



Training Framework for European Technology Transfer Managers

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Introduction

The Training Framework has been produced by the Consortium CERT-TTT-M within the project “Certified Trans-national TT Manager – Building up a framework to qualify TT – Managers on a trans-national level with mutual recognition”, funded by the European Commission, Framework Programme 6

The aim of the Training Framework is to support training providers for the design and the implementation of training courses for the career development of technology transfer professionals.

It is based on the results of surveys conducted within the CERT-TTT-M project on training needs and opinions expressed by professionals and experts and on the analysis of training programmes available in technology transfer throughout Europe.

A set of seven professional skills have been identified as strategic for people who want to work as professionals in the technology transfer field at European level.

On these bases, the Training Framework gives information and guidelines on different education modules. The modules described are seven, one for each of the skills identified. Each module is detailed in relation to three education level.

The Training Framework: skills, modules and levels

The seven skills:

1. Managing Communication, Information and Networking
2. Understanding IPR & Licensing
3. Commercial Activities and Markets
4. New Business Development
5. Negotiating
6. Project management
7. Information analysis

Several criteria are used to describe each module:

- Title
- General description of the module’s aims
- Learning outcomes
- Levels of education
- Education modules
- Methodologies
- Facilities
- Teaching staff
- Assessment
- Duration (*minimum of time the student spends to physically attend the classes. It doesn’t include the time to prepare for the classes and/or time for assignments*)

The three education levels:

- Basic - should be focused on learning the basics in technology transfer (for example 'What is IP-law'). This level is a 'knowledge level', preferred teaching method is classroom teaching.
- Advanced - could be focused on more in-depth, strategic and specialized issues, developing more skills, supported by classroom teaching, interactivity, case studies and e-learning.
- Expert - is the level where knowledge and skills become integrated in an optimal way. Teaching methods could be based on business-cases where all dimensions of technology transfer come into play

Modularisation and duration

As a whole, the Framework represents a sort of ideal curriculum for the education of professionals. It means that a training programme could include all the modules or only a part of them. In fact each module at a certain level has to be intended as self-sustained and could represent the basis for one single course by it-self. For example, a course could be implemented in order to develop a specific skill – (New Business Development) on a certain level (Basic).

The modularisation of education is possible for the Basic and the Advanced level while it is not advisable for the Expert level. The Expert level is set up to follow as one total module where all skills are used. The skills on the Expert level are taught with the assistance of a business case in which all knowledge, skills and competences of candidates come together.

Another point of attention for the curriculum was the optimal length of an education programme, as the target group is represented by professionals. According to the survey developed within the project, the ideal length of an education program is 1-3 weeks (50% of the respondents). A length of 1 - 4 weeks (5-20 working days) was optimal regarding 64,9 % of the respondents.

On this basis, each module of the Framework should have a minimum duration of 2 or 3 days: time for self study and time to make assignments is not counted. The whole programme (7 modules) should last around 14 days.

Professional titles

The Training Framework proposes professional titles distinguished for the three education levels:

- Basic: *Technology Transfer Professional (TTP)*
- Advanced: *Senior Technology Transfer Professional (STTP)*
- Expert: *Executive Technology Transfer Professional (ETTP)*

A candidate can be awarded the professional title TTP, ATTP or ETTP if he/she has mastered all different elements of the relevant level which is shown by passing the exam.

In the table below an idea of what a basic / advanced / expert level means and what candidates are supposed to know and do is presented.

Levels, titles and activities of technology transfer professionals

Level	Title	Description	Activities / roles
Basic 0-3 years experience	Technology Transfer Professional™	Has general knowledge of all seven skills.	Assistant TT manager, Project Assistant
Advanced 3-8 years experience	Senior Technology Transfer Professional™	Has deep knowledge of all seven skills and has knowledge and experience in all methods of technology transfer and conditions of application and several years of personal experience from participation in (projects in) technology transfer.	Project Manager, managing technology transfer or innovation projects along at least one of recognized lines of technology transfer.
Expert > 8 years experience	Executive Technology Transfer Professional™	Has profound knowledge and experience in/of all seven skills and has knowledge and experience in all methods of technology transfer and conditions of application and an extensive and systematic personal experience from management of projects in some field or fields of TT. A senior technology transfer professional is able to manage and exploit large Technology Transfer processes and is able to manage a TT professional team. He or she should have track record of several successful spin-outs or licensing deals.	TTO manager, TT manager, supervising technology transfer, and managing very complex structured projects along at least one of recognized lines of technology transfer.

The CERT-TTT-M project has sketched a future perspective for supporting the recognition and the career development of technology transfer professionals. More information about this perspective in which professional titles could be awarded and how to set this up, are described in the Project Final Report, Chapter 5: A recognition path for the TT Professional. The Report and other relevant documents are available on the project website: www.ttt-manager.eu

In the following pages the Training Framework is presented in details.

Training Framework for Technology Transfer Professionals

Managing communication, information and networking	
The purpose of this module is to develop the skills of candidates in communication, information and networking. After this module candidates will be able to use communication, information and networking skills in an effective manner to realise TT matters.	
Basic	Learning outcomes <i>Candidates must be able:</i>
	Students must have basic communication skills (to listen, to summarise, to question, to present, non-verbal and verbal communication, to write)
	To know different levels of communication in a conversation (contents, procedures, interaction and emotion)
	To know the basic theories of communication
	To find, interpret and use relevant information from databases (like markets, industry)
	Basic understanding of information management in TT
	Knowledge of existing relevant TT stakeholders (national and international, e.g. regional development agencies, government, TT networks etc.)
	To be able to benefit from interaction with these TT stakeholders
	Modules
	Introduction communication theory (classroom)
	Communication skills (classroom / role playing)
	Basic information management
	TT-networks: how to find, use and build personal networks for own organisation (class room)
	Methodologies
	classroom teaching
	role playing
	e-learning
	Facilities
	Classroom
	ICT
Teaching Staff	
Communication trainer	
TT-expert	
Database searcher	
Assessment	
Exam	

Managing communication, information and networking

The purpose of this module is to develop the skills of candidates in communication, information and networking. After this module candidates will be able to use communication, information and networking skills in an effective manner to realise TT matters.

Advanced	Learning outcomes
	<i>Candidates must be able:</i>
	to manage a meeting / workshop
	to manage conflict situations
	to manage external communication providers
	to advise on TT matters
	to communicate effectively on different hierarchical levels, with people from different backgrounds (technical, legal, research background)
	to devise the communication strategy related to the commercial strategy
	to articulate the technology transfer objectives for the commercial portfolio of the organisation
	to manage the information flow from the different projects he/she is involved in
	to build up a network and build up relationships with important contacts within networks
	to coordinate or manage a network
	to maintain relevant networks and to be able to use them for the benefit of the project
	Modules
	Advisory skills
	Communication skills (advanced)
	Managing informationflow
Building and maintaining a network	
Methodologies	
action learning / case study / role playing	
present results case study to relevant stakeholders	
e-learning (working in virtual projectenvironment)	
classroom (information management)	
Facilities	
Classroom	
ICT	
Teaching Staff	
senior communication trainer	
information manager	
Assessment	
Case study	

Understanding IP rights & licensing

The purpose of this module is to give candidates knowledge and insight into IP rights, licensing, legislation and all practical and commercial implications of legal issues concerning technology transfer and business development.

Basic	Learning outcomes
	<i>Candidates must have:</i>
	knowledge of IP rights
	introductory knowledge on legal issues related to research in general
	introduction to basic agreements (license, funding and collaboration agreement, NDA, MTA, options, evaluation agreements, etc.)
	understanding the commercial strategies related to above agreements
	basic understanding and use patent-database
	Modules
	IP legislation (national and international)
	IP and contractual issues arising from research funding
	Overview of IP matters in exploitation and Technology Transfer
	Agreements
	Licensing
	Methodologies
	Courses
	Case-studies
	Facilities
Classroom	
Teaching Staff	
Teacher with working experience in IPR in TT-field (lawyer, industry expert, academic teacher)	
TT active professionals	
Assessment	
Exam	

Understanding IP rights & licensing

The purpose of this module is to give candidates knowledge and insight into IP rights, licensing, legislation and all practical and commercial implications of legal issues concerning technology transfer and business development.

Advanced	Learning outcomes
	<i>Candidates must know / be able to</i>
	legal aspects of: 1. contract research 2. protection and exploitation of research results 3. spin- off creation 4. licensing
	oversee all practical implications of legal issues concerning technology transfer / business development
	The different kind of contracts
	exploitation strategies (contract research, IP protection and licensing, due dilligence research, spin-off creation, financing
	design an IP-strategy within a given budget
	about IP protection and defense (enforcement and infringement; alternatives to litigation e.g. ADR)
	oversee tax implications of new contracts
	manage the evaluation process of the IP
	IP contract maintenance (including auditing and policing royalties)
	awareness of patentability exclusions; bio-tech patents; CII-patents
	Modules
	Legal aspects & contracts
	Exploitation strategies
	Portfolio management
	Methodologies
	Workshops
	Courses
	Case studies
	Facilities
	Classroom
	Teaching Staff
Teacher with working experience in IPR in TT-field (lawyer, industry expert, academic teacher)	
TT professionals	
IP experts	
Assessment	
Case study	

Commercial activities and markets

The purpose of this module is to give candidates the commercial knowledge and skills so as to be able to detect the possibilities for commercialisation and take the necessary steps to develop commercialisation.

Basic	Learning outcomes
	<i>Candidates must have:</i>
	insight into the commercial viability of technology
	knowledge of the business environment
	understanding of the importance of markets and their segmentation
	knowledge of the value of IP and technology and how to exploit them in the optimal way
	knowledge of the legal issues concerning commercialisation
Modules	
Value and audit IP	
Channels of exploitation; business models and business planning	
Legal issues concerning commercialisation	
Methodologies	
Course	
Facilities	
Classroom	
Teaching Staff	
Staff specialised in the commercialisation of technology	
Assessment	
Exam	
Advanced	Learning outcomes
	<i>Candidates must be able / know:</i>
	how through business development to push technology far enough for it to be pulled by the market
	how to get access to potential buyers / partners / investors
	how to market technology
	to understand the possible markets
	Modules
Product development	
Technology marketing	
Market specific knowledge	
Envisioning and designing products/services from technology	
Methodologies	
Courses	
Case research	
Facilities	
Classroom	
Teaching Staff	
Staff experienced in the commercialisation of technology	
Assessment	
Case study	

New Business Development

TT professionals should be able to demonstrate the ability to identify hitherto unexploited sources of expertise and technology within their institution and to add substantial value to the opportunity by involving and motivating academics, identifying potential partners, identifying sources of strategic funding, shaping the business model and - in collaboration with other TT functions, conclude deals that provide substantial economic benefit (and thus new funding to the institution). In addition to their own portfolio, professionals must demonstrate the ability to develop the business development skills of others by mentoring, teaching or publications.

Basic	Learning outcomes
	<i>Candidates must know:</i>
	about methods for market & industry research
	about the relevant financing instruments (subsidies, business angels, venture capital funds, IPO etc.)
	how to develop a business model and commercial strategy
	understanding of business plan and components
	The legal aspects (choice of legal company forms & IP related contracts)
	methods in building teams with the right mix of skills and experience
	Modules
	Finance I Strategies for commercialising new technologies Elements of a business plan Building Teams
Methodologies	
Courses	
Facilities	
Classroom	
Teaching Staff	
Experienced business developer or advisor in business development	
Assessment	
Exam	
Advanced	Learning outcomes
	<i>Candidates must be able:</i>
	to value tangible and non-tangible assets
	to assess/evaluate business opportunities for optimal route to the market
	to identify & persuade investors/ management by e.g. presentations & discussions
	to form strategic partnerships (e.g. joint ventures)
	to be able to deliver a business plan
	to raise the funds appropriate to the profile & scale of an opportunity
	to strategically use development funds (private sector, public sector, internal funds)
	Modules
Market Entry Strategy Tactics in identifying and persuading Investors Business opportunities Investor relationships and strategic partnerships Finance II (define and realise financial sources for technology transfer) Developing a business plan	
Methodologies	
Course Case study in small group about financing	
Facilities	
Classroom	
Teaching Staff	
Experienced business developer or advisor in business development or investor	
Assessment	
Case study	

Negotiating

The purpose of this module is to teach candidates the skills of negotiation, from being able to understand negotiations up to developing a negotiation strategy and acting as the main negotiator in a complex negotiation process.

Basic	Learning outcomes
	<i>Candidates must be able:</i>
	To identify the process & content in negotiations
	To recognise the different styles of negotiations
	To recognise the cultural and human factors affecting negotiations
	To recognise the factors that lead to successful negotiations
	Modules
The negotiation process	
The content of negotiations	
Negotiation styles	
Cultural and human factors in negotiations	
Achieving success in negotiations	
Methodologies	
Course	
Mini group seminars (case studies)	
Facilities	
Class room	
Teaching Staff	
Negotiation trainer	
Assessment	
Exam (case analysis)	
Advanced	Learning outcomes
	<i>Candidates must be able:</i>
	To critically assess the theory and practice of negotiations
	To develop a framework that matches negotiation styles with specific scenarios in the field
	To analyse the organisation negotiation strategy and to highlight its strengths and weaknesses
	Modules
	Revisiting theory and practice on basis of complex case
Examining negotiation in practice: role playing on basis of complex scenario	
Analysing negotiating strategy of student's and other organisation in specific case (e-learning)	
Methodologies	
Interactive: 1 day	
E-learning (analysing negotiating strategy of firm in specific case)	
Facilities	
Class room with videocamera	
ICTs	
Teaching Staff	
Experienced business negotiator	
Assessment	
2000 - 3000 word assignment (4/5 sides)	

Project management

The purpose of this module is to teach candidates about project management

Basic	Learning outcomes
	<i>Candidates must know:</i>
	how to define an assignment and results of a project
	how to plan, know the different project phases
	The different projectfactors: time, budget, quality, information, organisation, communication and cooperation
	how to write a projectplan
	how to do a risk analysis
Modules	
Projectmanagement: the basics	
Methodologies	
Course	
Facilities	
Class room	
Teaching Staff	
Specialists in project management	
Assessment	
Exam	
Advanced	Learning outcomes
	<i>Candidates must be able /have:</i>
	to deal with the tasks and responsibilities of a TT-project leader (TT process as a project)
	insight in leadership, communication processes, cooperation and conflict management
	to coach TT project members / to optimise TT project cooperation
	to organise TT projects/processes effective and efficient
	to plan and budget
	to manage discontinuities and contractual relations
	to manage the research-teams
	to manage internal TT responsables
	Modules
	Effective management and leadership
	Personal qualities projectleader
Cooperation, communication, coaching and conflict mangement within a team	
Planning and budgeting	
Management external stakeholders (lawyers, contracting parties ...)	
Methodologies	
Course	
Practising and role play	
Facilities	
Class room	
Teaching Staff	
Specialists in project management & TT/IPR management	
Assessment	
Write a projectplan	

Information analysis

Successful TT professionals must be aware of the diverse sources of IP, academic, technical, business and market information which can affect business decisions. They need to be familiar with patent databases and other IP, academic, technical and business information databases, and know how to analyse and manage the information they retrieve

Learning outcomes

Candidates must have:

- knowledge of the commonly used patent databases (free and commercial)
- knowledge of sources of patent search help (e.g. PATLIB centres; EPO, NPOs)
- knowledge of patent classification schemes - IPC & ECLA
- knowledge of trade mark and design databases
- knowledge of business information databases
- ability to perform market and industry research
- knowledge of non-patent literature and information sources, e.g. academic/technical journals

Modules

- Overview of patent information and sources of advice; Introduction to other public patent databases (e.g. USPTO; JPO; SIPO; Derwent; STN)
- esp@cenet* - the free access internet patent database of the EPO
- How to read a patent (understanding what the document is telling you)
- Classification I - IPC & ECLA
- Introduction to trade mark and design databases (e.g. OHIM); classification therefor
- Introduction to business information databases and market and industry research
- Introduction to non-patent literature and information sources, e.g. academic/technical journals

Methodologies

- Courses - hands-on at a pc

Facilities

- Classroom (PC-teaching laboratory)

Teaching Staff

- Experienced database searcher

Assessment

- Exam

Information analysis

Successful TT professionals must be aware of the diverse sources of IP, academic, technical, business and market information which can affect business decisions. They need to be familiar with patent databases and other IP, academic, technical and business information databases, and know how to analyse and manage the information they retrieve

Advanced	Learning outcomes
	<i>Candidates must have:</i>
	knowledge of US and Japanese patent classification schemes
	knowledge of East Asian sources of patent information
	ability to use patent information to inform business decision-making
	ability to use non-patent information sources to inform business decision-making
	more sophisticated market and industry research techniques
	knowledge of the different types of patent search, e.g. novelty; validity; state-of-the-art; freedom to operate; infringement
	Modules
	Patent classification II - US scheme, Japanese scheme,
	Advanced search strategies
	Searching USPTO database
	Searching East Asian patent databases (China, Korea, Japan)
	Using patent information to inform business decisions; "patent-mapping"
	Advanced market and industry research techniques
	Methodologies
	Problem exercises
	Courses - hands-on at a pc
	Case-study
	Facilities
	Classroom
	Teaching Staff
	Experienced database searcher (leading)
TT professionals	
Patent database searcher	
Assessment	
Exam	

Expert level	
Managing communication, information and networking	
	Learning outcomes
	<i>Candidates must be able:</i>
	To manage all different forms of communication (crisis, intercultural, project ...)
	To interlink information from different fields, extrapolate trends and conclusions that have impact for the strategic level for the organisation
IP rights & licensing	
	Learning outcomes
	<i>Candidates must be able:</i>
	To make / validate policy proposals of IP strategy and exploitation
	To IP asset management
Commercial activities and markets	
	Learning outcomes
	<i>Candidates must be able:</i>
	To manage and evaluate the exposure to risk regarding the whole asset base for their organisation
	To manage his/her KTO/TTP-personnel and resources to achieve desired outcome
New Business Development	
	Learning outcomes
	<i>Candidates must be able:</i>
	To bring ideas to the market as leader of an entrepreneurial team
	To optimise a business plan suitable for substantial investment (target group oriented)
	To take the lead on innovation and growth management
	To convince investors and the management by prospectus (a complex illustration of a business case)
Negotiating	
	Learning outcomes
	<i>Candidate must be able:</i>
	To redefine the notion of success and best practices in negotiations
	To act as a mentor of a newcomer in your firm: observe and monitor change
	To re-design your firm's negotiation strategy: drive change
	To act as main negotiator in TTprocesses
	To act as a leading negotiator in a complex scenario that involves challenging cultural and human factors
Project management	
	Learning outcomes
	<i>Candidates must be able:</i>
	To manage complex TT projects with large budgets in complex projectcircumstances
	To perform a TT due dilligence (covering the whole TT process)
Information analysis	
	Learning outcomes
	<i>Candidates must be able:</i>
	Gather all relevant information from a range of sources which impact the development of a project
	Produce a comprehensive analytical report based on the gathered information
Methodologies	Development of a joint business case with fellow students, which will be presented to a panel of peers and evaluated by them
Facilities	Seminar / Round table arrangements
Teaching Staff	Experienced peers from different TT stakeholders
Assessment	Presentation (and defense) of business case to panel of peers

The CERT-TTT-M Consortium is:

Austria Wirtschaftsservice GmbH (Co-ordinator) – Austria

ASTER S. Cons. P.a. – Science Technology and Business - Italy

Department for Productive Activities, Economic Development and Telematics Plan of Emilia-Romagna Region - Italy

Institute Européen Entreprise et Propriété Intellectuelle - France

Institute for the Promotion of Innovation by Science and Technology in Flanders - Belgium

Management Center Innsbruck - Austria

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Rotterdam School of Management Erasmus University – The Netherlands

State Agency Latvian Investment and Development Agency - Latvia

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University College London - United Kingdom

University of Essex - United Kingdom

University of Newcastle upon Tyne - United Kingdom

Co-ordinator Contacts

Contact: Georg Buchtela, Georg Gasteiger

Address: Austria Wirtschaftsservice GmbH

Office: Ungargasse 37, A-1030 Vienna

Tel: +43 501 75 – 560 Fax: +43 501 75 – 903

E-mail: g.gasteiger@awsg.at