Technology Innovation: Current Issues
(2 credits)
MSc in Business Analytics

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1. PREREQUISITES
None required. Some experience in marketing and technology are advantageous.

2. REQUIRED TEXT & READINGS AND WHERE AVAILABLE
Global studies, analyst papers, whitepapers, up-to-date cases from ECCH, current periodicals and web-based actual material will be used. Additional reading will be made available electronically.

3. COURSE DESCRIPTION, OBJECTIVES, LEARNING OUTCOMES
In recent decades, technology has become one of, if not The Primary, most important factors to fuel progress and economic growth. The main driver that enables these positive changes is innovation. Technology innovation is widespread, and its pace is extraordinary. To benefit from its advantages one should familiarize with its nature and understand its attributes.

This course intends to introduce important approaches to technological innovation, analyze key ICT innovation trends from a strategic perspective and discuss questions of managing innovation.

Students will gain an understanding of innovation concepts, terminology and current trends. They will be able to evaluate ideas based on their innovative value, feasibility and viability and also to make reasonable decisions using modeling and analysis. Well-established reasoning for either the owner of the idea or owner of the project is essential when it comes to deciding whether and how to pursue an innovation task. Students will also practice critical thinking and learn how to gather and purposely use qualitative and quantitative methods to assess and facilitate innovation.

4. MAIN TOPICS

We will introduce central concepts of understanding innovation, like innovation cycles, disruptive and open innovation, hypes, spreading and tipping points. We will immerse ourselves in new trends and developments like the third platform: cloud computing, smart systems, Big Data and the power of social and mobile computing. Examples and cases will be taken from significant ICT companies, from startups to industry leaders like Apple, IBM and Amazon. Guest speakers will share their experiences about managing innovation, launching new solutions and many related issues. We will try to go beyond remembering and understanding these – our goal is to be able to critically analyze or even "learn to create" innovation!

- Innovation cycles and managing innovation
- Sustained and disruptive innovation
- Latest trends, the third platform: Social, Mobile, Big Data and Analytics, Cloud Computing
- Smarter Planet, smarter solutions
- Startups, Open Innovation and API Economy
- The Networks and the Internet of Things
- Cognitive Computing, Watson and Cognitive Businesses
- Technology outlooks –where are we now and where are we heading?

5. HOW THE CLASS SESSIONS WILL BE CONDUCTED

The course will be conducted with a combination of lecture, interactive discussion, case study analysis, student assignments, project paper, minute papers and dialogues with guest speakers.

6. POLICY ON THE AVAILABILITY OF LECTURE NOTES

Presentations, case studies and video spots will be used. Prepared material will be made available through the Moodle e-learning system.

7. MINUTE PAPERS

Minute papers are unannounced short written exercises, given at the beginning, during, or end of a class. Their purpose is one or more of the following: (1) to check preparation on the assignment's key points; (2) to stimulate critical thinking and sound reasoning; and (3) to obtain feedback about topics discussed in class.
The best 3 out of 5 count.

8. GRADING

Grading is based on the following evaluation elements:
- Individual project paper   60 %
- Class attendance and participation   22 %
- Minute papers (best 3 out of 5 @6 points)   18 %

The grading scale is the following:

Grades		%
A+	**Outstanding**	**96-100**
A	**Excellent**	**90-95**

A-	Very Good	85-89
B	Good	80-84
B-	Satisfactory	75-79
C	Minimum Pass	60-74
F	Fail	0-59

The above table serves as a generic example of the scaling applied: in line with the CEU grading policies the instructor reserves the right to adjust the scale, that is, to grade on a "curve", should he find that significantly more than the usual number of students would not pass the course under the indicated grading scale or should the distribution of the grades represent an unrealistic pattern.

Project paper – 60%

The project paper is an individual essay. During the term, one topic should be selected from those offered by the instructor. Background literature evaluation, critical thinking, original ideas are necessary. The paper should be limited to appx. 20.000 characters.

Class attendance and participation – 22%

This element evaluates class preparation and contribution to the discussions (bringing real life examples related to the actual topics, based on own experience or research). Minimum class attendance is 60%, otherwise this element yields 0%.

Minute papers – 18%

Minute papers are short, unannounced written exercises about reading assignments and previously discussed topics. The three best out of five results will count; each exercise can have 6 points maximum.

9. POLICY ON CLASS ATTENDANCE

Regular and punctual attendance at every class session is a requirement of all degree programs at CEU Business School. Each class covers material not found in the readings. Furthermore, participation in class discussions is an important part of the learning experience for all students as well as a factor in grading. If illness or another unusual circumstance requires missing a class, please do your best to inform me (or, if I cannot be reached, the Program Coordinator) in advance. A grade of "AF" (Administrative Fail) may be assigned for failure to regularly attend a course, to drop the course in time, or to complete requirements on time. This is a general CEU regulation that the Business School also follows. The "AF" grade earns no credit, 0 points, and affects your GPA in the same way as a regular "F" grade.

10. ACADEMIC INTEGRITY

The Business School expects all students to adhere to the fundamental principles of academic integrity in any and all behaviours associated with their course work and otherwise, as stated in the Student Handbook. Attempted cheating of all forms is treated extremely seriously and can result in dismissal from the School and University.

11. LIBRARY AND INTERNET LIBRARY RESOURCES

The CEU Library, at Nador St. 9, has the largest collection of English-language materials in the social sciences and humanities in Central Europe: 180,000 monographs and 30,000 volumes of periodicals, working papers, dissertations and so on. CEU faculty and students have access to 30,000 electronic journals, searchable via the Journal Search tool on the library catalogue page (http://goya.ceu.hu/; the icon is in the upper right corner.

CEU Business School core faculty, students and staff are automatically eligible for full membership in the Library, after registering at the Circulation Desk. (To use the Library, adjunct faculty should first obtain a pass at the B School Academic Office Rm 311.)

The CEU Library has 5,000 business-related titles, supplemented by leading electronic databases, accessible through **http://www.library.ceu.hu/databases.html (Click on the icons and then click on the tag next to "connect to".)**

The Ebsco Host Business Source Complete contains 3,700 periodicals in full text, many monographs, some case studies, and videos of the Harvard Faculty Seminar Series. *Emerald Management Journals* collection has a portfolio of 175 journals in management, marketing, econ and finance.

New business databases include *OneSource,* the most comprehensive company & executive information. *Global Market Information Database* has comprehensive data and reports across industries, countries and type of consumers. *Thomson One Banker* provides data on internationally quoted companies, international stock exchange indices, private equity, and financial deals. *Science Direct* is an extensive full-text database covering authoritative titles from the core scientific literature. *The Company Dossier* in Lexis Nexis Academic allows users to browse in-depth company profiles and industry reports. Core statistical databases include IFS, GFS Online, OECD Main Economic Indicators, National Accounts Statistics, and Tax Statistics. *Econlit* at the CSA/Proquest platform provides bibliographic coverage of a wide range of economics-related literature.

Business dailies and weeklies can be accessed through the library. **Business Eastern Europe** by EIU is a weekly briefing on operating a business in Eastern Europe. **Country Reports** also by EIU provide in-depth economic, political and business analysis and short-term market outlooks. Electronic versions of *The WSJ* are in PressDisplay. *The Economist* is included by EbscoHost. For *The Fin. Times* *online, s*ee Journal Search.

News on economic and social developments in the Caucasus and Central Asia can be downloaded directly (not via the CEU Library): **http://www.icegec.hu/eng/index.htm**.

Help with Case Studies and Research Projects
Available on CEU Library reserve is a reference work that students preparing case-study assignments or undertaking individual or team research projects should find helpful, *Business Case Studies: Preparation, Teaching and Learning* (compiled, with contributions, by Susan Harmeling, Lead Case Writer, Harvard Business School, and Paul Marer, Professor, CEU Business School). This work, whose reference code is CM-GSB, can be found on the shelf marked Business School Readers, right behind the Circulation Desk, at the CEU Library on Nador utca.

The VPN access makes it easy to reach from outside of the CEU network the full version of UIS and all CEU Library databases and journals. (Visit https://vpn.ceu.hu, accept the security-certificate, and enter:

User name: ceubs
Password: Ceubusi987.
The password is case sensitive, and to enter it, only the virtual keyboard appearing on the screen can be used. Once logged in, the "built in" browser can be used to access the respective sites: UIS: https://infosys.ceu.hu.

12. BRIEF BIO OF THE INSTRUCTOR

Norbert Sepp, *Adjunct Lecturer.* He is a Technical Consultant at IBM Hungary and has responsibility for following and presenting on latest ICT trends and emerging innovation. He is also a founding member of the Smarter University Workgroup. He has extensive experience in IT Architectures, Cloud Computing and IBM Systems. During the past decade he has continuously conducted educational training both as a Learning Services instructor and a University Adjunct Lecturer, covering areas like Systems Administration, Business-Optimized Midrange Systems, IT Architectures and Operations, in which areas he also developed course material. Recently, he focused his research on Big Data, Cognitive Systems and Smarter Education.
He holds an MSc in Electronical Engineering from the Budapest Technical University and a BA in Economy from the Budapest University of Economic Sciences.

13.COURSE SESSIONS

TOPIC	ASSIGNMENTS/RECOMMENDED READINGS
Introduction: Innovation cycles, Hypes and Tipping Points After the introduction of the course goal and methodology, we immerse ourselves to innovation. It is important to understand its nature and to investigate possibilities for qualitative analysis on innovation. Some analysis tools like the natural innovation cycle, the Hype Cycle, Magic Quadrants, and theory of the Tipping Point will be presented and their applicability will be discussed.	http://www.thersa.org/__data/assets/pdf_file/0020/126542/IBMinnovationcycles final.pdf (comment – refer to last page in document for Figures) http://en.wikipedia.org/wiki/Diffusion_of_innovations RR: Malcolm Gladwell: The Tipping Point
Innovation as a Process, Innovation theories, disruptive Innovation Innovation has not only descriptive possibilities, we have tools for prescriptive strategies. Methods about fueling and boosting innovations as well as the economic implications will be discussed. The industry is not static, 8 out of 10 top companies will disappear from the top in less than a decade. It is important to investigate what forces influence these changes, what is sustainable, what is disruptive and how we can align our strategies with the market forces. **Startups: hands-on with ICT innovation** We will get a deep dive and real case study of a startup – from the idea ("light bulb") to market deployment.	http://en.wikipedia.org/wiki/Innovation_management http://thecreativeleadershipforum.com/storage/Creativity%20in%20Organisation s%20Version%20One.pdf RR: Clayton M. Christensen: The Innovator's Dilemma: The Revolutionary Book That Will Change the Way You Do Business http://en.wikipedia.org/wiki/Disruptive_innovation http://www.youtube.com/watch?v=2PtiWdS6UZA
Business model innovation - The third platform / 1: The mobile revolution Social Networks and the Internet of Things We will examine the mobile world and the social networks with all its important present and future implications. We will attempt to outline how to harness the positive sides of these trends and how businesses need to embrace these technologies to turn them into their advantages. In the interconnected world where we live in, networks do not only provide ubiquitous access but become increasingly essential. It is worthwhile discussing networks in a more general sense and outline the direction where they evolve.	http://readwrite.com/2014/01/10/mobile-everywhere-smart-devices-internet-things#awesm=~ouKSdXxSzUwpTB RR: http://en.wikipedia.org/wiki/List_of_social_networking_websites *Optional background movie: Social Network (http://www.imdb.com/title/tt1285016/)* RR: Albert-László Barabási: *Linked: How Everything Is Connected to Everything Else and What It Means for Business, Science, and Everyday Life* (http://barabasilab.com/LinkedBook/) https://www.youtube.com/watch?v=YRdeFdiBjHM
Business model innovation – The third platform / 2: Cloud, Analytics Cloud Computing and Big Data are not only buzzwords, they are crucially important for contemporary ICT development. The main characteristics and implications of these phenomena will be our focus. We will also discuss adoption patterns and technologies of Cloud, and the means to use Big Data to unlock insight and turn the immense ocean of data into meaningful information and business advantage.	http://www.infoworld.com/d/cloud-computing/what-cloud-computing-really-means-031 http://www.priv.gc.ca/resource/fs-fi/02_05_d_51_cc_e.pdf http://csrc.nist.gov/publications/nistpubs/800-146/sp800-146.pdf (Chapter 2) http://net.educause.edu/ir/library/pdf/est0902.pdf http://en.wikipedia.org/wiki/Big_data
Smarter Planet, **Openness and innovation** – **Guest speakers** Instrumented, Interconnected, Intelligent. The three main factors of Smart. But beyond the concept we have more to discuss: real examples of implemented	http://www.youtube.com/watch?v=9wfZH6ZWxmk http://www.youtube.com/watch?v=0lt0hTNtjrY http://www.youtube.com/watch?v=2PtiWdS6UZA

solutions. We will analyze the success factors and conclude in what sense we can talk about smart improvements. What is the business in getting Open? There are drivers behind Openness, and there are implications of this movement. Our guest speakers will discuss experiences in Smarter Grid and Smarter City implementation and also the practical questions of Innovation processes and funding.	http://www.100open.com/2011/03/open-innovation-open-data-what-is-it-and-why-it-matters/, http://www.100open.com/2011/03/crowdsourcing%E2%80%99s-tipping-point/, http://www.100open.com/2011/03/open-innovation-defined/
Future of Computing / 1: End of Moore's, what's next? The Watson story We will also discuss paradigm shift from the von Neumann computing architecture to new directions that partially mean evolutionary but also revolutionary changes.	
Future of Computing / 2: Innovation Commercialization. The Watson Evolution We will examine how an innovative idea can, after birth reach maturity, and what strategies could be followed to facilitate market success. We will discuss this with regards to the innovation lifecycle.	Case-study discussion: The Watson Story and IBM Watson Group.
Future of Technology Innovation, Technology Outlook – Closing We will discuss what strategies are recommended to be followed for a successful leader if she or he wants to be prepared for future challenges, and finally we summarize and wrap-up what we concluded during the course.	Wrap-up of the course; Final Evaluation