



Национальный исследовательский университет «Высшая школа экономики»
Программа дисциплины «**Стратегии в менеджменте науки, технологий и инноваций**»
для направления 38.04.02 «Менеджмент» и «Управление в сфере науки, технологии и инноваций», подготовки магистра

**Федеральное государственное автономное образовательное учреждение
высшего образования
"Национальный исследовательский университет
"Высшая школа экономики"**

Институт статистических исследований и экономики знаний

**Рабочая программа дисциплины
«Стратегии в менеджменте науки, технологий и инноваций»**

для направления 38.04.02 «Менеджмент» подготовки магистра

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Утверждена Академическим руководителем магистерской программы

«Управление в сфере науки, технологий и инноваций»

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Академический руководитель образовательной программы

Д. Майснер

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Настоящая программа не может быть использована другими подразделениями университета и другими вузами без разрешения подразделения-разработчика программы

Strategies in STI Management

1. Introductory note

General Description of the Course:

The course is delivered to master students. It is a part of general scientific curricula unit, and it is delivered in one module. The course length is **342** academic hours in total of which **96** hours are classroom hours.

Academic control forms are one written exam, one essay and one colloquium.

Pre-requisites

- Basics of business management

Course Objective

- Governance in the field of Science, Technology and Innovation
- Innovation strategies of companies
- Developing corporate innovation strategy

Abstract

STI and innovation especially has been a phenomenon for centuries which serves the only purpose of making lives of creatures more comfortable. Ever in history supporting, generating and implementing innovation has been of outstanding importance not only for the well-being but sometimes the survival of individuals, entities and sometimes whole civilizations and nations. Given this background it has just recently become widespread and common understanding how innovation actually occurs, that innovation itself is not a result but it is a process and a flow of activities which aim at solving a problem be it known or unknown, be it understood or not understood in all its implications to society at different levels and being closely interconnected with science and technology in different forms. For companies it seems merely impossible to maintain all resources in-house necessary to keep competitiveness in the market and customer acceptance.

The course brings together the basics of innovation management and the most important current challenges in innovation management namely open innovation, creativity, design and entrepreneurship and service innovation in the light of innovation strategies. The course provides a solid foundation of theoretical and practical innovation management strategies' knowledge and emphasizes the entrepreneurial process as a way of building innovation skills in a company's new business development and portfolio renewal context as well as start-up creation and the respective implications for the development and implementation of innovation strategies and corporate management. The course extends the pure innovation management focus towards management of STI from company perspective. The course introduces the organization, the strategies, resources and the overall management of the entire process of STI generation in the strategic dimension. The course reflects not only company internal processes but rather aims at teaching the complex interactions and interfaces of the process with the surrounding actors. Finally, internal and external incentive schemes, idea pipeline management (inbound increase) and exploitation strategies (outbound increase) and strategy alignment across business units are discussed.

Training Objectives

- Governance in the field of Science, Technology and Innovation
- Innovation strategies of companies
- Developing corporate innovation strategy

Target audience

- Master students who aim at positions in companies, research organizations or the public administration.

Competences

- Ability to analyze innovation strategies
- Skills for developing organizational STI models
- An understanding of innovation climate determinants
- Developing innovation portfolios
- Ability to design innovation processes

2. Thematic Plan

A) Lectures

module	Topic	Course hours, Total	Class room hours	Self study hours
Strategy and Process	Introduction (subject overview) and definition of basic concepts and their interrelations	7	2	4
	Innovation process in companies	8	2	4
	Corporate innovation strategies	8	2	4
	R&D and innovation in multinational companies	8	2	4
	Open innovation	8	2	4
	Intellectual property management - introduction and application of IP in corporations	8	2	4
	<i>total</i>	<i>36</i>	<i>12</i>	<i>24</i>
Portfolio management and finance	R&D Portfolio Evaluation	14	4	10
	Metrics for innovation controlling	8	2	5
	R&D Project Assessment	8	2	5
	Assessing and Understanding Technological Competencies	14	4	10
	Time Value of Money	14	4	10
	Sources for financing innovation	14	4	10
	<i>total</i>	<i>70</i>	<i>20</i>	<i>50</i>
Organization	Organization of innovation management	14	4	10
	In-house R&D	8	2	5
	Outsourcing R&D	8	2	5
	Business model innovation management	14	4	10
	<i>total</i>	<i>42</i>	<i>12</i>	<i>30</i>
Culture for innovation	Corporate innovation culture	14	4	10
	Innovation project management – definition and project structure	14	4	10

	Technological Entrepreneurship	14	4	10
	<i>total</i>	42	12	30
	Total	190	56	134

b) seminars

The seminar is structured along 3 main topics which are announced at the beginning of the seminar. Students will be requested to prepare essay or case studies for selected themes.

Topic	Course hours, Total	Class room hours	Self study hours
Digital innovation	32	8	24
Case studies	48	12	36
Presentations	80	20	60
Total	152	32	120

3. Basic literature

- Bennis, Warren G., and Patricia Biederman. "The End of the Great Man." Chapter 1 in *Organizing Genius*. New York, NY: Perseus Books, 1997. ISBN: 9780201570519.
- Chesbrough, Henry. "Open Innovation at Intel." Chapter 6 in *Open Innovation: The New Imperative for Creating and Profiting from Technology*. Boston, MA: Harvard Business School Press, 2005, pp. 113-134. ISBN: 9781422102831.
- Christensen, C., and M. Raynor. "Managing the Strategy Development Process." Chapter 8 in *The Innovator's Solution*. Boston, MA: Harvard Business School Press, 2003. ISBN: 9781578518524.
- Christensen, Clayton "Exploring the Limits of the Technology S-Curve. Part II: Architectural Technologies." *Product and Operations Management Journal* 1, no. 4 (1992): 358-366.
- Christensen, Clayton. *The Innovator's Dilemma*. Boston, MA: Harvard Business School Press, 1997. ISBN: 9780875845852.
- Fleming, L. "Breakthroughs and the Long Tail of Innovation." *MIT Sloan Management Review* 49, no. 1 (2007): 69-74.
- Ho, Teck-Hua, and Kay-Yut Chen. "New Product Blockbusters: The Magic and Science of Prediction Markets." *California Review Management* 50, no. 1 (2007): 144-158.
- Huston, Larry, and Nabil Sakkab. "Connect and Develop: Inside Proctor & Gamble's New Model for Innovation." *Harvard Business Review* 84, no. 3 (2006): 58-67.
- Stringer, Robert. "How to Manage Radical Innovation." *California Management Review* 42, no. 4 (2000): 70-88.
- Sviokla, J., and A. Paoni. "Every Product's a Platform." *Harvard Business Review* 83, no. 10 (2005): 17-18.
- Thomke, S. "Capturing the Real Value of Innovation Tools." *MIT Sloan Management Review* 47, no. 2 (2006): 24-32.

4. Education control forms

Final control: written exam after final lecture (120 minutes multiple choice exam (*F*), essay or project work in seminar (*E*) and presentation (*P*).

The overall course grade (10-point scale) is calculated as a sum of

$$G = 0,5 * F + 0,5 * (0,5E + 0,5P)$$

The overall course grade G (10-point scale) includes results achieved by students in their exam F , essay E and presentation P .

Summary Table: Correspondence of ten-point to five-point system's marks

Ten-point scale [10]
1 – unsatisfactory
2 – very bad
3 – bad
4 – satisfactory
5 – quite satisfactory
6 – good
7 – very good
8 – nearly excellent
9 – excellent
10 – brilliant

5. Programme Contents

Module 1 – Strategy and Process

Topic 1 Introduction (subject overview)

Topic outline:

- Main types of innovation

Main references/books/reading:

- Aldershot, Avebury available at website http://www.scribd.com/doc/3494210/Shape-of-Things-to-Consume-whole-text?in_collection=2290941 ans at: <http://analysees.co.uk/PDF/The-Shape-of-Things-to-Consume.pdf>
- Chapters 1 (Fagerberg), 4 (Pavitt), 17 (Hall) in Jan Fagerberg, David Mowery, and Richard Nelson (eds) *The Oxford Handbook of Innovation* Oxford: Oxford University Press, 2004
- Godin B (2008), *Innovation: the History of a Category*, Working Paper No. 1, Project on the Intellectual History of Innovation, Montreal: INRS. Online at - <http://www.csiic.ca/PDF/IntellectualNo1.pdf> Chapters 1 and 2 of A Cawson, L Haddon and I Miles, 1995, *The Shape of Things to Consume*

Topic 2 Innovation process in companies

Topic outline:

- Brief history of development of innovation processes
- Changing requirements to innovation process set up in the light of globalization and open innovation
- Interfaces in the innovation process

Main references/books/reading:

- Gassmann, Oliver (2006): *Opening up the innovation process: towards an agenda*. *R&D Management* 36, 3, 2006., pp.223
- Rothwell, Roy (1994): *Towards the Fifth-generation Innovation Process*. *International Marketing Review* (1994), Volume: 11, Issue: 1, Pages: 7-31
- von Hippel, Eric (1975): *The Dominant Role of Users in the Scientific Instrument Innovation Process*, January, 1975 WP 764-75, <http://libraries.mit.edu/docs>
- Ann P. Bartel, Casey Ichniowski, Kathryn L. Shaw (2005): *How Does Information Technology Really Affect Productivity? Plant-Level Comparisons of Product Innovation, Process Improvement and Worker Skills*. NBER Working Paper No. 11773, Issued in November 2005

Topic 3 Corporate innovation strategies

Topic outline:

- Developing innovation strategies
- Innovation portfolios and pipelines
- Incorporating innovation strategy in corporate strategy and business units

Main references/books/reading:

- Adner R (2006): *Match your innovation strategy to your innovation ecosystem*. *Harvard Business Review*, 2006
- Anthony S D , Eyring M, Gibson L (2006): *Mapping your innovation strategy*. *Harvard Business Review*, 2006
- Cassiman B, Veugelers R (2006): *In search of complementarity in innovation strategy: internal R&D and external knowledge acquisition*. *Management Science*, 2006

- Ritter T, Gemünden H G (2004): The impact of a company's business strategy on its technological competence, network competence and innovation success. *Journal of Business Research*, 2004
- Scott D. Anthony, Matt Eyring, Lib Gibson: *Mapping Your Innovation Strategy*. Harvard Business Review May 2006

Topic 4 R&D and Innovation in multinational companies

Topic outline:

- international teamwork for innovation
- company internal global innovation networks
- local vs global innovation platforms

Main references/books/reading:

- Doz, Y.; Santos, J.; Williamson, P. (2004): Is your innovation process global? INSEAD Working Paper Series 2004/09/SM
- Frost TS, Zhou C (2005): R&D co-practice and 'reverse' knowledge integration in multinational firms. *Journal of International Business Studies*, 2005
- Gassmann, Oliver, Reepmeyer, Gerrit, Zedtwitz, Maximilian von (2008): *Leading Pharmaceutical Innovation - Trends and Drivers for Growth in the Pharmaceutical Industry*. 2nd ed. Springer 2008
- Mattes J. (2010): *Innovation in Multinational Companies: Organisational, International and Regional Dilemmas*. Peter Lang International Academic Publishers 2010
- Phene A, Almeida P (2008): Innovation in multinational subsidiaries: The role of knowledge assimilation and subsidiary capabilities. *Journal of International Business Studies* 2008

Topic 5 Open Innovation

Topic outline:

- Inside-out and outside-in open innovation
- Interface management
- Absorptive capacity for open innovation

Main references/books/reading:

- Almirall, E. (2008): Living Labs and Open Innovation: Roles and Applicability. *The Electronic Journal for Virtual Organizations and Networks* Volume 10, "Special Issue on Living Labs", August 2008
- Bianchi, M.; Cavaliere, A.; Chiaroni, D.; Frattini, F.; Chiesa, V. (2011): Organisational modes for Open Innovation in the bio-pharmaceutical industry: An exploratory analysis. *Technovation* 31 (2011) 22–33
- Chiaroni, D.; Chiesa, V.; Frattini, F. (2011): The Open Innovation Journey: How firms dynamically implement the emerging innovation management paradigm. *Technovation* 31 (2011) 34–43
- Dahlander, L.; Gann, D.M. (2010): How open is innovation? *Research Policy* 39 (2010) 699–709
- Frost TS, Zhou C (2005): R&D co-practice and 'reverse' knowledge integration in multinational firms. *Journal of International Business Studies*, 2005
- Gassmann, O. (2006): Opening up the innovation process: towards an agenda. *R&D Management* 36, 3, 2006
- Gassmann, O.; Enkel, E.; Chesbrough, H. (2010): The future of open innovation. *R&D Management* 40, 3, 2010
- Huizingh, E.K.R.E. (2011): Open innovation: State of the art and future perspectives. *Technovation* 31 (2011) 2–9

Topic 6 Intellectual property management - introduction types and application of IP

Topic outline:

- Intellectual property – patents, design utilities, trade marks
- First invented vs. first to file principle
- IP law enforcement, litigation
- Other reasons for using patent protection

Main references/books/reading:

- Process for obtaining a utility patent: <<http://www.uspto.gov/patents/process/index.jsp>>.
- Trademark Process: <<http://www.uspto.gov/trademarks/process/index.jsp>>.
- Copyrights: <http://www.copyright.gov/help/faq/> and <http://www.copyright.gov/circs/>
- P Hanel: Intellectual property rights business management practices: A survey of the literature. Technovation (2006), Volume: 26, Issue: 8, Publisher: Elsevier, Pages: 895-931 http://ac.els-cdn.com/S0166497205001793/1-s2.0-S0166497205001793-main.pdf?_tid=677e3b10-0e4e-11e4-a8fb-00000aab0f02&acdnat=1405669243_4c83806b4ad2c11d704b246adb3147ae

Module 2 – Portfolio management and finance**Topic 1 R&D Portfolio Evaluation**Topic outline:

- R&D portfolios
- Assessing Projects as a Portfolio
- R&D project pipeline management
- R&D project portfolio evaluation

Main references/books/reading:

- Casault, S., Groen. A. , Linton, J.D. 2013 “Selection of a Portfolio of R&D Projects”, in Handbook on the Theory and Practice of Program Evaluation, Link, A. N. and Vonortas, N.S. (Eds), Edward Elger, Cheltenham, UK. <http://www.elgaronline.com/view/9780857932396.00009.xml>
- Robert Cooper, Scott Edgett, Elko Kleinschmidt: New Product Portfolio Management: Practices and Performances. Journal of Product Innovation Management 1999, 16, 333-351 <http://onlinelibrary.wiley.com/doi/10.1111/1540-5885.1640333/pdf>
- Juliana Hsuan Mikkola: Portfolio management of R&D projects: implications for innovation management. Technovation 21 (2001) 423–435 <http://www.sciencedirect.com/science/article/pii/S0166497200000626>

Topic 2 Metrics for innovation controllingTopic outline:

- Project management for innovation projects
- Controlling metrics for innovation project management
- Information and data collection and processing
- Integration of innovation project metrics in project management information systems

Main references/books/reading:

- Bisbe J, Otlely D (2004): The effects of the interactive use of management control systems on product innovation. Accounting, organizations and society, 2004
- Bonner JM, Ruekert RW (2002): Upper management control of new product development projects and project performance. Journal of Product Innovation, 2002

- Cardinal, L. B. (2001): Technological Innovation in the Pharmaceutical Industry: The Use of Organizational Control in Managing Research and Development. *Organization Science*, Volume 12 Issue 1, January-February 2001, pp. 19-36, <http://dx.doi.org/10.1287/orsc.12.1.19.10119>
- Kenny JDJ (2003): Effective project management for strategic innovation and change in an organisation. *Project Management Journal*, 2003
- Shenhar A. J., Dvir D. (2007): Reinventing Project Management: The Diamond Approach To Successful Growth And Innovation. Harvard Business Review Press, Aug 13, 2007

Topic 3 R&D Project Assessment

Topic outline:

- Peer Review
- Multi Criteria Assessment
- Visual and Technical Approaches
- Assessing projects

Main references/books/reading:

- Jadad, A.R., Moore, R.A., Carroll, D., Jenkinson, C., Reynolds, D.J.M., Gavaghan, D.J., McQuay, H.J. 1996. Assessing the quality of reports of randomized clinical trials: Is blinding necessary? *Controlled Clinical Trials* 17(1): 1-12 http://ac.els-cdn.com/0197245695001344/1-s2.0-0197245695001344-main.pdf?_tid=7c856b6c-10f3-11e4-ac34-00000aab0f6c&acdnat=1405960048_509747d233a64869c84833afd65f4865
- Linton, J. D. and Walsh, S. T. and Morabito, J. Analysis, Ranking and Selection of R&D Projects in a Portfolio, *R & D Management*, Volume 32, Number 2, pp. 139-148, 2002 <http://onlinelibrary.wiley.com/doi/10.1111/1467-9310.00246/pdf>

Topic 4 Assessing and Understanding Technological Competencies

Topic outline:

- understanding of the differences between managerial capabilities and technical competencies
- discussion of concepts and their relevance
- role that technological competencies play in building competitive advantage in product markets
- concept of the core competence and rigidities
- identification and maintenance of core competence

Main references/books/reading:

- Marino KE 1996, 'Developing a consensus of firm competence and capabilities', *Academy of Management Executive*, vol.10, no. 3, pp. 40–51.
- Walsh ST & Linton JD 2011, 'The Strategy-Technology Firm Fit Audit: A guide to opportunity assessment and selection', *Technology Forecasting and Social Change*, vol. 78, pp. 199-216
- Leonard-Barton D 1992, 'Core capabilities and core rigidities: A paradox in managing new product development', *Strategic Management Journal*, vol. 13, pp. 111–125
- Prahalad CK & Hamel G 1990, 'The core competence of the corporation', *Harvard Business Review*, vol. 68, pp. 79–91. <http://hbr.org/product/core-competence-of-the-corporation/an/90311-PDF-ENG> (need to access this from HSE to ensure we get working link)

Topic 5 Time Value of Money (prepared by Veronika Belousova)

Topic outline:

- Project life cycle
- Basics of interest rates (rates types, maturity, inflation, taxes);
- Future and present value of money (compounding, discounting);
- Discount rate and cash flows.
- Process and principles of capital budgeting applied to innovation projects;
- Capital budgeting techniques (NPV, IRR, hurdle rate, payback period, profitability index);
- Capital budgeting techniques in use: CEO's view

Main references/books/reading:

- Brealey, R.A., Myers, S.C., Allen, F. Principles of Corporate Finance. McGraw-Hill Irwin. - 10th ed. pp. 20-44.
- Damodaran, A. Applied Corporate Finance: Second Edition, 2004. Appendix 3.
- Drake, P.P., Fabozzi, F.J. Foundations and Applications of the Time Value of Money. John Wiley & Sons: 2006. pp. 1-40.
- Vernimmen, P., Quiry, P., Dalocchio M., Le Fur Y., Salvi A. Corporate Finance: Theory and Practice. John Wiley & Sons Ltd: 2005. pp. 290-344.
- Welch, I. Corporate Finance: An Introduction. Prentice Hall. 2009. pp. 13-40; 60-120; 389-412

Optional references/books/reading:

- Evans, J. Time Value of Money: The Essence of Securities Valuation. Source: CFA Institute (Video; Slides)
- Fernandez, P. (2015). Three Residual Income Valuation Methods and Discounted Cash Flow Valuation. Available at SSRN: <https://ssrn.com/abstract=296945> or <http://dx.doi.org/10.2139/ssrn.296945>
- Gallo, A. (2016). A Refresher on Internal Rate of Return. Harvard Business Review: <https://hbr.org/2016/03/a-refresher-on-internal-rate-of-return>
- Jagannathan, R., Matsa, D.A., Meier, I., Tarhan, V. (2016). Why Do Firms Use High Discount Rates? Journal of Financial Economics, Vol. 120, No. 3. pp. 445-463
- Peterson, P.P., Fabozzi, F.J. Capital Budgeting: Theory and Practice. JOHN WILEY & SONS. 2002. pp. 57-126

Topic 6 Sources for financing innovation (prepared by Veronika Belousova)Topic outline:

- Financing instruments: direct vs. indirect public funding
- Debt/equity financing, retained earnings
- Cost of capital: components, weights, taxes
- Cost of capital and return on investment

Main references/books/reading:

- Brealey, R.A., Myers, S.C., Allen, F. Principles of Corporate Finance. McGraw-Hill Irwin. - 10th ed. pp. 391-501; 577-644.
- Damodaran, A. Applied Corporate Finance: Second Edition, 2004. Chapter 7
- Grinblatt, M., Titman, S., Financial Markets and Corporate Strategy. The McGraw-Hill Companies: 2002. pp. 29-93; 500-529.
- Vernimmen, P., Quiry, P., Dalocchio M., Le Fur Y., Salvi A. Corporate Finance: Theory and Practice. John Wiley & Sons Ltd: 2005. pp. 44-56; 232-251.

Optional references/books/reading:

- Bown, J.R., Martinsson G., Petersen, B.C. (2012). Do financing constraints matter for R&D? *European Economic Review*. Volume 56, Issue 8. pp. 1512–1529
- Jacobs, M.T., Shivdasani, A. (2012). Do You Know Your Cost of Capital? *Harvard Business Review*: <https://hbr.org/2012/07/do-you-know-your-cost-of-capital>
- Kerr, W.R., Nanda, R. (2015). Financing Innovation. *Annual Review of Financial Economics*. Vol. 7: pp. 445-462

Module 3 – Organization**Topic 1 Organization of innovation management**Topic outline:

- Basic organizational concepts for innovation activities
- “structure follows strategy” principle
- Interface management of innovation departments

Main references/books/reading:

- Eric von Hippel and Georg von Krogh: Open Source Software and the "Private-Collective" Innovation Model: Issues for Organization Science *Organization Science* Vol. 14, No. 2 (Mar. - Apr., 2003), pp. 209-223
- Hurley, Robert, F.: Hult, Thomas M. (1998): Innovation, Market Orientation and Organizational Learning: An Integration and Empirical Examination. *Journal of Marketing* Vol. 62 (July 1998), 42-54
- Jin K. Han; Namwoon Kim; Rajendra K. Srivasta: Market Orientation and organizational Performance: Is Innovation the Missing Link? Series No MKTG96.084, November 1996

Topic 2 In-house R&DTopic outline:

- Assessing in-house R&D competences and needs
- Internal R&D portfolios
- Balancing in-house and external R&D

Main references/books/reading:

- Archibugi D (2001) Pavitt's taxonomy sixteen years on: a review article. *Economics of Innovation and New Technology*, 2001
- Beneito P (2006): The innovative performance of in-house and contracted R&D in terms of patents and utility models. *Research Policy*, 2006
- Catozzella A, Vivarelli M (2014): The Catalysing Role of In-House R&D in Fostering Complementarity Among Innovative Inputs. *Industry and Innovation*, 2014
- Grossmann V (2008): Advertising, in-house R&D, and growth. *Oxford Economic Papers*, 2008
- Kumar N, Aggarwal A (2005): Liberalization, outward orientation and in-house R&D activity of multinational and local firms: A quantitative exploration for Indian manufacturing. *Research Policy*, 2005
- Pearce R D (1999): Decentralised R&D and strategic competitiveness: globalised approaches to generation and use of technology in multinational enterprises (MNEs). *Research Policy*, 1999

Topic 3 Outsourcing R&D

Topic outline:

- Priority setting for internal R&D
- Determining outsourcing partner
- Outsourcing partner management

Main references/books/reading:

- Henry Chesbrough¹ and Adrienne Kardon Crowther: Beyond high tech: early adopters of open innovation in other industries. *R&D Management* 36, 3, 2006
- Jae-Nam Lee, Minh Q. Huynh, Kwok Ron Chi-wai, Shih-Ming Pi: The Evolution of Outsourcing Research: What is the Next Issue? Proceedings of the 33rd Hawaii International Conference on System Sciences - 2000
- Maximilian von Zedtwitz, Oliver Gassmann, Roman Boutellier: Organizing global R&D: challenges and dilemmas. *Journal of International Management* 10 (2004) 21– 49
- Minyuan Zhao: Conducting R&D in Countries with Weak Intellectual Property Rights Protection
- Mol, M. J. (2005). Does being R&D intensive still discourage outsourcing?: Evidence from Dutch manufacturing. *Research Policy*, Vol. 34(4), pp. 571-582

Topic 4. Business model innovation

Topic outline

- Growing importance of Business Model Innovation (BMI) in today's economic environment
- Business innovation vs. product/process innovation: common features and differences
- Business model vs. business strategy: current debate and practical implications
- BMI as competitive instrument of large corporations
- Successful BMI experience: main directions of change
- BMI as important driver of industry revolutions
- Why large corporations usually struggle with BMI: internal organizational barriers and cultural issues
- Managing BMI within a large corporate organization: tested approaches and practical solutions

Main references/books/reading:

- Afuah A. *Business Model Innovation: Concepts, Analysis, and Cases*. Routledge, N.Y., 2014, 376 p.
- Osterwalder A. *The Business Model Ontology: A Proposition in the Design Science Approach*. University of Lausanne, 2004
- Osterwalder A., Pigneur Y. *Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers*. Wiley, N.Y., 2010, 273 p.
- Kaplan S. *The Business Model Innovation Factory: How to Stay Relevant When the World Is Changing*. Wiley, N.Y., 2012, 240 p.
- Teece David J. *Business Models, Business Strategy and Innovation*. – Long Range Planning. 2010, vol. 43, Issue 2, pp. 172-194
- Magretta J. Why business models matter. *Harvard Business Review*. May 2002, pp. 86-92
- Johnson M., Christensen C., Kagerman H. *Reinventing Your Business Model*. *Harvard Business Review*. December 2008
- Shafer Scott M., Smith H. Jeff, Linder Jane C. *The Power of Business Models*. – *Business Horizons*. 2005, Vol. 48, Issue 1, pp. 199-207

Topic 1 corporate innovation culture

Topic outline:

- Corporate culture for innovation
- Incentives and measures to build and maintain innovation culture

Main references/books/reading:

- Ekvall, Goeran: Organizational Climate for Creativity and Innovation. *European Journal of Work and Organizational Psychology*, 1996, 5 (1), pp.105-123
- Herzog P (2008): Open and Closed Innovation: Different Cultures for Different Strategies. Springer Gabler 2nd ed. 2011
- Horibe F. (2008): Creating the Innovation Culture: Leveraging Visionaries, Dissenters and Other Useful Troublemakers. Wiley 2008
- Angel, R. (2006): Putting an innovation culture into practice. *Ivey Business Journal* January/February 2006, pp1-5, Reprint # 9B06TA08, available online <http://www.gilfordgrp.com/articles/Ivey%20Innovation%20Culture.pdf>, last accessed 05 September 2013-09-05

Topic 2 Innovation project management – definition and project structure

Topic outline:

- Idea generation and management
- Business case preparation for innovation projects
- Defining milestones and deadlines
- Criteria development for innovation progress monitoring

Main references/books/reading:

- Arnd Huchzermeier; Christoph H. Loch: Project Management Under Risk: Using the Real Options Approach to Evaluate Flexibility in R&D. *Management Science*, Vol. 47, No. 1, Design and Development (Jan., 2001), pp. 85-101
- Keegan A; Rodney J Turner: The Management of Innovation in Project Based Firms. ERIM Report Series Research in management, ERS-2000-57-ORG
- Michael T. Pich, Christoph H. Loch, Arnoud De Meyer: On Uncertainty, Ambiguity, and Complexity in Project Management. *Management Science*, Vol. 48, No. 8, August 2002 pp. 1008–1023
- Wendy Phillips, Hannah Noke, John Bessant, Richard Lamming: Beyond The Steady State: Managing Discontinuous Product and Process Innovation. AIM Working Paper Series: 009-August-2004
- Robert G. Cooper: From Experience: The Invisible Success Factors In Product Innovation. *Journal of Product Innovation Management*, 16, 2, April 1999, 115-133
- Alan MacCormack; Roberto Verganti; Marco Iansiti: Developing Products on “Internet Time”: The Anatomy of a Flexible Development Process
- Mohan V. Tatikonda, Stephen R. Rosenthal: Successful execution of product development projects: Balancing firmness and flexibility in the innovation process. *Journal of Operations Management* 18 _2000. 401–425
- Robert G. Cooper and Elko J. Kleinschmidt: Stage-gate process for new product success. *Innovation Management U3*, www.u3.dk
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Topic 3 Technological Entrepreneurship

Topic outline:

- Propensity to innovate within corporate universe: main factors and company profiles (ownership type, size, level of internationalization)
- Innovation mechanisms, funding sources and corporate organization
- Cooperation with firms
- Major barriers hampering innovation activities
- Innovation strategy development
- Roadmapping and portfolio management

Main references/books/reading:

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- PwC. Innovation through Growth. Moscow, 2013, 18 p.;
- Prazdnichnykh A., Liuhto K. Russian Companies do Innovate. Review of International Comparative Management. Volume 11, Issue 5, December 2010
- Podmetina D. Innovation and Internationalization in Russian companies: Challenges and Opportunities for Open Innovation and Cooperation. Lappeenranta University of Technology, Digipaino, 2011, 27 p.
- Filippov S., Settles A. Innovation Strategies of Emerging Russian Multinational Companies. Cambridge, 2011, 19 p.
- Gurkov I. Why some Russian industrial companies still do innovate regularly: studying drivers for innovation in the aftermath of the Great Depression. Moscow, 2012, 40 p.

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