



Erasmus+

Application Form

Selection: 2015

KA2 – Cooperation for innovation and the exchange of good practices –

Capacity Building in the field of Higher Education

Call for Proposal EAC/A04/2014

**Joint Programs and Framework for Doctoral Education in
Software Engineering / PWs@PhD**

DETAILED DESCRIPTION OF THE PROJECT

(To be attached to the eForm)

Version 1 – 1.10.2014

PART D - Quality of the project team and the cooperation arrangements

D.1. Organisations and activities

This part must be completed separately by each organisation participating in the project (applicant and partners).

Partner number		P1
Organisation name & acronym	Lappeenranta University of Technology - LUT	
D.1.1 - Aims and activities of the organisation		
<i>Please provide a short presentation of your organisation (key activities, affiliations, size of the organisation, etc.) relating to the area covered by the project (limit 2000 characters).</i>		
<p>Lappeenranta University of Technology (LUT, established in 1969) is a Finnish university that since 1969 has brought together technology and economics in a pioneering spirit. LUT's strategy is: Trailblazer. Show the way. Never follow. At the core of the strategy are four global questions to which LUT is seeking answers. Are we burning everything out? Are we leaving humanity to suffer from the water it has spoiled? Will we bury our future with our waste? Will we let Europe degenerate to the status of the world's backyard?</p> <p>Our international scientific community consists of 6,500 students and experts. LUT's operation is solution-focused and characterised by "open your mind" thinking: crossing boundaries open-mindedly, together. We are one of the top 300 universities in the world (THE World University Rankings 2014-2015). LUT is an international university and has more than 200 partner universities and there are over 67 nationalities at the university. Approximately 30% of the 1st-year student come from other countries. LUT is a Finnish and Nordic pioneer in the international accreditation. LUT has extensive experience on curriculum development as all the LUT study programs have been accredited. In particular, the study program on Computer Science has both ASIIN and EQANIE accreditations and as a result of the accreditation process, the study program has taken a major step from the national curriculum requirements towards the European ones.</p> <p>LUT comprehends the School Energy Systems, the School of Scientific Engineering and the School of Business and Management. The School of Business and Management comprehends four Competence Areas, one of which being Innovation & Software. LUT has been active on several projects taking place on both national and international levels.</p>		
<i>Please describe also the role of your organisation in the project (limit 1000 characters).</i>		
<p>P1 LUT acts as the lead partner/applicant in the project, and has coordinated the application development. LUT is in charge of the WP1.1. – Project Preparation. Coordination and Detailed Planning of Program, WP 2.1. – Research Methods at the Age of Software as a Service, and the WP 4.1. Dissemination & Exploitation. Additionally to this, LUT professors will teach in the intensive schools and supervise the PhD students.</p>		
D.1.2 - Operational capacity: Skills and expertise of key staff involved in the project		
<i>Please add lines as necessary.</i>		
Name of staff member	<i>Summary of relevant skills and experience, including where relevant a list of recent publications related to the domain of the project.</i>	
Ahmed Seffah	<p>Ahmed Seffah is a Professor Software Engineering at the Innovation & Software Department, School of Business and Management, Lappeenranta University of Technology, Finland. He earned an HDR, Ph.D and Master from University of Lyon, France. Prior to joining LUT, he has been a professor of Software Engineering at Concordia University, Montreal Canada for almost 15 years where he was the Concordia research chair on Human-centric Software Engineering. Dr. Seffah published more than 100 publications and co-authored 5 books. He has been a captain reviewer of SWEBOK project. He</p>	

	<p>contributed to the design and accreditation of six graduate and undergraduate programs of Software Engineering in Canada and Europe. When visiting Jordan in 2013, he designed and got accredited the first Software Engineering master program in Jordan while translating the SWEBOOK to Arabic and French. Dr. Seffah is a distinguished visiting scholar at IBM Almaden California. He also worked in industry as a senior consultant for different companies such as IBM, bell Canada, Daimler Chrysler, Symantec. Dr. Seffah's research is at the crossroads of Software Engineering and Human Computer Interaction.</p> <p>Prof. Seffah's recent publications include:</p> <ul style="list-style-type: none"> – Leydi Caballero, Ana María Moreno, Ahmed Seffah: Persona as a Tool to Involving Human in Agile Methods: Contributions from HCI and Marketing. HCSE 2014: 283-290 – Ana María Moreno, Ahmed Seffah, Rafael Capilla, Maria Isabel Sánchez Segura: HCI Practices for Building Usable Software. IEEE Computer 46(4): 100-102 (2013) – Laura Carvajal, Ana María Moreno, Maria Isabel Sánchez Segura, Ahmed Seffah: Usability through Software Design. IEEE Trans. Software Eng. 39(11): 1582-1596 (2013) – Djilali Idoughi, Ahmed Seffah, Christophe Kolski: Adding user experience into the interactive service design loop: a persona-based approach. Behaviour & IT 31(3): 287-303 (2012) – Ahmed Seffah, Mohamed Taleb: Tracing the evolution of HCI patterns as an interaction design tool. ISSE 8(2): 93-109 (2012) – Malek Alaoui, Myriam Lewkowicz, Ahmed Seffah: Increasing elderly social relationships through TV-based services. IHI 2012: 13-20 – Christophe Kolski, Houcine Ezzedine, Marie-Pierre Gervais, Káthia Marçal de Oliveira, Ahmed Seffah: Evaluation des SI ; Besoins en méthodes et outils provenant de l'ergonomie et de l'IHM . INFORSID 2012: 395-410 – Marc Seissler, Kai Breiner, Gerrit Meixner, Peter Forbrig, Ahmed Seffah, Kerstin Klöckner: Pattern-driven engineering of interactive computing systems (PEICS). EICS 2011: 339-340
Jari Porras	<p>Jari Porras D.Sc (Tech), is Professor of Software Engineering (especially Distributed Systems) at the Lappeenranta University of Technology (LUT). He has worked in Lappeenranta since 1993 in various positions and as a professor since 1999. He has supervised more than 300 Master's Thesis works and 13 doctoral thesis works as well as acted as external evaluator for 17 doctoral thesis works since the start of his professorship. In recent years, he has conducted research on parallel and distributed computing, wireless and mobile systems and services as well as sustainable ICT. He is interested in sustainable software innovations and is the responsible person in LUT for the Erasmus Mundus Perccom programme. He acts as the chairman of services, devices and service architectures working group in Wireless World Research Forum.</p> <p>Prof. Porras' recent publications include:</p> <ul style="list-style-type: none"> – A study of collaborative tool used in collaborative learning processes. Knutas Antti, Ikonen Jouni, Ripamonti Laura, Maggiorini Dario, Porras Jari. In Proceeding s of the 14th Koli Calling International conference, 2014. – Toward a Smart, Fully Connected Society. Vasilis Friderikos, Maryline Héléard, Jari Porras et al. In: IEEE Vehicular Technology Magazine, Volume 9, Issue 3, 2014, Pages 24-26

	<ul style="list-style-type: none"> – Social Network Services as A High Potential Indicator For Measuring Innovation. Hajikhani Arash, Porras Jari, Melkas Helinä. In: XXV ISPIM Conference on Innovation for Sustainable Economy & Society, 2014 – Creating software engineering student interaction profiles for discovering gamification approaches to improve collaboration. Knutas Antti, Ikonen Jouni, Maggiorini Dario et al. In: CompSysTech '14, 2014, Pages 378-385 – Increasing collaborative communications in a programming course with gamification: a case study. Knutas Antti, Ikonen Jouni, Nikula Uolevi, Porras Jari. In CompSysTech '14, 2014. – Communication patterns in collaborative software engineering courses: a case for computer-supported collaboration. In: Proceedings of the 13th Koli Calling International conference, 2013. – Use of embedded RFID tags in concrete element supply chains. Ikonen Jouni, Knutas Antti, Hämäläinen Harri et al. In: Electronic Journal of Information Technology in Construction, Volume 18, Issue April, 2013, Pages 119-147 – Experiences of learning styles in an intensive collaborative course. Alaoutinen Satu, Heikkinen Kari, Porras Jari In: International Journal of Technology and Design Education, Volume 22, Issue 1, 2012, Pages 25-49 – Conceptual framework for assessing human anxiety on the Internet. Kalwar Santosh, Heikkinen Kari, Porras Jari In: Procedia: Social and Behavioral Sciences, Volume 46, 2012, Pages 4907-4917
Uolevi Nikula	<p>Uolevi Nikula is an Associate Professor of Software Engineering at the Innovation & Software Department of School of Business and Management, Lappeenranta University of Technology, Finland. His research interests cover engineering education, organizational and technology change, software process improvement, and requirements engineering. He has Doctor's and Licentiate's degrees in Engineering from Lappeenranta University of Technology in 2004 and 2002, respectively. After completing his Master's degree, he worked in the industry as a software developer, senior software developer, and project manager for over five years before returning to the academia.</p> <p>Prof. Nikula's recent publications include:</p> <ul style="list-style-type: none"> – Increasing collaborative communications in a programming course with gamification: a case study. Knutas Antti, Ikonen Jouni, Nikula Uolevi et al. (2014) In: Proceedings of the 15th International Conference on Computer Systems and Technologies. pp. 370-377 – Computer Science Students Making Games: A Study on Skill Gaps and Requirements. Kasurinen Jussi, Mirzaeifar Saeed, Nikula Uolevi (2013) In: Koli Calling - International Conference On Computing Education Research. pp. 33-42 – What are the roles of software product managers? An empirical investigation. Maglyas Andrey, Nikula Uolevi, Smolander Kari (2013) In: Journal of Systems and Software. 86 (12). pp. 3071–3090 – Lean Solutions to Software Product Management Problems. Maglyas Andrey, Nikula Uolevi, Smolander Kari (2012) In: IEEE Software. 29 (5). pp. 40-46 – What do we know about software product management? - a systematic mapping study. Maglyas Andrey, Nikula Uolevi, Smolander Kari (2011) In: International workshop on software product management. pp. 26-35

	<ul style="list-style-type: none"> – Software product management in the Russian companies. Maglyas Andrey, Nikula Uolevi, Smolander Kari (2011) In: Central & Eastern European Software Engineering Conference in Russia. pp. 1-9 – A Motivation Guided Holistic Rehabilitation of the First Programming Course. Nikula Uolevi, Gotel Orlena, Kasurinen Jussi (2011) In: ACM Transactions on Computing Education. 11 (4). pp. 38 – Empirical validation of the Classic Change Curve on a software technology change project. Nikula Uolevi, Jurvanen Christian, Gotel Orlena et al. (2010) In: Information and Software Technology. 52 (6). pp. 680-696
Maija Kuiri	<p>Maija Kuiri is working as Project Manager at Lappeenranta University of Technology (LUT). Prior to joining LUT in 2003 and she worked in the private sector. She has vast experience in management and administration of international projects as well as in developing university-university cooperation especially with LUT partner universities in Russia. She has strong competence in organizational skills. Mrs. Kuiri holds MA (Master of Arts) degree from University of Joensuu.</p>

Partner number		P2
Organisation name & acronym	University of Rostock - UR	
D.1.1 - Aims and activities of the organisation		
<i>Please provide a short presentation of your organisation (key activities, affiliations, size of the organisation, etc.) relating to the area covered by the project (limit 2000 characters).</i>		
<p>The University of Rostock is among the ten most founder-friendly higher education establishments in Germany. The regional economy has benefitted from the over 800 start-up companies launched from the university since 1991. Young people from the West of Germany and increasing numbers of foreign students are discovering Rostock as a study location. Students from 99 countries can be found meanwhile on the four campus locations in the city. Since 1991 over 500 million Euros has been invested in the infrastructure of the university. By 2015 it will total 750 million.</p> <p>The University of Rostock gathers its research capacities into four profile lines - Life, Light & Matter (LLM), Maritime Systems, Aging of individuals and society and Knowledge – Culture – Transformation Each profile line commands its own department. Together the four departments form the Interdisciplinary Faculty (INF) – a novelty in German university history.</p> <p>All main computer science fields are present at the Institute of Computer Science at the University of Rostock. Thus, we are in a good position for cross-sectorial cooperation projects. The institute of Computer Sciences offers study courses in Computer Science, Business Informatics, teacher training and, together with the Electrical Engineering department, the study course Technical Informatics/Information Technology. All courses are provided as well in the Bachelor program as in the Master program. In addition, a master study course Visual Computing is offered. For all topics it is possible to write a PhD. Research topics are structured according to methods and application domains.</p> <ul style="list-style-type: none"> – Methods: Models and Algorithms for Dynamic Systems, Interactive Visual Computing, Human-Centered Computing. – Application domains: Assistive Systems, Computational Biology, Enterprise Computing 		
<i>Please describe also the role of your organisation in the project (limit 1000 characters).</i>		
<p>Prof. Forbrig is the leader of the WP on Software Engineering Models and Modeling. All the training activities of the WP will be organized at Rostock University. Members of the software engineering research group at Rostock university will be in charge of the some of training activities at Rostock and elsewhere. The team is also actively involved in WP 4.1, mainly the development and validation of the Put it all together framework. Professor Forbrig is member of the Doctoral Program Board, the committee in charge of the development of the pedagogical activities. At least two Ph.D students will be involved in the project.</p>		

D.1.2 - Operational capacity: Skills and expertise of key staff involved in the project*Please add lines as necessary.*

Name of staff member	Summary of relevant skills and experience, including where relevant a list of recent publications related to the domain of the project.
Anke Dittmar	<p>Dr. Anke Dittmar is an Assistant professor in the Software Engineering Group of the Computer Science Department, University of Rostock. She earned her Ph.D. degree in Computer Science in 2002 from University of Rostock (Germany). Her research interests are in the area of Human-Computer Interaction (HCI) and in connecting Software Engineering and HCI. The focus is on Task modelling, Model-based design of interactive systems; Human-centred design; Design representations and design processes; Formal specification of interactive systems; and Requirements analysis. Dr. Dittmar is a Member of ACM SIGCHI, Gesellschaft für Informatik, Germany (GI), IFIP Working Group 2.7/13.4 on User Interface Engineering and 13.2 on User-Centred System Design. Dr. Dittmar's recent publications are:</p> <ul style="list-style-type: none"> – Anke Dittmar, Mathias Kühn, and Peter Forbrig: A domain-specific model-based design approach for end-user developers. In <i>Proceedings of the 2014 ACM SIGCHI symposium on Engineering interactive computing systems</i>, EICS '14, (161-166, ACM 2014). – Anke Dittmar and Laura Dardar: Studying Ecologies of Calendar Artifacts. In Proc. of the 32th European Conference on Cognitive Ergonomics ECCE '14, ACM (2014). – Anke Dittmar and Stefan Piehler: A constructive approach for design space exploration. In Proceedings of the 5th ACM SIGCHI symposium on Engineering interactive computing systems, EICS '13, 49-58, ACM (2013). – Anke Dittmar und Peter Forbrig: Cognition, technology, and work: special issue on cognitive ergonomics for designing collaborative activities. <i>Cognition, Technology & Work</i>, 15(4):359-362 (2013). – Anke Dittmar and Reik Schachtschneider: Lightweight Interaction Modeling in Evolutionary Prototyping. Proceedings of the 5th International Workshop on Formal Methods for Interactive Systems at EICS'13 (2013). – Mathias Kühn, Peter Forbrig and Anke Dittmar: End-user software development: tool support for mobile data collections. In Proceedings of the International Conference on Multimedia, Interaction, Design and Innovation MIDI '13, 8:1--8:6, ACM (2013). – Anke Dittmar and Romy Dumke: A study on the mediation of students' activities by digital material. In Proceedings of the 30th European Conference on Cognitive Ergonomics ECCE '12, 116-123, ACM (2012). – Anke Dittmar, Alfonso Garcia Frey and Sophie Dupuy-Chessa: What can model-based UI design offer to end-user software engineering? In Proceedings of the 4th ACM SIGCHI symposium on Engineering interactive computing systems EICS '12, 189-194, ACM (2012).
Karsten Wolf	<p>Prof. Dr. rer. nat. habil. Karsten Wolf is a Professor for Theory of programming languages and programming. He earned his Doctoral degree and Habilitation (degree for being able to assume professorial positions) from Humboldt-Universität zu Berlin in 1996 and 2002, respectively. Prof. Wolf is Editorial board member of LNCS subseries ToPNOC (Theory of Petri nets and other models of concurrency), Chair of the working group Petri nets and related system models of GI and Editorial board member of Petri Net Newsletter.</p> <p>Publications:</p>

	<ul style="list-style-type: none"> – Niels Lohmann and Karsten Wolf. Handbook on Web Services In Athman Bouguettaya, Michael Sheng und Florian Daniel, Editor, Kapitel From artifacts to activities, Herausgeber: Springer-Verlag, 2012 – Andreas Lehmann, Niels Lohmann und Karsten Wolf. Stubborn Sets for Simple Linear Time Properties In S. Haddad und L. Pomello, Editor, Petri Nets and Other Models of Concurrency --- PETRI NETS 2012, 33rd International Conference on Applications and Theory of Petri Nets and Other Models of Concurrency, Hamburg, Germany, June 25--29, 2012, Proceedings aus Lecture Notes in Computer Science, Springer-Verlag, 2012 – Fabrice Kordon, Alban Linard, Didier Buchs, Maximilien Colange, Sami Evangelista, L. Fronc, Lom-Messan Hillah, Niels Lohmann, Emmanuel Paviot-Adet, Franck Pommereau, Christian Rohr, Yann Thierry-Mieg, Harro Wimmel und Karsten Wolf. Raw Report on the Model Checking Contest at Petri Nets 2012, arXiv:1209.2382,arXiv.org, – Dirk Fahland, Cédric Favre, Jana Koehler, Niels Lohmann, Hagen Völzer und Karsten Wolf. Analysis on Demand: Instantaneous Soundness Checking of Industrial Business Process Models, Data Knowl. Eng., 70(5):448-466, 2011 – Niels Lohmann und Karsten Wolf. Compact Representations and Efficient Algorithms for Operating Guidelines. Fundam. Inform., 108(1-2):43-62, 2011 – Karsten Wolf, Christian Stahl, Daniela Weinberg, Janine Ott und Robert Danitz. Guaranteeing Weak Termination in Service Discovery. Fundam. Inform., 108(1-2):151-180. 2011 – Harro Wimmel und Karsten Wolf. Applying CEGAR to the Petri Net State Equation – In Parosh A. Abdulla und K. Rustan M. Leino, Editor, Tools and Algorithms for the Construction and Analysis of Systems, 17th International Conference, TACAS 2010, Held as Part of the Joint European Conferences on Theory and Practice of Software, ETAPS 2011, Saarbrücken, Germany, March 26-April 3, 2011. Proceedings Band 6605 aus Lecture Notes in Computer Science , Seite 224-238, Springer-Verlag, 2011 – Monika Heiner, Harro Wimmel und Karsten Wolf. Atomic Fragments of Petri Nets – Niels Lohmann und Karsten Wolf. Data under control. Proceedings of the 18th German Workshop on Algorithms and Tools for Petri Nets (AWPN 2011), Hagen, Germany, September 29-30, 2011 , Seite 34-40.
Kurt Sandkuhl	<p>Kurt Sandkuhl is full Professor of “Business Information Systems” at University of Rostock (Germany) and has an adjunct position as Professor of “Information Engineering” at School of Engineering, Jönköping University. He received a diploma (Dipl.-Inform.) and a PhD (Dr.-Ing.) in computer science from the Berlin University of Technology in 1988 and 1994, respectively. Furthermore, he received the Swedish degree as “Docent” (postdoctoral lecturing qualification) from Linköping University, Institute of Technology, in 2005. Sandkuhl’s current research interests include the fields of information logistics, enterprise modeling, ontology engineering, and model-based software engineering. He has published three books in the field of electronic publishing and more than 150 papers in information logistics, enterprise knowledge management, CSCW, information services, and software architectures.</p> <p>Recent publications:</p> <ul style="list-style-type: none"> – Stamer Dirk, Ponomarev Andrew, Sandkuhl Kurt, Shilov Nikolay and Smirnov Alexander. Collaborative Recommendation System for Improved

	<p>Information Logistics: Adaption of Information Demand Pattern in E-Mail Communication</p> <ul style="list-style-type: none"> – In Ulf Seigerroth Kurt Sandkuhl, editor, Proceedings of the 7th International Workshop on Information Logistics and Knowledge Supply co-located with 13th International Conference on Perspectives in Business Informatics Research (BIR 2014). September 2014 – Kurt Sandkuhl, Ulf Seigerroth, Alexander Smirnov, Tatiana Levashova and Nikolay Shilov. Service Configuration in SOA-Based Enterprise Representation Using Role Knowledge Management and Production Engineering Review (MPER), 5(1):51–64 2014 – Kurt Sandkuhl, Janis Stirna, Anne Persson and Matthias Wißotzki. Enterprise modeling: Tackling business challenges with the 4EM method of The Enterprise Engineering Series. Publisher: Springer, 1 edition 2014 ISBN: 978-3662437247 – Alfred Zimmermann, Kurt Sandkuhl, Schmidt Rainer, Dierk Jugel, Matthias Wißotzki and Möhring Michael. Adaptive Digitale Enterprise Architekturen für Big Data und Cloud-Systeme. In GI-Gesellschaft für Informatik, editor, Informatik 2014. Stuttgart 2014. ISBN: 978-3-88579-626-8 – Kurt Sandkuhl and Hasan Koç. On the Applicability of Concepts from Variability Modelling in Capability Modelling: Experiences from a Case in Business Process Outsourcing. In Lazaros Iliadis, Michael Papazoglou and Klaus Pohl, editor, Advanced Information Systems Engineering Workshops Volume 178 of Lecture Notes in Business Information Processing. page 65-76. Publisher: Springer International Publishing, 2014 – Alexander Smirnov, Tatiana Levashova, Nikolay Shilov and Kurt Sandkuhl. Ontology for Cyber-Physical-Social Systems Self-Organisation. Proc. 16th Conference of FRUCT Association. Pp. 1-7. FRUCT organisation, Oulu, Finland. 2014 – Schmidt Rainer, Möhring Michael, Alfred Zimmermann, Matthias Wißotzki, Kurt Sandkuhl und Dierk Jugel: Towards a Framework for Enterprise Architecture Analytics, EDOC - IEEE 18th International Enterprise Distributed Object Computing Conference Workshops and Demonstrations, Ulm, 2014 – Kurt Sandkuhl und Matthias Wißotzki. Towards Data Supply Chains in Enterprise Architecture Management. In GI-Gesellschaft für Informatik, Editor, Informatik 2014. Stuttgart, ISBN: 978-3-88579-626-8
Peter Forbrig	<p>Peter Forbrig is a Professor of Software Engineering at the University of Rostock since 1994. He received his PhD and 2nd PhD (Habilitation) degrees in Computer Science at the University of Rostock in 1981 and 1987, respectively. Prof. Forbrig’s topics of interests are Human-computer interaction, user interfaces, HCI-patterns, requirements engineering, model-based development of interactive systems, object-oriented and task-based specifications, UML, design patterns and MDA, case-tools, XML-technology for user interface specifications, usability evaluation, business process modelling and workflow specifications. Among the Prof. Forbrig’ activities, the following memberships can be highlighted: Member of IFIP Working Groups, Chair of the GI committee „Computer science education at universities“, since 2002, Member of the Editorial Board of “Human Computer Interaction Series” by Springer, since 2009, Member of the International Advisory Board of the Romanian Journal of Human-Computer Interaction, since 2010, Vice Chair of IFIP WG 13.2 “Human Centred Design”, since 2014.</p> <p>Selected publications:</p>

	<ul style="list-style-type: none"> – Peter Forbrig, Peter Forbrig: Generic Components for BPMN Specifications. BIR 2014, Lund, Sweden, Springer, LNBIP 194, p. 202-216. – Peter Forbrig, Michael Zaki, Gregor Buchholz: Models as a Starting Point of Software Development for Smart Environments. HCI (21) 2014: 15-24. – Gregor Buchholz, Peter Forbrig: Combining Design of Models for Smart Environments with Pattern-Based Extraction. HCI (1) 2014: 285-294. – Anke Dittmar, Mathias Kühn, Peter Forbrig: A domain-specific model-based design approach for end-user developers. EICS 2014: 161-166. – Peter Forbrig, Célia Martinie, Philippe A. Palanque, Marco Winckler, Racim Fahssi: Rapid Task-Models Development Using Sub-models, Sub-routines and Generic Components. HCSE 2014: 144-163. – Gregor Buchholz, Peter Forbrig: Generating Scenario Traces for Model Creation in Smart Environments. Intelligent Environments (Workshops) 2014: 28-36 – Anke Dittmar und Peter Forbrig: Cognition, technology, and work: special issue on cognitive ergonomics for designing collaborative activities, Cognition, Technology & Work, 15(4):359-362, 2013, – Michael Zaki und Peter Forbrig: A methodology for generating an assistive system for smart environments based on contextual activity patterns, Proc. 5th ACM SIGCHI symposium on Engineering interactive computing systems, EICS'13, 75-80, ACM – Mathias Kühn, Peter Forbrig und Anke Dittmar: End-user software development: tool support for mobile data collections, Proc. MIDI '13, Seite 81–86, ACM, New York
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Partner number		P3
Organisation name & acronym	University of Central Lancashire - UCLAN	
D.1.1 - Aims and activities of the organisation		
<i>Please provide a short presentation of your organisation (key activities, affiliations, size of the organisation, etc.) relating to the area covered by the project (limit 2000 characters).</i>		
<p>UCLAN is a modern University based in the North-West of England. UCLAN employs over 2600 academic staff in 16 Schools. The HCI group is housed within the School of Computing, Engineering and Physical Sciences and comprises nine full time permanent academic staff and nine PhD students. The group has already attracted local, national and international research funding and is the research group working on this proposal. The HCI group at UCLAN is dedicated to the design of systems that deliver value for people. Incorporating the Agile Systems group and the Child Computer Interaction group, the HCI group has a dedicated Agile Lab, an IDPCC (interaction design and people centred computing) lab which incorporates google glass, META headsets, surfaces, a fully equipped usability lab and eye tracking technology, and a ChiCI PlayLab suitable to accommodate upto 40 children at a time with child sized furniture and a full range of technology including interactive white boards, robot and android technologies, control technology and arduino kits. The HCI group have access to state of the art games machines, a VR CAVE, and a state of the art movement lab.</p>		
<i>Please describe also the role of your organisation in the project (limit 1000 characters).</i>		
<p>The team is responsible of the WPs on Human and HCI aspects in software engineering. The training activities will be organized in UCLain in UK. Prof. Janet Read in the WP leader and a member of the Doctoral Program Board. The team has also an active role in the WP 4.1 as they are contributor to the development of the framework, put it all together. Other roles will be assigned to UCLain during the Kickoff meeting.</p>		
D.1.2 - Operational capacity: Skills and expertise of key staff involved in the project		

<i>Please add lines as necessary.</i>	
Name of staff member	<i>Summary of relevant skills and experience, including where relevant a list of recent publications related to the domain of the project.</i>
Janet Read	<p>Professor Janet C Read (BSc, PGCE, PhD) is an International expert in Human Computer Interaction and Child Computer Interaction having supervised nine PhD students to completion, examined 16 PhD students in six different European countries and currently supervising eight PhD students.</p> <p>Recent publications</p> <ul style="list-style-type: none"> - JC Read, S MacFarlane, (2006), Using the fun toolkit and other survey methods to gather opinions in child computer interaction, Proceedings of the 2006 conference on Interaction design and children, 81-88 - G Sim, S MacFarlane, J Read, (2006), All work and no play: Measuring fun, usability, and learning in software for children, Computers & Education 46 (3), 235-248 - JC Read, P Gregory, S MacFarlane, B McManus, P Gray, R Patel, (2002), An investigation of participatory design with children-informant, balanced and facilitated design, Interaction design and Children, 53-64 - J Read, D Fitton, B Cowan, R Beale, Y Guo, M Horton, (2011), Understanding and designing cool technologies for teenagers, CHI'11 Extended Abstracts on Human Factors in Computing Systems, 1567-1572 - P Markopoulos, J Read, J Hoÿsniemi, S MacFarlane, (2008), Child computer interaction: advances in methodological research, Cognition, Technology & Work 10 (2), 79-81
Gavin Sim	Dr. Gavin Sim (BSc, MSc, PhD) is an expert in heuristic and expert evaluation and is currently supervising three PhD students.
Daniel Fitton	Dr. Daniel Fitton (BSc, PhD) is an expert in tangible interactivity and is currently supervising 3 PhD students; his expertise is in ubiquitous and mobile systems.

Partner number		P4
Organisation name & acronym	Aalborg University - AAU	
D.1.1 - Aims and activities of the organisation		
<i>Please provide a short presentation of your organisation (key activities, affiliations, size of the organisation, etc.) relating to the area covered by the project (limit 2000 characters).</i>		
<p>Center for Communication, Media and Information technologies (CMI.aau.dk), a section at Department of Electronic systems, Aalborg University, researches the techno-economic relationships in the development of ICT services and -infrastructure. CMI has a scientific staff of 12 persons and about 30 PhD students. Besides the PhD education, coordinated by professor Henten, we also offer a BSc. and a MSc. program in computer engineering in a market / innovation perspective.</p> <p>Aalborg University is characterized by problem-oriented project work. The Aalborg problem-based learning model is recognized internationally and UNESCO has placed its only Danish chair in PBL at Aalborg University. At CMI PBL is not only the foundation for BSc. and MSc. students' study activities in terms of a 15 ECTS group project each semester, but PBL also shapes our approach to PhD student's own development of projects and research questions within the techno-economic-political fields of ICT development.</p> <p>CMI has a close relationship with the ICT industry both in terms of development of new types of services and in terms of techno-economical analyses of ICT infrastructure and services. CMI has a broad academic network and hosts an annual PhD summer school centered on the political economy of ICT. CMI is also involved in a three-year ERASMUS strategic partnership project ("OnCreate") on online creative processes.</p>		
<i>Please describe also the role of your organisation in the project (limit 1000 characters).</i>		

Aalborg University (AAU) has a long tradition for using Problem Based Learning as a fundamental method for learning on Bachelor, Master and Ph.D. levels. The Problem Based Learning approach provides a creative and critical basis for active learning, increase motivation for analysis and improve resolution of messy and real-world problems. The Problem Based Learning approach provides the students with a sound approach to their problems and how they are solved and particularly Ph.D. students can benefit from this approach. The role of AAU in this project is to provide PhD students as well as the other partners in the project with knowledge and skills related to Problem Based Learning, drawing on AAU's rich knowledge in this field. AAU team is leader of the WP 2.3 on problem-based learning applied to software engineering in which these training activities will be provided, and leader of the WP 3.1. – Project programs and framework quality assurance. WP 2.3 leader from AAU is member of the Doctoral Program Board. The leader of WP 2.3 from AAU is a member of the DPB committee. Other roles will be assigned to AAU team during the kickoff team.

D.1.2 - Operational capacity: Skills and expertise of key staff involved in the project

Please add lines as necessary.

Name of staff member	<i>Summary of relevant skills and experience, including where relevant a list of recent publications related to the domain of the project.</i>
Knud Erik Skouby	<p>Knud Erik Skouby is professor and director of center for Communication, Media and Information technologies, Aalborg University-Copenhagen. Has a career as a university teacher and within consultancy since 1972. Working areas: Techno-economic Analyses; Development of mobile/ wireless applications and services:Regulation of telecommunications</p> <p>Project manager and partner in a number of international, European and Danish research projects.Served on a number of public committees within telecom, IT and broadcasting; as a member of boards of professional societies; as a member of organizing boards, evaluation committees and as invited speaker on international conferences; published a number of Danish and international articles, books and conference proceedings.Board member of the Danish Independent Research Council and the Danish Media Committee.Chair of WGA in Wireless World Research Forum;Special Advisor to GISFI; dep chair IEEE Denmark.</p> <p>Recent Publications:</p> <ul style="list-style-type: none"> – *, with Iwona Windekilde, Green Mobile in R. Prasad et al. (Eds.), Towards Green ICT, (Ch.6), River Publishers 2010 – *), with Lene Sørensen et al, Users Pilot Services and Market in R.Prasad (ed.), My personal Adaptive Global Net. Springer 2010, p. 17 – 74. – *, with Reza Tadayoni, Future Networks and User Requirements – A Techno-Economic Analysis in Wireless Personal Communication, Issue: Volume 38, Number 1, p 89- 101. 11) – *, with Karsten Vandrup, Personal Networks as business strategy for the Wireless Communication Future in Teletronikk special issue on Personal Networks, Volume103, no 1, 2007, p 12- 17. – *, with Ramjee Prasad, Beyond 3G Research: Can the Nordic and Baltic Countries (Re) Emerge Among the World Leaders? In nb!iict Volume 1, no 1, 2007, p 6-11. – *, with Anders Henten and Reza Tadayoni, Mobile TV as Part of IMT Advanced: Technology, Market Development, Business Models and Regulatory Challenges in Wireless Personal Communication, Volume 45, No.4, 2008, p. 585-95. – *, with Lene Sørensen, Requirements on Next Generation Social Networking—A User’s Perspective Applications in Wireless Personal Communication, Issue: Volume 51, Numbers 4, p 811-23. – *, with Rui L. Aguiar et al., Users, Economics, Technology: Unavoidable

	<p>Interdynamics in Wireless Personal Communication, Volume 53, No.3, 2010, p. 437-42</p> <ul style="list-style-type: none"> – *, with Kishor P.Patil, Ramjee Prasad, Frequency Usage and Digital Dividend in India. In: Scientific Journal of the University of Szczecin, Vol. 1, 2013, p. 537 – 553. – *, with Morten Falch,; Anders Henten; Reza Tadayoni, Need for broadband infrastructure in a 2020 perspective. In: Wireless Personal Communications, No. 76, 2014, p. 271-289.
Lene Sørensen	<p>Associate professor Lene Sørensen teaches PBL at AAU and researches online creative processes and PBL in the ERASMUS+ strategic partnership “OnCreate”. Lene Sørensen is - and has been - supervising a number of PhD projects. Her research field is interaction design, user involvement and privacy. She is a Master in Engineering and holds a PhD in mathematical modeling.</p> <p>Recent publications:</p> <ul style="list-style-type: none"> – When short and many is better than long and few: Doing convenience interviews in public places. / Sørensen, Lene Tolstrup; Nicolajsen, Hanne Westh; Bjørner, Thomas. Qualitative Methods for Consumer Research: The value of the qualitative approach in theory and practice. red. / Thomas Bjørner. Copenhagen: Hans Reitzel, 2015. s. 161-166. – Where Does My Private Data Go? - Visualization of Users’ Privacy. / Khajuria, Samant; Sørensen, Lene Tolstrup. Where Does My Private Data Go? - Visualization of Users’ Privacy. 2015. Publikation: Forskning › Konferenceabstrakt i proceeding – A User Perspective on Social Networking Sites. / Sørensen, Lene Tolstrup; Porras, Jari; Hajikhani, Arash; Hayar, Aawatif. A User Perspective on Social Networking Sites. Vol. 2014, 13 2014. – User 2020 : A WWRF Vision. / Porras, Jari; Heikkinen, Kari; Kinnula, Marianne; Sørensen, Lene Tolstrup; Hennala, Lea; Melkas, Helina; Pekkarinen, Satu; Jefferies, Nigel. 2014. – Facebook for virksomheder. / Sørensen, Lene Tolstrup. 23 august 2013. Tilgængelig fra http://dm.dk/FagligtForum/KomSprog/Artikler/FacebookForVirksomheder. – It's pretty smart but also a bit frightening : A qualitative study about mobile tracking among Danish mobile users. / Bjørner, Thomas; Sørensen, Lene Tolstrup; Nicolajsen, Hanne Westh. København : Center for Communication, Media and Information technologies (CMI), Electronic Systems, Aalborg University Copenhagen, 2013. 26 s. (CMI Working Paper; Nr. 3). – Push for the Second Screen. / Sørensen, Jannick Kirk; Sørensen, Lene Tolstrup. 2012. Paper presented at World Wireless Research Forum, Berlin, Tyskland. – Social media as a platform for service innovation. / Sørensen, Lene Tolstrup; Falch, Morten. ISM 2012 workshop proceedings: Innovation through Social Media. red. / Asbjørn Følstad; Anna Ståhlbröst; Esbjörn Ebbeseon; Jesper Svensson. Trondheim : Akademika forlag, 2012. s. 87-97.
Anders Henten	<p>Professor Anders Henten, trained as a political scientist, has been supervising +10 PhD projects. He is the local coordinator of our PhD education on the techno-economics of ICT, and has developed five different international PhD courses. Together with Reza Tadayoni, also CMI faculty staff, he leads since</p>

	<p>2006 the CMI PhD Summer School on the political economy of ICT (www.phdsummerschool.cmi.aau.dk). His research field is the political economy of ICT.</p> <ul style="list-style-type: none"> – Service encounters as bases for innovation. / Sundbo, Jon; Sundbo, Donna; Henten, Anders. I: Service Industries Journal, 2015. – The dominance of the IT industry in a converging ICT ecosystem. / Henten, Anders; Tadayoni, Reza. The smart revolution towards the sustainable digital society: Beyond the era of convergence. red. / Hotoshi Mitomo; Hidenori Fuke; Erik Bohlin. Edward Elgar Publishing, Incorporated, 2015. – Case study: Denmark. / Henten, Anders; Falch, Morten. The dynamics of broadband markets. red. / Wolter Lemstra; William H. Melody. United Kingdom : Cambridge University Press, 2014. s. 110-135. – Co-creation of Innovations in ICT based service encounters. / Sørensen, Jannick Kirk; Henten, Anders. Demand-driven web services: Theory, technologies, and applications. red. / Zhaohao Sun; John Yearwood. IGI global, 2014. s. 63-83. – Need for broadband infrastructure in a 2020 perspective. / Skouby, Knud Erik; Falch, Morten; Henten, Anders; Tadayoni, Reza. I: Wireless Personal Communications, Vol. 76, Nr. 2, 05.2014, s. 271-289. – PPP as a tool for stimulating investments in ICT infrastructures. / Falch, Morten; Henten, Anders. Encyclopedia of Information Science and Technology. red. / Mehdi Khosrow-Pour. IGI global, 2014. s. 633-639. – Telecommunications in Africa - regulation, technologies, and markets. / Henten, Anders; Frempong, Godfred. The African Mobile Story. red. / Knud Erik Skouby; Idongesit Williams. River Publishers, 2014. s. 41-50. – The future of telecom regulation: The case of Denmark. / Henten, Anders; Falch, Morten. 2014. Paper presented at ITS, Bruxelles, Belgien.
Morten Falch	<p>Associate professor Morten Falch, trained as an economist, is – and has been - supervising +10 PhD projects with the areas of economy, market and regulation in relation to ICT and ICT for development which also is his research fields. He teaches PBL at AAU.</p> <p>Recent publications:</p> <ul style="list-style-type: none"> – Case study: Denmark. / Henten, Anders; Falch, Morten. The dynamics of broadband markets. red. / Wolter Lemstra; William H. Melody. United Kingdom : Cambridge University Press, 2014. s. 110-135. – Increasing Role of Public Private Partnerships in the ICT Ecosystem : 25 Years of Telecom/ICT Sector Reform in Europe, and Beyond. / Skouby, Knud Erik; Falch, Morten. 2014. – Need for broadband infrastructure in a 2020 perspective. / Skouby, Knud Erik; Falch, Morten; Henten, Anders; Tadayoni, Reza. – I: Wireless Personal Communications, Vol. 76, Nr. 2, 05.2014, s. 271-289. – PPP as a tool for stimulating investments in ICT infrastructures. / Falch, Morten; Henten, Anders. – Encyclopedia of Information Science and Technology. red. / Mehdi Khosrow-Pour. IGI global, 2014. s. 633-639. – PPPs and future broadband infrastructure. / Williams, Idongesit; Falch, Morten. – Commonwealth Governance and Growth. red. / Andrew Robertson. Cambridge UK : Nexus Strategic Partnerships, 2014. s. 67-70. – Regulation of international roaming data services within the EU. / Falch, Morten; Tadayoni, Reza.

	<ul style="list-style-type: none"> – I: International Economics and Economic Policy, Vol. 11, Nr. 1-2, 01.02.2014, s. 81-95. – Regulatory issues in telecommunications and ICT-based dynamics in open economies: introduction. / Falch, Morten; Knieps, Günter; Kubiela, Stanisław ; Welfens, Paul J. J. – I: International Economics and Economic Policy, Vol. 11, Nr. 1-2, 19.01.2014, s. 1-3.
Jannick Kirk Sørensen	<p>Assistant professor Jannick Sørensen, trained as a media scientist and interaction designer, teaches PBL at AAU. He researches the interconnections between online collaborative creativity and PoPBL (Project oriented Problem Based Learning) in the ERASMUS+ project “OnCreate”, and researches the future development of the Aalborg PBL model in relation to ICT innovation and group processes.</p> <p>Recent publications:</p> <ul style="list-style-type: none"> – Characterization of ICT Services in a beyond 2020 Perspective. / Sørensen, Jannick Kirk; Skouby, Knud Erik. 2015. Paper presented at 48th Annual Hawaii International Conference on System Sciences, Kauai, Hawaii, USA. – Co-creation of Innovations in ICT based service encounters. / Sørensen, Jannick Kirk; Henten, Anders. Demand-driven web services: Theory, technologies, and applications. red. / Zhaohao Sun; John Yearwood. IGI global, 2014. s. 63-83. – Usability and Interaction Design in West Africa. / Sørensen, Jannick Kirk. 2014. Paper presented at 3RD CMI - GTUC INTERNATIONAL CONFERENCE , Accra, Ghana. – PSB goes personal: The failure of personalised PSB web pages. / Sørensen, Jannick Kirk. I: MedieKultur, Vol. 29, Nr. 55, 21.12.2013, s. 43-71. – Push for the Second Screen. / Sørensen, Jannick Kirk; Sørensen, Lene Tolstrup. 2012. Paper presented at World Wireless Research Forum, Berlin, Tyskland.

Partner number		P5
Organisation name & acronym	University of Jordan - UJ	
D.1.1 - Aims and activities of the organisation		
<i>Please provide a short presentation of your organisation (key activities, affiliations, size of the organisation, etc.) relating to the area covered by the project (limit 2000 characters).</i>		

The **University of Jordan (UJ)** is both a modern as well as old institution of Higher Education in Jordan. Established in 1962, the University has, since then, applied itself to the advancement of knowledge no less than to its dissemination. In its capacity as a comprehensive teaching, research and community-service institution, the University of Jordan enables its students to choose from a wide range of programs- more than 3500 different courses are offered by some 18 faculties.

The University of Jordan (UJ) has applied itself to research and community research knowledge. UJ offers 63 international programs at the undergraduate level, and 132 international programs at the graduate level in all field of specialization. Also It offers 32 doctoral programs and 87 master programs. The essential components of most of the programs offered are based on dialogue, applied research, creative thinking, field work, and practical training, combined with modern teaching techniques.

The IT college named as (King Abdullah II School for Information Technology), is one of the major faculties of the University of Jordan. Since its establishment in 2000, the King Abdullah II School for Information Technology (KASIT) has always strived for keeping up with the latest developments in IT innovation. The KASIT college at UJ has three undergraduate programs in the departments named as Computer Science (CS), Computer Information Systems (CIS) and Business Information Technology (BIT) and four postgraduate programs (PhD.) in CS, Master of CS in CS Department, Master in Information Systems in CIS department and master in web intelligence in BIT. All the departments assisted with interactive multimedia teaching techniques and computer-based instructional materials to support, and eventually discard, traditional teaching methodologies. Field work, practical training, and applied research are essential components of most of the programs offered by the University.

Please describe also the role of your organisation in the project (limit 1000 characters).

Prof. Fawaz is the main contact of the whole Jordan team. He is also the co-leader of WP 2.2 on advanced software engineering methodologies. He is also a member of the DPB committee. Jordan university will be charging of organizing and managing all the training activities in Jordan jointly with the two other Jordanian universities, JUST and YU. UJ has a newly established Ph.D program, all the students enrolled in this program will be participating in the training activities at the different European universities. UJ has a strong committent in establishing a dual Ph.D program in software engineering in collaboration with some of the EU institutions involved in the project.

D.1.2 - Operational capacity: Skills and expertise of key staff involved in the project

Please add lines as necessary.

Name of staff member	<i>Summary of relevant skills and experience, including where relevant a list of recent publications related to the domain of the project.</i>
Fawaz Ahmad AL Zaghoul	<p>Fawaz Ahmad AL Zaghoul is a full professor of Software Engineering. He got his Ph.D. in Software Engineering from the University of Liverpool (UK) in 1987. He was granted several academic awards and scholarships. After graduation, he worked at Yarmouk University for eight years. He was a director of the computer and the information centre for three years (1990-1993). In 1993 he went on leave from YU to Sultan Qaboos University (Oman) during which he worked in the Department of Computer Science. He was assigned the position of Vice-Dean of the King Abdullah II School for Information at the University of Jordan for three years (2003-2006) then the position of Dean of the same college starting from (2007-2009). While he was on a sabbatical leave, he has assigned as Dean of Academic Research and Graduate Studies at AL Zaytoonah University of Jordan (2010-2011). In 2012 to 2013 he was in charge restructuring and directing the Computer centre at the University of Jordan and the outcome of that is the establishment of a fully equipped data centre which serves the two campuses of Jordan University.</p> <p>He has published more than sixty papers in a number of research areas. He organized and participated in many workshops, seminars and conferences in the field of software engineering, and computing. He is also an expert in the Fields of Quality Metrics and Requirements Engineering. He participated in many tempus projects. Currently, he is a full professor in software</p>

	<p>engineering in the department of the computer information systems at Jordan University. His publications include</p> <ul style="list-style-type: none"> – Fawaz Al-Zaghoul, "The Challenges Facing Software Engineering over the next two decades", the third International Conference on Modern Information Technology Trends (MITT) held at the Applied Science University, Amman-Jordan, 10th of December, 2014. – Osama Rababah, Muhannad Al-Shboul, Fawaz Al-Zaghoul, Rawan Ghnemat, "Website Search Engine Optimization: Geographical and Cultural Point of View", Journal of Software Engineering and Applications (JSEA), Vol. 7, P. 1087-1095, 2014. – Rizik M. H. Al-Sayyed, Fawaz A. AL Zaghoul, Dima Suleiman, Mariam Itriq, Ismail Hababeh, "A New Approach for Database Fragmentation and Allocation to Improve the Distributed Database Management System Perform", The Journal of of Software Engineering and Applications (JSEA), Vol.7 No.1, P. 892-905,1 2014. – Fawaz A. Al-Zaghoul and Sami Al-Dhaheri, "Arabic Text Classification Based on Features Reduction Using Artificial Neural Networks", UKSim-AMSS, the 15th International conference on Modelling and Simulation, Cambridge University (Emmanuel College), 10 - 12 April UK, 2013. – Osama M. Rababah, Muhannad and Fawaz A. Masoud AL Zaghoul, "Utilizing Knowledge Management in Education: The Case of "The University of Jordan", the International Journal of Emerging Technologies in Learning (IJET),, kassel university press, P. 58-61, March, 2013. – Fawaz A. Masoud, "Recent trends in software engineering", Invited speaker in the Second Conference on Innovations in Computing & Engineering Machinery (CICEM 2012), held in GRAND HYATT AMMAN HOTEL, Amman Jordan (CICEN 2012). – Fawaz Ahmad Al-Zaghoul, " A suggested global framework for e-school', the proceeding of ICIT 2011, AL Zaytoonah University of Jordan, 2011. – Osama M. Rababah and Fawaz .A. Masoud, "Ranking E-Business Website Quality Factors", Communications of the International Business Information Management (CIBIMA)" Journal (ISSN: 1943-7765), Vol. 2010 (2010), P. 1-9, Published by IBIMA, USA, 2010.
<p>Mohammad Aref Alshraideh</p>	<p>Mohammad Aref Alshraideh is an Associate Professor of Software Engineering in the Department of Computer Science at the University of Jordan, Jordan. He got his Ph.D. in Software Engineering from the University of Hull (UK) in 2007. He has thirteen years of experience in IT industry before moving to academic. His IT experiences include design and development of software systems, and management of software development projects. He was a Head Director Assistant for Computer Technology at the Hospital of the University of Jordan from (2008-2012). Also he was working as Human Resource Director at the University of Jordan from (2012-January 2015). Currently he is working as Registrar General at the University of Jordan. He was granted several academic projects. He has published more than thirty papers in his research areas. He participated in many workshops, seminars and conferences in the field of software engineering, and computing. He is a regular reviewer for several conferences and journals. He is a first author of programing language book. His research interests include Software Testing, cost models, software engineering environments, and knowledge-based software engineering, Artificial Intelligence.</p> <p>Publications:</p> <ul style="list-style-type: none"> – Mohammad Alshraideh, Leonardo Bottaci. Search-based Software Test Data Generation for String Data using program-Specific Search Operators.

	<p>Special Issue of Software Testing, Verification and Reliability, 16(3), September 2006, pp.175-203.</p> <ul style="list-style-type: none"> – Mohmmad Alshraideh, Basel A. Mahafzah, hamzeh s. eyal salman, Imad Salah. Using Genetic Algorithm as Test Data Generator for Stored PL/SQL Program Units, Journal of Software Engineering and Applications, Scientific Research , Vol. 6 No. 2, pp. 65- 73. – Hashim J. Hasan, Mohammad Alshraideh, Basel A. Mahafzah. Branch coverage testing using anti-random technique. i-manager's Journal on Software Engineering. Vol. 8 Issue 2, p7. – Mohmmad Alshraideh , Ezdehar Jawabreh , Basel A. Mahafzah , Heba M. AL Harahsheh. Applying Genetic Algorithms to Test JUH DBs Exceptions. International Journal of Advanced Computer Science and Applications, Vol.4 , No. 7, pp. 8-20 , 2013 – Mohammad Alshraideh, Basel Mahafzah,, Saleh Al-Sharaeh. A Multiple-Population Genetic Algorithm for Branch Coverage Test Data Generation. Software Quality, Journal. Volume 19, Number 3, pp 489-513 – Mohammad Alshraideh, Qatawneh Mohammad, Wesam Almobaideen, Azzam Sleit. Program-Operators to Improve Test Data Generation Search. WSEAS TRANSACTIONS on COMPUTERS, Issue 8, Volume 9, August 2010. ISSN: 1109-2750. – Mohammad Alshraideh, Leonardo Bottaci, Basel Mahafzah . Using program datastate scarcity to guide automatic test data generation. Software Quality Journal. . Volume 18, Issue 1 (2010), pages 109-144, DOI: 10.1007/s11219-009-9083-x. – Mohammad Alshraideh. A Complete Automation of Unit Testing for JavaScript Programs. Journal of Computer Science 4 (12): 1012-1019, 2008, ISSN 1549-3636.
Amjad Ahmad Hudaib	<p>Amjad Hudaib is an associate Prof. of software engineering at the department of computer information systems, University of Jordan. He received his Ph.D. in Computer Science/Software Engineering from University of Pisa, Italy in 2003. He earned his Msc. and Bsc. in Computer Science from University of Jordan in 2000 and Mutah University in 1991 respectively. He has acted as Director of Accreditation and Quality Assurance Center at the University of Jordan (2009-2014), and a Chairman of the Department of Computer Information Systems (2004–2008). Also, he acted as Assistant Dean for Labs Affairs (2003-2004). Dr. Hudaib has participated in many tempus and Erasmus Mundus projects. He organized and participated in many workshops, seminars and conferences in the field of software engineering, computing, and quality assurance. He has published more than thirty papers in a indexed and refereed journals, conferences and workshops. His research interests include software engineering, quality assurance, algorithms, and e-learning.</p> <p>Publications:</p> <ul style="list-style-type: none"> – Amjad Hudaib, M Alnabhan, O Harfoushi, R Obiedat, O Adwan, W Adham, Emerging Trends of Outsourcing Business to Cloud Computing Services: A Perspective Study, Communications and Network, 2014. – Amjad Hudaib, F. Al Zaghoul, J Al Widian. Investigation of Software Defects Prediction Based on Classifiers (NB, SVM, KNN and Decision Tree), Journal of American Science 9 (12), 381-386, 2014. – D. Suleiman, Amjad Hudaib, A. Al-Anani, R. Al-Khalid, M. Itriq, ERS-A Algorithm for Pattern Matching, Middle East Journal of Scientific Research 15 (7), 1067-1075, 2013

	<ul style="list-style-type: none"> – O. Adwan, Amjad Hudaib, HN Fakhouri, LM Alnemer, Microarray Gene Expression Extraction and Archiving Based on Local Spot Locations, International Journal of Computer Science Issues (IJCSI) 10 (6), 2013. – Thair Hamtini, Amjad A. Hudaib, Measuring E-Learning Web-based Application Usability, International Review on Computers and Software (IRECOS), Vol. 7 No. 12, pp70-78, 2012. – S. Al-Areqi, Amjad Hudaib, N Obeid, Improving Availability in Distributed Component-Based Systems via Replication, New Challenges for Intelligent Information and Database Systems, 43-52, 2011. – Amjad Hudaib, Rola Al-Khalid, Dima Suleiman, Mariam Itriq and Aseel Al-Anani, A Fast Pattern Matching Algorithm with Two Sliding Windows (TSW), Journal of Computer Science 4(5), pp. 393-401, 2008. – Amjad Hudaib, Bassam Hammo, and Yara ALKhadher, Systematic Development for Software Requirements Using Natural Language Techniques, WSEAS Transactions on Computer Research, Issue 2, Vol. 2, pp. 255- 261.
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Partner number		P6
Organisation name & acronym	Yarmouk University - YU	
D.1.1 - Aims and activities of the organisation		
<i>Please provide a short presentation of your organisation (key activities, affiliations, size of the organisation, etc.) relating to the area covered by the project (limit 2000 characters).</i>		
<p>Yarmouk University (YU) was founded in 1976 and it has grown both in size and stature over the years. It has become a leading institution of higher learning, known for its dedication to serve its innovative approach to academic management and human resources development, and its relentless pursuit of excellence in all fields of research and instruction. YU has 14 faculties which offer 57 bachelor, 72 Master and 18 PhD programs. YU has joint graduate programs with some European Universities and has cooperation agreements with nearly 104 institutions worldwide. YU is active in research. It has received several research grants funded by World Bank, EU, USAID, DFG, NATO, and others. It also has good experience with EU funded projects (Tempus, FP7, Erasmus Mundus, ENPI-CBCMED). YU has also a rich experience in conducting research with cooperation with many EU institutions.</p> <p>The Faculty of Information Technology and Computer Sciences (FITACS) was founded in the year 2002/2003. The establishment of FITACS came as a needed step towards coping with the vast and fast developments in the IT sector and in response to the huge demand for information technology studies. FITACS consists of three departments: CS, CIS, and MIS. It offers three undergraduate programs and three Master programs. The number of students in the faculty is around 1800 bachelor students and 200 Master Students. The Faculty has (33) faculty members with PhD and (17) with M.Sc. plus (15) graduate students who are doing their PhD in USA. The faculty includes (10) specialized computer labs including the necessary software that students need such as multimedia lab and parallel processing lab, Oracle lab, Software Engineering Lab with Rational Software.</p>		
<i>Please describe also the role of your organisation in the project (limit 1000 characters).</i>		
<p>The YU team is co-leading with UJ university of the WP 2.2 on Advanced Software Engineering Methods and Tools. YU has a plan to develop software engineering education at the master and Ph.D level in the next few years. This project is a unique opportunity for YU to train its professors and get them involved in teaching and research activities within the members of this consortium. YU members will be offering some of the training activities in Jordan and Germany. YU has also a strong commitment to investigate the opportunity to develop a dual degree program with EU institutions.</p>		

D.1.2 - Operational capacity: Skills and expertise of key staff involved in the project*Please add lines as necessary.*

Name of staff member	Summary of relevant skills and experience, including where relevant a list of recent publications related to the domain of the project.
Sulieiman H. Mustafa	<p>Suleiman Mustafa is a professor of Information Systems at Yarmouk University in Jordan. He is currently the Dean of the Faculty of Information Technology. He got his Ph.D. in information systems from the University of Pittsburgh (USA) in 1986. He was granted several academic awards and scholarships.</p> <p>After graduation, he worked at Yarmouk University for eight years and chaired the Department of Computer Science for two years. In 1994 he went on leave from YU for four years during which he worked in the Department of Computer Science at Sultan Qaboos University in Oman. He headed the Dept. of Computer Science at YU for the second time for two years (2000-2002). He was also assigned the position of Vice-Dean of the Faculty of Information Technology at Yarmouk University for one year (2005-2006) then became the Dean of the same college starting from 20/8/2006 until 13/9/2009. He joined Prince Sultan University starting from 26/9/2009 as the Chairman of the Department of Information Systems until 31-8-2012.</p> <p>He has been appointed the Dean of the Faculty of Information Technology at Yarmouk University starting from 2/9/2012. He has published more than thirty papers in a number of research areas in computer science and information systems including natural language processing (especially Arabization of computers), database and information retrieval systems, and software engineering.</p> <p>His teaching and research interests focus on database design and management, software engineering, object-oriented analysis and design, software project management, information retrieval, and web design.</p> <p>Examples of his publications are the following:</p> <ul style="list-style-type: none"> – Mansour, Yaser I. & Mustafa, Suleiman H. (2011), Assessing Internal Software Quality Attributes of the Object-Oriented and Service-Oriented Software Development Paradigms: A Comparative Study. <i>Journal of Software Engineering and Applications</i>, 4 (4), 244-252. – Mustafa, Suleiman H. and Al-Zoua'bi, Loai F. S. (2008), Usability of the academic websites of Jordan's universities: An evaluation study, <i>The 9th International Arab Conference on Information Technology (ACIT 2008)</i>, Tunis - Tunisia, Sfax University.
Qasem A. Al-Radaideh	<p>Qasem Al-Radaideh is an Associate Professor of Computer Information Systems at Yarmouk University. He is currently the vice dean for the faculty of Information Technology and Computer Sciences at Yarmouk University. In addition he was the chairman of the department of Computer Information Systems Department from August 2008 to Sept 2010.</p> <p>Al-Radaideh received his Ph.D. in the area of Data Mining from the University Putra Malaysia in 2005. He was granted some academic awards and scholarships.</p> <p>Al-Radaideh PhD is in the area of Data Mining; particularly in Rough Set based Classification. His research interest includes: Data Mining and Knowledge</p>

	<p>Discovery in Database, Rough set based Knowledge Reduction and Classification, Arabic Language Computation, Natural Language Processing, and Information Retrieval. He has several publications in the areas of Data Mining and Arabic Language Computation and Software Engineering.</p> <p>Al-Radaideh received the Hisham Hijjawi Award for Applied Science – ITC track for the year 2011.</p> <p>Examples of his publications are the following:</p> <ul style="list-style-type: none"> – Al-Radaideh Q., Hamam Sh., Abu Shanab E., and Abu Salem A., (2011), Usability Evaluation of Online News Websites: A User Perspective Approach, International Journal of Human and Social Sciences, WASET Publisher, 6(2): pp. 114-122. – Suleiman S., Al-Radaideh Q., Abulhuda B., AlSmadi I., (2011), Automating the Collection of Object Relational Database Metrics, International Journal of Advanced Computer Science and Applications (IJACSA), SAI Publisher, 2(6): pp. 19-27. – Al-Radaideh Q., Al-Shawakfa E., and Hamid E., (2011), Evaluating the Usability of Jordanian Public Schools Websites. In Proceedings of the Jordanian Scientific Research Conference, Jordan. – Al-Radaideh Q. and Al-Smadi D., (2010), Evaluation of Jordanian E-Government Websites Evolution, In Proceedings of the 11th International Arab Conference on Information Technology (ACIT2010), Libya. – Al-Radaideh Q., AlEroud A., and Al-Shawakfa E., (2011), A Hybrid Approach to Detecting Alerts in Arabic E-Mail Messages, Journal of Information Science (JIS), SAGE Publishers, 38(1): pp. 87-99.
Ahmad A. Saifan	<p>Ahmad A. Saifan is an assistant professor in the department of computer information systems at Yarmouk University (YU) in Jordan. He obtained his Ph.D degree in software engineering from Queen's University (Canada). His master degree in computer science from YU. He had B.Sc degree in computer science from YU.</p> <p>Professional Experience</p> <ul style="list-style-type: none"> - Chairman of the Computer Information Systems, Faculty of Information Technology and Computer Science, Yarmouk University, Irbid, Jordan. Sep-2011- Sep. 2013. - Assistant Professor. Computer Information Systems Department, Faculty of Information Technology and Computer Science, Yarmouk University, Irbid, Jordan (Sep-2010 - present) - Research and Teaching Assistant, School of Computing, Queen's University, Ontario, Canada (2007- 2008). <p>Research Interests: Software Engineering, Software testing, Model-based testing, Model checking, Mobile agent systems, Data mining.</p> <p>Examples of his publications are the following:</p> <ul style="list-style-type: none"> – Samer Samarah, Mohammed Al Zamil, Ahmad A. Saifan. Model Checking Based Classification Technique for Wireless Sensor Networks. New Review of Information Networking 17(2):93-107. 2012. – Eslam Al Maghayreh, Samer Samarah, Faisal Alkhateeb, Iyad Abu Doush, Izzat Alsmadi, and Ahmad A. Saifan, A Framework for Monitoring the Execution of Distributed Multi-agent Programs, International Journal of Advanced Science and Technology, Vol. 38, January, 2012, pp. 53-66.

	<ul style="list-style-type: none"> – Izzat Alsmadi, Samer Samarah, Ahmad A. Saifan and Mohammed G. AL Zamil. Automatic Model Based Methods to Improve Test Effectiveness, Universal Journal of Computer Science and Engineering Technology, 1(1), 41 - 49. 2010. – Izzat Alsmadi , Samer Samarah , Ahmed A. Saifan, and Mohammed AL Zamil. Evaluate and Improve GUI Testing Coverage Automatically. Int.J. of Software Engineering, IJSE Vol.4(2):41-60 July 2011 – Ahmad A. Saifan,. and Wahsheh, H. A. 2012. Mutation operators for JADE mobile agent systems. In Proceedings of the 3rd international Conference on information and Communication Systems (Irbid, Jordan, April 03 - 05, 2012). ICICS '12. ACM, New York, NY, 1-5. – Nesreen Al-Khalidi, Ahmad A. Saifan and Izzat Alsmadi. Selecting a Standard Set of Attributes for Cost Estimation of Software Projects, 2012 International Conference on Computer, Information and Telecommunication Systems, CITS 2012, Amman, Jordan. – Ahmad A. Saifan, Jürgen Dingel, Jeremy S. Bradbury, Ernesto Posse: Implementing and Evaluating a Runtime Conformance Checker for Mobile Agent Systems. ICST 2011: 269-278. – Ahmad A. Saifan, Ernesto Posse, Jürgen Dingel: Run-time conformance checking of mobile and distributed systems using executable models. PADTAD 2009. – Ahmad A. Saifan, Jürgen Dingel: A Survey of Using Model-Based Testing to Improve Quality Attributes in Distributed Systems. SCSS (2) 2008: 283-288.
Mohammed A. Akour	<p>Mohammed Akour is an Assistant Professor in the Department of Computer Information System at Yarmouk University (YU). He got his Bachelor (2006) and Master (2008) degree from Yarmouk University in Computer Information System with Honor. He joined YU as a Lecturer in August 2008 after graduating with his master in Computer Information System. In August 2009, He left YU to pursue his PhD in Software Engineering at North Dakota State University (NDSU-USA). He joined YU again in April 2012 after graduating with his PhD in Software Engineering from NDSU with Honor.</p> <p>He taught several Software Engineering graduate and undergraduate courses such as: Introduction to Software Engineering, Software Testing, Formal Methods, Requirement Engineering.</p> <p>Research Interests: Software Requirement Engineering, Software Testing, Software Modeling.</p> <p>Examples of his publications are the following:</p> <ul style="list-style-type: none"> – Mohammed Akour, Khalid Radaideh, Iyad Alazzam, Izzat Alsmadi, Effective Pair Programming Practice: Toward Improving – Student learning in software engineering class, International Journal of Teaching and Case Studies (IJTCS), Inderscience Vol. 4, No. 4, 2013. – Mohammed Akour. Towards Harnessing Testing Tools into Programming Courses Curricula: Case Study of Jordan, The 2014 International Conference on Computational Science and Computational Intelligence (CSCI'14), IEEE March 10-13, 2014 Las Vegas, USA – Talukdar S. Asgar, Mohammed Akour, and Tariq M. King. Applying Test-First and Parallel Processing Techniques to ERP Data Conversion. Proceedings of the 9th International Conference on Information Technology : New Generations, IEEE April 16-18, 2012, to appear.

	<ul style="list-style-type: none"> – Mohammed Akour, Akanksha Jaidev, and Tariq M. King. Towards Change Propagating Test Models in Autonomic and Adaptive Systems. Proceedings of the 18th International Conference on Engineering of Computer-Based Systems, IEEE April 27-29, 2011, pages 89-96. – Iyad Alazzam, Izzat Alsmadi, Mohammed Akour, Test case Selection Based on Source Code Features Extraction, International Journal Of Software Engineering and Its Application (IJSEIA), Vol.8, No.1 (2014), pp.203-214.
Iyad M. Al-Azzam	<p>Iyad M Alazzam is an assistant professor in the department of computer information systems at Yarmouk University in Jordan, he has received his Ph.D degree in software engineering from NDSU (USA). His master from LMU (UK) in electronic Commerce and his B.Sc in computer science and information systems from Jordan University of Science and Technology in Jordan. His research interests lays in software engineering and software testing.</p> <p>Research Interests: Software Requirement Engineering, Software Testing, Software Modeling.</p> <p>Examples of his publications are the following:</p> <ul style="list-style-type: none"> – Alazzam, I., Alsmad, I and Akour,M. Test Cases Selection Based on Source Code Features Extraction .International Journal of Software Engineering and Its Applications Vol.8, No.1 (2014), pp.203-214 – Al-Ramahi, M., Alazzam,I and Alsmadi, I. The impact of using pair programming: a case study. Int. J. of Teaching and Case Studies, 2013 Vol.4, No.4, pp.313 – 329. – Akour, M. , Al-Radaideh,K., Alazzam, I and Alsmad, I. Effective pair programming practice: toward improving student learning in software engineering class. Int. J. of Teaching and Case Studies, 2013 Vol.4, No.4, pp.336 – 345. – Akour, M., Alsmadi, I and Alazzam, I. MQVC: Measuring Quranic Verses Similarity and Sura Classification. WSEAS Transaction on Computers.

Partner number		P7
Organisation name & acronym	South Ural State University - SUSU	
D.1.1 - Aims and activities of the organisation		
<i>Please provide a short presentation of your organisation (key activities, affiliations, size of the organisation, etc.) relating to the area covered by the project (limit 2000 characters).</i>		

South Ural State University, located in Chelyabinsk, Russia offers a wide range of undergraduate, graduate and post-graduate programs in various fields of education. Among its academic profiles, one can find Humanities, Medical-Related Sciences, Economic Sciences, Science and Technical Sciences. Undergraduate, graduate and post-graduate programs are open for both domestic and foreign students. For those planning to work abroad, the University issues the Diploma Supplement, fulfilled in compliance with the European rules.

SUSU is the largest centre of IT-education of the Ural region. SUSU provides Bachelor and Master programs in areas of "Fundamentals of Information Technology", "Applied Mathematics and Computer Science", "Software Engineering", "Information systems and technologies" and others. Also, there is a PhD and Doctorate Dissertation Council on the basis of SUSU that provides defenses of dissertations from all regions of Russia in the areas of "Mathematical and Software support of computers, computer networks" and "Theoretical foundations of computer science".

SUSU has the status of National Research University and implements five priority directions of development. One of them involves supercomputer and cloud technologies for solving problems in energy and resource savings.

One of the features of SUSU is a world-class Supercomputer Simulation Laboratory that holds 3 supercomputers, most powerful of which ("Tornado SUSU") holds 190th place in the TOP500 most powerful supercomputers of the world (5th in Russia). It is primarily used for engineering, physics and chemistry simulation tasks.

Educational programs in high-performance computing for engineers developed at SUSU are unique to Russia. SUSU spends numerous efforts to create and support small innovative companies that provide IT solutions on regional and federal scale which are based on methods and technologies of distributed computing and large data analysis.

Please describe also the role of your organisation in the project (limit 1000 characters).

SUSU is the leader of the WP on Fundamental Computing and Math, a central WP in the training of Ph.D students involved in the program. Professors from SUSU will be in charge of the training activities in this WP. Students from EU and Jordan will have a unique opportunity to discover the long tradition of SUSU in computational research as well as the high performance computing lab. The chair of this WP is also a member of the DPB committee. Several other roles will be assigned to SUSU members. At least 2-4 Ph.D students from SUSU will be involved in the projects.

D.1.2 - Operational capacity: Skills and expertise of key staff involved in the project

Please add lines as necessary.

Name of staff member	<i>Summary of relevant skills and experience, including where relevant a list of recent publications related to the domain of the project.</i>
Leonid Sokolinsky	<p>Leonid Sokolinsky is Professor, Dr. of Science (Physics and Mathematics), Vice-Rector for Informatization. Honorary Worker of Higher Professional Education of the Russian Federation</p> <p>Education:</p> <ul style="list-style-type: none"> - 1982: graduated from the Faculty of Mathematics of Chelyabinsk State University (CSU). - 1987 – 1990: PhD student of the Faculty of Mathematics and Mechanics of the Leningrad State University (Saint Petersburg, Russia). - 1990: Defended a dissertation for the degree of Candidate of Physics and Mathematics at the Council of Research Computing Center of Moscow State University. Topic of the dissertation: Technological complex for the development of programs for the TYPE-programming techniques for ERM "Elbrus" - 2003: Defended a Dissertation for the degree of Doctor of Physics and Mathematics at the Council Chelyabinsk State University. Topic of the

	<p>dissertation: "Methods of organization of parallel database systems on computing systems with mass parallelism".</p> <p>His job record includes the positions of an associate professor and (since 2006) full professor of System Programming, head of the System Programming department (since 1993), dean of the faculty of Computational Mathematics and Informatics of SUSU (2011-2013), head of supercomputer simulation laboratory and supercomputer center of SUSU (2008-2013), a vice-rector for Informatization of SUSU (since 2013).</p> <p>As a lecturer, prof. Sokolinsky reads "Modern technology of database management systems development" course.</p> <p>Prof. Sokolinsky is currently the head of the Postgraduate program 05.13.11: "Mathematical and software of computers, complexes and computer networks" and master's program "Databases" in the field "Informatics and Computer Science".</p> <p>The fields of scientific interests are theoretical and practical aspects of database management systems development, parallel data processing and education of information technologies. The publication record includes more than 110 scientific and methodological publications, including such publications as:</p> <ol style="list-style-type: none"> 1. Kostenetskii P.S., Sokolinsky L.B. Simulation of Hierarchical Multiprocessor Database Systems // Programming and Computer Software, 2013. Vol. 39, No. 1. P. 10-24. 2. Lepikhov A.V., Sokolinsky L.B. Query Processing in a DBMS for Cluster Systems // Programming and Computer Software. 2010. Vol. 36. No. 4. P. 205-215. 3. Sokolinskaya I. M., Sokolinskii L. B. Parallel algorithm for solving linear programming problem under conditions of incomplete data // Automation and Remote Control. 2010. Vol. 71, No. 7. P. 1452-1460. <p>Member of the ACM since 1997. He is the executive editor of the scientific journal "Journal of South Ural State University. Series: Computational Mathematics and Informatics" (since 2012), managing editor of the international scientific journal "Supercomputing Frontiers and Innovations" (since 2014), Member of the Program Committee of the DEXA Annual International Conference, Member of the Program Committee of the ADBIS Annual International Conference, Co-Chair of the Program Committee of the Annual International Conference on Parallel Computing Technologies (PaVT).</p>
Gleb Radchenko	<p>Gleb Radchenko is associate professor, PhD in Science (Physics and Mathematics), Dean of the Faculty of Computational Mathematics & Informatics.</p> <p>Education:</p> <ul style="list-style-type: none"> – 2001-2006: diploma in Mathematics and software development (Applied Mathematics department, South Ural State University) – 2006 – 2009: PhD student on «Mathematical and software of computers, complexes and computer networks» (System Programming department, South Ural State University) – 2009: Defended a PhD thesis on the topic "A service-oriented approach to integration of CAE systems in distributed computing environments" at Moscow State University. <p>The job record includes the positions of an associate professor (since 2010) of System Programming Department, dean of the faculty of Computational</p>

	<p>Mathematics and Informatics of SUSU (since 2013), deputy head of supercomputer simulation laboratory of SUSU (2010-2013).</p> <p>As a lecturer reads the following courses: «Distributed Computing Systems», «Object-oriented programming», «Software engineering».</p> <p>The fields of scientific interests are distributed computing systems, grid computing, cloud computing, architecture of high-load computing systems. The publication record includes more than 40 scientific and methodological publications, including such publications as:</p> <ol style="list-style-type: none"> 1. Savchenko D., Radchenko G. Mjolnir: private PaaS as distributed computing evolution // MIPRO 2014. Proceedings of the 37th International Convention (Opatia, Croatia May 26-30, 2014), 2014. P. 401-406. 2. Radchenko G., Hudyakova E. Distributed Virtual Test Bed: an Approach to Integration of CAE Systems in UNICORE Grid Environment // MIPRO 2013 Proceedings of the 36th International Convention. 2013. P. 183-188. 3. Radchenko G., Hudyakova E. A Service-Oriented Approach of Integration of Computer-Aided Engineering Systems in Distributed Computing Environments // UNICORE Summit 2012 Proceedings. Forschungszentrum Julich, 2012. P. 57-66. <p>Member of the ACM since 2009. Young teachers competition winner (2013); winner of the Grant of the Russian Federation President for young scientists (2011).</p>
Rifkhat Alev	<p>Rifkhat Alev is Dr. of Science (Physics and Mathematics), Professor</p> <p>Education:</p> <ul style="list-style-type: none"> – 1972: graduated from the Faculty of Mathematics of Novosibirsk State University (NSU). – 1972 – 1975: PhD student of the Faculty of Mathematics of the Novosibirsk State University (Saint Petersburg, Russia). – 1977: Defended a dissertation for the degree of Candidate of Physics and Mathematics at the Council of Institute of Mathematic of Siberian Branch of Academy of Sciences of USSR. Topic of the dissertation: Finite groups with decomposable Sylow 2-subgroups – 2003: Defended a Dissertation for the degree of Doctor of Physics and Mathematics at the Council Institute of Mathematic and Mechanic of Ural Branch of Academy of Sciences of Russian Federation. Topic of the dissertation: "Central unit groups of integral group rings of finite groups". <p>The job record includes the positions of head of the Algebra department (2005-2012) and professor of System Programming Department (since 2013). As a lecturer, prof. Alev reads “Mathematical foundations of defending information and information safety” course.</p> <p>The fields of scientific interests are theoretical and practical aspects of algebra and computer algebra. The publication record includes more than 100 scientific and methodological publications, including such publications as:</p> <ol style="list-style-type: none"> 1. Alev R.Zh., Kargaplov A.V., Cokolov V.V. The Ranks of central unit groups of integral group rings of alternating groups // Journal of Mathematical Science, 2010, Vol. 164, No. 2, P. 163-167 2. R. Zh. Alev R.Zh. Small ranks of central unit groups of integral group rings of alternating groups // Proceedings of the Steklov Institute of Mathematics, June 2014, Volume 285, Issue 1 Supplement, P 12-18

Mikhail Zymbler	<p>Mikhail Zymbler is associate professor, PhD in Science (Physics and Mathematics), Head of the Information Technologies Department.</p> <p>Education:</p> <ul style="list-style-type: none"> – 1993: Graduated from the Faculty of Mathematics of Chelyabinsk State University (CSU). – 2000: Defended a dissertation for the degree of Candidate of Physics and Mathematics at the Council of CSU. Topic of the dissertation: Methods of software development for data management using massively parallel computer systems. <p>The job record includes the positions of an Head of Data Mining and Virtualization Department of SUSU Supercomputer Simulation Laboratory (since 2011).</p> <p>As a lecturer, reads the following courses: “Programming Basics”, “Database Systems”, “Data Mining”.</p> <p>Research interests include parallel database systems, parallel programming data mining. The publication record includes more than 50 scientific and methodological publications, including such publications as:</p> <ol style="list-style-type: none"> 1. Pan C.S., Zymbler M.L. Taming Elephants, or How to Embed Parallelism into PostgreSQL // Lecture Notes in Computer Science. 2013. Vol. 8055. LNCS. Part I. P. 153-164. 2. Pan C.S., Zymbler M.L. Very Large Graph Partitioning by Means of Parallel DBMS // Lecture Notes in Computer Science. 2013. Vol. 8133. LNCS. P. 388-399. <p>Diploma of the Russian Ministry of Education and Science for many years of conscientious work in the higher education system. Executive secretary of the scientific journal "Bulletin of South Ural State University. Series: Computational Mathematics and Informatics" (since 2012). Scientific Secretary of the Program Committee of the Annual International Conference on Parallel Computing Technologies (PaVT).</p>
Ekaterina Storozhakova	<p>Ekaterina Storozhakova has MA in Economics and woks as Head of Foreign Funding Programs Department.</p> <p>Her main duties are:</p> <ul style="list-style-type: none"> – managing the work of a team of Grants Advisers and be responsible for the performance and outputs of the team. – ensuring that the work of the team is of high quality, performed within agreed procedures, accurate and produced in a timely fashion, – ensuring review groups or decision making Committees are provided with high quality information in a timely fashion and that the Committees’ decisions are implemented transparently, accurately and effectively, – working with the Financial and Administration Manager and Accountants of the SUSU to support the day to day financial management of the programme with regard to specific programme operational budgets, expenditures, flow of funds to grantees and process related financial queries from grantees, – nurturing and supporting the development of the SUSU community of researchers to accelerate scientific outputs across Russia, – reviewing grantee budget proposals and work plans, – monitoring monthly expenses to ensure compliance with grant awards, – performing other duties as assigned.

Partner number		P8
Organisation name & acronym	St.Petersburg Polytechnic University – SPbPU	
D.1.1 - Aims and activities of the organisation		
<i>Please provide a short presentation of your organisation (key activities, affiliations, size of the organisation, etc.) relating to the area covered by the project (limit 2000 characters).</i>		
<p>St. Petersburg Polytechnic University (SPbPU) was founded in 1899. The University is carrying out education in the following areas: engineering, physics, economics, humanities and information technologies. SPbPU trains specialists in 49 Bachelor Degree programs and 200 Master Degree programs, 90 PhD programs and 90 Doctorate programs. In addition, there are a number of non-degree and international educational programs. At the present time there are 30 197 students and postgraduates in SPbPU, 3056 of them are foreign citizens from 98 countries. In 2007 SPbPU won a contest "Innovation University" financed in the framework of the national project "Education". In 2010 SPbPU gained the status "National Research University". Nowadays SPbPU develops as a new type research university, which integrates multidisciplinary R&D activities and advanced technologies for rising national economics competitiveness. SPbPU is one of 15 Russian leading universities who entered the Ministry of Education and Science Program "5-100-2020" in 2014. The aim of the program is to ensure at least 5 Russian universities in the TOP-100 of the world's leading universities according to the QS World University Rankings by 2020. So internationalization of educational and scientific activities is one of the main aims of the University nowadays.</p> <p>The history of "Information Systems in Economics and Management" Department starts from 1961, when it was based with participation and support of Nobel Prize winner L.V. Kantorovich. For all these years its research and educational activities were concentrated around enterprise automation. Today the Department realizes Bachelor, Master and PhD programs in the fields of Business Informatics and deals with R&D work on how IT can support business agility and drive competitive advantage.</p>		
<i>Please describe also the role of your organisation in the project (limit 1000 characters).</i>		
<p>Prof. Igor Ilin is the leader of the WP 2.7 on the business and managements concerns in Software Engineering. The teaching activities of this WPs will be organized at SPbPU. Members of this institution will be in charge of soom of these training activities. Prof. Ilin is a member of the DPB and one of the coordinator of the Russia team. SPbPU will be also the co-organiser and the chair of the Russian panel on National Priorities and Needs. Other tasks and traning activities as part of the other development WPs will be assigned to SPbPU members. A member of SPbPU will be co-leading the quality assurance management committee.</p>		
D.1.2 - Operational capacity: Skills and expertise of key staff involved in the project		
<i>Please add lines as necessary.</i>		
Name of staff member	<i>Summary of relevant skills and experience, including where relevant a list of recent publications related to the domain of the project.</i>	
Igor Ilin	<p>Professor, Dr. Sc., Head of Department of Information Systems in Economics and Management of SPbPU. Supervised 9 PhD students, 6 of them defended their thesis and got PhD degree. Relevant skills and experience: Business Process Management; Project Management (international certificates: PRINCE2 Practitioner, P3O Practitioner); IT Service Management (international certificate: ITIL Foundation); Enterprise Architecture (international certificate: Archimate). Languages: Russian – native, English – fluent</p> <p>Recent publications: <i>Ilyin I.V., Gluhov V.V. Project portfolio structure in telecommunications company.</i> Lecture Notes in Computer Science 8638 LNCS, 2014. The 14th International Conference on Next Generation Wired/Wireless Networking NEW2AN 2014 <i>Ilin, I.V., Anisiforov A.B. Improvement of Strategic and Operational Efficiency of Clusters Based on Enterprise Architecture Model.</i> Recent Advances in Mathematical Methods in Applied Sciences. Proceedings of the 2014</p>	

	<p>International Conference on Mathematical Models and Methods in Applied Sciences (MMAS '14). Saint Petersburg, 2014, pp. 432-437</p> <p><i>Ilyin, I.V., Levina, A.I. Project Management Issues of Formation of Engineering Companies' Architecture. Journal of Business and Economics, Volume 5, Number 5, May 2014, pp. 698-708</i></p>
Anastasia Lyovina	<p>Associate Professor of Department of Information Systems in Economics and Management of SPbPU, PhD. Relevant skills and experience: Business Process Management; Project Management (international certificates: PRINCE2 Trainer, PRINCE2 Practitioner, P3O Practitioner); IT Service Management (international certificate: ITIL Foundation); Enterprise Architecture (international certificate: Archimate); Information Systems (international certificate: SAP TERP10).</p> <p>Russian – native, English – fluent, Italian - fluent</p> <p>Recent publications:</p> <p><i>Lyovina, A.I., Dubgorn A.S. Approach to information requirements identification of procurement process of custom production. Recent Advances in Mathematical Methods in Applied Sciences. Proceedings of the 2014 International Conference on Mathematical Models and Methods in Applied Sciences (MMAS '14). Saint Petersburg, 2014, pp. 401-411</i></p> <p><i>Ilin, I.V., Koposov, V.I., Levina, A.I. Model of asset portfolio improvement in structured investment products. Life Science Journal, Volume 11, Issue 11, 2014, pp. 265-269</i></p> <p><i>Ilyin, I.V., Levina, A.I. Project Management Issues of Formation of Engineering Companies' Architecture. Journal of Business and Economics, Volume 5, Number 5, May 2014, pp. 698-708</i></p> <p><i>Ilyin I.V., Lyovina A.I., Shirokova S.V., Dubgorn A.S. ITIL and PRINCE2 in Practice. Study Guide, Publishing house of St. Petersburg Polytechnic University, 2014.</i></p>
Svetlana Shirokova	<p>Associate Professor of Department of Information Systems in Economics and Management of SPbPU, PhD. Relevant skills and experience: Quality Management and E-business; Project Management (international certificates: PRINCE2 Trainer, PRINCE2 Practitioner, P3O Practitioner); Information Systems (international certificate: SAP TERP10).</p> <p>Russian – native, English – fluent</p> <p>Recent publications:</p> <p><i>Shirokova S.V., Iliashenko O.Y. Decision-Making Support Tools in Data Bases to Improve the Efficiency of Inventory Management for Small Businesses. Recent Advances in Mathematical Methods in Applied Sciences. Proceedings of the 2014 International Conference on Mathematical Models and Methods in Applied Sciences (MMAS '14). Saint Petersburg, 2014, pp. 204-212</i></p> <p><i>Ilyin I.V., Lyovina A.I., Shirokova S.V., Dubgorn A.S. ITIL and PRINCE2 in Practice. Study Guide, Publishing house of St. Petersburg Polytechnic University, 2014.</i></p>
Oxana Iliashenko	<p>Associate Professor of Department of Information Systems in Economics and Management of SPbPU, PhD. Relevant skills and experience: Business Intelligence, Data Warehouse Management, Information Systems (international certificate: SAP TERP10).</p> <p>Russian – native, English – fluent</p> <p>Recent publications:</p> <p><i>Shirokova S.V., Iliashenko O.Y. Decision-Making Support Tools in Data Bases to Improve the Efficiency of Inventory Management for Small Businesses. Recent Advances in Mathematical Methods in Applied Sciences. Proceedings of the</i></p>

	2014 International Conference on Mathematical Models and Methods in Applied Sciences (MMAS '14). Saint Petersburg, 2014, pp. 204-212
Alissa Dubgorn	Assistant of Department of Information Systems in Economics and Business of SPbPU, PhD student. Relevant skills and experience: Business Process Management; Project Management (international certificates: PRINCE2 Practitioner, P3O Practitioner); IT Service Management (international certificate: ITIL Foundation); Enterprise Architecture (international certificate: Archimate); Information Systems (international certificate: SAP TERP10). Russian – native, English – fluent, German – fluent Recent publications: <i>Lyovina, A.I., Dubgorn A.S. Approach to information requirements identification of procurement process of custom production.</i> Recent Advances in Mathematical Methods in Applied Sciences. Proceedings of the 2014 International Conference on Mathematical Models and Methods in Applied Sciences (MMAS '14). Saint Petersburg, 2014, pp. 401-411 <i>Ilyin I.V., Lyovina A.I., Shirokova S.V., Dubgorn A.S. ITIL and PRINCE2 in Practice.</i> Study Guide, Publishing house of St. Petersburg State Polytechnic University, 2014.
Elena Nikonchuk	Elena Nikonchuk works currently as the Director of International Educational Projects Office of St. Petersburg State Polytechnical University. Languages: Russian – native, English – fluent Main qualifications: Educational project design and development, International project management and coordination, management of University international cooperation in the field of academic mobility, programs taught in English and joint degree programs. Have an experience as university coordinator of 6 TEMPUS projects. Publications: 20 publications in the field of international education. Member of Professional Bodies <ul style="list-style-type: none"> • European Association for International Education • Association of Vice-Rectors for International Affairs of Saint-Petersburg HEI • Coordination Council for International Affairs of St. Petersburg Polytechnic University

Partner number		P9
Organisation name & acronym	Jordan University of Science and Technology - JUST	
D.1.1 - Aims and activities of the organisation		
<i>Please provide a short presentation of your organisation (key activities, affiliations, size of the organisation, etc.) relating to the area covered by the project (limit 2000 characters).</i>		

Jordan University of Science and Technology (JUST) is a comprehensive, public university located on the outskirts of Irbid, 70km north Amman. JUST was established in 1986 as an autonomous national institute of higher education with the main objective of producing outstanding professionals in specializations that match the needs of Jordan and the region.

Since its establishment, JUST has been at the forefront of higher learning in the Arab World. It also maintains a high reputation among the Middle Eastern universities due to its faculty and administrative staff, multi-disciplinary educational system and broad diversity of students. The university was described as the best scientific institution in the Kingdom by King Abdullah II during his last visit, and it was ranked as the top research university in the country, and amongst the top 50 universities in the Islamic World, according to a study carried out by the Statistical, Economic and Social Research and Training Center for Islamic Countries (SESRIC).

JUST is considered today as one of the region's leading universities in teaching and research. The number of students has increased significantly since the university's establishment. Today JUST has more than 800 full-time faculty members, with 20,000 undergraduate and 1800 graduate students, in contrast to 2,300 students in the 1986/1987 academic year. JUST comprises more than 5,000 international students of 60 nationalities.

JUST provides a wide range of advanced degree programs. At the present time, the university comprises 12 faculties (Medicine, Engineering, Science & Arts, Pharmacy, Dentistry, Agriculture, Veterinary Medicine, Architecture, Information Technology, Applied Sciences, Nursing and Graduate Studies) and 55 departments offering 42 undergraduate programs and 95 postgraduate programs. These programs are constantly reviewed to improve their quality and to ensure that the students are always updated with the latest scientific skills and knowledge.

Please describe also the role of your organisation in the project (limit 1000 characters).

JUST is a very young and dynamic university but a leader in technology education in Jordan. Via this project, JUST is aiming to consolidate its position as a leading institution in the field of Software Engineering. JUST as a project member will be actively involved in all the activities of the WP 2.2 Advanced Software Engineering Education. JUST will be the leader and the organizer of Jordan Panel on National Priorities and Needs. Dr. Duwairi will be a member of Doctoral Program Board and a member of the quality assurance management committee. Other professor will participating in WP 4.1 put it all together while being responsible to tailor the framework for the specific needs of JUST.

D.1.2 - Operational capacity: Skills and expertise of key staff involved in the project

Please add lines as necessary.

Name of staff member	<i>Summary of relevant skills and experience, including where relevant a list of recent publications related to the domain of the project.</i>
Rehab Mustafa Duwairi	<p>Rehab M. Duwairi received her BSc degree (1989) in computer science from Yarmouk University, Jordan; MSc and PhD degrees in computer science from the University of Wales, Cardiff, UK, in the years 1994 and 1997, respectively. In August 1997, she joined Jordan University of Science and Technology, where she is currently working as an associate professor of computer science. Dr. Duwairi acted as a founding department head for the Department of Computer Science (1998-2000) and as a vice dean of the Faculty of Computer and Information Technology (2004-2006). She joined Qatar University team on September 2007 as an associate professor of computer science. Dr. Duwairi rejoined Jordan University of Science and Technology in 2012 as the Dean of the College of Computer and Information Technology. Her research interests include object oriented databases, data mining, semantic integration of structured and unstructured data, and Arabic text categorization. She is a member of ACM and IEEE. Examples of Professor Duwairi's publications include:</p>

	<ul style="list-style-type: none"> – Rehab Duwairi, Mahmoud El-Orfali, “A Study of the Effects of Preprocessing Strategies on Sentiment Analysis for Arabic Text”, Journal of Information Science. Vol 40(4), pages 501-513, 2014. – Rehab Duwairi, Mohammad Al-Refai, Natheer Khasawneh, "Feature Reduction Techniques for Arabic Text Categorization". Journal of the American Society for Information Science and Technology (JASIST), Volume 60, Issue 11, pages: 2347-2352, 2009. – Rehab Duwairi, Rania Al-Zubaidi, "A Hierarchical K-NN Classifier for Textual Data". International Arab Journal for Information Technology (IAJIT), Vol. 8, No. 3, pages 251 – 258, July 2011. – R. M. Duwairi, "Machine Learning for Arabic Text Categorization". Journal of the American Society for Information Science and Technology (JASIST), Vol. 57, Issue 8, pages 1005-1010, 2006. – Rehab M. Duwairi, Islam Qarqaz, Arabic Sentiment Analysis using Supervised Classification, The 1st International Workshop on Social Networks Analysis, Management and Security (SNAMS - 2014), August 2014, Barcelona, Spain. – Rehab M. Duwairi, Raed Marji, Narmeen Sha’ban, Sally Rushaidat. “Sentiment Analysis in Arabic Tweets”, Proceedings of the 5th International Conference on Information and Communication Systems, Irbid, Jordan, April 1-3, 2014. – Noor Awad, Mostafa Ali, Rehab Duwairi, “Cultural Algorithm with Improved Local Search for Optimization Problems”. The 2013 IEEE Congress on Evolutionary Computation, Cancun, Mexico, June 19-23, 2013. – Rehab Duwairi, “Statistical Feature Selection Techniques for Arabic Text Categorization". The Fourth International Conference on Information and Communication Systems (ICICS 2013), Irbid, Jordan, April, 23-25, 2013. – Mark Hasegawa-Johnson, Elabbas Benmamoun, Eiman Mustafawi, Mohamed Elmahdy and Rehab Duwairi, “On the Definition of Word Segmental”, Speech Prosody (The 6th International Conference of Speech Prosody SP2012), Shanghai, China, May 22-25, 2012. – Mohammed Elmadhi, Mark Hasegawa-Johnson, Eiman Mustafawi, Rehab Duwairi, Wolfgang Minker, “Challenges and techniques for dialectal Arabic speech recognition and machine translation”, Qatar Foundation Research Forum, Doha, Qatar, 20-22 November, 2011. – Mark Hasegawa-Johnson, Jui-Ting Huang, Rehab Duwairi, Eiman Mustafawi, Roxana Girju, and Elabbas Benmamoun, “Learning to Recognize Speech from a Small Number of Labeled Examples”, Poster presentation. Qatar Foundation Research Forum, Doha, Qatar, 20-22 November, 2011.
Luay Alawneh	<p>Dr. Luay Alawneh is an assistant professor in the software engineering department at Jordan University of Science & Technology (JUST) since February 2014. He earned his Ph.D. degree in Software Engineering (program comprehension of HPC applications) from Concordia University in Montreal-Canada in 2012. Dr. Alawneh earned his Master’s Degree in Software Engineering (verification & validation of systems engineering models) from the same university in 2006. Additionally, he earned his B.Sc. degree in Electrical Engineering with a specialization in computer engineering from JUST in 1999. Beside his academic background, Dr. Alawneh has more than seven years of North American industrial experience as a Software Engineer. Before joining JUST, Dr. Alawneh worked as a senior software engineer at Nuance Communications Inc., a world leader in voice recognition applications.</p>

Muhannad Quwaider	<p>Muhannad Quwaider is an Assistant Professor of Computer Engineering and vice dean, college of Computer and Information Technology at Jordan university of Science and Technology (JUST). Dr. Quwaider earned his Ph.D and M.S. at Michigan State University in East Lansing, USA in 2010, and his B.S. at Jordan University of Science and Technology in Irbid, Jordan. Prior to joining JUST in 2010, Dr. Quwaider was senior researcher in Networked Embedded and Wireless Systems (NeEWS) laboratory at the Electrical and Computer Engineering (ECE) Department of Michigan State University (MSU). He served as TPC and organizing chairs of ICICS2012, ICICS2013 and ICICS2014, and guest editor of Elsevier Journal of Ad Hoc Networks and Emerging Technology in Web Intelligence (JETWI). Dr. Quwaider is a member of IEEE. His current research interests include the broad area of wireless data networking, low-power network protocols, application-specific sensor networks, wireless network security, mobile ad hoc networks, and body area network.</p>
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Partner number		P10
Organisation name & acronym	Ural Federal University - UrFU	
D.1.1 - Aims and activities of the organisation		
<i>Please provide a short presentation of your organisation (key activities, affiliations, size of the organisation, etc.) relating to the area covered by the project (limit 2000 characters).</i>		
<p>Ural Federal University (UrFU) is one of the top ranked scientific centres in Russia carrying out research in natural, formal, technical, social sciences, humanities and arts, economics and management. It is the oldest higher educational institution in the Ural region bringing together fundamental education and practical application of knowledge. During its 93-year history more than 300 000 people graduated from the University; it has become the leader in higher professional education in the region and one of the leading universities in Russia. Since 2008 it bears the name of Boris Yeltsin, the first President of Russia, being the University's graduate of 1955.</p> <p>There are more than 50 000 students in 17 UrFU Institutes, including 25 000 full-time students. The number of PhD students is 500, the number of doctoral students equals to 20. The highly-qualified academic staff of Ural Federal University includes 4 000 people; among them there are 600 professors, Doctors of Sciences, about 2000 Associate Professors, PhDs, 26 members of the Russian Academy of Sciences.</p> <p>Ural Federal University is a state university, which receives funding from two main sources - the state budget and the income from tuition fees and delivering research services. Ural Federal University is the core of the research cluster comprising scientific institutes of the Ural Branch of the Russian Academy of Sciences, specialized laboratories and high-tech enterprises.</p> <p>In 2013, Ural Federal University entered the list of 15 Russian universities that won in a competitive selection for the right to receive special subsidy targeted at enhancing the global competitiveness of the university and increasing its positions in the international rankings.</p> <p>UrFU Campus includes 14 educational buildings and 15 dormitories; now a final stage of construction of a new dormitory for 1 000 students is being completed. The University's infrastructure also includes health camps and a recreation center.</p>		
<i>Please describe also the role of your organisation in the project (limit 1000 characters).</i>		

UrFU together with SUSU is in charge of the activities in WP 2.6 - Math and Computing Foundations of Software Engineering. UrFU has extensive experience in conducting courses in theoretical computer science and mathematical foundation of software engineering. UrFU also has strong experience in High Performance Computing. UrFU professors will teach courses on Logical foundations of computer science, Parallel computing, and Robotics and Software Development during intensive schools. In addition, UrFU professors will supervise the PhD students. Prof. Mikhail Volkov is a member of Doctoral Program Board.

D.1.2 - Operational capacity: Skills and expertise of key staff involved in the project

Please add lines as necessary.

Name of staff member	<i>Summary of relevant skills and experience, including where relevant a list of recent publications related to the domain of the project.</i>
Mikhail Volkov	<p>Dr. of Science (Physics and Mathematics), Head of Algebra and Discrete Mathematics Chair Institute of Mathematics and Computer Science UrFU.</p> <p>Education:</p> <ul style="list-style-type: none"> - 1994: Doctor of Physical and Mathematical Sciences degree awarded by St Petersburg State University - 1980: Candidate of Physical and Mathematical Sciences (=PhD) degree awarded by Mathematics Institute of Moldavian Academy of Sciences - 1977: Diploma in Mathematics (=M.Sci.) awarded by Department of Mathematics and Mechanics, Ural State University. <p>Job records includes Head of Algebra and Discrete Mathematics Chair IMCS UrFU (since 2006), Deputy Head of Algebra and Discrete Mathematics Chair Ural State University, Ekaterinburg (2001-2006), and Professor of Ural State University Ekaterinburg (1995-2001).</p> <p>As a lecturer, prof. Volkov conducts «Algebraic and logical foundations of computer science» and «Automata theory» courses.</p> <p>Prof.Volkov is the Head of PhD «Computer Science» program and Master’s program «Mathematical Foundations of Computer Science» in the field of «Mathematics and Computer Science».</p> <p>Prof.Volkov is the executive editor (since 2003) of "Semigroup Forum" scientific journal and the editor (since 2010) of "International Journal of Algebra and Computation".</p> <p>The fields of scientific interests are theoretical computer science, algebra, discrete mathematics, automata theory and information theory.</p> <p>The publication record includes more than 140 scientific and methodological publications, including such publications as:</p> <ul style="list-style-type: none"> - M. Volkov, K. Auinger, I. Dolinka, and T. V. Pervukhina. Unary enhancements of inherently nonfinitely based semigroups // Semigroup Forum (2014) 89, no.1, 41-51. - M. Volkov, F. M. Fominykh and P. V. Martyugin. P(l)aying for synchronization // Int. J. Foundations Comp. Sci., (2013) 24, no.6, 765-780. - M. Volkov, K. Auinger and I. Dolinka. Equational theories of semigroups with involution // J. Algebra (2012) 369, 203-225. - M. Volkov, K. Auinger and I. Dolinka. Matrix identities involving multiplication and transposition // J. Europ. Math. Soc. (2012) 14, no. 3, 937-969.
Andrey Sozykin	<p>PhD in Computer Science (Technical Science), Head of High Performance Computing Technologies Chair of Institute of Mathematics and Computer Science UrFU</p> <p>Education:</p> <ul style="list-style-type: none"> - 2008: PhD degree (Candidate of Technical Sciences) awarded by Institute Informatics Problems of Russian Academy of Sciences, Moscow, Russia.

	<ul style="list-style-type: none"> - 2001-2004: PhD Student in «Computers, complexes and computer networks», Institute of Mathematics and Mechanics Ural Division of Russian Academy of Science, Ekaterinburg, Russia. - 1996-2001: Diploma in «Computers, complexes and computer networks» (=MSc), Perm State Technical University, Perm, Russia. <p>Job records includes Head of High Performance Computing Technologies Chair of Institute of Mathematics and Computer Science UrFU (since 2012), Head of Supercomputing Technologies Sector of Institute of Mathematics and Mechanics Ural Division of Russian Academy of Science (2010-2014), Head of Computer Science Department of Institute of Mathematics and Mechanics Ural Division of Russian Academy of Science (since 2014).</p> <p>As a lecturer, Andrey Sozykin conducts «Parallel Computing» and «Computing Networks» courses.</p> <p>Andrey Sozykin is the Head of Master’s program «Parallel Computing» in the field of «Mathematics and Computer Science».</p> <p>The fields of scientific interests are High Performance Computing, Supercomputing Technologies, Parallel Computing, Distributed Computing, Big Data.</p> <p>The publication record includes more than 30 scientific and methodological publications, including such publications as:</p> <ul style="list-style-type: none"> - A.Sozykin, M.Goldshtein, V.Gribiva, Ph.Moskalenko. “Parallel matlab” cloud service // Software & Systems, 2013, no 4, pp.137-141. (in Russian). - A.Sozykin, M.Goldshtein. MapReduce-based Image Processing System with Automated Parallelization // Vestnik of South Ural State University, 2012, no 27. P.109-118. (in Russian).
Yuri Okulovsky	<p>PhD in Computer Science, Head of Laboratory for Artificial Intelligence and Robotics (AIRLabs) of Institute of Mathematics and Computer Science UrFU.</p> <p>Education:</p> <ul style="list-style-type: none"> - 2010: PhD degree in Mathematical modelling, numeric computations and software packages awarded by Ural State University, Ekaterinburg, Russia. - 2007-2010: PhD Student in Mathematical modelling, numeric computations and software packages, Ural State University, Ekaterinburg, Russia. - 2005-2007: Master of Mathematics and Computer Science, Ural State University, Ekaterinburg, Russia. - 2001-2005: Bachelor of Mathematics and Computer Science, Ural State University, Ekaterinburg, Russia. <p>Job records includes Head of Laboratory for Artificial Intelligence and Robotics (AIRLabs) Ural Federal University (since 2009), Senior Researcher, Ural Federal University (2007-2009).</p> <p>As a lecturer, Yuri Okulovsky conducts «Software patterns and developers' tools», «Artificial Intelligence and Machine Learning», and «Robotics and Software Development» courses.</p> <p>The fields of scientific interests are complex software systems, robotics and the intelligent systems for robots' control, artificial intelligence, machine learning, mathematical logic, algorithms theory.</p> <p>The publication record includes more than 20 scientific and methodological publications, including such publications as:</p> <ul style="list-style-type: none"> - Okulovsky Y., Smotritskiy A.A, Skripov P.V., Rubin S.B., Starostin A.A. CVARC: an educational project for a gentle introduction to autonomous robots’ control // Proceedings of 4-th International conference on robotics in education, 2013

	<ul style="list-style-type: none"> - Y. Okulovsky, P. Abduramanov, S. Kalistratov. An Approach to the Metadata Driven Programming in .Net Framework. // Proceedings of 8th International Joint Conference on Software Technologies, 2013. - Y. Okulovsky, Y. Borcheninov. Genetic programming with embedded features of symbolic computations // Proceedings of international conference of Knowledge Discovery and Information Retrieval, 2011
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Partner number		P11
Organisation name & acronym	St. Petersburg State University - SPSU	
D.1.1 - Aims and activities of the organisation		
<i>Please provide a short presentation of your organisation (key activities, affiliations, size of the organisation, etc.) relating to the area covered by the project (limit 2000 characters).</i>		
<p>Founded in 1724, St. Petersburg State University is the oldest institution of higher education in Russia. At present, there are more than 32,000 students in University, receiving education in more than 323 specialties in 24 faculties. University's staff comprises almost 14,000 people. St. Petersburg State University is granted the special status of "a unique scientific and education complex, an oldest institution of higher education in Russia being of a great importance to the development of the Russian society" as well as the right of giving its own diplomas with the official symbols of the Russian Federation. SPSU's Department of Information Systems for the Economy was founded in 2003 and prepares multi-disciplinary experts in the field of information technology and systems for the economy and business. The department has 27 teachers (including 5 professors, and 17 associate professors), with experience in the use of computer technology and modern software in educational and scientific work. The department conducts fundamental research in the field of designing methodological foundations of corporate information systems (Prof. G. Botwin), the field of estimating of costs for the development and implementation of regional information systems for the public services in the social sphere (Professor A. Yurkov) and applied research in economics and management system of higher education (Professor V. Khalin). Research results are used in the educational process and for the organization of interaction with interested companies and public authorities and management. According to the research in 2009-2014 were published 18 monographs and textbooks, and 9 manuals. Since 2003 4 doctoral and 7 candidate's theses were successfully defended, including 2 doctoral and 5 PhD theses in 2009-2014. Dissertations materials of H. Aliyev (2010) and O.Dzhaksumbaeva (2014) directly relevant to the proposed project.</p>		
<i>Please describe also the role of your organisation in the project (limit 1000 characters).</i>		
SPSU will be actively involved in WP 2.7 training activities and the co-organizer of this WP in saint Petersburg. Members of SPSU will be assigned other tasks during the Kickoff meetings. The university is the co-organizer of the Russian Panel on National Priorities and Needs. A representative member of SPSU will be a member of the DPB committee. WP 2.7 list of training activities will be revised by the first DPB meeting to add training activities from SPSU team including software engineering economics. Members will also have a strategic role to play in WP 4.1 mainly the development of the put it all together framework as well as it adaptation to the Russian higher education system.		
D.1.2 - Operational capacity: Skills and expertise of key staff involved in the project		
<i>Please add lines as necessary.</i>		
Name of staff member	<i>Summary of relevant skills and experience, including where relevant a list of recent publications related to the domain of the project.</i>	
Vladimir Khalin	<p>Vladimir Khalin is Head of the Department Doctor of Economics, Candidate of Physical and Mathematical Sciences.</p> <p>The key results of the recent years:</p> <ol style="list-style-type: none"> 1. The concept of strategic management for the modernization of national higher education system (NHES) is developed. 2. The formation procedure for administrative decisions on NHES modernization is proposed. 	

	<p>3. A method for estimating the importance of managerial decisions is suggested, that gives the opportunity to build priority sequence of management solutions for the NHES system management and its separate subsystems. The results are stated in doctoral dissertation:</p> <ul style="list-style-type: none"> – Khalin VG. "Theoretical and methodological basis for the formation of the complex system of strategic management of higher education modernization." Dissertation for the degree of Doctor of Economics / Saint Petersburg State University. St. Petersburg, 2009. http://elibrary.ru/item.asp?id=19221130 and monograph: – Khalin VG Modernization of the national higher education system in the context of choice-making. Scientific publication. - St. Petersburg. Univ St. Petersburg. University Press, 2008, 264 p. <p>4. New models and methods are proposed for financing universities in conditions of reforming the Russian system of higher education. The result is published in the monograph and the article</p> <ul style="list-style-type: none"> – Khalin VG. Chapter "Approaches to definition the ways of financing higher education: Russian and foreign experience" // Russian economic education through the eyes of a teacher: A collective monograph / Scientific Ed. prof. TP Nikolaeva. - St. Petersburg: Publishing House "Russian Island", 2011. – 176 p. (Pp. 131-143). – Khalin VG. Financial support for public education in the Russian higher education system in the conditions of innovative economy // Vestn. St. Petersburg. Univ. Ser. 5: the Economy. 2012. Vol. 4. Pp. 94-114. <p>5. New methods and models for increasing competitiveness and efficiency of Russian universities in the global education market are proposed. The results were published in articles:</p> <ul style="list-style-type: none"> – Khalin VG. Academic rewards and contracts system for professors at University of California Los Angeles and St. Petersburg State University // Vestn. St. Petersburg. Univ. Ser. 5: The Economy. 2013. Vol. 3. Pp. 95 -109. – Khalin VG. Russian higher education funding: state and prospects // Vestn. St. Petersburg. Univ. Ser. 5: The Economy. 2011. Vol. 1. Pp. 47-53. <p>and in expanded form is reflected in the book, accepted for publication in 2014:</p> <ul style="list-style-type: none"> – Khalin VG and others. Decision Support Systems: Theory and Practice». A textbook for undergraduate students in the fields of «Business Informatics», «Management», «State and municipal management».- Moscow, «Yurait». 2014. 400 p.
Gennady Botvin	<p>Gennady Botvin is Professor, Candidate of Science (Tech.). The spheres of scientific interests: operations research; information systems and technologies in business; economic evaluation of design solutions</p> <p>Key publications of the last years:</p> <ul style="list-style-type: none"> – Botvin G., Rubschov A. Strategic management of competitiveness of the transport industry and the enterprises of transport // Bulletin ENGECON. Series Economy. 2013. Vol. 2 (61). p. 99-107.(in Russian) – Botvin G. Assessment of the efficiency of commercial projects. - St. Petersburg: NESTOR-HISTORY, St. Petersburg, 2012. - 480 p.(co-Zavialov O., Ivanov A., Minko E.) (in Russian)

	<ul style="list-style-type: none"> – Botvin G., Zabojev M. Adaptive network neuro-fuzzy inference for operational planning at the enterprise // Proceedings of the XVth International conference on soft computing and measurements, Izd Etu "LETI", - 2012. - T. 1, - P. 255-258 (in Russian) – Theoretical and methodological aspects of assessment of efficiency of projects of various purposes: Scientific publication. - SPb.: Izd Politechn. University, 2009. - 487 P. (in co-authorship: Zavyalov O., Tsarev V.) (in Russian) – Botvin G. Information systems and technologies in economy and management. Scientific edition-SPb.: Izd Politechn. Univ, 2010. - 236 S. (in co-authorship: Boev V.) (in Russian) – Botvin G. Models and methods of Express-analysis of investment projects. Scientific edition-SPb.: Izd Politechn. University, 2009. 272 S. (in co-authorship Zabojev M., Zavyalov O.) (in Russian)
Alexander Yurkov	<p>Alexander Yurkov is Professor, Doctor of Science (Math). His key scientific interests are: mathematical methods of control theory, information technologies, e-learning.</p> <p>Key publications of the last years are:</p> <ul style="list-style-type: none"> – Yurkov A.V. et al. The memory of E. Ya. Smirnov// Vestnik St. Petersburg Univ. Series 10: Applied Mathematics. Informatics. Control processes. 2013. № 4. Pp. 110-111. (in Russian) – Kurlov, V.F., Jurkova, E.A., Jurkov, A.V. Analysis of the needs for advanced training of teachers based on Internet technologies// Applied Informatics. Vol. 1 (37), 2012, Pp.67-77. (in Russian) – Yurkov A.V. Problems of the training of bachelors and masters on the programmes "Applied Informatics" and "Business Informatics"// Applied Informatics. Vol. 3 (33), 2011, Pp.74-78. (in Russian) – Yurkov A.V. Basics of Internet searching// St.-Petersburg State University, Faculty of Economics. 2011. 44 pp. (in Russian)
Mikhail Zabojev	<p>Mikhail Zabojev is Assistant Professor, Candidate of Science (Economics). His key scientific interests are: fuzzy logic, artificial neural networks, investment analysis, forecasting, expert systems.</p> <p>Key publications of the last years:</p> <ul style="list-style-type: none"> – Zabojev M.V., Mazyarkina M.P. The use of neural network data analysis methods to improve the efficiency of budget allocation between the regions of the Russian Federation // Materials of the International School -Seminar , 19-21 September 2013, St. Petersburg , 2013, pp. 22-24. (in Russian) – Botvin G.A. , Zabojev M.V. The use of adaptive network of neuro- fuzzy inference for operational planning at the enterprise // XV International Conference on Soft Computing and Measurements, 2012, Vol. 1, pp. 255-258. (in Russian) – Botvin G.A., Zabojev M.V. Clustering of countries on the base of macroeconomic indicators with use of artificial neural networks methods // RISK: RESOURCES, INFORMATION, SUPPLY, COMPETITION, 2011, № 4, pp. 552-556. (in Russian) – Botvin G.A., Zabojev M.V. Using of data mining tools to support decision-making at the enterprise // Integrated models and soft computing in artificial intelligence, VI International Scientific Conference, Moscow, 2011. (in Russian)

	<ul style="list-style-type: none"> – Zaboiev M.V. Using of data mining methods to making management decisions// Modernization of the Economy : Problems and Prospects, International Conference, St. Petersburg State University, Faculty of Economics, 2010. (in Russian) – Zaboiev M.V. The history of the development of econometric methods of economic analysis // Materials of the scientific conference " History of Economic Sciences in Russia: research and teaching", St.-Petersburg State University, Faculty of Economics, 2009, pp. 23-24. (in Russian) – Botvin G.A. , Zaboiev M.V. Possible applications of neural network models to express-analysis of investment projects at the stage of initiation// Review of Industrial and Applied Mathematics , 2009, Vol. 16, №3. (in Russian) – Botvin G.A. , Zaboiev M.V. Seasonality factor in the economic data analysis // Review of Industrial and Applied Mathematics , 2009, Vol. 16, №2. (in Russian) – Botvin G.A. , Zaboiev M.V., Zavyalov O.V., Chernyshev V.V. Models and methods of express-analysis of the investment projects, St. Petersburg, Publishing house of the St. Petersburg State Polytechnic University , 2009, 272 pp. (in Russian) – Botvin G.A. , Zaboiev M. V. The possibility of using neural network models to express-analysis of investment projects at the stage of initiation // XVI Russian School on Stochastic Methods, Moscow, 2009. (in Russian)
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Please copy and paste tables as necessary

PM distinguishes various committees. Members of these committees are in charge of the management of the WPs. The following are the key committees, their roles and composition.

- Administrative and Financial Steering Committee (AFSC) chaired by the General Administrative and Financial Manager (AFM). AFSC includes all WPs leaders and chairs of committees. AFM is responsible for the overall management of the project, daily planning, monitoring of the progress and the supervision of the other committees.
- Doctoral Programs Board (DPB) is chaired by Principal Programs Leader (PPL). DPB includes the leaders for the WP 2.1 to 2.7 and WP 4. DPB is responsible for pedagogical and scientific aspects of the project. DPB coordinates the interplay between the proposed education program and the existing PhD studies in universities. Development WP leaders provide all the information required by the DPB regarding PhD studies at each partner location. DPB members' roles include coordination of services for PhD participating in this project during their stay in the different universities. DPB has an important role in dissemination of scientific results.
- Work-package committees (WPC) and leaders (WPLs). Each WP has his own WPC which is composed of all the participants in charge of the tasks in the WPs. WPLs are responsible for the planning, monitoring, reporting the activities in WPs.
- Task Leader(s) (TL): tasks are delegated by WPL to a TL who is a professor teaching the subject in WPs 2.1 to 2.7. He is responsible for the co-ordination, planning, monitoring, and reporting on the specific teaching activity. TL activity is trans-national, one person from a location can be teaching in another one.
- Quality assurance management (QAM) committee. QAM is responsible of the quality plan and monitoring to be approved during the kickoff meeting. QAM covers three components: project quality control, programs quality assurance, and matching between the proposed educational framework and the objectives of the project.

The following committees will help in building a scientific and industry vision while linking the project to the external world:

- International Scientific Advisory Board (ISAB): headed by the Principal Program Leader (PPL), it comprises 4-6 international experts who are full professors in Software Engineering with a strong record of achievements. ISAB members will be appointed during the kick-off meeting, they are invited to meetings or interviewed via mail when needed. ISAB reviews the pedagogical and scientific activities across all the work packages as well as the program and framework.
- Panels for National Priorities and Needs (PNPN). Headed by the WP leaders of WP 2.1 to 2.7, the panels will take place in each participating countries. Panels are an open forum to share ideas on the national needs and priorities in software engineering education and research. Panelists include leading figures from public and private sectors, civil society organizations with a stake in development policy and research, and academic experts. They are invited to express their opinions about the program, the needs of the industry and academic priorities.
- Associate Project Members (APM). Universities, governmental agencies, and ICT companies will be invited during the whole project to be associate members and to participate to the PNPN. Once their membership is approved by DPB, the administrative and general project manager will supervise their participation. An initial set of members is named in the project proposal.

D.2.2 - Cooperation and communication arrangements of the consortium

Please explain the overall project and partnership management making specific reference to the management plan and how decisions will be taken. Please describe how permanent and effective communication and reporting will be ensured as well as the measures put in place for conflict resolution (limit 2000 characters).

All committees meet regularly during the intensive weeks: 7 meetings of AFSC and DPB. Committees and WPs leaders will call for extra online meetings if needed. E-mail is also used intensively. The key persons in communication between partners and stakeholders are:

- AFM, who calls for, organizes and leads the AFSC. Through participation in the different committees, s/he establishes permanent communication link between them. For the scientific part, AFM collaborates with PPL and WPLs. AFM is a senior project manager who participates in and leads collaborative multi-disciplinary and multi-institution projects in higher education.

- The chair of DPB is the Principal Program Leader (PPL), who is SE professor providing the required leadership while maintaining the globally shared vision of the project. PPL can also call for an online meeting or discuss with the ISAB. PPL provides support to the coordination of all matters of the educational programs described in WPs. DPB is responsible for providing solutions to any problems that may be identified. PPL supports AFM in his/her tasks, and both work together to coordinate the project work.
 - Quality assurance management committee (QAMC) will be nominated during the kick-off meeting. QAMC includes some members of ISAB as well representatives from the partners who are in charge of the quality of the studies.
 - The WPLs are members of DPB and at his/her discretion, a WPL may invite one or more task leaders to PTC meetings to support him on specific scientific and technical matters. The WPL activity is trans-national, and each WPL is responsible for implementing the decisions taken by the DPB that are related to the work package. S/He is responsible for calling for online work package meetings whenever needed.
 - DPB meetings will be carried out in a formal way. This implies collecting open issues from the experts before the meetings and preparing recommendations to support decision-making by DPB.
- The project will setup a website and the FASE platform for communication and ensuring long-term sustainability.
- FASE (Forum for Advancing Software Engineering Education) is an online platform that integrates social media to collect ideas and share expertise in SE education and is open to all project participants. FASE will be connected to Moodle, which is already used by most of the project partners.

PART E - Project characteristics and relevance

E.1. Why does the consortium wish to undertake this project?

Please outline the motivation behind your project, clearly identifying the specific needs or problem/s which it intends to solve. Explain how the project proposal fits within the development strategies of the Partner Countries involved and how it addresses the priorities defined at national / regional level. Also explain why this/these problem/s were selected instead of others. In particular, explain how the area of intervention has been explored to guarantee that the project is offering something new compared to the existing situation. Where applicable, explain any synergy with other EU initiatives should be highlighted (limit 5000 characters).

The target countries of the project, Russia and Jordan, both have very few programs in software engineering. Both the countries are considering to launch software engineering and management specific PhD programs in the near future. Still the industry need for software developers and IT specialists is a well-known and reported problem in both the target countries as well as in Europe and elsewhere.

The PWs@PhD project focuses on Software Engineering discipline that has the same core as Computer Science – algorithms and mathematical foundations – but as an applied technology-oriented discipline Software Engineering has also strong connections with various other disciplines such as engineering, management, as psychology as highlighted by the SWEBOK (Software Engineering Body of Knowledge). The SWEBOK defines 15 key knowledge areas and 7 closely related disciplines. Therefore providing high level education in all these key knowledge areas at a PhD level is very a challenging task especially for newly established programs.

For EU, most often the universities do not have expertise in all these areas since typically the software engineering education is a part of computer science program. Thus the overall aim of the project is to support the development, modernization and internalization of higher education in the target countries while helping also EU countries in strengthening their PhD programs and them making more attractive for international students. The project will create an opportunity to build and offer a sustainable multi-disciplinary, multi-cultural and multi-region, multi-institutions, and multi-perspectives program for educating the next generation of software engineering professors.

The PWs@PhD project develops a strategic network, a program, and a framework for education in Software Engineering. All the partner universities have specific expertise in different areas that the program will make available for all the other partners in the project. In practice the proposed program is structured in 7 development work packages. Each WP details 2 week intense school organized at different universities roughly every 6 months. Each university can nominate at least two PhD students to attend the different schools. Students are not required to attend all the 7 school. Target countries can also send their professors to the schools for training and research purposes. The 7 intense schools in different knowledge areas and disciplines provide so much information that a typical PhD student cannot acquire it in one specific university. Individual students can select with his or her supervisor the best suited schools to his research profile. Together they create his/her personal path in the proposed program which then is seen as a horizontal bridge on top of the existing programs in the different participating institutions.

The key benefits of the project to the Russian universities include the following:

- provide opportunity for systematic exposure to international PhD education
- increase the attractiveness of the university through double degree programs in both Master's and PhD levels
- provide an opportunity for a business school students to get a more technical viewpoint on Software Engineering in partner universities
- increase and tighten the industry collaboration through international partners
- offer industry highly educated graduates who are capable of developing the industry

- provide help in developing PhD programs in Software Engineering together with international partners and co-supervision.

At present Jordan has no PhD programs in Software Engineering and only one PhD program in Computer Science. The key results of the project for Jordan include:

- establishment of the first PhD program in Software Engineering in Jordan
- development of the roadmap needed to establish the second PhD program there in five years
- training of current and future professors in Software Engineering knowledge areas and related disciplines
- co-supervision of PhD students with professors from the partner universities
- organize industry panels to gain better understanding of the industry needs for software engineering PhD education.

The project is also beneficial for EU since the proposed program content and framework can be extended or rebuilt with other European universities with different expertise. The proposed schools could be even further developed to be accessible to also universities not participating in the network but needing expertise in some specific areas of software engineering. In general the collaborative education framework will familiarize the students to this way of working already during their studies. This should make it easier to continue the collaborative research approach also after graduation.

Please describe briefly how your project proposal was prepared (e.g., capitalising on previous experiences, based on achieved outcomes in former projects, following previous cooperation amongst the consortium members, etc.) (limit 1000 characters).

As highlighted in the description of each participating partner, most partners have been involved in the last five years in various tempus projects. The whole team has been selected based on their respective complementarities and the fact that they have been collaborating effectively together during the last years. A first draft including the objectives and the possible WPs have been circulating via mails. When appropriate online meetings were arranged. Physical visits have been considered as well. Prof. Janet was visiting LUT. Prof. Porras and Nikula were visiting Aalborg University. Prof. Seffah Jordan. Maija Kuri, the manager of the project, is on the key contact of the collaboration between LUT and Russia for many years. After these preliminary discussions and visits, the proposal was prepared and budget defined with the active contributions of the members. An assessment of the project has been made by different external bodies and international experts including from SWEBOK.

If your proposal is based on the results of one or more previous projects / networks, please provide precise references to this / these project(s) / network(s) in the table below.

Reference number			
Project dates <i>(year started and completed)</i>		Programme or initiative	
Title of the project			
Coordinating organisation			
Website	http://		
Password / login if necessary for website			
<i>Please summarise the project outcomes and describe (a) how the new proposal seeks to build on them and, (b) how ownership / copyright issues are to be dealt with (limit 1000 characters).</i>			

Please copy and paste tables as necessary.

E.2. Rationale for the setting-up of the consortium

Please explain why the selected partners are best suited to participate in this European project. Describe innovative and or complementary skills, expertise and competences within the consortium directly relating to the planned project activities. If associated partners are involved, please explain their role in the project and the added value to the consortium (limit 3000 characters).

There are technical, business and academic reasons for setting up the consortium and the project. The technical rationale is based on the statement of Carnegie Mellon University and its Software Engineering Institute. SE education at graduate level requires a combination of three key competencies. Our consortium is built to cover the technology competence which is about the core computing concepts relating to data structures, algorithms, programming languages and their semantics, analysis, computability, computational models, etc.; this is the core content of the discipline. This technical knowledge is applied through a body of engineering knowledge related to architecture, the process of engineering, tradeoffs and costs, conventionalization and standards, quality and assurance, etc.; this provides the approach to design and problem solving that respects the pragmatic issues of the applications. These are complemented by the human, social and economic context of the engineering effort, which includes the process of creating and evolving artifacts, and issues related to policy, markets, usability, and socio-economic impacts; this provides a basis for shaping the engineered artifacts to be fit for their intended use.

From the academic perspective, the members have been selected based on their expertise to:

1. Address the core areas of knowledge defined in the SWEBOK and the soft-skills detailed in WP 2.1 - 2.7 and WP 3. Built on the top of the existing programs at the partners, the program benefits from the acknowledged Russian school of mathematics and fundamental computing and the long tradition of computer science education in the four EU partners. It benefits from the Jordan education system, which is based on the North American model of higher education. Universities in Jordan adhere to the ABET requirements for accreditation (Accreditation Board of Engineering and Education). The Jordan universities are the top 3 in the country and are all looking for partners with whom to develop graduate SE programs.
2. Close the gaps between the disciplines of management and engineering of software. P8 SPbPU, P1 LUT and P2 RU have graduate computer programs combining business and engineering aspects of software systems.
3. Provide a multi-cultural context in which the PhD students will be exposed to diverse approaches for education, scientific research cultures and analytical thinking and communication. Jordan universities are very attractive locations for International students, every year almost 50, 000 students spend some time in Jordan.
4. Create a comprehensive environment for developing and assessing the program and framework. The four European universities all have PhD programs in computer science with some coverage of SE subjects. They were selected based on their strong expertise and complementarities in the key areas of knowledge of the SWEBOK. P1 LUT has a well-known team in empirical software engineering that has been using research methods of WP 2.1. The SE team at P2 RU is highly experienced in software modeling and model, P3 UCLAN has a wide record of achievements in human computer interactions and the human aspects in software systems and P4 AASU has implemented successfully the problem-based learning approach which is highly appropriate to educating software engineers.

5. Help Jordan to develop the whole discipline of software engineering. SE is a strategic new topic where there is a high need for its development in Russia.

E.3. European added value

Please describe the benefits of and need for European cooperation. Please describe also why the results cannot be achieved through national, regional or local funding (limit 1000 characters).

While this ambitious program presents numerous challenges, it offers significant benefits to students, faculty and staff in the areas of personal and career development, curriculum development, research and teaching collaboration, and institutional global awareness.

EU students will gain significant academic, personal, cultural, and professional benefits. Faculty will have an opportunity to collaborate with non-EU partners to introduce a creative and challenging software engineering curricula as well as a new research and training framework.

EU institutions will create joint PhD programs, resulting in more faculty exchange, joint research, and other academic programs. The project enhances significantly the overall level of and sensitivity to internationalization at all institutions. Furthermore, the project is also beneficial for EU since the proposed network based education approach can be extended with other universities with different expertise, and school system could be even further developed to be accessible to also universities not participating in the network but needing expertise in some specific areas.

E.4. Innovative character

Indicate what the project is offering that is new and what are the main innovating elements (limit 2000 characters).

The first character of innovation is related to the fact that software systems have established themselves as an essential part of business and everyday life in the emerging global economy. As software becomes ubiquitous and accessible from everywhere at any time and for everyone, the relation between end-users, stakeholders and software development undergoes fundamental changes. Software systems are being massively offered as a service. No longer services are produced from scratch by a team of experts and delivered to clients. More and more:

- Services are developed by adapting existing services distributed via the network
- Delivered systems are highly distributed and software-intensive but not purely software
- Services are designed and fielded under economic and legal constraints
- Final users and clients are intimately involved in the development and configuration of the service
- Requirements for the systems emerge as the clients understand better both the technology and the opportunities in their own settings.

The project aims to empower the academic capacity of EU in educating the next generation of software engineering professors and researchers capable of providing the basic education for software developers with such vision of software as service in mind. The program also infuses the research agenda with deep appreciation of the practical issues of developing service-intensive systems.

The second character of innovation is related to the fact that higher education is being outsourced and highly globalized. For example, EdX, a consortium involving a dozen universities, and Coursera, a for-profit business, are now making courses taught by outstanding instructors available to millions of students. Some universities are using the so called MOOC "massive open online course" to supplement their standard curriculum. This project is the first stage of implementing such a vision at the PhD level. It prepares also EU universities to a smooth transition towards a MOOC model.

The third innovation character is that this project is paving the road for a new approach for dual degree and co-supervision as well as sharing of the professors and the costly research infrastructures.

PART F - Quality of the project design and implementation

F.1. Aims and objectives

Please define the concrete aims and objectives of the project and describe the ways in which the situation set out under the previous section (Part E) will be changed (limit 3000 characters).

The long-term aim of the project is to support the development, modernization and international visibility and excellence of higher education, namely education by research at the PhD level in Europe while helping also partner countries to develop new Ph.D programs and consolidate existing ones in the field of Computing, and more specifically in the area of Software Engineering. The project objectives and innovative aspects are:

1. PhD programs and profiles: Help the partner countries to develop and improve their PhD education and research while establishing PhD program profiles in the software engineering knowledge areas (SWEBOOK). This project is built to support partners in sharing their own expertise courses and labs while helping each one to improve its weaknesses in areas that some others partners have.
2. PhD student training: Train the next generation of highly qualified academic researchers and educators in different research areas of software engineering. The wide range of PhD students that will be involved in the project will not only acquire deep understanding of research methods. They be skilled in writing, presenting and interacting with the international research community via projects and conferences. By visiting labs and taking courses at different locations, Ph.D students will have a unique opportunity to discover a wider range of research niches in software engineering than see in their own university. The students will have an opportunity to network themselves and to participate in different ongoing research projects at the different partners' locations.
3. Academic research and professors: Give the opportunity to all participating professors and their research groups and centre to know each other and to collaborate on joint research projects, courses, and strategic partnerships including joint research infrastructure, publication and PhD supervisions. Professors accompanying or providing teaching in the different locations will be able to be in touch with potential Ph.D candidate and contribute to develop co-supervision with local colleagues.
4. Target countries and institutions: Support target countries in developing their capacity in software engineering education at the PhD level as well as fundamental research. Both for Russia and Jordan, this project will help these countries to build their own Ph.D programs in software engineering while discussing with EU partners possibilities for joint doctoral programs.
5. European universities and countries: Help European partner universities to develop their capacity to build a sustainable collaboration with partners with different research traditions and cultural backgrounds in international and multi-disciplinary environment. The project is a way for delivering education that can supplement the European educational system. Beyond dual Ph.D programs, the project open the door for the development of joint research venture, common campus and research centre.

F.2. Project activities and Methodology

Please define the activities proposed and the working methodology (project activities/developments including educational and training content and pedagogical approach) to be used for achieving the objectives, including major milestones, measurable indicators, etc. (limit 6000 characters).

The project objective and outcomes are achieved via well planned management and educational activities included in 11 integrated work packages that will be executed in a certain sequence as shown in the work plan for the three years. The total duration of the project is 3 years. Three WPs are dedicated to the management of project (WP1.1, WP3.1 and WP5.1).

WP 1.1 details the preparation activities that will start the project officially. Activities includes the kickoff meeting in which roles and responsibilities will be reviewed and assigned. All members of the different committees will be appointed. The kickoff meeting will be followed by the first meetings of the DPB (Doctoral Program Board) and the Quality Assurance Management (QAM) Committee in which the quality plan will be refined and approved.

WP 5.1 details the daily management activities including administrative and financial. As detailed in this WP description as well as in the section F, we proposed a management structure and a quality assurance plan that take into account the high risks and the innovative characters of the project. The goal-driven management approach adopted in the overall activities of this project, whatever they are pedagogical, managerial or quality assessment ensure that the project will achieve its objectives (the project is right) and we reach the expected goals (the right project). Beside the QAM approach, the decision making process is based on values of collegiality and consensus between all colleagues made inside committees. Decisions and actions are voted by the members of the different committees detailed in section D 2. The decisions are driven by evidences collected by the quality assurance committee (QAM). Different channels to collect feedback from outside the project will be set up: (1) FASE (Forum for Advancing Software Engineering Education), (2) The Panels for National Priorities and Needs and (3) the International Scientific Advisory Board. We will be using also be different tools for communication such a Web site with a private section for the participants, a page on the different social media (Twitter, Facebook, mailing list, etc.).

WP 3.1 will be executed in parallel with all the other WPs. It monitor and control the quality attributes via the continuous collection of data, their analysis and recommendations for changes.

To ensure the quality of the project, we have designed a whole package (WP 3.1) that starts with a proposal and adoption of quality plan during the kick-off meeting. As discussed in section D.2, we also setup a committee for quality assurance that will assess and supervise the work of the committees, WPs and participants of the project. This instance of the project works independently from the project. WP 3.1 is leaded by chair of the quality committee. He is in charge of setting up a committee from the participants, associate partners, from university partners or elsewhere. The quality committee will include representatives from the different partners as well as external individuals from industry.

The core of the project are the seven WPs dedicated to the development of proposed program (WP 2.1 to 2.7) and WP 4.1 that aims to building an innovative integrative framework for educating Ph.D software engineering students. Each of the WPs 2.1 to 2.7 includes several training activities, mostly short courses or discussion of a case study (3-4h). Each of these WPs take place once in one of the 7 locations of the project (2 in Russia, 1 in Finland, 1 in Germany, 1 in Denmark, 1 in UK and 1 in Jordan). The different pedagogical activities are designed to help the students to acquire the different area of knowledge via problems and case studies. Not only these WPs covered the technical aspects of software engineering but also business and human aspects which is not possible in traditional programs as it takes to involve business schools. We also adopted the problem-based learning (PBL) approach. Aalborg University is a leading institution in using this approach, its centre for PBL is recognized by UNESCO. A specific training will be provided to all teachers and professors involved in the different teaching activities. Beside the training activities (courses focused on specific software engineering topics), we also plan for other activities such research lab visits, and demonstrations of tools to help students to gain practical expertise in research methods and approaches.

To increase the impact of the project and the long-term sustainability of the project, a dissemination and exploitation plan has been proposed in WP 4.1. It consists of building a framework, called Put it all together, for training Ph.D students. A specific committee, the Doctoral Program Board, has been proposed to share individual expertise in Ph.D program design and exploitation and to build together the framework during the project. The DPB will be meeting periodically to discuss the framework. Members of this committee will be organizing workshops at different international conferences to promote the framework and its applications.

F.3. Budget and cost effectiveness

Please describe the strategy adopted to ensure that the proposed results and objectives will be achieved in the most economical way and on time. Explain the principals of budget allocation amongst partners. Indicate the arrangements adopted for financial management and what co-financing modalities are planned (limit 3000 characters).

The budget has been allocated using the general criteria provided in this call. Under 12% goes to the management of project including the activities detailed in WP 1.1, WP 3.1 and WP 5.1. The four EU partners budget is less than 40% (equally 10% maximum has been allocated to each university). The 50% remaining will go to Jordan and Russia, the target countries. The two Universities from Russia leading WP 2.6 and 2.7 and the two Jordanian Universities leading WP2.1 have the same budget. Their budgets are higher than the 2 other Russian and 1 Jordanian Universities. These 3 Universities have the same budget as they have less management responsibilities. The maximum budget allocated to each partner will mainly cover trips and stay of professors visiting the different locations and students involved in the program. The budget allocated to equipment budget is very small. For Russia and Jordan a laptop may be offered to the best Ph.Ds involved in the program.

We mainly planned to allocate a large proportion of the budget to supporting our Ph.D students for their trips and accommodations in the 7 different locations where the training will be provided. In total, the project will involve, at least 2 students from each of the 11 participating institutions. Students are not required to attend all schools organized in the 7 locations, each university can select the students who will be attending which school in which location. This gives us the possibility to involve a very larger number of students. In total, we target a minimum of 36 Ph.D students that will be involved in the project. In a very optimistic scenario, the project will involve around 90 Ph.D students during three years. This is because, the training activities organized at each of 7 locations will be open to all local Ph.D students in software engineering and computer science from the organizing institution. Professors participating in this project can also support, and are encouraged to do so, the trips of other Ph.D students using other research and universities funds when possible. These are among the strategies that we applied to maximize the cost-effectiveness.

In the budget plan, we tried to reduce as much as possible the costs related to face-to-face physical meetings. Most management meetings are organized via skype and other media when needed. We will be considering online meetings with the International advisory scientific board (ISAB) as well. If needed ISAB members will be invited to physical meetings of the DPB at the 7 locations, they will be therefore asked to providing a training activity. This is the case of Prof. Alain Abram from Canada, editor in Chief of the SWEBOOK and Jean Vanderdonck from Belgium. All the persons that will be invited to the 7 panels on national priorities and needed are not financially supported by the project as we adopted the strategy to organize 7 local panels rather than a big International ones.

F.4. Quality control and Monitoring

Please explain what mechanisms have been put in place for ensuring the quality of the project and how the evaluation will be carried out. Please define the specific quality measures established, as well as the benchmarks and indicators foreseen to verify the outcome of the action. Make sure that the information in this section is consistent with the project Logical Framework Matrix (limit 3000 characters).

Our approach to quality assurance, control and monitoring as detailed in WP 4.1 which is entirely dedicated to the quality of the overall project including the outcomes. Beside the leader of this WP, we also proposed a committee, the quality assurance management (QAM) that will be in charge of the activities related to quality of the project deliverables, the program including the activities detailed in WP 2.1 to 2.7 as well as the proposed framework, put it together detailed in WP 4.1. This committee works closely with the two other key bodies of the project: Administrative and Financial Management Steering Committee and Doctoral Program Board. As an independent body, QAM members are granted all rights

and privilege to collect data periodically from all the bodies of the project as well other committees WPC, ISAB, PNPB and the FASE forum. QAM can stop the project for any critical quality issue and impose mandatory modifications to all committees and participants in the project. This privilege will be detailed in the quality plan. The following are the key factors that will be considering. WE also referred to them as KPIs in workplaces description:

- Accuracy: How close to the real results the project outcomes are?
- Precision: how reproducible your results are?
- Sustainability: How the results can be reused at the long term?

These factors are assessed using the measures that are detailed in the project Logical Framework Matrix. The QAM will be presenting a quality plan during the kickoff meeting that describes, among other, the process of collecting all the required data to calculate these measures and how these measures will be interpreted to quantify these three global factors.

In this project, we do not have the ambition to build a new Quality Control and Monitoring System. Our approach will be built on the top of the different quality system that are used in the participating universities, in particular EUs partners. Representative of the different participating universities will be asked periodically to get their support and advice regarding quality matters. Some data will be collected using the participating university quality procedures. This the case of the quality of training activities that are planned in the 7 locations (WP 2.1 to WP 2.1).

This committee will be in charge of the complaints and allegations that may originate from inside or outside the project. QAM will call for a special committee composed by senior members of participating institutions that will provide an appropriate answer to the complaint.

G.1. Expected impact of the project

Please explain who will use these project outputs / products / results and how the consortium will reach them. Describe how the target groups (including participating institutions, stakeholders) will be reached and involved during the life of the project and how the project will benefit the target group at local, regional, national and or European level. Please structure your description according to the different levels of impact and stakeholders (limit 3000 characters).

The impacts of the project can be observed in different directions.

Firstly, the project is aiming to fulfil the gaps in fundamental knowledge and practices of ‘what works in software engineering doctoral education’ and how to combine various programs offered by different institutions with diverse educational and research expertise, different cultural background and most importantly with different strengths. The project will result into a comprehensive framework, put it all together including a series of recommendations for building PHD programs in software engineering. This project will be paving the road for each EU institution, for each country for all EU institutions to package their expertise and strength and to deploy elsewhere. While some American universities are building campus elsewhere in the World, this project open the door for a new model for collaboration and for being involved in education elsewhere. This is possible because the proposed framework will be the result of extensive, multidisciplinary, and partner-partner focused development by a multi-cultural consortium. The project do not build campuses elsewhere for EU institutions, it integrates and cross-pollinates cultures and strengths.

Another important impact of the project is the results of the different panels on national priorities and needs that will be organized in the different participating countries. These panels are also a valuable source of information for the European universities participating in the project, their countries and EU in general. These recommendations will help institutions to align their offers in terms of programs while being able to deploy their programs in an international context.

Last but not least is the sustainability nature of the program and framework we will building. Using the same framework, the EU partners plan also to build a similar program inside EU with different other European institutions.

Please describe how the target groups (including participating institutions, stakeholders) will be reached after the project is finished (limit 3000 characters).

At the end of the project, the Website of the project, the Moodle platform that includes all materials and resources related to the training activities as well as the FASE (forum for advancing software engineering) will be maintained online by LUT and partners at their locations. All the publications and final report will also made available via the Website. We also consider publishing a book that will include chapters from partners including contributions to the project. The book will details also the put it all together framework as well as the recommendations for the different panels on national priorities and needs. The WPs leader are the authors of the book.

The Website will include also a page dedicated to all the students have been participating in the training activities at the different locations. We strongly believe that is project is paving the road for a very long term dual PhD program in Software Engineering between the participating organizations. FASE mailing list can be used to disseminate information to the whole consortium including associate members.

Several other actions will be taken to maintain the consortium in life such as proposing other projects between European countries, developing strategic partnership between countries for example Jordan/EU or EU/Russia. The project has been designed to providing partners with a unique platform for developing

joint research projects and a fruitful collaboration. As part of the project, we will be organizing more than 20 visits to labs, research teams and centres, open not just for students but also for professors and representative from the different participating universities. This high interaction will certainly result in some joint research initiatives.

Last and not the last, in this project we will not wait until the end of the project to disseminate the results to stakeholders. We are planning during the project to organize dedicated discussion opportunities such as information sessions, workshops, exhibitions, demonstrations, or peer reviews such as reports, articles in specialized press, newsletters, press releases, or brochures; audiovisual media and products such as radio, TV, YouTube, Flickr, video clips, podcasts or apps; social media; public events; project branding and logos; existing contacts and networks.

Overview of short and long term impact indicators

Please add rows as necessary according to indicators

Short term impact	Target groups/potential beneficiaries	Quantitative indicators	Qualitative indicators
Develop and Improve PhD programs	EU Participating Universities	Numbers of Students and Courses	Topics addressed in the program from SWEBOK
Develop new Ph.D programs and framework for education	Russia and Jordan Participating Universities	Number of students and course involved in the projects Number of professors receiving specific training	Integration in departments and research groups
Acquisition of new expertise and skills in Software Engineering	Associated Partners	Number of projects developed with partners	Feedback from partners staff
Build a new model for PhD education in Software Engineering	EU Higher Education Institutions	Number of institutions that shows an interest in the project	Interactions with the from members of the Consortium
Develop Partnership for Research by Education	Research Centres in Software Engineering	Number of centres that get involved as associate partners Number of PhD	Interactions between research centres and partners
Get involved in the project	EU software development industry	Number of companies that contacted participating members in the different countries	Feedback from companies that participated in National Panels for Needs and Priorities

Long term impact	Target groups/potential beneficiaries	Quantitative indicators	Qualitative indicators
Use of the put it all together framework and the program	EU Universities	Number of universities that implemented the framework	Feedback from universities and from publications (references to the framework)
Develop partnership in PhD	Non EU Universities	Number of universities from other countries	Effective implementation of the program and the

education with partners		rather than Jordan and Russia	put it all together framework
Access and use of the training activities material and publications	EU Industry	Number of companies using the material available online	Feedback from industry via the FASE and emails
Usage of the put it all together framework	Software Engineering Doctoral Programs World Wide	Explicit reference in SWEBOOK to the Framework and publications by colleagues from elsewhere	Feedback via FASE and emails
Recognize the program and the framework as a major academic contribution	International Scientific Societies (IEEE, ACM, etc.)	Number of published papers in journals and magazines with impact factors	Feedback from the scientific community

G.2. Dissemination and exploitation strategy

Please explain how the dissemination will be organised and how exploitation activities will ensure optimal use of the results within the project's lifetime and after. Explain the roles, responsibilities and target groups (limit 3000 characters).

The work package WP 4.1 deals with the dissemination and exploitation strategy. It provides the details of how the framework, put it all together will be developed during the whole project. This framework is a core component of our strategy to ensure the long lifetime sustainability of our programs and their reusability in the future in building PhD programs. The framework is developed gradually and improved via at least seven major iterations. Right after the training that will be provided in the 7 locations, the members of the DPB (Doctoral Program Board) will be meeting in that location a formal workshop. They will be assessing the WP of that location and improving the framework and the proposed program. During these two days workshop, the DPB members and if needed, they can request the help of members of ISAB (International Scientific Advisory board). DPB will discuss possible dissemination and exploitation strategies to promote the framework within the international scientific community.

The dissemination of the results is an integral task of the DPB members. They will be publishing and promoting the project in relevant highly ranked international conferences such as the International Conference on Software Engineering Education and Training or ACM computer science education, and different online forums like SEWorld (the largest Network of Academic and Practitioners in the field of software Engineering) or ACM-SIGCSE (Special Interest Group on Computer Science Education).

Actions towards Industry is important part of our dissemination and exploitation plan. The Panel for National Priorities and Needs is not only a way for collecting data about software engineering needs from industry and governmental agencies, but it is also a vehicle to present our programs and educational approaches to associate partners from industry. Brochures will be distributed and presentations will be given by the PPL (Principal Program Leader) and WP leaders during the panels. Even if the places are limited and the priority is given to PhD students, associate partners will be invited to attend some of the training activities as well as lab visits and tools demonstrations.

Beside the joint publications and dissemination actions towards academia and industry, other communication tools like Twitter, YouTube, and Facebook will be heavily used to provide: (1) updated information about the framework and the project to different stakeholders (partner universities, associate partners) and reports to the different bodies of the projects (the different committees presented in section D.2.1).

G.3. Sustainability

Explain how the impact of this project will be sustained beyond its lifetime. Please list the outcomes that you consider sustainable and describe the strategy to ensure their long lasting use beyond the project's life - financially, institutionally and policy level. Also explain how the results will be mainstreamed and multiplied in the sector of activity and in the participating institutions. Describe the strategy foreseen to attract co-funding and other forms of support for the project (limit 2000 characters).

The project adopts the sustainability by design strategy in developing and managing this project as well as to the program and the framework we will be developing including training activities. Sustainability is understood in this project and by all the participating members as a quality attribute. This means that sustainability issues are an integral part of the quality assurance plan and the activities of the QAM. Two major factors that quantify the long term sustainability of the project outcomes are considered:

- Scalability is the ability to handle any changes to the framework or/and its ability to be enlarged to accommodate new needs or priorities. For example, it can refer to the possibility of adding a new training activity that has been highlighted as needed by students or participating partners.
- Reusability is the use of existing material, courses and other training resources in some form within the development of the program. More than PowerPoint slides reuse, we will be building inter-institutions and multidisciplinary case studies that can be used in different WPs and training activities.

The main sustainable outcomes of the project include program, framework, and the underlying management strategy of delivering a joint PhD program. These outcomes have been designed to take into account the long term scalability and reusability. These outcomes are designed to be scalable and reusable by each partner in their own contexts as well as by some of them in developing similar consortium. For example, the EU countries can consider launching a similar program inside EU, the WPs they are leading and the framework can be reused easily.

The Quality assurance management (QAM) committee is responsible for assessing the sustainability in the overall project. WP 3 detailed the activities to ensure quality aspects including sustainability. The WP leaders are responsible in implementing the sustainability recommendations proposed by QAM.

LOGICAL FRAMEWORK MATRIX – LFM

<p>Wider Objective: <i>What is the overall broader objective, to which the project will contribute?</i></p> <ul style="list-style-type: none"> • To support the development, modernization and international visibility and excellence of higher education, namely education by research at the PhD level both in the target countries, Jordan and Russia, as well as in the EU partner countries in the field of Computing, and more specifically in the theories and practices of Software Engineering 	<p>Indicators of progress: <i>What are the key indicators related to the wider objective?</i></p> <ul style="list-style-type: none"> • 1. Total number of professors and researchers involved in the project • 2. Total number of associate partners • 3. Impact of the project measured via the total number of co-authored research articles and international events organized by the project partners • 4. Number of PhD students involved and/or jointly supervised by the project partners • 5. Degree to which the target countries are successful in implementing the outcomes of the project including joint PhD courses in software engineering, research infrastructure, supervision practices 	<p>How indicators will be measured: <i>What are the sources of information on these indicators?</i></p> <ul style="list-style-type: none"> • 1, 2, 3, 4, and 5: statistics collected during the project • 5 also quantitative assessment of the results by the DPB and ISAB 	
<p>Specific Project Objective/s: <i>What are the specific objectives, which the project shall achieve?</i></p> <ul style="list-style-type: none"> • 1.1 Each partner university develops its expertise in the software engineering areas of knowledge based on the strengths and expertise of the whole consortium • 1.2 Each target university develops a roadmap for establishing its own PhD program • 1.3 Each target university develops an action plan for establishing its own PhD program • 1.4 Each target university takes first 	<p>Indicators of progress: <i>What are the quantitative and qualitative indicators showing whether and to what extent the project's specific objectives are achieved?</i></p> <ul style="list-style-type: none"> • 1.1 Degree of success a participating university implemented software engineering as an academic discipline • 1.2-1 Roadmap reviews by the DPB and ISAB • 1.2-2 Number of developed courses and problem-based case studies • 1.3-1 Reviews of the action plan by the DPB and ISAB committees • 1.4-1 Evidences from the university (minutes of meetings, decisions by the 	<p>How indicators will be measured: <i>What are the sources of information that exist and can be collected? What are the methods required to get this information?</i></p> <ul style="list-style-type: none"> • 1.1 survey on the project participants • • 1.2-1 the target universities develop the roadmaps during the project • 1.2-2 basic statistics of the course deliverables • 1.3 the target universities develop the action plans during the project • 1.4-1 standard target university administrative documents • 	<p>Assumptions & risks: <i>What are the factors and conditions not under the direct control of the project, which are necessary to achieve these objectives? What risks have to be considered?</i></p> <ul style="list-style-type: none"> • It is assumed that each participating unit has a way to develop their PhD education in the international context • • A risk is that other organizational, national, or international circumstances impose conflicting expectations to the participating units and complicate progressing in the pace expected in the project plan.

<p>steps in establishing its own PhD program</p> <ul style="list-style-type: none"> • • 2. Train the next generation of highly qualified academic researchers and educators • • 2.1 PhD students will acquire knowledge in specific areas of software engineering • • 2.2 PhD students will acquire a deep understanding of research methods, infrastructure and tools • • 2.3 PhD students will develop their skills in writing, presenting and interacting with the international research community via projects and conferences • • • 3.1 collaboration on joint research projects and courses • 3.2 development of strategic partnerships including joint research infrastructure, publications, and supervisions • 4.1 development of an understanding of the research agenda in the software engineering discipline and how to differentiate it from the computer science research • 4.2 building new PhD program(s) in software engineering in Russia and 	<p>university boards)</p> <ul style="list-style-type: none"> • • 2-1 Number of students participating in the project • 2-2 Total number of students participating in each school • • 2.1-1 Number of students participating in the project • 2.1-2 Total number of students participating in each school • • 2.2-1 Number of students attending the lab visits and the dedicated training activities to research methods and tools • 2.2-2 Feedback by students via FASE • • 2.3-1 Capacity of students in writing research papers measured via the number of publication by the students involved in the projects • 2.3-2 Feedback from students via FASE • • 3.1-1 Number of projects and courses • • 3.2-1 Reviews and feedbacks from universities • • • 4.1-1 Reviews from ISAB and DPB • 4.1-2 Level of research in software 	<ul style="list-style-type: none"> • • 2-1, 2 basic project statistics • • • • 2.1-1, 2 basic project statistics • • • • 2.2-1 basic project statistics • • 2.2-2 follow-up of the FASE discussion forums • • • 2.3-1 basic project statistics on publications and their authors • • • 2.3-3 follow-up of the FASE discussion forums • • 3.1-1 basic project statistics on project activities • 3.2-1 basic project statistics on project related activities • • • 4.1-1 expert review and discussions with the project participants • 4.1-2 evaluation of the research publications produced • 	<ul style="list-style-type: none"> • • • • It is assumed that each university has staff and PhD students available that have suitable background and motivation to progress the PhD level education and research in software engineering in the university. • There is a risk that the key people involved in the project have other commitments or due to changes in the personal or university situation cannot participate in the project in the planned pace. • There is a risk that the best teachers for the intense courses have unexpected changes in the plans, e.g. get sick. Since the best teachers will be selected, getting an equally qualified person can be extremely hard, this would affect a large number of international participants. • • • It is assumed that national or organizational requirements, priorities, and policies do not complicate, slow down, or prevent international collaboration with many partners. • Having established research traditions can slow down the adoption of new ones but it is a basic requirement for entry in new research
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<ul style="list-style-type: none"> • A5.1: 2 Managing the overall proposed program • A5.1: 3 Managing the project events • A5.1: 4 Managing the framework, Website, media communications, and FASE • A5.1: 5 Project progress tracking and reporting • A5.1: 6 Handling changes, recommendations, and conflicts 	<ul style="list-style-type: none"> • • • A5.1:1,3 Staff time to follow and manage the project activities • A5.1:2 Staff time to evaluate and develop the program • A5.1:4 Staff time to develop and maintain technical project platforms • A5.1:5-6 Staff time to report and follow project activities, time to handle possible issues 		challenging.
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WORKPLAN

Please use the model provided. Applicants are expected to complete a one-page work plan for each project year.

For each year of your project proposal, please complete a work plan indicating the deadlines for each outcome and the period and location in which your activities will take place. Please create additional work plan tables if further space is needed.

The same reference and sub-reference numbers as used in the logical framework matrix must be assigned to each outcome and related activities.

Activity carried out in the Programme Country: = (E.g. activity in France for two weeks in the first month of the project 2= under M1)

Activity carried out in the Partner Country (ies): X (E.g., activity in Tunisia for three weeks in the second month of the project: 3X under M2)

WORKPLAN for project year 1

Activities		Total duration (number of weeks)	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
Ref.nr/ Sub-ref nr	Title													
A1.1: 1	kick-off meeting	1		1=										
A1.1: 2	First meeting of the AFSC	1		1=										
A1.1: 3	Workshop of the DPB	1		1=										
A1.1: 4	Detailed plans for WPs 2.1-2.7	1		1=										
A1.1: 5	Initial set up of the FASE	1		1=										
A1.1: 6	Online meeting with ISAB	1		1=										
A1.1: 7	Detailed review of the WP tasks	1		1=										
A2.1: 1	Training activities	2			2=									
A2.1: 2	Tool demonstrations and lab visits activities	2			2=									
A2.2: 1	Training	2								2X				
A2.2: 2	Invited presentation	2								2X				
A3.1: 1	DPB progress tracking	3		1=				1=						1=
A3.1: 2	Periodic follow-up	3		1=				1=						1=
A3.1: 3	Collect information of progress reports	3		1=				1=						1=
A3.1: 4	Support the WP participants in implem. recomm.	3		1=				1=						1=
A3.1: 5	Periodic evaluat- of the proposed educat. framew.	3		1=				1=						1=
A4.1: 1	A comparative study of the European PhD programs	2			1=					1X				
A4.1: 2	Panels on industry needs and national priorities	2			1=					1X				

A4.1: 3	Related studies	2			1=					1X				
A4.1: 4	FASE	2			1=					1X				
A4.1: 5	PhD student forums	1			1=					1X				
A5.1: 1	Daily management of the project	12	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=
A5.1: 2	Management of the overall proposed program	12	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=
A5.1: 3	Management the of project events	12	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=
A5.1: 4	Mngmt of the FW website, media comm., and FASE	12	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=
A5.1: 5	Project progress tracking and reporting	12	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=
A5.1: 6	Handling changes, issues, and conflicts	12	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=

WORKPLAN for project year 2

Activities		Total duration (number of weeks)	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
Ref.nr/ Sub-ref nr	Title													
A3.1: 1	DPB progress tracking	3	1=					1=						1=
A3.1: 2	Periodic follow-up	3	1=					1=						1=
A3.1: 3	Collect information of progress reports	3	1=					1=						1=
A3.1: 4	Support the WP participants in implementing recommendations	3	1=					1=						1=
A3.1: 5	Periodic evaluation of the proposed educational framework	3	1=					1=						1=
A4.1: 1	A comparative study of the European PhD programs	3	1=				1X					1=		
A4.1: 2	Panels on industry needs and national priorities	3	1=				1X					1=		
A4.1: 3	Related studies	3	1=				1X					1=		
A4.1: 4	FASE	3	1=				1X					1=		
A4.1: 5	PhD student forums	3	1=				1X					1=		
A5.1: 1	Daily management of the project	12	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=
A5.1: 2	Management of the overall proposed program	12	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=
A5.1: 3	Management of the project events	12	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=
A5.1: 4	Management for the framework website, media communications, and FASE	12	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=
A5.1: 5	Project process tracking and reporting	12	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=
A5.2: 6	Handling changes, issues, and conflicts	12	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=
A2.3: 1	Training	2	2=											
A2.3: 2	Lab visits	2	2=											
A2.6: 1	Training	2					2X							
A2.6: 2	Tools demonstrations and lab visits	2					2X							
A2.5: 1	Training	2										2=		
A2.5: 2	Invited presentation	2										2=		
A2.5: 3	Demonstrations and lab visits	2										2=		
A2.5: 4	Knowledge dissemination	2										2=		

WORKPLAN for project year 3

Activities		Total duration (number of weeks)	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
Ref.nr/ Sub-ref nr	Title													
A3.1: 1	DPB progress tracking	2	1=					1X						
A3.1: 2	Periodic follow-up	2	1=					1X						
A3.1: 3	Collect information of progress reports	2	1=					1X						
A3.1: 4	Support the WP participants in implementing recommendations	2	1=					1X						
A3.1: 5	Periodic evaluation of the proposed educational framework	2	1=					1X						
A4.1: 1	A comparative study of the European PhD programs	2		1=				1X						
A4.1: 2	Panels on industry needs and national priorities	2		1=				1X						
A4.1: 3	Related studies	2		1=				1X						
A4.1: 4	FASE	2		1=				1X						
A4.1: 5	PhD student forums	2		1=				1X						
A5.1: 1	Daily management of the project	12	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=
A5.1: 1	Management of the overall proposed program	12	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=
A5.1: 3	Management the of project events	12	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=
A5.1: 4	Management the framework Website, media communications, and FASE	12	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=
A5.1: 5	Project progress tracking and reporting	12	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=
A5.1: 6	Handling changes, issues, and conflicts	12	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=	1=

PART H - Work packages

Please enter the different project activities you intend to carry out in your project. Make sure that the information in this section is consistent with the project Logical Framework Matrix.

H.1. Description of work packages, outcomes and activities

Work package type and ref.nr	PREPARATION		1.1.
Title	Project Preparation, Coordination and Detailed Planning of Program		
Related assumptions and risks	Prior to attending the kickoff meetings and DPB and AFSC meetings: <ul style="list-style-type: none"> • First draft of quality plan has been distributed to all members • All members confirmed their participation to the project and resources have been secured including professors in charge of the training activities 		
Description	<p>This work package consists of three main meetings. A full day kick-off meeting and the first meetings of the Administrative and Financial Steering Committee (AFSC) and the Doctoral Programs Board (DPB) will be organized. An online meeting with International Scientific Advisory board (ISAB) will be arranged during the DPB meeting. These meetings will detail all the aspects of the project, WP detailed activities as well as the detailed organization and schedule of the different activities detailed in WP 2.1 to 2.7. The AFSC meeting will review the financial plan and other related issues.</p> <p>The kick-off meeting introduces the members of the project and provides an opportunity to assign roles and responsibilities for each team member. Other basic elements in the project will be reviewed at this meeting (schedule, status reporting, etc.). The online Forum for Advancing Software Engineering Education (FASE) will be introduced during this meeting. It is detailed in WP 5.</p> <p>The Doctoral Program Board will be meeting for two days in the format of a formal workshop. Each of WP 2.1 to 2.7 leaders will present in detail the tasks included in the WPs, in particular the training activities (Who is going to teach, what, how and when)? The original list of training activities may be extended. The DPB members will share their visions on the proposed “put it all together” framework that will be developed in WP 4.</p>		
Tasks	A1.1: 1 Kick-off meeting in P4 AAU with methodological workshop on project practices A1.1: 2 First meeting of the Administrative and Financial Steering Committee (AFSC) A1.1: 3 Workshop of the Doctoral Programs Board (DPB) A1.1: 4 Detailed plans for WPs 2.1-2.7 activities, schedule, organization, financial plan, and status reporting A1.1: 5 Initial set up of the FASE (Forum for Advancing the Software Engineering Education) A1.1: 6 Online meeting with the International Scientific Advisory Board A1.1: 7 Detailed review of the WP tasks focusing on the training activities		
Estimated Start Date (dd-mm-yyyy)	15/11/2015	Estimated End Date (dd-mm-yyyy)	17/11/2015
Lead Organisation	P1 LUT Finland		
Participating Organisation	P2 UR Germany P3 UCLAN United Kingdom		

	P4 AAU Denmark P5 UJ Jordan P6 YU Jordan P7 SUSU Russian Federation P8 SPbPU Russian Federation P9 JUST Jordan P10 UrFU Russian Federation P11 SPSU Russian Federation
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Deliverables/results/outcomes

Expected Deliverable/Results/Outcomes	Work Package and Outcome ref.nr	1.1.	
	Title	Project Preparation, Coordination and Detailed Planning of Program	
	Type	<input type="checkbox"/> Teaching material <input type="checkbox"/> Learning material <input type="checkbox"/> Training material	<input type="checkbox"/> Event <input checked="" type="checkbox"/> Report <input type="checkbox"/> Service/Product
	Description	Outputs: 1.1.1. Minutes of the meetings 1.1.2. Project brochure 1.1.3. Project website online and open to public 1.1.4. Forum for Advancing Software Engineering Education - FASE - will be open to all members of the project including PhD students 1.1.5. Reviewed and updated list of WP training activities 1.1.6. Reviewed and updated list of project participants, their roles and responsibilities 1.1.7. First architecture of the “put it all together” framework Outcomes • All participants have the same understanding of the project quality plan (WP 3.1) • All participants share the same vision of the project management structure (WP 5.1)	
	Due date	30/11/2015	
	Languages	English	
Target groups	<input checked="" type="checkbox"/> Teaching staff <input type="checkbox"/> Students <input type="checkbox"/> Trainees <input checked="" type="checkbox"/> Administrative staff <input checked="" type="checkbox"/> Technical staff <input type="checkbox"/> Librarians <input type="checkbox"/> Other		
	<i>If you selected 'Other', please identify these target groups. (Max. 250 characters)</i>		
Dissemination level	<input type="checkbox"/> Department / Faculty <input checked="" type="checkbox"/> Institution	<input type="checkbox"/> Local <input type="checkbox"/> Regional	<input type="checkbox"/> National <input type="checkbox"/> International

Please copy and paste tables as necessary.

Work package type and ref.nr	DEVELOPMENT	2.1
Title	Research Methods at the Age of Software as a Service	
Related assumptions and risks	<ul style="list-style-type: none"> • Teaching resources including professors are available and secured • Training material related to the activities in this WP are developed and accessible via Moodle to the students 	
Description	<p>Empirical investigations either for validation and proof of concepts are important activities in Software Engineering research today. Doctoral students need to acquire knowledge and competencies in selecting and knowing how to apply correctly the large variety of research methods and tools. This is not an easy task for PhD students in computer science (CS) and Software Engineering (SE) because the benefits and challenges in using each method are not yet well catalogued. Another reason is that most often undergraduate programs in CS and SE do not cover such topics even though in human sciences and business management schools students have a deep exposure to research methods.</p> <p>This work package aims at skilling students in a number of empirical methods and how they have been applied successfully to solve Software Engineering problems. Students will examine the goals of each method and how to plan, administrate and analyze the results of a study using these methods. Theoretical stances behind the methods, practical considerations in the application of the methods and data collection are also briefly reviewed. Taken together, this information provides a suitable basis for both understanding and selecting from the variety of methods applicable to empirical software and information systems engineering. A specific attention will be given to the following methods:</p> <ul style="list-style-type: none"> • Controlled experiments in living labs (including Quasi-Experiments) • Case studies (both exploratory and confirmatory) • Survey research • Ethnographies • Action Research 	
Tasks	<p>A2.1: 1 Training activities</p> <ul style="list-style-type: none"> • Introduction to research methods – Kari Smolander • Theory and practice of grounded theory – Andrey Maglyas • User research and testing – Ahmed Seffah and Kari Heikkinen <p>A2.1: 2 Tool demonstrations and lab visits activities</p> <p>Beside LUT computer science and Software Engineering labs, students will be visiting other labs that they might use in the future for joint research projects, students can also use these labs for conducting their own study related to their doctoral studies, especially in the case of a joint degree.</p> <ul style="list-style-type: none"> • Design, Innovation and User Experience Research Lab – Kari Heikkinen and Ahmed Seffah, our lab is a member of the ENOLL, the European Network of Living Labs • Gaming Lab and Tools • Group Decision Support Systems • Machine Vision and Pattern Recognition • Green Campus Tour for Solar and Wind Energy Technologies, featuring the green Software Engineering approach as well as sustainable development <p>A2.1: 3 Practical workshop on technical writing and communication</p> <ul style="list-style-type: none"> - All students enrolled in the project will participate in a workshop on technical writing and presentation including ethics, plagiarism, and 	

	Software Engineering source of information on the Web, research statement, proposals, thesis, and articles		
Estimated Start Date (dd-mm-yyyy)	01-03-2016	Estimated End Date (dd-mm-yyyy)	14-03-2016
Lead Organisation	P1 LUT Finland		
Participating Organisation	P2 UR Germany P3 UCLAN United Kingdom P4 AAU Denmark P5 UJ Jordan P6 YU Jordan P7 SUSU Russian Federation P8 SPbPU Russian Federation P9 JUST Jordan P10 UrFU Russian Federation P11 SPSU Russian Federation		

Deliverables/results/outcomes

Expected Deliverable/Results/Outcomes	Work Package and Outcome ref.nr	2.1.	
	Title	Research Methods at the Age of Software as a Service	
	Type	<input checked="" type="checkbox"/> Teaching material <input type="checkbox"/> Learning material <input type="checkbox"/> Training material	<input type="checkbox"/> Event <input checked="" type="checkbox"/> Report <input type="checkbox"/> Service/Product
	Description	Outputs 2.1.1. Training material including lecture notes, research papers and case studies 2.1.2. Report on user research 2.1.3. Report on empirical Software Engineering Outcomes • students get knowledge on how empirical research methods have been applied successfully in solving Software Engineering problems • students get practical skills in applying empirical research methods in practice • students get practical skills in technical writing and presenting own research	
	Due date	30-03-2016	
	Languages	English	
Target groups	<input checked="" type="checkbox"/> Teaching staff <input checked="" type="checkbox"/> Students <input type="checkbox"/> Trainees <input type="checkbox"/> Administrative staff <input checked="" type="checkbox"/> Technical staff <input type="checkbox"/> Librarians <input type="checkbox"/> Other		
	<i>If you selected 'Other', please identify these target groups. (Max. 250 characters)</i>		

Dissemination level	<input type="checkbox"/> Department / Faculty	<input type="checkbox"/> Local	<input type="checkbox"/> National
	<input checked="" type="checkbox"/> Institution	<input type="checkbox"/> Regional	<input type="checkbox"/> International

Work package type and ref.nr	DEVELOPMENT	2.2
Title	Advanced Software Engineering Methods and Tools	
Related assumptions and risks	<ul style="list-style-type: none"> • Teaching resources including professors are available and secured • Training material related to the activities in this WP are developed and accessible via Moodle to the students 	
Description	<p>This work package aims to establish a solid foundation for Software Engineering studies. It provides the students with a deep understanding of the main Software Engineering methods including object-oriented, agile, data-centric and traditional approaches. It skills PhDs in selecting an appropriate method or methods for a software development project at hand and for various types of software systems such as safety-critical systems, interactive consumer services, enterprise applications, hardware software (driver pilots), etc. The WP tasks are designed to be an opportunity for students from the participating universities to identify the challenges facing the Software Engineering research community as well as avenues for further investigations.</p>	
Tasks	<p>A2.2: 1 Training activities Half day training on each of the following topics at P5 UJ, P9 JUST or P6 YU. The detailed plan will be provided during the kick-off meeting.</p> <ul style="list-style-type: none"> • Agile Software Development (Dr. Andrey Maglyas P1 LUT) • Software process and process improvement (associate professor Nikula P1 LUT) • Software testing and measurement (Invited professor Alain Abran, associate professor Ossi Taipale P1 LUT) • Software architectures and patterns (Tbc) • Requirements engineering (associate professor Nikula P1 LUT) • Software as a Service: Methods and Tools • Software product road mapping and release planning (Dr. Andrey Maglyas P1 LUT) <p>A2.2: 2 Invited presentation</p> <ul style="list-style-type: none"> - Software Engineering body of knowledge and its role in Software Engineering education (Invited professor Alain Abran) <p>The presentation will be given during the Software Engineering Education Symposium.</p> <p>A2.2: 3 Dissemination activities</p> <ul style="list-style-type: none"> - “Building a PhD program and a research infrastructure: challenges and avenues” is a Software Engineering Education Symposium at P5 University of Jordan for professors participating from partner universities is arranged. All participants that will be present in Jordan as well as invited professors from abroad and from Jordanian Universities will be requested to present their viewpoints. - “PhD student symposium” invites all Jordanian PhD students studying both in Jordan and abroad to make a presentation and share their experiences with the students participating in the project. Also PhD 	

	students from the universities participating in the project are invited to give talks in this symposium.		
Estimated Start Date (dd-mm-yyyy)	16-08-2016	Estimated End Date (dd-mm-yyyy)	29-08-2016
Lead Organisation	P5 UJ Jordan		
Participating Organisation	P1 LUT Finland P2 URO Germany P3 UCLAN United Kingdom P4 AAU Denmark P6 YU Jordan P7 SUSU Russian Federation P8 SPbPU Russian Federation P9 JUST Jordan P10 UrFU Russian Federation P11 SPSU Russian Federation		

Expected Deliverable/Results/Outcomes	Work Package and Outcome ref.nr	2.2.	
	Title	Advanced Software Engineering Methods and Tools	
	Type	<input checked="" type="checkbox"/> Teaching material <input checked="" type="checkbox"/> Learning material <input checked="" type="checkbox"/> Training material	<input type="checkbox"/> Event <input type="checkbox"/> Report <input type="checkbox"/> Service/Product
	Description	Outputs 2.2.1. Training material including lecture notes, research papers and case studies 2.2.2. Seminar proceedings on 1) building PhD program and research infrastructure and 2) topical issues in Software Engineering 2.2.3. A report with the symposium presentations 2.2.4. Recommendations on the future development of the Software Engineering education in Jordan Outcomes • WP establishes a solid foundation for Software Engineering studies. • Provides the students with a deep understanding of the main Software Engineering methods including object-oriented, agile, data-centric and traditional approaches. • Skills PhD students in selecting appropriate method(s) for a software development project at hand and for various types of software systems such as safety-safety systems, interactive consumer services, enterprise applications, hardware software (driver pilots), etc. • Provides the students an opportunity to identify the challenges facing the Software Engineering research community as well as avenues for further investigations.	
	Due date	30-09-2015	
	Languages	English	
Target groups	<input checked="" type="checkbox"/> Teaching staff <input checked="" type="checkbox"/> Students		

	<input type="checkbox"/> Trainees <input type="checkbox"/> Administrative staff <input checked="" type="checkbox"/> Technical staff <input type="checkbox"/> Librarians <input type="checkbox"/> Other
	<i>If you selected 'Other', please identify these target groups. (Max. 250 characters)</i>
Dissemination level	<input type="checkbox"/> Department / Faculty <input type="checkbox"/> Local <input type="checkbox"/> National <input checked="" type="checkbox"/> Institution <input type="checkbox"/> Regional <input type="checkbox"/> International

Work package type and ref.nr	DEVELOPMENT	2.3
Title	Problem-based Case Studies and Learning in Software Engineering	
Related assumptions and risks	<ul style="list-style-type: none"> • Teaching resources including professors are available and secured • Training material related to the activities in this WP are developed and accessible via Moodle to the students 	
Description	<p>Aalborg University has a long tradition for using Problem Based Learning as a fundamental method for learning in Bachelor, Master, and PhD levels. The Problem Based Learning approach provides a creative and critical basis for active learning, increases motivation for analysis, and provides intuitive resolution of messy real-world problems. The Problem Based Learning approach provides the students with a sound approach to their problems, how they are solved, and how especially PhD students can benefit from this approach.</p> <p>WP 2.3 aims at providing theoretical as well as practical insights into the PhD students' understanding of how they work with their PhD and how they by adapting to Problem Based Learning can create new views and learning beneficial for their PhD study. By analysing various case studies from the field of Software Engineering, the students will gain insight to the approach. Furthermore, the practice of analysing own PhD problems with other students can bring essential skills and competences for the individual PhD student. However, the Problem Based Learning approach can only be implemented for PhD students if their supervisors also follow the approach and take a position of facilitator rather than a fact finder. Therefore, the WP 2.3 also provides training for PhD supervisors in the project.</p>	
Tasks	<p>A2.3: 1 Training activities</p> <ul style="list-style-type: none"> - These training activities will be carried out by the P4 AAU group: professor Anders Henten, associate professor Morten Falch, associate professor Lene Sørensen and assistant professor Jannick Sørensen. O Foundations of Problem Based Learning (Theory of PBL and the PBL Model and principles) O Problem Based Learning as basis for active learning in Software Engineering (Case studies) O Problem Based Learning and productivity (challenges of the PBL approach) O Problem Based Learning for Supervisors <p>A2.3: 2 Lab visits activities</p> <ul style="list-style-type: none"> - Fundamental to Problem Based Learning is labs and areas where students can work and exchange ideas. The PhD students will be visiting labs and will be able to use these as part of their own doctoral studies: • RF Lab (radio deaf room) 	

	<ul style="list-style-type: none"> • Electronic lab • Multimedia lab/user experience lab • Mechanical workshop • Medialogy lab for other user experience activities • Campus tour to explain the laboratories and to illustrate physical spaces as part of the Problem Based Learning 		
Estimated Start Date (dd-mm-yyyy)	10-01-2017	Estimated End Date (dd-mm-yyyy)	23-01-2017
Lead Organisation	P4 AAU, Denmark		
Participating Organisation	P1 LUT Finland P2 URO Germany P3 UCLAN United Kingdom P5 UJ Jordan P6 YU Jordan P7 SUSU Russian Federation P8 SPbPU Russian Federation P9 JUST Jordan P10 UrFU Russian Federation P11 SPSU Russian Federation		

Expected Deliverable/Results/Outcomes	Work Package and Outcome ref.nr	2.3.	
	Title	Problem-based Case Studies and Learning in Software Engineering	
	Type	<input checked="" type="checkbox"/> Teaching material <input checked="" type="checkbox"/> Learning material <input checked="" type="checkbox"/> Training material	<input type="checkbox"/> Event <input type="checkbox"/> Report <input type="checkbox"/> Service/Product
	Description	Outputs 2.3.1. Training material for activities for PhD students 2.3.2. Training material for activity for PhD supervisors 2.3.3. Report on Problem Based Learning for Software Engineering – real cases Outcomes • students develop an ability to use the visited labs in their own research work • students develop both creative and critical skills to active learning to increase motivation for analysis, and learn a way for intuitive resolution of messy real-world problems • students learn a sound approach to analyse and solve their problems, and how especially PhD students can benefit from this approach • students understand the theoretical background of PBL • students learn how to analyse their own problems with other students • supervisors will be trained to follow the PBL approach and take a position of facilitator rather than a fact finder	
	Due date	08-02-2017	
	Languages	English	
Target groups	<input checked="" type="checkbox"/> Teaching staff <input checked="" type="checkbox"/> Students		

	<input type="checkbox"/> Trainees <input type="checkbox"/> Administrative staff <input checked="" type="checkbox"/> Technical staff <input type="checkbox"/> Librarians <input type="checkbox"/> Other
	<i>If you selected 'Other', please identify these target groups. (Max. 250 characters)</i>
Dissemination level	<input type="checkbox"/> Department / Faculty <input type="checkbox"/> Local <input type="checkbox"/> National <input checked="" type="checkbox"/> Institution <input type="checkbox"/> Regional <input type="checkbox"/> International

Work package type and ref.nr	DEVELOPMENT	2.4
Title	Human/Human Computer Interaction for/in Software Engineering	
Related assumptions and risks	<ul style="list-style-type: none"> • Teaching resources including professors are available and secured • Training material related to the activities in this WP are developed and accessible via Moodle to the students 	
Description	<p>Albert Einstein wrote that, “Any darn fool can make something complex; it takes a genius to make something simple”. This WP brings the user into the centre of Software Engineering (SE) by considering how to make software products that are simple to learn, intuitive to use and efficient in use.</p> <p>The work package explores the methodologies and the tools for the development of interactive systems proposed by the human-computer interaction (HCI) community. More specifically, it focusses on the HCI, user-centric and user experience design methodologies that highlight and value the importance of usability and end-users engagement in the software development lifecycle. Ergonomics and HCI are among the core areas of the Software Engineering Body of Knowledge, and this WP will look at the avenues for HCI and SE integration as well as cross-pollination.</p> <p>To encourage creative thinking the work package will introduce methods whilst posing a design challenge that takes the participants away from their comfort zones in terms of technologies and users.</p>	
Tasks	<p>A2.4: 1 Training activities These training activities organized at P3 UCLAN</p> <ul style="list-style-type: none"> • Usability evaluation – Gavin Sim P3 UCLAN • Participatory design and Rapid Contextual Design – Janet Read P3 UCLAN • Wizard of Oz methods – Janet Read P3 UCLAN • Idea and system Prototyping – Dan Tifton P3 UCLAN • Integrating HCI and SE – Ahmed Seffah P1 LUT <p>A2.4:2 Tool demonstrations and lab visits /activities - Students will use the Agile rapid design lab, the usability lab, the motion prototyping lab and the participatory design lab at UCLan. Eye tracking for usability will be featured.</p> <ul style="list-style-type: none"> O Agile Design Lab O Usability lab with two way mirrors and camera and video function O Motion tracking lab O Eye tracking lab 	

	<p>A2.4: 3 Practical workshop on usability design</p> <ul style="list-style-type: none"> - All students enrolled in the project will participate as students in a one week intensive workshop that will begin with a design brief, then move on to a critical evaluation of the developed product followed by a redesign. The design brief will be for an 'extreme' user – possibly a user with disabilities, a child, or a senior adult. This will challenge the students to go beyond their comfort zones. 		
Estimated Start Date (dd-mm-yyyy)	04-02-2018	Estimated End Date (dd-mm-yyyy)	17-02-2018
Lead Organisation	P3 UCLAN United Kingdom		
Participating Organisation	P1 LUT Finland P2 URO Germany P4 AAU Denmark P5 UJ Jordan P6 YU Jordan P7 SUSU Russian Federation P8 SPbPU Russian Federation P9 JUST Jordan P10 UrFU Russian Federation P11 SPSU Russian Federation		

Expected Deliverable/Results/Outcomes	Work Package and Outcome ref.nr	2.4.	
	Title	Human/Human Computer Interaction for/in Software Engineering	
	Type	<input checked="" type="checkbox"/> Teaching material <input checked="" type="checkbox"/> Learning material <input checked="" type="checkbox"/> Training material	<input type="checkbox"/> Event <input type="checkbox"/> Report <input type="checkbox"/> Service/Product
	Description	<p>Outputs</p> <p>2.4.1. Training material including lecture notes, research papers and case studies</p> <p>2.4.2. Report on the integration of Human Computer Interaction and Software Engineering</p> <p>2.4.3. A suite of design and redesign case studies</p> <p>Outcomes</p> <ul style="list-style-type: none"> • students learn how to make software products that are simple to learn, intuitive to use and efficient in use, and support end-users engagement in the software development lifecycle • students learn the methodologies and the tools for the development of interactive systems proposed by the human-computer interaction community, especially HCI, user-centric and user experience design methodologies • students will learn the basics of ergonomics and human-computer interaction (HCI) as well as avenues for HCI and SE integration as well as cross-pollination • the students learn the methods and a process supporting creative thinking through a design challenge that takes the participants away from their comfort zones in terms of technologies and users 	

		<ul style="list-style-type: none"> the students get a basic understanding of an 'extreme' user that could be a user with disabilities, a child, or a senior adult
	Due date	05-03-2018
	Languages	English
Target groups	<input checked="" type="checkbox"/> Teaching staff <input checked="" type="checkbox"/> Students <input type="checkbox"/> Trainees <input type="checkbox"/> Administrative staff <input checked="" type="checkbox"/> Technical staff <input type="checkbox"/> Librarians <input type="checkbox"/> Other	
	<i>If you selected 'Other', please identify these target groups. (Max. 250 characters)</i>	
Dissemination level	<input type="checkbox"/> Department / Faculty <input type="checkbox"/> Local <input type="checkbox"/> National <input checked="" type="checkbox"/> Institution <input type="checkbox"/> Regional <input type="checkbox"/> International	

Work package type and ref.nr	DEVELOPMENT	2.5
Title	Software Engineering Models and Modeling	
Related assumptions and risks	<ul style="list-style-type: none"> Teching resources including professors are available and secured Training material related to the activities in this WP are developed and accessible via Moodle to the students 	
Description	<p>Modeling is a fundamental transversal activity that can be considered at any stage of the software development and management lifecycle. It consists of specifying and validating models that describe the structure, behaviors and interactions between the artifacts of software and with other systems including humans. Modeling languages can be just textual, graphical or formal. In PhD studies, modeling can be used to understand a problem or a phenomena, to make predictions, to evaluate a concept, to support decision making as well as to reason about the problem, solution, and the phenomena.</p> <p>The model-driven engineering (MDE) in software Engineering consists of describing a systems and aspects involved in it (e.g., task, domain, context of use, functionalities, data, etc.) in models from which a final system or prototype is produced, ideally automatically. The MDE aims at one big win: when the requirements or the context of use change, the models change accordingly, and so do the supporting systems. Different models and modeling techniques based on the principles detailed Model-driven Architecture are discussed in this WP supporting forward engineering (a new software is produced), reverse engineering (an existing software is improved), and retro engineering (an existing software is adapted to a new context of use, a new organization, or changed needs). Software supporting this method will be discussed including UML, formal and XML-compliant description languages.</p>	
Tasks	<p>A2.5: 1 Training activities</p> <p>- Half day training on each of the following topics at the P2 UR.</p> <ul style="list-style-type: none"> Introduction to model-driven engineering (professor Peter Forbrig, Dr. Anke Dittmar P2 UR) 	

	<ul style="list-style-type: none"> Modeling and design space exploration (Dr. Anke Dittmar, professor Peter Forbrig P2 UR) Patterns in cross-platforms user interfaces modeling and engineering (professor Ahmed Seffah P1 LUT, professor Peter Forbrig P2 UR) Enterprise Architecture Modeling (professor Kurt Sandkuhl P2 UR) Business Process Modeling (professor Karsten Wolf P2 UR) Models in Unified Modeling Languages (professor Suleiman Hussein P6 YU) <p>A2.5: 2 Invited presentation</p> <ul style="list-style-type: none"> Model-driven engineering of user interfaces: The UsiXML experience. (Prof. Jean Vanderdonckt, University of New Leuven). The presentation can be requested (http://dsp.acm.org/view_lecture.cfm?lecture_id=7123) <p>A2.5: 3 Demonstrations and lab visits</p> <ul style="list-style-type: none"> Besides visits to P2 University of Rostock research labs there are opportunities for visits in research labs of the Fraunhofer institute. Fraunhofer Institute for Computer Graphics Research (IGD) is affiliated to P2 University of Rostock, and the head of IGD professor Bodo Urban is member of University of Rostock faculty. Additionally, there is as cooperation partner from industry that bases his development strategies on model-driven techniques. Demonstrations from SIV.AG and visits in their development groups are planned. Research labs at the institute of computer science (smart meeting room, cooperative modelling on tables, LCD wall) Research labs of Fraunhofer Institute for Computer Graphics Research IGD Rostock Development group of the SIV.AG in Rostock Roggentin. Example of complex model-driven application <p>A2.5: 4 Knowledge dissemination activities</p> <ul style="list-style-type: none"> “Building a PhD program and a research infrastructure” is a symposium for professors and PhD students from partner universities. All participants are requested to present a statement Symposium with alumni PhD students 		
Estimated Start Date (dd-mm-yyyy)	01-10-2017	Estimated End Date (dd-mm-yyyy)	14-10-2017
Lead Organisation	P2 UR Germany		
Participating Organisation	P1 LUT Finland P3 UCLAN United Kingdom P4 AAU Denmark P5 UJ Jordan P6 YU Jordan P7 SUSU Russian Federation P8 SPbPU Russian Federation P9 JUST Jordan P10 UrFU Russian Federation P11 SPSU Russian Federation		

Expected Deliverable/Results/Outcomes	Work Package and Outcome ref.nr	2.5.	
	Title	Software Engineering Models and Modeling	
	Type	<input checked="" type="checkbox"/> Teaching material <input checked="" type="checkbox"/> Learning material <input checked="" type="checkbox"/> Training material	<input type="checkbox"/> Event <input type="checkbox"/> Report <input type="checkbox"/> Service/Product

	Description	<p>Outputs</p> <p>2.5.1. Training material including lecture notes, research papers and case studies</p> <p>2.5.2. Report on Software Engineering models and modelling</p> <p>2.5.3. Seminar proceedings on building PhD program and research infrastructure</p> <p>2.5.4. Seminar proceedings on symposium with alumni PhD students</p> <p>Outcomes</p> <ul style="list-style-type: none"> students understand the different ways of doing and using modeling in Software Engineering and management. students understand the basic of model-driven engineering (MDE) including different models and modeling techniques covering model-driven architecture, forward engineering, reverse engineering, and retro engineering as well as supporting software and description languages like UML, formal and XML-compliant languages.
	Due date	30-10-2017
	Languages	English
Target groups	<input checked="" type="checkbox"/> Teaching staff <input checked="" type="checkbox"/> Students <input type="checkbox"/> Trainees <input type="checkbox"/> Administrative staff <input checked="" type="checkbox"/> Technical staff <input type="checkbox"/> Librarians <input type="checkbox"/> Other	
	<i>If you selected 'Other', please identify these target groups. (Max. 250 characters)</i>	
Dissemination level	<input checked="" type="checkbox"/> Department / Faculty <input type="checkbox"/> Local <input type="checkbox"/> National <input checked="" type="checkbox"/> Institution <input type="checkbox"/> Regional <input type="checkbox"/> International	

Work package type and ref.nr	DEVELOPMENT	2.6
Title	Math and Computing Foundations of Software Engineering	
Related assumptions and risks	<ul style="list-style-type: none"> Teching resources including professors are available and secured Training material related to the activities in this WP are developed and accessible via Moodle to the students 	
Description	It is generally accepted that mathematics and computer science are the basis for the efficient development of complex software systems. A software engineer should be able to identify the software components from a formal point of view as a discrete system, be able to apply the mathematical apparatus (including the theory of Finite State Machines) to determine the behavior of the software system, to know the basis of algebraic foundations of computer security. Also, a growing number of software systems today encounter with the tasks associated with the widely distributed storage and access of data and resources. To solve	

	<p>these tasks, software engineers should be familiar with methods for developing distributed system architectures, Big Data processing, etc.</p> <p>This work package addressed the technical competence in core computing and math concepts of Software Engineering relating to data structures, algorithms, databases, data management, parallel and distributed computing, discrete probability, finite state machines, number theory, algebraic structures etc. Students shall study modern approaches to the distributed systems development, including architecture and basic algorithms of peer-to-peer systems communication; concepts of parallel database management systems; methods of big data processing and data mining. Also, a mathematical basis for the Software Engineering would be provided, including such topics as discrete probability, finite state machines and algebraic structures, and usage of this mathematical models in the field of SE.</p>		
Tasks	<p>A2.6: 1 Training activities These training activities will be carried at P7 SUSU</p> <ul style="list-style-type: none"> • Distributed systems engineering – associate professor Gleb Radchenko P7 SUSU • Modern database technologies – professor Leonid Sokolinsky P7 SUSU • Big Data and data mining technologies – PhD Constantin Pan, associate professor Michael Zymbler P7 SUSU • Mathematical foundations of Software Engineering – professor Rifkhat Aleev P7 SUSU • Logical foundations of computer science – professor Mikhail Volkov P10 UrFU • Parallel computing – professor Andrey Sozykin P10 UrFU • Robotics and Software Development – professor Yuri Okulovsky P10 UrFU <p>A2.6: 2 Tools demonstrations and lab visits activities</p> <ul style="list-style-type: none"> - Beside the education process, students will be visiting supercomputer center and supercomputer simulation laboratory of SUSU. Students can also use resources of these labs for conducting their own study related to their doctoral studies, especially in the case of dual degree. Students would be able to visit the Laboratory for Artificial Intelligence and Robotics (AIRLabs) at UrFU, where they will program the virtual mobile robot in the emulator step-by-step, starting from the easiest case, and gradually adding difficulties, such as distortions, technical vision and depth map analysis. 		
Estimated Start Date (dd-mm-yyyy)	07-05-2017	Estimated End Date (dd-mm-yyyy)	20-05-2017
Lead Organisation	P7 SUSU Russian Federation		
Participating Organisation	P1 LUT Finland P2 UR Germany P3 UCLAN United Kingdom P4 AAU Denmark P5 UJ Jordan P6 YU Jordan P8 SPbPU Russian Federation P9 JUST Jordan P10 UrFU Russian Federation P11 SPSU Russian Federation		
Expected Deliverable/Results/Outcomes	Work Package and Outcome ref.nr	2.6.	
	Title	Math and Computing Foundations of Software Engineering	

	Type	<input checked="" type="checkbox"/> Teaching material <input checked="" type="checkbox"/> Learning material <input checked="" type="checkbox"/> Training material	<input type="checkbox"/> Event <input type="checkbox"/> Report <input type="checkbox"/> Service/Product
	Description	<p>Outputs</p> <p>2.6.1. Training material including lecture notes, research papers and case studies</p> <p>2.6.2. Report on engineering of high-load computing systems</p> <p>Outcomes</p> <ul style="list-style-type: none"> the students understand the role of technical competence in core computing and math concepts of Software Engineering relating to data structures, algorithms, databases, data management, parallel and distributed computing, discrete probability, finite state machines, number theory, algebraic structures etc. the students understand modern approaches to the distributed systems development, including architecture and basic algorithms of peer-to-peer systems communication; concepts of parallel database management systems; methods of big data processing and data mining. 	
	Due date	05-05-2017	
	Languages	English	
Target groups	<input checked="" type="checkbox"/> Teaching staff <input checked="" type="checkbox"/> Students <input type="checkbox"/> Trainees <input type="checkbox"/> Administrative staff <input checked="" type="checkbox"/> Technical staff <input type="checkbox"/> Librarians <input type="checkbox"/> Other		
	<i>If you selected 'Other', please identify these target groups. (Max. 250 characters)</i>		
Dissemination level	<input checked="" type="checkbox"/> Department / Faculty <input checked="" type="checkbox"/> Institution	<input type="checkbox"/> Local <input type="checkbox"/> Regional	<input type="checkbox"/> National <input type="checkbox"/> International

Work package type and ref.nr	DEVELOPMENT	2.7
Title	Business and Economic Viewpoints in Software Engineering	
Related assumptions and risks	<ul style="list-style-type: none"> Teching resources including professors are available and secured Training material related to the activities in this WP are developed and accessible via Moodle to the students 	
Description	Software Engineering is considered as an activity that relies heavily on project management from the organizational point of view. Depending on the degree of importance of tasks it is important to use systematic approaches to the management of individual projects, programs of projects, and portfolios. Since the objectives of the projects in software engineering are the development of complex software systems, it is appropriate to use approaches based on	

	<p>standards like PRINCE2, MSP, and MoP. Projects, programs, and portfolios are realized through the implementation of their processes. In this regard, the management of processes plays a fundamental role for project management, and thus it is important to use notations like BPMN 2.0 for process modeling.</p> <p>From a business perspective, enterprise software architecture is an important concept for the management of software. At the same time enterprise architecture is one of the promising models of management and development of software.</p> <p>This work package addresses all the aspect of project, program, portfolio with using process management approach and concepts of enterprise architecture. Students will study how to develop a business case, do project planning, develop organization, control quality and risks, manage changes, and the track the progress of projects. The students are also introduced to the concepts of process development, configuration management, investment analysis, and enterprise architecture methods and models.</p>		
Tasks	<p>A2.7: 1 Training activities These training activities will be carried out at P8 SPbPU</p> <ul style="list-style-type: none"> • Project Management – Igor Ilin, Svetlana Chirokova P8 SPbPU • Business Process Management – Igor Ilin, Anastasia Lyovina P8 SPbPU • Enterprise Architecture – Igor Ilin, Alissa Dubgorn P8 SPbPU • Information technology service management (ITSM) - Alissa Dubgorn, Anastasia Lyovina, Oxana Ilyashenko P8 SPbPU • Investment analysis of SE projects – G.V. Botwin, M.V. Zaboiev P11 SPSU • Risk analysis and Risk management of SE projects – G.V. Chernova, M.V.Zaboiev P11 SPSU • Business Intelligence for SE costing V.L. Abbakoumov, N.A. Valiotty P11 SPSU • Economics of SE education – T.A. Lezina, A.A. Saltan, P11 SPSU • Competitiveness of Software SE education– V.G. Khalin, A.V. Yurkov P11 SPSU • Why software project fails and succeed? (Offered by Russian IT companies) • Introduction to Service Science, Management and Engineering (IBM) <p>A2.7: 2 Tool demonstrations and lab visit activities Students will be visiting labs that they might use in the future in joint research projects, students can also use the labs for conducting their own study related to their doctoral studies, especially in the case of joint degree.</p> <ul style="list-style-type: none"> • Business Engineering Lab – Igor Ilin, Alissa Dubgorn P8 SPbPU) 		
Estimated Start Date (dd-mm-yyyy)	13-05-2018	Estimated End Date (dd-mm-yyyy)	26-05-2018
Lead Organisation	P8 SPbPU Russian Federation		
Participating Organisation	P1 LUT Finland P2 UR Germany P3 UCLAN United Kingdom P4 AAU Denmark P5 UJ Jordan P6 YU Jordan P7 SUSU Russian Federation P9 JUST Jordan P10 UrFU Russian Federation P11 SPSU Russian Federation		

Expected Deliverable/Results/Outcomes	Work Package and Outcome ref.nr	2.7.	
	Title	Business and Economic Viewpoints in Software Engineering	
	Type	<input checked="" type="checkbox"/> Teaching material <input checked="" type="checkbox"/> Learning material <input checked="" type="checkbox"/> Training material	<input type="checkbox"/> Event <input type="checkbox"/> Report <input type="checkbox"/> Service/Product
	Description	<p>Outputs</p> <p>2.7.1. Training material including lecture notes, research papers and case studies</p> <p>2.7.2. Report on empirical studies related to software projects and product management</p> <p>Outcomes</p> <ul style="list-style-type: none"> students understand the management of the development processes, configurations, and projects using standard approaches like PRINCE2, MSP, and MoP students understand the role of concepts like enterprise software architecture, service oriented enterprise architecture, and software as a service in the development and management of software products including standard approaches to them like ITSM students understand the needs of analyzing investments, risks, costs of software engineering projects, and increasing competitive advantage of software products 	
	Due date	04-06-2018	
	Languages	English	
Target groups	<input checked="" type="checkbox"/> Teaching staff <input checked="" type="checkbox"/> Students <input type="checkbox"/> Trainees <input type="checkbox"/> Administrative staff <input checked="" type="checkbox"/> Technical staff <input type="checkbox"/> Librarians <input type="checkbox"/> Other		
	<i>If you selected 'Other', please identify these target groups. (Max. 250 characters)</i>		
Dissemination level	<input checked="" type="checkbox"/> Department / Faculty <input checked="" type="checkbox"/> Institution	<input type="checkbox"/> Local <input type="checkbox"/> Regional	<input type="checkbox"/> National <input type="checkbox"/> International

Please copy and paste tables as necessary.

Work package type and ref.nr	QUALITY PLAN	3
Title	Project, programs and framework quality assurance	
Related assumptions and risks	P1 LUT has secured a project manager to the project who will be in charge of the management tasks. All partners will nominate a representative from their institution to provide the project manager with all the information required on the daily basis. Key risks are:	

	<ul style="list-style-type: none"> • Availability of expected resources • Lack of commitment to the project outcomes <p>The goal-driven management approach and the quality management plan and committees are the two key pillars to deals with these risks and minimize their impacts.</p>		
Description	<p>Work package 3 focuses on the key performance indicators (KPI) and procedures to assess the project, the partners, and the consortium as a whole as well as the quality of the overall project, the PhD programs, and the tasks and deliverables detailed in the different WPs. During the kick-off meeting, a quality assurance plan will be declared as well as the structural and educational quality control plans of the universities will be presented and discussed. A list of KPI will be proposed and approved during the kick-off meeting.</p> <p>The quality assurance plan including key performance indicators and quality assessment procedures will address the following issues:</p> <ul style="list-style-type: none"> • Quality management of the project resources including the activities done at the partner universities • Implementation of the recommendations provided bodies such as the ISAB, DPB, PNP and FASE (as explained in D.2.1.) • Changes to programs and the framework proposed in this project <p>The Quality Assurance Management Committee (QAMC) will be in charge of executing the quality plan while providing recommendations to the AFMC, DPB and the WP leaders. The QAMC will include a representative from each partner university, and the members will be nominated during the kick-off meeting.</p>		
Tasks	<p>A3.1: 1 The Doctoral Programs Board (DPB) follows the achievement of the project objectives</p> <p>A3.1: 2 Periodic review of the WP schedules, progress, results obtained, problems encountered, decisions taken and implementation of the feedback from the different bodies of the project</p> <p>A3.1: 3 Collect information necessary for periodic progress reports and deliver it to the different committees and work package leaders in the format of recommendations</p> <p>A3.1: 4 Support the WP participants in implementing these recommendations and the underlying management actions</p> <p>A3.1: 5 Evaluation after each intensive school that the overall structure of the proposed educational framework as well as the programs detailed in development work packages 2.1 to 2.7 follow the established quality standards. The evaluation will be done with a custom made questionnaire send to partner universities, PhD students participating in the program, as well as the professors involved in the teaching activities. Recommendations will be disseminated with the problems and improvement suggestions when necessary. The project website will include a restricted area for this activity to collect relevant data.</p>		
Estimated Start Date (dd-mm-yyyy)	01/11/2015	Estimated End Date (dd-mm-yyyy)	31/10/2018
Lead Organisation	P4 AAU Denmark		
Participating Organisation	P1 LUT Finland P2 UR Germany P3 UCLAN United Kingdom P5 UJ Jordan P6 YU Jordan P7 SUSU Russian Federation P8 SPbPU Russian Federation		

	P9 JUST Jordan P10 UrFU Russian Federation P11 SPSU Russian Federation
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Deliverables/results/outcomes

Expected Deliverable/Results/Outcomes	Work Package and Outcome ref.nr	3.1.	
	Title	Project, programs and framework quality assurance	
	Type	<input checked="" type="checkbox"/> Teaching material <input checked="" type="checkbox"/> Learning material <input checked="" type="checkbox"/> Training material	<input type="checkbox"/> Event <input type="checkbox"/> Report <input type="checkbox"/> Service/Product
	Description	<p>Outputs</p> <p>3.1.1. Quality assurance plan 3.1.2. Review reports from DPB and ISAB 3.1.3. Intensive school evaluation report</p> <p>Outcomes</p> <ul style="list-style-type: none"> the project partners understand both the project level quality assurance plan and the university level structural and educational quality control plans the project partners are able to assess the project, the partners, and the consortium as a whole the project partners are able to assess the quality of the overall project, the PhD programs, and the tasks and deliverables detailed in the WPs the project partners understand how to implement the recommendations of different bodies like ISAB, DPB, PNP and FASE concerning especially changes to different PhD programs and the framework developed in this project 	
	Due date	30-11-2018	
	Languages	English	
Target groups	<input checked="" type="checkbox"/> Teaching staff <input type="checkbox"/> Students <input type="checkbox"/> Trainees <input checked="" type="checkbox"/> Administrative staff <input checked="" type="checkbox"/> Technical staff <input type="checkbox"/> Librarians <input checked="" type="checkbox"/> Other		
	<i>If you selected 'Other', please identify these target groups. (Max. 250 characters)</i> DPB and AFSC bodies of the project		
Dissemination level	<input checked="" type="checkbox"/> Department / Faculty <input checked="" type="checkbox"/> Institution	<input type="checkbox"/> Local <input type="checkbox"/> Regional	<input type="checkbox"/> National <input type="checkbox"/> International

Please copy and paste tables as necessary.

Work package type and ref.nr	DISSEMINATION & EXPLOITATION	4
Title	Put-it-all together. A Collaborative Multi-Institutions Program and Framework for Software Engineering Doctoral Education	
Related assumptions and risks	The high risk is similar to any new innovative technology, the difficulties of adapting the framework to the different higher education context and cultures.	

	<p>The DPB in charge of the supervision of the development of framework will establish to some design guidelines to ensure the reuse of the framework</p>
<p>Description</p>	<p>What type of pedagogy can support a multi-sites, multi-cultural (like Jordan, Russia and the EU), and multi-disciplinary (Engineering, Management, Math, Business, Economics, and Human aspects) PhD program? What are the challenges facing professors and institutions from different cultural backgrounds engaged in joint PhD programs? What are the required and specific resources for a joint distributed PhD program? What are the needs and priorities in educating Software Engineering researchers at the age of software as service, cloud, and persuasive environments? This work package provides answers to these questions at the same time it puts together a consolidated methodological framework consisting of the following components:</p> <ul style="list-style-type: none"> • Panels for National Needs and Priorities • FASE - Forum for Advancing Software Engineering Education • Schools, each includes a certain number of activities (training activities, tools demo, lab visits, workshops, practical work in research lab, etc.). The proposed 7 schools are detailed in WPs 2.1 to 2.7, each WP is related to one school that will be held in one location. • Program content is organized according to SWEBOK knowledge areas including: <ul style="list-style-type: none"> ○ Advanced Software Engineering Methods and Tools ○ HCI/Human Aspects in Software Engineering ○ Management, Business, and Economic Concerns of Software Engineering ○ Model and Modeling in Software Engineering ○ Math and Computing Foundation of Software Engineering • Soft skills, which is of the novelty of this program. The training in schools will also include specific activities that aims at training students in the following soft-skills: <ol style="list-style-type: none"> 1. Technical writing and presentation 2. Research methods and experiments 3. Ethics in computing and Software Engineering education and research 4. Business and economic concerns in Software Engineering research 5. Human and society perspectives and interactions with software systems <p>The visible and most significant outcome of this WP is a framework, called Put it All Together, that defines the program components including human resources, management strategies, SWEBOK knowledge areas, soft skills, training activities, timetable, educational resources, problem-based case studies as well as pedagogical patterns, industry needs, and national priorities. The WP activities are distributed in different locations; some of them are also listed in other WPs. The framework will be developed based on a series of field studies at the different locations, dedicated meetings at the same time with the student schools, related research investigations conducted by the partners, symposiums on Software Engineering education and training, comparative study on existing PhD programs, panel on national industry needs, and academic priorities.</p>
<p>Tasks</p>	<p>A4.1: 1 A comparative study of the European PhD programs A4.1: 2 Panels on industry needs and national priorities. The panels will be organized at the same time with the intensive schools at the different locations</p>

	<p>A4.1: 3 Related research investigations conducted by the students and professors at the different locations</p> <ul style="list-style-type: none"> o Collaboration in software development teams in classrooms (professor Porras P1 LUT) o Bridging the gaps between Software Engineering education and innovation (professor Seffah P1 LUT) o Innovative approaches in computer science within higher education (professor Janet Read P3 UCLAN) <p>A4.1: 4 Forum for Advancing Software Engineering Education (FASE) online and face-to-face at the different partner locations to be organized during intensive schools, specific topics will be discussed</p> <ul style="list-style-type: none"> o P1 LUT: Soft skills in Software Engineering education o P5 UJ + P6 YO + P9 JUST: SWEBOK o P7 SUSU + P10 UrFU: Computing foundations for software engineering o P8 SPbPU+ P11 SPSU: Business and Economic points of views on software engineering o P3 UCLAN: Research labs and tools o P4 AAU: Problem-Based Learning o P2 UR: Background and profile of PhDs, underlying MSc and BSc programs <p>A4.1: 5 PhD student forums</p>		
Estimated Start Date (dd-mm-yyyy)	01-11-2015	Estimated End Date (dd-mm-yyyy)	31-10-2018
Lead Organisation	P1 LUT Finland		
Participating Organisation	P2 UR Germany P3 UCLAN United Kingdom P4 AAU Denmark P5 UJ Jordan P6 YU Jordan P7 SUSU Russian Federation P8 SPbPU Russian Federation P9 JUST Jordan P10 UrFU Russian Federation P11 SPSU Russian Federation		

Deliverables/results/outcomes

Expected Deliverable/Results/Outcomes	Work Package and Outcome ref.nr	4.1.	
	Title	Put-it-all together. A Collaborative Multi-Institutions Program and Framework for Software Engineering Doctoral Education	
	Type	<input type="checkbox"/> Teaching material <input type="checkbox"/> Learning material <input type="checkbox"/> Training material	<input checked="" type="checkbox"/> Event <input checked="" type="checkbox"/> Report <input checked="" type="checkbox"/> Service/Product
	Description	Outputs 4.1.1. Workshops proceedings 4.1.2. Research reports from the conducted studies on Software Engineering education 4.1.3. Final architecture of the framework 4.1.4. Recommendation reports from the conducted studies on Software Engineering education and from FASE 4.1.5. Final report on the Put-it-all Together Framework	

		Outcomes <ul style="list-style-type: none"> • Identification of suitable pedagogy to support a multi-sites, multi-cultural, and multi-disciplinary PhD program • Identification of challenges facing professors and institutions from different cultural backgrounds engaged in joint PhD programs • Identification of the required and specific resources for joint distributed PhD programs • Identification of the needs and priorities in educating Software Engineering researchers at the age of software as service, cloud, and persuasive environments
	Due date	30-11-2018
	Languages	English
Target groups	<input checked="" type="checkbox"/> Teaching staff <input type="checkbox"/> Students <input type="checkbox"/> Trainees <input checked="" type="checkbox"/> Administrative staff <input checked="" type="checkbox"/> Technical staff <input type="checkbox"/> Librarians <input type="checkbox"/> Other	
	<i>If you selected 'Other', please identify these target groups. (Max. 250 characters)</i>	
Dissemination level	<input checked="" type="checkbox"/> Department / Faculty <input type="checkbox"/> Local <input checked="" type="checkbox"/> National <input checked="" type="checkbox"/> Institution <input type="checkbox"/> Regional <input checked="" type="checkbox"/> International	

Please copy and paste tables as necessary.

Work package type and ref.nr	MANAGEMENT	5
Title	Goal-Driven Project Management and Results Dissemination	
Related assumptions and risks	<ul style="list-style-type: none"> • Lack of commitment of participating institutions and key members, mainly WPs leaders • Availability of resources including representative from universities 	
Description	<p>LUT as the lead partner will manage the project with the support of an Administrative and Financial Management Committee (AFMC) chaired by the General Administrative and Financial Manager (GAFM). This committee has representatives from all partners, the WP leaders, and meets twice a year during the intensive schools and twice a year online (4 meetings a year). This committee is supported by other committees, the Quality Assurance Board (QAB) and the International Scientific Advisors Board (ISAB), formed by associate members of the project and members of the international scientific software and engineering community. The members of the above boards will be nominated in the kick-off meeting.</p> <p>There will be 8 physical meetings of all the partners. These meeting will take place during the major events. The kick-off meeting in P4 AAU, Denmark, is coupled with AFMC first meeting, one day each; 7 meetings coupled with the training schools in the 7 locations of project (detailed in WPs 2.1 to 2.7). To minimize the costs, all the other meetings of the committees are organized during the schools in the 7 locations, 2 in Russia, one in Jordan, and one at each</p>	

	EU partner (P1 Finland, P4 Denmark, P2 Germany and P3 the UK). Operative communication will be based on standard means of email, phone, and skype on regular basis, and when appropriate all the partners will be called on telephone or skype conferences. The lead partner coordinates the information exchange. Progress and minutes of the meetings will be monitored and stored as part of a WIKI-based server, a central node for collecting and exchanging project documentation. A goal-driven management and decision making approach will be used during the entire project including the training aspects. Partnership between the EU countries and the two target country partners, mutual respect, honesty, and equality will be the guiding principles in potential conflict solving. All decisions are agreed based on consensus.		
Tasks	A5.1: 1 Administrative and financial daily management of the project A5.1: 2 Management of the overall proposed program A5.1: 3 Management of all the meetings and events organized by the consortium detailed in the different work package A5.1: 4 Management of the framework and the underlying tools such Website, media communications, FASE (Forum for Advancing Software Engineering Education) A5.1: 5 Project progress tracking and reporting A5.1: 6 Handling changes, issues, and conflicts		
Estimated Start Date (dd-mm-yyyy)	01/11/2017	Estimated End Date (dd-mm-yyyy)	30/11/2018
Lead Organisation	P1 LUT Finland		
Participating Organisation	P2 UR Germany P3 UCLAN United Kingdom P4 AAU Denmark P5 UJ Jordan P6 YU Jordan P7 SUSU Russian Federation P8 SPbPU Russian Federation P9 JUST Jordan P10 UrFU Russian Federation P11 SPSU Russian Federation		

Deliverables/results/outcomes

Expected Deliverable/Results/Outcomes	Work Package and Outcome ref.nr	5.1.	
	Title	Goal-Driven Project Management and Results Dissemination	
	Type	<input type="checkbox"/> Teaching material <input type="checkbox"/> Learning material <input type="checkbox"/> Training material	<input checked="" type="checkbox"/> Event <input checked="" type="checkbox"/> Report <input type="checkbox"/> Service/Product
	Description	Outputs 5.1.1. Minutes of the meetings 5.1.2. Project annual report 5.1.3. Final report 5.1.4. Press releases 5.1.5. WIKI-based server Outcomes	

		<ul style="list-style-type: none"> • the outcome of this WP is that the project will be executed as planned • the committees and boards to administrate and to direct the project activities are established and their work is coordinated. These committees and boards are the Administrative and Financial Management Committee (AFMC), the General Administrative and Financial Manager (GAFM), and the International Scientific Advisory Board (ISAB) • project partners will meet in person 8 times during the project as part of other major events, the kick-off meeting and the intense schools, to take care of the committee and board tasks • operative communication and information exchange, possible changes in the plans, and unplanned issues are addressed in a professional manner • project progress is monitored and made available to all project partners through a central project repository • possible conflicts are resolved based on mutual respect, honesty, and equality between the project partners • all major project decisions are agreed upon based on consensus, and when this is not possible, on voting
	Due date	30-11-2018
	Languages	English
Target groups	<input checked="" type="checkbox"/> Teaching staff <input type="checkbox"/> Students <input type="checkbox"/> Trainees <input checked="" type="checkbox"/> Administrative staff <input checked="" type="checkbox"/> Technical staff <input type="checkbox"/> Librarians <input type="checkbox"/> Other	
	<i>If you selected 'Other', please identify these target groups. (Max. 250 characters)</i>	
Dissemination level	<input checked="" type="checkbox"/> Department / Faculty <input checked="" type="checkbox"/> Institution	<input type="checkbox"/> Local <input type="checkbox"/> Regional <input checked="" type="checkbox"/> National <input checked="" type="checkbox"/> International

Please copy and paste tables as necessary.

H.2. Explanation of work package expenditures

Please explain what costs will be associated to each work package and covered by lump sums, flat rates, unit costs, and real costs. Provide information on the travels necessary to complete the workpackage. Detailed information on each travel must be indicated in the Budget Excel table. If purchase of equipment is required, explain how the respective equipment addresses the needs identified in the project. Remember that the specification of each item, including the partner country university/ies at which equipment will be installed, must be detailed in the Budget Excel table. If any subcontracting is considered necessary for the implementation of the project, please explain why the task cannot be performed by the consortium members themselves (limit 3000 characters).

Total budget of the project is 973207,00Euro. 49.3% is for European partners and 50,7% to target countries, Russia (29,8%), Jordan (20,9%). This distribution is in conformance with the project policies.

The distribution per institution is as follow LUT (18.3%), RU/Germany (8,7%) AAU (12,4%), Uclain (9,8%), SPSPU (8,4%), SUSU (8,6%), UJ (8,6%), JUST (6,1%), YU (6,2%), UrFU (6,6%) and SPSU (6,2%). LUT budget is higher because LUT is in charge of the management (11,6%). This distribution shows that the four EU partners have approximatively the same budget as they have equivalent task and responsibilities leading one of the 7 development WPs. The small differences that exist is mainly due to the geographical locations and availability of transportation. Russia partners have also the same budget. The two Universities leading the two Russian WPs have the same budget approximatively (SUSU) and SPbSPU, the remaining two universities have also the same budget as they have less responsibilities in the management of WPs. As a leader of the Jordan team and the development WP 2.2, Jordan University has the same budget approximatively similar to SUSU and SPBSPU. JUST and YU universities have also the same budget like the two other Russia universities (SPSU and UrFU). The distribution of workload and level of involvement of each of the 11 partners is proportional to this budget plan.

The distribution per WPs is also very consistent. The three management WPs, WP 1.1 (4,8%), WP 3.1 (7.3%) and WP 5.1 (11,6%) has be allocated less weight compared to the development WPs (WP 2.1 to WP 2.7) budget is 72,2%, and the exploitation and dessionimation component is 4% (WP 4.1). We applied the 1 for 4 effort calculation rule of project management. We dedicated 7,3% to the quality assurance as this is key issue in this the project. This distribution highlights our effort to reduce as much possible the costs of management while maximizing the cost-benefits of the development work packages and the exploitation, dessionimation and long term sustainability of the project. These aspects represent 11,3% of the budget which is equivalent to management (11,6%).

The distribution of the cost between equipment (5,5%), staff (39,8%), stay (32,4%) and travel (15,2%) is designed according to the practices of this type of projects. EU countries did not declare any equipment cost. The cost for equipment for each of the 7 target universities is less than 5,5% from the total budget allocated to each of these universities. These universities requested basic equipment mainly computers and printers that will be used in the project during the training activities (print of handouts, computers in Lab for accessing to demos, etc.) The consortium has decided unanimously that for each of this 7 universities, two laptops that will be purchased in this project will be offered to the two Ph.D students involved in the project. The computers will be given to the students during the first school at LUT.

If your project involves a **Special Mobility Strand**, please explain what support will be required under each budget heading in order to cover organisational costs (such as special needs, exceptional, non-online linguistic support, etc.) (limit 2000 characters).

H.3 Consortium partners involved and resources required to complete the work package

Indicative input of consortium staff - The total number of days per staff category should correspond with the information provided in the budget tables.

Work Package Ref.nr	Partner nr	Partner acronym	Country	Number of staff days ¹					Role and tasks in the work package
				Category 1	Category 2	Category 3	Category 4	Total	
PREPARATION	P1	LUT	Finland	30	15	0	12	57	WP leader, Administrative and Financial Manager of the Project, organizes and coordinates the Kick-Off as well as other activities and meetings required to get the project running as planned.
	P2	UR	Germany	5	0	0	0	5	Responsible for establishing the project locally; participates in preparation activities to be able to collaborate efficiently the consortium wide project activities. Participate in the first meetings of the three key committees, AFSC, DPB and QAM.
	P3	UCLAN	United Kingdom	5	0	0	0	5	Responsible for establishing the project locally; participates in preparation activities to be able to collaborate efficiently the consortium wide project activities. Participate in the first meetings of the three key committees, AFSC, DPB and QAM.
	P4	AAU	Denmark	5	0	0	0	5	Responsible for establishing the project locally; participates in preparation activities to be able to collaborate efficiently the consortium wide

¹ Please see Programme Guide, Part B for your action, Table A – Project Implementation (amounts in Euro per day) Programme Countries and Table B - Project Implementation (amounts in Euro per day) Partner Countries.

									project activities. Participate in the first meetings of the three key committees, AFSC, DPB and QAM.
P5	UJ	Jordan	15	10	2	7	34	Responsible for establishing the project locally; participates in preparation activities to be able to collaborate efficiently the consortium wide project activities. Participate in the first meetings of the three key committees, AFSC, DPB and QAM.	
P6	YU	Jordan	15	10	5	6	36	Responsible for establishing the project locally; participates in preparation activities to be able to collaborate efficiently the consortium wide project activities. Participate in the first meetings of the three key committees, AFSC, DPB and QAM.	
P7	SUSU	Russian Federation	10	25	2	10	47	Responsible for establishing the project locally; participates in preparation activities to be able to collaborate efficiently the consortium wide project activities. Participate in the first meetings of the three key committees, AFSC, DPB and QAM.	
P8	SPbPU	Russian Federation	10	30	4	20	64	Responsible for establishing the project locally; participates in preparation activities to be able to collaborate efficiently the consortium wide project activities. Participate in the first meetings of the three key committees, AFSC, DPB and QAM.	
P9	JUST	Jordan	10	5	1	7	23	Responsible for establishing the project locally; participates in preparation activities to be able to collaborate efficiently the consortium wide project activities. Participate in the first meetings of the three key committees, AFSC, DPB and QAM.	

	P10	UrFU	Russian Federation	10	5	1	7	23	Responsible for establishing the project locally; participates in preparation activities to be able to collaborate efficiently the consortium wide project activities. Participate in the first meetings of the three key committees, AFSC, DPB and QAM.
	P11	SPSU	Russian Federation	10	5	2	7	24	Responsible for establishing the project locally; participates in preparation activities to be able to collaborate efficiently the consortium wide project activities. Participate in the first meetings of the three key committees, AFSC, DPB and QAM.
SUBTOTAL				125	105	17	76	323	
DEVELOPMENT	P1	LUT	Finland	42	150	0	6	198	Leader for WP2.1 and organizer of the associated intense school; participates in other development WPs/intense schools including training activities and meetings of the PDB.
	P2	UR	Germany	42	84	0	0	126	Leader for WP2.5 and organizer of the associated intense school; participates in other development WPs/intense schools including training activities and meetings of the PDB.
	P3	UCLAN	United Kingdom	42	84	0	0	126	Leader for WP2.4 and organizer of the associated intense school; participates in other development WPs/intense schools including training activities and meetings of the PDB.
	P4	AAU	Denmark	42	84	0	0	126	Leader for WP2.3 and organizer of the associated intense school; participates in other development WPs/intense schools including training activities and meetings of the PDB.
	P5	UJ	Jordan	30	200	15	4	249	Co-leader for WP2.2 and organizer of the associated intense school; participates in other development WPs/intense schools including training activities and meetings of the PDB.

	P6	YU	Jordan	30	120	10	20	180	Co-leader for WP2.2 and organizer of the associated intense school; participates in other development WPs/intense schools including training activities and meetings of the PDB.
	P7	SUSU	Russian Federation	42	160	15	13	230	Co-leader for WP2.6 and organizer of the associated intense school; participates in other development WPs/intense schools including training activities and meetings of the PDB.
	P8	SPbPU	Russian Federation	45	140	10	20	215	Co-leader for WP2.7 and organizer of the associated intense school; participates in other development WPs/intense schools including training activities and meetings of the PDB.
	P9	JUST	Jordan	30	150	10	13	203	Participates in the development activities including the industry panel and other events organized especially in Jordan but also other development WPs/intense schools including training activities and meetings of the PDB.
	P10	UrFU	Russian Federation	30	100	15	13	158	Co-leader for WP2.6 and organizer of the associated intense school; participates in other development WPs/intense schools including training activities and meetings of the PDB.
	P11	SPSU	Russian Federation	30	100	15	13	158	Co-leader for WP2.7 and organizer of the associated intense school; participates in other development WPs/intense schools including training activities and meetings of the PDB.
SUBTOTAL				405	1372	90	102	1969	
QUALITY PLAN	P1	LUT	Finland	8	8	0	0	16	Responsible for quality of their own deliverables; collaborates with the leader of the WP 3.1 to assure the project, the programs, and the framework quality; participates in DPB and WPC to coordinate the quality assurance goals and activities.

	P2	UR	Germany	8	0	0	0	8	Responsible for quality of their own deliverables; collaborates with the leader of the WP 3.1 to assure the project, the programs, and the framework quality; participates in DPB and WPC to coordinate the quality assurance goals and activities.
	P3	UCLAN	United Kingdom	8	0	0	0	8	Responsible for quality of their own deliverables; collaborates with the leader of the WP 3.1 to assure the project, the programs, and the framework quality; participates in DPB and WPC to coordinate the quality assurance goals and activities.
	P4	AAU	Denmark	18	0	0	6	24	Lead partner, collaborates with the project partners as well as ISAB and QAM to assure the project, the programs, and the framework quality.
	P5	UJ	Jordan	42	5	4	13	64	Responsible for quality of their own deliverables; collaborates with the leader of the WP 3.1 to assure the project, the programs, and the framework quality; participates in DPB and WPC to coordinate the quality assurance goals and activities.
	P6	YU	Jordan	42	10	5	6	63	Responsible for quality of their own deliverables; collaborates with the leader of the WP 3.1 to assure the project, the programs, and the framework quality; participates in DPB and WPC to coordinate the quality assurance goals and activities.
	P7	SUSU	Russian Federation	45	20	3	25	93	Responsible for quality of their own deliverables; collaborates with the leader of the WP 3.1 to assure the project, the programs, and the framework quality; participates in DPB and WPC to coordinate the quality assurance goals and activities.

	P8	SPbPU	Russian Federation	55	25	2	38	120	Responsible for quality of their own deliverables; collaborates with the leader of the WP 3.1 to assure the project, the programs, and the framework quality; participates in DPB and WPC to coordinate the quality assurance goals and activities.
	P9	JUST	Jordan	42	5	2	4	53	Responsible for quality of their own deliverables; collaborates with the leader of the WP 3.1 to assure the project, the programs, and the framework quality; participates in DPB and WPC to coordinate the quality assurance goals and activities.
	P10	UrFU	Russian Federation	42	5	4	4	55	Responsible for quality of their own deliverables; collaborates with the leader of the WP 3.1 to assure the project, the programs, and the framework quality; participates in DPB and WPC to coordinate the quality assurance goals and activities.
	P11	SPSU	Russian Federation	42	5	4	4	55	Responsible for quality of their own deliverables; collaborates with the leader of the WP 3.1 to assure the project, the programs, and the framework quality; participates in DPB and WPC to coordinate the quality assurance goals and activities.
SUBTOTAL				352	83	24	100	559	
DISSEMINATION & EXPLOITATION	P1	LUT	Finland	18	32	0	6	56	Lead partner, directs and coordinate the development of Put-it-together –framework; Manage and maintain the FASE forum and the Moodle platform for disseminating training activities.
	P2	UR	Germany	8	0	0	0	8	Responsible for local dissemination of the results; participates in Put it all together framework development and other visibility actions including

									research reports and publication. Participate in the 8 workshops organized by the Program Doctoral Board.
	P3	UCLAN	United Kingdom	8	0	0	0	8	Responsible for local dissemination of the results; participates in Put it all together framework development and other visibility actions including research reports and publication. Participate in the 8 workshops organized by the Program Doctoral Board.
	P4	AAU	Denmark	8	0	0	0	8	Responsible for local dissemination of the results; participates in Put it all together framework development and other visibility actions including research reports and publication. Participate in the 8 workshops organized by the Program Doctoral Board.
	P5	UJ	Jordan	10	15	9	9	43	Responsible for local dissemination of the results; participates in Put it all together framework development and other visibility actions including research reports and publication. Participate in the 8 workshops organized by the Program Doctoral Board.
	P6	YU	Jordan	10	15	5	8	38	Responsible for local dissemination of the results; participates in Put it all together framework development and other visibility actions including research reports and publication. Participate in the 8 workshops organized by the Program Doctoral Board.
	P7	SUSU	Russian Federation	10	13	9	12	44	Responsible for local dissemination of the results; participates in Put it all together framework development and other visibility actions including research reports and publication. Participate in the 8 workshops organized by the Program Doctoral Board.

	P8	SPbPU	Russian Federation	10	10	8	15	43	Responsible for local dissemination of the results; participates in Put it all together framework development and other visibility actions including research reports and publication. Participate in the 8 workshops organized by the Program Doctoral Board.
	P9	JUST	Jordan	10	10	5	9	34	Responsible for local dissemination of the results; participates in Put it all together framework development and other visibility actions including research reports and publication. Participate in the 8 workshops organized by the Program Doctoral Board.
	P10	UrFU	Russian Federation	6	13	9	9	37	Responsible for local dissemination of the results; participates in Put it all together framework development and other visibility actions including research reports and publication. Participate in the 8 workshops organized by the Program Doctoral Board.
	P11	SPSU	Russian Federation	6	13	9	9	37	Responsible for local dissemination of the results; participates in Put it all together framework development and other visibility actions including research reports and publication. Participate in the 8 workshops organized by the Program Doctoral Board.
SUBTOTAL				104	121	54	77	356	
MANAGEMENT	P1	LUT	Finland	72	0	0	60	132	Lead Partner; manages the project as a whole; advises, tracks the progress, and controls the other partners. Manage and maintain the project Website.
	P2	UR	Germany	18	0	0	0	18	Responsible for local project management; reports to lead partner.

	P3	UCLAN	United Kingdom	18	0	0	0	18	Responsible for local project management; reports to lead partner.	
	P4	AAU	Denmark	18	0	0	0	18	Responsible for local project management; reports to lead partner.	
	P5	UJ	Jordan	15	10	9	8	42	Responsible for local project management; reports to lead partner.	
	P6	YU	Jordan	15	10	5	8	38	Responsible for local project management; reports to lead partner.	
	P7	SUSU	Russian Federation	15	9	9	10	43	Responsible for local project management; reports to lead partner.	
	P8	SPbPU	Russian Federation	15	9	10	10	44	Responsible for local project management; reports to lead partner.	
	P9	JUST	Jordan	15	9	5	8	37	Responsible for local project management; reports to lead partner.	
	P10	UrFU	Russian Federation	10	9	9	8	36	Responsible for local project management; reports to lead partner.	
	P11	SPSU	Russian Federation	10	9	9	8	36	Responsible for local project management; reports to lead partner.	
	SUBTOTAL				221	65	56	120	462	
	TOTAL				1207	1746	241	475	3669	

Please insert rows as necessary

Subcontracting of tasks to external bodies should be very occasional. The specific competences and particular expertise needed to reach the project objectives should be found in the consortium and should determine its composition. Subcontracting is intended for specific, time-bound, project-related tasks which cannot be performed by the Consortium members themselves.

Tasks that will be subcontracted:

Work Package Ref.nr	Partner responsible for subcontracting (Acronym)	Country	Number of days (where appropriate)	Brief description of task
2.1	P1	Finland		Invited experts to teach in intense school
3.1	P4	Denmark		Costs involved in inviting the members to the Quality Assurance Committee and International Scientific Advisory Board
5.1	P1	Finland		Project website
2.4	P3	UK		Invited experts to teach in intense school
2.5	P2	Germany		Invited experts to teach in intense school
2.3	P4	Denmark		Invited experts to teach in intense school
2.2	P5	Jordan		Invited experts to teach in intense school
2.7	P8	Russia		Invited experts to teach in intense school
2.6	P7	Russia		Invited experts to teach in intense school

Please insert rows as necessary.

PART I – Special Mobility Strand

Applies *ONLY* to cooperation projects with partner countries from REGIONS 1, 2 and 3

Projects may organise mobility activities of students, researchers and staff so far as they support/complement the other activities of the **Capacity Building** project and bring added value in the realisation of the project's objectives. Mobility activities do not constitute the main activities for Capacity Building.

I.1. Relevance of mobility activities

Please describe what kind of mobility activities are foreseen in the Special Mobility Strand, what are their objectives and expected results. Explain how the mobility activities of students, researchers and staff support/complement the other activities of the Capacity Building and bring added value in the realisation of the project's objectives (limit 3000 characters).

I.2. Identification and selection of the participants

Please describe the procedures set up for identification and selection of participants for the mobility activity (limit 1000 characters).

I.3. Preparation and support

Please describe the structure for preparation of the participants for the mobility activity, including specific training or course, linguistic preparation etc. Please explain the support provided in terms of accommodation, insurances, etc. Please explain the quality measures set up in the sending and receiving organisations for monitoring the mobility activity and measures to be taken if the results foreseen are not met (limit 2000 characters).

I.4. Involvement of people with fewer opportunities

Does your project involve people with fewer opportunities? YES NO

IF YES, how many participants coming from which countries and organisations would fall under this category? Specify the type of situation of fewer opportunities these participants are facing (limit 2000 characters).

Please explain the nature of the support required and how it will be addressed, so that these persons can fully engage in the foreseen activities (limit 1000 characters).

I.5. Recognition and validation of learning outcomes

Please explain how the project intends to recognise and validate the teaching and/or learning outcomes of the participants (limit 1000 characters).

PART J - OTHER EU GRANTS

Please list the **projects** for which the organisations involved in this application have received financial support from EU programmes.

Programme or initiative	Reference number	Beneficiary Organisation	Title of the Project
H2020	645846 H2020-INFO-INCO-2014	University of Jordan	Middle East Research and Invitation Dialogue
Tempus	543879-TEMPUS-1-2013-1-GR-TEMPUS-JPCR	University of Crete	Development of Interdisciplinary Minor Programmes on Climate Change and Sustainability Policy-CLIMASP”
Tempus	543820-TEMPUS-1-2013-1-JO-TEMPUS-JPHES	University of Jordan	Capacity Building of Personnel in Jordanian Olive Industry
Tempus	544333-TEMPUS-1-2013-1-JO-TEMPUS-JPCR	German Jordanian University	Curriculum and Skill Development in Vision Rehabilitation
Tempus	544491-TEMPUS-1-2013-1-ES-TEMPUS-SMGR	Fundació per a la Universitat Oberta de Catalunya	Enhancing Quality of Technology-Enhanced Learning at Jordanian Universities
Tempus	544514-TEMPUS-1-2013-1-IT-TEMPUS-SMGR	Alma Mater Studiorum Università di Bologna	RecoNow - ENPI South: Knowledge of recognition procedures in ENPI South countries
ENPI	II-B/2.1/0875	SADECO, Sanitation Córdoba S.A. (Ltd.)	Sustainable Mediterranean Old Towns, SMOT
Tempus	543879-TEMPUS-1-2013-1-GR-TEMPUS-JPCR	University of Crete	Development of Interdisciplinary Minor Programmes on Climate Change and Sustainability Policy-CLIMASP”
FP7	294975 FP7-INCO-2011	University of Jordan	Jordan Conservation of Cultural Heritage in ERA
Tempus	511074-1-TEMPUS-2010-1-JO-JPCR	Yarmouk University	Modernize the Masters Program in Wireless in Communications at the Telecommunications Engineering Department
Tempus	530616-TEMPUS-1-2012-1-ES-TEMPUS-SMGR	University of Barcelona	Enhancement of Quality Assurance Management in Jordanian Universities (EQuAM)
ERASMUS+ Strategic Partnerships Cooperation for innovation and the exchange of good practices	2014-1-DE01-KA203-000706	Aalborg University	OnCreate

Competitiveness and innovation CIP-pilot actions	Grant agreement no. 621137	Aalborg University	VOICE – Virtual Open Incubation Ecosystem
TEMPUS	543808-TEMPUS-1-2013-1-BE-Tempus-JPHES	South Ural State University	“PICTET: EQF-based professional ICT training for Russia and Kazakhstan”
TEMPUS	Number of the Grant Agreement 2013-4522/001-001	South Ural State University	“International Master Course Ensuring of product life cycle technological process efficiency in Russian universities”
ERASMUS MUNDUS ACTION 2	Agreement number 2011-2574/001-001-EMA2, Project number 204398-1-2011-1-FI-ERA MUNDUS-EMA21	UNIVERSITY OF TURKU	TRIPLE I, 2011-2015
ERASMUS MUNDUS ACTION 2	Agreement number 2011-2573/001-001-EMA2	UNIVERSITY OF BARCELONA	ERANET MUNDUS, 2011-2015
ERASMUS MUNDUS ACTION 2	Agreement number 2012-2734/001-001-EMA2	UNIVERSITY OF BARCELONA	ERANET PLUS, 2012-2016
EC People – Marie Curie Actions, International research staff exchange	FP7-ENV-2010	CONSIGLIO NAZIONALE DELLE RICERCHE	Global Mercury Observation System
EC People – Marie Curie Actions, International research staff exchange	FP7-PEOPLE-2013-ITN	UNIVERSITAET HAMBURG	Power and Region in a Multipower order
EC People – Marie Curie Actions, International research staff exchange	FP7-ICT-2011-C	UNIVERSITY OF BRISTOL	Spin Photon Angular Momentum Transfer for Quantum-Enabled Technologies
TEMPUS	530603-TEMPUS-1-2012-1-LT-TEMPUS-JPCR	Vilnius Gediminas Technical University, LT	Reformation of the Curricula on Built Environment in the Eastern Neighbouring Area (CENEAST)
TEMPUS	530529-TEMPUS-1-2012-1-ES-TEMPUS-JPCR	University of Extremadura, ES	Network for excellence in tourism through organizations and Universities in Russia (NETOUR)
TEMPUS	544490-TEMPUS-1-2013-1-ES-TEMPUS-JPCR	Universitat Politecnica de Valencia, ES	A Methodology for the Formation of Highly Qualified Engineers at Master's Level in the Design and Development of Advanced

			Industrial Information Systems (MEDIS)
TEMPUS	544083-TEMPUS-1-2013-1-PT-TEMPUS-JPCR	Universidade ABERTA, PT	Enhancement of Russian Creative Education: New Master Program in Digital Arts in Line with EU Standards (ENDMA)
TEMPUS	544019-TEMPUS-1-2013-1-AT-TEMPUS-JPCR	FH-JOANNEUM, AT	International MA Course "Ensuring of Product Life Cycle Technological Processes Efficiency" at Russian Universities (SUCCESS)
TEMPUS	543727-TEMPUS-1-2013-1-IT-TEMPUS-SMGR	Univerity of Genova, IT	On-line Quality Assurance of Study Programmes (EQUASP)
Tempus	511074-1-TEMPUS-2010-1-JO-JPCR	Yarmouk University (YU)	Modernize the Masters Program in Wireless in Communications at the Telecommunications Engineering Department
Tempus	530616-TEMPUS-1-2012-1-ES-TEMPUS-SMGR	- University of Barcelona is the grant holder, - YU is a partner and beneficiary.	Enhancement of Quality Assurance Management in Jordanian Universities (EQuAM)
EU- Erasmus Mundus.	EACEA/41/10 - STRAND1 - Lot 5.	Lund University-Sweden	JOSYLEEM Erasmus Mundus Action 2 - Partnerships. Jordan Syria Linking Europe and Erasmus Mundus-
EU- Erasmus Mundus.	Erasmus Mundus 2011-2556/001-001-EMA2	echnische Universität Berlin-Germany	Avempace Partnerships with Third Country Higher Education Institutions and Scholarships for Mobility Jordan, Lebanon, Palestine and Syria.
EU- Erasmus Mundus.	Erasmus Mundus II 2012-2622/001-001-EMA2	echnische Universität Berlin-Germany	Avempace II Partnerships with Third Country Higher Education Institutions and Scholarships for Mobility Jordan, Lebanon, Palestine and Syria.
EU- Erasmus Mundus.	2012-2624/001-001-EM Action 2	Cardiff Metropolitan University-UK	Epic Erasmus Mundus II Action 2 Strand 1 Lot 2: Partnerships with Third Country Higher Education

			Institutions and Scholarships for Mobility Jordan, Lebanon,
EU- Erasmus Mundus.	Erasmus Mundus II 2012-2622/001-001-EMA2	Technische Universität Berlin-Germany	Avempace III Partnerships with Third Country Higher Education Institutions and Scholarships for Mobility Jordan, Lebanon, Palestine and Syria.
EU- Erasmus Mundus.	Erasmus Mundus II Action 2 Strand 1 Lot 2	Université Saint - Joseph- Beirut	Hermes Partnerships with Third Country Higher Education Institutions and Scholarships for Mobility Jordan, Lebanon, Palestine and Syria.
EU-Tempus		YU,GJU,PSUT,UOP, MOHE,HEAC,AAU.J UNet,WU,UB,WUT, DCU,ANCA,ENQA	Enhancement of Quality Assurance Management in Jordanian Universities EquAM
EU-Tempus	FP7- People - 2012-IRSES- BIOMED 378905	YU, Spain Greece, Turkey, Egypt	IRSES- BIOMED
EU – Tempus		German Jordanian University	Partnership with enterprises Towards Building Open Source Software Communities and Rejuvenation of Technical Education and Innovation (OSSCOM)
EU-Tempus		University of Deusto-Spain	Tuning Middle East and North Africa
EU-Tempus		Universitat de Barcelona-Spain	Modernisation of Institutional Management of Internationalization in South Neighboring Countries
EU-Tempus		Fundació per a la Universitat Oberta de Catalunya	Enhancing Quality of Technology-Enhanced Learning at Jordanian Universities
Erasmus Intensive Programme	2013-1-FI1-ERA10-12993	Lappeenranta University of Technology	Open Innovation Clinique - OIQ
Erasmus Intensive Programme	2012-1-FI1-ERA10-09686	Lappeenranta University of Technology	Open Innovation Clinique

ERASMUS MOBILITY 2014-2015	2014-1-I01-KA103-000044	Lappeenranta University of Technology	Erasmus+ mobility, Key action 1
ERASMUS MOBILITY 2013-2014	2013-1-F11-ERA02-12898	Lappeenranta University of Technology	Erasmus Mobility, Key action 1
ERASMUS MOBILITY 2012-2013	2012-1-F11-ERA02-09602	Lappeenranta University of Technology	Erasmus Mobility, Key action 1
Erasmus Mundus Master Course	Agreement number 2013-0231	University of Lorraine	PERCCOM "Pervasive computing & communications for sustainable development"
Erasmus Mundus Action 2 EM2-STEM	2010-4728-/001-001-EMA2	City University London	Erasmus Mundus Entrepreneurship and Management training for Science, Technology, Engineering and Mathematics, EM2-STEM
European Academic Network	542203-LLP-1-2013-1-FI-ERASMUS-ENW	Lappeenranta University of Technology (Coordinator)	OI-Net, Open Innovation Network
Strategic partnership	2014-1-ES01-KA203-004956	Universidad de Las Palmas de Gran Canaria	Strategic partnership for the development of training workshops and modelling clinic for industrial mathematics.
Erasmus Mundus Action 2 EM Action 2, Strand 1, Lot 2	Agreement number 2014-0848 Application number 552105-EM-1-2014-1-PL-ERA MUNDUS-EMA21	University of Warsaw	SIGMA Agile
TEMPUS	516857-TEMPUS-1-2011-1-SE-TEMPUS-JPCR	Southern Federal University, Russia	ICARUS Internationalized Curricula Advancement at Russian Universities in the Southern region
Tempus	543879-TEMPUS-1-2013-1-GR-TEMPUS-JPCR	The University of Crete	Development of Interdisciplinary Minor Programmes on Climate Change and Sustainability Policy-CLIMASP"
Tempus	543820-TEMPUS-1-2013-1-JO-TEMPUS-JPHES	The University of Jordan	Capacity Building of Personnel in Jordanian Olive Industry
Tempus	544333-TEMPUS-1-2013-1-JO-TEMPUS-JPCR	German Jordanian University	Curriculum and Skill Development in Vision Rehabilitation

Tempus	544491-TEMPUS-1-2013-1-ES-TEMPUS-SMGR	Fundació per a la Universitat Oberta de Catalunya	Enhancing Quality of Technology-Enhanced Learning at Jordanian Universities
Tempus	544514-TEMPUS-1-2013-1-IT-TEMPUS-SMGR	Alma Mater Studiorum Università di Bologna	RecoNow - ENPI South: Knowledge of recognition procedures in ENPI South countries
Horizon2020, FoF-04-2014	636778	Virtual Vehicle Research Center	Worker-Centric Workplaces in Smart Factories
FP7 SSH	612889	Lappeenranta University of Technology, Finland	A Framework Model on MNE's impact on global development challenges in emerging markets
FP7-EURATOM-FISSION	323304	TECHNISCHE UNIVERSITEIT DELFT	Graduate and Executive Nuclear Training and Lifelong Education
FP7-NMP-ICT-FoF	609355	VALSTYBINIS MOKSLINIU TYRIMU INSTITUTAS FIZINIU IR TECHNOLOGIJOS MOKSLU CENTRAS	Hub of Application Laboratories for Equipment Assessment in Laser Based Manufacturing
FP7-JTI	621213	VTT	Innovative SOFC system layout for stationary power and CHP applications
FP7-PEOPLE	295155	MAX PLANCK GESELLSCHAFT ZUR FOERDERUNG DER WISSENSCHAFTEN E.V. Germany	KOALA
FP7-NMP	280581	THE UNIVERSITY OF HUDDERSFIELD, UK	Nanoscale Defect Detection, Cleaning and Repair for Large Area Substrates
FP7 EURATOM	323263	Commissariat à l'Énergie Atomique et aux Énergies Alternatives Centre de Saclay	NURESAFE
FP7-ENERGY	295533	FUNDACION CIRCE CENTRO DE INVESTIGACION DE RECURSOS Y CONSUMOS ENERGETICOS	Optimisation of oxygen-based CFBC
FP7-PEOPLE	295180	UMEA UNIVERSITET	MAGNONMAG - Magnetic order induced in nonmagnetic solids
FP7-EURATOM-FISSION	249337	Karlsruher Institut fuer Technologie	Thermal-hydraulics of Innovative Nuclear
Non-State Actors and Local Authorities	2011/278-730	Baltic Development Forum (Denmark)	Energy Efficiency and Renewable Energy

Programme for the Baltic Sea Region			
Specific Programme Civil Justice	JUST/2013/JCIV/AG/4663	Lappeenranta University of Technology	Towards European Caseflow Management development network - Identifying, developing and sharing best practices
South-East Finland-Russia ENPI CBC programme 2007-2013	2011-057-SE562	Lappeenranta University of Technology	Arctic Materials Technologies Development
South-East Finland-Russia ENPI CBC programme 2007-2013	2010-010-SE312	Lappeenranta University of Technology	ENPI Innovation & Business - Innovations
South-East Finland-Russia ENPI CBC programme 2007-2013	2011-091-SE693	Lappeenranta University of Technology	Efficient Energy Management
South-East Finland-Russia ENPI CBC programme 2007-2013	2011-092-SE748	Lappeenranta University of Technology	Exploiting Municipal and Industrial Residues
South-East Finland-Russia ENPI CBC programme 2007-2013	2011-095-SE688	Lappeenranta University of Technology	Finnish-Russian Forest Academy 2 - Extension and Piloting
South-East Finland-Russia ENPI CBC programme 2007-2013	2011-058-SE425	Lappeenranta University of Technology	Cross-Border Citizen Scientist
Karelia ENPI CBC Programme	KA397	Culmentor	Aquatic resources for green energy realization
South-East Finland-Russia ENPI CBC programme 2007-2013		Saint Petersburg National Research University ITMO	Cross-Border Photonics Initiative
South-East Finland-Russia ENPI CBC programme 2007-2013		Ioffe Institute	International System Development of Advanced Technologies Implementation in Border Regions
South-East Finland-Russia ENPI CBC programme 2007-2013		Non-Commercial Partnership North-West Funding Service Centre (FSC)	Renewable energy for small localities
South-East Finland – Russia ENPI CBC 2007-2013		JSC Ecotrans	Improvement of waste oil management in North-West Russia and South-East Finland
Research Fund for Coal and Steel			Calcium looping CO2 capture technology with extreme oxy-

			coal combustion conditions in the calciner
Baltic Sea Region Programme		City of Helsinki, Finland	RBGC Russia
European Design Innovation Initiative (EDII)		Agence pour la Promotion de la Création Industrielle	REDI - when Regions support Entrepreneur
ERC		University of Almeria, Spain	Resurssitehokkuuden parantaminen tuoreiden hedelmien ja vihannesten jalostuksessa
ERASMUS+	2014-1-UK01-KA103-000164	UCLan	Erasmus KA1 Mobility Allocation
ERASMUS+	2014-1-NL01-KA200-001279	UCLan - Partner	Sign Language Teachers in Europe: an Open Educational Resource
ERASMUS+	554341-EPP-1-2014-1-IT-EPPKA2-SSA	UCLan - Partner	Sector Skills Alliance - Lead Erifo, Italy
LLP Erasmus	539369-LLP-1-2013-1-ERASMUS-ENW	Fundacio Privada Universitat I Technologica	LLP - OIKOnet: Multidisciplinary network on housing research and learning
DG Directorate General	FP7-INCO-2013-1	UCLan - Partner	INCONET
DG Directorate General	542450-LLP-1-2013-1-UK-AJM-MO	UCLan	Jean Monnet application
DG Directorate General	IP/G/EAVA/IC/2013-169	UCLan	Cost of Non-Europe report in the Single Market in Transport: Tourism policy and passenger rights
DG Directorate General	519332-LLP-1-2011-1-PT-KA3-KA3NW	UCLan - Partner	SEGAN Serious Games Network
DG Directorate General	JUST/2011/JPEN/AG/2925	UCLan	Assessing Vulnerable Victims
DG Directorate General	JUST/2011/DAP/AG/3330	UCLan - Partner	Safeguarding Teenage Intimate Relationships (STIR): Connecting On-Line and Off-Line Risks
DG Directorate General	530953-LLP-1-2012-1-DE-KA2-KA2MP	UCLan - Partner	Signs2Cross: Linguistic mobility for Deaf people in Europe
DG Directorate General	JUST/2011/DAP/AG/3009	UCLan - Partner	Investigating national policies to address child violence to identify good practices for translation across the EU
DG Directorate General	2013/UK PRESTON01/28165	UCLan	Erasmus Mobility Grant UCLAN

ERC (European Research Council)	ERC-2013-AdG - 339239	UCLan, Partner Institution: RIS, India	ERC Advanced Grant- Performance-based Innovation Rewards
ERDF	X01848PR	UCLan	UNITE Continuation
ERDF	X03061PR	UCLan - Partner	Cumbria Growth Hub ERDF
ERDF	X03063PR	UCLan - Partner	Lancashire Growth Hub
ERDF	X02440PR	UCLan	Incubation at Westlakes
ERDF	X02624PR	UCLan	Media Factory 2 - Spreading best practice for incubation support
ERDF	X02634PR	UCLan	Innovation Lab
ESF	2621	UCLan - Partner	CITIZENS RAIL; Interreg IVB bid with LCC
Horizon 2020	321400	UCLan	Promoting Global Responsible research and Social and Scientific Innovation
Horizon 2020	635973	UCLan - Partner	Business models for enhancing funding and enabling financing for infrastructure in transport BENEFIT
EU COST Networking Grant	TU1001	UCLan	Public Private Partnerships (PPPs) in EU Transport: Trends and Theory
FP7 INCO-NET Action	609562	UCLan	Collaborative Action towards Societal Challenges through Awareness, Development and Education (CASCADE)
FP7 Marie Curie Fellowship IEF	629486	UCLan	Transatlantic Politics of Horror and Terror in Gothic Narratives of the Haitian Revolution, 1791-201
FP7	543841-LLLP-1-2013-UK-KA3-KA3MP	UCLan	CreAting Machinima Equips (Empowers by Expert Enriches) Live Online Teachers
FP7	603667	UCLan - Partner	Automated Sorting and Recycling of Waste Lamps
FP7	TD1304-1	UCLan	COST Action - Zinc
FP7	611516	UCLan - Partner	Semeioticons - ICT Strep
FP7	319969	UCLan - Partner	Optimisation of Integrated Solid Waste Management Strategies for the Maximisation of Resource Effici
FP7	SI2.648445-30CE05572910057	UCLan - Partner	Greenways Product – Sustainable Tourism
FP7	321500	UCLan	Research & Innovation - Global Responsibility
FP7	285582	UCLan - Partner	RESPECT
FP7	308391	UCLan - Partner	Development of safer and more Eco-friendly flame Retardant materials based on CNT co-additives DEROCA

TEMPUS	511251-TEMPUS-1-2010-1-DE-TEMPUS-SMHES	University of Rostock	Development of a Modern Higher Education System for Water Engineering in Syria
TEMPUS	543720-TEMPUS-1-2013-1-DE-TEMPUS-JPCR	Ural Federal University	New Model of the Third Cycle in Engineering Education due to Bologna Process in in BY, RU, UA (NETCENG)
TEMPUS	543727-TEMPUS-1-2013-1-IT-TEMPUS-SMGR (2013-4601/001-001)	Ural Federal University	On-line Quality Assurance of Study Programmes – EQUASP
TEMPUS	159311-TEMPUS-2-2009-11T-YPSP	Ural Federal University	Network for Master Training in Technologies of Water Resources Management
TEMPUS GREENMA	530620- TEMPUS - 1-1T-TEMPUS-YPCR	Ural Federal University	Innovative Technologies for Energy Saving and Environmental Control
Interreg		University of Rostock	Baltic COMPASS: Cluster "Saving the Baltic Sea Waters" - Projekt Baltic MANURE
Interreg		University of Rostock	INTERREG IVB: DSS-Herbicide
Interreg		University of Rostock	INTERREG IVB: AQUAFIMA
Interreg		University of Rostock	DredgDikes (South Baltic Programme)
FP 7		University of Rostock	Capability as a Service in digital enterprises (CaaS)
FP 7		University of Rostock	TWO!EARS
FP 7		University of Rostock	European Coordination for Accelerator Research and Development 2 - EuCARD 2
FP 7		University of Rostock	CASyM - Coordination Action Systems Medicine
FP 7		University of Rostock	CoCoNET (SICA)
Interreg		University of Rostock	Generation BALT - INTERREG
FP 7		University of Rostock	Photocatalytic Materials Destruction of Recalcitrant Organic Industrial Waste (PCATDES)
Interreg		University of Rostock	REGFOOD - Increasing Competitives of South Baltic Regional Food
FP 7		University of Rostock	COHAB
FP 7		University of Rostock	ERC-2010-StG: ROMI

Please insert rows as necessary.

Please list **other grant applications** submitted by your organisation, or by any partner organisation in this project proposal. For each grant application, please mention the EU Programme concerned and the amount requested.

Programme concerned	Beneficiary Organisation	Amount requested
FP7-ICT-2013-10 (CITTA 2.0)	Aalborg University	2.610.840
FP7-ICT-2013-10 (PIA4life)	Aalborg University	2.942.108
FP7-2013-ICT-FI (FI-SAFE)	Aalborg University	5.990.695
H2020-MSCA-ITN-2014 (KREATE)	Aalborg University	3.954.106
H2020-ICT-2014-1 (EBSIMM)	Aalborg University	1.477.045
H2020-DS-2014-1 (EmPrivEco)	Aalborg University	4.240.171
H2020-SEAC-2014-1 (SMP)	Aalborg University	1.773.644
H2020-INSO-2014-1 (Innovation4All)	Lappeenranta University of Technology	995.000
H2020-INSO-2014-1 (FUNCODE)	Lappeenranta University of Technology	999.000

Please insert rows as necessary.

CHECK LIST

Please make sure that you fully completed each part of this application form, as follows:

- PART D - Quality of the project team and the cooperation arrangements
- PART E - Project characteristics and relevance
- PART F - Quality of the project design and implementation
- PART G - Impact, dissemination and exploitation, sustainability
 - Logical Framework Matrix
 - Workplan
- PART H - Work packages
- PART I – Special Mobility Strand (where applicable)
- PART J - Other EU Grants