D3.1

ALLIANCE knowledge sharing strategy

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Author(s)	Irina Yatskiv (Jackiva), Mihails Savrasovs, Igor Kabashkin		
Co-author(s)	-		
Responsible Organisation	TTI		
WP Leader	TTI		
Internal Reviewer(s)	Eftihia Nathanail & Giannis Adamos, UTH Kay Matzner, Fraunhofer Igors Graurs, TTI		
Project Officer	Agnes HEGYVARINE NAGY		

ALLIANCE Beneficiaries	
TRANSPORT AND TELECOMMUNICATION INSTITUTE – TTI	Latvia
PANEPISTIMIO THESSALIAS – UTH	Greece
FRAUNHOFER GESELLSCHAFT ZUR FORDERUNG DER ANGEWANDTEN FORSCHUNG EV – Fraunhofer	Germany

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LIST OF ABBREVIATIONS

Abbreviation	Description
BSR	Baltic Sea Region
CA	Consortium Agreement
CBA	Cost Benefit Analysis
CSUM	International Conference on Sustainable Urban Mobility
ERDF	European Regional Development Fund
D	Deliverable
DSS	Decision Support System
EC	European Commission
EU	European Union
GA	Grant Agreement
ICT	Information and Communications Technology
ITS	Intelligent Transportation System
KPI	Key Performance Indicators
KS	Knowledge Sharing
LMS	Learning Management System
M	Month
OA	Open Access
PO	Project Officer
RelStat	International Conference on Reliability and Statistics in Transportation and Communication
SCM	Supply Chain Management
STSE	Short-Term Staff Exchange
TRA	Transport Research Arena
WP	Work Package
YR	Young Researcher

ABSTRACT

This deliverable includes the detailed description of the ALLIANCE knowledge sharing strategy, which is a key element of the project. The aim of the Strategy is to present the tools and activities used in the framework of ALLIANCE in order to make knowledge sharing among project partners effective and sustainable. In addition, the deliverable defines the framework to measure the effectiveness of the knowledge sharing activities with linkage to the general TWINNING programme goals, TTI Strategy and Research Programme for 2016-2020 and specific goals of ALLIANCE.

1 Introduction

ALLIANCE's challenge is to enhance the excellence and innovation capacity of the Transport and Telecommunication Institute (TTI) which is established in Riga, Latvia. Latvia is ranked below 70% of the EU27 average of the composite indicator on research excellence, allowing TTI to coordinate the project and cooperate with two leading research organizations in the domain of transportation: University of Thessaly, Greece and Fraunhofer Institute for Factory Operation and Automation, Germany.

The excellence in science and technology, which takes into account the quality of scientific production and the technological development, is considered very low in Latvia. An important aspect of the Latvian research and innovation system is the absence of highly qualified scientists and engineers, addressed by the low number of new doctorates awarded and graduates in science and engineering. In addition, the country does not attract any significant numbers of non-nationals in the field of research and innovation, while many scientists prefer to pursue their careers abroad. Also, there is an extremely low share of researchers in business enterprise and the employment in knowledge-intensive activities is below the EU average.

In recent years, TTI has made many efforts to become a national leader in research and education in ICT in Transport and Logistics. Research is an integral part of the TTI mission and work. In 2014, TTI as research institution was recognized as one of the good research establishments in Latvia (included in top 10% of all research entities). The international experts evaluated TTI as a research entity with good national research level and with high opportunity to become internationally (in EU research environment) recognized research entity (Technopolis, 2014).

Although the researchers of TTI have published the results of their research in regional journals and in conference proceedings, the number of publications in prestigious international journals is relatively limited. This is the reason that the impact of the publications is rather low, and needs to be increased. In addition, even if the number of research outputs, both in absolute terms and when the numbers are normalized per researcher is high, still the number of research outputs and citations in Scopus is relatively low. The societal impact of TTI's research is mostly visible regarding the definition of transportation policies. Nevertheless, the impact of job creations is low although there are many opportunities in the field of transport management and control. At the same time, although the size of the Institute is rather large, its ability to attract high-level doctoral students and scientists from abroad is limited (Technopolis, 2014).

The evaluation provided by international experts gave TTI an opportunity to receive financial support from ERDF to increase TTI institutional capacity in field of research. In frame of this project the primary goal was to develop TTI Research Strategy and Programme for 2015-2020. The main task during the development of the Research Strategy for 2015-2020 is to implement the recommendations of the experts and to fulfil some internal transformations for a more efficient operation of TTI for ensuring that the TTI can continue to produce a significant volume of high quality work and respond to the rapidly changing environment in Latvia and worldwide in relation to research and its funding. The TTI Research Programme is linked much with ALLIANCE as it defines important research fields and lists activities necessary to raise the research level of the TTI. The scope of TTI Research Programme is the enabling of stimulating and strengthening the research capacity of TTI and the raising of the profile of the research staff and their institution, by providing knowledge in the field of ICT in Transport and Logistics.

Germany has expanded its research and innovation systems over the last decade; specifically, the investment in research and development has grown substantially since 2000 to reach 2.84% of GDP in 2011, which is already close to the 3% national target for 2020. The increase in public and private expenditure on research and development has helped to maintain a high innovation capacity and a strong export performance. The high level of patenting indicates the industrial leadership in several domains, including engineering industries, automobiles, environmental and energy technologies, etc. The big public research institutes, such as the Fraunhofer Society work closely with universities and are generally highly ranked in recognized international comparisons (European Commission, 2013).

Greece made clear progress in improving its scientific quality and has a high level of scientific production in construction, ICT, security, aeronautics and space, transport, production and energy. In fact, although the convergence of science and technology specializations may not be sufficient enough, there is a strong science base to build upon (European Commission, 2013).

The document presents the ALLIANCE knowledge sharing strategy, which describes the tools and activities used in the framework of the project in order to make knowledge sharing amongst project partners effective and sustainable. This strategy will set a collaborative research roadmap development with reference to impact factors of the project. The title of the Deliverable uses the term "knowledge sharing" against the term "knowledge transfer" as the ALLIANCE consortium believes that all partners involved in the project could significantly enrich their knowledge in selected field of research.

All ALLIANCE activities will enhance the knowledge of partners and first of all - TTI staff and other stakeholders involved and will lead to knowledge sharing and research excellence.

In addition, the deliverable defines the framework to measure effectiveness of knowledge sharing activities with linkage to the general TWINNING programme goals, TTI Strategy and Research Programme for 2015 - 2020 and specific goals of ALLIANCE.

1.1 Project overview

ALLIANCE aims at developing advanced research and higher education institution in the field of smart interconnecting sustainable transport networks in Latvia, by linking the Transport and Telecommunication Institute – TTI with two internationally recognized research entities – University of Thessaly – UTH, Greece and Fraunhofer Institute for Factory Operation and Automation – Fraunhofer, Germany. Close collaboration of TTI with UTH and Fraunhofer will enable the achievement of the goals through the following activities:

- Organization of young researchers' seminars.
- Organization of workshops.
- Organization of summer schools for trainers and young researchers.
- Development of educational programme for graduate and post-graduate students.
- Development of training programme for trainers and practitioners.
- Provision of grants for participation as authors in peer reviewed conferences.
- Facilitation of Short-Term Staff Exchanges (STSE's) with the aim of international collaboration, mainly publications.
- Establishment of a guidance strategy for preparing scientific publications.
- Creation of an educational forum as on-line tool for distance learning and knowledge sharing.

The overall methodology of the project is built around the analysis of the needs of Latvia and the surrounding region of the Baltic sea (Lithuania, Estonia, Poland) on knowledge gain about intermodal transportation networks and the development of the tools to attain this knowledge, providing at the same time excellence and innovation capacity. The analysis to be conducted during the first stages of the project, steps on the overarching relations among policy makers, industry and education/research.

Structured around three main pillars, organizational/governance, operational/services and service quality/customer satisfaction, ALLIANCE will deliver a coherent educational/training program, addressed to enhancing the knowledge of current and future researchers and professionals offering their services in Latvia and the wider region.

The expected impacts on the overall research and innovation potential of TTI and Latvian research community will be of high importance and TTI will benefit from ALLIANCE by:

- Improving its knowledge in methodologies for preparing, writing and publishing scientific papers.
- Strengthening its research capacity.
- Establishing international research teams in specific areas of interest.
- Generating new innovative ideas for future research work through the project's activities.
- Setting up the fundamentals for the young generation of researchers.
- Being integrated in a number of existing international transportation research networks.
- Being incorporated in the European research system of transport and logistics.

In addition, the cooperation of TTI with UTH and Fraunhofer will induce benefits into several domains of everyday life at regional, national and international scope. New bases will be established concerning knowledge transfer procedures, education and interdepartmental collaboration amongst research institutes. The innovative organizational framework, which will be structured for this purpose during the project, is expected to constitute a best practice application with tangible and well estimated progress results, which will be disseminated and communicated through social events to the research community and to the respective business sector as well.

Lastly, the most important benefit will be the configuration of an integrated framework pertaining to the knowledge transfer techniques and the generic upgrading of the educational system with use of networking, staff exchange, webinars and other knowledge transfer methods and techniques based on a well-structured and well-tried schedule.

2   Knowledge sharing strategy

According to the Handbook on Knowledge Sharing (Tsui, Chapman and Stewart, 2007) "*knowledge sharing*" is defined as "*the process of exchanging knowledge (skills, experience, and understanding) among different target groups*". The purpose of the knowledge sharing strategy will be the clear definition of the activities and tools which will be implemented in order to support effective knowledge sharing and transfer from UTH and Fraunhofer to TTI. This strategy will set a collaborative research roadmap development with reference to impact factors of the project. The scientific excellence task results of knowledge transfer activities will be the main measurable output of the project, directly connected with published work and impact factors.

In order to define the sound Knowledge Sharing (KS) strategy it is necessary to define different dimensions of the KS strategy. Following issues necessary to define in order to implement effective and sustainable KS strategy:

- Knowledge sharing beneficiaries
- Tools of knowledge sharing
- Matrix of coverage.

2.1   Knowledge sharing beneficiaries

An overview of groups that knowledge sharing could target is presented in Table 1, be divided into two groups: Internal and external, by internal we do understand internal staff and students of TTI, by external - rest (none TTI) entities from public and private sector, who could be potentially interested in knowledge sharing. Table 1 is coherent with communication target groups mentioned in D5.1 (Nathanail & Adamos, 2016).

Table 1: Knowledge sharing target groups

Category of KS target groups	Potential interests	Expected benefits and impacts
Internal		
Academic staff	Knowledge necessary to raise the quality of teaching of PhD and master students in predefined research area	Prepared set of studying courses and knowledge, which are could be supported by qualified academic staff
Research staff	Innovative research topics, common publications, new areas of collaboration, new projects	Raise number of scientific publication, new projects areas, new consulting services for the local and regional authorities, private companies etc
PhD, master students	New knowledge regarding interchange terminals, new master and PhD research topics, double supervising of PhD and master thesis	Qualified young academic and research staff in topic of interchanges terminals with different aspects
External		
Local and regional authorities	In adopting coherent decision-making frameworks based on	Innovative methods, frameworks, measures and actions regarding smart solutions for the

Category of KS target groups	Potential interests	Expected benefits and impacts
	international good practice experience	enhancement of operation and the upgrading of the provided level of service in intermodal terminal via obtaining courses in TTI promises or visiting e-platform of the ALLIANCE project. Potential collaboration partners in projects, potential customers of TTI consulting service
Transport and terminal operators	In adopting innovative approaches for the design of interchange terminals, using ICT tools, developing strategies for the integration of land use planning, and applying flexible management and business models	Increased complementarities between different modes of transport, integration of the coordination between modes and operations, improvement of public transport and freight transport, promotion of sustainable transportation via obtaining courses in TTI promises or visiting e-platform of the ALLIANCE project. Potential collaboration partners in projects, potential customers of TTI consulting service
Transport policy makers and influencers	In guidelines for the provision of information to travellers and professional drivers, development of innovative approaches for the design of efficient interchanges and their implementation framework, integration of a coherent framework regarding all involved stakeholders	Solutions for inter modality, improvement of public and freight transport, development of energy efficient urban network performance, increased economic viability, creation of cost-efficient interchanges via obtaining courses in TTI promises or visiting e-platform of the ALLIANCE project. Potential collaboration partners in projects, potential customers of TTI consulting service
Small and medium-sized enterprises (SMEs), business and industry	In the establishment of successful business models	Guidance for the development of business schemes built upon concrete organizational models and stakeholder collaboration under Memorandums of Understanding, master plans, and other internal communication and collaboration agreements and regulations via obtaining courses in TTI promises or visiting e-platform of the ALLIANCE project. Potential collaboration partners in projects, potential customers of TTI consulting service
General public/demand side users	In the development of advantageous transportation in terms of accessibility, timing, safety and security, cost, comfort etc	Provision of information for their better daily transportation, the improvement and modernization of interchange terminals via obtaining courses in TTI promises or visiting e-platform of the ALLIANCE project. Potential collaboration partners in projects, potential customers of TTI consulting service

2.2 Knowledge sharing tools

ALLIANCE has identified a number of knowledge sharing tools for each target group described in Table 1. An overview of these tools is given in Table 2.

Table 2: Knowledge sharing tools

Category of knowledge sharing tool	Description
Educational /Training programs	The educational and training program will be the main output of ALLIANCE. The obtained education and training programme will be based on the knowledge from UTH and Fraunhofer, which cover the gap of the currently existing study and training programmes in TTI, Latvia and BSR
Summer schools	Summer schools provides intensive learning in project partner promises with involving the experts in the preselected areas from all three ALLIANCE partners
Short-Term Staff Exchanges (STSEs)	Short-Term Staff Exchanges (STSEs) with the aim of international collaboration in preparing exploitation of background research, publications, PhD, master thesis supervising, additional study
e-resources (website and e-platform)	New knowledge regarding interchange terminals, new master and PhD research topics, double supervising of PhD and master thesis. Additionally, the knowledge about writing highly citied research articles, publication ethics, etc will be provided
Collaborative research activities	In order to make knowledge sharing more intensive and reach scientific excellence for TTI, it is necessary to implement direct activities, which involve the following: - Collaborative publication in scientific journals with high impact factor - Participation in international conferences - Double supervising for PhD and Ms students - Special issue of the Transport and Telecommunication Journal with best research results from common research teams - Special Session in the frame of International Conference

2.3 Matrix of coverage

The matrix of coverage links tools and knowledge sharing target groups and provides the information about which target group by which tools is impacted. The matrix allows to see, how balanced is impact of tools for different KS target groups.

As could be seen in the Table 3, the proposed groups of tools provide good coverage of all beneficiaries. This insures effectiveness of KS from beneficiary covering level.

Table 3: Coverage matrix

	Educational /Training programs	Summer schools	STSEs	e-resources	Collaborative research activities
Internal					
Academic staff	X	X	X		X
Research staff	X	X	X		X
PhD, master students	X	X	X	X	X
External					
Local and regional authorities	X			X	
Transport and terminal operators	X			X	
Transport policy makers and influencers	X			X	
Small and medium-sized enterprises (SMEs), business and industry	X			X	
General public/demand side users	X			X	

2.4 Detailed knowledge sharing tools description

2.4.1 e-resources

This category of KS tools includes the official website of the project and the e-platform (including Virtual Research Compliance office). A dedicated project website will be set up at the beginning of the project and will be the main dissemination channel of the project's activities, outcomes, calls for participating to educational and training seminars and summer schools, etc. The official website of the project will be developed in-house/internally by the TTI in the framework of WP5 (Month 3). The website will provide the basic information about the project to the public and by this should attract the interest of people to take part in the ALLIANCE project activities.

Additionally an e-learning platform to share and use training materials developed in WP2 and WP3 will be implemented. The e-platform will be developed as a part of the general project website. The primary goal of e-platform is to share training materials, developed in WP2 and WP3, providing free access to all materials for people interested in selected research topics. In order to ensure the structured management of the e-learning platform within this task the following concrete main activities are to be undertaken: defining management and administrative structure, governance rules, resources, information management and output indicators. Furthermore the open-source software applications will be identified, the e-learning platform Community Functionalities will be developed (Profiles, Chat, Forums, RSS feeds, document upload, participatory elements, etc.), and the multimedia training course material will be digitalized and virtualized. Finally, the e-learning platform will be advertised and hereby the user community will be developed. This material will be also adopted properly to enable life-long education, addressed to non-researchers, and mostly to practitioners and professionals. TTI will lead this task as its personnel is   highly experienced in virtual educational activities (using Moodle LMS).

Virtual Research Compliance office will be part of the e-platform and will include information for master and PhD students about scientific governance, like guidelines for writing highly cited publications, citation indexes and databases, best-practices in research and scientific excellence.

TTI ensures to support and develop the website and e-platform (including Virtual Research Compliance office) for 5 years from own budget; this way, it shall ensure the long-term sustainability of e-platform as required based on the guiding principle of Open Access (OA).

The e-resources will be available as soon as they will be implemented. The information about availability will be published and disseminated among stakeholders and students of TTI and UTH.

2.4.2 Short-Term Staff Exchanges

Short-Term Staff Exchanges (STSEs) is a special type of activities with the aim of international collaboration in preparing exploitation of background research, mainly publications. This activity will involve TTI and partners staff in order to have intensive cooperation and therefore intensive knowledge sharing. Staff exchanges means that research and academic staff will be invited to visit UTH or Fraunhofer promises and carry out cooperative research. Here must be noted, that the ALLIANCE project do not cover research costs, but provides the opportunity to make a travel.

STSEs will be available starting from the 2nd year of the project and will last continuously till the end of the project. The initiation of the STSEs will be done by writing request of the staff, which includes explanation of how STSE could contribute him or her in academic and scientific works.

2.4.3 Educational /Training programs

In order to meet the specific challenge of the call[1], the concept is to transfer the knowledge gained by the internationally-leading research institutions through their experience from European research projects and studies' results and findings concerning intermodal terminals to

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[1] Address networking gaps and deficiencies between the research institutions of the low-performing member states and regions and the internationally-leading counterparts at EU-level.

TTI's teaching personnel and then to their students and external partners, through the establishment of an integrated tutorial and training programme. The field of interest will be "smart solutions and intermodal terminals". All the research intensive consortium partners–donors of experience and know-how will be participating into the knowledge transfer of all three thematic groups previously mentioned and analyzed. However, it is most likely that Fraunhofer will undertake the sub-domain of technical aspects of smart solutions, while UTH will focus mostly on methods for impact assessment and management. TTI staff's experience and knowledge will also be taken into consideration in order to set up the training session, combining the knowledge and experience background of trainers and addressing the special needs of trainees. The general idea is to establish a three-year training cycle focused on intermodal terminals' analysis and impact assessment of smart solutions, aimed at providing specialized knowledge at master and PhD level. In particular, the vision is that the Knowledge transfer through TWINNING activities will benefit to creating a doctoral programme in Transport Economics and Management at TTI. The educational/training program is described in terms of material to be covered and methodologies to be included. A grid of these elements is depicted in Figure 1.
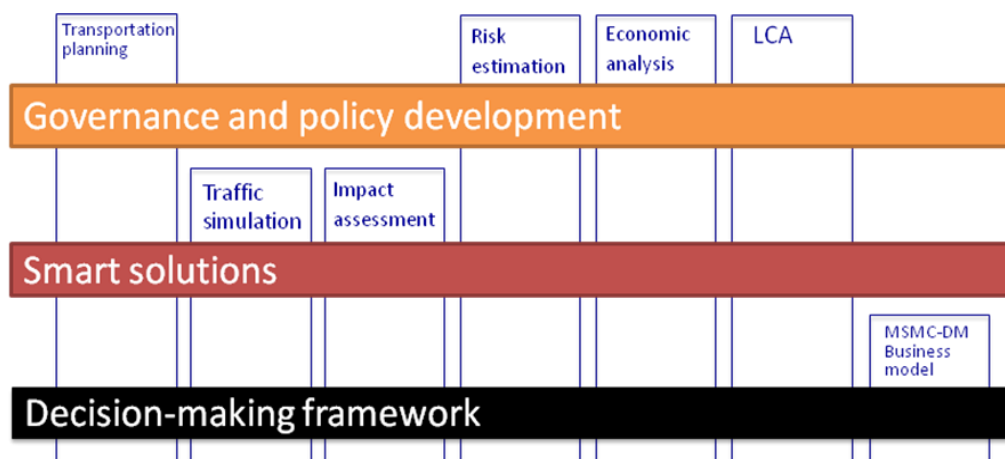
Figure 1: Grid of elements of educational/training program and thematic areas

Table 4 presents detailed data and defines beneficiaries of the education and training events. As could be seen the events are well distributed in time (two events per year), this should insure continuous knowledge sharing process.

Table 4: Education/Training events data

Event		Training school within UTH's Graduate program during 3rd CSUM[2]	Young researchers' seminar and train the trainers seminar during RelStat'2016[3]	International Logistics Doctoral Student Workshop	Special Session during RelStat'17 and trainers 'seminar	Special Session during 4th CSUM	Special Session and ALLIANCE Final Conference during RelStat'18
	When, where	May, 2016 Volos, Greece	October, 2016 Riga, Latvia	June, 2017 Magdeburg, Germany	October, 2017 Riga, Latvia	May, 2018 Volos, Greece	October, 2018 Riga, Latvia
	Duration	week	To be defined	To be defined	To be defined	week	To be defined
Beneficiaries	TTI PhD students	4-8	Participating	8	Participating	4-8	Participating
	Rest Latvia & wider area PhD students		Could participate		Could participate		Could participate
	TTI MSC students	4-8	Participating	Could participate	Participating	4-8	Participating
	Rest Latvia & wider area MSC students		Could participate		Could participate		Could participate
	TTI staff	3	Participating	3	Participating	3	Participating
	Staff from other Latvian institutes		Could participate		Could participate		Could participate
	Authorities		Could participate		Could participate		Could participate
	Business	Could participate	Could participate	Could participate	Could participate	Could participate	Could participate
	UTH staff	Participating	3	3	3	Participating	3
	UTH YR	Participating	3	Could participate	3	Participating	3
	IFF staff	3	3	Participating	3	3	3
	IFF YR		2	Participating	2		3
	External experts	Could participate	Could participate	Could participate	Could participate	Could participate	Participating

2.4.4 Summer schools

Summer schools will encourage young career researchers to spend at least one week in TTI's premises, gain state-of-the-art knowledge and theoretical foundation and develop a research approach to foster good research activity on intermodal interchanges. At the same time, trainees will have the opportunity, if interested, to develop their projects with the benefit of discussion with

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[2] International Conference on Sustainable Urban Mobility
[3] International Conference on Reliability and Statistics in Transportation and Communication

each other and with experienced academics in the field of interconnected transport systems from a theoretical, methodological and practical perspective.

To this extend, selected prominent professional (mainly decision-makers and interchange stakeholders) will be invited to give lectures on good practices and review student assignments. During the summer school, covering one of the three thematic areas (Figure 1) bringing in stakeholders' perspective and interconnecting education/research covered by the educational/training program with industry (see Table 5).

Table 5: Summer schools event data

		1st Summer School	**2nd Summer School**
Event	When, where	July, 2017. Riga, Latvia	July, 2018. Riga, Latvia
	Duration	Week	Week
Beneficiaries	TSI PhD students	10-20	10-20
	Rest Latvia & wider area PhD students	Could participate	Could participate
	TSI MSC students	10-20	10-20
	Rest Latvia & wider area MSC students	Could participate	Could participate
	TSI staff	Could participate	Could participate
	Staff from other Latvian institutes	Could participate	Could participate
	Authorities	Could participate	Could participate
	Business	Could participate	Could participate
	UTH staff	3	3
	UTH YR	3	3
	IFF staff	3	3
	IFF YR		
	External experts	Could participate	Could participate

2.4.5 Collaborative research activities

For establishing international research teams between partners and increasing the collaborative publications in scientific journals special research environment will be created. By research environment we do understand necessary knowledge sharing among partners, ability to participate in International conferences and publish research articles in scientific journals. The following initial table (see Table 6) of collaborative research activities could be presented for master and PhD students of TTI.

Table 6: Collaborative research activities

Field of research	Leader from TTI	Leader expert from partner entity	Keywords of the specific research topic	PhD Students	Master Students
Governance	Prof. Yatskiv (Jackiva) I.	UTH or Fraunhofer	Location for passenger and freight hub		Ravcov D.
	Prof. Kabashkin I.	UTH or Fraunhofer	Strategic transport planning	Mikulko J.	
	Dr.Graurs I., As.Prof.Stukalina J.	UTH or Fraunhofer	Regional development and land use planning	To be defined	
Smart Solutions	Prof.Kabashkin I.	UTH or Fraunhofer	ITS, intelligent logistics, InfoMobility, transport planning	Lancov D.	
	Prof.Grakovskis A.	UTH or Fraunhofer	ITS, embedded system, sensors	Pilipovecs A.	
	Prof.Tolujev J.	UTH or Fraunhofer	Simulation in logistics, SCM, terminal	Alamar I.	Gailitis A. Lukjanchikova D.
	Prof. Yatskiv (Jackiva) I.	UTH or Fraunhofer	Transport modelling, passenger terminal simulation, InfoMobility	Gorky R.	Romanovska K.
DSS framework	Prof. Yatskiv (Jackiva) I.	UTH or Fraunhofer	CBA, Multicriteria Decision Making	Budilovicha E.	
	Prof.Kuzmina I.	UTH or Fraunhofer	Economic analysis, risk evaluation	Skorobogatova O.	
	Dr.Graurs I.	UTH or Fraunhofer	Environment impact assessment model	To be defined	
	As.Prof. Savrasov M.	UTH or Fraunhofer	DSS on simulation base, transport planning, traffic simulation		Zemlyanikin V.

Also it is planned to organize a special session of ALLIANCE in the framework of the European Transport Research Conference 2018 (supported by TRA) and to present the results of the collaborative research to the scientific, academic and transports professional communities of the conference participants. It is planned that at least 3 participants from TTI, 3 - from UTH and 3 - from Fraunhofer will joined.

3 Framework for knowledge sharing evaluation and impact assessment

The goal of this section is to define framework for knowledge sharing evaluation and impact assessment. This procedure is important for ALLIANCE, as one of key tasks of the project is to establish intensive knowledge sharing among partners. The previous section defines the list of tools and beneficiaries of the knowledge sharing. The framework defines a set of evaluation tools, which will be used continuously in the ALLIANCE project.

Table 7: Tools of knowledge sharing activities evaluation

Knowledge Sharing Tools		Knowledge sharing evaluation tools	What is evaluated	Frequency
e-resources	**ALLIANCE official website**	Google Analytics	Number of Deliverable section visits Number of Deliverable downloads	Once in three months
	e-learning platform	Internal LMS tools	Number of registered users for courses in e-learning platform Number of positive feedbacks after course end from participants	Once in six months
Summer schools		Questionnaire for participants (see Annex A) Questionnaire for trainers (see Annex B)	Number of positive feedbacks from participants Number of positive feedbacks from trainers	Right after Summer School
Short-Term Staff Exchanges		Report on activities during Short-Term Staff Exchanges (see Annex C)	Positive evaluation of the report activities by project experts	Right after STSE
Educational /Training programs		Questionnaire for participants (see Annex D)	Number of positive feedbacks from participants	Right after the Educational/Training event
Collaborative research activities		Report on Collaborative research activities (see Annex E)	Positive evaluation of the report activities by project experts	By the end of the project

The above presented knowledge sharing evaluation tools cover the local level of monitoring, which is important for improvement of the knowledge sharing activities. From the global

perspective it is necessary to define the impact of knowledge sharing activities, linking them with TTI Strategy and Research Programme for 2015-2020 and National Development Plan of Latvia. Taking this into account the impacts of knowledge sharing activities will be targeted with higher level activities. This will ensure the sustainability of ALLIANCE results.

The following general view of on impact chain is presented in the Figure 2.

Figure 2: Impact chain

3.1 ALLIANCE project impacts

TTI will benefit from ALLIANCE by:

- Improving its knowledge in methodologies for preparing, writing and publishing scientific papers;
- Strengthening its research capacity;
- Establishing international research teams in specific areas of interest;
- Generating new innovative ideas for future research work through the project's activities;
- Setting up the fundamentals for the young generation of researchers;
- Being integrated in a number of existing international transportation research networks;
- Being incorporated in the European research system of transport and logistics.

In order to determine the potential national and regional impact, as well as long-term sustainability and viability the following impacts are expected:

- Increase of papers indexed in Scopus or Web of science by 50% (during last 3 years the average rate for TTI was 14 per year);
- Increase of number of jointed papers written by the international team of researchers at least twice (during the last 3 years the annul amount was 4);
- Increase of number of join publications written in cooperation with Latvian business entities at least twice (during last 3 years the annul amount was 3);
- Increase of the number of PhD students who have worked in TTI till 2020 by 50% (now - 3);
- Increase of the research work for industry by 20%;
- Open access to European research networks through the established e-platform;
- TTI scientific journal development:

  - ✓ From SCIMAGO Institutions Rankings report (http://www.scimagoir.com/)
  - ✓ Increase H-index to 8 (current – 2)
  - ✓ Change the quality of the journal in following categories:
    - o Computer Science application – from Q4 to Q3
    - o Engineering (Miscellaneous) – from Q3 to Q2
  - ✓ Increase SJR indicator by 15% (current – 0.19)

- Increase indicator cites per document by 15% (current – 0.21)
- Increase indicator "International Collaboration" by 20% (current – 14,29%)
- Special issue by best PhD presentation at special workshops / selected from workshop proceedings
- To extend the Editorial Board of the Journal.

The mentioned above impacts could be transferred on KPI framework of the ALLIANCE project which is presented in Section 3.4 of this Deliverable.

3.2 TTI Strategy and Research Programme for 2015-2020 impacts

TTI has the capability to contribute more to national community and to the economy through its research and business engagement, as well as to grow its international profile. All of these activities will help TTI to continue providing the highest quality education and learning experience for its students.

TTI ambitions will be delivered largely through three key strategies (TTI, 2015): Research Strategy, Education Strategy and Knowledge Services Strategy. Each has its own aims, targets and performance indicators.

The Research Strategy is the core element of this set of strategies. The Knowledge Services Strategy is closely associated with the Research Strategy and is focused on the commercialization of research activities. The Education Strategy is based on the Research Strategy and is focused on the development of the academic component of the university and, at the same time, it serves as a basis for the development of human resources for research activities.

TTI vision for Research recognizes that research excellence and innovation are integral to it overall strategy and to it strategies for Education and Knowledge Services. TTI goal is to address fundamental and strategically important questions and to deliver economic, social and cultural impact at regional, national and international levels, through engagement in internationally-leading research activities and collaborations. This will be achieved through the following aims:

- TTI will support the highest quality research and develop collaborations that enhance the contribution of research to the broad portfolio of our activities.
- TTI will support and develop excellent researchers within a sustainable research culture.
- TTI will ensure that research informs our teaching and enhances the student experience.
- TTI will promote and publicize the contributions that it research makes to the advancement of knowledge and to wider economic and societal benefit.
- TTI will set very high standards to ensure that we maintain and advance our reputation for research. TTI strategic investment and support of research will be necessarily selective.

TTI vision for Knowledge Services is to expand it provision of the quality-assured knowledge services commissioned by other organisations to improve their efficiency, effectiveness or profitability. These services are underpinned by TTI excellence in teaching and research,

contributing to and making use of the high-level skills of our staff and our state-of-the art facilities.

The KPI framework presented on the Figure 3 is used to follow the development tendency of TTI as research institution (TTI, 2015).
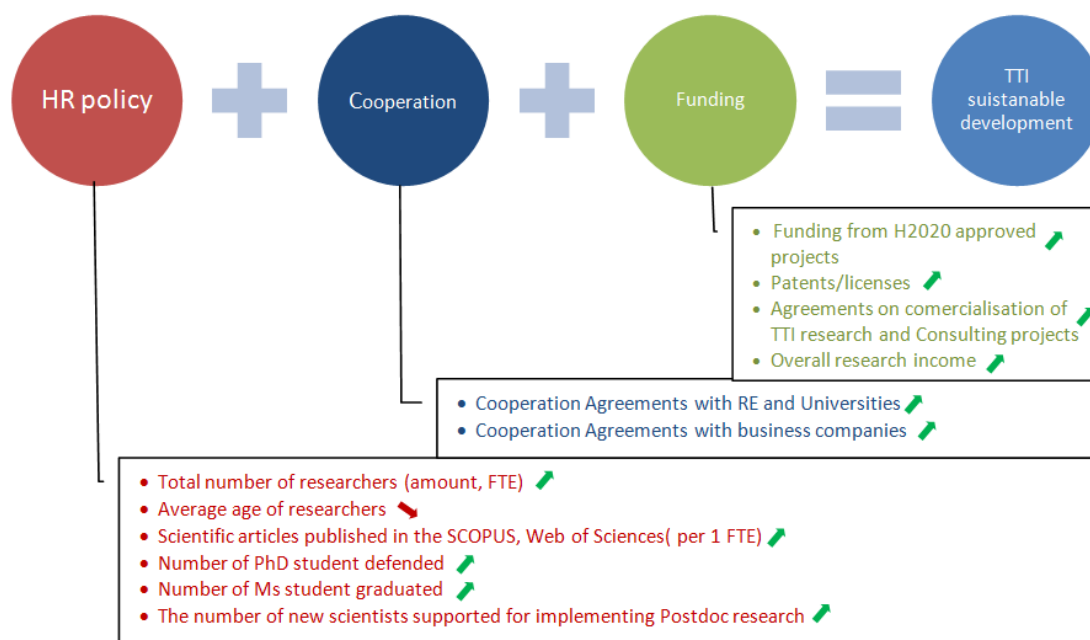
Figure 3: KPI framework in TTI Strategy and Research Programme for 2015-2020

3.3 Impacts of National Development Plan of Latvia

The National Development Plan of Latvia for 2014-2020 (Latvian Saeima, 2012) defines the set of priorities and strategic influences, which influence macro impact indicators. Among number of priorities there are priority titled as "Growth of the National Economy". Inside the priority the strategic objective, "Advanced Research and Innovation and Higher Education" could be found. The 1st goal of the objective is declares as: "Increase investment in research and development to 1.5% of the gross domestic product in 2020, with targeted efforts to attract human resources, develop innovative ideas, improve the research infrastructure, facilitate cooperation between higher education, science and the private sector, as well as the transfer of research and innovation to business de defines". The table of measurable outcome for this goal is presented below as the Table 8.

Table 8: Measurable outcomes in National Development Plan

KPI	Base value (year)	2014	2017	2020	2030
[172] Private sector investment in research and development in 2020 reaches at least 48% of the total investment in research and development (private sector investment in research and development, as a percentage of the total investment)	37 (2010)	42	46	48	51
[173] Number of researchers employed in the private sector, as a percentage of the total, full-time equivalent	16.2 (2010)	18	21	23	27
[174] Number of students obtaining degrees or qualifications at universities and colleges, thousands	24.8 (2011)	23.9	24.1	24.6	28.6
[175] Higher education (percentage of the population aged 30 to 34 within higher education)	36 (2012)	37	38	40	>40
[176] European patents granted, applied for by researchers residing in Latvia	11 (2011)	13	18	26	35

3.4 General and detailed impact framework

The general impact framework presents the influence of knowledge sharing tools (described in previous section of the Deliverable) on ALLIANCE, on TTI Strategy and Research Programme and finally to the National Development Plan of Latvia. The ALLIANCE is the part of impact chain for TTI Strategy and Research Programme and National Development Plan of Latvia.
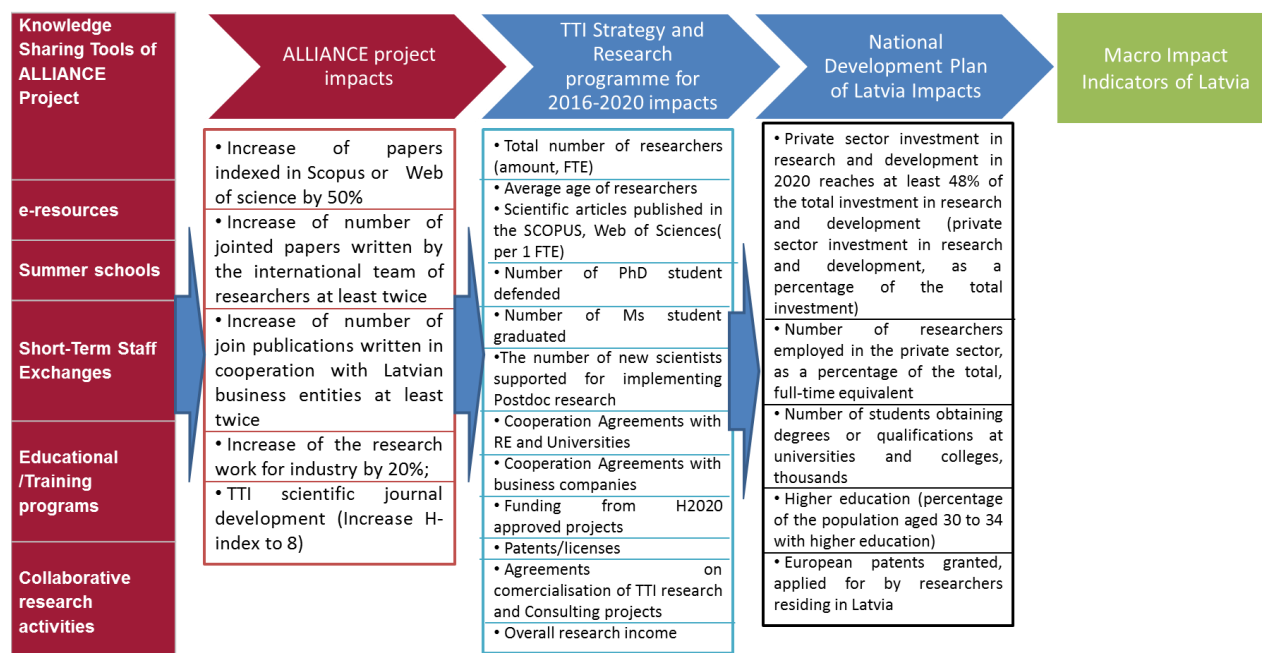
Figure 4: General impact framework

The global impact of ALLIANCE will not be estimated in the framework of the project, but will be taken into account. That is why the more detailed influence diagram could be presented below (see the Figure 5). The Figure 5 demonstrates the impact of knowledge sharing tools on KPI declared in the scope of ALLIANCE. As could been seen all knowledge sharing tools contribute to the KPIs of the project.
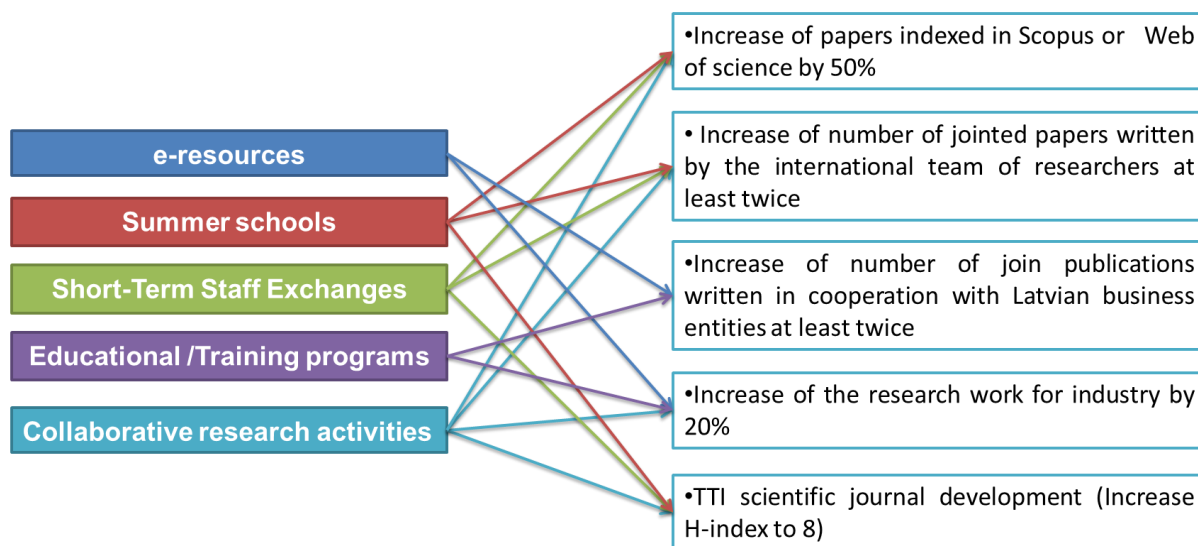
Figure 5: Knowledge sharing tools impact on ALLIANCE KPI

The following table (see Table 9) describes the Key Performance Indicators - KPI framework for the ALLIANCE project. The KPIs will be followed continuously in project.

Table 9: ALLIANCE KPI framework

KPI	Base values (2015)	Planned values (2020)
Papers indexed in Scopus or Web of science (per year)	14	21
Number of jointed papers written by the international team of researchers	4	8
Number of join publications written in cooperation with Latvian business entities	3	6
Number of PhD students who have worked in TTI	3	5
H-index of the Transport and Telecommunication Journal	2	8
SJR indicator	0.19	0.22
Cites per document	0.21	0.25
International Collaboration	14.29%	18%
Change the quality of the journal in following categories[4]: • Computer Science application • Engineering (Miscellaneous)	 Q4 Q3	 Q3 Q2

Table 9 defines the KPI's of ALLIANCE and will be continuously updated during the Project and next years till 2020. The Annex F will be used as to follow the progress. The Annex F data will be published in ALLIANCE webpage annually.

As the scope of the ALLIANCE is enhancing excellence and innovation capacity in sustainable transport interchanges, the following main tasks are formulated as follows: to raise the scientific potential of TTI in selected research field. After analysis, done in frame of Deliverable 1.8, it was evaluated, that TTI's researchers produces around 6 peer-review scientific publications per year (18 for last 3 years). It is planned to increase number of highly citied publications minim to 9 per year. The information about publications will be continuously publishes in Research and innovation participant portal (in section dedicated to project publications).

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[4] Base on data from SCImago Journal & Country Rank http://www.scimagojr.com/

4 References

European Commission, 2013. Research and innovation performance in EU Member States and Associated countries. Innovation Union progress at country level. Luxembourg: Publications Office of the European Union, 2013. ISBN: 978-92-79-29163-0, doi: 10.2777/82363.

European Commission, 2014. Communicating EU research and innovation guidance for project participants. Version 1.0, 25 September 2014.

Latvian Saeima, 2012. National Development Plan of Latvia for 2014–2020. Approved by a Decision of the Saeima on 20 December 2012.

Nathanail, E. & Adamos, G., 2016. 1st Dissemination and exploitation plan. Deliverable D5.1, ALLIANCE Project.TTI, 2015. Transport and Telecommunication Institute Research Programme (2015-2020)

Tsui, L., Chapman, S. and Stewart, S. (2007). A Handbook for Knowledge Sharing. Edmonton: Community-University Partnership for the Study of Children, Youth, and Families.

Technopolis Group, (2016). [online] Izm.gov.lv. Available at: http://www.izm.gov.lv/images/zinatne/ZISI/zisi_03.pdf [Accessed 31 March. 2016].

TTI, 2015. Transport and Telecommunication Institute Research Programme (2015-2020).

5 Annexes

Annex A: Summer School participant questionnaire
Annex B: Summer School trainers' questionnaire
Annex C: Report on activities during Short-Term Staff Exchanges
Annex D: Educational /Training programs participant questionnaire
Annex E: Report on collaborative research activities
Annex F: KPI progress form

Annex A:

Summer School <u>Participant </u>Questionnaire

1. **Name, Surname:**

2. **Level:**

3. **Home institution:**

4. **Please describe your motivation to take part in Summer School:**

5. **Keywords of your research**

6. **Please indicate your level of agreement with the statements listed below:**

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. The objectives of the training were clearly defined.	O	O	O	O	O
2. Participation and interaction were encouraged.	O	O	O	O	O
3. The topics covered were relevant to me.	O	O	O	O	O
4. The content was organized and easy to follow.	O	O	O	O	O
5. The materials distributed were helpful.	O	O	O	O	O
6. This training experience will be useful in my work.	O	O	O	O	O
7. The trainer was knowledgeable about the training topics.	O	O	O	O	O
8. The trainer was well prepared.	O	O	O	O	O
9. The training objectives were met.	O	O	O	O	O
10. The time allotted for the training was sufficient.	O	O	O	O	O
11. The meeting room and facilities were adequate and comfortable.	O	O	O	O	O

7. **What did you like most about this training:**

[ ]

8. What aspects of the training could be improved?

[ ]

9. How do you hope to change your research as a result of this training?

[ ]

10. How do you hope to change your research as a result of this training?

[ ]

11. Any comments

[ ]

Annex B:

Summer School <u>Trainers</u> Questionnaire

1. Name, Surname:

2. Position:

3. Home institution:

4. Keywords of your research

5. Please indicate your level of agreement with the statements listed below:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. The objectives of the training were clearly defined.	O	O	O	O	O
2. Participation and interaction were encouraged.	O	O	O	O	O
3. The topics covered were relevant to me.	O	O	O	O	O
4. The content was organized and easy to follow.	O	O	O	O	O
5. The materials distributed were helpful.	O	O	O	O	O
6. This training experience will be useful in my work.	O	O	O	O	O
7. The trainer was knowledgeable about the training topics.	O	O	O	O	O
8. The trainer was well prepared.	O	O	O	O	O
9. The training objectives were met.	O	O	O	O	O
10. The time allotted for the training was sufficient.	O	O	O	O	O
11. The meeting room and facilities were adequate and comfortable.	O	O	O	O	O

6. What did you like most about this training:

7. What aspects of the training could be improved?

8. Any comments

Annex C:

Report on activities during
Short-Term Staff Exchanges

1. Name, Surname of STSE participant:

2. Position:

3. Home institution:

4. Host institution:

5. Name, Surname of the supervisor:

6. Duration of visits (please provide start date and end date):

7. **Did you reach the STSE goal (defined in application form for STSE)? :**

    a. Provide the goal

    b. Clarify if the goal was reached partly or fully

    c. Provide clarification, if the goal not fully reached

8. Keywords of the research

9. Describe the results obtained during STSE:

10. Indicate, what knew knowledge you have obtained during STSE :

Annex D:

Educational /Training programs <u>Participant </u>Questionnaire

1. **Name, Surname:**

2. **Level:**

3. **Home institution:**

4. **Please describe your motivation to take part in Educational /Training program:**

5. **Keywords of your research**

6. **Please indicate your level of agreement with the statements listed below:**

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1. The objectives of the training were clearly defined.	O	O	O	O	O
2. Participation and interaction were encouraged.	O	O	O	O	O
3. The topics covered were relevant to me.	O	O	O	O	O
4. The content was organized and easy to follow.	O	O	O	O	O
5. The materials distributed were helpful.	O	O	O	O	O
6. This training experience will be useful in my work.	O	O	O	O	O
7. The trainer was knowledgeable about the training topics.	O	O	O	O	O
8. The trainer was well prepared.	O	O	O	O	O
9. The training objectives were met.	O	O	O	O	O
10. The time allotted for the training was sufficient.	O	O	O	O	O
11. The meeting room and facilities were adequate and comfortable.	O	O	O	O	O

7. What did you like most about this training:

8. What aspects of the training could be improved?

9. How do you hope to change your research as a result of this training?

10. Any comments

Annex E:

Report on Collaborative Research Activities

1. Name, Surname of the Student:

2. Level:

3. Home institution:

4. Home institution supervisor Name, Surname:

5. Host institution supervisor Name, Surname:

6. Theme of the research or keywords of the research:

7. Describe the results obtained during collaborative research activities:

   a. List publications developed in frame of collaborative research activities

   b. List conferences participated in frame of collaborative research activities

   c. Make evaluation of the progress of you PhD or Master work

8. Indicate, what knew knowledge you have obtained:

Annex F:

KPI progress form

KPI	Base values (2015)	2016	2017	2018	2019	2020	Planned values (2020)
Papers indexed in Scopus or Web of science (per year)	14						21
Number of jointed papers written by the international team of researchers	4						8
Number of join publications written in cooperation with Latvian business entities	3						6
Number of PhD students who have worked in TTI	3						5
H-index of the Transport and Telecommunication Journal	2						8
SJR indicator	0.19						0.22
Cites per document	0.21						0.25
International Collaboration	14.29%						18%
Change the quality of the journal in following categories[5]:							
• Computer Science application	Q4						Q3
• Engineering (Miscellaneous)	Q3						Q2

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[5] Base on data from SCImago Journal & Country Rank http://www.scimagojr.com/