ACTTIVATE CALL FOR PROPOSAL

APPENDIX I: INNOVATION ACTION LINES

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APPENDIX I: TOPIC DESCRIPTION

TOPIC 1: FOSTERING CROSS-SECTORAL INNOVATION IN AGROFOOD

Topic	**Fostering Cross-Sectoral Innovation in Agrofood**		
Topic identifier	**ACTTiVAte-AGF**		
Source Sector	Aerospace Health ICT	**Target sector**	Agrofood
Publication Date	01-06-2017		
Deadline model	Single Stage		
Opening date	01-06-2017	**Closing date**	05-09-2017 17:00 (CET)

Short description	Fostering innovation in the Agrofood sector by cross-sectoral technological transfer from the Aerospace, Health and Information and Communication Technologies sectors.
Specific Challenge	Nowadays one of the challenges of Europe is its reindustrialization through the technological development of SMEs as well as their capability of innovation (invention plus commercialization). Many European SMEs develop technological innovations which may be applicable in different industrial sectors outside their own scope. However, the day-to-day activity, the lack of external support and training, and the resultant weak strategic vision prevents them from innovating in markets other than their own. Therefore, cross-sectoral collaboration among clusters is a key point to promote this technology transfer, the generation of new value chains and the creation of emerging industries. SMEs with a vast potential of innovation should be supported to allow them to use their know-how in other sectors. In addition, the versatility of SMEs from a technical point of view provides the market with employers that can be easily adapted to other sectors, thereby contributing to the sustainability of the European labour market. The specific challenge to be addressed by the projects within this call is the cross-sectoral transfer of mature technologies from the Aerospace, Health and ICT sectors to the Agrofood sector. Technological transfer should maximize the impact in the destination sector without having to go through the whole innovation pathway. Several technology groups have been identified as having great potential to impact the Agrofood sector after cross-sectoral transference, such as: • **Control Systems and automation** • **ICT tools, instruments and software** • **Advanced Materials** Other technology groups from the origin sectors may also provide cross-sectoral technology transfer with relevant impact for the Agrofood sector. Projects are not limited to the referred technologies, but a clear demonstration of the impact in the destination sector is required.
Expected impacts	The main impact is to encourage trans-sectoral innovation at the SMEs

	scale. Within the projects there will be an active exchange of innovations developed in a given industry, adapted by other industries. Thereby reinforcing their utility and functionality. The selected projects must generate outcomes that are coherent with the existing industrial plans and strategies in the regions where the supported SMEs are located. The projects must also have close relations with sectoral and regional clusters or associations to promote the technological uptake of the developed technologies within the region and the industrial sector. Many European regions have implemented excellent RIS3 strategies and the projects must fit into the general RIS3 framework. The idea here is not only to ensure this coherence, but also facilitate that funded projects, in as much as they should be swiftly implemented, may help better define and/or attain concrete RIS3 outcomes. The main impact indicators are related to the economic benefits to the regional and sectoral value chains, which must go much beyond the project and the supported SME, as well as direct and indirect job creation. Specific impacts expected from the projects are related to the enhancement of efficiency and /or sustainability in the production and supply chains, such as methods to improve the monitoring of all relevant elements in the production system, including plants and the entire supply chain (up- and/or downstream), allowing more precise planning and more beneficial decision making. Furthermore, the detection of crisis and the mitigation of its impacts is of utmost importance for the Agrofood sector. Early warning systems for food safety require the effective and efficient integration of several technologies that may already have matured in other sectors.
Background	Several specific technologies with potential impact in the Agrofood sector have been identified, such as **Auto-identification systems, the Internet of Things, GPS and GNSS, Radar technology, advanced positioning systems based on time-transfer techniques, Big data management or data analysis platforms, cloud computing and information systems, e-commerce and nano-isolation materials, among many others**. Only a few illustrations are described below. Technologies related to control systems and automation, like auto-identification systems and data capture, are capable of automatically identifying objects, collect data about them and enter that data directly into computer systems. Technologies like barcode scanning and Radio Frequency Identification (RFID) are well known and have a wide range of applications in several sectors. Other automatic position tracking systems, like the Global Positioning System (GPS), have been developed and are now mature technologies with reduced operation costs. Those technologies can upgrade many more systems in the Agrofood sector. Technologies related to ICT tools, instrumentation and software, like The Internet of Things (IoT) which is the network of physical objects or "things" embedded with electronics, software, sensors and connectivity to enable them to achieve greater value and service by exchanging data, potentially with the whole value chain and/or other connected devices. Further, Big Data Management Platforms improve collection, storage, processing and access to big data received from large scale sensor systems. The trading in products or services using computer networks. Computer management tools, automation tools, e-commerce of products, e-learning, information portals, social networking, traceability services and information tools for precision tasks are also available and require only the opportunity to enter specific fields of the Agrofood sector and quantitatively improve its efficiency. Software, applications, algorithms may also be developed to

	analyse all the collected data and provide useful and possibly critical input to decision-making. Another technology field is related to the new advanced materials that have been made available in many sectors. Nanotechnology can be applied in the production, processing, safety and packaging of food. Nanocomposite coating processes may improve food packaging by placing anti-microbial structures directly on the surface of the coating film. Nanocomposites may control gas permeability of different films and/or fillers as is needed for different products. They can also improve the mechanical and heat-resistance properties and lower the oxygen transmission rate. Some nanotechnologies have already matured and have been proven effective, while other promising nanotechnologies are still evolving and the time to market is still unknown. The referred specific technologies identified in the “Background” are examples with potential for cross-sectoral transfer, but the present call is not limited to these, and other technologies can be proposed, as long as they are aligned with the technology fields mentioned in the “Specific Challenge” of the topic. Other kinds of technologies, outside such fields, would be accepted only if the potential for cross-sectoral transfer is clearly justified.

Special skills, capabilities and certification expected from applicants	The following skills and capabilities are critical to ensure a successful and relevant implementation of the projects supported by the present action: • Activity in the Agrofood sector. • Active and close relations with the sectoral and regional clusters and associations. • Proneness to develop, implement or internalize new technologies to provide new or updated products or services.

TOPIC 2: FOSTERING CROSS-SECTORAL INNOVATION IN AEROSPACE

Topic	**Fostering Cross-Sectoral innovation in Aerospace**		
Topic identifier	**ACTTiVAte-ASP**		
Source sector	Agrofood Health ICT	**Target sector**	Aerospace
Publication Date	01-06-2017		
Deadline model	Single Stage		
Opening date	01-06-2017	**Closing date**	05-09-2017 17:00 (CET)

Short description	Fostering innovation in the Aerospace sector by cross-sectoral technological transfer with the Agrofood, Health and Information and Communication Technologies sectors.
Specific Challenge	Nowadays one of the challenges of Europe is its reindustrialization through the technological development of SMEs as well as their capability of innovation (invention plus commercialization). Many European SMEs develop technological fields which may be applicable in different industrial sectors outside their own scope. However, the day-to-day activity, the lack of external support and training and the resultant weak strategic vision prevents them from innovating in markets other than their own. In this sense, cross-sectoral collaboration among clusters is a key point to promote this technology transfer, the generation of new value chains and the creation of emerging industries. It is not beneficial that SMEs with a vast potential of innovation underuse their potential or even have to close down because they do not have the necessary support that would allow them to use their know-how in other sectors. In addition, the versatility of SMEs from a technical point of view provides the market with employers that can be easily adapted to other sectors, thereby contributing to the sustainability of the European labour market. The specific challenge to be addressed by the projects within this call is the cross-sectoral transfer of mature technologies from the Agrofood, Health and ICT sectors to the Aerospace sector. Technological transfer should maximize the impacts in the destination sector without having to go through the whole innovation pathway. Several technologies have great potential impact in the Aerospace sector, such as: • Control Systems and automation • ICT tools, instruments and software Projects are not limited to these technologies, but a clear demonstration of the impact in the destination sector is required.
Expected impacts	The main impact is to encourage trans-sectoral innovation at the SMEs scale. Within the projects there will be an active exchange of innovations developed in a given industry, adapted by other industries. Thereby reinforcing their utility and functionality. The selected projects must generate outcomes that are coherent with the existing industrial plans and strategies in the regions where the supported SMEs are located. The projects must also have close relations with sectoral

	and regional clusters or associations to promote the technological uptake of the developed technologies within the region and the industrial sector. Many European regions have implemented excellent RIS3 strategies and the projects must fit into the general RIS3 framework. The idea here is not only to ensure this coherence, but also facilitate that funded projects, in as much as they should be swiftly implemented, may help better define and/or attain concrete RIS3 outcomes. The main impact indicators are related to the economic benefits to the regional and sectoral value chains, which must go much beyond the project and the supported SME, as well as direct and indirect job creation. Specific impacts expected from the projects are related to the enhancement of efficiencyof management activities such as methods to improve the monitoring of all relevant elements in the production, supply chain and operation systems, allowing more precise planning and more beneficial decision making. Further, several technologies from the gaming industry may have applications for training of new professionals and/or the validation of new techniques. The augmented reality technologies are expected to have great impact in the manufacturing, testing and maintenance operations through subsurface imaging techniques and by providing real-time access to a broad range of relevant information.
Background	Several specific technologies with potential impact in the Aerospace sector have been identified, like **Electro-chemical sensors, SiPM Sensors, Remote sensing technologies, sensor-integration techniques, lab-on-a-chip, NDI technologies, Advice systems, Early-warning systems, Modelling and simulation technologies, Structural Health Monitoring devices systems, Gamification and Virtual reality, Augmented reality and Embedded system, among many others**. Only a few illustrations are described below. Technologies related to control systems and automation like auto-identification systems and data capture are capable of automatically identifying objects, collect data about them and enter that data directly into computer systems. Technologies like barcode scanning and Radio Frequency Identification (RFID) are well known and have a wide range of applications in several sectors, while other automatic position tracking systems like the Global Positioning System (GPS) have been developed and are now mature technologies with reduced operation costs, that can upgrade many more systems in the Aerospace sector. Technologies related ICT tools, instruments and software, like The Internet of Things (IoT) which is the network of physical objects or "things" embedded with electronics, software, sensors and connectivity to enable it to achieve greater value and service by exchanging data potentially with the whole value chain and/or other connected devices. Further, Big Data Management Platforms improve collection, storage, processing and access to big data received from large scale sensor systems. The trading or facilitation of trading in products or services using computer networks. Computer management tools, automation tools, e-commerce of products, e-learning, information portals, social networking, traceability services and information tools for precision tasks are also available and require only the opportunity to enter specific fields of the Agrofood sector and quantitatively improve its efficiency. Software, applications, algorithms may also be developed to analyse all the collected data and provide useful and possibly critical input to decision-making. Technologies related to the gaming industry have very promising applications in the manufacturing, testing and maintenance activities where

	relevant information can be provided to the operators in a visual set-up that leaves the hands completely free to perform the necessary tasks and handle the required components and tools. This will also reduce the need for physical manuals, ensuring the execution of the correct procedures by imposing the predefined sequence of actions. Another technology field is related to the new advanced electrochemical sensors that may be applicable to a wide range of testing procedures like the detection of leaks, monitoring of interior air quality in the manufacturing plant or inside the aircraft during flight. The referred specific technologies identified in the “Background” are examples with potential for cross-sectoral transfer, but the present call is not limited to these, and other technologies can be proposed, as long as they are aligned with the technology fields mentioned in the “Specific Challenge” of the topic. Other kinds of technologies, outside such fields, would be accepted only if the potential for cross-sectoral transfer is clearly justified.

Special skills, capabilities and certification expected from applicants	The following skills and capabilities are critical to ensure a successful and relevant implementation of the projects supported by the present action: • Solvable financial situation. • Activity in the Aerospace sector. • Active and close relations with the sectoral and regional clusters and associations. • Proneness to develop, implement or internalize new technologies to provide new or updated products or services.

TOPIC 3: FOSTERING CROSS-SECTORAL INNOVATION IN HEALTH

Topic	Fostering Cross-Sectoral innovation in Health		
Topic identifier	**ACTTiVAte-HEA**		
Source sector	Agrofood Aerospace ICT	**Target sector**	Health
Publication Date	01-06-2017		
Deadline model	Single Stage		
Opening date	01-06-2017	**Closing date**	05-09-2017 17:00 (CET)

Short description	Fostering innovation in the Health sector by cross-sectoral technological transfer with the Agrofood, Aerospace and Information and Communication Technologies sectors.
Specific Challenge	Nowadays one of the challenges of Europe is its reindustrialization through the technological development of SMEs as well as their capability of innovation (invention plus commercialization). Many European SMEs develop technological fields which may be applicable in different industrial sectors outside their own scope. However, the day-to-day activity, the lack of external support and training and the resultant weak strategic vision prevents them from innovating in markets other than their own. In this sense, cross-sectoral collaboration among clusters is a key point to promote this technology transfer, the generation of new value chains and the creation of emerging industries. It is not beneficial that SMEs with a vast potential of innovation underuse their potential or even have to close down because they do not have the necessary support that would allow them to use their know-how in other sectors. In addition, the versatility of SMEs from a technical point of view provides the market with employers that can be easily adapted to other sectors, thereby contributing to the sustainability of the European labour market. The specific challenge to be addressed by the projects within this call is the cross-sectoral transfer of mature technologies from the Agrofood, Aerospace and ICT sectors to the Health sector. Technological transfer should maximize the impacts in the destination sector without having to go through the whole innovation pathway. Several technologies have great potential impact in the Health sector, such as: • Control Systems and automation • Production Technologies • ICT tools, instruments and software • Advanced Materials Projects are not limited to these technologies, but a clear demonstration of the impact in the destination sector is required.
Expected impacts	The main impact is to encourage trans-sectoral innovation at the SMEs scale. Within the projects there will be an active exchange of innovations developed in a given industry, adapted by other industries. Thereby

	reinforcing their utility and functionality. The selected projects must generate outcomes that are coherent with the existing industrial plans and strategies in the regions where the supported SMEs are located. The projects must also have close relations with sectoral and regional clusters or associations to promote the technological uptake of the developed technologies within the region and the industrial sector. Many European regions have implemented excellent RIS3 strategies and the projects must fit into the general RIS3 framework. The idea here is not only to ensure this coherence, but also facilitate that funded projects, in as much as they should be swiftly implemented, may help better define and/or attain concrete RIS3 outcomes. The main impact indicators are related to the economic benefits to the regional and sectoral value chains, which must go much beyond the project and the supported SME, as well as direct and indirect job creation. Specific impacts expected from the projects are related to the enhancement of health security within our society by providing early warning systems and improving the effectiveness of disease diagnosis and detection of hazardous elements in the interior air of buildings. New materials can also find novel applications in medical equipment from packaging to surgery tools and diagnosis equipment.
Background	Several specific technologies with potential impact in the Health sector have been identified, like **Electro-chemical sensors, SiPM Sensors, Remote sensing technologies, sensor-integration techniques, lab-on-a-chip, NDI technologies, Advice systems, Early-warning systems, Gen activity measurement methods, 3D printing and Additive manufacturing technologies, Laser surface hardening, Product quality monitoring, among many others**. Only a few illustrations are described below. Technologies related to control systems and automation like auto-identification systems and data capture are capable of automatically identifying objects, collect data about them and enter that data directly into computer systems. Technologies like barcode scanning and Radio Frequency Identification (RFID) are well known and have a wide range of applications in several sectors, while other automatic position tracking systems like the Global Positioning System (GPS) have been developed and are now mature technologies with reduced operation costs, that can upgrade many more systems in the Health sector. Technologies related ICT tools, instruments and software, like The Internet of Things (IoT) which is the network of physical objects or "things" embedded with electronics, software, sensors and connectivity to enable it to achieve greater value and service by exchanging data potentially with the whole value chain and/or other connected devices. Further, Big Data Management Platforms improve collection, storage, processing and access to big data received from large scale sensor systems. The monitoring of health parameters within a community can provide very relevant information to adapt the health services to the specific needs of the community and to realign health policies. Software, applications, algorithms may also be developed to analyse all the collected data and provide useful and possibly critical input to decision-making.

	Another technology field is related to the new advanced materials that have been made available in many sectors. Advanced materials and nanotechnology can be applied in various tools and equipment, providing better performance and new functionalities like anti-microbial and inert structures on the surface of the coating film tools. They can also improve the mechanical and heat-resistance properties and lower the oxygen transmission rate. Some nanotechnologies have already matured and have been proven effective, while other promising nanotechnologies are still evolving and the time to market is still unknown. The referred specific technologies identified in the "Background" are examples with potential for cross-sectoral transfer, but the present call is not limited to these, and other technologies can be proposed, as long as they are aligned with the technology fields mentioned in the "Specific Challenge" of the topic. Other kinds of technologies, outside such fields, would be accepted only if the potential for cross-sectoral transfer is clearly justified.

Special skills, capabilities and certification expected from applicants	The following skills and capabilities are critical to ensure a successful and relevant implementation of the projects supported by the present action: • Solvable financial situation. • Activity in the Health sector. • Active and close relations with the sectoral and regional clusters and associations. • Proneness to develop, implement or internalize new technologies to provide new or updated products or services.

TOPIC 4: FOSTERING CROSS-SECTORAL INNOVATION IN ICT

Topic	**Fostering Cross-Sectoral innovation in Information and Communication Technologies**		
Topic identifier	**ACTTiVAte-ICT**		
Source sector	Agrofood Aerospace Health	**Target sector**	Information and Communication Technologies
Publication Date	01-06-2017		
Deadline model	Single Stage		
Opening date	01-06-2017	**Closing date**	05-09-2017 17:00 (CET)

Short description	Fostering innovation in the ICT sector by cross-sectoral technological transfer with the Agrofood, Aerospace and Health sectors.
Specific Challenge	Nowadays one of the challenges of Europe is its reindustrialization through the technological development of SMEs as well as their capability of innovation (invention plus commercialization). Many European SMEs develop technological innovations which may be applicable in different industrial sectors outside their own scope. However, the day-to-day activity, the lack of external support and training, and the resultant weak strategic vision prevents them from innovating in markets other than their own. Therefore, cross-sectoral collaboration among clusters is a key point to promote this technology transfer, the generation of new value chains and the creation of emerging industries. SMEs with a vast potential of innovation should be supported to allow them to use their know-how in other sectors. In addition, the versatility of SMEs from a technical point of view provides the market with employers that can be easily adapted to other sectors, thereby contributing to the sustainability of the European labour market. The specific challenge to be addressed by the projects within this call is the cross-sectoral transfer of mature technologies from the ICT, Aerospace and Agrofood sectors to the Health sector. Technological transfer should maximize the impact in the destination sector without having to go through the whole innovation pathway. Several technologies have great potential impact in the ICT sector, such as: • ICT tools, instruments and software • Control Systems and automation • Production Technologies • Advanced Materials Projects are not limited to these technologies, but a clear demonstration of the impact in the destination sector is required.
Expected impacts	The main impact is to encourage trans-sectoral innovation at the SMEs scale. Within the projects there will be an active exchange of innovations developed in a given industry, adapted by other industries. Thereby reinforcing their utility and functionality. The selected projects must generate outcomes that are coherent with the existing industrial plans and strategies in the regions where the supported SMEs are located. The projects must also have close relations with sectoral

	and regional clusters or associations to promote the technological uptake of the developed technologies within the region and the industrial sector. Many European regions have implemented excellent RIS3 strategies and the projects must fit into the general RIS3 framework. The idea here is not only to ensure this coherence, but also facilitate that funded projects, in as much as they should be swiftly implemented, may help better define and/or attain concrete RIS3 outcomes. The main impact indicators are related to the economic benefits to the regional and sectoral value chains, which must go much beyond the project and the supported SME, as well as direct and indirect job creation. Specific impacts expected from the projects are related to the incrementation of penetration of ICT systems in the day-to-day activities, improving the real-time access to relevant information in several aspects like health, transport, and alimentation thus optimizing the access to the available services with the positive effects on the quality of life. The environmental impact associated with the end of life of the ICT hardware must be reduced, not only through improved recyclability but also through the minimization of use of scarce and rare materials.
Background	Several specific technologies with potential impact in the ICT sector have been identified, like **GPS and GNSS, Radar technology, Advanced positioning services based on time-transfer techniques, lightweight and high-strength materials and structures, integration of communication systems, Control stations, among many others**. Only a few illustrations are described below Technologies sector have been identified, and only a few illustrations are described below. Technologies related to control systems and automation like auto-identification systems and data capture are capable of automatically identifying objects, collect data about them and enter that data directly into computer systems. Technologies like barcode scanning and Radio Frequency Identification (RFID) are well known and have a wide range of applications in several sectors, while other automatic position tracking systems like the Global Positioning System (GPS) have been developed and are now mature technologies with reduced operation costs, that can upgrade many more systems in the ICT sector. Intelligent materials that are being developed in several sectors are becoming more and more multifunctional and are now able to embed advanced ICT systems. The ICT sector must be able to keep receiving the new technological trends from a wide range of sectors and exploiting them as new ICT platforms. The referred specific technologies identified in the “Background” are examples of with potential for cross-sectoral transfer, but the present call is not limited to these, and other technologies can be proposed, as long as they are aligned with the technology fields mentioned in the “Specific Challenge” of the topic. Other kinds of technologies, outside such fields, would be accepted only if the potential for cross-sectoral transfer is clearly justified.

Special skills,	The following skills and capabilities are critical to ensure a successful and

capabilities and certification expected from applicants	relevant implementation of the projects supported by the present action: • Solvable financial situation. • Activity in the ICT sector. • Active and close relations with the sectoral and regional clusters and associations. • Proneness to develop, implement or internalize new technologies to provide new or updated products or services.