

## Innovation and Intellectual Property Laboratory

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### Academic Members of the *Innovation and Intellectual Property Laboratory*

- Kelvin Willoughby, Professor & Director
- Zeljko Tekic, Assistant Professor
- Alexander Ivanov, Doctoral Student (Tekic)
- Maxim Malyy, Doctoral Student (Tekic)
- Anja Tekic, Doctoral Student (Willoughby)
- Dariya Satikova, Doctoral Student (Willoughby)
- Punyapat Saksupapchon, Doctoral Student (Willoughby)
- Ekaterina Kotenko Lengold, Doctoral Student (Willoughby)
- Georgy Klushin, Doctoral Student (Tekic)
- Kirill Golubev, Doctoral Student (Willoughby)
- Maria Goldshtein, Doctoral Student (Tekic)

The *Innovation and Intellectual Property Laboratory (INIP Lab)* consists of an interdisciplinary group of researchers at Skoltech whose scholarship, empirical research and innovative activity are united by a focus on the role of intellectual property in the process of technological innovation. The members of the Laboratory are drawn from a variety of academic fields and disciplines, including strategic management of technology, entrepreneurial strategy, intellectual property management, intellectual property law, business law, industrial engineering, aerospace engineering, organization studies, product development, information science, the management of complex systems, and innovation studies more generally (with some active in multiple fields). These researchers, despite the diversity of their skills, knowledge and backgrounds, work together in a common academic domain, which is *innovation and the management of intellectual property*.

### Intellectual Platform of the *Innovation and Intellectual Property Laboratory*

The research and innovation agenda of the *Innovation and Intellectual Property Laboratory* is based on the following four core convictions:

1. Technological innovation, including technology entrepreneurship and the commercialization of science and technology, requires sophistication and prowess in managing intellectual property.
2. Expertise in the management of intellectual property matters not just for lawyers, but also for a wide range of people involved in innovation, including: technology entrepreneurs, managers of established technology-intensive corporations, product designers, investors, technology-transfer professionals, R&D managers, innovation-oriented academic researchers, regional innovation infrastructure professionals, IP traders and specialized IP intermediaries, technology marketing professionals, software and IT service providers, and also public policy leaders.
3. The management of intellectual property is already established as a vibrant functional domain in industry; and while academia has been much slower than industry in recognizing the central importance of IP management as a professional field, academia is beginning to catch up with industry in recognizing this field of management as a distinct function in business that deserves serious study in its own right, just like any other practical subject matter in business.
4. *Intellectual Property Management* is becoming visible as a new academic field, and systematic high-quality research about the strategic management of intellectual property, within the process of *technological innovation*, is a field in which Skoltech can make an intellectual and practical contribution, both within Russia and internationally.

### Current Research Projects of the *Innovation and Intellectual Property Laboratory*

- Intellectual property and open-innovation strategies in product development projects
- Co-creation as an organizational strategy for new product development
- Intellectual property rights and information technology, with a special emphasis on the protection of computer software inventions and issues related to software-as-service
- Development of a context-enhanced patent analytics platform
- Smart patent analysis for technology strategy and business intelligence (use of “big data” analytics for evaluation of patent information)
- Valuation of inventions through statistical analysis of patent data
- The role of intellectual property management in the international commercialization of lithium-ion battery technology
- International licensing strategy and IP management in the satellite data industry
- Legal issues in the localization of personal data in cloud computing services
- Implications of recent trends in the law of patent-eligible subject matter on the strategies of entrepreneurial technology firms
- Emerging legal issues in the patenting of intangible process inventions
- Patent-eligible subject matter and innovation in biomedical technology
- Impact of international patenting behavior on national economic development
- Patent analysis as a tool for planning scientific and engineering research projects
- Cross cultural issues in R&D project management
- Strategies for solving the problems of backlog and unreliable examination quality in the global patent system
- Intellectual property strategy and entrepreneurial technology strategy
- Entrepreneurial ecosystems in Russia and strategies for the development of university-based technology start-ups.
- The strategic management of intellectual property in the development of digital gaming platforms for online education.
- Incorporating intellectual property considerations in to the design of modular products and modular manufacturing systems.

The *INIP Lab* meets weekly at Skoltech for an academic seminar where members of the group take turns in making a presentation and leading a round-table discussion on the topic of the seminar. Distinguished academic or practitioner guests sometimes also makes presentations. The purpose of these weekly seminars is fourfold: (a) to provide constructive criticism of the research of each member of the group to improve the quality of his or her research and enhance the quality of subsequent publications; (b) to build up a shared intellectual territory and research culture at Skoltech in the field of innovation and intellectual property management; (c) to act as a seed-bed for ideas for future externally funded collaborative research projects; and, (d) to assist Ph.D. students to learn the art of carrying out academic research in a collegial academic environment. The weekly seminar also provides a practical vehicle for the course, *Innovation and Intellectual Property Studies Doctoral Seminar*, which is a compulsory component of Skoltech’s Ph.D. program in Innovation and Intellectual Property Management.

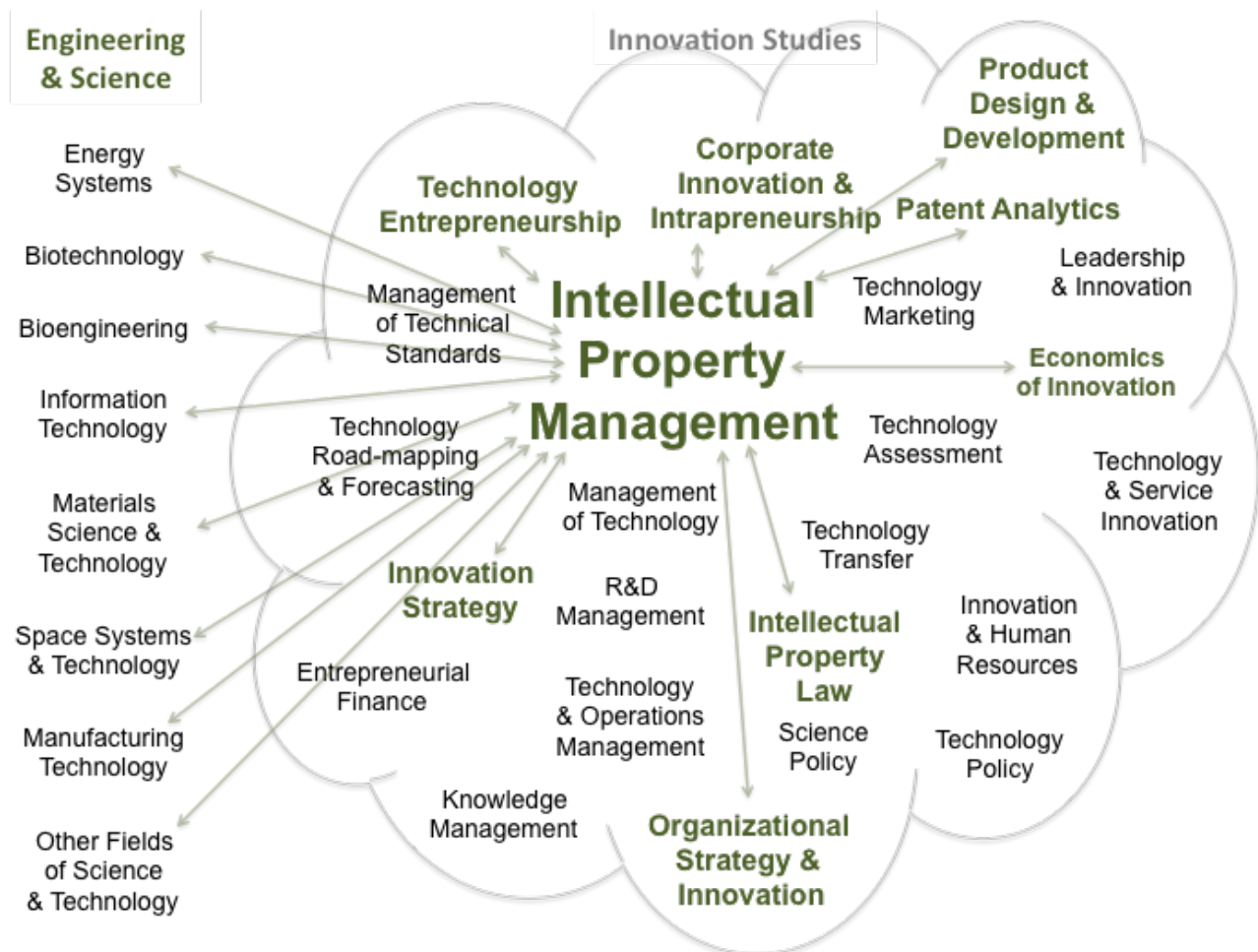
### Research Strategy of the *Innovation and Intellectual Property Laboratory*

The research strategy of the *INIP Lab* is based on recognizing that *Intellectual Property Management* is both an academic field in its own right and a lively zone for the interaction of other academic fields. Additionally, intellectual property management is a core function of the

technological innovation process in business, making it centrally important to the academic mission of Skoltech. Intellectual property management lends itself to interdisciplinary research both within the domain of innovation studies and between innovation studies and fields of scientific and engineering research at Skoltech, such as bioinformatics, computer vision, data science, materials science & engineering, photonics and energy technology, etc. Thus, academic work in intellectual property management may help synergize and facilitate practical innovation from scientific and engineering research at Skoltech. It may also be a focus for cooperation between our Laboratory and the various CREIs (Centers for Research, Education and Innovation) at Skoltech.

The research strategy of the *INIP Lab* is also a response to the practical reality that excellence and high productivity in research—especially at a small young university such as Skoltech—requires concentrating our intellectual and other resources. With this in mind we have adopted what we call the “*focus and deepen capabilities*” research strategy, as opposed to the “*broad brush*” research strategy, for innovation studies at Skoltech.

**Developing Innovation Studies by Leveraging Intellectual Property Management Research**



A guiding concept behind Skoltech’s original planning, developed in partnership with MIT, was the idea that any university with innovation as its *leitmotif* must have credible academic capability in the subject of innovation studies. Skoltech’s *INIP Lab* team is devoted to pursuing the original Skoltech / MIT vision by concentrating our efforts in one particular sub-field of innovation studies

where we believe there is the greatest opportunity for us to leverage our resources for maximum impact, both in Russia and internationally. That field is intellectual property management.

Our “*focus and deepen capabilities*” research strategy builds upon emerging research strengths at Skoltech, upon scholarly activities that already exist, and upon the chosen intellectual territories of the university’s founding faculty members in innovation studies. The *Innovation and Intellectual Property Laboratory (INIP Lab)* at Skoltech draws upon, concentrates and cultivates Skoltech’s current academic expertise in innovation studies.

### **Recent IP & Innovation-related Publications of Members of the *Innovation and Intellectual Property Laboratory***

#### *Academic Publications*

- K. W. Willoughby, *What Can Be Patented? Confronting the Confusion in Patent Law About Patent-Eligible Subject Matter* (Saarbrücken: Scholars Press, 2014). [book]
- A. Tekic & K. W. Willoughby, “Contextualized co-creation: Innovating with individual external contributors throughout the product life cycle,” *International Journal of Product Development*, 22, 3 (2017), 230-245.
- M. von Zedtwitz, Z. Tekic and K. W. Willoughby, “Foreign R&D Investment in Russia: How to Translate into Innovation?” in *The Life of Russian Business: (Re)cognizing, (Re)activating and (Re)configuring Institutions*, edited by Tomas Casas (IAP, 2018). In print.
- Z. Tekic, *et al.*, “PSALM: Patent Mining Tool for Competitive Intelligence,” *Tehnički vjesnik / Technical Gazette*, 22, 6 (2015), 1433-1440.
- C. F. Cheung, W. M. Wang, X. Xu & K. W. Willoughby, “A knowledge-based system for assessing and managing intellectual property managerial risks for small-and-medium sized technological enterprises,” *International Journal of Intellectual Property Management*, 7, 1/2 (2014), 57–83.
- Z. Tekic and D. Kukolj, “Threat of litigation and patent value: What technology managers should know,” *Research Technology Management*, Spring (2013), 18-25.
- K. W. Willoughby, “What impact does intellectual property have on the business performance of technology firms?” *International Journal of Intellectual Property Management*, 6, 4 (2013), 316-338.
- K. W. Willoughby, “Intellectual property management and technological entrepreneurship,” *International Journal of Innovation and Technology Management*, 10, 6 (2013), 1-42.
- Z. Tekic, *et al.*, “Towards understanding the role and value of patents in a knowledge-based economy,” *DAAAM International Scientific Book 2013*, B. Katalinic & Z. Tekic (Eds.), (Vienna, Austria: DAAAM International, 2013), pp. 389-416.
- A. Ivanov & Z. Tekic, “Using Contextual Data for Smart Patent Analysis,” *Proceedings of the 8th IEEE International Conference on Cloud Computing Technology and Science*, Luxembourg, 12-15 December 2016, pp. 448-451.
- A. Fajsi, Z. Tekic & S. Moraca, “Open Innovation in Manufacturing SMEs – Integration into Value Networks,” *Proceedings of the 26th DAAAM International Symposium on Intelligent Manufacturing & Automation*, 21-24th October 2015, Zadar, Croatia (Vienna: DAAAM International, 2016), pp. 1076-1081.
- M. Malyy and Z. Tekic, “The role of universities in Russian startup ecosystem,” *Proceedings of the 1st Regional Conference on Entrepreneurship and Open Innovation in University - Industry*

*Collaboration*, University of Novi Sad, Serbia, 20-23 September 2016, Eds. Z. Tekic Z. and P. Vrgovic (iDEALab Conference 2016), pp. 73-79.

- A. V. Pilicheva, *et al.*, *Intellectual property. A textbook for students*. MSAL named after O.E. Kutafin, Moscow, 2015. [in Russian]
- A. V. Pilicheva, *et. al.*, *Patent protection for medicines*, Collection of the Russian School of Private Law alumni papers (Moscow, Statut, 2015). [in Russian].
- A. V. Pilicheva, “About the legal definition of ‘medicine’,” Collection of abstracts of the 2nd Moscow legal forum, *State sovereignty and the rule of law: international and national dimensions*, MSAL named after O.E. Kutafin, Moscow, 2015.
- A. V. Pilicheva, “The lifetime of the patent for medicine,” *Intellectual property. Industrial property*, 2015, No. 8, 47- 56. [in Russian]. [Note: A. V. Pilicheva departed Skoltech in 2016.]

#### *Working Papers and Publications in Progress*

- K. W. Willoughby, “Endogenous innovation, outward-bound international patenting and national economic development,” revise and re-submit, *Journal of Technology Transfer*, May 2018.
- A. Tekic & K. W. Willoughby, “Co-creation – Child, Sibling or Adopted Cousin of Open Innovation?” under review, *Innovation: Organization and Management*, September 2017.
- A. Tekic & K. W. Willoughby, “The strategic coupling of intellectual property management and co-creation,” under review, *Industry and Innovation*, January 2017.
- E. Kottenko Lengold & K. W. Willoughby, “Intellectual Property Protection of Satellite Data: Problems, Opportunities and Impact on Innovative Development of the Remote Sensing Market,” Working Paper, in progress, January 2017.
- D. Satikova & K. W. Willoughby, “The protection of personal data in the context of cross-border data transfer and cloud computing: Global trends,” Working Paper, in progress, January 2017.

#### **Recent Invited Presentations and Conference Presentations of Members of the *Innovation and Intellectual Property Laboratory***

- K. W. Willoughby, Keynote speaker, *International Conference on Business and Sustainable Development (JCBSD 2018)*, University of Rajshahi, Rajshahi, Bangladesh, 8-9 March 2018. Topic: “Endogenous Innovation, Outward-bound International Patenting and National Economic Development: What is Happening in Asia?”
- K. W. Willoughby, Keynote speaker, *China Intellectual Property Conference*, Nanjing University of Science and Technology, College of Intellectual Property, Nanjing, China, 15-16 December 2017. Topic: “Endogenous Innovation, Outward-bound International Patenting and National Economic Development: China and the World”
- K. W. Willoughby, Keynote speaker, *28th DAAAM International Symposium, Intelligent Manufacturing and Automation*, DAAAM International Vienna, Technical University of Vienna & University of Zadar, Croatia, 8-11 November 2017. Topic: “What is Technology?”
- A. Tekic & K. W. Willoughby, “The strategic coupling of intellectual property management and co-creation,” *15th International Open and User Innovation Conference*, University of Innsbruck, Innsbruck, Austria, 10-12 July 2017.
- K. W. Willoughby, Invited speaker, *National Innovation Agency, Royal Government of Thailand*, Bangkok, 24 January 2017. Topic: “Intellectual Property Management for Entrepreneurs.”

- K. W. Willoughby, “Problems and Prospects for Patent-Eligible Subject Matter in European and United States Patent Law,” *25th Annual Fordham Intellectual Property Law & Policy Conference*, Fordham University Law School, New York City, April 2017.
- Z. Tekic, “Is Open Innovation in Startups’ DNA?” *15th International Open and User Innovation Conference*, University of Innsbruck, Innsbruck, Austria, 10-12 July 2017.
- A. Tekic & K. W. Willoughby, “Construing the conceptual mess around co-creation: An Innovation Management Perspective,” *24th Innovation and Product Development Management Conference (IPDMC)*, Reykjavik University, Iceland, 11-13 June 2017.
- Z. Tekic, “Startups: Are They Born and Raised through Open Innovation?” *24th Innovation and Product Development Management Conference (IPDMC)*, Reykjavik University, Iceland, 11-13 June 2017.
- Z. Tekic (Moderator), C. Guger, R. Giaffreda, N. Okhapkina & K. W. Willoughby, “Science and Innovation,” Panel Discussion, *Skoltech Gen-Y Cross Disciplinary Conference for Young Scientists*, Rosa Khutor, Sochi, Russia, Skolkovo Institute of Science and Technology, 27 September to 1 October 2017.
- K. W. Willoughby, “Innovation, Intellectual Property and the Creation of Wealth: What’s at Stake for Nations and Entrepreneurs?” *Skoltech Gen-Y Cross Disciplinary Conference for Young Scientists*, Rosa Khutor, Sochi, Russia, Skolkovo Institute of Science and Technology, 27 September to 1 October 2017.
- K. W. Willoughby, Keynote speaker, *7th International Conference on Mass Customization and Personalization in Central Europe (MCP-CE 2016)* and the *1st Regional Conference on Entrepreneurship and Open Innovation (IDEAlab 2016)*, University of Novi Sad, Novi Sad, Serbia, 20-23 September 2016. Topic: “Open Innovation and Intellectual Property.”
- P. Vrgović, Z. Tekic & V. Todorovic, “Open Innovation in WBC SMEs: Cross-Industrial Perspective,” *7th International Conference on Mass Customization and Personalization in Central Europe (MCP-CE 2016)*, University of Novi Sad, Novi Sad, Serbia, 20-23 September 2016.
- K. W. Willoughby, Invited speaker, *Intellectual Property Management Teaching Workshop, University of Cambridge & Chalmers University*; Sponsored by EITIM (European Institute for Technology and Innovation Management), EPO (European Patent Office), UKIPO (U.K. Intellectual Property Office), and WIPO (World Intellectual Property Organization), 16 September 2016. Topic: “Technology Licensing Games and IP Management Education.”
- A. Tekic & K. W. Willoughby, “Co-creation and open innovation: Related but distinct concepts in innovation management,” *R&D Management Conference 2016 From Science to Society: Innovation and Value Creation*, Cambridge University, United Kingdom, 3-6 July 2016.
- A. Tekic & K. W. Willoughby, “The strategic coupling of intellectual property management and co-creation strategies,” Paper for the *23rd Innovation and Product Development Management Conference*, Glasgow, United Kingdom, 12-14 June 2016.
- A. Ivanov & Z. Tekic, “Towards Smart Patent Analytics - Matching Patent and Contextual Data,” *R&D Management Conference, 2016 From Science to Society: Innovation and Value Creation*, Cambridge University, United Kingdom, 3-6 July 2016.
- K. W. Willoughby, Invited speaker, *Rajiv Gandhi School of Intellectual Property Law, Indian Institute of Technology, Kharagpur, India*, 19 May 2016. Topic: “Contemporary Issues in the Law of Patent-eligible Subject Matter in the United States and Europe.”
- K. W. Willoughby, Invited speaker, *Rajendra Mishra School of Engineering Entrepreneurship, Indian Institute of Technology, Kharagpur, India*, 18 May 2016. Topic: “Financing Technology Entrepreneurship.”

- K. W. Willoughby and A. Vidiborskiy, “Technological Innovation, International Patenting and National Economic Development: A Multinational Multi-year Study,” *INFORMS (Institute for Operations Research and the Management Sciences) 2016 Annual Meeting*, Nashville, Tennessee, November 13-16, 2016.
  - K. W. Willoughby, Keynote speaker, *Startup Village 2015*, Skolkovo Innovation Center, Annual Conference organized by Skolkovo Foundation, Moscow, Russia, 2 June 2015. Topic: “Why is the Subject of Intellectual Property Important for Startups?”
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### **Current Educational Courses Developed and Offered by Faculty Members of the *Innovation and Intellectual Property Laboratory***

#### **Masters Courses**

- *Ideas to Impact: Foundations for Commercializing Technological Advances* MC06002 [6 credits]
  - Z. Tekic
- *Intellectual Property and Technological Innovation* MC06006 [6 credits]
  - K. W. Willoughby
- *Technology Entrepreneurship* MC06008 [6 credits]
  - K. W. Willoughby & Z. Tekic

#### **Ph.D. Courses**

- *Technology Commercialization: Foundations for Doctoral Researchers* PC06002 [6 credits]
  - Z. Tekic
- *Intellectual Property, Technological Innovation and Academic Research* PC06006 [6 credits]
  - K. W. Willoughby
- *Innovation and Intellectual Property Studies Doctoral Seminar* PC06009 [6 credits]
  - K. W. Willoughby & Z. Tekic
- *Philosophy of Science, Technology and Innovation* PE06026k [6 credits]
  - K. W. Willoughby

#### **Ph.D. Program in Innovation and Intellectual Property Management**

- Contact Prof. Willoughby at [kelvin@skoltech.ru](mailto:kelvin@skoltech.ru) for details

### **Practical Innovation Services Currently Offered by Members of the *Innovation and Intellectual Property Laboratory***

- *Startup Club* - M. Malyy, and other members of the *INIP Lab*
- *I2I Café* - Z. Tekic
- *ISP Course* - D. Satikova “*The Lord of the IP (so many Intellectual Property types and one Knowledge to rule them all)*” (a primer on Russian IP law and systems for entrepreneurs)
- *IP Analytics* - Training in the use of IP data and IP-related data and analytical services for research planning and innovation support. Various members of the *INIP Lab*

**Skoltech's Innovation and Intellectual Property Laboratory and Russia's Innovation Economy**

There is a groundswell of interest in intellectual property emerging in Russia, including the topic of how Russian technology enterprises may flourish by skillfully utilizing the IP systems and markets of the rest of the world, as well as those of Russia. The extraordinary interest shown by the Russian public in Skolkovo's "Patent School" is one indication of that interest. Russia's recent accession to the World Trade Organization, with the obligations that that has brought with it for Russia to fully develop its IP laws and institutions, is also a factor. Russia's serious moves in this direction have also been recognized by the UN's Geneva-based World Intellectual Property Organization, that has opened a satellite office in Moscow, located in Skolkovo. The IP Center of the Skolkovo Foundation is also active in this field, and provides relevant and useful IP management services to innovative enterprises in the broader Skolkovo community. We envision that by cultivating relationships with the range of institutions and people in Russia who are thirsty for knowledge about intellectual property and its role in technology-related business, we will find a welcome outlet for both our research and practical education-and-training services related to our research.

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***Innovation and Intellectual Property Laboratory  
(INIP Lab)***

**Skolkovo Institute of Science and Technology**

Skolkovo Innovation Center  
3 Nobel Street  
Moscow 143026  
Russian Federation

[www.skoltech.ru](http://www.skoltech.ru)

***INIP Lab*** Inquiries:

Prof. Kelvin Willoughby (Director)  
[kelvin@skoltech.ru](mailto:kelvin@skoltech.ru)

Ass. Prof. Zeljko Tekic  
[z.tekic@skoltech.ru](mailto:z.tekic@skoltech.ru)

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