The University Of Sheffield.
International Faculty
CITY College.

# SEERC – Call for PhD Applications 2019-2020.

SEERC

# PhD Studies at SEERC – Call for Applications (Submission Deadline: May 3, 2019)

## 1. The PhD Programme

SEERC gives the opportunity to qualified students to read for a Doctoral Degree at the University of Sheffield through a combination of high quality UK studies and a unique research infrastructure in South East Europe. The PhD candidates are enrolled and study at one of the Departments of the Faculties of the University of Sheffield in the UK while being supported by the SEERC team and infrastructure in SEE. When they successfully finish their studies they receive their degrees directly from the relevant Department at Sheffield, UK.

At SEERC there are currently two possibilities for a PhD degree:

**A) Full Time programme.** The duration is 3 years (with a 4$^{th}$ year available for writing up the thesis) and it requires full time commitment on the part of the PhD student, which means that one would have to be physically present at SEERC premises located in Thessaloniki.

**B) Part Time programme**, with duration 6 years (with 2 years available for writing up). To be eligible for a part-time PhD the candidate should be able to prove significant experience in the selected field. In this case, the PhD student has the obligation for a minimum of two visits to Thessaloniki and/or Sheffield annually for supervision purposes. All other communication with supervisors occurs via e-mail, Skype and telephone.

Students applying for the programme (Full time and Part time) must have an excellent academic record (normally Degrees with Distinction) and should possess a Master's Degree. Potential work experience, research training and publications play important role also. Applicants for part time positions must submit proposals that demonstrate a clear linkage between their current work and their PhD topic.

## 2. Entry Requirements

The University has minimum entry requirements. These are the following:

- A relevant first Degree (Normally with Distinction)
- A Master's Degree (Normally with Distinction)
- Proof of English Language Qualifications

For # 1-13 Research Topics the standard English Language requirement is IELTS at 7.0 with a minimum of 6.0 in each component or equivalent. For the #14-17 Research Topics please see the English language requirements for prospective postgraduate students at The University of Sheffield:

http://www.sheffield.ac.uk/postgraduate/research/englang

http://www.sheffield.ac.uk/postgraduate/info/englang

## 3. Tuition Fees

Tuition fees differ depending on the Department of registration. Indicatively, annual fees range from 4,260 GBP to 5,260 GBP for EU citizens and 16,800 GBP to 22,450 GBP for non-EU citizens (FT students; half of these amounts apply for PT students). Interested students may enquire at zxygalata@seerc.org

## 4. Fee Waivers

Once again this year, the University of Sheffield and its' International Faculty - CITY College will be offering a small number of fee waiver positions for students to read for a PhD **through SEERC**. The fee waivers are offered to applicants with outstanding academic records and the process is highly competitive. **Please note that fee waivers are only given to candidates applying for Full time studies.**

More information on the terms of reference of the Fee waivers can be found at the following link:

http://www.seerc.org/new/index.php/doctoral-programme/studentships.html

***Please note that only the Topic 1 is also sponsored by Johnson Matthey (https://matthey.com/) and carries a stipend to a total cost of 6,800€ per annum for 3 years.***

## 5. Submission process

We accept proposals from qualified students for Full-time or for Part-time study, **however fee waivers are offered for FULL TIME studies only. The topics on which we accept applications are the following:**

| | |
|---|---|
| **Research Track 1: Enterprise Innovation and Development** | |
| Topic 1: | Hybrid Life Cycle Assessment of Functional Materials and Devices |
| Topic 2: | The spillovers of EMU policies in Central, Eastern and South Eastern Europe |
| Topic 3: | Resilient agrifood supply chains at the convergence of Industry 4.0 with Resource Efficiency |
| Topic 4: | Mapping the Plastics Recycling Supply Chain: An Effort to "Green" the Waste Processing Process |
| Topic 5: | "Belt and Road Initiative": The Global Economic and Political Risk context |
| Topic 6: | Digital Transformation: Implications for Strategy & Innovation Management. |
| Topic 7: | Geopolitical Risks and Financial Markets |
| Topic 8: | Law, crime and justice in countries in the Western Balkans undergoing EU accession |
| **Research Track 2: Information and Communication Technologies** | |
| Topic 9: | Modelling User Requirements in Collaborative Infrastructure-Sharing Scenarios Comprising Edge nodes, Micro Local and Hybrid Clouds |
| Topic 10: | Formal Modelling of Artificial Emotions in Intelligent Agents |
| Topic 11: | Simulations of Emotional Multi-Agent Systems |
| Topic 12: | Security Information Sharing in the Digital Economy using Block chain technology and observing GDPR |
| Topic 13: | Governance framework for IoT devices operating on Fog and Edge Computing |
| **Research Track 3: From Synapses to Society: Psychology in a Multi-cultural World Research Track** | |
| Topic 14: | Enhanced self-disgust in Parkinson's disease – unravelling its cause |
| Topic 15: | The bilingual effect in executive functions and the role of dopamine activity |

| **Research Track 4: Language and Society: Linguistics, Education, Literature and Translation** | |
|---|---|
| Topic 16: | Exploring Non-normative Sexualities and Queer Identity in Greek Translations of Anglophone Queer Literature. |
| Topic 17: | The use of drama in teaching English pronunciation/intonation to Greek EFL learners |

In order to apply, PhD candidates should send the following documents to phd_admissions@seerc.org by May 3, 2019:

- a letter of interest
- a Research Proposal
- an updated CV
- full contact details of two referees
- any documents providing proof of knowledge of English language

The selection process will involve one or more interviews (to be contacted via skype and/or at SEERC premises in Thessaloniki) with the proposed supervisors.

Note that all candidates who will be selected for the interview phase will be asked to provide official documentation proving their CV claims (education, past employment etc)

The **Research Proposal** should be typed, the length should be about 1,500 – 2,000 words (6 to 8 pages) and should include the following:

a) *Title of the proposed thesis*

b) *Reference to one of the Specific Research Topics (section 6)*

c) *Proposed mode of work (full time or part time)*

d) *Proposed source of Funding: Fee Waiver (Full time Only), Personal funding, funded by any other institution/organization e.t.c.*

e) *Background to research topic*

This section needs to introduce the topic before discussing it in relation to wider academic debates. The section might seek to situate the topic and highlight why the issue being addressed is important - this should be identified and justified as an important/interesting academic issue not simply in terms of current media/political/popular interest.

*f) Specific problem(s) to be examined*

In this section the discussion of the topic needs to be more specific. The focus should include reference to the framework or conceptual approach that the research might seek to draw on. Also the discussion is likely to highlight and make reference to parallel, comparable and complimentary research. The aim of this section is essentially to set up the area of research specifically. The challenge is to ensure that the proposed research has a substantive empirical and conceptual focus, both of which are suitably grounded in contemporary academic debate with appropriate citations to relevant literature. By the end of the section a gap in existing knowledge needs to be highlighted and and the research questions(s) that the thesis will address be stated.

*g) Methods of research proposal, plan and timetable of work*

The research methods section needs to highlight what methods will be used and how, with an appropriate level of detail. In the case on quantitative research the data set to be accessed and used should be identified and the nature if proposed statistical analysis detailed. In the case of more qualitative research, again the methods should be elaborated and proposed stakeholders/populations to be interviewed/surveyed should be detailed. Due consideration should be given to accessing relevant data/interviewees. Proposals should also highlight ethical issues and potential limitations.

*h) Resources available and required (if any)*

*i) Any other information in support of your proposal*

*j) The proposal should include correct literature citations and a brief bibliography*

**All applications should be submitted at SEERC by May 3, 2019 by email to SEERC at phd_admissions@seerc.org.** (PLEASE NOTE THAT ON THE SUBJECT SHOULD BE CLEARLY WRITTEN "SEERC-SHEFFIELD DOCTORAL PROGRAMME APPLICATION")

The possible outcomes of your application are:

- Acceptance to read for a PhD
- Acceptance to read for a PhD with a fee waiver (FULL TIME candidates only)

- Rejection

All candidates will be informed on the outcome of the evaluation procedure, which may involve an interview at SEERC premises with the proposed supervisors.

## 6. Research Topics

**Research Track 1: Enterprise Innovation and Development**

**Topic 1: Hybrid Life Cycle Assessment of Functional Materials and Devices**

**Context:**

This PhD is funded by a UK-based company and it is the first such initiative (with the student being hosted in Greece)

The specific scholarship includes:

- A fee waiver offered by the University of Sheffield and its International Faculty, City College and
- A stipend to a total cost of 6,800€ per annum for 3 years sponsored by Johnson Matthey (https://matthey.com/)

The scholarship is valid for 3 years, provided that satisfactory progress is shown every year.

**Call background:**

Functional Materials and Devices are used ubiquitously in the aerospace, automotive, telecommunications and energy sectors. However, their ability to deliver the required functionality often relies on the use of expensive and rare raw materials whose mining and extraction are subject to significant geopolitical uncertainty. This project aims to assess the environmental impact of the fabrication of functional materials and devices using Hybrid Life cycle Assessment. HLCA combines process and input-output LCA to give not only an assessment of the climate change impact from the use of carbon based energy sources but also a series of wider environmental impacts across the supply chain. The project is based at Thessaloniki Campus of The University of Sheffield but will be co-supervised by Prof Lenny Koh (https://www.sheffield.ac.uk/management/staff/koh/index) and Prof Ian Reaney (https://www.sheffield.ac.uk/materials/staff/imreaney01) who are located at the UK Campus in Sheffield; and Prof Panayiotis Ketikidis (https://citycollege.sheffield.eu/frontend/members_profile.php?m=20) who is located at the Thessaloniki Campus. This research is part of Advanced Resource Efficiency Centre (AREC) research programme between AREC UK and AREC Europe. Short term secondments to Sheffield will be employed to create greater project integration along with meetings in Thessaloniki (3 per annum) and monthly Skype calls.

**Research questions:**

Having the above context, this PhD call seeks to answer the following research question:

- RQ: What is the environmental impact of the fabrication of functional materials and devices?

**Suggested research methods:**

- Exploratory: advanced literature review methods - semantic analysis, bibliographic analysis, cluster analysis & metanalysis on published articles, industry reports & BOMs related to the investigated materials.
- Exploratory: datasets & surveys complemented by AHP & SEM for categorising & ranking the indicators to feed the hybrid-LCA methodology (as well as modelling into SCEnATi)

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## Topic 2: The spillovers of EMU policies in Central, Eastern and South Eastern Europe

**Rationale**

The significant changes that take place in the European landscape, mainly in the context of EU and EMU, could be related, first, to the completion processes of EMU, second, the ECB monetary policy and, third, the Interactions between single monetary policy and prudential policies in the euro area (Georgiadis, G., 2014a). Thus, questions such as: how the euro area functions as a common currency area; improving productivity and long-term growth in Europe; conducting and implementing monetary policy in the euro area; assessments of conventional and unconventional policies; effects of prudential policies on the transmission of monetary policy; effects of monetary policy on the financial system; optimal coordination between monetary policy and prudential policies in the euro area, etc., are of broader importance and specific research interest.

Thus, it is important to research and to produce useful insights about the cross-fertilization of the European region as a whole, as an EMU region, including non-EU and non-EMU countries, by considering the existing interlinkages and by paying special attention to the Central, Eastern and Southeastern European countries (CESEEC), as it is done indicatively by Slavov (2017). The countries of special interest could be: Estonia, Greece, Latvia, Lithuania, Slovakia, and Slovenia (i.e. the euro area member countries); Bulgaria (i.e. a country with a currency board); Croatia, Czech Republic, Hungary, North Macedonia, Moldova, Poland, Romania, Serbia (i.e. countries with flexible exchange rate regimes at least de jure), etc., countries that can be classified into three broader categories: EMU, EU only, and none of the two.

**Scope**

The scope of the analysis is to develop empirical models that are capable in studying the associations between certain economic variables with the developments taking place due to the EMU policies and their spillovers in CESEE. The development of a series of models, that will be capturing the dynamics of policy related variables, the interactions and the spillovers of those onto country specific variables, are of utmost importance both for policy formulation and forecasting.

**Proposed Methodology-Data**

In order to achieve the above, the analysis should develop and employ a variety of empirical methodologies such as GVAR and Panel VAR, following Michaelides (2018); Pesaran et al. (2015; 2014; 2007; 2004); Georgiadis (2014,b), etc., and by incorporating data from various databases. The analysis, by definition, will involve the majority, if not all, of the CESEE countries. The variables to be used in investigating and revealing the various transmission channels of the monetary to the real economy could be such as: Euribor, Quantitative Easing, the EMU Real Effective Exchange Rate (EMU-REER), country specific REERs, Foreign Exchange Reserves (which are particularly important in the broader CESEE region) and Industrial Production Index (IPI), etc.. The data will be secondary and are available at various sources, including Central Banks, European Central Bank, Eurostat, OECD, BIS, IMF, and the World Bank, with the last two sources to be used in generating the Trade Weight matrix within the GVAR structure.

**Indicative references**

Georgiadis, G. (2014b) Determinants of global spillovers from US monetary policy. Mimeo, May 2014.

Georgiadis, G. (2014a) Examining asymmetries in the transmission of monetary policy in the Euro Area: Evidence from a mixed cross-section global VAR model. Mimeo, June 2014.

Michaelides, P.G., Tsionas, E.G. and Konstantakis, K.N., 2018. Debt dynamics in Europe: a network general equilibrium GVAR approach. Journal of Economic Dynamics and Control.

Pesaran, M. H. (2015) Time Series and Panel Data Econometrics. Oxford University Press.

Pesaran, M. H. (2014) Theory and Practice of GVAR Modelling, University of Southern California, Center for Applied Financial Economics (CAFE) Research Paper Series No. 14.04.

Pesaran, M.H., Smith, L.V. and Smith, R. (2007) What if the UK or Sweden had joined the euro in 1999? An empirical investigation using a global VAR. International Journal of Finance and Economics, 12, pp. 55-87.

Pesaran, M.H., Schueramann, T. and Weiner, S.M. (2004) Modelling Regional Interdepencies using a Global Error-Correcting macroeconomic model, Journal of Business and Economic Statistics, 22(2), pp. 129-162.

Slavov, S.T. (2017) Exchange Rate Regimes in Central, Eastern and Southeastern Europe: A Euro Bloc and a Dollar Bloc?. IMF Working Paper, No. 1783.

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## Topic 3: Resilient agrifood supply chains at the convergence of Industry 4.0 with Resource Efficiency

**Context:**

This call comes into the context of building the research capacity of AREC Europe hosted by SEERC. AREC Europe is responsible for a wide-range of funded research projects such as PrESS, TrainERGY, RETRACE, PROSFET, PROCEEDS and has served as a strong research think-tank in the field of environmental sustainability, resource efficiency & supply chains. This PhD call aims to expand AREC Europe's portfolio and feed directly into the emerging fields (Industry 4.0, Resource Scarcity) by focusing on one of AREC's main pillars (agrifood). This call also contributes to SDG2, 6, 9, 11, 12 and 13.

**Call background:**

The fast-paced climate change, resource scarcity, geopolitics and massive urbanisation are causing a substantial shift in the global agrifood sector. Such challenges pose for the need of a) more resilient food production system with increased crop yields, b) a more efficient way of resource consumption (water, fuel/energy, land, equipment) attributed to food production & distribution and c) a more balanced food consumption by global societies. In this context, the global agrifood supply chains are undertaking massive transformations required to fulfil the volatile demand. The agrifood supply chain transformation debated in this PhD call concerns the digital transformation of the supply chain processes towards comprising a data-driven cyber-physical system (Industry 4.0). This would enable food producers to tackle the afore-mentioned challenges, while ensuring the resilience of their agrifood chain with upmost resource efficiency and reduced waste. The focus of this research would be on Latin America, Europe and Asia.

**Research questions:**

Having the above context, this PhD call seeks to answer the following research questions:

- RQ1: Which theoretical paradigm/philosophy (or group of theories) is best suited to explain the digital transformation of agrifood supply chains in its seek to become resource efficient & resilient?
- RQ2: What KPI mix is required to extend the hybrid lifecycle analysis methodology in order to properly assess the environmental, economic and social impact of the Industry 4.0-led agrifood chains?
- RQ3: What is the link between the digital transformation of agrifood supply chains and resource-efficient productivity ?

**Suggested research methods:**

- Exploratory: advanced literature review methods - semantic analysis, bibliographic analysis, cluster analysis & metanalysis for RQ1.
- Exploratory: interviews & surveys complemented by AHP & SEM for categorising & ranking the indicators to feed the hybrid-LCA methodology (as well as modelling into SCEnATi) for RQ2.

- Confirmatory: identify/adapt an Industry4.0 performance measurement model and test it on the given case studies (this may imply an additional set of statistics from the path analysis group).

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## Topic 4: Mapping the Plastics Recycling Supply Chain: An Effort to "Green" the Waste Processing Process

**Description**

Plastics' recycling is a business activity which has substantial environmental value as it ensures that used plastic packaging is collected, sorted, processed and reused instead of ending up in landfills or polluting the soil and water. Plastic waste is collected, primarily at the municipal level, and then sorted by type in dispersed sorting facilities. The sorted material is summarily shipped to processing plants which then convert it into material which is ready to be reused by the plastic industry, the last step in the recycling supply chain.

This research will aim to evaluate the environmental efficiency of the plastics recycling logistics supply chain between the local sorting sites and the waste processing plants and then back to the industry level where the process begins again. The goal is order to investigate optimization in order to "Green" the process (Santibañez-Aguilar et al., 2013). Although other recyclable material besides plastic flows through this supply chain, addressing only one waste type is well supported in literature (Bing et al., 2016).

The research will set out to perform a mapping of this supply chain system. Mapping is a useful approach based on the current state analysis of waste material efficiency potentials especially when multiple organizations are involved (Kurdve et al., 2015). Data will be collected from various sorting sites for each type of plastic waste, regarding quantities, processing destinations and methods of shipment for a period of 12 months which also will allow for seasonal adjustments. This information will be further cross-referenced with similar information collected from plastic processing plants. Then, the mapping of the plastic waste supply chain, which will be culled from the above process, will be analyzed in terms of its environmental efficiency, taking into consideration the carbon footprint of activities such as transportation and processing the waste itself (Bing et al., 2012)

Alternative (hypothetical) supply chain mappings will be explored to investigate improvements or various optimizations that could be realized, resulting in total carbon footprint reduction and may include the element of risk and uncertainty involved in the reverse logistics network design problem (Jayant et al., 2014.)

**Reference**

Bing, X., Bloemhof-Ruwaard, J. M., & van der Vorst, J. G. (2012) Sustainable reverse logistics network design for household plastic waste. Flexible Services and Manufacturing Journal, 26(1-2), p. 119-142.

Bing, X., Bloemhof, J. M., Ramos, T. R. P., Barbosa-Povoa, A. P., Wong, C. Y., & van der Vorst, J. G. (2016) Research challenges in municipal solid waste logistics management. Waste Management, 48, p. 584-592.

Jayant, A., Gupta, P., & Garg, S. K. (2014) Simulation modelling and analysis of network design for closed-loop supply chain: a case study of battery industry. Procedia Engineering, 97(1672), p. 2213-2221.

Kurdve, M., Shahbazi, S., Wendin, M., Bengtsson, C., & Wiktorsson, M. (2015) Waste flow mapping to improve sustainability of waste management: a case study approach. Journal of Cleaner Production, 98, p.304-315.

Santibañez-Aguilar, J. E., Ponce-Ortega, J. M., González-Campos, J. B., Serna-González, M., & El-Halwagi, M. M. (2013) Optimal planning for the sustainable utilization of municipal solid waste. Waste management, 33(12), p.2607-2622.

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## Topic 5: "Belt and Road Initiative": The Global Economic and Political Risk context

**Rationale**

The significant changes in the global political landscape, mainly driven by the repositioning of the USA, the rise of populism in Europe, while also the claims for share in the global dominance by new participants, especially from Asia, construct new types of political risk. Namely, while the understanding of political risk was in the past rather straightforward, mainly due to the bipolar global structure, its explanatory power in the multipolar world has changed radically. Within this environment, the concept of the complex interdependence postulated in the works of Keohane and Nye (1989) offers an effective underlying framework for the analysis of world politics.

The grand strategy of China presented through the Belt and Roald Initiative (One Belt One Road) is a long-term vision from 2013 and historically dates back several centuries (. This project encompasses 30% of global Gross Domestic Product, involves 62% of the world's population and spreads through 65 countries. This strategical project could involve several micro-strategies and many various regions, allowing China to expand its influence and its projection of power. Given the magnitude of resource mobilization, the investment in financial and political terms, this Chinese strategic project is filled with complex and contingent types of risks.

The One-Belt-One-Road project requires the modification of the global financial structures, rearrangements of the security and institutional landscapes both inside China and in its wider Eurasian perimeter, while it implies a different political model than the ones observed in the so-called Western democracies. The Chinese political model may have a certain appeal in developing countries, especially in times of transition, either economic or political, like the one seen nowadays (Bremmer, 2019). Combined with the Chinese financial and economic fragility, the aggregate position of the One Belt One Roan project will definitely bring challenging times ahead, despite the reassuring promises given to political and business leaders around the globe.

Since China today is a global challenger (Gisiger &Rogoff, 2018), in technological and financial domains, the Belt and Road Initiative (OBOR) presents the highly effective platform for the analysis of the global political risks that arise within the context of major economic developments and colossal strategic projectsl.

**Scope**

The scope of the analysis will be the development of empirical models capable to study the associations between certain economic and political variables with the developments taking place due to the One Belt One Road initiative in Eurasia. The development of a series of models that will be capable to describe and capture the dynamics of the particular project and its interactions will be of utmost importance for policy formulation and forecasting.

**Proposed Methodology - Data**

In order to achieve this, the analysis will develop and employ a variety of empirical methodologies such as GVAR and Panel Data, by incorporating data from various databases. Scenario analysis will be considered eventually. The analysis, by definition, will involve the majority, if not all, of the Eurasian countries.

**References**


- Keohane, R. and Nye, J. (1989) Power and Interdependence. . Second Edition. Harvard: Harper Collins Publishers
- Gisiger, C. Rogoff, K. (2018): «China is the leading candidate for being at the center of the next big financial crisis». Finanz und Wirtschaft. [online] Available from: https://www.fuw.ch/article/rogoff-china-is-the-leading-candidatefor-being-at-the-center-of-the-next-big-financial-crisis/ [Accessed date 4 March 2018].

- Wijeratne et al (2017) "Repaving the Ancient Silk Routes", PwC Growth Markets Centre, Available at https://www.pwc.com/gx/en/growth-markets-centre/assets/pdf/pwc-gmc-repaving-the-ancient-silk-routes-web-full.pdf
- Bremmer, I (2019) Eurasia Group. Top Risks for 2019. Eurasia Group. 2019 [online] Available from: https://www.eurasiagroup.net/issues/Top-Risks-for-2019 [Accessed date: 8 January 2019].


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## Topic 6: Digital Transformation: Implications for Strategy & Innovation Management

Digitalization and automation have been increasingly altering the nature of competition and the nature of the modern organization in general. There are several digital technologies—e.g., Internet of Things, 5G, Cloud, Distributed Ledgers/Blockchain, Big Data and Artificial Intelligence—which, in isolation or jointly, provide new capabilities to economic actors. Digital transformation has attracted the considerable interest of both scholars and practitioners given its enormous potential impact on products, services, innovation processes, and business models (e.g., Andal-Ancion, 2003; Lyytinen et al., 2016; Nambisan, 2017).

Despite broad awareness of the implications that digital technologies bring to institutions and strategy, business models, organizational learning and innovation, several gaps still remain unexplored. These new and still relatively unexplored challenges for strategy and the innovation management discipline have recently been described in some editorials and essays. Nambisan et al. (2017) argue that digital

technologies favor more fluid and complex boundaries (at the spatial, technological, and organizational level) of the innovation process, enabling a shift toward more distributed organizational forms, structures, and processes for innovation, and creating more complex and dynamic interdependencies between innovation processes and their outcomes (products/services). Bharadway and Noble (2016) document new operational and strategic issues related to the role of (big) data in new product and service development, implying changes in the role of managers and specialists, customers and complementors, in relation to their direct or indirect involvement in the innovation process. Teece (2017) adds more granularity to the concept of technological complementarity and how this affects value capture and specialization in the value chains of industries more affected by digital transformation. Additionally, some of these gaps stem from the fact that the role of digital technologies in supporting innovation management or new product value propositions may not always be necessarily positive. In this sense, the information systems discipline has always been at the forefront of informing our understanding of how digital technologies can become a source of unintended rigidity and vulnerability (Lu and Ramamurthy, 2011; Ransbotham et al., 2016).

**Topic Examples**

Digital transformation, institutions and strategy:

- In what industries is digitalization more likely to increase the use of a platform model? Does digitalization facilitate innovation in such industries, or does platformization constrain the scope of potential innovation?
- How do the new agility approaches enabled by digital transformation change the competitive dynamics? Does the increased agility of the product development process remove entry barriers for startups and SMEs? Under which circumstances?
- To what extent does digital transformation help companies with their competitive intelligence endeavors?
- Do the mechanisms used to capture value from innovation change under the effect of digital innovation?

Digital transformation, organizational learning, and innovation:

- What is the effect of digital transformation on organizational learning and knowledge creation? How to integrate internal knowledge of employees and external expertise from new working arrangements? How much does the use of digital technologies affect knowledge transfer? How should organizations balance new internal capabilities with outsourced skills accessible via platforms and communities?
- How does digital transformation pave the way for new types of learning and new approaches to developing dynamic capabilities?
- How do the roles and importance of R&D and marketing change under the effect of digital transformation? By contrast, is the role of manufacturing processes becoming relatively less important in value creation and capture, thereby prolonging the trends of global value chains in the last three decades?

- How are open innovation activities organized to take full advantage of the opportunities digital transformation offers?

**References & Sample Literature**

Andal-Ancion, A., Cartwright, P.A., Yip, G.S. (2003). The traditional transformation of traditional business. MIT Sloan Management Review, July 15.

Berman, Saul J. "Digital transformation: opportunities to create new business models." Strategy & Leadership 40.2 (2012): 16-24.

Bharadway, N. and Noble, C.H. (2016). Finding Innovation in Data Rich Environments. Journal of Product Innovation Management, 34(5), 560-564

Edmondson, A. C. (2003). Framing for learning: Lessons in successful technology implementation. California Management Review, 45(2), 34–54.

Hansen, Anne Mette, Pernille Kraemmergaard, and Lars Mathiassen. "Rapid Adaptation in Digital Transformation: A Participatory Process for Engaging IS and Business Leaders." MIS Quarterly Executive 10.4 (2011).

Lu, Y., Ramamurthy, K. (2011). Understanding the link between information technology capability and organizational agility: an empirical examination, MIS Quarterly, 35 (1), 931–954.

Lyytinen, K., Yoo, Y., Boland Jr., R.J. (2016). Digital product innovation within four classes of innovation networks. Information Systems Journal, 26(1), 47-75.

Nambisan, S., Lyytinen, K., Majchrzak, A., Song, M. (2017). Digital innovation management: reinventing innovation management research in a digital world. MIS Quarterly, 41(1), 223-238.

Ransbotham, S., Fichman, R.G., Gopal, R., Gupta A. (2016). Ubiquitous IT and Digital Vulnerabilities. Information Systems Research, 27(4), 834-847.

Teece, D.J. (2017) Profiting from Innovation in the Digital Economy: Standards, Complementary Assets, and Business Models in the Wireless World, Tusher Center for the Management of Intellectual Capital. Working Paper Series No. 16, Haas School of Business, University of California.

Woiceshyn, J. (2000). Technology adoption: Organizational learning in oil firms. Organization Studies, 21(6), 1095–1118

Zhu, Kevin, et al. "Innovation diffusion in global contexts: determinants of post-adoption digital transformation of European companies." European journal of information systems 15.6 (2006): 601-616.

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## Topic 7: Geopolitical Risks and Financial Markets

Financial market participants, policy makers and the financial press often cite geopolitical risks as one of the most important determinants of investment decisions. In financial economics literature, there are numerous studies that examine the impacts of terrorist activities on financial returns and / or volatilities (see among others, Drakos, 2004; Karolyi and Martell, 2010; Kollias et al., 2011). However, the effect of geopolitical risks is largely ignored. Geopolitical risks do not only include terrorism risk but also include geopolitical concerns, tensions, war risks, military threat and coups. Therefore, they represent a wide array of exogenous global uncertainty for financial markets.

Recently, Caldara and Iacovieollo (2017) constructed an index of Geopolitical Risks (GPR index) by counting the occurrence of words related to geopolitical tensions in eleven leading national and international newspapers. The index has eight different sub-indices, capturing geopolitical threats, acts, terrorism, nuclear threats and war risk. Using these new indices, the proposed PhD study can offer a new perspective and provide new evidence to the literature by analyzing the effects of geopolitical risks on financial markets. The proposed research is timely as recent dramatic events, such as ISIS escalation, Syrian war, Crimea annexation and nuclear threats from North Korea, have revealed that geopolitical risk can be a new type of catastrophic risk that investors and financial institutions face in the last years. The central research question in this work is "How vulnerable are financial markets to geopolitical risks?"

The proposed research can have four different chapters, including independent essays. The first essay discusses the potential impacts of geopolitical risks on financial markets, introduces the theoretical framework and describes the theory that explains why the research problem under study exists. The second essay analyzes the effects of national geopolitical threats and acts on major emerging stock market returns and volatilities using augmented GARCH models. The reason of selecting emerging markets is that they are more fragile to risks and geopolitical risk data is also available at national level for emerging markets. The third essay investigates and quantifies the influence of global geopolitical risks on commodity markets by conducting conditional quantile regressions, which allows measuring the effect in different market states, such as bullish or bearish markets. The final essay examines how geopolitical risks affect bond market integration at global level by employing dynamic volatility spillover models. In this regard, the potential results of this research can provide significant insights and implications for investors, financial institutions and policy makers.

References

Drakos, K. (2004). Terrorism-induced structural shifts in financial risk: airline stocks in the aftermath of the September 11th terror attacks. European Journal of Political Economy, 20(2), 435-446.

Karolyi, G. A., & Martell, R. (2010). Terrorism and the Stock Market. International Review of Applied Financial Issues & Economics, 2(2).
Kollias, C., Papadamou, S., & Stagiannis, A. (2011). Terrorism and capital markets: The effects of the Madrid and London bomb attacks. International Review of Economics & Finance, 20(4), 532-541.
Caldara, D., Iacoviello, M., 2017. Measuring Geopolitical Risk. Board of Governors of the Federal Reserve Board Working Paper

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## Topic 8: Law, crime and justice in countries in the Western Balkans undergoing EU accession

**Rationale:**

The Western Balkans is one of the key areas for EU enlargement in the coming decades. Countries undergoing EU accession need to satisfy the Copenhagen criteria as set in the EU treaties (European Council 1993). These include the prerequisite of adopting the acquis communautaire, as well as, reinforcing the rule of law by building or strengthening existing legal institutions and frameworks with the goal of facilitating the counties' Europeanisation process (Schimmelfenn 2012; Sedelmeier 2011; Noutcheva 2015).

Nonetheless, throughout the many years of EU conditionality related policies in the region, it has been evident that there has been a failure in implementing these changes fully in order to satisfy the criteria, especially as the EU is going through a crisis of liberal democracy itself (Krastev 2016). This is particularly true within sectors related to fighting crime and corruption. The urgency of enhancing the fight against corruption and organised crime and promoting good governance in the Western Balkans has been highlighted in the EU Summit in Sofia in April 2018 (European Commission 2018).

One of the most important parameters of this failure is the fact that the degree of the success of these reforms depends on the interplay between the domestic environment of these countries and the particular approach the EU takes in implementing these reforms (Mendelski 2015).

This call for a PhD proposal falls into the nexus of Legal and EU studies and includes topics related to corruption, crime in general, or specifically the trafficking or smuggling of drugs, humans or other illicit commodities, migration policies and building or strengthening aspects of rule of law and legal institutions, including the policing or penal spheres.

**Scope:**

The scope of the analysis is to identify loopholes in the structures of Western Balkan states that render legal reform cumbersome. Research questions related to the suggested topic areas include hurdles in transforming these sectors due to pre-existing state and/or non-state structures and challenges that these specific sectors pose due to loopholes in the country's structure but also pertaining to shortcomings in the requirements of the pre-accession packages.

**Methodology:**

The proposed PhD topics could adopt qualitative or quantitative methodologies or a mixture of both.

**Indicative references:**

European Commission, The (2018). EU-Western Balkans summit: improving connectivity and security in the region. Available at: http://europa.eu/rapid/press-release_IP-18-3821_en.htm

European Council, The (1993). Copenhagen criteria. Available at: https://eur-lex.europa.eu/summary/glossary/accession_criteria_copenhague.html

Krastev, I. (2016). What's wrong with East-Central Europe: Liberalism's Failure to Deliver. Journal of Democracy. Volume 27, Issue 1, pp. 35-38

Mendelski, M. (2016). Europeanisation and the Rule of Law: Towards a Pathological Turn. Southeastern Europe, Volume 40, Issue 3, pp. 346-384

Noutcheva, G. (2015). Societal Empowerment and Europeanization: Revisiting the EU's Impact on Democratization. Journal of Common Market Studies, Volume 54, Issue 3, pp. 691-708

Schimmelfenn, F. (2012). Europeanization beyond Europe. Living Reviews in European Governance, Volume 7, Issue 1

Sedelmeier, U. (2011). Europeanisation in new member and candidate states, Living Reviews in European Governance, Volume 1, Issue 3

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**Research Track 2: Information & Communication Technologies**

**Topic 9: Modelling User Requirements in Collaborative Infrastructure-Sharing Scenarios Comprising Edge nodes, Micro Local and Hybrid Clouds**

Centralised data centres are the main driving force behind today's digital economy. More and more companies are looking to increase their competitive advantage by enhancing their offerings through increasingly-sophisticated services that are built using agile cloud infrastructures that reside in large data centres; such infrastructures enable developers to rapidly prototype, test, and ultimately deploy, their codebases at relatively low costs. Nevertheless, although large monolithic data centres foster economies of scale and enable elasticity, they do exhibit a number of crucial drawbacks: they create huge amounts of network traffic that naturally hinders performance, they suffer serious security and privacy concerns, they often fail to meet legal and regulatory requirements, they are not energy-efficient, users have little or no control over the application deployment and infrastructure details.

To overcome these limitations and challenges, a radically different solution has recently been put forward, one that replaces the monolithic public-cloud paradigm with resources drawn from a transient mesh of interconnected, interoperable and heterogeneous micro local clouds, private enterprise clouds, and edge resources.

Nevertheless, for such a solution to be viable it calls for an underlying framework that enables:

- Candidate infrastructural resources, i.e. resources that may potentially equip and consolidate such a mesh, to be precisely articulated, governed, filtered and aggregated according to each application's placement requirements.
- Application placement requirements to be precisely articulated and governed.

This PhD topic aims at constructing such a framework; more precisely, it aims at constructing a framework that will enable a wide range of stakeholders to describe and govern –through appropriate semantic technologies– their requirements concerning the consolidation and orchestration of heterogeneous infrastructural resources in a transient mesh, as well as concerning the use of such resources for accommodating codebase components and data; at the same time, it will enable stakeholders to succinctly express their requirements, including security ones, regarding the data processing and storage needs of their applications. Such a framework is expected to form the basis of a generic brokerage mechanism through that will enable users to discover appropriate infrastructural resources in heterogeneous micro local clouds, private enterprise clouds, and edge resources for deploying their applications. It will also form the basis for the formation of appropriate SLAs that will subsequently govern the manner in which such resources are consumed

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**Topic 10: Formal Modelling of Artificial Emotions in Intelligent Agents**

Intelligent agents are software artefacts that exhibit intelligent behaviour based on their beliefs about the environment they inhabit, their goals and the capacity (set of actions that they can perform to change their environment).Formal modelling refers to the use of mathematical notation (e.g. set theory and logic) that is able to create a rigorous and precise model of a software artefact, thus being able to prove its properties. In certain situations and applications, intelligent agents should be infused with artificial emotions that would stimulate emotional reactions to environmental stimuli. The aim of this research topic is to identify and develop a suitable formal method that would facilitate modelling of such agents. The research may involve investigation of modelling emotions, moods, personality and contagion, as they are researched in Psychology. The candidate should possess a good mathematical and/or Computer Science background that would help him or her to carry out the research more effectively.

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**Topic 11: Simulations of Emotional Multi-Agent Systems**

Intelligent agents are software artefacts that exhibit intelligent behaviour based on their beliefs about the environment they inhabit, their goals and the capacity (set of

actions that they can perform to change their environment).A set of such agents form a Multi-Agent System in which individual agents interact by communicating, either for collaboration or competition. In certain situations and applications intelligent agents should be infused with artificial emotions that would stimulate emotional reactions to environmental stimuli such as an emergency evacuation, riots, economic crisis, etc. The aim of this research topic is to develop simulations that could predict outcomes of such situations and identify suitable policies that should be in place in order to avoid harmful emergent behaviour. The research may involve investigation of emotions, moods, personality and contagion models, as they are researched in Psychology. The candidate should possess a good mathematical and/or Computer Science background that would help him or her to carry out the research more effectively.

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**Topic 12: Security Information Sharing in the Digital Economy using Block chain technology and observing GDPR**

**Description:**

GDPR (General Data Protection Regulation) is an EU wide regulation that extends the stipulations by EU Data Protection Directive of 1997. GDPR is currently in use in the whole of EU These stipulations require organisations to develop security and privacy by design security solutions in order to comply with the regulation. The contemporary solution requires that the organisations that handle such personal data devise these solutions. A radical alternative solution would be to develop a personal data capsule where the generator of the data, allows at will data to be released to whom and for the period considered appropriate. Such releases could either be done in a one-off mode be continuous observed by the data subject. In the case of the latter, the data subject may require a continuous monitoring and authorisation mode where for every analysis on the data an explicit approval is required. The solution for such a framework would normally use the technology of block chaining for development and ensure that all movements and usage of data is captured.

This PhD will investigate how to define design and develop a framework that would allow the users to take control of their Data and at the same time facilitate the sharing of the personal information for the Digital Economy to function. The sharing would be done through the Block chain technology so that there is an immutable yet transparent and undisputable record for accessing the data as well as processing and the kind of process that has occurred.

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## Topic 13: Governance framework for IoT devices operating on Fog and Edge Computing

**Description:**

Fog and Edge computing are becoming very popular due to their relationship with IoT devices and the ever-increasing need for connectivity. This ever-expanding number of IoT devices and their connectivity is related to the gathering of data from the various sensors, providing real time data in a number of areas – such as meteorological cases, CCTV cameras, Cyber Physical Systems and so on. Another big factor is the advancement of Industry 4.0, where it is anticipated that every mechanical device will have its identical digital twin, so that data can be collected and mapped on the digital twin in order to extract meaningful knowledge about the mechanical device.

This PhD will investigate how best to provide a governance framework that will facilitate the various IoT devices hosted within an Edge and Fog ecosystem how to operate, collaborate and perform in an efficient and effective manner. Such a framework will adhere to several policies that oversee the optimal operation and collaboration of the various devices, especially when these devices are required to "join forces" in order to provide computational power at fog or edge level. Such computational power, at fog or edge level is needed in order to process data at source and take actions based on the knowledge immediately. Also, this way we avoid transfer latency time as well as avoid the bottleneck that is inherent to a central processing strategy.

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**Research Track 3: From Synapses to Society: Psychology in a Multi-cultural World Research Track**

## Topic 14: Enhanced self-disgust in Parkinson's disease – unravelling its cause

Disgust is increasingly recognised as playing a significant role in a range of mental health problems, such as specific phobias, contamination-based obsessive-compulsive disorder, eating disorders and post-traumatic stress disorder. Disgust itself is a heterogeneous construct, and recent research has discovered an important mediating role for disgust directed at the self – 'self disgust' – in psychopathology (Overton et al., 2008; Simpson et al., 2010). However little is known about the cognitive mechanisms and neuroscience behind the development, experience and recognition of self-disgust, and self-conscious emotions-SCEs- overall. In a previous project we investigated SCEs (self-disgust, shame and guilt) in patients with Parkinson disease (PD). Motor symptoms are at the core of this neurodegenerative disease, but research has shown that PD patients have non-motor symptoms including changes in the recognition and expression of basic emotions. In the majority of cases, patients have been reported to show emotional impairments, especially in relation to the 'basic' emotions. However, surprisingly, in our recent work with our PhD student Marianna Tsatali we found that PD patients experienced higher self-

reported SCEs relative to controls, and that these emotions were more easily induced experimentally. Self-disgust was significantly higher in PD patients relative to controls even when we eliminated the effect of depression and anxiety. The current projects intends to follow up this exciting and novel result by investigating potential factors (cognitive, neurophysiological, or behavioural) that may account for the higher level of self-disgust in Parkinson patients.

Broadly speaking, the project will use self-report measures, emotional recognition measures and psychophysiological measures (e.g. skin conductance, heart rate, EEG) to unravel the processes underlying the increased levels of SCEs in Parkinson's patients. The specifics of the project will be determined in discussion with the successful candidate, and proposals tackling other aspects of cognitive neuroscience of self-conscious emotions may be also accepted given prior discussion and agreement with the potential supervisor, however one possibility that we're keen to explore is that emotion regulation processes may have been changed by the disease.

Understanding self-disgust in PD and its relation to the underlying neuropathology and non-motor symptomatology may have important implications for alternative therapeutic approaches, and for a better understanding of self-conscious emotions which is an understudied topic. Depression is a major mental health issue in PD and the clear link between self-disgust and depression (Overton et al., 2008; Simpson et al., 2010) suggests that a greater understanding of self-disgust in PD may also have a positive impact on the mental health status of PD patients.

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## Topic 15: The bilingual effect in executive functions and the role of dopamine activity.

Nowadays, bilingual and multilingual people outnumber monolinguals. Hence the growing media and research interest in the possible effects of bilingualism in cognition. A large amount of evidence support a bilingual advantage over monolinguals in executive functions (EF; e.g. Ariza, & Bajo, 2015; Bialystok & De Pape, 2009; Bialystok, et al., 2004; 2008; Costa et al., 2008; Gómez-Ariza, & Bajo, 2013; Kemp, 2007; Prior & Gollan, 2011; Prior & MacWhinney 2010; Soveri, Rodriguez-Fornells, & Laine, 2011; Zied et al., 2004). The cognitive training a bilingual undergoes in his/her everyday life by switching back and forth between his/her different linguistic sets is held responsible for this cognitive advantage, as the cognitive functions used for this switching are the same that are used for other, non-linguistic tasks; hence the generalizability of this bilingual "brain training" to non-linguistic domains (Bialystok, 2017). However, more recent studies fail to replicate such findings, across ages (e.g. see Duñabeitia et al., 2014 and Ladas, Carroll & Vivas, 2015 for a null bilingual effect in children; see Paap and Greenberg, 2013; Vivas, Ladas, Salvari, and Chrysochoou, 2017; von Bastian, Souza, & Gade, 2016 for a null bilingualeffect in young adults; see Antón, Fernández García, Carreiras, & Duñabeitia, 2016; Kousaie & Phillips, 2012; Clare et al., 2014 for a null bilingual effect in older adults). Several factors may contribute to this difficulty in replicating the bilingual effect, one of which is the socioeconomic status of the individuals tested (SES, see Ladas et al., 2015; Morton & Harper, 2007; Paap et al., 2015), as traditionally SES has a

strong influence on cognitive development (e.g. Mezzacappa, 2004). Other factors that seem to seriously confound bilingual studies is the large variability in the bilingual participants' fluency, similarity of languages used, amount of daily use and age of acquisition of the 2nd language (e.g. Gathercole et al., 2014; Green & Abutalebi, 2013). The tasks used may also be responsible for this profound difficulty in replicating the bilingual advantages. These considerations led us to believe that maybe many studies reporting a bilingual cognitive benefit lack a sound methodological design, taking into account all the aforementioned factors. In addition, we believe that if there was a bilingual effect, it may be so small that it can only be detected under very specific circumstances (e.g. see Ladas, Carroll & Vivas, 2013, exp. 4) or maybe the bilingual experience is more clearly reflected on a neurochemical level instead of a behavioral one. Given that dopamine is the main neurotransmitter underlying EFs, and that EFs seem to benefit from bilingualism, we expect that dopamine activity might be influenced bybilingualism. However, no studies have investigated this possibility yet. More specifically, the striatum plays a key role in rapid switching from one language to the other and in set-shifting (Jean-Sebastien Provost, 2015) and dopamine is the main neurotransmitter involved in the striatum. As an indirect measure of striatal dopamine activity, we use the spontaneous Eye Blink Rates (sEBR), the validity of which has been tested in several clinical and non-clinical populations (Colzato, 2016). The research questions that we wish to address are: (a) Is there a bilingual benefit in EFs after controlling for the important confounding variables that have been reported in the literature? (b) How does language similarity, and to this end bidialectism, influence the so-called bilingual effect? (c) What are the most suitable tasks to be used in studies of the bilingual benefit and why? (d) Is striatum dopamine different in bilinguals compared to monolinguals and is this reflected in their behavioral performance?

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**Research Track 4: Language and Society: Linguistics, Education, Literature and Translation**

**Topic 16: Exploring Non-normative Sexualities and Queer Identity in Greek Translations of Anglophone Queer Literature**

**Description:**

LGTB rights have only recently undergone a significant evolution in Greece, which has now become one of the most liberal states in the Balkans with regards to alternative sexual identities. Briefly, civil unions were legalized for same-sex couples in 2015, followed by transgender people's rights to change their legal gender without undergoing sex reassignment surgery and, finally, same-sex couples' right to foster care children. These developments throw a new light upon the status of non-normative sexuality, queer culture and expression as well as queer literature, theatre and performances in Greece, which merit exploration in the context of current national and international debates. Of equal interest, however, is the examination of the translation and import of foreign literary texts on homosexual themes into

Greece and the study of the potential impact they might have had in shaping domestic Queer literature and alternative identities. Similarly, domestic discourses of the receiving culture might have also penetrated the translation of said texts and, therefore, (re)shaped representations of Queer identities as those emerge in the original texts. In view of the above, the proposed Call for PhD research concerns research that will examine the translations of American and/or British queer literature into Greek and their import in Greek cultural space with an emphasis on representations of 'gay identities' and 'gay communities' through translations and cross-cultural contact in literature.

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## Topic 17: The use of drama in teaching English pronunciation/intonation to Greek EFL learners

**Description:**

Despite the fact that pronunciation teaching has gained a renewed interest in recent years, studies have shown that English language teachers have reported uncertainty in incorporating this aspect into their classroom. Especially when it comes to employing drama in pronunciation instruction, a body of research, primarily in ESL contexts, has shown that it can have a beneficial effect mainly on students' L2 learning of suprasegmental phenomena. However, considerably limited research has been conducted in EFL settings and particularly in Greece. The proposed Call for PhD research should investigate the effects of using drama in teaching English pronunciation, in particular intonation, to Greek EFL learners and explore its effectiveness in second/foreign language phonological acquisition.

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