

Ex post Evaluation of the Project
National Infrastructure for Supporting Technology Transfer in Slovakia
NITT SK
Final Evaluation Report

1. Executive summary

The main objective of this ex-post evaluation of the national project “*National Infrastructure for Supporting Technology Transfer in Slovakia*” (NITT SK), implemented in the programming period 2007–2013 under the Slovak *Operational Programme Research and Development* (OP R&D), is to assess its contribution in the field of technology transfer (identification and protection of intellectual property and its commercialisation) in order to identify positive trends and persisting problems related to the protection of intellectual property rights in academic institutions in the Slovak Republic and to its commercialisation under the OP specific objective 1.1.1 “*Increasing the performance of the R&D system through horizontal support of technology transfer and ICT*”.

The need for the ex-post evaluation of the NITT SK project resulted mainly from its nature and impacts (occurring with a time delay) and from the need to ensure the most effective implementation possible of the follow-up national project “*Mobilisation of Knowledge and Technology Transfer from Research Institutions into Practice*” under the *Operational Programme Research and Innovation* (OP R&I).

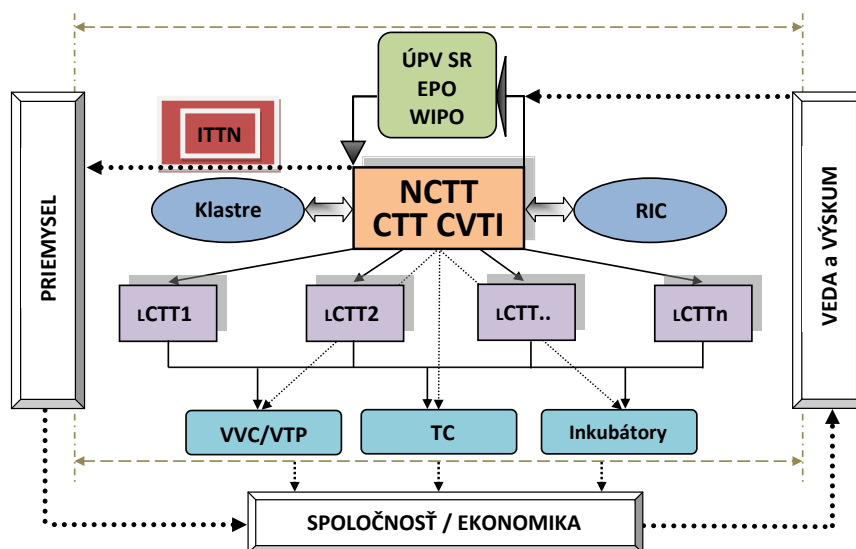
As from the analyses conducted, consulted documents and interviewed stakeholders, there is clear evidence that the objectives set and the workplan defined at the start of the NITT SK project have been well accomplished and fulfilled. The envisaged TT infrastructures and support services have been duly implemented and deployed, accompanied by significant effort in dissemination and communication. Awareness has clearly increased in the implementation period and a remarkable number of initiatives, stakeholders and actors in the field have been mobilised, making technology transfer a well sustained and fruitful process, able to prepare for commercialisation and successful exploitation of research and innovation results and outcomes.

The sound level of initial quantitative and measurable definition of success and impact indicators expected from the project allows appreciating the very good level of outcomes of the initiative.

The scope and main aims have been well formulated, making them easily and objectively measurable, accompanied by fairly ambitious targets (e.g. in terms of expected number of participants to related events, of patents to be derived from the involved constituency, of public/private projects, initiatives, ventures and economic impact directly deriving from the TT support services, etc.).

The project beneficiary (the Slovak Centre of Scientific and Technical Information - SCSTI) has deployed the expected activities diligently and professionally. As documented in detail in this report, there is a clear evidence of success, in organisational, procedural and also cultural terms, managing to activate local TT centres (LCTTs) and training them on how to initiate IP protection and value deployment, mainly through patenting.

Links between the different actors of the technology transfer support system are as follows:



NCTT	National Technology Transfer Centre
CTT CVTI	SCSTI Technology Transfer Centre
Priemysel (Industry)	Technology-oriented innovative SMEs and large enterprises operating in Slovakia and abroad, including multi-national corporations
Veda a výskum (Science and research)	Universities and higher education institutions, SAS institutes, other R&D organisations in Slovakia
Spoločnosť/ekonomika (Society/economy)	The society and economy of the Slovak Republic
ÚPV SR/EPO/WIPO	Industrial Property Office of the Slovak Republic / European Patent Office / World Intellectual Property Organisation
Klastre (Clusters)	Manufacturing, technological or research driven regional associations of companies, R&D institutions and support organisations operating in selected industrial sectors

RIC	Regional innovation centres as entities responsible for the design and implementation of innovation systems in Slovak regions (once established)
LCTT	Local technology transfer centres established at higher education institutions and R&D institutions in the framework of support by the Agency of the Ministry of Education SR for EU Structural Funds under the OP R&D or from the organisation's own initiative
ITTN	International Technology Transfer Networks – organisations dealing with technology transfer (TT) in the neighbouring countries and in the world, including international networks for the support of research, development, innovations and TT in the EU and the USA
VVC/VTP	Research and development centres and science and technology parks bringing together innovative companies and research institutions focused on supporting the development of new technology
TC	Technology centres bringing together technology-oriented domestic and foreign companies from selected industrial sectors
Inkubátory (Incubators)	Regional and university incubators supporting the development of newly established, technology-oriented companies (start-ups and spin-offs)

The NITT SK project has allowed activating and maintaining a well structured and effective mechanism able to bring local competences and inventions towards IP identification and protection up to scouting and finding potential industrial and market players interested to exploit such a competence, knowledge, IP or patent. For the scope, the SCSTI has also covered the role of industrial and market investigator, in order to identify possible users and “clients” interested into the local “offer” of knowledge and IP.

Looking in perspective terms, it is now necessary to combine such an “offer-centric” view (namely the approach to start from a local knowledge or invention, to see how to protect it and to check if there is any industrial or commercial entity interested to exploit it) with a “demand-driven” view. This requires the need to investigate, understand and monitor in a systematic manner the industrial and commercial demand, at central but even more suitably at local level. Understanding what the industry needs will be a key step, in order to create a fruitful link between industrial needs and research available competences and identify which future research streams and paths could and should be initiated by Slovak universities and/or research centres, in order to answer to such needs.

This “demand-driven” Technology Transfer will obviously accompany in a coordinated manner the open, basic character of the research that academic institutions shall continue to initiate, independently and hopefully even anticipating societal and industrial needs and requirements.

This industrial, commercial and market demand scouting, survey and monitoring exercise should be an essential part of the future follow-up TT national project, that should combine the centralised TT services (already well initiated and deployed within the initiative actually under evaluation) with local procedures, events, mechanisms for industry-research meeting and matching, sustaining innovation and competitiveness of the relevant societal and industrial fields.

The final scope should be to let the industrial constituency be aware and be well-informed of the research competences and activities available at each local TTC (through periodical newsletters, focused topic meetings, show-case TT events, workshops, conferences, etc.). This should be combined with a reinforced and enlarged effort on awareness creation. For the scope, the follow-up national project should extend awareness raising initiatives already initiated and well deployed within the NITT SK involving at a higher extent the industrial and commercial constituency, in order to facilitate and prepare the field to a well-informed technology transfer process. This should be obtained through focused initiatives, brokerage events, industrial demand/research offer matching and networking initiatives, sectorial activities, business to research linkage services, etc.

The resulting structured and organised expose of academic competences to the industrial constituency should represent the starting point to reach another strategic and unavoidable objective of the whole TT scenario, namely sustainability. Sustainability represents in fact a key aspect of the implemented project, where it is claimed and envisaged, after the end of the planned activities and following the expiry of the allocated funding, to rely mostly, to ensure sustainability, on financial support through public sources (Ministry of Education), not relying strongly and not sufficiently on self-sustainability of local TT centres and support infrastructures and services.

It should be instead expected that companies, once aware of the available competences, should enter into contractual research, consultancy, licencing or even patent acquisition, ensuring self-sustainability to local TTCs. In turn, such commercial incomes should allow economical grounds for local TTCs so that they could, in the medium to long term, contribute economically to the self-sustainability of the central overall TT services.

So, future initiatives and programmes in the field should definitely make the expected impact characterised by ambitious measurable parameters and indicators, accompanied by estimated targets, translating the definition of success into a concrete and well substantiated scenario. Next initiatives should also aim at a real sustainability, that could and should be based on multiple sources, including:

- the selling of TT services to private actors (e.g. companies, private research and innovation centres). This “commercial” character of local Technology Transfer Centres (TTCs) represents an unavoidable pre-requisite in order to aim at a real sustainability;
- incomes deriving from training sessions (e.g. on IPR management, patenting, TT methodologies for large companies or international groups);
- funding deriving from the economic participation to joint projects between the TT scientific and research sphere and the industrial sector, with the involvement of local TTCs in publicly funded initiatives (e.g. projects funded on competitive bases within European, national and regional R&D and innovation programmes).

2. Introduction

The NITT SK project was implemented between 15 June 2010 and 31 October 2015, counting on a total available grant equal to € 8,201,421.17 (EU funds + state budget) and resulting on a total spending € 5,698,537.36, with a territorial coverage involving all Slovak regions.

The project was implemented by the beneficiary (Slovak Centre of Scientific and Technical Information - SCSTI) through two mirror projects (supporting research and development in the Bratislava Region within Priority Axis 4, measure 4.2, and in other Slovak regions within priority Axis 2, measure 2.2). The strategic objective of the project was to set up and implement a national support system for the transfer of knowledge acquired through research and development into the economic and social practice.

The project implementation was divided into three separate activities, each of them covering technology transfer (“TT”) from a different perspective:

- *Activity 1.1 Set-up and operation of the SCSTI TT Centre* – the aim of the activity was to ensure personnel and operation capacities of the SCSTI TT Centre (“TTC”) and an effective provision of support services in the field of TT to research and development centres all over Slovakia;
- *Activity 2.1 Set-up and operation of an ICT service system for supporting research, development and TT* – the aim of the activity was to design, set up and operate a common Information Service System (ISS) for the scientific community in the field of ICT infrastructure with a focus on the administration of access to specific scientific databases, integrated applications and other sources and services supporting TT;
- *Activity 3.1 Raising the awareness of the scientific community of intellectual property protection and technology transfer* – the aim of this activity was to raise the awareness of the scientific community of intellectual property (IP) protection and the importance of the popularisation of science, thereby contributing to a more effective TT and scientific knowledge into practice.

Project implementation timetable:

- 1) Establishment and operation of the SCSTI Technology Transfer Centre: 06/2010–12/2014
- 2) Creation and operation of a service system within the ICT environment in the field of support of research, development and TT: 06/2010–12/2014
- 3) Raising the awareness of the scientific community about the protection of intellectual property and technology transfer: 06/2010–12/2014

Values of measurable indicators:

Type	Measurable indicator	Target (CONV)	Target (C&EG)	Year
Result	Number of institutions involved in new-built centres	2	3	2014
Result	Number of programmes for the mobilisation and creation of potential innovations	1	1	2014
Result	Number of utilised tools for the promotion of research and development and for the popularisation of their results among the general public	5	5	2014
Result	Number of library stock databases made available	1	1	2014
Result	Number of newly created centres ensuring complex support for the management of intellectual property rights in the given institution	1	1	2014
Result	Number of new jobs for ensuring complex support for the management of intellectual property rights in the given institution	3	3	2014
Result	Number of implemented electronic services	1	1	2014
Result	Number of organised conferences	3	3	2014
Impact	Number of labour mobilities as a result of co-operation between the public sector (organisational units of SAS and higher education institution) and the business sector	10	10	2019
Impact	Number of patent applications filed to EPO	5	5	2019
Impact	Number of articles published in non-peer-reviewed scientific journals and collections	30	30	2019
Impact	Number of projects of co-operation between research and development institutions and the social and economic practice	10	10	2019
Impact	Number of publications in non-current-content journals	30	30	2019
Impact	Number of research organisations as a result of co-operation between the public sector (organisational units of SAS and higher education institutions) and the business sector	3	2	2019
Impact	Number of established business entities with the involvement of scientists (spin-offs, start-ups)	2	3	2019

This ex-post evaluation of the NITT SK national project includes the following elements:

- evaluation of the effectiveness of the NITT SK project implementation;
- recommendations for the envisaged implementation of the national project “*Mobilisation of Knowledge and Technology Transfer from Research Institutions into Practice*” under the OP R&I, in connection with the NITT SK project implementation;
- evaluation of the changes achieved in the field of TT in Slovak public R&D institutions as a result of the NITT SK project implementation;
- identification of the Research and Innovation Strategies for smart specialisation (RIS3) areas in which TT or the registration of IP were supported;
- evaluation of the extent of use of SCSTI integrated ISS applications;

- evaluation of the project's contribution to raising the awareness of the scientific community on the protection of IP and TT.

The reference period of this evaluation covers the implementation period of the NITT SK project (June 2010 – October 2015) and partly the sustainability period, i.e. up to the date of preparation of this report.

3. Methodology

Following the given terms of reference, this ex-post evaluation has been deployed on the basis of the following evaluation questions:

	Evaluation question	Description	Method	Sources
Entire NITT SK project				
1.	Was the project implementation effective?	<p>The question aims to describe in a narrative form the implementation process, outline the theory of change (including in the form of a scheme), assess the appropriateness of the individual actions and bottlenecks, and describe detailed recommendations on how the problem could have been tackled more effectively.</p> <p>In particular, the focus was devoted to:</p> <ul style="list-style-type: none"> • the separation of the activity and concurrence of the SCSTI TTC, the National Technology Transfer Centre of the Slovak Republic (“NTTC SR”) and local TTCs; • problematic project areas; • function of the technology transfer project as such; • identified project activity outputs and results (e.g. introduction of evaluations for reported IP, creation of the NTTC SR, implementation of standards, preparation of guidelines, etc.). 	Theory of change	Interview with project stakeholders – project target groups, project managers, regional TTC staff
2.	What are the recommendations for the implementation of the follow-up national project “Mobilisation of knowledge and technology transfer from research institutions into practice”?	<p>Following the conclusions of the evaluation/assessment of the overall implementation of the national project and of its partial activities, recommendations have been defined for the following elements:</p> <ul style="list-style-type: none"> • introduction of new tools for encouraging TT; • further infrastructure development to support TT; • ensuring the role of the SCSTI as coordinator of the support of public R&D centres in the framework of knowledge transfer into the economic and social practice; • popularisation of the protection of IP /industrial property. <p>Potential problem areas have been identified and guidance on how to tackle them has been provided.</p>	Interview with the sponsor of the new project, deduction, desk research	SCSTI

Activity 1: Set-up and operation of the SCSTI TTC				
3.	How has the situation regarding protection of intellectual property rights changed?	The point is to compare and assess the situation concerning the TT support initiative, namely: <ul style="list-style-type: none"> number of administered notifications on new IP (pursuant to Article 11(2) of Act No. 435/2001 Coll.) in 2008/2009 (before the NITT SK project implementation) and in 2015/2016 (after the project implementation) – notifications administered by TT centres; number of administered rights to be dealt with (under Article 11(3) of Act No. 435/2001 Coll.) in 2008/2009 and in 2015/2016; number of applications of IP subjects where the applicant is a public academic institution in Slovakia – in 2008/2009 and in 2015/2016. 	Pre- and post-design	SCSTI and public R&D institutions in Slovakia
4.	In what RIS3 areas was support given to TT and Intellectual Property Rights (IPRs) applications?	Demonstrate the classification of supported technologies per areas of economic specialisation, areas of prospective specialisation and areas of specialisation from the point of view of available scientific and research capacities.	One shot design, desk research/interview	SCSTI Data matrix on expert support services provided by the SCSTI TTC.
Activity 2: Set-up of a service system within the ICT environment in the field of R&D support				
5.	To what extent are SCSTI integrated ISS applications used?	Describe in a comprehensible and simple manner the use of SCSTI ISS applications and the extent of their use with regard to capacities.	One shot design, desk research/interview	SCSTI Database of accounts and e-mails, application name.
Activity 3: Raising the awareness of the scientific community about the protection of IP and TT				
6.	What is the project's contribution to raising the awareness of the scientific community of IP protection and TT?	Over 50 presentation events were held in the project framework. The scope is to find out: <ul style="list-style-type: none"> - the identification of the respondent; - his/her emotional attitude towards the given issue by means of the semantic differential; - understanding the main idea of the expert event (TT); - source of information about the event; - identify the event's impact on the implementation of the different steps within the TT (by finding out information about TT following the training). 	Questionnaire/interview	SCSTI Database of names and e-mail addresses, event.

The considerations and recommendations in this report are based on the findings deriving from the whole evaluation exercise and reflect outcomes, analysis of the available documentation and comments collected on occasion of a series of interviews conducted (involving stakeholders from major Slovak academic institutions and representatives from SCSTI).

4. Results of the evaluation

The first step of the evaluation exercise, necessary for a critical analysis and understanding of the alignment of the conducted activities with what was planned and for the appreciation of the related impact, has been an evidence-based review of the deployed initiatives and actions, here below summarised:

	Activity	Actions carried out
1.1	Establishment and operation of the SCSTI Technology Transfer Centre	<p>Stage 1</p> <ul style="list-style-type: none"> • Established SCSTI Technology Transfer Centre; The SCSTI Technology Transfer Centre was established by Director's Decision No. 3/2011 of 21 March 2011; • Concluded contracts for the purchase of project facilities/equipment, expert literature, specialised information sources, including electronic ones, and for the purchase of external service supplies: <ul style="list-style-type: none"> Project HW – Purchase contract, Agem Computers, s.r.o. Project SW – Purchase contract, Exe, s.r.o. Project HW – Purchase contract, N.Netcom Project HW – Purchase contract, Marssan IT, s.r.o. Project HW – Purchase contract, Datalan, a.s. Electronic information sources – Thomson Reuters • Study analysing the current state and defining the conceptual background in the field of technology transfer in Slovakia <ul style="list-style-type: none"> Study prepared by BIC Bratislava, spol. s r. o., 2011 • Overview study on the basic concepts, tools and current approaches to technology transfer in the world, including support of technology transfer at the national and regional levels and at the level of scientific institutions <ul style="list-style-type: none"> Study prepared by SOVVA, no, 2011 • Analytical study on the possibilities of use of the Central Publication Activities Register in assessing the potential of scientific organisations in the field of research, development and technology transfer <ul style="list-style-type: none"> Study prepared by a team of authors, 2011 <p>Stage 2</p> <ul style="list-style-type: none"> • Concluded contracts for the supply of external counselling and consulting services and for the purchase of expert literature and specialised information sources, including electronic ones. The following contracts were concluded: <ul style="list-style-type: none"> Contract on the Provision of Services – ensuring the supply of external support services in the technology transfer process for the National Technology Transfer Support System established in the framework of the NITT SK project, 2013, Neulogy, a.s., BIC Bratislava, s.r.o. Contract on the Provision of Services – procurement of expert support services in the technology transfer process for the National Technology Transfer Support System in the framework of the NITT SK project, 2015, Neulogy, a.s., BIC Bratislava, s.r.o., STU Scientific, s.r.o. <p>Methodological manuals, instructions for use and other support materials for a successful technology transfer</p> <p>The following documents were produced:</p> <ul style="list-style-type: none"> - Intellectual property and confidentiality, Manual for researchers - Intellectual property and technology transfer 1 - Intellectual property and technology transfer 2 - Intellectual property and technology transfer 3 - Intellectual property and technology transfer 4 - Agreement on transport of materials – hauler - Agreement on transport of materials – receiver - Agreement on confidentiality over confidential business information - Agreement on confidentiality over business secret - Licensing agreement – copyright work - Licensing agreement – database - Licensing agreement – design - Licensing agreement for the publishing of work - Licensing agreement – photography - Licensing agreement – utility design - Licensing agreement – invention - Transfer of licence - Sub-licensing agreement - Declaration on confidentiality of information

		<ul style="list-style-type: none"> - Declaration on confidentiality of trade secret - Contract on transfer of the right to design - Contract on transfer of the right from application - Contract on transfer of exclusive rights - Contract on sponsored research - Contract on provision of expert consultations - Contract on joint research - Contract on made-to-order research with set result - Contract on made-to-order research – research task - Directive 1 on reporting research results - Directive on determining the share in intellectual property rights - Directive on the payment of fees for objects of intellectual property - Directive on the administration of the intellectual property portfolio - Directive on remuneration and income distribution - Directive on intellectual property - Directive on the protection of objects of industrial property - Directive on the protection of non-registered objects of intellectual property which are not subject to copyright - Directive on the protection of objects of intellectual property in compliance with copyright - Directive on the confidentiality and protection of confidential information - Directive on consultations - Directive on made-to-order research - Directive on joint research - Directive on the granting of licences to objects of intellectual property - Directive on the transfer of rights to objects of intellectual property - Directive on the conflict of interests in the field of technology transfer - Directive on delivery and transport of experimental material • Guideline on the establishment and operation of a local centre/office for technology transfer, including a proposal for a standard model of functioning of such centre Document produced by a team of authors, 2012 • Proposal for creating a national technology transfer system and for ensuring its sustainability Document produced by a team of authors , 2012 • National guideline on assessing the quality of scientific organisations in the field of research, development and technology transfer Document produced by a team of authors , 2012 • Functioning interface enabling the use of the Central Publication Activities Register in the assessment of the potential of scientific organisations in the field of research, development and technology transfer Complex interface as a SW tool using MS Excel functionalities <p>Stage 3</p> <ul style="list-style-type: none"> • Support services in the field of technology transfer provided by the SCSTI Technology Transfer Centre to scientific organisations all over Slovakia In the reference period, expert support services were provided to academic institutions related to the protection and commercialisation of intellectual property within the following extent: 95 cases of newly invented innovative technologies 9 cases of negotiations opened with potential entities interested in technology licensing The following expert support services were provided under support projects: Assistance in the selection of scientific and research activities for the purposes of industrial protection, and estimation of their commercial potential; Marketing presentation technologies; Search of experts for external support services; Preparation and filing of applications for all relevant objects of industrial property in Slovakia and abroad, representation at patent offices; Preparation of documents on searched experts for the SCSTI TTC for the purposes of making decisions on the selection of experts for external support services; Strategy of intellectual property commercialisation; Co-operation in the preparation of licensing contracts; Choice of the intellectual property commercialisation strategy; Communication with experts in external support services; Administration of the signing of the contract with experts in external support services; Search of partners for commercialisation using an expert; Administration of co-operation with experts in external support services; Arranging meetings of experts with the representatives of the academia and of the SCSTI TTC on specific cases of external support services; Conducting meetings, accompanying at meetings; Preparation and review of draft contracts; Compilation of the Final Report on the Provision of Expert Services; Active search of intellectual property – outputs from scientific and research activities in the academic
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		<p>environment suitable for the protection of intellectual property and commercialisation</p> <ul style="list-style-type: none"> • Overview study of research and development competences of higher education institutions and scientific organisations in selected fields of science and technology and in industrial sectors, including achieved R&D results and relevant expert capacities The document was prepared by BIC Bratislava, 2014 • “Minimum 5 scientific institutions supported in the process of establishing a specialised centre for the support of technology transfer or in the development and standardisation of services provided by the existing organisation.” Within the process of establishing such centre, the organisations were supported within the following extent: Comenius University in Bratislava – preparation of a directive on the protection of intellectual property Slovak Academy of Sciences, Bratislava – contract on the settlement of co-ownership <p>Cross-cutting activities</p> <ul style="list-style-type: none"> • Agreements on co-operation with relevant scientific organisations and support organisations, initiatives and networks in Slovakia and abroad (min. 15 agreements) Throughout the entire reference period, a total of 25 agreements were concluded with the following organisations (12 under RC&E): Enterprise Europe Network (EEN) Bratislava Academic Society – Pan-European University Institute of Electrical Engineering of the Slovak Academy of Sciences Institute of Physics of the Slovak Academy of Sciences Institute of Inorganic Chemistry of the Slovak Academy of Sciences Institute of Experimental Pharmacology and Toxicology of the Slovak Academy of Sciences Institute of Materials and Machine Mechanics of the Slovak Academy of Sciences Institute of Polymers of the Slovak Academy of Sciences Institute of Construction and Architectures of the Slovak Academy of Sciences Slovak University of Technology in Bratislava Comenius University in Bratislava Academy of Fine Arts • Membership in networks, associations, groups and international organisations (in min. 3). Throughout the entire reference period, membership in the following organisations was arranged: ASTP – The Association of European Science and Technology Transfer Professionals Proton Europe LESI – Licensing Executive Society International GreyNet International AUTM – Association of University Technology Managers • Content development and regular update of the specialised website “National Technology Transfer Portal” In the reference period, the NPTT was updated and filled with contents in all parts of the portal: About the portal Technology transfer Services provided in technology transfer processes Payment of patent fees Template documents Information sources Events Communication centrum Profiles of R&D institutions in Slovakia Multimedia gallery about technology transfer TTb – TECHNOLOGY TRANSFER bulletin Technology database • Making expert literature and specialised information sources, including electronic ones, available to the expert public The expert literature and specialised information sources were made available to the expert public by being included in the SCSTI library archives and by the conclusion of agreements with institutions on long-term loans: Slovak University of Technology in Bratislava Central Library SAS Comenius University in Bratislava • Organised conferences, expert seminars, workshops and other events Over the entire reference period, the following events were organised: NITT SK workshop, 07 June 2011, Bratislava Aurel Stodola – Message for Future Generation (Exhibition) – 24 May – 31 Aug 2011, Bratislava Science on Your Side, Knowledge Transfer into Practice (travelling exhibition) – 23 Sep – 30 Nov 2011, Bratislava Conference NITT SK 2011 – Technology transfer in Slovakia and abroad, 11 Oct 2011, Bratislava Intellectual property and design – a crossroad of talents from the Academy of Fine Arts in practice,
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		<p>Institute of Materials and Machine Mechanics of the Slovak Academy of Sciences; Institute of Polymers of the Slovak Academy of Sciences; Institute of Construction and Architecture of the Slovak Academy of Sciences; Comenius University in Bratislava.</p> <ul style="list-style-type: none"> • Number of programmes for the mobilisation and creation of potential innovations; Creation and implementation of the national system for the support of technology and R&D knowledge transfer into practice. Min. 1 Created National Technology Transfer Support System in the Slovak Republic (NTTSS SR). The system infrastructure consists of the following elements: National Technology Transfer Centre (NTTC SR) with links to local technology transfer centres at academic institutions; System of expert support services (EPS) provided to national centres within technology transfer processes; Patent Fund for the payment of fees related to the arrangement of industrial protection of outputs from scientific and research activities of Slovak academic institutions; National Technology Transfer Portal (www.nptt.sk) with integrated systems for the administration of EPSs. • Number of newly created centres ensuring complex support of the management of intellectual property rights in the given institution. Established SCSTI Technology Transfer Centre (SCSTI TTC). Source of data: SCSTI internal documentation. Min. 1. Fulfilled 1 of 1. Established SCSTI TTC • Number of library stocks made available. Number of library stock databases on the protection of intellectual property and technology transfer made available to the scientific community. Source of data: SCSTI internal documentation. Min. 1. Fulfilled 1 of 1. The SCSTI archive is made available through contracts on long-term loans and through the arrangement of access to electronic literature with a focus on expert literature in the field of intellectual property protection and technology transfer. • Number of newly created jobs for ensuring complex support of the management of intellectual property rights in the given institution. Number of newly created jobs in the SCSTI within the SCSTI TTC. Source of data: SCSTI internal documentation. Min. 3 Fulfilled 4 of 3 Ing. Martin Smeja, PhD. RNDr. Jaroslav Noskovič, PhD. Ing. Silvester Sališ RNDr. Marián Trgala • Stages 1, 2, 3 and cross-cutting activities: completed. The project implementation was closed on 31 October 2015.
2.1	<p>Set-up and operation of a system of services within the ICT environment in the field of support of research, development and TT</p>	<p>Stage 1</p> <p>The following partial tasks and activity outputs were fulfilled over the entire reference period:</p> <ul style="list-style-type: none"> • Analytical study (I) mapping the background for the creation of an integrated system (min. 50 pages, incl. annexes) Study prepared by a team of authors, 2011. • Analytical study (II) defining the requirements for the supply of specific products and outsourcing services (min. 40 pages, incl. annexes). Study prepared by a team of authors, 2011. • Specifications for the public procurements of necessary software products, applications, systems, tools and other specific goods and expert services to the scientific community in the form of outsourcing support. The specifications were prepared and the public procurement was launched and conducted in 2013. • Proposal for recommendations for the set-up, operation and maintenance of an integrated environment for the use of services and capacities of existing ICT infrastructures for research and development (min. 30 pages, incl. annexes). Proposal prepared by the SCSTI, 2012. <p>Stage 2</p> <ul style="list-style-type: none"> • Concluded contracts with the winners of the public procurement of software products, applications, systems and tools (min. 1 contract) Two contracts were concluded. The first public procurement was conducted in 2013 and the contract was concluded on 12 November 2013. The second public procurement was conducted in 2015 and the contract was concluded on 30 April 2015. • Concluded contracts with the winners of the public procurement of specific products and external support services for the scientific community in connection with the use of ICT applications, tools and systems (min. 1 contract). Two contracts were concluded. The first public procurement was conducted in 2012 and the contract was concluded on 04 April 2012.

		<p>The second public procurement was conducted in 2015 and the contract was concluded on 22 June 2015.</p> <ul style="list-style-type: none"> Implemented system of common services in the field of ICT infrastructures for the purposes of the scientific community in research and development activities and in technology transfer processes. The SCSTI Integrated Service System was delivered on 10 March 2014. Its internet address is: https://iss.cvtisr.sk/. The system consists of the following parts: <ul style="list-style-type: none"> Web portal; WSO2 application server; Back-end layer (functionalities for the administration of systems, data storage sites, connected support systems); Service infrastructure layer – ESB and Message Broker; Information access layer – Data Services Server; Service orchestration layer – Business Process Server (BPEL); Operating rule layer – Business Rules Server Established department for the administration and operation of an integrated system for making the sources and capacities of ICT infrastructures available to research, development and technology transfer processes. The administration and operation department was established by Director’s Decision No. 6/2013 of 30 September 2013. <p>Stage 3</p> <ul style="list-style-type: none"> Functioning system of common services operated on a routine basis in the field of ICT infrastructures for the purposes of the scientific community in research and development activities and in technology transfer processes. The system and its parts are operated on a routine basis with the provision of selected services the portfolio of which is being continuously extended. Extension of the system with new functionalities, applications, sources and services on the basis of the current needs of the scientific community. The public procurement was conducted in 2015 and the system extension was delivered as of 30 September 2015. System development and sustainability plan for a minimum period of the next five years after completion of the project implementation (min. 30 pages, incl. annexes); The system sustainability plan for the period after the project completion was prepared by a team of authors in 2015. Support services provided to the scientific community in connection with the use of specialised ICT infrastructures in research and development and in technology transfer processes. The following services were provided over the entire reference period: Hosting – virtual space offered for installing specialised scientific software for biology – BIO software (43 users); Communication and security services – arrangement of secure access to a remote work station (terminal-server, TS) and secure work with the MATLAB system installed at a remote work station (400 users); arrangement of secure access and secure work with the BIO software (43 users); arrangement of secure access to a remote work station (terminal-server, TS) and secure work with the SAS statistical and analytical system installed at a remote work station (17 users); Consultation and information services – provision of information on work with the MATLAB and SAS systems by means of the SCSTI ISS portal, consultations on work with a remote work station and on work with the MATLAB system (400 users) and with the SAS system (17 users); Licensing and expert services – ensuring correct interpretation of the licensing policy for the MATLAB system (400 users), BIO software (43 users) and SAS system (17 users); Provision of systems and applications – arrangement of access for work with the MATLAB system (400 users), BIO software (43 users) and the SAS system (17 users); Data storage services – providing disk space for the storage of data resulting from scientific and research activities (418 users). Established monitoring department for assessing the extent, quality and effectiveness of use of applications, sources and support services in the field of ICT in technology transfer processes. The monitoring department was established by Order of Director General No. 11/2014 of 01 November 2014. Final report on the use of ICT infrastructures and available services (min. 30 pages, incl. annexes). The final report was prepared by a team of authors in 2015. <p>Cross-cutting activities</p> <ul style="list-style-type: none"> Co-operation established with selected scientific organisations in the form of contracts on the use of ICT support services. In the reference period, co-operation was established with 9 public scientific and research institutions in Slovakia one under RC&E): <ul style="list-style-type: none"> University of Economics in Bratislava. Organised expert seminars and events focused on the presentation of support services in the field of ICT infrastructures for research, development and technology transfer
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		<p>The event was organised under the RC&E objective.</p> <p>Information about the fulfilment of indicators:</p> <ul style="list-style-type: none"> Complex system of common services in the field of ICT infrastructures for the purposes of the scientific community, designed specifically for the management of access to specific scientific databases, integrated applications and other services supporting research and development activities and technology transfer. <p>The SCSTI Integrated Service System was delivered on 10 March 2014. Its internet address is: https://iss.cvtisr.sk/.</p> <p>The system consists of the following parts:</p> <ul style="list-style-type: none"> Web portal; WSO2 application server; Back-end layer (functionalities for the administration of systems, data storage sites, connected support systems); Service infrastructure layer – ESB and Message Broker; Information access layer – Data Services Server; Service orchestration layer – Business Process Server (BPEL); Operating rule layer – Business Rules Server. <p>Stages 1, 2, 3 and cross-cutting activities: completed. The project implementation was closed on 31 October 2015.</p>
3.1	<p>Raising the scientific community's awareness about the protection of intellectual property and technology transfer</p>	<p>Stage 1</p> <p>The following partial tasks and activity outputs were fulfilled over the entire reference period:</p> <ul style="list-style-type: none"> Study (I) identifying possible promotion tools to enhance the use of instruments for the protection of intellectual property rights by the Slovak scientific community (min. 20 pages, incl. annexes). The study was prepared by a team of authors in 2011 Study (II) on the use of standard means of mass-media communication (min. 50 pages, incl. annexes) The study was prepared by a team of authors in 2011 Study (III) on the use of internet means of mass-media communication (min. 50 pages, incl. annexes) The study was prepared by a team of authors in 2011 Analytical study (IV) identifying the requirements for the integrated editing system (min. 50 pages, incl. annexes) The study was prepared by a team of authors in 2011 Conducting public procurement I (PP I) and public procurement II (PP II), contracts with suppliers PP I – the procurement of the production of expert materials, studies, expertise, expert opinions, expert drafting and/or review of draft contracts, etc., on the basis of external supplies was not carried out. The studies were produced by internal SCSTI staff and external colleagues – natural persons – on the basis works contract. PP II – the procurement was completed and the editing system was delivered with all related parts in 2010 <p>Stage 2</p> <ul style="list-style-type: none"> Specifications for public procurements PP III, PP IV and PP V (using the conclusions of the studies) PP III – executed through two procurements: Creation (production) of information video-recordings, 2013 Production of documentary films and animated advertisements, 2014 PP IV: Virtual presentations of exhibitions, 2012 PP V: Rádio VIVA (Media Production House, s.r.o.), 2012 and 2013 Offers of winning suppliers The offers of the winning suppliers were delivered under the respective public procurements Contracts with suppliers The contracts with the suppliers were concluded under the respective public procurement. <p>Stage 3</p> <ul style="list-style-type: none"> Implemented editing system The editing system was implemented and it currently runs various pages, such as www.nptt.sk, http://nitt.cvtisr.sk, etc. Implemented tool for on-line counselling and consulting The tool was implemented as part of the nptt.sk. It is available to registered users at https://eps.cvtisr.sk. Internet bulletin (updated min. once a week). The electronic bulletin is updated at least once a week (a new article or news release is created for the e-bulletin at least once a week). The magazine is available at the nptt.sk portal. Printed products (min. 12 issues of the information bulletin for the R&D community and organisations with a circulation of max. 500 copies) Over the entire monitoring period, 14 issues of the bulletin were published in printed form: Technology transfer bulletin 1/2012,

		<p>Technology transfer bulletin 2/2012, Technology transfer bulletin 1/2013, Technology transfer bulletin 2/2013, Technology transfer bulletin 3/2013, Technology transfer bulletin 4/2013, Technology transfer bulletin 1/2014, Technology transfer bulletin 2/2014, Technology transfer bulletin special issue /2014, Technology transfer bulletin 3/2014, Technology transfer bulletin 4/2014, Technology transfer bulletin 1/2015, Technology transfer bulletin 2/2015, Technology transfer bulletin 3/2015.</p> <ul style="list-style-type: none"> • Broadcasted media products (min. 25 products with a total duration of 325 minutes.) Over the entire reference period, 31 media products were broadcasted with a total duration of 458.5 minutes. • Final report on the results of Activity 3.1. The report was produced by a team of authors as of the end of the project implementation in 2015. <p>Cross-cutting activities</p> <ul style="list-style-type: none"> • Organisation of min. 12 expert seminars, workshops and other events on technology transfer with the support of the expert staff from Activity 1.1. Video-conferences The following events were organised in the reference period: Workshop NITT SK, 07 June.2011, Bratislava Aurel Stodola – Message for Future Generations (exhibition) – 24 May – 31 Aug 2011, Bratislava Science on Your Side, Knowledge Transfer into Practice (travelling exhibition) – 23 Sept – 30 Nov 2011, Bratislava Conference NITT SK 2011 – Technology transfer in Slovakia and abroad, 11 Oct 2011, Bratislava Intellectual property and design – a crossroad of talents from the Academy of Fine Arts in practice, 25 Feb – 05 Apr 2012, Bratislava Afternoon with design, 27 March 2015, Bratislava Biotherapeutical methods in practice, 27 Sep – 30 Nov 2012, Bratislava Conference NITT SK 2012 – Technology transfer in Slovakia and abroad, 09 Oct 2012, Bratislava Intellectual property and technology transfer I., 14 Nov 2012, Bratislava TransferTechDesign, 14 Jan – 28 March 2013, Bratislava Seminar on Technology Transfer, 25 Feb 2013, Bratislava TRANSTECHDESIGN: Technology transfer into design – new technologies and design, 13–14 March 2013, Bratislava Intellectual property and technology transfer II, 20 March 2013, Bratislava Establishing the National Technology Transfer Centre, 26 March 2013, Bratislava Commercialisation of research results in Hungary, Slovakia, Czech Republic and Poland, 18–19 Apr 2013, Bratislava Intellectual property and technology transfer III, 12 June 2013, Bratislava Conference NITT SK 2013 – Technology Transfer in Slovakia and Abroad, 08 Oct 2013, Bratislava Intellectual property and technology transfer IV, 30 Oct 2013, Bratislava Technology transfer in the Czech Republic, 20 Jan 2014, Bratislava Intellectual property and technology transfer I, 12 Feb 2014, Bratislava Value of intellectual property in the technology transfer process, 19 March 2014, Bratislava Use of research services in scientific practice, 09 Apr 2014, Bratislava TT Forum, April 2014, 29 Apr 2014, Bratislava Economic Aspects of Intellectual Property Rights, 06 May 2014, Bratislava Intellectual property and technology transfer II, 04 June 2014, Bratislava Conference NITT SK 2014 – Technology Transfer in Slovakia and Abroad, 07 – 08 Oct 2014, Bratislava Trans Tech Exchange 2014, 11–12 Nov 2014, Bratislava Intellectual property and technology transfer III, 26 Nov 2014, Bratislava Working seminar “MATLAB within the SCSTI ISS environment”, 03 Dec 2014, Bratislava Intellectual property and technology transfer IV, 18 March 2015, Bratislava Slovakia’s Open Access Policy within the European Framework 2015 – Current State and Perspectives, 25 March 2015, Bratislava TRIZ method and the avoiding of patents, 26 March 2015, Bratislava Intellectual Property Protection Strategy, 16 June 2015, Bratislava Trans Tech Exchange 2015, 29–30 Sept 2015, Bratislava • Other activities aimed to promote the use of instruments for the legal protection of intellectual property and commercialisation of knowledge by the scientific community, including the promotion of related support services provided by the SCSTI TTC. Other promotion activities: Participation in the event Current state and perspectives of analytical chemistry in practice, 01–04 June.2014, Bratislava.
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		<p>Information about the fulfilment of indicators:</p> <ul style="list-style-type: none"> Number of used tools for the promotion of research and development and the popularisation of their results among the general public Fulfilled 5 of 5 <ol style="list-style-type: none"> NTTP in live operation – fulfilled and on-going; System of organisation of expert events, e.g. Conference 2011, 2012, 2013, 2014 – fulfilled and on-going; e-Bulletin for TT – fulfilled and on-going; e-Presentations on TT – information video-recordings, promotion films and short videos; System of TT promotion in the media – media coverage – fulfilled and on-going. <p>The indicator was accomplished (media products in Radio Viva, information video-recordings, advertising campaign in Radio Viva, promotion articles in Pravda daily).</p> Number of organised conferences. Organising of min. 3 conferences or expert events (seminar, workshop, etc.) focused on research, development and technology transfer. Frequency of measurement: quarterly, for the MR. Quantification: CONV – min. 3, RC&E – min. 3; Total: min. 3. Fulfilled 5 of 3 <ol style="list-style-type: none"> Conference NITT SK, Technology transfer in Slovakia and abroad 2011, Conference Technology transfer in Slovakia and abroad NITT SK 2012, Conference Technology transfer in Slovakia and abroad NITT SK 2013, Conference Technology transfer in Slovakia and abroad NITT SK 2014, Technology transfer in Slovakia and abroad NITT SK 2015. Stages 1, 2, 3 and cross-cutting activities: completed. The project implementation closed on 31 October 2015.
Project management		<p>The following activities were performed over the entire reference period:</p> <ul style="list-style-type: none"> Public procurements for the following objects of contract: external project monitoring service; supply of an editing system and websites for the purposes of publicity, information and expert project activities; supply of legal services; purchase of ICT for the purposes of the national project; purchase of (application) software for the purposes of the national project; Procurements arising from the accomplishment of outputs from expert project activities were conducted; 11 requests for change of the grant contract were entered during the project implementation period; On-the-spot inspections were carried out by the Managing Authority; the results of such inspections were included in the grant contract where necessary.
Publicity and information		<p>The following publicity and information activities were performed over the entire reference period:</p> <ul style="list-style-type: none"> TA3: programme Euroškoolstvo a výskum (European School System and Research) Time: 22/06/2010 at 17.30 o'clock, repeat on 24/06/2010 at 17.30 o'clock. Topic: How does the protection of know-how or inventions of our scientists work? What attention is paid to technology information transfer in Slovakia? Invited guest: prof. RNDr. Ján Turňa, CSc., SCSTI Director Link: http://www.ta3.com/sk/relacie/50_euroskoolstvo-a-vyskum/9543_transfer-technologii Article: Hospodárske noviny, page 27 dedicated to SCSTI – NITT SK Date: 24/06/2010 Topic: Application and commercialisation of scientific knowledge in the economic and social practice. Transfer of scientific knowledge into practice Article: Transfer, page 11 dedicated to SCSTI – NITT SK Date: 06/2010 Topic: Supporting research, development, innovation, technology transfer in Slovakia For the purposes of the project publicity, the following public procurements were conducted: printing of posters of A1 and A2 format; 2 roll-ups and 1 signboard for marking the project. Information about the project and related activities presented in expert articles under Activity 1.1 and Activity 3.1. Promotion materials: Purchase of 2 presentation roll-up systems and of a signboard for project designation (1 for SCSTI premises and 1 for the purposes of the national project activities) Preparation of an information leaflet about the NITT SK project, printed internally; Preparation of an information leaflet (printed internally) about the implementation of the NITT SK project in English; Designation of the assets acquired under the project (laptops, multifunction equipment, data-projector, expert literature) Participation at the international fair Bibliotéka 2010 (04–07 November 2010), Incheba Bratislava – joint event of the NISPEZ and NITT SK projects (common stand); Launch of the information site on the project http://nitt.cvtisr.sk. Article: New invention helps protecting forests with pheromones (press release); Presentation: Intellectual property commercialisation: Spin-offs, Researchforum 2015, April 2015, High Tatras; Leaflets and brochures for the promotion of events organised in the framework of the NITT SK project (Workshop NITT SK 2011, Aurel Stodola exhibition);

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| | <ul style="list-style-type: none">• Promotion items for the project presentations – folders, bags, pens, hanging straps for telephones, notebooks A4 and A5, self-adhesive bookmarks, USB sticks, distributed to the participants of the NITT SK workshop and prepared for the participants of the NITT SK 2011 conference;• Animated series for the website on TT from EPO – IP Panorama – translation arranged by IPO SR, preparation of dubbing through NITT SK;• Publishing of a bulletin in printed and electronic form;• The project and its activities were promoted at all related events. <p>Up-to-date information on the project implementation is available at the dedicated project website http://nitt.cvtisr.sk and www.nptt.sk</p> |
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The listed activities witness a well-evidenced high level of conducted activities, well in line with expected targets and fulfilling accordingly the intended mission.

5. Answers to the evaluation questions

5.1 Was the project implementation effective?

The project managed to provide for the setting up of the SCSTI TTC and for its close co-operation with the National Transfer Technology Centre, shaping and coordinating the national technology transfer support system.

As from the detailed mapping of the conducted activities reported in the previous section of this report, there is clear evidence that the technology transfer national support system has been able to support an intensive use of intellectual property instruments by public R&D institutions, supporting the application of scientific knowledge in practice.

Moreover, the national project activities supported science and research entities in the technology transfer process by ensuring dedicated information infrastructures and specialised electronic services.

Support was granted also to higher education institutions and research organisations in Slovakia, supporting co-operation with the industrial sector on specialised research fields but also producing a wide range of high-quality research and development outputs in the form of knowledge and technologies that have found successful commercialisation.

By means of effective promotion activities, the project contributed significantly to the raising of awareness about the importance of partnerships between the academia and industry and the need to apply acquired knowledge in practice.

The deployment of research and development co-operations between the public and the private sphere have had a positive impact not only on the development of R&D organisations as such, but also on ensuring a more sustainable development of a competitive economy and well-being society.

5.2 How has the situation regarding protection of intellectual property rights changed?

As from the detailed mapping of the conducted activities reported in the previous section of this report, there is clear evidence of an increased attention paid, thanks to the deployment of the NITT SK project, to intangible assets, including intellectual property, which tends to represent an increasingly important area of business activities in Slovakia.

More than 200 IP protection and TT cases were processed within the project, involving a large number of Slovak research institutions, witnessing a growing interest, competence and skill in the field.

Thanks to the NITT SK project, Intellectual property as an element of intangible assets is representing more and more an important value and an integral part of the Slovak economy.

In the framework of increased competition, businesses are generally well aware of its importance to development and prosperity, thanks to which the key assets of businesses are intellectual property.

IP and trading in non-tangible assets represents one of the most promising developing areas for Slovakia. Innovations and knowledge transfer are reflected primarily in the production process and have in fact nationwide potential impacts.

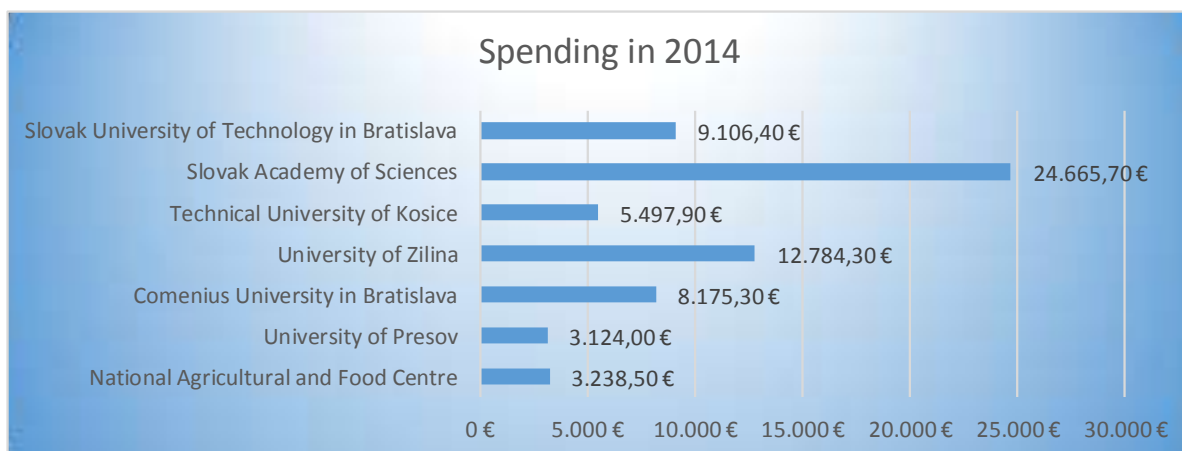
The innovation process, technology transfer and the implementation of new production methods are becoming a common part of the development – research – production cycle or development/research – trade/production cycle, thanks also to the NITT SK project implementation.

The initial underestimation of the importance of intellectual property by different entities was caused by the lack of systemic education on and promotion of intellectual property in Slovakia. The other factors include lack of knowledge and information and apathy, a costly patent system, the structure of the Slovak industry, etc.

There is evidence that the NITT SK project has resulted in a positive impact in this respect, through the various promotional, educational, informative initiatives and also through the financial support aimed at lowering the patent system costs, granted through the Patent Fund managed by the National Technology Transfer Centre of the Slovak Republic - NTTC.

Since 2014, a similar financial support has been granted to several cases of technology transfer covering the fees related to the filing of Slovak or international patent applications:

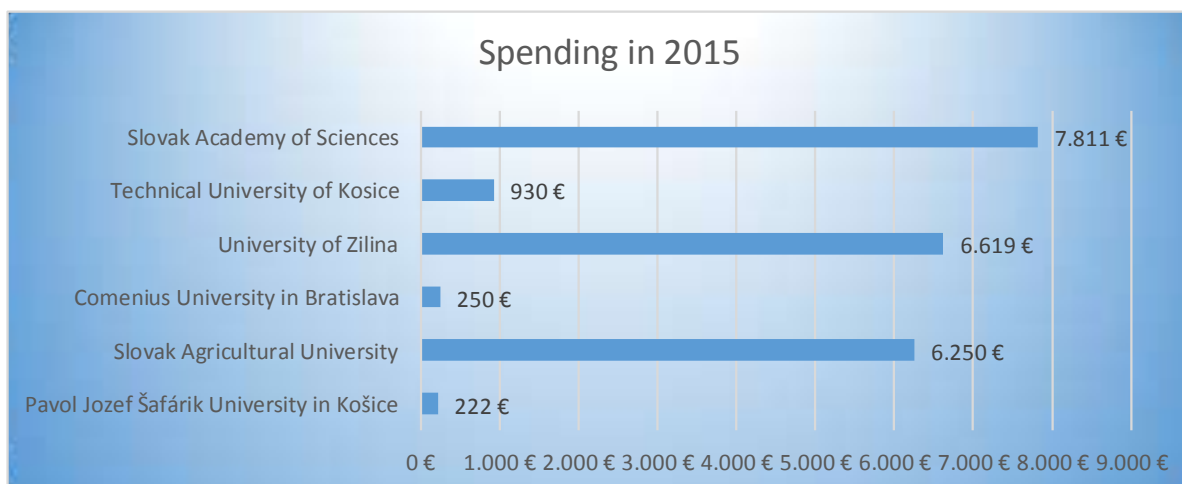
Spending by NTTC Association members, 2014



Use of "Patent Fund" in 2014	National PA	International PA (e.g. PCT)	Utility Model	Trademark	Plant breeding certificate	Design	Amount
Slovak University of Technology in Bratislava	1	4				1	9.106,40 €
Slovak Academy of Sciences	5	7					24.665,70 €
Technical University of Kosice	6						5.497,90 €
University of Zilina	4	3	1				12.784,30 €
Comenius University in Bratislava		2	1	1			8.175,30 €
University of Presov					2		3.124,00 €
National Agricultural and Food Centre	1	1					3.238,50 €
Total:							66.592,10 €

PA - Patent Application

Spending by NTTC Association members, 2015



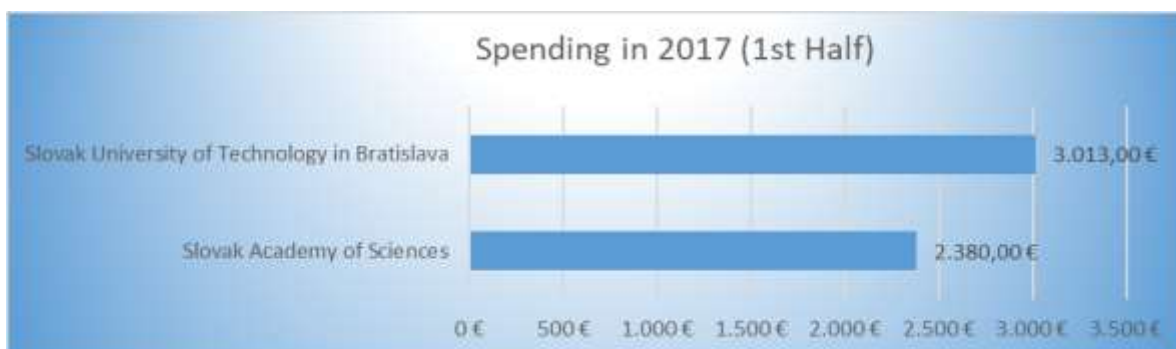
Use of "Patent Fund" in 2015	National PA	International PA (e.g. PCT)	National Phase of PCT	Regional PA (e.g. EPO)	Utility Model	Trademark	Plant breeding certificate	Other Services	Amount
Slovak Academy of Sciences	4	3		1			1		7.811,00 €
Technical University of Kosice								1	930,00 €
University of Zilina	1	2	1						6.619,00 €
Comenius University in Bratislava	2					1			250,00 €
Slovak Agricultural University	2	3			1				6.250,00 €
Pavol Jozef Šafárik University in Košice	2								222,00 €
Total:									22.082,00 €

Spending by NTTC Association members, 2016



Use of "Patent Fund" in 2016	National PA	International PA (e.g. PCT)	Utility Model	Trademark	Amount
Slovak University of Technology in Bratislava	3	2	2		6.036,00 €
Pavol Jozef Šafárik University in Košice	1	1	1		930,00 €
Slovak Agricultural University				1	3.097,00 €
University of Presov	3		1		2.860,00 €
Comenius University in Bratislava	3				195,00 €
Total:					13.118,00 €

Spending by NTTC Association members, 2017

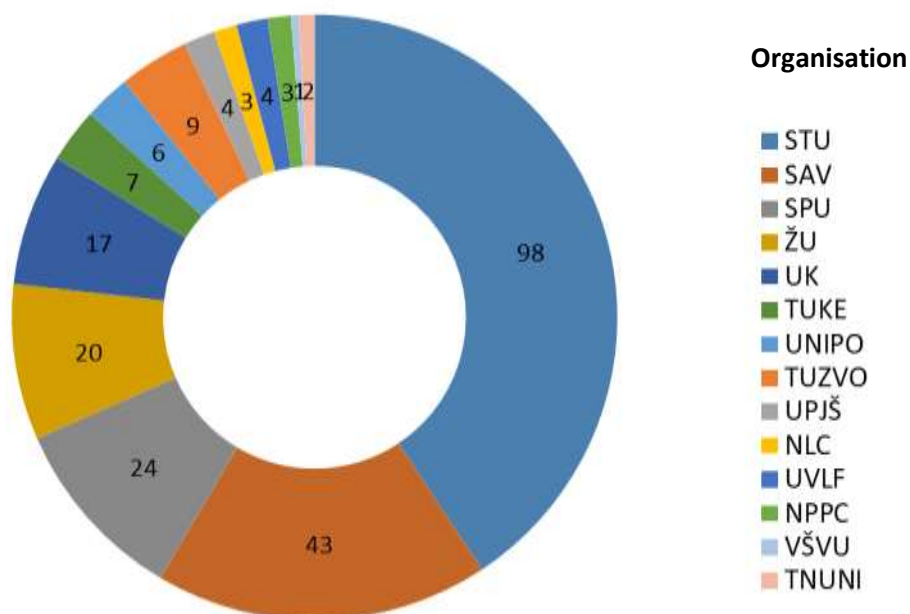


Use of "Patent Fund" in 2017 (1st Half)	National PA	International PA (e.g. PCT)	Regional PA (e.g. EPO)	Utility Model	Amount
Slovak University of Technology in Bratislava	1	1		1	3.013,00 €
Slovak Academy of Sciences			1		2.380,00 €
Total:					5.393,00 €

A visible and remarkable effort was devoted also to support Slovak systemic education and intellectual property promotion and protection. The focus of such systemic promotion has been to stimulate the stakeholders to use the intellectual property system to a larger degree, including the innovation process and technology transfer. Clear evidence witness the relevant impact of the devoted effort, with an undisputable change in the situation regarding intellectual property rights exploitation in Slovakia.

5.3 In what RIS3 areas was support given to TT and Intellectual Property Rights (IPRs) applications?

Over the period from December 2011 to 30 June 2017, there were 241 registered “TT support cases” managed by the National Technology Transfer Support System (NTTSS) for the benefit of 14 R&D institutions in Slovakia:



The term “technology transfer case” is the representation of particular technology and agenda accompanied by the implementation of its transfer into practice.

In order to register a TT case, the representatives of partner institutions (mainly local TCC staff) have entered basic information about the technology and its authors into the EPS electronic system (which is the System of expert support services provided to national centres within technology transfer processes) along with the requests for specific expert support services.

The provision of the services was ensured by the SCSTI TTC staff.

The supported cases and applications demonstrate a remarkably wide coverage of the Slovak RIS3 areas, as can be evidenced by the following overview of supported applications by R&D institutions organisational units:

Overview of filed industrial property applications by R&D institutions supported by the SCSTI TCC

Institution / Institute		Applicati on type	years					Total	
			1-2Q 2017	2016	2015	2014	2013		2012; 2011
Slovak Academy of Sciences	Institute of Inorganic Chemistry	SK					1		1
		N				2			2
		PCT, REG				1		1	2
	Institute of Polymers	SK				2	1		3
		N					7		7
		PCT, REG			1	1	1		3
		TM					1	1	2
	Institute of Physics	SK				1	1	1	3
		PCT, REG				1	1	1	3
	Institute of Neurobiology	SK			2				2
	Institute of Electrical Engineering	SK			1	1	3		5
		PCT, REG				2		2	4
	Institute of Materials and Machine Mechanics	SK				1			1
		PCT, REG			2				2
	Institute of Experimental Pharmacology and Toxicology	PCT, REG				1	1		2
	Institute of Experimental Physics	SK			1	1			2
PCT, REG		1(a)		1				2	
Institute of Construction and Architecture	SK					3		3	
	PCT, REG				1			1	
Institute of Genetics and Plant Biotechnology	BC			1				1	
Comenius University	SK		3	1		4		8	
	PCT, REG				2			2	

	UM				1	2		3
	OZ			1	1			2
Slovak University of Technology	SK	1	3	6	5	1		16
	PCT, REG	1	2	1	3	1		8
	UM	1	2	4	2			9
	D				1			1
University of Žilina	SK			1	2	6		9
	N		2	1				3
	PCT, REG			1	4	2		7
	UM					1		1
Technical University in Košice	N				4			4
	PCT, REG				2	3		5
Slovak University of Agriculture	SK			2				2
	PCT, REG			3	1			4
	UM			1				1
	TM		1(b)					1
NLC	UM				2			2
University of Prešov	BC					2		2
	REG BC					2		2
NPPC	SK				1	1		2
	PCT, REG				1			1
Pavol Jozef Šafárik University	SJ		1	2				3
	PCT, REG		1					1
	UM		1					1
Technical University in Zvolen	SK	1						1
University of Veterinary Medicine and Pharmacology	SK		3					3
	UM		1					1
<i>Total:</i>		5	20	33	47	45	6	156

(a) – European patent application EPO

(b) – Regional trademark application

SK – Slovak patent application

N – national patent application (other than Slovak)

PCT, REG – PCT international application, regional patent application

UM – utility model (including foreign filings)

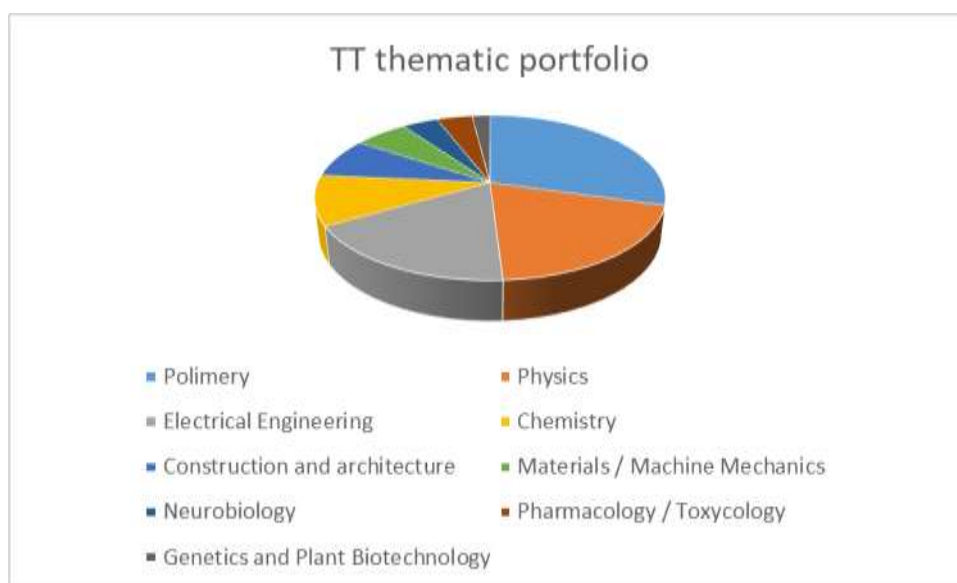
TM – trademark (including foreign filings)

D – design

BC – breeding certificate

REG ŠO – regional breeding certificate application

Taking the Slovak Academy of Sciences as the exemplary reference for thematic coverage (considering its multidisciplinary nature), the main fields of TT reflected competences in materials, physics, electrical engineering and chemistry, representing a fairly wide thematic TT portfolio:



Matching this portfolio with the 7 scientific themes identified within the Slovak RIS3 (as from the Research and Innovation Strategy for Smart Specialisation of the Slovak Republic – 13 November 2013) and indicated as those where there is an assumption for the growth and cooperation with the business practice and solving of urgent social problems, namely:

Research and Development priorities:

1. Material research and Nanotechnology
2. Information and Communication technologies
3. Biomedicine and Biotechnology

Technological priorities:

4. Industrial technologies
5. Sustainable Energy
6. Environment and Agriculture

Social priorities:

7. Selected areas of social sciences

There is a confirmed wide coverage of RIS3 priorities, although with a limited presence of cases in the field of Information and Communication technologies. Such a limited presence is not a surprise, considering that protecting intellectual property or even patenting software, computer programmes or IT related results, is difficult, almost impossible in several cases (like for source code or computer programmes), where normally only protecting through copyright can be applied. In this sense, patenting and IP protection of ICT TT cases is limited.

The follow-up TT national project should focus in a more effective manner on highly strategic and promising industrial areas and technological topics, in order to ensure a more focused and effective impact and create real value for the constituency and the general growth, in order to obtain more easily interest and demand for the involved competences and know-how.

5.4 To what extent are SCSTI integrated ISS applications used?

The Integrated Service System of the Slovak Centre of Scientific and Technical Information (SCSTI ISS) provides an entire set of information systems, software applications, portals, large computing and data capacities with the aim of making them smoothly available to the broadest range of users from the scientific community. It includes a variegated set of services. The customers – users of the services – are higher education institutions, SAS (Slovak Academy of Sciences) institutes, sectoral research institutes and research organisations financed from public funds. The services are divided into the following thematic groups:

- Consultation and information services;
- Communication and security services;
- Software and expert services;
- Data storage and processing services.

In the framework of Consultation and information services, users can use consulting services in the selection of specialised software and applications, and receive information on available services, changes, possibilities and other information related to the activities of the SCSTI ISS. Users can also use the opportunity of attending training on the provided software applications.

This category includes the following services:

- Information service: The service uses the SCSTI ISS portal as a communication channel for providing information about available services, changes, possibilities and other information related to the SCSTI ISS operation. This service contains links to related portals and integrated service systems abroad and in Slovakia;
- Consulting services: Consulting services provide answers to questions arising while contacting the SCSTI ISS with a request for service, and to questions related to the operation and operation problems of the SCSTI ISS. The service also covers

consultations on the choice of specialised software and applications and assistance in the basic setting of software and applications;

- Training activities: The SCSTI ISS ensures, through its own sources or through external companies, training on the software applications offered minimum at user level.

In the framework of Communication and security services, users have a secure, fast and flexible connection to the R&D DC. This category includes the following services:

- Data and communication security: is the prerequisite for a secure and reliable functioning of the SCSTI ISS. SCSTI ISS users are protected against unauthorised data use by means of a set of principles created through the service and through standard operation rules. Security covers the areas of application security, database security, communication security, antivirus security and the Intrusion Detection System (IDS). The service pertains to the category of accompanying services and is provided automatically with SCSTI ISS services.
- Remote connection: it is a service that determines the conditions, the ways and possibilities of access of SCSTI ISS users to the data centre via the transfer access network. The aim is to ensure fast, flexible and safe connection of users from a remote location (outside the spaces of the data centre) to the services and IT technology which can be used within the R&D DC premises or with the assistance of the SCSTI ISS staff at other remote networks and computers. The user with remote connection has the possibility to control such computer (service) from his familiar computer environment. The service pertains to the category of accompanying services and is provided automatically with SCSTI ISS services.

In the framework of Software and expert services, users can use the applications offered or have access to new software and related licences. This category includes the following services:

- System and application licences: The service represents the arrangement of the respective licences to software products for the respective scientific fields and disciplines with the aim to ensure the conducting of scientific and research activities within the SCSTI ISS infrastructure. The service ensures monitoring of compliance with the rules and principles of use of academic systems and applications, transfer of licence conditions and, if needed, the creation of such rules and principles. The service is automatically provided with the service Provision of systems and applications.
- Management of systems, innovation, technology and applications: The service relates to activities needed for regular administration and upgrade of systems and applications, the maintenance of the SCSTI ISS software in the condition so that it can be used at any time and be loaded correctly and in an optimal manner. The

service is automatically provided with the service Provision of systems and applications.

- Provision of systems and applications: The service offers the use of systems and applications which are available at the SCSTI ISS via the R&D Data Centre infrastructure for scientific and research activities. Such provision also means the arrangement of access to the systems and applications which are not directly within the SCSTI ISS infrastructure, but where the operator of the Integrated Service System ensures access to these programmes, or the arrangement of access to application software serving for the control of and access to provided systems and applications.

Systems under this service:

- MATLAB system: The MATLAB computing system became a worldwide standard in the field of scientific and technical computing and simulations mainly in the field of science and research. The MATLAB system is also suitable for complex scientific and technical computing, modelling, algorithm designs, simulations (including dynamic systems supporting the Model-Based Design methodology), computing biology (including modelling, simulations and analyses of biochemical chains, reading, analyses and visualisation data in the field of molecular biology and gene engineering), data analysis (including statistical analysis, modelling and possibilities of algorithm development for statistics purposes), for data presentation, measuring and processing of signals, pictures and videos, designs of control and communication systems and parallel computing;
- SAS system: SAS is highly professional analytical software whose services in the field of data analysis and the retrieval of hidden information play an important role in scientific and research activities. SAS provides a graphical user interface with hyperlinks (point-and-click) for non-programmers or more advanced possibilities via its own programming language;
- BIO software system: specialised scientific software for biology;
- VASP system: specialised scientific software for large-scale computing of the electron structure and mechanic properties of ceramic materials.

In the framework of the Data storage and processing services, users can take use of short-term or long-term storage of data and records, creation of data back-ups with secure access, search of stored data and records. Users are also provided with virtual space in which they can place their own web servers or application software for carrying out scientific calculations using specialised hardware.

This category includes the following services:

- Hosting: This service uses the hardware infrastructure of the data centre and the possibility of virtualisation on servers. Users are provided with virtual space in which they can place their own application software and carry out scientific calculations and tests.
- Data storage services: This service offers a secure storage site for data which is the result of scientific and research activities. It covers the need to store electronic records directly in electronic form while preserving their clear graphical and content representation;
- Webhosting: This service, similarly as Hosting, uses the hardware infrastructure of the data centre and the possibility of virtualisation on servers. Users are provided with virtual space for placing their own web server with the possibility of putting into place their own website;
- Data back-up: This service provides the user with the possibility of creating back-up data copies. The back-up can be performed either manually or automatically. Automatic back-up can be continuous or at certain time intervals. A back-up copy serves for the restoration of “live” data in case such data was damaged or destroyed, but not archived.

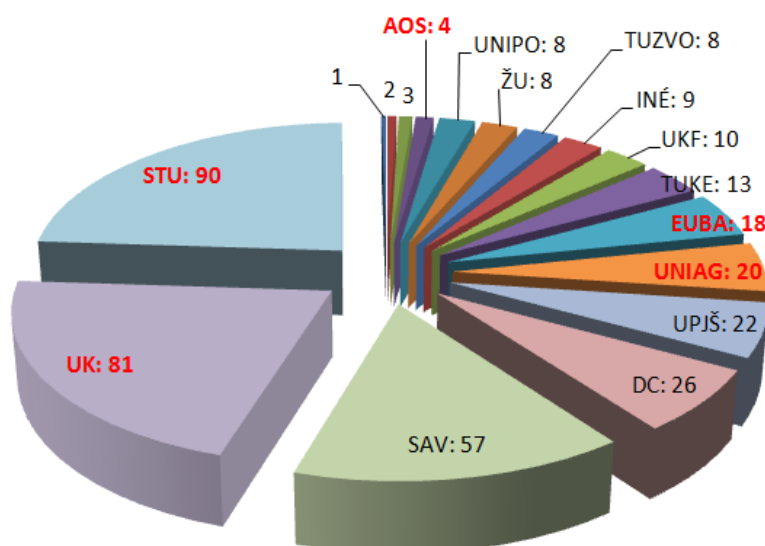
SCSTI ISS services started to be provided to users at the beginning of stage 3 of Activity 2.1. The following pilot services were provided during implementation works upon the supply of the SCSTI ISS:

1. Hosting – virtual space for installing specialised biology software– BIO software (43 users);
2. Communication and security services – ensuring safe access to a remote work station (terminal-server, TS) and secure work with the MATLAB system installed at a remote work station (220 users);
3. Consultation and information services – provision of information on work with the MATLAB system by means of the SCSTI ISS portal, consultations on work with a remote work station and work with the MATLAB system (220 users);
4. Licensing and expert services – ensuring correct interpretation of the licensing policy for the MATLAB system (220 users);
5. Provision of systems and applications – ensuring access for work with the MATLAB system (220 users) and BIO software (43 users).

Along with the increasing number of users and increased demands for support services and upon the acceptance of the SCSTI ISS from the supplier and the launch of its full operation, the following services were provided to users:

1. Hosting – virtual space for installing specialised biology software – BIO software (43 users);
2. Communication and security services – ensuring safe access to a remote work station (terminal-server, TS) and secure work with the MATLAB system installed at a remote work station (400 users); ensuring secure access and secure work with the BIO software (43 users); ensuring secure access to a remote work station (terminal- server, TS) and secure work with the SAS statistical and analytical system installed at a remote work station (17 users);
3. Consultation and information services – provision of information on work with the MATLAB and SAS systems by means of the SCSTI ISS portal, consultations on work with a remote work station and on work with the MATLAB system (400 users) and with the SAS system (17 users);
4. Licensing and expert services – ensuring correct interpretation of the licensing policy for the MATLAB system (400 users), BIO software (43 users) and SAS system (17 users);
5. Provision of systems and applications – ensuring access for work with the MATLAB system (400 users), BIO software (43 users) and the SAS system (17 users);
6. Data storage services – providing disk space for the storage of data resulting from scientific and research activities (418 users).

From actual data related to the level of use of the IIS (as reported below, with exemplary reference to MATLAB related services) and also from the interviews conducted by the subscribed evaluator with stakeholders and representatives of users in Bratislava last October 10 and 11, 2017, there is clear evidence of a high level of usage of these services, combined with a good level of appreciation of the available functionalities:



Number of users of the MATLAB system by institutions

Legend:

TNUNI – University of Trenčín	UKF – Constantine the Philosopher University
UCM – St. Cyril and Methodius University	TUKE – Technical University in Košice
UMB – Matej Bel University	EUBA – University of economics in Bratislava
AOS – Academy of Armed Forces	UNIAG – Slovak University of Agriculture
UNIPO – University of Prešov	UPJS – Pavol Jozef Šafárik University
TUZVO – Technical University in Zvolen	UK – Comenius University
	STU – Slovak University of Technology

The SCSTI ISS represents one of the major NITT SK project outputs. Emphasis is placed on the provision of services by using this infrastructure which, given the sound number of users, can be considered as successfully implemented and used.

5.5 What is the project's contribution to raising the awareness of the scientific community of IP protection and TT?

As from the detailed mapping of the conducted activities reported in the previous sections of this report and also from the interviews conducted by the subscribed evaluator with stakeholders and representatives of users in Bratislava last October 10 and 11, 2017, there is clear evidence of a high level of NITT SK project's contribution to raising awareness, in particular of the scientific community, on IP protection and TT in general.

A key starting point was the deployment of a study identifying possible promotion tools to enhance the use of instruments for the protection of intellectual property rights by the Slovak scientific community, study that was prepared in 2011, followed by a well-documented analysis on the use of standard means of mass-media communication.

Again in 2011, the use of internet means of mass-media communication was investigated and combined with an analytical study identifying the requirements for the integrated editing system.

From 2012 several promotional tools were deployed, including the creation (production) of information video-recordings, the production of documentary films and animated advertisements, virtual presentations of exhibitions and Radio advertisement.

Editing systems were implemented (currently running various pages, such as www.nptt.sk, <http://nitt.cvtisr.sk>, etc.), combined with tools for on-line counselling and consulting (implemented as part of the [nptt.sk](http://www.nptt.sk) and available to registered users at <https://eps.cvtisr.sk>), Internet bulletins (updated min. once a week; the magazine is available at the [nptt.sk](http://www.nptt.sk) portal).

Printed products were published (min. 12 issues of the information bulletin for the R&D community and organisations). Over the entire monitoring period, 14 issues of the TT bulletin were published in printed form, from 2012 till 2015.

In terms of broadcasted media products, 31 media products were broadcasted with a total duration of 458.5 minutes.

An impressive number of expert seminars, workshops and events on technology transfer were organised in Bratislava and in other Slovak regions, including:

- Workshop NITT SK, June 2011;
- Aurel Stodola – Message for Future Generations (exhibition) – May – Aug 2011;
- Science on Your Side, Knowledge Transfer into Practice (travelling exhibition) – Sept – Nov 2011;

- Conference NITT SK 2011 – Technology transfer in Slovakia and abroad, Oct 2011;
- Intellectual property and design – a crossroad of talents from the Academy of Fine Arts in practice, Feb – Apr 2012;
- Afternoon with design, March 2015;
- Biotherapeutical methods in practice, Sep – Nov 2012;
- Conference NITT SK 2012 – Technology transfer in Slovakia and abroad, Oct 2012;
- Intellectual property and technology transfer I., Nov 2012;
- TransferTechDesign, Jan – March 2013;
- Seminar on Technology Transfer, Feb 2013;
- TRANSTECHDESIGN: Technology transfer into design – new technologies and design, March 2013;
- Intellectual property and technology transfer II, March 2013;
- Establishing the National Technology Transfer Centre, March 2013;
- Commercialisation of research results in Hungary, Slovakia, Czech Republic and Poland, Apr 2013;
- Intellectual property and technology transfer III, June 2013;
- Conference NITT SK 2013 – Technology Transfer in Slovakia and Abroad, Oct 2013;
- Intellectual property and technology transfer IV, Oct 2013;
- Technology transfer in the Czech Republic, Jan 2014;
- Intellectual property and technology transfer I, Feb 2014;
- Value of intellectual property in the technology transfer process, March 2014;
- Use of research services in scientific practice, Apr 2014;
- TT Forum, April 2014;
- Economic Aspects of Intellectual Property Rights, May 2014;
- Intellectual property and technology transfer II, June 2014;
- Conference NITT SK 2014 – Technology Transfer in Slovakia and Abroad, Oct 2014;
- Trans Tech Exchange 2014, Nov 2014;
- Intellectual property and technology transfer III, Nov 2014;
- Working seminar “MATLAB within the SCSTI ISS environment”, Dec 2014;
- Intellectual property and technology transfer IV, March 2015;
- Slovakia’s Open Access Policy within the European Framework 2015 – Current State and Perspectives, March 2015;
- TRIZ method and the avoiding of patents, March 2015;
- Intellectual Property Protection Strategy, June 2015;
- Trans Tech Exchange 2015, Sept 2015.

Other activities were organised as well, aimed to promote the use of instruments for the legal protection of intellectual property and commercialisation of knowledge by the scientific community, including the promotion of related support services provided by the SCSTI TTC (participation in the event Current state and perspectives of analytical chemistry in practice, June 2014 in Bratislava).

Accompanying tools were deployed for the promotion of research and development and the popularisation of their results among the general public, including e-Bulletins for TT, e-Presentations on TT, information video-recordings, promotion films and short videos (media products in Radio Viva, information video-recordings, advertising campaign in Radio Viva, promotion articles in Pravda daily).

Publicity and information activities were performed over the entire reference period quite extensively, including a programme at the European School System and Research on June 2010 on the topic: How does the protection of know-how or inventions of our scientists work? What attention is paid to technology information transfer in Slovakia?

Several articles were published (e.g. *Hospodárske noviny*, dedicated to SCSTI – NITT SK last June 2010 on “Application and commercialisation of scientific knowledge in the economic and social practice. Transfer of scientific knowledge into practice” and *Transfer*, dedicated to SCSTI – NITT SK on “Supporting research, development, innovation, technology transfer in Slovakia”).

Printing of posters, roll-ups and signboards, information leaflets were prepared, for marking the project, representing effective promotion items for the project presentations (including folders, bags, pens, hanging straps for telephones, notebooks, self-adhesive bookmarks, USB sticks).

The whole continuously supported and well documented through informative dedicated project websites (<http://nitt.cvtisr.sk> and www.nptt.sk).

Overall, there is clear and well substantiated evidence that the NITT SK project succeeded in the organisation and deployment of high level and well followed initiatives and activities managing to raise sensibly the level of awareness of the Slovak scientific community in terms of Intellectual Protection and Technology Transfer.

It will be strategic in the follow-up project to continue and to extend such an effort including and involving in awareness raising initiatives as much as possible also the industrial and commercial constituency, in order to facilitate and prepare the field to a well-informed technology transfer process, resulting in important deployment and competitive growth of the Slovak economy, building on its valuable knowledge, research and scientific competences.

6. Findings, conclusions and recommendations

As from the analyses conducted, consulted documents and interviewed stakeholders, there is clear evidence that the objectives set and workplan defined at the start of the NITT SK project have been well accomplished and fulfilled.

The project impact

The envisaged TT infrastructures and support services have been duly implemented and deployed, accompanied by significant effort in dissemination and communication.

The level of initial quantitative and measurable definition of success and impact expected from the project (with the presence of connected numerical targets) was well achieved, allowing appreciating a good level of outcomes of the initiative.

The scope and main aims have been well formulated, making them sufficiently easily and objectively measurable, aiming at fairly ambitious targets (e.g. in terms of expected number of participants to

related events, of patents to be derived from the involved constituency, of public/private projects, initiatives, ventures and service contracts directly deriving from the TT support services, etc.).

Future initiatives and programmes in the field should make the expected impact characterised by even more ambitious and comprehensive measurable parameters and indicators, accompanied by estimated targets, translating the definition of success into a concrete and well substantiated scenario.

Overall, the NITT SK project has allowed activating and maintaining a well structured and effective mechanism able to bring local competences and inventions towards IP identification and protection up to scouting and finding potential industrial and market players interested to exploit such a competence, knowledge, IP or patent.

For the scope, the SCSTI has also covered the role of industrial and market investigator, in order to identify possible users and “clients” interested into the local “offer” of knowledge and IP.

The way forward: the “demand-driven” TT approach

Looking in perspective terms, it is now necessary to combine such an “offer-centric” view (namely the approach to start from a local knowledge or invention, to see how to protect it and to check if there is any industrial or commercial entity interested to exploit it) with a “demand-driven” view.

This requires the need to investigate, understand and monitor in a systematic manner the industrial and commercial demand, at central but even more suitably at local level.

Understanding what the industry needs will be a key step, in order to create a fruitful link between industrial needs and research available competences and identify which future research streams and paths could and should be initiated by Slovak universities and/or research centres, in order to answer to such needs.

This “demand-driven” Technology Transfer will obviously accompany in a coordinated manner the open, basic character of the research that academic institutions shall continue to initiate, independently and hopefully even anticipating societal and industrial needs and requirements.

This industrial, commercial and market demand scouting, survey and monitoring exercise should be an essential part of the future follow-up TT national project, that should combine the centralised TT services (already well initiated and deployed within the initiative actually under evaluation) with local procedures, events, mechanisms for industry-research meeting and matching, sustaining innovation and competitiveness of the relevant societal and industrial fields.

The final scope should be to let the industrial constituency be aware and be well-informed of the research competences and activities available at each local TTC (through periodical newsletters, focused topic meetings, show-case TT events, workshops, conferences, etc.).

The project sustainability

Another key aspect of the implemented project is related to its claimed and envisaged sustainability, after the end of the planned activities and following the expiry of the allocated funding. The initial assumptions were linked mostly to the planned sustainability granted through public sources (Ministry of Education as well as co-funding of TT centres by their respective “mother institutions”, namely universities or academic organisations hosting them), not relying strongly and not sufficiently on self-sustainability of TT centres and support infrastructures and services.

The structured and organised expose of academic competences to the industrial constituency should represent the starting point to achieve such strategic and unavoidable objective of the whole TT scenario, namely sustainability. It should be in fact expected that companies, once aware of the available competences, should enter into contractual research, consultancy, licencing or even patent acquisition, ensuring self-sustainability to local TTCs. In turn, such commercial incomes should allow economical grounds for local TTCs so that they could, in the medium to long term, contribute economically to the self-sustainability of the central overall TT services.

A real sustainability could and should be based on multiple sources, including:

- the selling of TT services to private actors (e.g. companies, private research and innovation centres). This “commercial” character of local Technology Transfer Centres (TTCs) represents an unavoidable pre-requisite in order to aim at a real sustainability;
- incomes deriving from training sessions (e.g. on IPR management, patenting, TT methodologies for large companies or international groups);
- funding deriving from the economic participation to joint projects between the TT scientific and research sphere and the industrial sector, with the involvement of local TTCs in publicly funded initiatives (e.g. projects funded on competitive bases within European, national and regional R&D and innovation programmes).

The recommendations

This section of the report includes also suggestions and recommendations to ensure the most effective implementation possible of the follow-up national project “*Mobilisation of Knowledge and Technology Transfer from Research Institutions into Practice*” under the *Operational Programme Research and Innovation (OP R&I)*.

Several issues highlighted during the course of the above evaluation exercise are considered appropriate and deserving due consideration. They have therefore been translated into possible recommendations for improvement within this section of the report.

These observations are accompanied by further general comments, whenever relevant.

Recommendation 1: Ensure ambitious service impact targets of the follow-up project

In order to allow the impact assessment to be even more comprehensive, the next follow-up project should be formulated and accompanied by ambitious measurable parameters and indicators, accompanied by estimated targets, particularly focused on service, TT commercial aspects and industrial connections, translating the intended definition of success into a concrete and well substantiated scenario per each activity and for the whole programme and project. Parameters should reflect a large set of indicators (e.g. on number of brokerage events, level of academia-industry cooperation resulting from the project deployment, number of resulting patents, of participating organisations, of direct positive appreciation of the efficacy of provided services and accompanying initiatives and events, of level of effective sustainability and cost coverage, of economical value of resulting service contracts, etc.).

Recommendation 2: Extend awareness raising towards industrial and commercial constituency

The follow-up project should extend awareness raising initiatives involving as much as possible the industrial and commercial constituency, in order to facilitate and prepare the field to a well-informed technology transfer process, through focused initiatives (brokerage events, industrial demand/research offer matching and networking initiatives, sectorial activities, business to research linkage services, etc.).

Recommendation 3: Expand the TT “demand-driven” character

The “offer-centric” view (namely the approach to start from a local knowledge or invention, to see how to protect it and to check if there is any industrial or commercial entity interested to exploit it) should be combined with a “demand-driven” view. For the scope, the industrial and commercial demand for competence and TT should be thoroughly investigated, understood and monitored in a systematic manner, at central but even more suitably at local level. This expected to create a fruitful link between industrial needs and research available competences and identify which future research streams and paths could and should be initiated, in order to answer to such needs.

Recommendation 4: Focus on strategic TT industrial areas

The follow-up TT national project should focus on highly strategic and promising industrial areas and technological topics, in order to ensure a more effective impact and create real value for the constituency and the general growth, to obtain more easily interest and demand for the involved competences and know-how.

Recommendation 5: create and maintain offer and demand web-based open databases

A web-based dedicated industrial demand database should be created and left available for consultation and reference to local TTCs. Here, a structured view on industrial demand should be maintained through local contributions (resulting from brokerage events, direct contacts, requests, rtc.) and should allow local TTCs and researchers to have an updated view of the market, commercial and industrial requirements and needs. A similar web-based database should be created, including references on competence fields of Slovak academia and research institutions, details of “who is researching what and where”. Such an offer database should be made available

to industrial stakeholders to be consulted, in order to navigate and identify easily available needed competences.

Recommendation 6: Combine centralised TT features with local TT services

The follow-up TT national project should combine centralised TT services (already well initiated and deployed within the initiative actually under evaluation) with local procedures, events, mechanisms for industry-research meeting and matching. This industrial, commercial and market demand scouting, survey and monitoring exercise should be an essential part of the future LCTTs. The final scope should be to let the industrial constituency be aware and be well-informed of the research competences and activities available at each local TTC (through periodical newsletters, focused topic meetings, show-case TT events, workshops, conferences, etc.).

Recommendation 7: Aim at an effective self-sustainability of the follow-up project

The follow-up national TT project should aim at a real sustainability, starting from local TT centres, based on multiple sources, including a) the selling of TT services to private actors (e.g. companies, private research and innovation centres), b) incomes deriving from training sessions (e.g. on IPR management, patenting, TT methodologies for large companies or international groups), c) economic participation and return from additional funds obtained by R&D institutions that benefited by an intensive development of scientific and research activities through the supported commercialisation of knowledge acquired by research and development activities and through the creation and implementation of joint projects of the scientific and research sphere and the industrial sector, other than d) through and the involvement of LCTT centres in publicly funded initiatives (e.g. project funded on competitive bases within R&D and innovation European and national programmes) and e) incomes from licence fees linked to patent exploitation. So, contractual research, consultancy, licencing or even patent acquisition from the industrial and commercial constituency should ensure self-sustainability to local TTCs. In turn, such commercial incomes should allow economical grounds for local TTCs so that they could, in the medium to long term, contribute economically to the self-sustainability also of the central overall TT services.

Recommendation 8: Sustain an integrated TT ecosystem

The target of the follow-up national project should be the facilitated development of an integrated TT ecosystem, where technology can be transferred at different levels (depending on the maturity of the field, on market and industrial demand, on research priorities), starting from a) TT consultancy services (where LCTT act as catalyser, point of contact, of competence identification, of contractual relationship, project management and guarantor of the provided consultancy), eventually reaching b) contractual research, also through joint innovation projects, until c) patenting and the related licencing of more advanced and uncovered knowledge, reaching eventually d) the establishment of spin-off companies, when the level of maturity of the underlying knowledge and invention deserve the creation of a specific legal entity, till e) the launch of start-ups, when the maturity does not require internal coaching from the involved universities, has terminated the research and development phase and can be fully left to market dynamics.

The conclusions

In perspective and strategic terms, after the start-up, learning and awareness raising phase experienced under the NITT SK programme, it's time for local TT centres to become, under the next envisaged funding project, more effective in sustaining innovation and competitive growth of industries and research, acting at the same time to act as catalysts of industrial needs and as marketing tools for academia competences exploitation.

This should be deployed not only matching and establishing links and connections between industrial “demand” and research “offer”, but also regulating the contractual relationship and acting as no-profit and institutional service centre and independent trusted guarantor of the level of service deployment and technology transfer.

The envisaged follow-up national TT project should sustain such a change, building on the successful deployment and valuable impact derived from the NITT SK project, ensuring a broader involvement of the industrial constituency, demanding targets focusing on strategic challenges and key market, industrial and research priority areas, combining centralised with local TT services, developing offer/demand databases and portals and creating a sustainable and inclusive TT ecosystem.

7. Strengths and weaknesses of the evaluation

This evaluation has been deployed and built around a variegated set of data source (listed as annexes to this document), of available documentation (translated in English) and direct interviews conducted on occasion of a TT event organised at SCSTI premises last October 10-11 2017.

The available documentation, although not representing the full set of TT material produced in connection to the NITT SK project, is considered by the undersigned evaluator suitable to allow creating a comprehensive scenario, in terms of activities conducted, achievements and future plans to sustain and exploit fully Slovak TT.

The deployed methodology, combining desk research with direct contacts with stakeholders, is considered as an effective approach and a clear strength of the conducted exercise, although future monitoring and assessment exercises should not only initiate similar ex-post impact assessment studies, but should provide for a continuous evaluation mechanism, accompanying the whole deployment of similar complex and intensive programmes, defining intermediate milestones where eventual corrective interventions could be taken, to ensure full impact and success of the initiative.

8. Annexes

- a. Documents used for the evaluation:
 - i. OP R&D(Slovakia)_2007-2013.doc
 - ii. NTTC_Annual-Report_2016.docx
 - iii. Project_description.docx
 - iv. Grant_application-extract.docx
 - v. Overview_of_activities_implemented.docx
 - vi. Project_budget&comments.xlsx
 - vii. act_1.1_2_9_Proposal_National_TT_Support_System.docx
 - viii. Expert-Support-Services_Progress_Report_01_2017.docx
 - ix. act_1.1_2_12_Number-of-supported-cases.xlsx
 - x. act_2.1_2_23_analyt-study_I_Identification of tools for ISS-content.docx
 - xi. act_3.1_2_36_Study I_Tools for the promotion of active use of instruments for intel-protection-content.docx
 - xii. act_2.1_2_35_Integrated-Service-System_final_report.docx
 - xiii. act_3.1_2_37_Study II_Mass media promotion of TT-content.docx

- b. PowerPoint presentation of the results of the evaluation

Brescia (Italy), 3rd November 2017

Signed: Alberto Bonetti