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## 6.2 National R&D Projects

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<i>Project title:</i>	<b>Determinants of Digital Single Market development and implementation in the field of global supply chains and in relation to changes of behavior of participants on the market</b>
<i>Supported by:</i>	Slovak Research and Development Agency
<i>Contract Number:</i>	APVV-16-0368
<i>Coordinator:</i>	Radoslav Delina
<i>Associated Faculty:</i>	Marek Gróf, Radovan Dráb, Rajmund Mirdala, Lenka Senderáková, Renáta Olejárová, Marek Macík
<i>Duration:</i>	2017 – 2019

**Project description:**

The main objective of the project is the identification and understanding the determinants of Digital Single Market development as new EC strategy for the area of actors cooperation on the market and its impact on digital business ecosystem evolution, stability and efficiency. The objective of this new strategy is the support of innovative e-services and business models development for the market and to identify real opportunities and strategies digital single market development support. Within the project, potential and determinants of standardisation, interoperability, trust, data economy and digital business platform implementation into global supply chains will be analyzed. It is necessary to identify strategies for effective implementation of real innovation and understand the impact and changes of behavior on the market (e.g. by higher transparency). Together, the concept of sharing (semi)sensitive business data will be analyzed and new sharing motivation model for sharing of business data on single digital infrastructure will be proposed. For the purpose of identification and analysis of the impact and behavioral changes, combination of empirical and experimental research will be performed. Empirical research will be based on large datawarehouse with data from real environment of e-supply chains. As an output, new strategies for real innovation of digital single market implementation and for policy support will be defined.

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<i>Project title:</i>	<b>Multidimensional analysis of significant determinants of public procurement efficiency with emphasis on the application of Health Technology Assessment in the procurement preparation phase</b>
<i>Supported by:</i>	Slovak Research and Development Agency
<i>Contract Number:</i>	APVV-17-0360
<i>Coordinator:</i>	Beáta Gavurová
<i>Associated Faculty:</i>	František Janke, Mojmír Prídavok, Miroslava Packová, Martin Dujčák, Ivana Perželová.
<i>Duration:</i>	2018 – 2021

**Project description:**

Effective public procurement as an important part of the economy is a challenge for every state, every public entity in transferring the finances from public to private sector. There are currently several studies aimed at efficiency of the procurement processes of different goods and services at the level of the economy, industry or contracting authorities. One of the key sectors (in and out of the SR), which has been the subject of analyses of procurement efficiency in recent years, is healthcare, which has long been faced with criticism of inefficient public procurement. In spite of that many non-governmental organizations (in particular Transparency International Slovakia) point to the ineffectiveness of public procurement in Slovakia, there is no available and functional methodology for optimisation of settings and evaluation of the efficiency of public procurement. Following this, the submitted project will focus on the analysis of public procurement in the health sector in the Slovak Republic and the subsequent development of a set of measures to increase efficiency in public procurement, focusing on the stage of public procurement preparation that has

significant impact on the public procurement outcomes. The excellence and originality of our research lies in a comprehensive understanding of public procurement issues, within which we deal with the application of innovative approaches to quantify the impact of the subject specification on significant aspects of healthcare (eg treatment efficiency, costeffectiveness and security aspects). This process includes optimisation of the procurement settings and the subsequent evaluation of the effectiveness of public procurement in order to achieve the best value for money.

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*Project title:* **Research of the issue of Online Reputation Management (ORM) of subjects from automotive industry**  
*Supported by:* Slovak Research and Development Agency  
*Contract Number:* APVV-15-0511  
*Coordinator:* Radoslav Delina  
*Associated Faculty:* Radovan Dráb  
*Duration:* 2016 – 2019

**Project description:**

The aim of the project is to carry out a comprehensive research on new and up-to-date phenomenon of proactive online reputation management of entities operating in the automotive sector in this turbulent hyperinformative and hyper-competitive age. The proposed project will be carried out as a basic research whose main objective is to extend the theoretical knowledge on the subject. The research will make use of relevant qualitative and quantitative processing methods and these will subsequently serve as a basis for developing a methodology for comprehensive and effective measures and also for improving the platforms of active online reputation management of selected entities on the Slovak market and also on the EU reference markets.

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*Project title:* **The economic model of the electronic spectrum markets Theoretical Economic Model for Future Real Time Spectrum Markets**  
*Supported by:* Slovak Research and Development Agency  
*Contract Number:* APVV 15-0358  
*Coordinator:* Vladimír Gazda  
*Associated Faculty:* Tomáš Sabol, Peter Tóth, Martin Zoričák, Juraj Gazda, Peter Drotár, Gabriel Bugár, Dušan Kocur, Július Horváth, Marcel Vološin, Jana Zausinová  
*Duration:* 2016 – 2019

**Project description:**

The instantaneous communication in the human society is currently realized mostly over the wireless communication channels. Frequency spectrum is the medium for the information transfer and thus, is extremely utilized. Based on that, it is fundamental to come up with the new technological and economical strategies that would improve the spectrum effectivity utilization and distribution. Spectrum trading and distribution among the network participants will have in the future highly dynamic character and therefore the economical/technological implementation would need to be able to cover the system dynamics. When dealing with the spectrum trading (e.g. market mechanism) we will be able to formulate several economical views, directly impacting the spectrum trading effectivity. The detailed study of the monopoly, oligopoly and the perfect/imperfect competition among the trading participants will be the core part of our research. Interaction among the spectrum trading participants will be handled by the spectrum auctions realized in the real-time. In order to be able to capture the high dynamics of the real-time spectrum market, we will use the agent-based modelling of the system, previously successfully applied in other scientific areas (e.g. physics, sociology, etc.). The effectivity of the agent-based economy models will be verified using the scenarios reflecting the conditions, in which the real-time spectrum trading markets will be operating in the future.

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<i>Project title:</i>	<b>Economy model of the telecommunication network as an instantaneous part of the Internet of things</b>
<i>Supported by:</i>	Slovak Research and Development Agency
<i>Contract Number:</i>	APVV 18-0368
<i>Coordinator:</i>	Vladimír Gazda
<i>Associated Faculty:</i>	Gabriel Bugár, Marek Gróf, Lenka Maličká, Marcel Vološin, Jana Zausinová, Martin Zoričák
<i>Duration:</i>	2019 – 2022

**Project description:**

Internet of things becomes a crucial technological paradigm to permeate every facet of mankind. There are expected significant changes not only in the utilization of the smart technological types of equipment but also in the functioning of the whole areas within the society. The mankind is approaching the state of the technological singularity, i.e., increasing interconnectedness of the smart machines will evoke boom of the economic growth that is expected to be highly unstable and would be followed by a sudden phase transition between various multi-equilibria states. It is evident that the scientific methodology based on the neoclassical approach interpreting just only stable equilibria state will not be capable of explaining new phenomena. The presented research will be focused on the instantaneous part of the IoT - the wireless communication network. Within the network, the scarce commodity called frequency spectrum is to be traded among various heterogeneous network participants. However, the seminal research of the Nyiato, Hossain, and others, published a few years ago, use standard methodological concepts like utility functions, demand and supply, profit, price, and various forms of the trade interactions like bargaining and auctions. So far, the authors mainly neglect the complex property of the communication networks functioning within the IoT. The ambition of the project is to propose and analyze the agent-based models of the IoT communication network capable of taking into account the new phenomena like phase transitions, multi-equilibria states, path dependence, self-organization, and the others, i.e., all the aspects that became the core of the complexity theory research.

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<i>Project title:</i>	<b>Economic and social indicators of quality of life in cities</b>
<i>Supported by:</i>	Scientific Grant Agency (VEGA)
<i>Contract Number:</i>	VEGA - 1/0453/19
<i>Coordinator:</i>	Oto Hudec
<i>Associated Faculty:</i>	Nataša Urbančíková, Iveta Korobaničová, Slávka Klasová, Tomáš Želinský, Žofia Sinčáková, Jozef Bľanda
<i>Duration:</i>	2019 – 2021

**Project description:**

Multi-dimensional concepts such as quality of life or social well-being cannot be defined in the usual direct way. The justification of their key aspects (domains) is required and composite indexes composed of domains containing indicators corresponding to the theoretical concept are the most widely used for analyzing spatial differences in the quality of life of the population. The quality of life takes into account economic and social factors as well as the external environment (city) for the life of the individual. The project shall propose new economic and social indicators of measuring the quality of life. Statistical and econometric methods (factor analysis, regression models and clustering methods) are to be used to explore the spatial context of quality of life in European space. An in-depth analysis of the socio-economic and systemic structure of European and Slovak cities makes it possible to understand the mechanisms of urban prosperity in relation to the quality of life. The results create an analytical basis for the development of Slovak cities by revealing the problematic aspects of quality of life and development.

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<i>Project title:</i>	<b>Development of methodological platform for evaluation of efficiency in the financial and non-financial sector</b>
<i>Supported by:</i>	Scientific Grant Agency (VEGA)
<i>Contract Number:</i>	VEGA - 1/0794/18
<i>Coordinator:</i>	Kristína Kočíšová
<i>Associated Faculty:</i>	Radovan Dráb, Alena Mojsejová, Peter Šugerek, Jakub Sopko, Adriana Novotná, Michaela Kavčáková
<i>Duration:</i>	2018 – 2020

**Project description:**

The proposed project fills the gap in current empirical literature focused on the evaluation of the efficiency in the financial and non-financial sector, based on the application of „new“ DEA models. The research will be carried out in several areas. Firstly, the existing theoretical concepts of efficiency assessment in the financial and non-financial sector and ways of defining input and output variables will be studied, focusing on examining the shortcomings of the original DEA models. Secondly, the „new“ DEA models will be theoretically defined to address the shortcomings found in the original DEA models. Thirdly, the efficiency will be evaluated on the selected sample, which will serve to apply the above models in practice. Last but not least, a methodological platform for evaluating efficiency based on the use of the R software will be developed. A manual of scripts will be developed with a detail description of the used methods, which will serve to solve the research tasks for researchers and students.

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<i>Project title:</i>	<b>Perzistencia v inflácii, cenová stabilita a výkonnosť eurozóny</b>
<i>Supported by:</i>	Scientific Grant Agency (VEGA)
<i>Contract Number:</i>	VEGA 1/0793/19
<i>Coordinator:</i>	Rajmund Mirdala
<i>Associated Faculty:</i>	Marianna Siničáková, Julia Ďurčová, Veronika Šulíková, Ľubica Štiblarová, Leoš Šafár, Zuzana Čarnogurská.
<i>Duration:</i>	2019 – 2021

**Project description:**

Change in the perception of price stability is one of the key implications affecting monetary policy conduction since the recent economic crisis. Deflationary or disinflationary pressures that slow already modest inflation that is crucial for economic growth together with low effectiveness of the monetary policy measures to stimulate higher inflation brought the attention of economists to the problem of inflation persistence. Its presence undermines the success of monetary authorities in achieving stable inflation, especially in periods when inflation deviates from its target. The main aim of the project is to quantify the degree of inflation persistence and its structural characteristics in Euro Area member and non-member countries. Understanding the persistence in inflation in large number of countries while taking monetary and economic fundamentals into account will allow us to revise current monetary policy framework of the Euro Area and propose different alternatives of its adjustments.

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<i>Project title:</i>	<b>Evaluation of the efficiency of public procurement of selected commodities in healthcare facilities in the Slovak Republic</b>
<i>Supported by:</i>	Scientific Grant Agency (VEGA)
<i>Contract Number:</i>	VEGA 1/0846/18
<i>Coordinator:</i>	Beáta Gavurová
<i>Associated Faculty:</i>	František Janke; Mojmír Prídavok; Miroslava Packová; Martin Dujčák; Andrea Tkáčová; Viliam Kováč; Libuša Révészová
<i>Duration:</i>	2018 – 2019

**Project description:**

The project is aimed at analyzing the effectiveness of public procurement (PP) in health care in the SR and the subsequent creation of a rule metric for effective PP of various commodities in the field of providing healthcare. Many healthcare facilities are inefficient, which is due to the lack of information on comparative offers or the lack of a PP methodology or an assessment of its effectiveness. Healthcare is one of the key sectors of the state – as we can see in the SR also a long-term inefficient sector. The aim of the project is therefore to define benchmarks and "efficiency" ranges for procured commodities that can be used to decide on the convenience of commodity purchase prices. The second objective of the project, based on the analysis of PP conditions, is to set optimal rules for the setting up of leaked PP for individual commodities in a non-discriminatory and transparent manner, resulting in increased interest in the contract and, ultimately, increased competition and reduced purchasing prices.

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<i>Project title:</i>	<b>Decision Support Systems and Business Intelligence within Network Economy.</b>
<i>Supported by:</i>	Scientific Grant Agency (VEGA)
<i>Contract Number:</i>	VEGA - 1/0201/19
<i>Coordinator:</i>	Martin Vejačka
<i>Associated Faculty:</i>	Jozef Bucko, Dana Pařová, Július Czap, Peter Šugerek, Libuša Révészová, Radovan Dráb, Lukáš Kakalejčik
<i>Duration:</i>	2019 – 2021

**Project description:**

The project focuses on the research of Decision Support Systems as part of Business Intelligence within the network economy between economic entities linked within the structure of the economic network. The aim of the project is to investigate the factors and mechanisms that influence the behavior of subjects when deciding to undertake a certain economic activity and its economic impact. The basic influence factor of relations between network economy is trust in the given environment. Through the modeling of processes and relationships between entities in a given structure, we will analyze the extent of their impact on these systems and its determinant parameters. Research will use methods of data mining, digital metadata analysis, graph theory and statistical-econometric methods.

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<i>Project title:</i>	<b>System Implications of the Fourth Industrial Revolution and Adaptation Processes of the Information Society (Economic, Technological and Cultural Aspects)</b>
<i>Supported by:</i>	Scientific Grant Agency (VEGA)
<i>Contract Number:</i>	VEGA - 2/0002/19
<i>Coordinator:</i>	Alena Mojsejová
<i>Associated Faculty:</i>	Tomáš Želinský, Erika Liptáková
<i>Duration:</i>	2019 – 2021

**Project description:**

The present time is characterized by a combination of many fundamental changes in the economy and society. The first is the Fourth Industrial Revolution, the next is the use of artificial intelligence technology and smart technology. The technical revolution shows the need for the necessary changes in society and economy (digitization, sharing, shrinking the economy), otherwise new technologies will not produce the expected effects for the economy and society. The basic direction of the research is a combination of processes of change in the technical aspects of production, the size and quality of consumption, the field of objectives and the functioning of the society. It will also include the identification of the polarization tendencies, income and wage inequalities in relation to changes in consumption and employment including at the regional level of the SR. The aim is to find out what the level of the society's plasticity is, which is a basic prerequisite for defining flexibility and adaptive processes.

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<i>Project title:</i>	<b>Investment decision-making of investors in the context of effective corporate taxation</b>
<i>Supported by:</i>	Scientific Grant Agency (VEGA)
<i>Contract Number:</i>	VEGA - 1/0430/19
<i>Coordinator:</i>	Alena Andrejovská
<i>Associated Faculty:</i>	Jozef Glova, Anna Bánociová, Lucia Mihóková, Slavomíra Martinková, Darya Dancáková, Veronika Konečná, Martina Regásková, Michala Inkabová.
<i>Duration:</i>	2019 – 2020

**Project description:**

The project deals with issues to provide a conceptual view of the field of effective corporate taxation and its impact on investment decision making. It defines logical rules based on accrual and tax principles that are crucial to the effective allocation and scale of investments. The aim is to develop a methodology that will allow to define effective taxation as a key attribute determining the required return on investment. The methodology and results of the application in the conditions of the Slovak Republic will enable, on the one hand, to better understand the impact of real taxation in determining the desired profitability and hence the value of the investment and, on the other hand, to eliminate the frequent value deficiency in applying the statutory tax rate instead of the effective tax. An important aspect is the subsequently created tax shield and tax savings for the selected type of investment.

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<i>Project title:</i>	<b>Perspectives of “GPP” (Green Public Procurement) in Public Procurement at Regional and Local Level</b>
<i>Supported by:</i>	Scientific Grant Agency (VEGA)
<i>Contract Number:</i>	VEGA - 1/0750/17
<i>Coordinator:</i>	Tomáš Malatinec
<i>Associated Faculty:</i>	Slávka Klasová, Miriam Šebová
<i>Duration:</i>	2017 – 2019

**Project description:**

Green public procurement (GPP) is a process in public procurement whereby public authorities seek to procure goods, services and works with a reduced environmental impact throughout their life cycle when compared to goods, services and works with the same primary function that would otherwise be procured. Environmental criteria are involved in “green” purchasing. GPP has direct environmental benefits, it is supporting innovation and contributing to specific municipal and regional policy goals. The concept of GPP is promoted by the European Commission. Scientific aim of the project consists of evaluation of the GPP perspectives in local and regional practice with regards to the Europeanization of public procurement legislative framework. Based on the results, current state of the GPP in practice at local and regional level can be evaluated both in the phase of voluntariness and in the case of GPP vision de lege ferenda.

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<i>Project title:</i>	<b>Analysis of models of public services delivery in the field of construction order performance from the aspect of technical, size, and spatial allocation efficiency of local governments</b>
<i>Supported by:</i>	Scientific Grant Agency (VEGA)
<i>Contract Number:</i>	VEGA - 1/0190/17
<i>Coordinator:</i>	Peter Fandel (SUA Nitra)
<i>Associated Faculty:</i>	Tomáš Malatinec
<i>Duration:</i>	2017 – 2019

**Project description:**

Currently, the performance of the competencies in the field of construction order is performed by two models: (1) competent municipal office, for the cases when competence is performed for the citizens of one municipality, (2) joint construction office, for the cases when the performance of the competence is realized for more than one associated municipality. The cooperation aiming to establishment of the joint municipal office, in accordance with the § 20a of the Act No 369/1990 Coll. on municipal establishment, as amended, is motivated by the effort to increase the efficiency and decrease the costs for services' delivery. The results of the partial research realized by the applicants of this project as well as economic literature in this field are not unambiguous. The aim of the project is to analyze the impact of the establishment of the joint municipal offices on the efficiency of the services' delivery, by the indicator: technical efficiency. This indicator serves as indicator of total efficiency, scale efficiency, as indicator of optimal scope office for achieving maximal productivity, size efficiency as indicator of potential for associating the offices and optimal spatial allocation of joint offices as a potential for improving the efficiency from the point of view of serviced population.

<i>Project title:</i>	<b>The socioeconomic valuation and measurement of economic efficiency of cultural institutions focused on museums and galleries in Slovakia</b>
<i>Supported by:</i>	Scientific Grant Agency (VEGA)
<i>Contract Number:</i>	VEGA - 1/0806/18
<i>Coordinator:</i>	Miriám Šebová
<i>Associated Faculty:</i>	Iveta Korobaničová, Peter Džupka, Slávka Klasová, Erika Liptáková, Zuzana Réveszová, Tatiana Soroková, Barbora Tóthová
<i>Duration:</i>	2018 – 2020

**Project description:**

The main objective of the project is to analyse the socio-economic contributions of culture, to evaluate the economic efficiency of museums and art galleries and to formulate the methodology for their assessment. The project will be organised at various stages. The first stage will focus on case studies concerning the evaluation of socio-economic contributions of selected museums and art galleries by employing the methods of valuating nonmarketable goods (e.g. WTP). The economic efficiency of museums and art galleries located in the Slovak republic will be analysed by DEA analysis during the second stage. The third stage will be based on the questionnaire outputs gathered by museums and galleries visitors. Combining the above-mentioned approaches the input data will be obtained in order to create the methodology related to the assessment of socio-economic efficiency of museums and art galleries in Slovakia.

## 6.3 International Educational and other Projects

<i>Project title:</i>	<b>EU Public Procurement</b>
<i>Acronym:</i>	<b>EUPP</b>
<i>Supported by:</i>	European Commission – Erasmus+
<i>Contract Number:</i>	600477-EPP-1-2018-1-SK-EPPJMO-MODULE
<i>Coordinator:</i>	Tomáš Malatinec
<i>Duration:</i>	2018 – 2021

**Project description:**

The Module **EU Public Procurement** contains teaching and research activities focused on EU public procurement. Academic added value stems from introduction of special content focusing on legal, administrative, economic and environmental aspects of EU public procurement policy