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Open Innovation Curriculum Framework

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with the use of the learning outcomes developed within WP4 and teaching materials uploaded to OI-Net

Curriculum Main Contents

Prerequisite information: An open innovation course is proposed for education in management, business administration or entrepreneurship. It can be included into technical studies providing that a wider special track concerning R&D/innovation management is offered. All participating students are expected to have completed at least a basic course in management or innovation management before joining this course.

All course subjects mentioned below are subjects for bachelor, master and PhD level. The educational materials can differ per level (e.g. more business cases at bachelor level, more theoretical articles at master level etc.). Also the learning outcomes should represent the goals of the learning process of each level (Bloom, 1956). At bachelor level the LO should be mainly related to remembering, understanding an applying open innovation concepts. At master level analysing and evaluating should be the main basis of LO's, At PhD level creating should be the main basis of LO's.

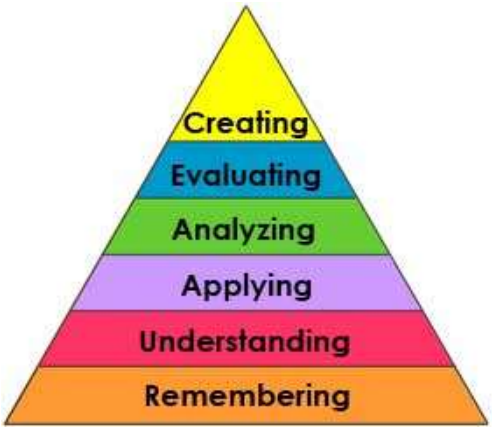

Fig. 1 Bloom's taxonomy (1956)

The study load and EC for a course will depend on the educational materials selected. Study load calculation information is given in chapter 2.

Basic Subjects (BS)

BS1. Introduction to the OI paradigm

- Why open innovation; history, technology driven vs. market driven innovation
- What is open innovation; open vs. closed Innovation, entrepreneurship, linear – perpetual innovation
- Main incentives for OI
- OI in broader context (including other theories adopting open viewpoints)
- Critique to OI theory (including theoretical shortcomings and managerial problems)

BS1. LO Introduction to the OI paradigm

LO related to WP4	Category of WP4	LO description
115	OPEN_INNOVATION	To remember and understand basic concepts of OI and their relationships
115a		To relate OI to other innovation management theories
113	OPEN_INNOVATION	To remember and understand the pros and cons of an OI strategy

BS2. The process of OI

- Open innovation process and main stages in general (Idea generation; business feasibility; development; scale up; commercialisation)
    - Other perspectives
- Direction of openness
    - Inbound OI (integrating external knowledge and skills, customer and supplier involvement, licensing in)
    - Outbound OI (bringing ideas to market, licensing out, multiplying technology)
    - Coupled inbound/outbound OI
- Issues in opening up the innovation funnel (or chain)
    - Inbound: Opportunity recognition, Collaborative ideation, co-creation
    - Coupled: Co-development, technology, prototyping, scale up
    - Outbound: Crowd participation; supplier, users participation (user as conceptualizer, as designer, as tester, as support specialist, as marketeer), stakeholder participation
    - Collaborative business models; creating and capturing value
    - Diffusion of open innovation results
- See also ES4 and ES5

BS2. The process of OI

	No link to WP4	To remember and understand the process of OI and related mechanism
2	COLLABORATIVE_INNOVATION	To explore concepts of collaborative innovation and apply them
82	LAW	To remember and understand the instruments of intellectual property rights (e.g. patents) and respective applications in collaborations
120a	OPEN_INNOVATION	To critically assess (analyse and evaluate) the inbound, outbound and coupled mechanisms through which OI create value for an organisation
120b	OPEN_INNOVATION	To design the inbound, outbound and coupled mechanisms through which OI create value for an organisation
1a	BUSINESS_MODEL_INNOVATION	To apply, analyse and evaluate open business models
1b	BUSINESS_MODEL_INNOVATION	To design open business models

BS3. Managing OI at the firm level

- OI, organisation performance and organisation-level effects
  - Impact of OI (e.g. spill-over effects) on organisation structure and processes
  - Testing OI fitness of an organisations (on areas of learning, strategy, linkages, organisation, open innovation process)
  - Management policies to stimulate and foster OI in organisations (e.g. human resource policies, culture, partnership portfolio, trust management, etc.)
  - Governance of OI modes (inbound and outbound)
- Strategic fit
  - Why OI (strategic rationale)? What are the alternatives? Trade off pros and cons?
  - Deciding to enter the field of open innovation; is your organisation ready?
  - Determinants (firm-level, dyad-level, technology specific, market/industry-level)
- Strategic Decision making in OI
  - Inbound/outbound; technology-in/out, licensing-in/out, spin-in/out?
  - Ambidexterity
  - Dynamic capabilities / Capability based framework for OI
  - Collaborative business models
- (Strategic) Alliance Management:
  - Developing and structuring partnerships
  - Managing (multiple) alliances and partnerships
  - Audit of alliances and partnerships
- Project management across businesses
  - Multi project management across businesses /portfolio management
  - Audit of projects across business

- Financial issues and open innovation
- Legal issues (IP) and open innovation
  - IP protection
  - IP trading and licensing

BS3. Managing OI at the firm level

90	MANAGEMENT	To understand the dynamics between Innovation and the contextual environment.
117	OPEN_INNOVATION	To remember and understand how firms can benefit or detriment from user/supplier/customer innovation.
125	OPEN_INNOVATION	To apply testing instruments to measure OI and the impact of OI in organisations
39	FINANCE	To identify and evaluate economic characteristics of knowledge exchange, innovation and intellectual property in an OI context
120	OPEN_INNOVATION	To critically assess the mechanisms through which OI create value for an organisation.
114	OPEN_INNOVATION	To remember, understand the relation between organization's strategic choices and application of OI
64	INNOVATION_MANAGEMENT	To apply, analyse, evaluate and design strategic decision making with regard to the implementation of relevant open innovations mechanisms in the organisation.
	No link to WP4	To analyse, evaluate and design (multiple) partnerships
53	INNOVATION_MANAGEMENT	To execute project management across organisations

BS4. OI at individual level

- Personal competences (knowledge, skills, personal characteristics, motivation/attitude)
    - Creativity, problem-solving, and continuous improvement skills: skills, attitudes, and behaviours needed to generate ideas
    - Risk assessment and risk-taking skills: skills, attitudes, and behaviours needed to take calculated risks and to be entrepreneurial
    - 21st C skills relevant for OI
    - Relationship-building and communication skills: skills, attitudes, and behaviours needed to develop and maintain interpersonal relationships that support open innovation (networking, trust-building)
    - Implementation competences: skills, attitudes, and behaviours needed to turn ideas into strategies, capabilities, products, processes, and services across businesses (e.g. collaborative skills like building quickly high-performing inter-organisational teams or change management skills)

BS4. OI at individual level

6	CREATIVITY	To remember, understand and be able to apply creative thinking skills and methods.
145	PERSONAL_DEVELOPMENT	To remember, understand and be able to develop a technology and business mindset, e.g. risk-taking skills
84	LEADERSHIP	To remember, understand and be able to apply a range of 21ste century leadership skills and abilities such as fructification of ideas and effectively leading change, resolving conflict, and motivating others.
140	PERSONAL_DEVELOPMENT	To remember, understand and be able to apply relation building competences
149	PERSONAL_DEVELOPMENT	To remember, understand and be able to work in internal cross-functional teams; apply implementation competences
	No link to WP4	To analyse, evaluate and create competences which support the creation of OI capital

94	MANAGEMENT	To be able to join research project activities that contribute to the development of OI

BS5. Fostering OI at industry/social level

- Network approach to open innovation: eco-systems, triple helix / quadruple helix collaboration, open innovation 2.0, regional networks, clusters
- Public policy components related to open innovation
    - Economic development
    - Science and R&D policy
    - Labor market policy
    - Education
- National/local innovation policies and systems
    - Inclusive innovation
- Examples: incubators, industry-university collaborations (university spin-offs), etc.

BS5. Fostering OI at industry/social level

119	OPEN_INNOVATION	To recognize and assess the interdependencies in the system of innovation (ecosystem) across organisations.
123	OPEN_INNOVATION	To remember and understand intervention strategies facilitating OI in society
72	INNOVATION_SYSTEMS	To apply theories of national and regional innovation systems.
68	INNOVATION_MANAGEMENT	To analyse and evaluate the interaction between the main players in the OI system.
53	INNOVATION_MANAGEMENT	To execute the innovation project management across the (triple) helix
99	MGT/ORGANISATION	To understand and assess networks and collaboration networks

Elective subjects / tutorials

ES1. Open innovation in large organisations

- Why large firms are more prone to employ OI strategies?
- OI strategies of large firms

ES1. Open innovation in large organisations

55	INNOVATION_MANAGEMENT	To remember and understand OI needs of a large company
128	OPORTUNITY GENERATION	To assess innovative ideas and define roadmap for commercialization.

ES2. Open innovation in SMEs

- SMEs' OI strategies
- How SMEs can benefit from OI strategies in market penetration phase?

ES2. Open innovation in SMEs

55	INNOVATION_MANAGEMENT	To remember and understand OI needs of a SME company
128	OPORTUNITY GENERATION	To assess innovative ideas and define roadmap for commercialization.

ES3. Open innovation in supply chains; open supply chains

- Early supplier involvement, outsourcing-strategies, Supplier Quality Management, etc.

ES3. Open innovation in supply chains; open supply chains

117	OPEN_INNOVATION	To remember and understand how firms can benefit from user/supplier/customer innovation.
53	INNOVATION_MANAGEMENT	To execute the innovation project management across organisations
128	OPORTUNITY GENERATION	To assess innovative ideas and define roadmap for commercialization in supply chains

ES4. User-led innovation

- Buyer driven innovation and orchestration
- End-user driven innovation
- Living Labs

ES4. Open innovation in industry-university collaborations

117	OPEN_INNOVATION	To remember and understand how firms can benefit from user/supplier/customer innovation.
128	OPORTUNITY GENERATION	To assess innovative ideas and define roadmap for commercialization.

ES5. The We-conomy

- Sharing economy
- Collaborative consumption

ES5. The We-conomy

99	MGT/ORGANISATION	To understand and assess networks and collaboration networks
128	OPORTUNITY GENERATION	To assess innovative ideas and define roadmap for commercialization.

Teaching Instruments

Case studies

Cases studies (CS) can support the course at any moment. There are cases with regard to the process of innovation, management of innovation, fostering innovation and/or special OI issues.

- Generic case material (international context; well-known firms and markets)
- Local case material (matching the specific context of a course/educational programme/region)

Assignments

At Bachelor and Master level a practical assignment (ABM) is preferred as part of a course. Examples of such a practical assignment (for groups) are:

- OI assignment induced by a company or an alliance. Students have to investigate en enhance the company / alliance
- Assignment from the University (of Applied Sciences) on a theme of OI. Students have to investigate in order to design an alliance or part of the alliance

At PhD level a course should cover the research streams and new trends in open innovation field. Assignments (APHD) are:

- Literature review: review of recent articles on OI theories and future research issues
- Review on most popular methodologies related to OI, compare, filling the gap and discussion of advantages and disadvantages of different methodologies
- Preparing a research proposal or essay on open innovation field of research in order to enhance theory building on open innovation
- Publishing in open innovation fields and related journals

Gamified learning

Open innovation games can help student to experience and understand the need/process/'rules'/ context of Open Innovation and to develop OI related skills.

ECT Calculator

To calculate the ECT's for the above course or materials, you can fill in the excel version of the table below (see attachments). It is important information if you want your material to be used.

The name of course	Teacher(s)	Learning points / Learning weeks		
		Selected credits	Calculated credits	Calculated credits
			0 lp	0 lw
Contact learning (in total 0 hours)				**Working hours**
LECTURE PRESENTED	LECTURE		hours	0
The time needed for independent learning in general (0,5-2 hours)/one teaching hour	0x		hours	0
ACTIVATING LECTURE	LECTURE		hours	0
The time needed for independent learning in general (2-5 hours)/one teaching hour	0x		hours	0
Directed/controlled exercise in normal class/in computer class/in laboratory	EXERCISE		hours	0
The time needed for independent beforehand preparation per one hour/preparation of report (in general from 0,5 to 4 hours)	0x		hours	0
Exercises for which the students are preparing their task beforehand	EXERCISE		hours	0
The time needed for independent exercise of beforehand solution per one hour of exercise (in general from 1 to 5 hours)	0x		hours	0
Excursion, exhibition, etc.	EXCURSION		hours	0
Independent learning (in total 0 hours)				
Literature	***Instruction***	***Pages***	***Reference time***	***Self estimation***	***Working hours***

Easy text: one time reading	100 pgs/ 7 hours		0	hours	0
Complex text: one time reading	100 pgs/ 10 hours		0	hours	0
Easy text: understanding (three times reading: observing, reading for making memos, reproducing - presentation)	100 pgs/ 20 hours		0	hours	0
Difficult text: understanding	100 pgs/ 30 hours		0	hours	0
Written production (for instance essay, job description, learning diary or resume)	***Range***	***Units***	***Reference time***	***Self estimation***	***Working hours***
Scale in pages		pages	0	hours	0
Scale in words		words	0	hours	0

Other independent learning	***Scope***		***Comments***	***Working hours***
Preparation for examination (if the course is valuated on the bases of production, use valuation method given above)		hours		0
Independent learning based on collected materials from teaching, laboratories or computer software or independent calculation exercises		hours		0
Working on web for instance WebCT, Moodle, BSCW or knowledge collection from learning environment		hours		0
Independent exercising works by means of computer software/laboratory equipment or corresponding facilities: programs etc.		hours		0
Group tasks		hours		0
Preparation of presentation		hours		0
Preparation for defending work		hours		0
		hours		0
Total quantity of student work			***Remarks***	
Contact teaching	0,0	hours		
Independent learning	0,0	hours		
Total	0,0	hours		
Learning points	0,0	**lp**		
Learning weeks	0,0	**lw**		

Lifelong Learning Programme

Co-funded by the European Union

The European Academic Network for Open Innovation

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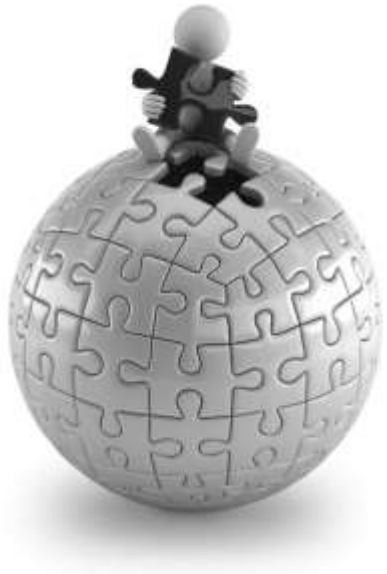

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