



Deliverable

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Abstract

This report includes a description of the generic technology transfer concept based on EU IT research projects results, particularly done by the Consortium EU Partners, for further piloting and testing of adequacy in local conditions of eINTERASIA Central Asia Partners.

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Executive Summary

The main goal of eINTERASIA project is creating of an innovative ICT Transfer Concept and business models for adaptation, dissemination and local exploitation of EU research results. The first step to achieve this goal was the generalization of EU research projects results done by the Consortium EU Partners, for further adaptation, piloting and testing of adequacy in local conditions of eINTERASIA Central Asia Partners.

The main goal of this deliverable is to provide generic technology transfer concept based on EU IT research projects results, particularly done by the Consortium EU Partners, for further piloting and testing of adequacy in local conditions of eINTERASIA Central Asia Partners. To achieve this goal there was developed questionnaire on technology transfer concept for technology developer's based technology transfer scenarios. Within a collection of 13 projects performed by Consortium Partners: University of Bremen, Riga Technical University, MitSoft Ltd, Fraunhofer IFF Institute for Factory Operation and Automation, and Logitrans Consult Ltd there were selected 6 IT projects for further piloting for technology transfer to Central Asia countries:

This deliverable provides description of these 6 research results based on the questionnaire intended to discover and confirm generic technology transfer concept:

- Enterprise SPICE – A Domain Independent Integrated Model for Enterprise-wide Assessment and Improvement;
- InnoSPICE® - Innovation, Technology and knowledge transfer process capability model;
- Signa® – A Product line Signa® for electronic documents creation and verification;
- eLOGMAR-M – Web-Based and Mobile Solutions for Collaborative Work Environment with Logistics and Maritime Applications;
- Virtual Reality Framework, Engineering and Applications;
- wearIT@work – Empowering the mobile worker with wearable computing.

Among these 6 EU research results eInterAsia project 3 Partners: Astana Innovations, UIFA and Technological University of Tajikistan selected most burning research result as acquisition candidate and provided general assessment and feedback for technology developers in the framework of the questionnaire on technology transfer concept included in this deliverable.

EU IT research results description from technology developer's point of view and feedback received from technology acquirers provide initial validation of generic technology transfer concept provided in this deliverable. The feedback of Astana Innovations is provided in English and included in this deliverable. The feedback of UIFA and Technological University of Tajikistan is delivered to EU Partners technology developers.

Generic technology transfer concept provided as a collection of processes is targeted to the technology commercialization with involvement of technology provider and technology acquirer.

Table of contents

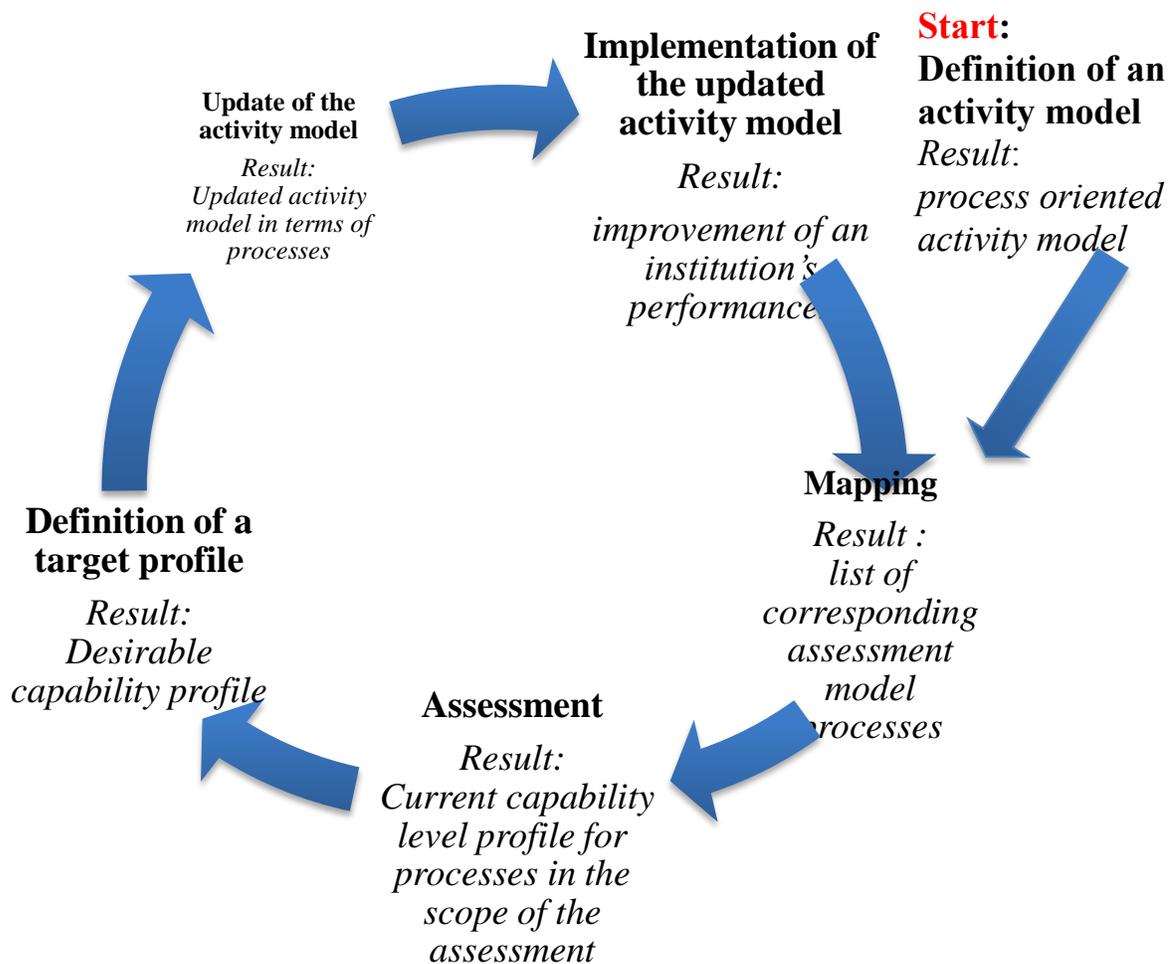
Introduction	5
1. Towards Technology Transfer Concept	6
1.1 Technology transfer process capability modeling	6
1.2 Technology transfer process scenarios	13
1.3 Technology transfer process developer scenario	14
2. Developer’s Technology Transfer Case Studies	18
2.1 Enterprise SPICE – A Domain Independent Integrated Model for Enterprise-wide Assessment and Improvement	18
2.2 InnoSPICE® - Innovation, Technology and knowledge transfer process capability model....	24
2.3 Signa® – A Product line Signa® for electronic documents creation and verification.....	31
2.4 eLOGMAR-M – Web-Based and Mobile Solutions for Collaborative Work Environment with Logistics and Maritime Applications	37
2.5 Virtual Reality Framework, Engineering and Applications	48
2.6 wearIT@work – Empowering the mobile worker with wearable computing	54
3. Technology Transfer Case Studies: Acquirer’s point of view	69
3.1 Acquisition of Virtual Reality Framework and Application	69
4. Technology transfer concept	76
4.1 Technology Transfer Concept process	76
4.2 Technology Evaluation.....	77
4.3 Intellectual Property Protection Determination.....	79
4.4 Initial Market Assessment	80
4.5 Technical Analysis	81
4.6 Market and Competitive Analysis	83
4.7 Technology Value Evaluation	84
4.8 Go to Market Estimation	85
4.9 Commercial/Social-economic Interest Confirmation.....	86
4.10 Business Case Establishment	87
4.11 Go to Market Strategy Establishment	88
4.12 Business Plan Establishment	89
4.13 Financing Sources Raising	91
5. Technology Transfer Concept : Synergy of several central components.....	93
Resume	94
References	95

Introduction

The main goal of eINTERASIA project is creating of an innovative ICT Transfer Concept and business models for adaptation, dissemination and local exploitation of EU research results. A systematic way for results management is related processes management. Such approach is applicable for process oriented activity only. Therefore main question: is the EU research results transfer to Central Asia countries a process oriented activity?

The development and validation of process-oriented generic ICT Transfer Concept can help to answer to this question and to give the basis for transfer process tailoring, assessment and improvement. The desirable results can be achieved by continuous processes improvement presented in the picture below.

The purpose of this deliverable is to provide process-oriented generic ICT Transfer Concept.



1. Towards Technology Transfer Concept

1.1 Technology transfer process capability modeling

Some three decades ago, software developers started to seek for established and confirmed procedures and solutions to cope with the software crisis that was caused by recurrently exceeding project costs and schedules as well as the failure of functionality and quality. Inspired by traditional engineers, the software engineering community has developed standards and models such as ISO/IEC 15504 and CMMI that have been used by numerous software organizations around the world for guiding tremendous improvements in their ability to improve productivity and quality. The concept of software process capability, which expresses process predictability, became an efficient working tool for process and product quality management.

The results of software engineering in terms of software process are generalized to any process capability assessment and improvement. Based on these experiences other domains, such as education and innovation management, started a pioneering way following the software engineers: Software engineering as an extremely creative activity was expressed in process oriented terms. The validated innovation and knowledge transfer process capability maturity model and the education process capability model [1-2, 4, 14] are further successful confirmations of the expression of creative activities in the sense of knowledge intense and little determinacy in process oriented terms.

Motivation and Process Capability Modeling

How to keep software projects within planned scope, schedule and resources? Out of all the innovative disclosures only 1% to 2% result in really successful commercial enterprises [9]. How to achieve better results in knowledge and technology commercialization? How to improve education? How to improve learning? How to improve export? How to improve public sector institutions' services? How to improve enterprises' performance? There are many more of similar questions. Some of these tasks are already resolved, some are under development and some to be addressed in the future. These tasks are different. At the same time a need for improvement of process oriented activities is common for all these tasks, if learning is a process oriented activity, too.

Process capability modeling elaborated by the world-wide software engineering community during the last 25 years became a tool for systematization and codifying knowledge and experiences of process oriented activities. This is designed to improve the predictability of activities' results, i.e. the activities' process capability. As the result of the process capability modeling evolution, ISO/IEC

15504 defines a process capability dimension and the requirements for any external process definition to be applicable within process dimension. Enterprise SPICE defines a domain independent integrated model for enterprise-wide assessments and improvement.

The software engineering community has considerably contributed to the state of the art of process modeling: when numerous attempts to solve the software crisis applying technological and methodological approaches were not successful, software engineers consequently turned to organizational issues aiming to keep software projects within the planned scope, schedule and resources.

This approach is based on the assumption that product quality can be achieved by the means of process quality – process capability. High process capability cannot be established at once during the launch of an activity. It only can be improved applying an iterative procedure of process capability assessments and improvement.

The research in this area is based on ideas which originated from capability maturity models (CMM) developed since 1987 by the Software Engineering Institute (SEI) of Carnegie Mellon University. These models have evolved into CMMI version 1.3 [5-7] known as CMMI for Development, CMMI for Acquisition and CMMI for Services.

In parallel, the international community has developed an international standard for process assessment ISO/IEC 15504: Process assessment framework, also known as project SPICE (Software Process Improvement and Capability dEtermination) initiated by the Ministry of Defence of UK in 1991 [12, 13].

ISO/IEC 15504 represents the third generation of process capability maturity models that refer to an external process reference model. The process capability assessment framework is defined in the normative part of ISO/IEC 15504-2.

In this context, an approach taken by ISO/IEC 15504 referring to the external process reference model is particularly important. It enables to extend a model's application area outside the software engineering. An external process reference model must satisfy the requirements of process definition in terms of process purpose and outcomes.

The third main source in the process capability maturity arena is iCMM v2.0 (integrated Capability Maturity Model), leading to the issues of model integration and architecture representation, developed by US Federal Aviation Administration in 2001. It had significant impact on the current

state of CMMs area [11] and is along the same lines as ISO/IEC 15504 (SPICE) and CMMI models. Based on the external process reference model approach, the convergence of SPICE and iCMM models is possible and, in fact, it is completed as the Enterprise SPICE initiative. FAA iCMM was the baseline during the development of SPICE based Enterprise Process Reference Model (PRM) and a supplementing Process Assessment Model (PAM). Enterprise SPICE has been developed by a joint effort of more than one hundred experts representing 31 countries from all continents. The first stage of Enterprise SPICE [8] project is completed now and the draft of the future standard is publicly available.

Hundreds of various generic and specific organizational maturity models have been developed. Among them [18] is of particular importance in this context. These models mainly provide the characteristics of maturity levels. However, very few of them provide a decomposition of an activity modeled as a collection of processes defined in minimal terms, namely, a process name, a process purpose and the process outcomes.

Technology transfer process capability modeling

Innovation, knowledge and technology transfer improvement is a complex domain with many intangible benefits and obstacles. Conventionally, the management of innovation, knowledge and technology transfer activities is a black box approach comparing its inputs and outputs or using statistical data. The approach taken here is the “white box” approach, i.e. the innovation, knowledge and technology transfer activities are decomposed into a set of processes and their performance descriptions. An important concern about such approach is how they reflect on the creative aspects of any innovation and transfer activity. Of course, creativity can’t be modeled by process-based notions but the question arises: "Is the transfer of knowledge and technologies towards innovation a completely creative activity?" If yes, then a process oriented- approach would not be suitable to create an innovation, knowledge and technology transfer model.

The approach to codify process oriented knowledge for activity modeling is based on the successful experience of the software engineering community in software development process modeling. At first sight, software development can be seen as a completely creative activity. However, it was modeled by tens of processes, hundreds of practices and work products. Of course, there remain creative elements, but they do not eliminate the process oriented approach as a whole.

Process capability is related to process predictability. Organizational maturity expresses the way how an organization's activities are performed - the improvement path of these activities to achieve better results. The process capability concept enables measuring the state of performance of the organization's activities and to plan specific steps for processes capability improvement. A process high capability cannot be established at once during the launch of an activity. It only can be increased applying an iterative procedure of process capability assessments and improvement actions.

An innovation concept is close to the understanding of improvement, because an innovation contains inherent improvement. Per definition, an innovation is a new product, process, service or work environment implemented with value [16]. Thus, an innovative organization is improving organization. And thus knowledge transformation to value and/ or knowledge commercialization is an innovation process.

The full value chain of innovation can be modeled consisting of three pure roles: knowledge development, transfer of knowledge and its implementation. In the real world set up, organizations can perform one, two or all three of these pure roles. Fundamental research institutions, for example, perform mainly knowledge development while applied research institutions often develop knowledge and transfer it into practice. Industrial corporations can develop knowledge, transfer and implement it. The knowledge and best practice experiences related to these three roles compose body of modeling innovation, knowledge and technology transfer.

The process capability modeling approach can be applied to improve innovativeness of an organization. Modeling of organization's domain independent activities can reuse Enterprise SPICE Organizational, Life cycle and Support process categories. The innovation related activities can be modeled by the Application process category.

Enterprise SPICE processes are ISO/IEC 15504 conformant. To be able to apply the ISO/IEC 15504 capability framework, the processes of the Application category also must satisfy the requirements of ISO/IEC 15504 to process descriptions. From there, an application dependent ISO/IEC 15504 conformant process capability model can be build by:

- development of an Application process category;
- reuse of Enterprise SPICE Organizational, Life cycle and Support process categories;
- reuse of ISO/IEC 15504 capability framework.

Guided self-assessment based process capability improvement

An application domain independent process capability model by definition can't contain domain specific features. However, process capability improvement is always domain specific. Such gap can be addressed mainly by external consultants or by the process owner if the process capability model contains domain specific knowledge and enable tracing the model's wording to the organization's activity which should be improved. Application domain dependent process capability model enables a participative approach to process capability improvement introduced here. On the other hand, a participative approach to process capability improvement reinforces the importance of application domain dependent process capability modeling.

A process reference model should be more abstract than a process assessment model. However, a process assessment model always remains more abstract than a real organization's activity model. A unified assessment model must be suitable to assess and represent, in unified terms, the assessment results of various different organizations. On the other hand, the granularity of an assessment model should be sufficiently high to achieve comparable assessment results and to avoid too big assessment mistakes.

So, three levels of abstraction of the process dimension can be distinguished:

- Process Reference Model – identification of processes defined in minimal terms, namely, a process name, a process purpose and the process outcomes;
- Process Assessment Model – in addition to process description within the Process Reference Model, it contains the description of several Base Practices and, possibly, work products. Successful performance of base practices ensures the achievement of the process purpose and the process outcomes. The PAM can be understood as a collection of best practices related to an organization's activity that is used as a reference standard for structuring, assessment, comparison and improvement of the organization's activity;
- Activity model – more detailed description of the real activity performed by a particular organization using a wording which is accepted by organization.

Hence, a capability maturity model can be understood as codifying process oriented knowledge. Process capability maturity modeling can be treated as a method, system of notions, “language”, tool, best practice etc. It allows the equally the knowledge systematization of process oriented activities and

the description of real activities performed by a particular institution. An application dependent capability model can be applied:

- for the assessment of an application area process capability performed by an institution;
- for the exchange of best practices contained within the application area activity model;
- for the definition of target process capability profiles based on assessment results and performance goals; and
- for the improvement of the application area activities to reach a target process capability profile using the available best practices.

The traditional approach to process capability assessment and improvement foresees a formal assessment performed by an external assessor or an assessment team and the preparation of an assessment report including recommendations for process capability improvement. Such an approach suits well for the process capability determination dedicated to external use. However, it is not sufficient for internal process improvement – people tend to agree more easily to perform institution-internally defined processes rather than those defined by third parties.

Here a participative approach to process assessment and improvement is introduced. According to the participative approach, a process improvement program consists of 6 steps and preliminary to the formal assessment, it includes the development of an application area specific activity model for the assessed institution.

Step 1. *Development of the organization's application area process oriented activity model, by using terms and notions that are used in its daily work based on a participative approach:* While any institution/ enterprise performs specific activities, in many cases these activities are implicit, not documented, and not expressed by a common vocabulary describing the content and transferring the knowledge and/or experiences on it. The process activity model therefore should be developed applying a participative approach with the personnel as the process owner, guided by a competent consultant using wording and vocabulary as it is used in daily activity.

Step 2. *Mapping of the organization's activity model developed in Step 1 with a standardized application area process capability maturity model:* Process activity models are different in different organizations whereas a process capability assessment should be performed using a unified process assessment model to ensure comparability of process capability assessment results. Therefore processes defined in the process activity model need to be mapped to the process assessment model

defining the process assessment scope in standardized terms. The mapping result is a collection of assessable processes that overlap with the activity model's processes.

Step 3. *Guided self-assessment of an organization's application area process capability and conceiving of the actual capability profile:* External supervision is needed to receive comparable assessment results while a self-assessment approach is needed to make the organization's personnel true owner of the process definition. Evidence to establish the process capability will be found in the process activity model, in work products created by real activities and personnel interviews. The results of the organization's application area process capability assessment is produced as a process capability profile. The processes' capability is assessed at first only at capability level 1, i.e. to what extent the process is performed and process goals and process outcomes are achieved. The processes which are fully performed at capability level 1 can be assessed at higher capability levels.

Step 4. *Definition of an organization's target process capability profile based on its performance goals:* Defining a target process capability profile is a creative work based on an organization's goals and its strategy. One institution might decide to improve those processes having the lowest capability. The decision of another organization might be stressing on core business processes and to further improve their best processes in order to reach a higher capability level. The main challenge that should be addressed is linking the organization's goals and strategy with its processes and their capability.

Step 5. *Update an application's area activity model developed in Step 1 to achieve the target capability profile defined in Step 4:* While an organization will improve its process capability based on a target profile done in terms of standard process assessment model, it will continue the activities based on the internal wording and vocabulary, i.e. it will apply the same or an updated activity model. The application of a process capability maturity model therefore does not mean the rejection of the current activity model and the shift to the standard process assessment models. The PAM is the management tool for process capability improvement only. Using this tool, an institution acquires the knowledge indicating where the institution is and where it wants to go. Thereby the organization can define the appropriate path to achieve a desired goal, i.e., to define improved activity model based on the model developed in Step 1 achieving a target capability profile.

Step 6. *Act according to the updated application area activity model and go to Step 2 for continuous iterative improvement.*

If the process capability improvement is included in application area process, an organization's activities will definitely achieve the needed quality independently of the initial stage of the organization's process capability.

1.2 Technology transfer process scenarios

There are possible four knowledge commercialization scenarios: developer, acquirer, broker and driver. A knowledge is understood here in wide sense and can be represented by any knowledge intensive artefact: technology, process, product, service, infrastructure, work environment, etc. A knowledge commercialization concept is close to innovation concept. An innovation is partial case of knowledge commercialization. The concept of innovation requires being new for organization. A knowledge commercialization means a transformation of knowledge intensive artefact into value for organization.

Knowledge commercialization developer's scenario takes place when knowledge creator or owner performs actions related to transformation of his knowledge into financial value. The characteristics of such scenario is that supply scope is limited by knowledge possessed by transfer initiator - knowledge owner only. The main difficulty in this scenario is to describe knowledge value for knowledge acquirer in terms of knowledge acquirer. At some extent value definition of the knowledge to be acquired remains up to acquirer. It is known that about 2 percent only of the knowledge created are commercialized. Knowledge commercialization developer's scenario can be classified as a high knowledge in supply side and low knowledge in demand side. The main risk is up to knowledge developer that knowledge developed will not be commercialized. The impact of the risk depends on financial sources for knowledge creation.

Knowledge commercialization acquirer's scenario takes place when knowledge acquirer seeks knowledge needed to create or increase value within his organization. The knowledge needed can be ready for use or to be developed according to the order of acquirer. The value of the knowledge to be commercializes is known in advance for acquirer. In this scenario a knowledge transfer process is led by acquirer and assisted by knowledge creator known as a custom driven development. Knowledge commercialization acquirer's scenario can be classified as a high knowledge in demand side and low knowledge in supply side. The main risk is up to knowledge acquirer that knowledge acquired will not generate value for organization. The impact of the risk is high.

Knowledge commercialization broker's scenario takes place when an active role in knowledge transfer takes intermediary who seeks knowledge acquirers' needs and knowledge to be transferred and create a demand-supply data base and/or a network of brokers. The primary action in this activity is to catch the demand. A knowledge supply is secondary. It can be based on existing knowledge ready for use or can be developed according to the order of acquirer. There are data provided by brokers that success ratio is about one of 60 cases. The role of the broker in knowledge commercialization finishes when an agreement for knowledge transfer is concluded between knowledge acquirer and supplier. Knowledge commercialization broker's scenario can be classified as a low knowledge in demand side and low knowledge in supply side. The main risk is up to knowledge broker that knowledge transfer intermediation efforts will not be successful. The impact of the risk is low because of limited investments into brokerage activity.

Knowledge commercialization driver's scenario takes place when full responsibility for knowledge transfer is up to knowledge transfer driver. The knowledge transfer driver is a one who creates knowledge commercialization loop with involvement of many players including knowledge marketing managers, acquirers, developers, sponsors, etc. The knowledge transfer driver's activity is based on knowledge commercialization concept elaborated with involvement of experts from acquirers, developers, marketing, funders' communities and on complementarity of integrated efforts of various capabilities for value creation. Knowledge commercialization driver's scenario can be classified as a sufficient knowledge in demand side and sufficient knowledge in supply side. The main risk is up to knowledge transfer driver. The impact of the risk is high because of concentration of responsibility into driver's activity.

1.3 Technology transfer process developer scenario

The task of the programme FP 7 eINTERASIA project is to create EU research results transfer concept to Central Asia countries according to knowledge commercialization developer's scenario. An approach for elaboration of such scenario is based on the questionnaire build according to innoSPICE methodology. The questionnaire foresees interaction of knowledge developer and acquirer. However in this scenario knowledge developer is the initiator of knowledge transfer process. A knowledge developer should fill the questionnaire comprehensively as much as possible to describe knowledge to be transferred to potentially target groups. A knowledge acquirers would provide complementary clarifications representing demand side. An iterations for such interactions should be foreseen.

Here below the structure of the questionnaire for knowledge commercialization developer's scenario is provided.

<RR – research results: knowledge, technology or services> transfer questionnaire

1.	<RR> transfer concept
1.1.	Identify <RR> that could be transferred to target group
1.2.	Identify target group for which <RR> would be useful
1.3.	Obtain target group needs
1.4.	Describe <RR> use scenarios by target group
1.5.	Describe <RR> use benefit for target group in terms of target group
1.6.	Evaluate <RR> transfer opportunities for target group
1.7.	Establish <RR> transfer concept for target group
2.	<RR> initial (fast) market assessment of target group
2.1.	Establish “negative” criteria for discontinuing <RR> transfer to target group
2.2.	Identify contraindications to move with <RR> transfer to target group
2.3.	Assess “negatively” <RR> components to be transferred for target group from the point of view of “negative” criteria and contraindications
2.4.	Document and report “negative” assessment results for decision makers
3.	<RR> evaluation for transfer suitability to target group
3.1.	Define available <RR> components related to target group needs
3.2.	Assess available <RR> components transfer suitability for target group needs
3.3.	Ensure documentation of <RR> components to be transferred for target group
3.4.	Create list of <RR> components to be transferred for target group
3.5.	Establish <RR> components support and maintenance procedures
4.	Technical analysis of <RR> components to be transferred to target group
4.1.	Derive target group requirements
4.2.	Record and change control target group requirements
4.3.	Trace consistency of <RR> components with target group requirements
4.4.	Refine <RR> components to be transferred to target group
4.5.	Identify further development of <RR> components to meet quality and cost objectives
5.	Determination of intellectual property protection of <RR> components to be transferred to target group
5.1.	Establish IP protection strategy
5.2.	Verify feasibility to establish a new IP
5.3.	Select IP protection form
5.4.	Develop IP protection policy

5.5.	Register Intellectual Property
5.6.	Monitor IP inviolability
6.	Market and competitive analysis of <RR> components to be transferred to target group
6.1.	Define positioning in the market of <RR> components to be transferred to target group
6.2.	Obtain target group reaction
6.3.	Perform Beta testing
6.4.	Perform market and competitive analysis
7.	Value evaluation of <RR> components to be transferred to target group
7.1.	Analyse advantages of <RR> components to be transferred to target group in financial, performance and experience terms
7.2.	Establish value of <RR> components to be transferred to target group such as cost savings, increase earning power, increased performance and decreased undesirable impacts
7.3.	Contribute to the target group value delivery system by consideration on potential synergy exploitation
7.4.	Identify target group potential benefit on obtaining of <RR> components using <RR> communication and distribution channels
7.5.	Develop <RR> components value proposition statements to target group
8.	Go to market estimation of <RR> components to be transferred to target group
8.1.	Define life cycle strategy of <RR> components to be transferred to target group
8.2.	Define “marketable stage” criteria for <RR> components to be transferred to target group
8.3.	Determine how quickly <RR> components can be brought to the “marketable stage”
8.4.	Evaluate the risk of delay
8.5.	Plan subsequent improvements of <RR> components to the target group
9.	Confirmation of transfer interest of <RR> components to be transferred to target group
9.1.	Assess total cost and revenue of <RR> components to be transferred to target group
9.2.	Define target market qualitatively and in quantitatively of <RR> components to be transferred
9.3.	Compare minimal revenue to cover the cost of <RR> components transfer with target
9.4.	Identify most promising preliminary route into the target market
10.	Business case establishment for <RR> components to be transferred to target group
10.1.	Establish business case strategy of <RR> components to be transferred to target group including issues such as licensing, sale, new start-up establishment
10.2.	Define business case alternatives, evaluation criteria, evaluation and selection of alternatives
10.3.	Build business case

11.	Go to market strategy establishment for <RR> components to be transferred to target group
11.1.	Define go to market strategy alternatives for <RR> components to be transferred to target group including issues such as licensing or sale to existing company, new start-up establishment, establishment of joint venture with existing transfer participant in the target market
11.2.	Define go to market strategy alternatives evaluation criteria, evaluation and selection of alternatives
11.3.	Establish go to market strategy
12.	Business plan establishment for <RR> components to be transfer to target group
12.1.	Provide background material on <RR> components to be transferred to target group
12.2.	Define current status of <RR> components transfer to target group
12.3.	Establish market potential of <RR> components to be transferred to target group
12.4.	Establish business plan to allow investors and other stakeholders to evaluate situation and to take decision on the venture participation
13.	Financing sources raising for <RR> components to be transferred to target group
13.1.	Identify sources of financing for <RR> components to be transferred to target group
13.2.	Analyse venture's operation successful scenarios
13.3.	Define financial flows
13.4.	Establish requirements for on-going financing
13.5.	Communicate the financial flows and requirements for on-going financing
13.6.	Select prospective investors

The questionnaire provided is filled from the point of view of knowledge developers by descriptions of 6 pilot research results in the ICT area to be transferred to Central Asia countries. The goal of such questionnaires filled and complemented by the knowledge acquirer point of view is to provide an input for generalization and development of technology transfer concept in ICT area as ISO/IEC 15504 conformant ICT transfer process capability reference and assessment model.

2. Developer’s Technology Transfer Case Studies

2.1 Enterprise SPICE – A Domain Independent Integrated Model for Enterprise-wide Assessment and Improvement

1.1.	ES transfer concept	
1.1.1.	Identify ES results that could be transferred to target group	Domain independent integrated Enterprise-wide process improvement model Enterprise SPICE
1.1.2.	Identify target group for which ES would be useful	Enterprise processes quality consultants and managers
1.1.3.	Obtain target group needs	Consultations on Enterprise processes improvement
1.1.4.	Describe ES use scenarios by target group	Guided self-assessment approach based scenarios
1.1.5.	Describe ES use benefit for target group in terms of target group	Consulting service delivery and enterprise process improvement leading to improvements of results predictability
1.1.6.	Evaluate ES transfer opportunities for target group	Active involvement of target group is needed for ES to be transferred
1.1.7.	Establish ES transfer concept for target group	Transfer knowledge for process innovation
1.2.	ES initial (fast) market assessment of target group	
1.2.1.	Establish “negative” criteria for discontinuing ES transfer to target group	No “negative” criteria
1.2.2.	Identify contraindications to move with ES transfer to target group	Low process orientation for quality management
1.2.3.	Assess “negatively” ES components to be transferred for target group from the point of view of “negative” criteria and contraindications	ES components are in English. Enterprise SPICE model is too generic. Tailored version of the model to target group is needed
1.2.4.	Document and report “negative” assessment results for decision makers	To do

1.3.	ES evaluation for transfer suitability to target group	
1.3.1.	Define available ES components related to target group needs	Domain independent integrated Enterprise-wide process improvement model Enterprise SPICE in English is ready to transfer
1.3.2.	Assess available ES components transfer suitability for target group needs	Available Enterprise SPICE model is suitable for those processes innovation consultants and managers which can use English sources and are ready to adapt Enterprise SPICE model to the needs of particular enterprise
1.3.3.	Ensure documentation of ES components to be transferred for target group	Enterprise SPICE model and User guide are documented in English
1.3.4.	Create list of ES components to be transferred for target group	Enterprise SPICE suit to be transferred consists of: <ul style="list-style-type: none"> • Enterprise SPICE model • User guide • Self-assessment tool
1.3.5.	Establish ES components support and maintenance procedures	Enterprise SPICE suit is supported and maintained by: <ul style="list-style-type: none"> • Enterprise SPICE community: www.enterprisespice.com • eINTERASIA project: www.einterasia.eu
1.4.	Technical analysis of EC components to be transferred to target group	
1.4.1.	Derive target group requirements	There are two main target groups: <ul style="list-style-type: none"> • enterprises that possess established processes and need improve processes capability • enterprises that need to establish processes
1.4.2.	Record and change control target group requirements	To do
1.4.3.	Trace consistency of ES components with target group requirements	Existing Enterprise SPICE suit satisfies requirements of enterprises that possess established processes and need improve processes capability. For enterprises that need to establish processes an enterprise oriented activity model should be developed
1.4.4.	Refine ES components to be transferred to target group	Enterprise oriented activity model should be developed by processes innovation consultants and managers under guidance of Enterprise SPICE experts
1.4.5.	Identify further	An activity model templates for each target group

	development of ES components to meet quality and cost objectives	should be developed to meet quality and cost objectives
1.5. Determination of intellectual property protection of EC components to be transferred to target group		
1.5.1.	Establish IP protection strategy	Enterprise SPICE suit IP protection strategy is established
1.5.2.	Verify feasibility to establish a new IP	New IP can be established for activity models developed for particular target groups
1.5.3.	Select IP protection form	IP protection form should be selected as a subset of Trademark, Copyright and Author rights.
1.5.4.	Develop IP protection policy	Enterprise SPICE suit IP protection policy is established. New IP protection policy should be developed for activity models created for particular target groups
1.5.5.	Register Intellectual Property	Enterprise SPICE suit IP is registered. New IP should be registered for activity models created for particular target groups
1.5.6.	Monitor IP inviolability	Enterprise SPICE suit IP inviolability is monitored
1.6. Market and competitive analysis of ES components to be transferred to target group		
1.6.1.	Define positioning in the market of ES components to be transferred to target group	Enterprise SPICE target area overlaps with ISO 9001. Instead of binary value of enterprise assessment – there is ISO 9001 certificate or does not – Enterprise SPICE suit proposes 29 processes to be assessed each in the scale from 0 to 5. Enterprise SPICE integrates all well-known related standards and models for process improvement.
1.6.2.	Obtain target group reaction	To do
1.6.3.	Perform Beta testing	To do
1.6.4.	Perform market and competitive analysis	To do
1.7. Value evaluation of ES components to be transferred to target group		
1.7.1.	Analyse advantages of ES components to be transferred to target group in financial, performance and experience terms	Enterprise SPICE is a new model and performance data are not collected. The prove of concept can be confirmed for process modelling in Software Engineering area that counts already 25 years history. Based on process capability improvement data in Software

		Engineering area the workload can be decreased up to 4 times because of avoiding the rework and the number of mistakes in the final software product can be decreased up to 5 times
1.7.2.	Establish value of ES components to be transferred to target group such as cost savings, increase earning power, increased performance and decreased undesirable impacts	The purpose of Enterprise SPICE suit is to improve achievement of desirable results by management of processes to produce products or delivery of services. Enterprise SPICE based process capability improvement leads to cost saving up to few times and as a consequence to competitive advantage and increase of earning, to increase performance by avoiding rework and to decrease undesirable impacts by following well established processes.
1.7.3.	Contribute to the target group value delivery system by consideration on potential synergy exploitation	It is commonly agreed that innovation is the main engine of value creation for enterprise. Enterprise SPICE is targeted to enterprise processes innovation leading to additional value creation.
1.7.4.	Identify target group potential benefit on obtaining of ES components using ES communication and distribution channels	Enterprise SPICE brings new process oriented approach to products or services quality management and establishes the links with world-wide Enterprise SPICE community, including process improvement experts from 45 countries and all 5 continents
1.7.5.	Develop ES components value proposition statements to target group	To do
1.8.	Go to market estimation of ES components to be transferred to target group	
1.8.1.	Define life cycle strategy of ES components to be transferred to target group	Domain independent Enterprise SPICE suit is the basis for development of a set of target group dependent components (Enterprise SPICE suite in target group language, activity models, training materials) by consultants and managers working for particular target groups
1.8.2.	Define “marketable stage” criteria for ES components to be transferred to target group	Enterprise SPICE suit “marketable stage” criteria are the approvals by Enterprise SPICE Advisory Board. “Marketable stage” criteria for newly developed components under guidance of Enterprise SPICE experts are based on consistency of components

		developed and compliance with Enterprise SPICE suit
1.8.3.	Determine how quickly ES components can be brought to the “marketable stage”	Enterprise SPICE suit is ready for immediate transfer for process innovations consultants and managers. Development of new components will take at least a half of year
1.8.4.	Evaluate the risk of delay	To do
1.8.5.	Plan subsequent improvements of ES components to the target group	To do
1.9.	Confirmation of transfer interest of ES components to be transferred to target group	
1.9.1.	Assess total cost and revenue of ES components to be transferred to target group	To do
1.9.2.	Define target market qualitatively and in quantitatively of ES components to be transferred	Potential target market for transfer of Enterprise SPICE suit are enterprises and consulting companies in Central Asia countries, first of all project eINTERASIA Partners and their stakeholders
1.9.3.	Compare minimal revenue to cover the cost of ES components transfer with target	To do
1.9.4.	Identify most promising preliminary route into the target market	Most promising preliminary route into the target market is based on Enterprise SPICE being in process of acceptance as ISO standard and introduction of Enterprise SPICE certification scheme
1.10.	Business case establishment for ES components to be transferred to target group	
1.10.1.	Establish business case strategy of ES components to be transferred to target group including issues such as licensing, sale, new start-up establishment	Business case strategy of ES components to be transferred to target group is based on a balance of added value created from acquirer point of view and cost for Enterprise SPICE suit development and maintenance from supplier point of view
1.10.2.	Define business case alternatives, evaluation	There are two main business case alternatives from supplier point of view: Enterprise SPICE

	criteria, evaluation and selection of alternatives	consulting service provision and licensing of Enterprise SPICE suit
1.10.3.	Build business case	To do
1.11.	Go to market strategy establishment for ES components to be transferred to target group	
1.11.1.	Define go to market strategy alternatives for ES components to be transferred to target group including issues such as licensing or sale to existing company, new start-up establishment, establishment of joint venture with existing transfer participant in the target market	The strategy of go to market is based on a local consulting company that can be selected or established to provide process innovation consulting initially by foreign experts with involvement at increasing extent local consultants.
1.11.2.	Define go to market strategy alternatives evaluation criteria, evaluation and selection of alternatives	To do
1.11.3.	Establish go to market strategy	To do
1.12.	Business plan establishment for ES components to be transfer to target group	
1.12.1.	Provide background material on ES components to be transferred to target group	Background material on ES components to be transferred to target group of process innovations consultants and managers is ready for use.
1.12.2.	Define current status of ES components transfer to target group	Enterprise SPICE suit is developed. Target group dependent components should be developed based on target group needs.
1.12.3.	Establish market potential of ES components to be transferred to target group	Potentially market for process innovations is unlimited. Market is actualized if required certification scheme for Enterprise SPICE is introduced.
1.12.4.	Establish business plan to allow investors and other stakeholders to evaluate situation and to take	To do

	decision on the venture participation	
1.13.	Financing sources raising for ES components to be transferred to target group	
1.13.1.	Financing sources raising for ES components to be transferred to target group	Initial financial sources are needed: <ul style="list-style-type: none"> • to become process innovations consultant and managers familiar with process capability modelling body of knowledge • to develop target group dependent Enterprise SPICE components
1.13.2.	Analyse venture's operation successful scenarios	In order to increase predictability of the results to be achieved, particularly in public procurement area, enterprise processes capability certification scheme is introduced and certain processes capability profile is required. This will raise demand of processes capability improvement and process capability assessment services
1.13.3.	Define financial flows	Cost of the enterprise performing processes capability improvement project per year and per employee participating in process improvement program is 1 K€. The duration of achievement next maturity level of enterprise is 2 years.
1.13.4.	Establish requirements for on-going financing	To do
1.13.5.	Communicate the financial flows and requirements for on-going financing	To do
1.13.6.	Select prospective investors	To do

2.2 InnoSPICE® - Innovation, Technology and knowledge transfer process capability model

2.1.	innoSPICE transfer concept	
2.1.1.	Identify results that could be transferred to target group	Innovation, knowledge and technology transfer process capability model innoSPICE
2.1.2.	Identify target group for which innoSPICE would be useful	innoSPICE could be usefull for various target groups. One of them – Knowledge commercialization managers
2.1.3.	Obtain target group needs	To obtain knowledge what should be done to

		commercialize knowledge.
2.1.4.	Describe innoSPICE use scenarios by target group	Knowledge commercialization manager follows innoSPICE to know what processes should be established to perform knowledge commercialization
2.1.5.	Describe innoSPICE use benefit for target group in terms of target group	innoSPICE provides systematic body of knowledge in process oriented terms for knowledge commercialization and can be used as a high level guide for knowledge commercialization managers
2.1.6.	Evaluate innoSPICE transfer opportunities for target group	innoSPICE model in English is ready for transfer. Model should be translated to other language if necessary. Consulting services for innoSPICE acquisition can be provided according to the needs.
2.1.7.	Establish innoSPICE transfer concept for target group	To transfer innoSPICE based on guided self-assessment concept of knowledge transfer
2.2.	innoSPICE initial (fast) market assessment of target group	
2.2.1.	Establish “negative” criteria for discontinuing innoSPICE transfer to target group	There are not negative criteria known in advance
2.2.2.	Identify contraindications to move with innoSPICE transfer to target group	Absence of knowledge commercialization activity, models and consulting services
2.2.3.	Assess “negatively” innoSPICE components to be transferred for target group from the point of view of “negative” criteria and contraindications	To do
2.2.4.	Document and report “negative” assessment results for decision makers	To do
2.3.	innoSPICE evaluation for transfer suitability to target group	
2.3.1.	Define available innoSPICE components related to target group needs	Innovation, knowledge and technology transfer process capability model innoSPICE
2.3.2.	Assess available innoSPICE components transfer	InnoSPICE model is available for transfer. However it is not sufficient for target group needs.

	suitability for target group needs	In addition to innoSPICE model knowledge commercialization process activity model tailored for knowledge commercialization beginners target group is needed
2.3.3.	Ensure documentation of innoSPICE components to be transferred for target group	InnoSPICE model is documented. innoSPICE model knowledge commercialization process activity model should be documented
2.3.4.	Create list of innoSPICE components to be transferred for target group	<ul style="list-style-type: none"> - InnoSPICE model; - Guided self-assessment tool; - knowledge commercialization process activity model.
2.3.5.	Establish components support and maintenance procedures	innoSPICE support and maintenance procedure is consulting service based.
2.4.	Technical analysis of components to be transferred to target group	
2.4.1.	Derive target group requirements	There are two knowledge commercialization managers categories: experienced and beginners. For experienced managers innoSPICE model is sufficient. For beginners in addition to innoSPICE model knowledge commercialization process activity model is needed.
2.4.2.	Record and change control target group requirements	To do
2.4.3.	Trace consistency of innoSPICE components with target group requirements	innoSPICE model is available for experienced managers. Knowledge commercialization process activity model is missing for beginners and it should be developed
2.4.4.	Refine innoSPICE components to be transferred to target group	To do
2.4.5.	Identify further development of innoSPICE components to meet quality and cost objectives	To do
2.5.	Determination of intellectual property protection of innoSPICE components to be transferred to target group	
2.5.1.	Establish IP protection	innoSPICE IP protection strategy is established

	strategy	
2.5.2.	Verify feasibility to establish a new IP	Feasibility to establish innoSPICE IP is verified
2.5.3.	Select IP protection form	innoSPICE IP protection form is selected
2.5.4.	Develop IP protection policy	innoSPICE IP protection policy is developed
2.5.5.	Register Intellectual Property	innoSPICE IP is registered
2.5.6.	Monitor IP inviolability	innoSPICE IP inviolability is monitored accidentally
2.6.	Market and competitive analysis of innoSPICE components to be transferred to target group	
2.6.1.	Define positioning in the market of innoSPICE components to be transferred to target group	innoSPICE model is unique ISO/IEC 15504 conformant knowledge commercialization process capability model
2.6.2.	Obtain target group reaction	To do
2.6.3.	Perform Beta testing	To do
2.6.4.	Perform market and competitive analysis	Preliminary analysis is done. Are not known other process models for knowledge commercialization
2.7.	Value evaluation of innoSPICE components to be transferred to target group	
2.7.1.	Analyse advantages of innoSPICE components to be transferred to target group in financial, performance and experience terms	InnoSPICE is the tool for knowledge transfer. Knowledge can be transferred without tool, “manually”. Usage of transfer tool innoSPICE increases performance, saves transfer process resources, provides access to the transfer best practice
2.7.2.	Establish value of innoSPICE components to be transferred to target group such as cost savings, increase earning power, increased performance and decreased undesirable impacts	To do based on detailed information of target group
2.7.3.	Contribute to the target group value delivery system by consideration on potential synergy exploitation	Added value arises from merging systematic approach of innoSPICE model with knowledge commercialization activity process owner
2.7.4.	Identify target group	Knowledge commercialization managers acquire a

	potential benefit on obtaining of innoSPICE components using innoSPICE communication and distribution channels	tool that help them to identify their current position in knowledge commercialization road, define target position to be achieved and process oriented guide what should be done for transition from current to target position in knowledge commercialization.
2.7.5.	Develop innoSPICE components value proposition statements to target group	To do based on detailed information of target group
2.8.	Go to market estimation of innoSPICE components to be transferred to target group	
2.8.1.	Define life cycle strategy of innoSPICE components to be transferred to target group	innoSPICE life cycle strategy is related to establishment of innoSPICE certification scheme and status legitimization of innoSPICE certified knowledge commercialization service provider
2.8.2.	Define “marketable stage” criteria for innoSPICE components to be transferred to target group	According to innoSPICE life cycle strategy innoSPICE components evolve continuously and increase value to the acquirer. Criteria of “marketable stage” of innoSPICE components are based on readiness to reach customer satisfaction.
2.8.3.	Determine how quickly innoSPICE components can be brought to the “marketable stage”	In some cases “marketable stage” can be reached by translation of existing components to the language suitable for target group It can take a month.
2.8.4.	Evaluate the risk of delay	Main risk is related to innoSPICE official status acquisition. Knowledge commercialization is a hot topic and there are many initiatives that can be legitimized.
2.8.5.	Plan subsequent improvements of innoSPICE components to the target group	There are two main trends for innoSPICE improvement. One, related to innoSPICE legitimization in EU and world-wide and other, related to development of tailored knowledge commercialization process activity models for different target groups.
2.9.	Confirmation of transfer interest of innoSPICE components to be transferred to target group	
2.9.1.	Assess total cost and revenue of innoSPICE components to be	InnoSPICE based activity is not for profit. Therefore revenue should cover current cost. InnoSPICE is created on public financial sources.

	transferred to target group	So, sustainability, evolution and transfer service delivery costs should be counted
2.9.2.	Define target market qualitatively and in quantitatively of innoSPICE components to be transferred	Potentially target market is unlimited for innovations in knowledge commercialization locally and internationally. Quantitative assessment should be done.
2.9.3.	Compare minimal revenue to cover the cost of innoSPICE components transfer with target market	To do
2.9.4.	Identify most promising preliminary route into the target market	To identify most engaged knowledge commercialization target group and to develop knowledge commercialization process activity model for this target group
2.10.	Business case establishment for innoSPICE components to be transferred to target group	
2.10.1.	Establish business case strategy of innoSPICE components to be transferred to target group including issues such as licensing, sale, new start-up establishment	A draft of business case strategy of innoSPICE components to be transferred to target group is developed as an international innoSPICE network with regional partnership to act as an umbrella to create the preconditions for knowledge commercialization service delivery using various allowed forms of economic activity.
2.10.2.	Define business case alternatives, evaluation criteria, evaluation and selection of alternatives	To do
2.10.3.	Build business case	To do
2.11.	Go to market strategy establishment for innoSPICE components to be transferred to target group	
2.11.1.	Define go to market strategy alternatives for innoSPICE components to be transferred to target group including issues such as licensing or sale to existing company, new start-up establishment, establishment of joint	Based on business case strategy go to market is based on international innoSPICE network with regional partnership to act as an umbrella to create the preconditions for knowledge commercialization service delivery using various allowed forms of economic activity.

	venture with existing transfer participant in the target market	
2.11.2.	Define go to market strategy alternatives evaluation criteria, evaluation and selection of alternatives	To do
2.11.3.	Establish go to market strategy	To do
2.12.	Business plan establishment for innoSPICE components to be transfer to target group	
2.12.1.	Provide background material on innoSPICE components to be transferred to target group	The background material on innoSPICE components to be transferred to knowledge commercialization managers is ready in English and should be translated to target group language according to necessity
2.12.2.	Define current status of innoSPICE components transfer to target group	InnoSPICE model is ready to be transferred to experienced knowledge commercialization managers. Knowledge commercialization process activity model should be developed for knowledge commercialization beginners
2.12.3.	Establish market potential of innoSPICE components to be transferred to target group	InnoSPICE model market potential is unlimited but it should be fostered
2.12.4.	Establish business plan to allow investors and other stakeholders to evaluate situation and to take decision on the venture participation	To do
2.13.	Financing sources raising for innoSPICE components to be transferred to target group	
2.13.1.	Financing sources identification for innoSPICE components to be transferred to target group	Mainly it should be public funded financial sources with partial involvement of private financial sources.
2.13.2.	Analyse venture's operation	Phase 1: Preparation finalization

	successful scenarios	European Commission recognizes innoSPICE model as recommended instrument for knowledge commercialization and invites for finalization of innoSPICE product suite, including introduction of innoSPICE certification scheme and Business model of operation. Phase 2: Operation. According to Business model elaborated.
2.13.3.	Define financial flows	To do
2.13.4.	Establish requirements for on-going financing	To do
2.13.5.	Communicate the financial flows and requirements for on-going financing	To do
2.13.6.	Select prospective investors	To do

2.3 Signa® – A Product line Signa® for electronic documents creation and verification

3.1.	Signa transfer concept	
3.1.1.	Identify results that could be transferred to target group	Software for electronic documents having the same legal power as hand signed documents creation and verification
3.1.2.	Identify target group for which Signa would be useful	Inhabitants, civil servants, employees
3.1.3.	Obtain target group needs	Instead of paper documents to provide electronic documents having the same legal power at any time by IT means
3.1.4.	Describe Signa use scenarios by target group	User installs Signa Desktop application in Windows OS environment, obtains SSCD and PKI certificate, create electronic document using Signa Desktop software and send electronic document to the recipient
3.1.5.	Describe Signa use benefit for target group in terms of target group	Users of electronic documents will save time and money. There are data for comparison of costs paper and electronic invoices. The issuance of electronic invoice save 6 euros and the receipt of electronic invoice save 11 euros.
3.1.6.	Evaluate Signa transfer opportunities for target	The prerequisite for transfer is presence of PKI and legal recognition of electronic documents.

	group	
3.1.7.	Establish Signa transfer concept for target group	<ol style="list-style-type: none"> 1. To facilitate establishment of PKI and legal recognition of electronic documents. 2. To educate stakeholders on electronic signatures and electronic documents
3.2.	Signa initial (fast) market assessment of target group	
3.2.1.	Establish “negative” criteria for discontinuing Signa transfer to target group	An absence of PKI and legal recognition of electronic documents or plans to establish them
3.2.2.	Identify contraindications to move with Signa transfer to target group	Internet low penetration
3.2.3.	Assess “negatively” Signa components to be transferred for target group from the point of view of “negative” criteria and contraindications	To do
3.2.4.	Document and report “negative” assessment results for decision makers	To do
3.3.	Signa evaluation for transfer suitability to target group	
3.3.1.	Define available Signa components related to target group needs	Signa Desktop is available
3.3.2.	Assess available Signa components transfer suitability for target group needs	National and Russian user interface to be developed
3.3.3.	Ensure documentation of Signa components to be transferred for target group	User documentation in National and Russian languages to be developed
3.3.4.	Create list of Signa components to be transferred for target group	<ol style="list-style-type: none"> 1. Signa Desktop installs 2. Java VM installs 3. Mobile electronic signature module, if needed 4. Wrapper for .NET, if needed 5. User documentation
3.3.5.	Establish components support and maintenance	<ol style="list-style-type: none"> 1. Communications channels for user support are established: e-mail, phone

	procedures	2. Perfective maintenance is provided under the agreement
3.4.	Technical analysis of components to be transferred to target group	
3.4.1.	Derive target group requirements	1. National requirements for electronic documents. 2. Potential requirement – to ensure confidentiality of electronic documents using mixt cryptography
3.4.2.	Record and change control target group requirements	To do
3.4.3.	Trace consistency of Signa components with target group requirements	To do
3.4.4.	Refine components to be transferred to target group	To do
3.4.5.	Identify further development of components to meet quality and cost objectives	To do
3.5.	Determination of intellectual property protection of components to be transferred to target group	
3.5.1.	Establish IP protection strategy	IP protection strategy is established
3.5.2.	Verify feasibility to establish a new IP	New IP is established
3.5.3.	Select IP protection form	IP protection form is selected: Trademark, source code
3.5.4.	Develop IP protection policy	IT protection policy is developed
3.5.5.	Register Intellectual Property	Trademark Signa® is registered in EU
3.5.6.	Monitor IP inviolability	Lawyer services are used
3.6.	Market and competitive analysis of Signa components to be transferred to target group	
3.6.1.	Define positioning in the market of Signa components to be transferred to target group	Product line Signa® and product Signa® are unique
3.6.2.	Obtain target group reaction	To do

3.6.3.	Perform Beta testing	Signa Desktop is used for 4 years. New target group requirements implemented shall be tested.
3.6.4.	Perform market and competitive analysis	To do market analysis
3.7. Value evaluation of Signa components to be transferred to target group		
3.7.1.	Analyse advantages of Signa components to be transferred to target group in financial, performance and experience terms	<p>Signa Desktop:</p> <ul style="list-style-type: none"> • implements electronic documents of practically unlimited complexity and support whole life cycle of electronic document • brings experience of advanced national electronic documents platform • provides competitive financial terms
3.7.2.	Establish value of Signa components to be transferred to target group such as cost savings, increase earning power, increased performance and decreased undesirable impacts	<p>Documents traditional life cycle:</p> <ul style="list-style-type: none"> • content creation in electronic environment • legal power submitted in paper media • usage in electronic environment scanned copies of the paper document. <p>Cost savings. The costs of scanning effort only more than 10 M€ in Lithuania and more than 1 B€ in EU per year.</p> <p>Increase earning power. Transfer from paper to electronic documents allows to connect to the community that uses electronic documents in business transactions and to save 5-10 euros per transaction.</p> <p>Increased performance. Electronic documents increase business process speed and decrease time of business transactions from 1-2 weeks to 1-2 hours.</p> <p>Decreased undesirable impacts. Ability to use electronic documents allows to avoid digital divide.</p>
3.7.3.	Contribute to the target group value delivery system by consideration on potential synergy exploitation	To do: analyse value delivery system and possible ways for improvement based on electronic documents exploitation
3.7.4.	Identify target group potential benefit on obtaining of components	Signa® is a carrier of advanced knowledge and experience on PKI and national platform of electronic documents, including legal and

	using Signa communication and distribution channels	regulatory environment
3.7.5.	Develop Signa components value proposition statements to target group	To do
3.8.	Go to market estimation of Signa components to be transferred to target group	
3.8.1.	Define life cycle strategy of Signa components to be transferred to target group	Product line Signa® reflects life cycle strategy
3.8.2.	Define “marketable stage” criteria for Signa components to be transferred to target group	Adaptation to the needs of target group
3.8.3.	Determine how quickly Signa components can be brought to the “marketable stage”	3 months
3.8.4.	Evaluate the risk of delay	The risk is to take into account the needs that are not expressed explicitly
3.8.5.	Plan subsequent improvements of Signa components to the target group	To do
3.9.	Confirmation of transfer interest of Signa components to be transferred to target group	
3.9.1.	Assess total cost and revenue of Signa components to be transferred to target group	To do
3.9.2.	Define target market qualitatively and quantitatively of Signa components to be transferred	To do
3.9.3.	Compare minimal revenue to cover the cost of Signa components transfer with target market	To do
3.9.4.	Identify most promising preliminary route into the	Exchange of knowledge and experience; pilot implementation

	target market	
3.10.	Business case establishment for Signa components to be transferred to target group	
3.10.1.	Establish business case strategy of Signa components to be transferred to target group including issues such as licensing, sale, new start-up establishment	To do. Potential business case is based on partnership in target region
3.10.2.	Define business case alternatives, evaluation criteria, evaluation and selection of alternatives	To do
3.10.3.	Build business case	To do
3.11.	Go to market strategy establishment for Signa components to be transferred to target group	
3.11.1.	Define go to market strategy alternatives for Signa components to be transferred to target group including issues such as licensing or sale to existing company, new start-up establishment, establishment of joint venture with existing transfer participant in the target market	To do
3.11.2.	Define go to market strategy alternatives evaluation criteria, evaluation and selection of alternatives	To do
3.11.3.	Establish go to market strategy	To do
3.12.	Business plan establishment for Signa components to be transfer to target group	
3.12.1.	Provide background material on Signa	Background material is developed

	components to be transferred to target group	
3.12.2.	Define current status of Signa components transfer to target group	To do
3.12.3.	Establish market potential of Signa components to be transferred to target group	To do
3.12.4.	Establish business plan to allow investors and other stakeholders to evaluate situation and to take decision on the venture participation	To do
3.13.	Financing sources raising for Signa components to be transferred to target group	
3.13.1.	Financing sources raising for Signa components to be transferred to target group	Initial financing sources are provided by eINTERASIA to develop and test knowledge and technology transfer concept
3.13.2.	Analyse venture's operation successful scenarios	To do
3.13.3.	Define financial flows	To do
3.13.4.	Establish requirements for on-going financing	To do
3.13.5.	Communicate the financial flows and requirements for on-going financing	To do
3.13.6.	Select prospective investors	To do

2.4 eLOGMAR-M – Web-Based and Mobile Solutions for Collaborative Work Environment with Logistics and Maritime Applications

4.1.	eLOGMAR transfer concept	
4.1.1.	Identify eLOGMAR results to be transferred	Software services provided by www.elogmar.eu web portal and access to eLOGMAR knowledge base (KB) to support transport and logistics processes.
4.1.2.	Identify target group for which eLOGMAR	Target groups: actors from the Central Asian region sector of Transport & Logistics (Two main target groups):

	would be useful	<p>a) Cargo Group: cargo owners, traders, exporters/importers, brokers dealing with export/import operations to/from Central Asian countries</p> <p>b) Transportation Group: agents of shipping lines, railway freight agents, freight forwarders, road carriers, block train operators, intermodal freight operators, transport logistics companies.</p>
4.1.3.	Obtain target groups needs	<p>a) Cargo Group:</p> <ul style="list-style-type: none"> - To use software services for on-line calculating cargo transportation costs to/from Central Asian countries to perform export/import operations - To use software services for on-line estimation expected cargo transit time to/from Central Asian countries to perform export/import operations - To use software services for choosing the most suitable transport company which corresponds to the requirements of actor from cargo group by access to data from knowledge base (KB) <p>b) Transportation Group:</p> <ul style="list-style-type: none"> - To involve new clients and to increase container cargo turnover - To increase business profitability using advanced Web-based software services
4.1.4.	Describe eLOGMAR use scenarios by target group	<p>a) Cargo Group:</p> <ul style="list-style-type: none"> - To use software services for getting data from portal's KB and freight costs calculating and estimation of cargo transit time to perform export/import operations - To use software services for getting data from portal's KB on shipping lines and block trains services - To use software services for getting other useful information (in education and training, IT&Mobile solutions etc.) to improve transport and logistics services - Getting information about the most suitable carrier corresponding to user request. <p>b) Transportation Group:</p> <ul style="list-style-type: none"> - Entering data concerning intermodal cargo transportation and performing export/import operations to / from Central Asian countries to portal's KB - Getting information about potential cargo owner who might be interested in transportation services of transport company in accordance with its request

4.1.5.	Describe eLOGMAR use benefit for target group in terms of target group	<p>a) Actors from Cargo target group:</p> <ul style="list-style-type: none"> - Access to web portal KB and software services allows actors from Central Asian countries dealing with cargo transportation get data for selecting the most suitable actor from transportation group in terms of transportation tariffs and cargo transit time <p>b) Actors from Transportation target group: To get access to portal KB that allows them to put data into KB related to cargo transportations, to involve new clients from Cargo group, and therefore to increase cargo turnover.</p>
4.1.6.	Evaluate eLOGMAR transfer opportunities for target group	<p>At the moment, access to portal's KB and software services (objects of transfer) can be provided for both target groups using user interfaces in English, Russian and Chinese. Consulting service can be provided according to the needs using opportunities of web portal.</p>
4.1.7.	Establish eLOGMAR transfer concept for target group	<ul style="list-style-type: none"> - Select several players from each target group (Cargo and Transportation Groups) - Introduce them to facilities of www.elogmar.eu web portal - Introduce them to transfer objects (access to KB and software services) - Provide access to KB and services using multi-language User Guide and demonstration video samples - Collect feedback from target group to improve software services.
4.2.	eLOGMAR initial (fast) market assessment of target group	
4.2.1.	Establish "negative" criteria for discontinuing eLOGMAR transfer to target group	There are not negative criteria known in advance
4.2.2.	Identify contraindications to move with eLOGMAR transfer to target group	<ul style="list-style-type: none"> - Players from target groups do not have clearly defined models of their business activities. - Staff of a player from Transportation group is not enough motivated to introduce new technology in their activities and to put data in KB (its additional work for them and it must be motivated by management staff) - Internet low penetration.
4.2.3.	Assess "negatively"	Some problems concerning entering to KB cargo transportation data by using the set of interface forms might be met.

	eLOGMAR to be transferred for target group from the point of view of “negative” criteria and contraindications	The reason is that it takes additional efforts from experts of transport companies (Transportation Group) to enter the data into KB. They must be really motivated by higher level managing staff. If there are not enough data in KB concerning cargo transportation the portal will not be able to provide the highest level of software services for actors from Cargo Group, i.e. the launch phase is challenging.
4.2.4.	Document and report “negative” assessment results for decision makers	To do
4.3.	eLOGMAR evaluation for transfer suitability to target group	
4.3.1.	Define available eLOGMAR services related to target group needs	<ul style="list-style-type: none"> - For transportation group: access to the set of Web-based interface forms to enter the data of container cargo transportation into KB. - For cargo group: software services for calculating a “start-to-finish” cargo transportation rates, definition of cargo transit time and selection the most suitable cargo carrier.
4.3.2.	Assess available eLOGMAR transfer suitability for target group needs	The main transfer objects (access to KB and software services) are available for transfer. Interface of software services and access to KB are provided both in English and Russian languages. Russian language is the most widespread language in the sector of transport and logistics in Central Asian countries.
4.3.3.	Ensure documentation of eLOGMAR to be transferred for target group	Documentation is provided both in Russian and English languages. Demonstration video samples how to deal with the objects of transfer (KB, software services) are also developed and actors from target groups in Central Asian countries have on-line access to them.
4.3.4.	Create list of eLOGMAR components to be transferred for target group	<ul style="list-style-type: none"> - For Transportation Group: access to KB for entering data about cargo transportation for further use by cargo owners. - For Cargo Group: software services for on-line freight costs calculating, estimation of cargo transit time, and selecting the most suitable carrier in accordance with on-line request. - For Cargo & Transportation Groups: access to KB for getting data about education & training, IT solutions in transport and logistics areas.

		- For Cargo & Transportation Groups: Multi-language user documentations (User Guides).
4.3.5.	Establish components support and maintenance procedures	eLOGMAR transfer objects support and maintenance procedure is provided via customer services (e-mail, phone) separately for transport and logistics problems and technical problems.
4.4.	Technical analysis of components to be transferred to target group	
4.4.1.	Derive target group requirements	<ol style="list-style-type: none"> 1. National regulations in the area of transport and logistics in Central Asian countries 2. Specific needs of corresponding company should be formulated by a company in each individual case.
4.4.2.	Record and change control target group requirements	To do
4.4.3.	Trace consistency of eLOGMAR with target groups requirements	eLOGMAR transfer objects meet needs of actors from Central Asian countries target groups dealing with cargo transportation along different freight routes. Several additional business models oriented on Central Asian market should be developed and corresponding software services should be provided.
4.4.4.	Refine eLOGMAR modules to be transferred to target group	Will be done within the frameworks of eINTERASIA project.
4.4.5.	Identify further development of eLOGMAR components to meet quality and cost objectives	To implement additional eLOGMAR software services taking into account business processes oriented to Central Asian conditions of transport & logistics market. Will be done during eINTERASIA project.
4.5.	Determination of intellectual property (IP) protection of eLOGMAR components to be transferred to target group	
4.5.1.	Establish IP protection strategy	eLOGMAR IP protection strategy is established
4.5.2.	Verify feasibility to establish a	Feasibility to establish eLOGMAR is verified

	new IP	
4.5.3.	Select IP protection form	eLOGMAR IP protection form is selected
4.5.4.	Develop IP protection policy	eLOGMAR IP protection policy is defined
4.5.5.	Register Intellectual Property	To do
4.5.6.	Monitor IP inviolability	eLOGMAR IP rights are not registered and it is nothing to monitor inviolability
4.6.	Market and competitive analysis of eLOGMAR components to be transferred to target group	
4.6.1.	Define positioning in the market of eLOGMAR components to be transferred to target group	Access to KB and software services from eLOGMAR Web portal (www.elogmar.eu) in comparison with other existing competitors have the main advantage: they provide opportunity for collaboration between two main target groups: Cargo and Transportation Groups.
4.6.2.	Obtain target group reaction	Will be done within the frameworks of eINTERASIA project.
4.6.3.	Perform Beta testing	Was done for software services and access to KB of www.elogmar.eu portal. Testing of customized version focused on Central Asian needs will be done during eINTERASIA project.
4.6.4.	Perform market and competitive analysis	Analysis of European and Chinese markets was done. Now similar analysis will be done for Central Asian market during eINTERASIA project.
4.7.	Value evaluation of eLOGMAR components to be transferred to target group	
4.7.1.	Analyse advantages of eLOGMAR components to be transferred to target group in financial, performance and experience terms	Getting access to eLOGMAR KB and software services provides several advantages for actors from target groups: <ul style="list-style-type: none"> - On-line calculating of a “start-to-finish” cargo transportation rates - Collaboration between Cargo and Transportation groups - Involvement of new clients , increasing cargo turnover, and business benefit.
4.7.2.	Establish value of eLOGMAR	Preliminary estimation has been done using the statistical data of www.elogmar.eu portal.

	components to be transferred to target group such as cost savings, increase earning power, increased performance and decreased undesirable impacts	Main costs saving is related to: <ul style="list-style-type: none"> 1) For Transportation Group: to reduce workload of experts of a company “to a basket” offering on the portal to prospective clients transportation freight rates which have been already calculated earlier but not required for some reasons; to increase the number of potential clients. 2) For Cargo Group: to faster freight costs calculation by using online software service.
4.7.3.	Contribute to the target group value delivery system by consideration on potential synergy exploitation	Added value will arise from potential synergy of eLOGMAR with InnoSPICE model and implemented business modes focused on Central Asian market and conditions.
4.7.4.	Identify target group potential benefit on obtaining of eLOGMAR using eLOGMAR communication and distribution channels	Transport & Logistics companies and actors from Cargo group get access to KB and software services that helps them to improve their business processes and to make business more profitable.
4.7.5.	Develop eLOGMAR components value proposition statements to target group	To do - based on detailed information of target groups
4.8.	Go to market estimation of eLOGMAR to be transferred to target group	
4.8.1.	Define life cycle strategy of eLOGMAR to be transferred to	<ul style="list-style-type: none"> 1) To introduce potential end-users to the main facilities and advantages of eLOGMAR software services. 2) To demonstrate main modes of the use of KB and software services.

	target group	<p>3) To provide customer services during the transfer process.</p> <p>4) To collect users feedback to improve eLOGMAR software services and KB structure.</p>
4.8.2.	Define “marketable stage” criteria for eLOGMAR components to be transferred to target group	Adaptation to the needs of actors from target groups of Central Asian region.
4.8.3.	Determine how quickly eLOGMAR can be brought to the “marketable stage”	One month
4.8.4.	Evaluate the risk of delay	The main risk is to take into account the needs that are not formulated explicitly by target groups from Central Asian region.
4.8.5.	Plan subsequent improvement of eLOGMAR to the target group	<p>1) Definition of business models and structuring the business information based on the analysis and need of local conditions in transport and logistics</p> <p>2) Implementation of new Web-based software services to support intermodal transportation in Central Asian countries</p> <p>3) To complete KB (part “Useful information”) of www.elogmar.eu portal by data concerning Central Asian region</p>
4.9.	Confirmation of transfer interest of eLOGMAR to be transferred to target group	
4.9.1.	Assess total cost and revenue to be transferred to target group	To do. Sustainability, evolution and transfer service delivery costs should be counted.
4.9.2.	Define target market qualitatively and quantitatively of eLOGMAR components to be transferred	<p>Potentially target market is unlimited for innovative IT solutions commercialization locally and internationally.</p> <p>Preliminary quantitative assessment of Central Asian partners markets in transport and logistics has been done: Uzbekistan – 91 company, Kazakhstan – 145, Tadjikistan – 62. In total: 242.</p>
4.9.3.	Compare minimal revenue to cover the cost	To do

	of eLOGMAR transfer with target market	
4.9.4.	Identify most promising preliminary route into the target market	To demonstrate eLOGMAR services and facilities for selected actors from target groups, to get feedback and to develop additional services.
4.10.	Business case establishment for eLOGMAR to be transferred to target group	
4.10.1.	Establish business case strategy of eLOGMAR components to be transferred to target group including issues such as licensing, sale, new start-up establishment	To do
4.10.2.	Define business case alternatives, evaluation criteria, evaluation and selection of alternatives	To do
4.10.3.	Build business case	To do
4.11.	Go to market strategy establishment for eLOGMAR platform to be transferred to target group	
4.11.1.	Define go to market strategy alternatives for eLOGMAR components to be transferred to target group including issues	Go to market alternatives are based on international eLOGMAR network to act as an umbrella and to create the preconditions for Web –based services commercialization and delivery using various allowed forms of economic activities in selected target countries.

	such as licensing or sale to existing company, new start-up establishment, establishment of joint venture with existing transfer participant in the target market	
4.11.2.	Define go to market strategy alternatives evaluation criteria, evaluation and selection of alternatives	To do
4.11.3.	Establish go to market strategy	To do
4.12.	Business plan establishment for eLOGMAR to be transferred to target group	
4.12.1.	Provide background material on eLOGMAR components to be transferred to target group	The background materials on eLOGMAR KB and software services to be transferred are ready in English and Russian.
4.12.2.	Define current status of eLOGMAR transfer to target group	Main transfer objectives of eLOGMAR - providing access to KB and software services - are ready to be transferred to experts from two target groups from Central Asian countries.
4.12.3.	Establish market potential of eLOGMAR components to be transferred to target group	Software services of eLOGMAR market potential is unlimited world-wide. Preliminary assessment of Central Asian market in transport and logistics was done: about 250 potential end-users companies from Uzbekistan, Kazakhstan and Tajikistan.

4.12.4.	Establish business plan to allow investors and other stakeholders to evaluate situation and to take decision on the venture participation	Will be done during eINTERASIA project (Business plan for commercialization).
4.13.	Financing sources raising for eLOGMAR components to be transferred to target group	
4.13.1.	Financing sources identification for eLOGMAR platform to be transferred to target group	Initially financial sources are provided by eINTERASIA project to develop and validate modified additional software services version of eLOGMAR Web-based portal. Further it should be both public funded sources and private investments.
4.13.2.	Analyse venture's operation successful scenarios	<ol style="list-style-type: none"> 1. At the moment Web portal www.elogmar.eu successfully operates and provide customers with required services. 2. Based on the results of an analysis of Central Asian market in Transport and Logistics and requirements and needs of selected actors from two main target groups "Essential Logistics Principles" for developing additional software services will be formulated. 3. Demonstration prototype will be created and validated.
4.13.3.	Define financial flows	Initially this activity is funded by the EC (eINTERASIA project) Financial flows correspond to eINTERASIA financial plan. Business plan for commercialization beyond the project should be prepared at the last phase of the project.
4.13.4.	Establish requirements for on-going financing	ON-going financing for eLOGMAR components transfer to actors from target groups is done within the frameworks of eINTERASIA project and with accordance with the EC requirements.
4.13.5.	Communicate the financial flows and requirements for on-going financing	It is done in the DoW of eINTERASIA project

4.13.6.	Select prospective investors	Will be done at the last stage of the eINTERASIA project in the Documents “Business plan for commercialization beyond the project”.
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2.5 Virtual Reality Framework, Engineering and Applications

5.1.	VR transfer concept	
5.1.1.	Identify VR technologies that could be transferred to target group	VDT VR-Framework, VR Engineering Workplace, 3D-Display, Mobil active stereo projection, Mobil passive stereo projection, Cave, Tracking
5.1.2.	Identify target group for which VR would be useful	Stakeholders from various industrial sectors as well as research facilities, universities, providers of education and training services
5.1.3.	Obtain target group needs	Secure competitive capability and exploitation of market position against the global competition background
5.1.4.	Describe VR use scenarios by target group	End-users in the target region use VR technology to enhance their product lifecycle management as well as putting their services on the next level.
5.1.5.	Describe VR use benefit for target group in terms of target group	VR supports business processes to enhance product and service availability in suitable quality, in required time and moderate costs
5.1.6.	Evaluate VR transfer opportunities for target group	Active involvement of target group is needed for VR components to be transferred.
5.1.7.	Establish VR transfer concept for target group	<ol style="list-style-type: none"> 1. Demonstration of VR components capability 2. Workshops for profitably using VR technology 3. Support in component selection and implementation in the business IT infrastructure 4. Monitoring of the operational use
5.2.	VR initial (fast) market assessment of target group	
5.2.1.	Establish “negative” criteria for discontinuing VR transfer to target group	There are no negative criteria in advance
5.2.2.	Identify contraindications to move with VR transfer to target group	- Stakeholders are not motivated in using VR technologies in their business processes

5.2.3.	Assess “negatively” VR components to be transferred for target group from the point of view of “negative” criteria and contraindications	Some users from using stereo glasses observed to experience eye pain and dizziness.
5.2.4.	Document and report “negative” assessment results for decision makers	-
5.3. VR evaluation for transfer suitability to target group		
5.3.1.	Define available VR technologies related to target group needs	VDT VR-Framework, VR Engineering Workplace, 3D-Display, Mobil active stereo projection, Mobil passive stereo projection, Human-Computer interaction
5.3.2.	Assess available VR components transfer suitability for target group needs	VR technologies are available for transfer. Depending on the needs of stakeholders, VR solutions will be developed as needed and transferred into target region.
5.3.3.	Ensure documentation of VR components to be transferred for target group	Documentation of VR technologies is provided in English language. Video samples and PPT-slides are available to show the different VR components in their operational environment.
5.3.4.	Create list of VR components to be transferred for target group	<ul style="list-style-type: none"> - VDT VR-Framework - Scalable projection technologies (e.g. mobile stereo systems, 3D-Display, VR Engineering Workplace) - Human-Computer interaction devices
5.3.5.	Establish VR components support and maintenance procedures	The manufactures of VR technologies are responsible for customer service. In case of the VDT VR-Framework, an individual licensing model defines the range of customer support.
5.4. Technical analysis of VR components to be transferred to target group		
5.4.1.	Derive target group requirements	Pending on the scope and level of VR technology, there are several requirements on the IT infrastructure and raw data needed to profitably apply the VR components. It depends on the individual case and shall be settled in accordance with previously.
5.4.2.	Record and change control target group requirements	Will be done during the eINTERASIA project.

5.4.3.	Trace consistency of VR components with target group requirements	Will be done during the eINTERASIA project.
5.4.4.	Refine VR components to be transferred to target group	Will be done during the eINTERASIA project.
5.4.5.	Identify further development of VR components to meet quality and cost objectives	Will be done during the eINTERASIA project depending on the needs of the target group.
5.5.	Determination of intellectual property protection of VR components to be transferred to target group	
5.5.1.	Establish IP protection strategy	IP protection strategy is established.
5.5.2.	Verify feasibility to establish a new IP	New IP can be established for VR transfer models developed for specific target groups.
5.5.3.	Select IP protection form	IP protection should be selected as a subset of Trademark, Copyright and Author rights.
5.5.4.	Develop IP protection policy	IP protection strategies are established. New IP can be established for VR transfer models developed for specific target groups.
5.5.5.	Register Intellectual Property	To do
5.5.6.	Monitor IP inviolability	Directly implemented and web-based services monitor inviolability.
5.6.	Market and competitive analysis of VR components to be transferred to target group	
5.6.1.	Define positioning in the market of VR components to be transferred to target group	The VR technology market is highly competitive. Unique features result from unique customer-adapted solutions.
5.6.2.	Obtain target group reaction	Will be done during the eINTERASIA project.
5.6.3.	Perform Beta testing	Will be done during the eINTERASIA project.
5.6.4.	Perform market and competitive analysis	Will be done during the eINTERASIA project.
5.7.	Value evaluation of VR components to be transferred to target group	
5.7.1.	Analyse advantages of VR technologies to be transferred to target group	VR technologies advantages: - Ensure quality of products and services

	in financial, performance and experience terms	<ul style="list-style-type: none"> - Reduce development, production and maintenance costs in industrial sectors - Hedging critical processes - Support of industrial and further education with latest technology - Ensuring the competitiveness on the global market
5.7.2.	Establish value of VR components to be transferred to target group such as cost savings, increase earning power, increased performance and decreased undesirable impacts	To do based on detailed information of target group
5.7.3.	Contribute to the target group value delivery system by consideration on potential synergy exploitation	It is commonly agreed that innovation and business success are the main engine of value creation for enterprises. Added value will arise from potential synergy of eLOGMAR, innoSPICE and EU research results in using VR technologies focused on the Central Asian Market.
5.7.4.	Identify target group potential benefit on obtaining of VR components using VR communication and distribution channels	Target group get access to latest know-how in using latest VR technology that helps them to improve their business processes and to make business more profitable.
5.7.5.	Develop VR components value proposition statements to target group	To do based on detailed information of target group
5.8.	Go to market estimation of VR components to be transferred to target group	
5.8.1.	Define life cycle strategy of VR components to be transferred to target group	<ol style="list-style-type: none"> 1) Introduce potential end-user in VR technology 2) Demonstration of VR potentials 3) Identifying specific needs of potential end-users 4) Provide support during the transfer process 5) Evaluation of VR technology acceptance in Central Asian Region and adaption of transfer concept
5.8.2.	Define “marketable stage”	Adaption to the needs of target group of Central

	criteria for VR components to be transferred to target group	Asian Region.
5.8.3.	Determine how quickly VR components can be brought to the “marketable stage”	Depends on the level of computerisation of business processes and the level of VR technology will be using in the target region.
5.8.4.	Evaluate the risk of delay	The risk is to take into account the needs that are not expressed explicitly.
5.8.5.	Plan subsequent improvements of VR components to the target group	
5.9.	Confirmation of transfer interest of VR components to be transferred to target group	
5.9.1.	Assess total cost and revenue of VR components to be transferred to target group	Will be done during the eINTERASIA project and depends on the level of transferred VR technology.
5.9.2.	Define target market qualitatively and in quantitatively of VR components to be transferred	Potentially target market is unlimited and for innovative VR technologies commercialization locally and internationally. Quantitative assessments will be done during the eINTERASIA project.
5.9.3.	Compare minimal revenue to cover the cost of VR components transfer with target	
5.9.4.	Identify most promising preliminary route into the target market	Demonstration of VR technology capabilities to the target group. Using the feedback for adaption of transfer concept. Receive an resilient transfer concept of distribute VR technology in Central Asian Region.
5.10.	Business case establishment for VR components to be transferred to target group	
5.10.1.	Establish business case strategy of VR components to be transferred to target group including issues such as licensing, sale, new start-up establishment	The establishing of business cases is based on partnerships in target region.
5.10.2.	Define business case	In this direction, we do not see alternatives

	alternatives, evaluation criteria, evaluation and selection of alternatives	
5.10.3.	Build business case	Based on partnerships in target region, potential business cases will be defined during the eINTERASIA project.
5.11.	Go to market strategy establishment for VR components to be transferred to target group	
5.11.1.	Define go to market strategy alternatives for VR components to be transferred to target group including issues such as licensing or sale to existing company, new start-up establishment, establishment of joint venture with existing transfer participant in the target market	The go to market strategy alternatives are based on international partnerships in target region to create the preconditions for VR-based technology transfer using various allowed forms of economic activities in the target countries.
5.11.2.	Define go to market strategy alternatives evaluation criteria, evaluation and selection of alternatives	
5.11.3.	Establish go to market strategy	
5.12.	Business plan establishment for VR components to be transfer to target group	
5.12.1.	Provide background material on VR components to be transferred to target group	Background material on VR components to be transferred to target group is ready for use.
5.12.2.	Define current status of VR components transfer to target group	Main transfer objectives are ready for transfer to Central Asian Region. The exact composition of the VR components depends on the exact requirements of the target group.
5.12.3.	Establish market potential of VR components to be transferred to target group	Potentially target market is unlimited and for innovative VR technologies commercialization locally and internationally. Quantitative assessments will be done during the eINTERASIA

		project.
5.12.4.	Establish business plan to allow investors and other stakeholders to evaluate situation and to take decision on the venture participation	Will be done during the eINTERASIA project.
5.13.	Financing sources raising for VR components to be transferred to target group	
5.13.1.	Financing sources raising for VR components to be transferred to target group	Initial financing sources are provided by eINTERASIA to develop and evaluate a knowledge and technology transfer concept.
5.13.2.	Analyse venture's operation successful scenarios	Will be done during the eINTERASIA project.
5.13.3.	Define financial flows	Will be done during the eINTERASIA project.
5.13.4.	Establish requirements for on-going financing	Will be done during the eINTERASIA project.
5.13.5.	Communicate the financial flows and requirements for on-going financing	Will be done during the eINTERASIA project.
5.13.6.	Select prospective investors	Will be done during the eINTERASIA project.

2.6 wearIT@work – Empowering the mobile worker with wearable computing

6.1.	wearIT@work transfer concept	
6.1.1.	Identify wearIT@work that could be transferred to target group	Software services and consulting to change workplaces and working environments for the efficient use of wearable computing.
6.1.2.	Identify target group for which wearIT@work would be useful	In the project a focus was on the sector car production, aircraft maintenance, support of processes in hospitals (ward round) and emergency (fire fighters). In further projects the sectors were extended to logistics (picking and packing), quality control, personal protective environment. In general wearable technologies are useful in working situations where the hands of a worker are needed to perform a primary task and information has to be handled during this primary task.
6.1.3.	Obtain target group needs	<ul style="list-style-type: none"> • Focussed and context aware information delivery during the execution of work processes. • Carry out work with higher efficiency and productivity. • Reduce rate of failures due to better information handling.

		<ul style="list-style-type: none"> • More ergonomic and safe workplaces.
6.1.4.	Describe wearIT@work use scenarios by target group	<ol style="list-style-type: none"> 1. Maintenance <ol style="list-style-type: none"> a. The maintenance operators will be equipped with a Maintenance Vest, integrated with carefully selected and properly configured wearable technologies. This complex and innovative multi-device, flexible and reconfigurable aggregation of hardware components, including cutting edge input and output devices, will enhance the working activities in the previously outlined scenarios by making available the following features: <ol style="list-style-type: none"> i. operator's mobility and free-hand working enabled by wearable components and multimodal, voice- and gesture-based, interaction ii. advanced content and knowledge management functionalities, through the use of widely accepted standards and specification for technical information representation and visualization (e.g. S1000D) iii. on-the-job access to needed information through connections to the documentation server and increased usability of the documentation through both audio and visual presentation iv. ready for integration with available information systems to check the availability of tools and materials, to verify the ranges of important task-dependent measurements, to give access to troubleshooting databases and on-board systems v. automatic adaptation of the information provided to the operator to both current task and user profile, in order to obtain a personalized support vi. increased quality of communication and cooperation amongst team members and with remote experts, through audio-visual tools, thus providing simultaneous decision support in critical situations vii. enhanced work quality thanks to adaptive advice in critical phases and the possibility of real time exchange of key task-related information (e.g. pictures of aircraft parts directly from the work site) viii. Open, flexible, extensible and reconfigurable solution based on modular wearable platform and software framework developed by the project. ix. The ensemble of the aforementioned hardware and software features represent what has been called the Wearable Maintenance Integrated Solution (WMIS).

		<p>2. Production</p> <p>a. Automotive production represents an industrial environment where variant products of high complexity and short life-cycles are manufactured. Hence, many situations exist where work is performed in a mobile context (e.g. maintenance, work at the assembly line, etc.). In order to cope with these conditions, specialized training of personnel is a very crucial issue in automotive production. Accordingly, training requirements are usually high. On the other hand, the last step before a car is delivered to retailers consists on visual inspection and manual checking of several parts of the car, in order to control lights and bumpers misalignment, bumps and scratches, spaces between the doors and car body, etc. The workers repeat these steps for hours, and so such task is subject to human errors.</p> <p>i. Implement a wearable computing solution that is capable of supporting the training procedures of blue collar assembly line workers. The wearable prototype which was derived from these field-studies, offers semi-autonomous training by mobile- and context-sensitive support of trainee personnel. The trainees are provided with all necessary (digital) information in order to successfully perform individual production tasks. At the same time the performed tasks are tracked via mobile sensors mounted on body and on the car. The wearable system supports the trainees by detecting errors when tasks were not performed correctly, and by providing appropriate help and suggestions.</p> <p>ii. wearIT@work has also explored the Quality Assurance scenario, and has implemented a prototype of a wearable computing solution to support workers in the process of inspection. The wearable systems helps the worker, and ensures the complete fulfilment of verification procedures, allows hands free inspection, provides access to supporting information and enables the collaboration among workers and experts.</p> <p>3. Healthcare</p> <p>a. Although nowadays electronic patient information is available, it is spread over different information systems which have limited communication capabilities between themselves. As a rule, medical information is only</p>
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		<p>accessible at a few designated workplaces within the current IT infrastructures. Most of them are by definition stationary. On the other hand, the medical treatment process is very much distributed over the whole hospital in a sense that both patients and physicians change their locations within the hospital most of the time. Equipping medical staff with mobile computers has proved to be useful in some cases. However, using a laptop often needs too much attention to be used by the doctor himself. So, often an assistant or nurse will be needed to perform this task. In most cases another nurse will handle paper based information and capture requests issued by the doctor for later entry into the IT system. Physicians and nurses equipped with wearable devices and adequate software systems will have access to all available patient information at any time and any place in the hospital. This would:</p> <ul style="list-style-type: none"> i. Take into account the mobility of medical staff; ii. Provide usable, ubiquitous access to information through connections to the clinical server and audio and visual functions; iii. Speed up data retrieval, improve the quality of the information and prevent patient mix-up through context awareness; iv. The wearable computer will be furnished with suitable and non-obtrusive input devices (e.g. gesture recognition, RFID scanners and proximity sensors) and will communicate with fixed infrastructure (e.g. bedside displays) and devices used by colleagues (tablet PC's, PDA's etc.). <p>4. Emergency/Rescue</p> <ul style="list-style-type: none"> a. In wearIT@work a number of particularly important application areas were identified and corresponding prototypes were developed. Fire fighters, paramedics and other emergency response units typically operate under extremely harsh conditions that pose the kind of requirements which allow evolving technologies to their best potential: <ul style="list-style-type: none"> i. Localization and Navigation Support In search and rescue operations under reduced visibility, localisation and navigation of fire fighters is a particularly important issue. In the wearIT@work project different technological approaches for localisation have
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		<p>been investigated, including pedestrian dead reckoning (PDR) and different types of sensor nodes. Based on one of the types of sensor nodes a navigation system prototype called LifeNet was implemented (see Figure).</p> <p>ii. Context-Sensitive Information Services During active fire fighting missions the amount of information that can be safely processed by is reduced considerably. To present to fire fighters only the information that they can safely process, a software component was developed that selects this information based on contextual data obtained from different sensors and other sources.</p> <p>iii. Enhanced Communication Continuous connectivity to enable speech and data communication is one of the most recurrent requirements stated by fire fighters. To support this the wearIT@work project developed a software component (CSM) that allows creating an ad-hoc network between the different actors at an intervention site and communicating over a number of carriers such as WLAN or UMTS that is transparent to the application using the connection. Moreover, to make the best use of a given connection, special codecs for speech and video transmission have been developed. Finally, a speech recognition component was developed enabling fire fighters to control their wearable system with speech commands while using their hands for their primary activities.</p>
6.1.5.	Describe wearIT@work use benefit for target group in terms of target group	<p>1. Maintenance</p> <p>a. The major benefits expected after the introduction and adoption of the Wearable Maintenance Integrated Solution (WMIS) within the overall aircraft maintenance process – from the early training phases up to the expert support - are:</p> <p>i. Improvement of the worker’s skills and abilities, thanks also to the reduction of the learning curve slope during initial training phases</p> <p>ii. Better management of and access to company know-how and information pools. Decreased wasting of process-implicit, workers-owned, knowledge</p> <p>iii. Enhancement of workers’ capabilities in handling complex, not planned, unusual tasks</p> <p>iv. Improvement of the communication level and real time exchange of information within the company</p>

		<ul style="list-style-type: none"> v. Significant time reduction for executing complex maintenance tasks vi. Improvement of quality level, reduction of errors and increase of security of aircrafts <p>b. In one sentence: Maintenance cost reduction and increase of competitiveness.</p> <p>2. Production</p> <ul style="list-style-type: none"> a. The benefits from the use of wearable computers are perceived as: <ul style="list-style-type: none"> i. Preventing mistakes ii. Making the work faster and more efficient iii. Improving working communication by improving information sharing. iv. The possibility to employ not intensively educated Assembly Workers v. Shortening the training process. vi. Improve the communication and knowledge sharing; vii. Better product quality in shorter time. <p>3. Healthcare</p> <ul style="list-style-type: none"> a. The expected main benefits of using wearable input and output devices: <ul style="list-style-type: none"> i. Reduced time searching for patient information in different stationary information systems, ii. Better patient treatment through online up-to-date information, iii. Increased Patient satisfaction through information sharing, iv. Improving the capacity of physician by increasing personal efficiency and collaboration capability, v. Reduction of errors through automatic patient identification, data capturing documentation. <p>4. Emergency/Rescue</p> <ul style="list-style-type: none"> i. Reducing the risks for fire fighters through more timely and adequate information ii. Faster and richer acquisition and communication of information iii. More robust communication and awareness iv. Faster interventions leading to higher rescue performance v. Improving the capacity of fire-fighters to assess their situation, bodily condition and surrounding team members
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		<ul style="list-style-type: none"> vi. Enhanced monitoring and control of interventions vii. Support for automatic or semi-automatic reporting viii. Facilitating post-intervention debriefings and analysis
6.1.6.	Evaluate wearIT@work transfer opportunities for target group	<p>1. Maintenance</p> <ul style="list-style-type: none"> • In the industrial maintenance sector the organization of productive plants requires work teams that are geographically dispersed. In order to improve productivity goals these groups are expected to pool their knowledge in order to quickly solve problems. New ways of improving operators tasks are needed in order to complement the activity of experts. Within this context, one of the key application scenarios considered by the wearIT@Work project focuses on the support of maintenance activities in the aeronautic industry. Maintenance effectiveness is one of the most scrutinized areas of airline operations. The aeronautic industry takes maintenance aspects into account from the very beginning of the aircraft design in order to make maintenance tasks easier and faster. <p>2. Production</p> <ul style="list-style-type: none"> • Today's requirements in production process efficiency combined with their increasing complexity represent a great challenge for staff members at all levels (from the assembly worker to the plant manager). The ultimate goal is the fine-tuning of the production process to perfectly fulfil customers orders and to keep the overall efficiency at high levels. wearIT@work project demonstrates how wearable technology can allow an efficient, successful working environment by providing ubiquitous, mobile access to production process-related information where and when necessary: at the shop floor, at the assembly line, and at the manufacturing workstations. <p>3. Healthcare</p> <ul style="list-style-type: none"> • Wearable technology will play a key role the Health Domain in the future. Ubiquitous healthcare will have to become wearable and un-obtrusive to get accepted. Because long-term eHealth requirements go far beyond ward round and other hospital processes.

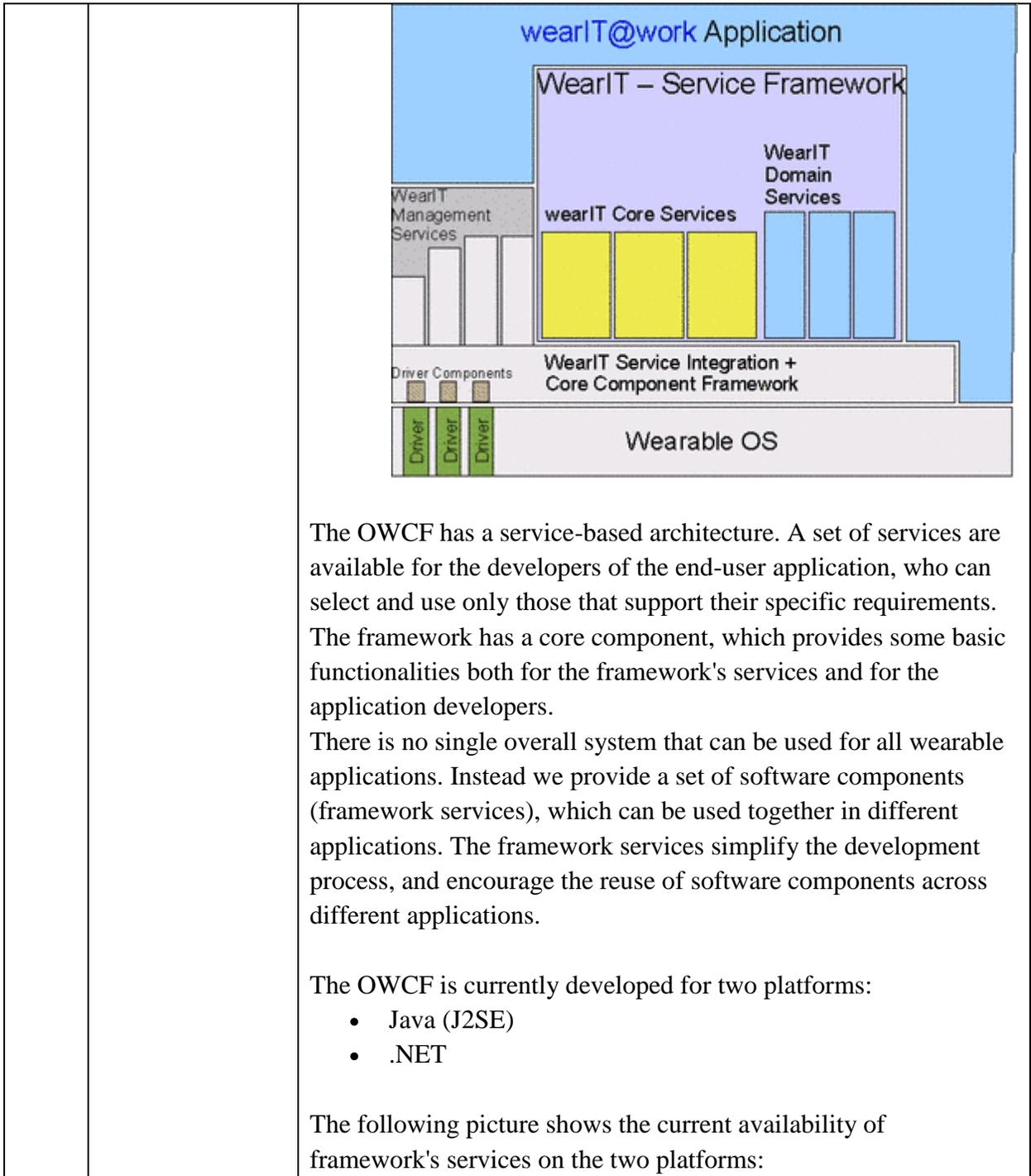
		<ul style="list-style-type: none"> • Future societies will have to deal with increasing number of healthcare cases, due to higher life expectancy, civilization diseases and increased health awareness. The capacities needed for this demand cannot be provided by a traditional system based on hospitals and stationary monitoring. • Convalescent and aged people want and need to be accompanied by medical support while leading their daily lives as “normal” as possible. Wearable computing and the accompanying smart infrastructure will be needed to cope with such requirements. <p>4. Emergency/Rescue</p> <ul style="list-style-type: none"> • The application field of emergency response is the ideal case to push wearable computing to its limits. Fire fighters, paramedics and other emergency response units typically operate under extremely harsh conditions that pose the kind of requirements which allow evolving technologies to their best potential. In emergency response, typically a number of highly trained professionals cooperate in complex, distributed non-standard situations with incomplete knowledge and under high time pressure to control and remedy the effects of calamities such as fires, accidents or attacks.
6.1.7.	Establish wearIT@work transfer concept for target group	<ul style="list-style-type: none"> - Select several players from each target group (Production, Maintenance, Healthcare, Emergency/Rescue) - Introduce them to the potential of wearable computing technologies/solutions. - Introduce them to transfer objects (access to KB and software services) - Provide access to KB and services using multi-language User Guide and demonstration video samples - Collect feedback from target group to improve software services.
6.2.	wearIT@work initial (fast) market assessment of target group	
6.2.1.	Establish “negative” criteria for discontinuing wearIT@work	<ul style="list-style-type: none"> • Even if technologies (e.g. mobile computer platforms, Head Mounted Devices) have gone through, dramatic developments during the last years, they may not suit the needs for industrial applications.

	transfer to target group	<ul style="list-style-type: none"> • The use of Head Mounted Displays is still very unusual in real working environments and acceptance by the worker may be limited. • The introduction of wearable computing solutions in existing IT-infrastructures could be very complex, as this new paradigm requires a change on several levels. Introduction may need too many changes in an existing system (revolution vs. linear development)
6.2.2.	Identify contraindications to move with wearIT@work transfer to target group	
6.2.3.	Assess “negatively” wearIT@work components to be transferred for target group from the point of view of “negative” criteria and contraindications	
6.2.4.	Document and report “negative” assessment results for decision makers	
6.3.	wearIT@work evaluation for transfer suitability to target group	
6.3.1.	Define available wearIT@work components related to target group needs	<p>Hardware</p> <p>The functional components of the platform, which are either COTS (components off the shelf) or developed within the project, are divided into the following five main groups:</p> <ul style="list-style-type: none"> • Wearable computers • Input/Output devices (headphones, Head Mounted Displays, digital pens, sensing gloves, etc.) • Context detection devices (sensing devices, localisation and identification devices)

		<ul style="list-style-type: none"> • Communication infrastructures (heterogeneous networks, mobile communications) • Clothing wearing systems (gloves, jackets, belts, etc.) <p>The goal is to obtain a configurable wearable computer system based on a set of components capable to be linked and connected to various interaction devices. It will be possible to integrate the wearable computing system to the clothing of the workers engaged in the different application pilots. Among other things the wearable system will:</p> <ul style="list-style-type: none"> • Realize a balance between power supply, power consumption and computer power to ensure e.g. operation of the system during a whole shift or limit the problems of overheating. • Integrate the wearable systems, sensors, wires, power supply etc. into work clothing and accessories (e.g. helmets, protective glasses, tools), enabling real world applications – also from an organizational point of view. • Increase the acceptance of head-mounted displays, due to improved display quality and better ergonomics. • Tackle with safety aspects, e.g. by removing wires between several Input/outputs (e.g. wireless sensors in working gloves, wireless connectivity to the head mounted display). <p>Currently, the hardware repository contains the following items:</p> <p>Wearable computers</p> <ul style="list-style-type: none"> • Zypad • QBIC: Wearable belt-integrated Computer, developed at Wearable Computing Lab., ETH Zurich, one of the partners of wearIT@work • OQO: fully functional small-sized PC (COTS) • Xybernaut MA-V: fully functional PC (COTS) • DELL Axim PDA (COTS) <p>The rapid developments in mobile technologies (e.g. smart phones like iPhone) provides additional platforms that are suitable to setup wearable computing systems.</p>
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		<p>I/O Devices</p> <p>The devices described in this part of the technology repository are several Head Mounted Displays (HMDs), clothing integrated sensing devices and a headset. They are listed below.</p> <ul style="list-style-type: none"> • Clothing I/O: TZI SCIPPIO Gesture Band, TZI SCIPPIO WInspect Glove, TZI Smart Battery Pack • Head Mounted Displays: Carl Zeiss Look-around HMD, See-through HMD lab prototypes and Mobile Optics ProVi 2D HMD, Lumus See through HMD (COTS), Microoptical SV-6 clip on HMD (COTS), Mobintech Accupix • Logitech Bluetooth Headset (COTS) <p>Google is promoting "Google Glases" as an integrated system (Head Mounted Display, Mobile Computer) that allows to develop practical wearable solutions.</p> <p>Sensors and Context Detection Devices</p> <p>These include varios sensors used for activity/task tracking, motion or position sensing, and other positioning devices.</p> <ul style="list-style-type: none"> • Sensors: Physiological Sensors, Infrared Sensors, Radar and Sonar sensors, Motion sensors • ETH Sensor Buttons • Positioning devices: GPS technology, WiFi (RF)-based positioning, Hexamite, an Ultrasonic positioning system. • Wristband sensor platform: Pilot-independent platform for on-body sensor data acquisition. • Context Recognition Network (CRN) Toolbox <p>Wireless Communication Devices</p> <ul style="list-style-type: none"> • Wireless Technologies: WLAN IEEE 802.11, IEEE 802.15.1 and Bluetooth, IEEE 802.15.4 and Zigbee • Cellular networks <p>Clothing Systems</p> <ul style="list-style-type: none"> • GZE Link Jacket • GZE Link Jacket - 2nd prototype (GZE-Vest) • GZE CabledWristband
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		<p>Software</p> <p>One of the goals of wearIT@work project was the definition, design and implementation of an Open Wearable Computing Framework (OWCF), which aims at being a standardized, cost-effective platform that can attract the interest and consensus of the major players in the field of development of wearable applications. This part of the technology repository describes the major components of the OWCF. OWCF is a framework, or a middleware: it is a software infrastructure that supports the construction (or operation) of other software (i.e. the wearable applications, or, in the scope of wearIT@work, the four pilot applications).</p> <p>OWCF is a software layer, which enables wearable applications built on top of it to seamlessly take advantage of its functionalities/capabilities. The main reasons for having such a layer are:</p> <ul style="list-style-type: none">• simplify the development of wearable applications• encourage reuse of software components across different applications• promote better software engineering practices <p>OWCF is an artefact of wearIT@work that can outlast the demonstrators developed in the project and that can also potentially outlast the project itself.</p> <p>Furthermore, the OWCF is meant to be a standard-based platform. This means that the design and implementation of the framework not only leverage on existing standards, but potentially bring to the modification of existing standards, or the definition of new ones. In fact, project research activities, and software technologies built in the framework may be consolidated through a bottom-up approach in proposals for new standards (or for modifications of existing standards) that may outlast the wearIT@work project.</p> <p>The following picture shows the general architecture of the wearIT@work framework in the context of the wearable operating system and the application.</p>
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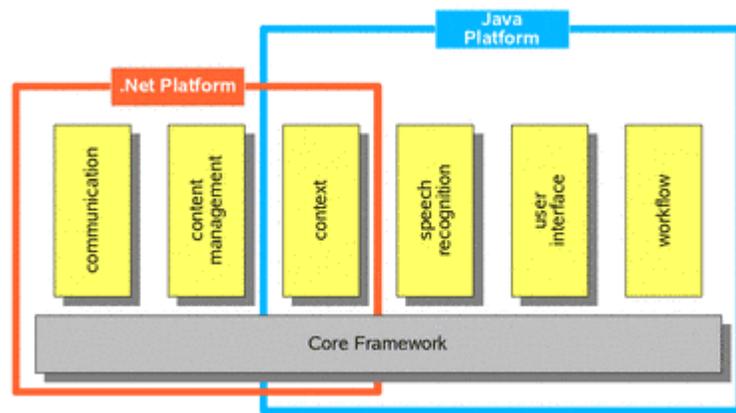
The OWCF has a service-based architecture. A set of services are available for the developers of the end-user application, who can select and use only those that support their specific requirements. The framework has a core component, which provides some basic functionalities both for the framework's services and for the application developers.

There is no single overall system that can be used for all wearable applications. Instead we provide a set of software components (framework services), which can be used together in different applications. The framework services simplify the development process, and encourage the reuse of software components across different applications.

The OWCF is currently developed for two platforms:

- Java (J2SE)
- .NET

The following picture shows the current availability of framework's services on the two platforms:



The service-based architecture provides good extendibility and flexibility. All services are basically independent from each other, and therefore it is possible to extend the framework with new services according to new requirements. At the same time the developers of the end-user application can selectively pick the services that they need to build their application. Our experiences with the four pilots of wearIT@work has confirmed that such architectural approach is valid.

The framework core services are:

- Core Framework
- Context Services
 - JContextAPI
 - .NET Context Framework
- Communication Services: intermittent networking
- User Interface Services: Wearable User Interface Toolkit
- Multimedia Services:
 - Content Management Services
 - Speech Recognition Services
- Workflow Services

There are some framework domain services, which are currently under development:

- Localization Framework
- Collaboration service

		<p>Consulting</p> <p>Due to the variety of different application scenarios a skill base was developed, that is accessible via research staff and spinoff companies. Based on this skill base specific consulting can be offered to organizations that are interested to explore the benefits of wearable technologies for their own working processes.</p>
6.3.2.	Assess available wearIT@work components transfer suitability for target group needs	<p>The software components that were developed during the project reached an average maturity level of 6.5 (according to the TRL of DARPA). However, Wearable Computing solutions are not self explaining but requires extensive implementation efforts as thirty years ago when CAD solutions were revolutionising the design office work or twenty years ago with the roll out of the PC. So implementing the wearIT solutions requires extensive support.</p> <p>Main parts of the software framework is Public Domain or were integrated in the standard products of the mayor software vendors,</p>
6.3.3.	Ensure documentation of wearIT@work components to be transferred for target group	Software framework is documented and evaluated.
6.3.4.	Create list of wearIT@work components to be transferred for target group	
6.3.5.	Establish wearIT@work components support and maintenance procedures	

3. Technology Transfer Case Studies: Acquirer’s point of view

3.1 Acquisition of Virtual Reality Framework and Application

5.1.	VR transfer concept	
5.1.1.	Identify VR technologies that could be transferred to target group	VDT VR-Framework, CAVE, mobile stereo systems, Unity 3D, Oculus Rift
5.1.2.	Identify target group for which VR would be useful	JSC “Astana Innovations” modeled internal projects via VR for city hall, Astana LRT, educational institutions, industries, medical facilities, education departments, utilities and energy management department of Astana city hall. Therefore those organizations became target group via JSC “Astana Innovations”.
5.1.3.	Obtain target group needs	Visual representation of the objects; easier understanding of the processes
5.1.4.	Describe VR use scenarios by target group	People use virtual reality technology to improve the management of the life cycle of the product and make changes on the design stages: learning to create different simulations
5.1.5.	Describe VR use benefit for target group in terms of target group	Virtual technology allows to improve the accessibility and understanding of the product, in a short time to keep costs.
5.1.6.	Evaluate VR transfer opportunities for target group	Active involvement of target group is needed for VR components to be transferred.
5.1.7.	Establish VR transfer concept for target group	<ol style="list-style-type: none"> 5. Demonstration of VR components capability 6. Workshops for profitably using VR technology 7. Assistance in support of virtual reality products, update
5.2.	VR initial (fast) market assessment of target group	
5.2.1.	Establish “negative” criteria for discontinuing VR transfer to target group	There are no negative criteria in advance
5.2.2.	Identify contraindications to move with VR transfer to target group	<ul style="list-style-type: none"> - Stakeholders are not motivated in using VR technologies in their business processes - Many people do not see the benefits of using virtual technology in their business and training

5.2.3.	Assess “negatively” VR components to be transferred for target group from the point of view of “negative” criteria and contraindications	Some users from using stereo glasses observed to experience eye pain and dizziness.
5.2.4.	Document and report “negative” assessment results for decision makers	We have no negative data stored so far
5.3. VR evaluation for transfer suitability to target group		
5.3.1.	Define available VR technologies related to target group needs	VDT VR-Framework, CAVE, mobile stereo systems, Unity 3D, Oculus Rift
5.3.2.	Assess available VR components transfer suitability for target group needs	VR technologies are available for transfer. Depending on the needs of stakeholders, VR solutions will be developed as needed and transferred into target region.
5.3.3.	Ensure documentation of VR components to be transferred for target group	Target group did receive documentation of virtual reality technology, which is available in the Kazakh and Russian languages, slides and video presentations with different information using virtual technology (within and outside of the current project requests)
5.3.4.	Create list of VR components to be transferred for target group	<ul style="list-style-type: none"> - VDT VR-Framework - Unity3D - mobile stereo systems - Oculus Rift
5.3.5.	Establish VR components support and maintenance procedures	There is a special file that can be compiled and sent to the user under his specific needs in order to use in different virtual reality systems.
5.4. Technical analysis of VR components to be transferred to target group		
5.4.1.	Derive target group requirements	It depends on the individual case and shall be settled in accordance with previously. JSC “Astana Innovations” modeling underground utilities for utilities and energy management department of Astana city hall, since the city is new and still building up, we are able to model possible scenarios in advance to avoid the future failures.
5.4.2.	Record and change control target group requirements	According to the development of their projects.

5.4.3.	Trace consistency of VR components with target group requirements	
5.4.4.	Refine VR components to be transferred to target group	<ul style="list-style-type: none"> - VDT VR-Framework - Unity3D - mobile stereo systems - Oculus Rift
5.4.5.	Identify further development of VR components to meet quality and cost objectives	Further development of VR components might be applied via adding more advanced visualization technologies, like 3D printer, 3D scanner and motion capture costume for scenarios with movement animation in order to simulate crowd behaviour.
5.5.	Determination of intellectual property protection of VR components to be transferred to target group	
5.5.1.	Establish IP protection strategy	IP protection strategy is established.
5.5.2.	Verify feasibility to establish a new IP	New IP can be established for VR transfer models developed for specific target groups.
5.5.3.	Select IP protection form	IP protection should be selected as a subset of Trademark, Copyright and Author rights.
5.5.4.	Develop IP protection policy	IP protection strategies are established. New IP can be established for VR transfer models developed for specific target groups.
5.5.5.	Register Intellectual Property	
5.5.6.	Monitor IP inviolability	Directly implemented and web-based services monitor inviolability.
5.6.	Market and competitive analysis of VR components to be transferred to target group	
5.6.1.	Define positioning in the market of VR components to be transferred to target group	The VR technology market is highly competitive. Unique features result from unique customer-adapted solutions.
5.6.2.	Obtain target group reaction	They were able to see the simulation of the project performance (the one that was requested with target group). The reaction was like they were able to understand the modelled situation better and underline the advantages and disadvantages of the work they've ordered to simulate.

5.6.3.	Perform Beta testing	Testing was performed.
5.6.4.	Perform market and competitive analysis	
5.7.	Value evaluation of VR components to be transferred to target group	
5.7.1.	Analyse advantages of VR technologies to be transferred to target group in financial, performance and experience terms	VR technologies advantages: The real model of the Astana city helped to develop the Grand Master Plan of city development, which showed the directions to develop, how to implement underground connections and how to map the new part of the city. The approach was beneficial as it saved the failures in roads and building architecture planning.
5.7.2.	Establish value of VR components to be transferred to target group such as cost savings, increase earning power, increased performance and decreased undesirable impacts	About 60 000 Euro.
5.7.3.	Contribute to the target group value delivery system by consideration on potential synergy exploitation	It is commonly agreed that innovation and business success are the main engine of value creation for enterprises. Added value will arise from potential synergy of eLOGMAR, innoSPICE and EU research results in using VR technologies focused on the Central Asian Market.
5.7.4.	Identify target group potential benefit on obtaining of VR components using VR communication and distribution channels	Using virtual technology will reduce development and training time and also reduce manufacturing costs. For JSC Astana Innovations internal projects we are able to create simulations. For example: for the social project “School of the future today” (which is responsible for public school safety), we are able to visualize the force Majeure situation like fire in the building and predict the best exit points and situation outcome.
5.7.5.	Develop VR components value proposition statements to target group	To do based on detailed information of target group

5.8.	Go to market estimation of VR components to be transferred to target group	
5.8.1.	Define life cycle strategy of VR components to be transferred to target group	<ul style="list-style-type: none"> 6) Introduce potential end-user in VR technology 7) Demonstration of VR potentials 8) Identifying specific needs of potential end-users 9) Provide support during the transfer process 10) Evaluation of VR technology acceptance in Central Asian Region and adaption of transfer concept
5.8.2.	Define “marketable stage” criteria for VR components to be transferred to target group	VR components must be able to minimize the cost of the future projects by predicting the situation in advance with visualizing of the project benefits and possible failure points. It must be an area, where any situation can be “brought to life before it is even planned”. That will ensure the business and social aspects of any projects, which will make VR components “marketable”.
5.8.3.	Determine how quickly VR components can be brought to the “marketable stage”	Depends on understanding the end users and their applications in business. More than 6 months.
5.8.4.	Evaluate the risk of delay	The risk is to take into account the needs that are not expressed explicitly.
5.8.5.	Plan subsequent improvements of VR components to the target group	We plan to search and apply new achievements and developments in the field of virtual technologies.
5.9.	Confirmation of transfer interest of VR components to be transferred to target group	
5.9.1.	Assess total cost and revenue of VR components to be transferred to target group	From 60 000 euro to 300 000 euro (depends on the component to be transferred). For AI it is maximum amount, since we purchased the CAVE.
5.9.2.	Define target market qualitatively and in quantitatively of VR components to be transferred	Potentially target market is unlimited and for innovative VR technologies commercialization locally and internationally.
5.9.3.	Compare minimal revenue to cover the cost of VR	

	components transfer with target	
5.9.4.	Identify most promising preliminary route into the target market	Demonstration of the technological capabilities for as many users as possible.
5.10.	Business case establishment for VR components to be transferred to target group	
5.10.1.	Establish business case strategy of VR components to be transferred to target group including issues such as licensing, sale, new start-up establishment	The memorandum of understanding is the first step that we had performed with European partner, and then there was official agreement on the current system we own.
5.10.2.	Define business case alternatives, evaluation criteria, evaluation and selection of alternatives	
5.10.3.	Build business case	Based on partnerships in target region, potential business cases will be defined during the eINTERASIA project.
5.11.	Go to market strategy establishment for VR components to be transferred to target group	
5.11.1.	Define go to market strategy alternatives for VR components to be transferred to target group including issues such as licensing or sale to existing company, new start-up establishment, establishment of joint venture with existing transfer participant in the target market	The go to market strategy alternatives are based on international partnerships in target region to create the preconditions for VR-based technology transfer using various allowed forms of economic activities in the target countries.
5.11.2.	Define go to market strategy alternatives evaluation criteria, evaluation and selection of alternatives	Do not see alternatives
5.11.3.	Establish go to market strategy	

5.12.	Business plan establishment for VR components to be transfer to target group	
5.12.1.	Provide background material on VR components to be transferred to target group	Background material on VR components to be transferred to target group is ready for use.
5.12.2.	Define current status of VR components transfer to target group	Main transfer objectives are ready for transfer to Central Asian Region. The exact composition of the VR components depends on the exact requirements of the target group.
5.12.3.	Establish market potential of VR components to be transferred to target group	Potentially target market is unlimited and for innovative VR technologies commercialization locally and internationally.
5.12.4.	Establish business plan to allow investors and other stakeholders to evaluate situation and to take decision on the venture participation	
5.13.	Financing sources raising for VR components to be transferred to target group	
5.13.1.	Financing sources raising for VR components to be transferred to target group	Initial financing sources are provided by eINTERASIA to develop and evaluate a knowledge and technology transfer concept.
5.13.2.	Analyse venture's operation successful scenarios	
5.13.3.	Define financial flows	
5.13.4.	Establish requirements for on-going financing	
5.13.5.	Communicate the financial flows and requirements for on-going financing	
5.13.6.	Select prospective investors	

4. Technology transfer concept

4.1 Technology Transfer Concept process

Process ID	PRIM.TTD.1
Process Name	Technology Transfer Concept process
Process Purpose	The purpose of the Technology Transfer Concept process is to identify and develop technology transfer concept.
Process Outcomes	<p>As a result of successful implementation of the Technology Transfer Concept process:</p> <ol style="list-style-type: none"> 1) Sources and methods for identifying new available technologies and infrastructure improvements are established and maintained. 2) Decision makers are informed of new technologies that can be inserted where new technologies would be most beneficially adopted. 3) A statement of technology acquirer needs and expectations is obtained. 4) The rationale for the needs is established. 5) The scenarios of the use of needed products or services in the intended environment are described. 6) Potential technology to be transferred is identified. 7) The technology transfer idea is established.
Base Practices	<p>PRIM.TTD.1.BP1: Establish and Maintain Sources and Methods. Establish and maintain sources and methods for identifying new technologies and infrastructure improvements. [Outcome: 1]</p> <p>PRIM.TTD.1.BP2: Understand Available Technologies. Understand the available technologies: obtain a clear and concise description of what it does in nontechnical and technical terms; obtain a technical description of the technology; obtain, if possible, a brief overview of similar technologies in the field. [Outcomes: 1, 2]</p> <p>PRIM.TTD.1.BP3: Inform Decision Makers. Inform decision makers about new technologies that can be inserted when they would be most beneficially adopted. [Outcomes: 2]</p>

	<p>PRIM.TTD.1.BP4: Obtain Technology Acquirer Needs. Obtain technology acquirer needs, including published lists of technology transfer opportunities. [Outcomes: 3, 4]</p> <p>PRIM.TTD.1.BP5: Describe Technology Use Scenarios. Describe scenarios of the use of new technology in the intended environment. [Outcomes: 4, 5]</p> <p>PRIM.TTD.1.BP6: Identify Technology Benefits. Identify the benefits of the technology to be transferred. Identify how this technology is different from what is currently available and why this technology is better. [Outcomes: 4, 5]</p> <p>PRIM.TTD.1.BP7: Evaluate Transfer Opportunities. Evaluate the potential interest in acquiring the technology, e.g., trip reports, benchmark studies, market surveys, comparison data with peer organizations and external expertise. [Outcome: 6]</p> <p>PRIM.TTD.1.BP8: Establish Technology Transfer Idea. Identify or develop technology transfer concept leading to technology commercialization. [Outcome: 7]</p>
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4.2 Technology Evaluation

Process ID	PRIM.TTD.2
Process Name	Technology Evaluation
Process Purpose	The purpose of the Technology Evaluation process is to evaluate reasonability and technical viability of the available technologies that might be transferred.
Process Outcomes	As a result of successful implementation of the Technology Evaluation process: <ol style="list-style-type: none"> 1) Functionality of the technologies that might be transferred is defined 2) The technology is assessed. 3) The technology's design is documented. 4) A proof of technology concept is performed. 5) Specifications and operating procedures are finalized. 6) A complete list of materials is created.

	<p>7) Adherence to quality standards is checked.</p> <p>8) Quality control and maintenance procedures are established.</p>
<p>Base Practices</p>	<p>PRIM.TTD.2.BP1: Define Technology Functionality. Define functionality of existing technologies. [Outcome: 1]</p> <p>PRIM.TTD.2.BP2: Assess Technology. Assess transfer suitability of available technology. [Outcome: 2]</p> <p>PRIM.TTD.2.BP3: Ensure Documented Design. Ensure potential technologies are transferred with documented design. [Outcome: 3]</p> <p>PRIM.TTD.2.BP4: Prove Technology Concept. Perform proof of technology concept. [Outcome: 4]</p> <p>PRIM.TTD.2.BP5: Finalize Specifications and Operating Procedures. Finalize technology specifications and operating procedures. [Outcome: 5]</p> <p>PRIM.TTD.2.BP6: Create List of Components. Create complete list of technology materials, parts and components. [Outcome: 6]</p> <p>PRIM.TTD.2.BP7: Check Adherence to Quality Standards. Check technology adherence to quality standards. [Outcome: 7]</p> <p>PRIM.TTD.2.BP8: Establish Quality Control and Maintenance Procedures. Establish quality control and maintenance procedures. [Outcome: 8]</p>

4.3 Intellectual Property Protection Determination

Process ID	PRIM.TTD.3
Process Name	Intellectual Property Protection Determination
Process Purpose	The purpose of the Intellectual Property Protection Determination process is to determine and follow-on of the appropriate form of the protection for the intellectual property.
Process Outcomes	<p>As a result of successful implementation of the Intellectual Property Protection Determination process:</p> <ol style="list-style-type: none"> 1) Intellectual Property protection strategy is established. 2) Literature search on potential Intellectual Property subject is performed. 3) Search in patent and other Intellectual Property registers is conducted. 4) Feasibility of new Intellectual Property is verified. 5) An appropriate form of Intellectual Property protection is selected. 6) Policy for Intellectual Property protection is developed. 7) Intellectual Property is registered according to Strategy for Intellectual Property Protection. 8) Intellectual Property Protection is monitored.
Base Practices	<p>PRIM.TTD.3.BP1: Establish Intellectual Property Protection Strategy. Establish Intellectual Property protection strategy including protection form determination and follow-up. [Outcome: 1]</p> <p>PRIM.TTD.3.BP2: Perform Literature Search. Perform literature search on targeted Intellectual Property in all available sources. [Outcome: 2]</p> <p>PRIM.TTD.3.BP3: Conduct Patents Search. Conduct patents and other registered Intellectual Property search on available registers. [Outcome: 3]</p> <p>PRIM.TTD.3.BP4: Verify Feasibility to Establish a New Intellectual Property. Verify feasibility to establish a new Intellectual Property based on the search in Intellectual Property registers such as patents, copyrights, trademarks. [Outcome: 4]</p>

	<p>PRIM.TTD.3.BP5: Select Intellectual Property Protection Form. Select Intellectual Property protection form such as patenting, copyrights, trademark licensing and open source. [Outcome: 5]</p> <p>PRIM.TTD.3.BP6: Develop Intellectual Property Protection Policy. Develop Intellectual Property Protection Policy that establishes scope and rules of IP protection. [Outcome: 6]</p> <p>PRIM.TTD.3.BP7: Register Intellectual Property. Register Intellectual Property according to the Intellectual Property protection strategy. [Outcome: 7]</p> <p>PRIM.TTD.3.BP8: Monitor Intellectual Property Inviolability. Monitor Intellectual Property inviolability according to established Intellectual Property protection policy. [Outcome: 8]</p>
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4.4 Initial Market Assessment

Process ID	PRIM.TTD.4
Process Name	Initial Market Assessment
Process Purpose	The purpose of the Initial Market Assessment process is to assess clear contraindications that will severely impede any move to market if such exist.
Process Outcomes	<p>As a result of successful implementation of the Initial Market Assessment process:</p> <ol style="list-style-type: none"> 1) Immediate reasons for discontinuing technology transfer process as criteria for “negative” evaluation are established. 2) Contraindications that severely impede any move to market are identified. 3) Technology is assessed from the point of view of negative criteria and contraindications. 4) Negative assessment results are documented and reported for decision-making.
Base Practices	PRIM.TTD.4.BP1: Establish “Negative” Evaluation Criteria. Establish “negative” evaluation criteria as immediate

	<p>reasons for discontinuing technology transfer process. [Outcome: 1]</p> <p>PRIM.TTD.4.BP2: Identify Contraindications to Move to Market. Identify contraindications such as if the demand is restricted to a few specialized customers, or if the cost of production appears to significantly exceed an existing market substitute, or if the national regulatory system precludes its broad dissemination, that severely impede to move to the market. [Outcome: 2]</p> <p>PRIM.TTD.4.BP3: Assess Technology “Negatively”. Assess technology from the point of view of negative criteria and contraindications. [Outcome: 3]</p> <p>PRIM.TTD.4.BP4: Document and Report “Negative” Assessment Results. Document and report “negative” assessment results for decision making on technology transfer discontinuing. [Outcome: 4]</p>
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4.5 Technical Analysis

Process ID	PRIM.TTD.5
Process Name	Technical Analysis
Process Purpose	The purpose of the Technical Analysis process is to refine all technical aspects of the potential technology, and identify any areas that require further development to meet cost or quality targets and/or end user requirements.
Process Outcomes	<p>As a result of successful implementation of the Technical Analysis process:</p> <ol style="list-style-type: none"> 1) Unambiguous, complete, traceable, feasible, consistent and verifiable technology requirements are derived from technology acquirers' needs and expectations. 2) All requirements information is recorded and change controlled to establish a baseline that is maintained throughout the technology life cycle. 3) Plans, technologies, activities, and agreements are traced for consistency with requirements, and any inconsistencies are identified for correction.

	<p>4) All technical aspects of the technology to be transferred are refined according to acquirer requirements.</p> <p>5) All areas that require further development to meet cost and quality control targets are identified.</p> <p>6) Development plan to shift technology into initial stage of the launch is established.</p>
<p>Base Practices</p>	<p>PRIM.TTD.5.BP1: Derive Technology Requirements. Derive unambiguous, complete, traceable, feasible, consistent and verifiable technology requirements from technology acquirers' needs and expectations. [Outcome: 1]</p> <p>PRIM.TTD.5.BP2: Record and Change Control Technology Requirements. Record and change control technology requirements to establish a baseline that is maintained throughout the technology life cycle. [Outcome: 2]</p> <p>PRIM.TTD.5.BP3: Trace for Consistency with Requirements. Trace technology plans, activities and agreements for consistency with requirements, and any inconsistencies are identified for correction. [Outcome: 3]</p> <p>PRIM.TTD.5.BP4: Refine Technology. Refine all technical aspects of the technology to be transferred are refined according to acquirer requirements. [Outcome: 4]</p> <p>PRIM.TTD.5.BP5: Identify Further Development. Identify all areas that require further development to meet cost and quality control targets. [Outcome: 5]</p> <p>PRIM.TTD.5.BP6: Establish Development Plan for Launch. Establish development plan to shift technology into initial stage of the launch. [Outcome: 6]</p>

4.6 Market and Competitive Analysis

Process ID	PRIM.TTD.6
Process Name	Market and Competitive Analysis
Process Purpose	The purpose of the Market and Competitive Analysis process is to evaluate the market potential of the technology to be transferred.
Process Outcomes	<p>As a result of successful implementation of the Market and Competitive Analysis process:</p> <ol style="list-style-type: none"> 1) Technology positioning in the market is defined 2) The risk of attempt to identify or assess the real market is evaluated. 3) The services of established expert in the specific market area that the technology will penetrate are retained. 4) Reassurance of customer reaction is obtained by technology introducing in selected representative test markets. 5) Beta testing is performed and available information is collected. 6) Market and competitive analysis is performed.
Base Practices	<p>PRIM.TTD.6.BP1: Define Technology Positioning in the Market. Define technology positioning in the market such as completely new technology or very close technology to existing in the market or improvement of existing technology. [Outcome: 1]</p> <p>PRIM.TTD.6.BP2: Evaluate the Risk of Market Assessment. Evaluate the risk of market assessment, particularly in the case of completely new technology or very close technology to existing in the market. [Outcome: 2]</p> <p>PRIM.TTD.6.BP3: Retain Qualified Expert Services. Retain qualified expert services in the specific market area that the technology will penetrate. [Outcome: 3]</p> <p>PRIM.TTD.6.BP4: Secure Customer Reaction. Secure customer reaction by technology introducing in selected representative test markets. [Outcome: 4]</p>

	<p>PRIM.TTD.6.BP5: Perform Beta Testing. Perform beta testing and collect available information for technology improvement. [Outcome: 5]</p> <p>PRIM.TTD.6.BP6: Perform Market and Competitive Analysis. Perform market and competitive analysis applying available techniques. [Outcome: 6]</p>
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4.7 Technology Value Evaluation

Process ID	PRIM.TTD.7
Process Name	Technology Value Evaluation
Process Purpose	The purpose of the Technology Value Evaluation process is to evaluate the innovative technology on the basis of its relative value and the commitment of the potential acquirers.
Process Outcomes	<p>As a result of successful implementation of the Technology Value Evaluation process:</p> <ol style="list-style-type: none"> 1) Analysis of advantages of the innovative technology in financial, performance and experience terms is performed. 2) Technology value to potential acquirers in terms of cost savings, increased earning power, increased performance and decreased undesirable impacts such as technical glitches or safety issues is established. 3) A follow-on consideration on the technology acquirer value delivery system is performed. 4) All the communication and distribution channel experiences the acquirer will have on the way to obtaining the technology are identified. 5) The value proposition statement about the total resulting experience that acquirer can expect from the technology and from the relationship with the supplier is developed.
Base Practices	<p>PRIM.TTD.7.BP1: Analyze Technology Advantages. Analyze advantages of the innovative technology in financial, performance and experience terms. [Outcome: 1]</p> <p>PRIM.TTD.7.BP2: Establish Technology Value. Establish significant technology value shift to potential acquirers such as cost savings, increased earning power, increased performance</p>

	<p>and decreased undesirable impacts including technical glitches or safety issues. [Outcome: 2]</p> <p>PRIM.TTD.7.BP3: Contribute to the Technology Acquirer Value Delivery System. Contribute to the technology acquirer value delivery system by consideration on potential synergy exploitation. [Outcome: 3]</p> <p>PRIM.TTD.7.BP4: Identify Technology Acquirer’s Potential Benefit. Identify technology acquirer’s potential benefit on the way to obtaining the technology using experience of all the communications and distributions channel. [Outcome: 4]</p> <p>PRIM.TTD.7.BP5: Develop Value Proposition Statement. Develop value proposition statement about the total resulting experience that acquirer can expect from the technology and from the relationship with the supplier. [Outcome: 5]</p>
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4.8 Go to Market Estimation

Process ID	PRIM.TTD.8
Process Name	Go to Market Estimation
Process Purpose	The purpose of the Go to Market Estimation process is to determine how quickly the technology can be brought to the marketable stage and to plan technology subsequent improvements and innovations to establish on-going demand and aftermarket potential.
Process Outcomes	<p>As a result of successful implementation of the Go to Market Estimation process:</p> <ol style="list-style-type: none"> 1) Technology life cycle strategy is defined. 2) Criteria of technology achievement towards the marketable stage are defined. 3) The risk of delaying the introduction of technology to the market is evaluated. 4) A plan how quickly the technology can be brought to the marketable stage is determined. 5) Technology subsequent improvements and innovations are planned.

Base Practices	<p>PRIM.TTD.8.BP1: Define Technology Life Cycle Strategy. Define technology life cycle strategy including launch and modifications during life cycle issues. [Outcome: 1]</p> <p>PRIM.TTD.8.BP2: Define Technology Marketable Stage Criteria. Define technology marketable stage criteria including “perfect technology” and “insufficiently debugged” ratio considerations. [Outcome: 2]</p> <p>PRIM.TTD.8.BP3: Evaluate the Risk of Delay. Evaluate the risk of delaying to introduction of technology to market while trying to perfect it. [Outcome: 3]</p> <p>PRIM.TTD.8.BP4: Determine the Time to Go to Market. Determine how quickly the technology can be brought to the marketable stage. [Outcome: 4]</p> <p>PRIM.TTD.8.BP5: Plan Technology Improvements. Plan the technology subsequent improvements and innovations. [Outcome: 5]</p>
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4.9 Commercial/Social-economic Interest Confirmation

Process ID	PRIM.TTD.9
Process Name	Commercial/Social-economic Interest Confirmation
Process Purpose	The purpose of the Commercial/Social-economic Interest Confirmation process is to define commercial or social-economic interest and identify the most promising route into the target market.
Process Outcomes	<p>As a result of successful implementation of the Commercial/Social-economic Interest Confirmation process:</p> <ol style="list-style-type: none"> 1) Technology cost-revenue balance is assessed. 2) Technology target market is defined. 3) Commercial/Social-economic interest on technology is defined quantitatively. 4) Technology balanced revenue parameters are obtained and compared with target market power. 5) The most promising preliminary route into the target market is identified.

Base Practices	<p>PRIM.TTD.9.BP1: Assess Technology Cost and Revenue. Assess technology commercialization total cost and revenue. [Outcome: 1]</p> <p>PRIM.TTD.9.BP2: Define Technology Target Market. Define technology target market qualitatively. [Outcome: 2]</p> <p>PRIM.TTD.9.BP3: Define Commercial/Social-economic Interest in Technology. Define commercial/social-economic interest in technology in quantitative terms of potential revenue. [Outcome: 3]</p> <p>PRIM.TTD.9.BP4: Compare Balanced Revenue with Target Market Power. Compare minimal revenue to cover the costs of technology commercialization with target market share and readiness to pay for unit. [Outcome: 4]</p> <p>PRIM.TTD.9.BP5: Identify Route to the Target Market. Identify the most promising preliminary route into the target market. [Outcome: 5]</p>
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4.10 Business Case Establishment

Process ID	PRIM.TTD.10
Process Name	Business Case Establishment
Process Purpose	The purpose of the Business Case Establishment process is to build up the strongest possible business case for the innovative technology.
Process Outcomes	<p>As a result of successful implementation of the Business Case Establishment process:</p> <ol style="list-style-type: none"> 1) Business case strategy is established 2) Business case preliminary alternatives are defined. 3) Business case alternatives evaluation criteria are defined. 4) Business case alternatives are evaluated. 5) The best business case alternative is selected. 6) Business case is build.
Base Practices	<p>PRIM.TTD.10.BP1: Establish Business Case Strategy. Establish business case strategy including issues such as</p>

	<p>whether the innovation technology is to be licensed, sold, or forms basis of new start-up company that will require outside financing. [Outcome: 1]</p> <p>PRIM.TTD.10.BP2: Define Business Case Alternatives. Define business case preliminary alternatives for innovative technology commercialization. [Outcome: 2]</p> <p>PRIM.TTD.10.BP3: Define Alternatives Evaluation Criteria. Define business case preliminary alternatives evaluation criteria for technology commercialization. [Outcome: 3]</p> <p>PRIM.TTD.10.BP4: Evaluate Business Case Alternatives. Evaluate business case alternatives according to defined criteria. [Outcome: 4]</p> <p>PRIM.TTD.10.BP5: Select the Best Business Case Alternative. Select the best business case alternative for technology commercialization. [Outcome: 5]</p> <p>PRIM.TTD.10.BP6: Build Business Case. Build the strongest possible business case for technology commercialization. [Outcome: 6]</p>
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4.11 Go to Market Strategy Establishment

Process ID	PRIM.TTD.11
Process Name	Go to Market Strategy Establishment
Process Purpose	The purpose of the Go to Market Strategy Establishment process is to select flexibly and objectively the approach of a go to market with the highest perceived commercial/social-economic potential.
Process Outcomes	As a result of successful implementation of the Go to Market Strategy Establishment process: <ul style="list-style-type: none"> 1) Go to market strategy preliminary alternatives such as a new start-up company, a license with an existing company, sale of technology to an existing company, a joint venture or a purchase of an existing commercial participant in the target market are defined.

	<p>2) Go to market strategy alternatives evaluation criteria are defined.</p> <p>3) Go to market strategy alternatives are evaluated.</p> <p>4) The best Go to market strategy's alternative is selected.</p> <p>5) Go to market strategy is established.</p>
Base Practices	<p>PRIM.TTD.11.BP1: Define Go to Market Strategy Alternatives. Define go to market strategy preliminary alternatives such as a new start-up company, a license with an existing company, sale of technology to an existing company, a joint venture or a purchase of an existing commercial participant in the target market. [Outcome: 1]</p> <p>PRIM.TTD.11.BP2: Define Go to Market Strategy Alternatives Evaluation Criteria. Define go to market strategy preliminary alternatives evaluation criteria for technology commercialization. [Outcome: 2]</p> <p>PRIM.TTD.11.BP3: Evaluate Go to Market Strategy Alternatives. Evaluate go to market strategy preliminary alternatives according to defined criteria. [Outcome: 3]</p> <p>PRIM.TTD.11.BP4: Select the Best Go to Market Strategy Alternative. Select the best go to market strategy alternative for technology commercialization. [Outcome: 4]</p> <p>PRIM.TTD.11.BP5: Establish Go to Market Strategy. Refine and establish the best go to market strategy alternative for technology commercialization. [Outcome: 5]</p>

4.12 Business Plan Establishment

Process ID	PRIM.TTD.12
Process Name	Business Plan Establishment
Process Purpose	The purpose of Business Plan Establishment process is to develop and maintain the document that will allow investors and other technology transfer participants to evaluate the background, current status and real market/social-economic potential of the venture.

<p>Process Outcomes</p>	<p>As a result of successful implementation of the Business Plan Establishment process:</p> <ol style="list-style-type: none"> 1) Technology transfer commercialization processes results are aggregated. 2) Technology transfer background material is provided. 3) Current status of the technology transfer process is defined. 4) Real market potential of the technology transfer venture is established. 5) Business plan that allow investors and other technology transfer participants to evaluate situation and to take decisions on the venture is established.
<p>Base Practices</p>	<p>PRIM.TTD.12.BP1: Aggregate Technology Transfer Commercialization Processes Results. Aggregate technology transfer of all previous steps towards commercialization. [Outcome: 1]</p> <p>PRIM.TTD.12.BP2: Provide Background Material. Provide technology transfer background material. [Outcome: 2]</p> <p>PRIM.TTD.12.BP3: Define Current Status of the Technology Transfer. Define current status of the technology transfer commercialization. [Outcome: 3]</p> <p>PRIM.TTD.12.BP4: Establish Market Potential of the Technology Transfer Venture. Establish market/social-economic potential of the technology transfer commercialization venture. [Outcome: 4]</p> <p>PRIM.TTD.12.BP5: Establish Formal Business Plan. Establish formal business plan that allow investors and other technology transfer participants to evaluate situation and to take decision on the venture participation. [Outcome: 5]</p>

4.13 Financing Sources Raising

Process ID	PRIM.TTD.13
Process Name	Financing Sources Raising
Process Purpose	The purpose of the Financing Sources Raising process is to identify appropriate sources of financing and to select the investors with a clear understanding of what they see as their future role as investors over the coming years.
Process Outcomes	<p>As a result of successful implementation of the Business Financing Sources Raising process:</p> <ol style="list-style-type: none"> 1) Appropriate sources of financing the technology transfer are identified. 2) Successful technology transfer financing scenarios are analyzed. 3) Financial flows of the successful technology transfer financing scenarios are defined. 4) The requirements for ongoing financing are established. 5) Financial flows and requirements for ongoing financing are communicated to potential investors and stakeholders. 6) Investors are selected based on understanding of their future role in the venture and readiness for long term investments.
Base Practices	<p>PRIM.TTD.13.BP1: Identify Sources of Financing. Identify appropriate sources of technology transfer financing. [Outcome: 1]</p> <p>PRIM.TTD.13.BP2: Analyze Successful Operational Financing Scenarios. Analyze technology transfer successful operational financing scenarios that alone allow follow-up activity. [Outcome: 2]</p> <p>PRIM.TTD.13.BP3: Define Financial Flows. Define financial flows of the successful financing operation scenarios. [Outcome: 3]</p>

	<p>PRIM.TTD.13.BP4: Establish Requirements for Ongoing Financing. Establish requirements for ongoing financing of the successful investment operation. [Outcome: 4]</p> <p>PRIM.TTD.13.BP5: Communicate the Financial Flows and Requirements for Ongoing Financing. Communicate the financial flows and requirements for ongoing financing to potential investors and stakeholders. [Outcome: 5]</p> <p>PRIM.TTD.13.BP6: Select Prospective Investors. Select prospective investors based on understanding of their future role as investors and readiness for long term investments.[Outcome: 6]</p>
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5. Technology Transfer Concept : Synergy of several central components

Generic Technology Transfer Concept is based on the synergy of several central components :

- Capability Maturity Transfer Model (CMTM)
- Showrooms as a "window" to scientific innovation that transform research findings to understandable demonstrators
- Virtual Reality – Based models and platforms [21].

The CMTM is the core element of Technology Transfer Concept . The basic principle and case studies have been described in chapters 1 – 4.

Virtual Reality is a high-end human-computer interface that links real-time simulation and interactions through multi-sensory channels [22]. In its ultimate form, virtual reality enables humans to become part of and to act in computer generated environment.

The Fraunhofer IFF Virtual Development and Training (VDT) Platform is a software platform that facilitates interaction with realistic virtual products, machinery and plants on the basis of 3 – D virtual environments. Fields of application for VDT Platform include product and process development and training.

The visualizations have great recognition value, simulations of a product's or plant's performance are realistic and users have options to interact realistically.

The creation of Virtual Reality solutions and their implementation in operations requires specialized know-how from different fields, e.g. engineering and didactic methods for technical training .Since SMEs often lack this expertise , the Fraunhofer IFF developed a concept to transfer knowledge from Virtual Reality training systems to industry and successfully tested it with the involvement of SMEs, educational institutions and research organizations [23]. The goal is the practically oriented transfer of Virtual reality technologies to companies in the processing industry.

The basic idea of a showroom is to have an attractive exhibition area for demonstrating cutting edge-technologies in tangible and accessible fashion and transmitting technological knowledge between science and industry. Showrooms are considered as "windows" to scientific innovation that transform research results to demonstrators [24].

The showrooms are part of the implementation of the transfer model and concept and supporting transfer in both directions – as push and as pull of innovative technologies. On the one hand research institutions and universities are presenting their technologies and potential applications in an attractive way. This enables a concrete dialogue with various stakeholders regarding the potential take up of these technologies. On the other hand visitors of the showrooms get inspired by new technologies and solutions and its applications and can address needs and problems of their own application domain.

Therefore showrooms are rooting researchers to a region and supporting the exchange with industries but also with politics.

Resume

This deliverable provides questionnaire on technology transfer concept for technology developer's based technology transfer scenarios. Within a collection of 13 projects performed by Consortium Partners: University of Bremen, Riga Technical University, MitSoft Ltd, Fraunhofer IFF Institute for Factory Operation and Automation, and Logitrans Consult Ltd there were selected 6 IT projects for further piloting for technology transfer to Central Asia countries.

This deliverable provides description of these 6 research results based on the questionnaire intended to discover and confirm generic technology transfer concept.

Among these 6 EU research results eInterAsia project 3 Partners selected most burning research result as acquisition candidate and provided general assessment and feedback for technology developers in the framework of the questionnaire on technology transfer concept included in this deliverable.

EU IT research results description from technology developer's point of view and feedback received from technology acquirers provide initial validation of generic technology transfer concept provided in this deliverable.

Generic technology transfer concept is targeted to technology commercialization with involvement of technology provider and technology acquirer.

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