaches others on the design and implementation of campaigns to present products to new markets
K9	Knowledge of techniques for neuromarketing	S9	Control the campaigns and process of the marketing/neuromarketing projects
K10	Analyse the campaigns and process of the marketing/neuromarketing projects	S10	Evaluate the marketing/neuromarketing work of others

Job examples: marketing manager, marketing assistant, project manager, advertising advisor,



market consultant, market planner, PR assistant, marketing executive, sales promotion account executive, public relations account executive, advertising art director.

iPCF Domain:	Entrepreneurship
iPCF Subdomain:	Stakeholders Management
Description:	<p>Stakeholder management helps a business move toward its stated goals by keeping existing investors satisfied, and recruiting new investors as necessary, in a responsible and ethical way.</p> <p>Stakeholder management concerns for example: a key business start-up person (usually the owner) identifying all stakeholders (anybody) either internal or external to the business who can have an impact on the business in some way.</p>
Proficiency Level:	iPCF A iPCF B

Knowledge and skills examples:

K1	Know about the importance of stakeholders for your business at a local level	S1	Identify typical potential stakeholder for your business
K2	Understand your stakeholders and learn how to communicate and negotiate with them both face-to-face and using modern computer medium communication methods	S2	Brainstorm to identify and classify every possible, name, organisation or type of stakeholder that could be involved – check out their favoured online communication modality
K3	Analyse your stakeholders	S3	Develop a matrix to help understand and focus on each identified stakeholders concerns
K4	Understand how you can influence stakeholders	S4	Develop a plan to meet with identified key stakeholders to discuss their needs and concerns
K5	Engage stakeholders	S5	Create an environment where two way communication or two-way engagement ensures shared responsibility...

Job examples: All managers involved in SMEs across the creative industries in the EU and worldwide

iPCF Domain:	Entrepreneurship
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iPCF Subdomain:	Stakeholders Management	
Description:	<p>Stakeholder management helps a business move toward its stated goals by keeping existing investors satisfied, and recruiting new investors as necessary, in a responsible and ethical way.</p> <p>Stakeholder management concerns for example: a key business startup person (usually the owner) identifying all stakeholders (anybody) either internal or external to the business who can have an impact on the business in some way.</p>	
Proficiency Level:	iPCF A	iPCF B

Knowledge and skills examples:

K1	Know about the importance of stakeholders for your business nationally and internationally	S1	Study EU initiatives to enhance the success rate of small or micro companies in the context of typical stakeholders in your business domain
K2	Understand your stakeholders not just from a business perspective but also from a societal viewpoint both nationally and internationally and learn how to communicate and negotiate with them both face-to-face and using modern computer medium communication methods and be mindful of cultural differences	S2	Develop a strategy surrounding the mobility of workers in the EU involving lead stakeholders interested in such initiatives – use online and offline communication strategy
K3	Analyse and evaluate stakeholder engagement	S3	Create a diagram/table showing where to deploy your limited resources in the context of engagement with high influence stakeholders or low influence stakeholders... high influence = more effort and fewer stakeholders while low influence = more stakeholders and less effort
K4	Understand how you can influence and manage stakeholders and how accepted and agreed terms can help build better relationships with society to improve business planning and performance	S4	Develop a stakeholder strategy without an end... but one that is continuous
K5	Continuous stakeholder assessment...	S5	Implement your stakeholder manager plans and regularly review your strengths and weaknesses

Job examples: all managers and company owners involved in SMEs across the creative industries in the EU and worldwide

