



ALLIANCE Project

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ALLIANCE for International Business Development of Advanced Materials and CoNnectivity for DefenCe and SEcurity Markets

Deliverable 1.1 Good Practice handbook on Cluster Internationalisation and SME needs analysis

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CONTENT

- 1. GENERAL INTRODUCTION 4**
 - 1.1 AIM OF THE ALLIANCE PROJECT 4**
 - 1.2 THE PARTNERS OF THE ALLIANCE PROJECT 4**
 - 1.3 EXCHANGE OF EXPERIENCE VIA GOOD PRACTICE EXAMPLES..... 5**
- 2. GOOD PRACTICES ON CLUSTER INTERNATIONALISATION AND SME NEEDS ANALYSIS..... 8**
 - INTRODUCTION..... 8**
 - 2.1 DETAILED DESCRIPTION OF THE 7 BEST GOOD PRACTICES 8**
 - GP1 – Total score: 91 (TTP 31, M 33, BCO 27)..... 8
 - GP2 – TOTAL SCORE 83 (TTP 29, M 27, BCO 27) 9
 - GP3 - TOTAL SCORE 78 (TTB 31, M 24, BCO 23)..... 10
 - GP4 – TOTAL SCORE: 76 (TTP 31, M 19, BCO 26) 11
 - GP5 – TOTAL SCORE 74 (TTP 26, M 27, BCO 21) 12
 - GP6 - TOTAL SCORE 72 (TTP 25, M 23, BCO 24) 13
 - GP7 - TOTAL SCORE 72 (TTP 23, M 28, BCO 21) 15
 - 2.3 SUMMARY TABLE – COLLECTION OF ALL GPs..... 17**
- 3. CLUSTER INTERNATIONALISATION AND SME NEEDS ANALISYS – COLLECTED DATA FROM THE GPs 22**
 - 3.1 WHICH RESOURCES ARE NEEDED FOR THE SUCCESS OF A PROJECT? 22**
 - 3.2 BARRIERS AND DIFFICULTIES ENCOUNTERD BY THE SMEs IN THE INTERNATIONALISATION PROCESS 23**
 - 3.3 BRIEF FOCUS ON USA, JAPAN, AND SOUTH KOREA 24**
- CONCLUSION 26**

1. GENERAL INTRODUCTION

1.1 AIM OF THE ALLIANCE PROJECT

The ALLIANCE project gathers seven leading European partners from Advanced Materials and ICT industrial sectors oriented to the Defence and Security markets in particular the dual use opportunities in **aerospace, soldier systems, and robotics market segments**. The objective of ALLIANCE is to build conditions for the sustainable internationalisation of European SMEs in the defence and security markets through dual use concepts **in three target countries: USA, Japan and South Korea**. The methodology of the project is based on a cross-sectorial and interregional approach able to create and build innovative technological solutions on emerging and growing industrial sectors such as advanced materials and connectivity that will find application in both Security and Defence markets and enable EU SMEs to become more competitive and open to international markets.

The methodology will allow the consortium and associated members of the clusters (especially SMEs) to export products and services to final markets or to global integrators within the three target countries. The ALLIANCE consortium is fully committed to the aims and objectives of the EU defence and cluster support policies and already projects itself into a sustainable partnership and collaboration by engaging a process for the creation of a European metacluster in the domain of Advanced Materials, ICT and the emerging domain of connected materials, for security and defence applications that will be launched on the back of the Joint Internationalisation Strategy.

1.2 THE PARTNERS OF THE ALLIANCE PROJECT

The ALLIANCE Consortium covers three countries and all pertinent aspects of the dual use value chain relevant to the targeted sector and builds on existing interregional and cross border collaboration.

The partners are:

TECHTERA (Project coordinator) is a cluster dedicated to the industry of flexible materials and textiles. It addresses different markets: Personal Protective Equipment, medical, sport and leisure, transportation (automotive, aerospace), buildings and infrastructures (geotextiles), home and furniture, and industry. It is located in the Auvergne – Rhône-Alpes Region (France). The Region is actively supporting the internationalisation of its economic actors, including the United-States, Japan and South Korea.

SAFE CLUSTER is a Defence and Security Association located in the Provence Alpes Côte d’Azur (PACA) Region in south of France. The SAFE CLUSTER permanent staff is 18 people. They are members of the European Defence Network managed by DG GROW and supported by the French Defence Ministry.

OTIR2020-TFC (Tuscany Fashion Cluster) is a cluster organization, working in textiles and fashion key sectors of the Tuscan manufacturing economy. The managing body of this cluster is NEXT TECHNOLOGY TECNOETESSILE (NTT), a private non-profit research company established in Italy since 1972.

PO.IN.TEX is the Textile Innovation Cluster of Piemonte Region. It was established in 2009 in order to promote the knowledge and technology transfer between centres of excellence and companies, as well as among different companies, with a specific focus on SMEs. Its main priorities are: Functionalisation, Smart textiles, Fibers from recycling, Bio-fibers, Eco-processes, Structural textiles, Digital business and Industry 4.0. It addresses different markets/applications: Clothing, Furniture and Textiles for diversified applications.

SIIT is a Technological District located in Liguria Region in the North of Italy. The entities associated to SIIT are heterogeneous (companies working on Civil, Safety and Defence) and include important LE, SME and Research Entities. The governance capability of SIIT is compliant with the complexity of the management of relevant National, Regional and European Projects.

NIDV, Netherlands Industries for Defence and Security, is the branch organisation for all military and security industries in the Netherlands. It is a foundation with almost 180 members, with large companies and SME's.

SCS cluster is a Gold labelled ICT network located in the Provence Alpes Côte d'Azur (PACA) Region. SCS has 11 permanent employees and is well integrated into the European cluster scene thanks to its involvement in many EU projects, including INNOSUP (ioT4Industry due to be launched in 2018).

1.3 EXCHANGE OF EXPERIENCE VIA GOOD PRACTICE EXAMPLES

This handbook is the result of a cycle of exchange, between ALLIANCE partners, of know-how, R&D results and tools to strengthen the knowledge by the project consortium of D&S and advanced textile sectors. This handbook constitutes the basis of knowledge for the generation of ideas, cooperation opportunities, initiatives to accomplish the goal of creating cross-fertilisation among project partners.

The Good Practices were collected by Next Technology Tecnotessile using a template specifically created.

To be considered a Good Practice, an initiative has to fulfil the following conditions:

- To be relevant to the project objectives
- To be proved successful domestically or internationally
- To have the potential to be transferred and implemented with low adaptations in the three target countries (USA, Japan and South Korea) or by other European SMEs

Following the above-mentioned criteria, 20 GPs were selected by the project partners (around 3 GPs for each partner) and shared between them. The purpose was to augment the awareness of each consortium partners' competences and potentiality in the D&S and Technical textile sector.

During this process, also some important information were collected regarding the know-how and resources needed for the implementation of the GP, the results achieved, and the barriers/difficulties encountered.

This handbook includes:

- A synthesis of all the 20 GPs gathered
- A detailed description of the best 7 GPs selected by the consortium
- Some information regarding the needs and the opportunities for the internationalization of SMEs in the frame of D&S and technical textile sector.

The selection of the GPs was implemented by the ALLIANCE partners; the assessment process was based on the evaluation of the following criteria:

EVALUATION CRITERIA	DESCRIPTION
Technology Transfer Potentiality (TTP)	Evaluation of the potential of a technology, process or know-how to be transferred at European and International level.
Marketability (M)	Evaluation of the level of readiness of the technology/product and the possibility to develop a potential related business and be on the final market.
Business cooperation opportunities (BCO)	Evaluation of the technology/process/product cooperation opportunities at international levels and with the three target countries.

All the ALLIANCE partners assigned a score from 1 (least relevant) to 5 (most relevant) for each criteria of each GPs. The maximum total score for a GP was 105 points summing the three evaluation criteria (TTP+M+BCO).

The table in the next page (Figure 1) includes the results of the assessment implemented by the project partners.

In the following section we describe in detail the 7 GPs selected which represent different experiences implemented by SMEs and cluster organizations.

The table below was used for the assessment of the ALLIANCE GPs. The score range was based on a 1 - 5 scale: 1 least relevant, 2 less relevant, 3 relevant, 4 very relevant, 5 most relevant. For the scoring of each GP, three factors were considered: Technology Transfer potentiality, marketability and business cooperation opportunities.


 Dear partners, please use the present questionnaire to evaluate each GP. You can score the relevance of the GP on a 1 - 5 scale: 1 least relevant, 2 less relevant, 3 relevant, 4 very relevant, 5 most relevant. For the scoring of each GP, please consider three factors: Technology Transfer potentiality, marketability and business cooperation opportunities.	Name of the partner / Scoring Category																											
	Collection of Good Practices for the Handbook on Cluster Internationalisation and SME needs analysis	Title of the Good Practice	Partner	Techtera (FR)			NTT - Next Technology Tecnotessile (IT)			Pôle SCS (FR)			CS-POINTEX (IT)			SAFE CLUSTER (FR)			SIIT (IT)			STICHTING NIDV (NL)			TOTAL PER CATEGORY			Total score for each GP
				Technology Transfer potentiality	Marketability	Business cooperation opport.	Technology Transfer potentiality	Marketability	Business cooperation opport.	Technology Transfer potentiality	Marketability	Business cooperation opport.	Technology Transfer potentiality	Marketability	Business cooperation opport.	Technology Transfer potentiality	Marketability	Business cooperation opport.	Technology Transfer potentiality	Marketability	Business cooperation opport.	Technology Transfer potentiality	Marketability	Business cooperation opport.	Technology Transfer potentiality	Marketability	Business cooperation opport.	
GP1	The Legion Combat kit	NTT	4	3	4	4	5	4	4	5	4	3	3	2	4	4	3	3	4	2	4	3	2	26	27	21	74	
GP2	Tactical Nemesis GTX	NTT	4	3	4	4	5	5	4	4	4	3	4	1	3	5	3	2	4	1	3	3	3	23	28	21	72	
GP3	Project Smartpro	NTT	3	2	3	4	3	4	4	3	4	3	3	2	4	3	3	2	3	2	3	3	3	23	20	21	64	
GP4	Project Marte	CS-POINTEX	4	3	3	5	4	5	4	4	3	5	3	3	4	3	3	4	3	3	5	4	3	31	24	23	78	
GP5	Project MCA	CS-POINTEX	4	3	3	5	4	4	3	3	3	3	4	2	5	3	3	3	2	1	3	3	2	26	22	18	66	
GP6	Project MULTILAYER	CS-POINTEX	3	2	4	5	4	4	4	4	3	3	4	3	3	4	2	2	4	2	4	4	3	24	26	21	71	
GP7	Project PROMOTE	CS-POINTEX	3	3	3	5	5	3	3	2	2	3	5	2	3	3	1	2	3	1	3	3	2	22	24	14	60	
GP8	Project IoT4Industry	Pôle SCS	3	4	4	4	4	4	5	4	4	4	3	3	4	5	4	4	3	4	5	4	4	29	27	27	83	
GP9	Tages SAS	Pôle SCS	2	3	3	3	3	3	4	3	3	3	3	3	3	3	3	5	4	4	4	4	4	24	23	23	70	
GP10	i-VITAL	Pôle SCS	4	4	4	5	5	4	5	5	4	4	4	4	4	5	4	4	5	4	5	5	3	31	33	27	91	
GP11	Trade mission to Japan	Techtera	3	3	5	3	2	4	3	3	3	4	3	4	2	4	3	2	4	1	3	4	2	20	23	22	65	
GP12	Support for R&D opportunities	Techtera	5	2	4	4	2	3	4	3	4	4	3	2	3	3	4	4	3	2	4	4	3	28	20	22	70	
GP13	Project Consortia	Techtera	3	3	4	2	2	4	3	3	3	3	3	3	4	3	4	4	4	4	4	3	3	23	21	25	69	
GP14	Stratobus	SAFE CLUSTER	4	3	3	4	3	4	4	3	4	4	2	2	4	4	3	4	2	4	4	2	4	28	19	24	71	
GP15	R&D Projects	SAFE CLUSTER	4	4	4	3	2	3	4	3	3	3	3	3	4	2	4	4	3	4	3	3	4	25	20	25	70	
GP16	International Business Mission	SAFE CLUSTER	3	3	5	3	2	3	3	4	4	3	2	3	2	4	4	2	3	2	3	2	3	19	20	24	63	
GP17	Safety Events	SIIT	4	4	5	5	4	4	4	4	4	2	2	2	4	3	2	3	3	4	3	3	3	25	23	24	72	
GP18	LEAPFROG	SIIT	4	3	4	4	3	4	5	5	4	3	2	2	3	2	3	3	2	4	3	3	2	25	20	23	68	
GP19	NU-ELBOW	SIIT	4	2	3	4	4	4	5	4	5	4	2	3	5	3	3	4	2	4	5	2	4	31	19	26	76	
GP20	International Corp./Partners Intern. Busin	NIDV	4	3	3	4	3	3															13	9	10	32		

Figure 1: Table for the Good Practices assessment filled by each partners of the ALLIANCE project

2. GOOD PRACTICES ON CLUSTER INTERNATIONALISATION AND SME NEEDS ANALYSIS

INTRODUCTION

The GPs collected by the ALLIANCE consortium have different topics, goals and stakeholders; some of them describe innovative technologies and processes for the D&S and for the textile sectors; others, contains the description of services implemented to foster and boost the internationalization process of local SMEs.

Anyway, the following 7 represent, according to the partners' judgment, good examples of the frame of activities, links and opportunities embedded and available in the ALLIANCE Consortium.

2.1 DETAILED DESCRIPTION OF THE 7 BEST GOOD PRACTICES

GP1 – Total score: 91 (TTP 31, M 33, BCO 27)

<u>Title of the Good Practice:</u>
i-Vital - Smart Vital Signs and Accident Monitoring System for Motorcyclists Embedded in Helmets and Garments for eCall Adaptive Emergency Assistance and Health Analysis Monitoring
<u>ALLIANCE Partner:</u>
Pôle SCS
<u>Stakeholder involved:</u>
<ul style="list-style-type: none"> - CETEM (Technological Research Centre for Furniture and Wood of the Region of Murcia) - Fraunhofer IIS and Fraunhofer IAO - TECOS - NZE Helmets (Spanish SME) - Lookwell (Dutch SME)
<u>Typology:</u>
R&D organizations, SMEs
<u>Keywords:</u>
Real-time health monitoring (HR, HRV, body temperature, humidity, consciousness detection), Bluetooth, eCall, energy harvesting unit for helmet and garment
<u>Description of the Good Practice</u>
The i-Vital consortium objective is to improve the safety of motorcyclists, and to reduce the assistance time and effectiveness of emergency services in the event of a crash. The projects foreseen the development of a system that can be seamlessly integrated into helmets and garments. The system is capable of providing accurate information and direct communication to emergency services in compliance with eCall standard. The main features of the system are: real-time health monitoring including HR, HRV, head/body temperature, humidity and consciousness detection. All the data are collected by Bluetooth technology and stored into the smartphone. The system is also integrated with a smartphone app that is able to call automatically the emergency services in case of accident detection.
<u>Timescale</u>
From September 1, 2013 to October 31, 2015
<u>Result achieved</u>
The main high-level results that the project achieved are:

- Novel Helmet sensor acquisition subsystem
- New Garment sensor acquisition subsystem with solar cell package
- Accident detection and health algorithm signal processing i-VITAL application system
- Wind power generator unit for helmets

On the technological side of i-VITAL the following main goals were accomplished:

- Two different biosignal sensor modules optimised for integration in helmet and garment were developed. They include the following features: HR (Heart Rate) and HRV (Heart Rate Variability), head/body temperature, humidity, and in-helmet consciousness/unconsciousness detection. Its external appearance, passive safety properties, comfort and overall product quality has been preserved.
- To identify the health conditions when to warn the user, i-VITAL developed methods to determine the limits for a normal user and ride. If they are exceeded, some warnings are issued to the user. Especially thresholds for bradycardia and tachycardia have been defined. A respective use warning can be given through auditive and vibration cues.
- An HMI and associated software for the smartphone was developed. The app receives sensor data from helmet and garment through BLE (Bluetooth Low Energy) links. A GUI (Graphical User Interface) provides visualization of the acquired data to the user. In the case of an accident, a communication link with cellular technology is established in order to send out eCall information and vital data.
- Two local processing units with BLE for implementation of the defined algorithms were designed, optimised, implemented and integrated into helmet and garment prototypes.
- Two Energy Harvesting Units for the helmet (wind-based) and garment (solar-based) were developed.

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GP2 – TOTAL SCORE 83 (TTP 29, M 27, BCO 27)

Title of the Good Practice:

IoT4Industry project

ALLIANCE Partner:

Pôle SCS

Stakeholder involved:

Pôle SCS (FR), SCS Secured Communicating Solution Cluster (FR), mTSW microTEC Südwest (GE), DSP Valley (BE), MESAP innovation Cluster (IT), MBI Mont-Blanc Industries (FR), PMT Pôle MecaTech (BE), MTC Manufacturing Technology Centre (UK), inno TSD (FR)

Typology:

R&D center, Cluster Org.

Keywords:

Internet of Things, A.I., Smart Factories, Industry 4.0, Cloud Computing, Big Data, Robotics

Description of the Good Practice

The IoT4Industry project seeks to support EU growth and competitiveness through the development of a new cross-sectoral industrial value chain based on the integration and use of IoT and related components (Digital Security, Cloud Computing, Big Data, Artificial Intelligence...) into

manufacturing tools, machines and robots, through the cross-border collaboration between SMEs and other RDI actors of the ICT and advanced manufacturing sectors.

To do so, the project will connect Information and Communication Technologies (ICT) clusters having ecosystems with strong competences, products, services in the IoT value chain together with Advanced Manufacturing clusters having access to tool manufacturers and end products manufacturing SMEs in order to encourage cross-border and cross-sectoral collaboration between SMEs from these sectors.

The main objective is to support the introduction of smart production technologies in end products manufacturing companies, in particular SMEs, making their production more efficient to remain competitive on the global stage. This will be achieved through enhanced cross-sectoral and cross-border collaboration, and integration of innovation and internationalisation activities in SMEs.

This main objective will be accompanied by two positive side effects that are secondary project objectives. First, to increase business opportunities for technology providers, and in particular SMEs, providing IoT and related solutions to the manufacturing industry. Second, improve and make smarter machines, robots and other products developed by tool manufacturers, and in particular SMEs, improving their innovation capacity.

Timescale

1 April, 2018 to 30 September, 2020

Result achieved

- The call for Expression of Interest is a focal point of the IoT4Industry methodology: it will help the consortium to identify good projects and better prepare them to apply for the coming call
- The topic/focus sector of the project is of great interest of many cluster and companies in Europe
- The partners identified gaps in the existing national/regional supporting schemes that IoT4Industry vouchers could leverage upon and IoT4Industry approach is judged very positively by the authorities/agencies

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GP3 - TOTAL SCORE 78 (TTB 31, M 24, BCO 23)

Title of the Good Practice:

Project MARTE: Anti-bacterial materials for textile covering

ALLIANCE Partner:

Città Studi – Po.In.Tex

Stakeholder involved:

- Thales Alenia Space
- Aerosekur (SME)
- Iniziative Industriali (SME)
- Politecnico di Torino
- Università degli studi di Torino

Typology:

SME, R&D center, Cluster Org.

Keywords:

Nano-structured coatings, anti-bacterial, anti-toxic, dual-use, mechanical and thermal strength

Description of the Good Practice

The project objectives was the development of technical fabrics having new anti-bacterial properties, which can be patented. These fabrics will be used for structural parts in space and/or civil applications which require a long lasting anti-bacterial protection.

The main activities were of the project were:

- development of nano-structured coatings
- identification and creation of textiles to be used in the space environment and for civil applications
- characterization of the selected materials (mechanical, morphological, antibacterial and toxicity tests)
- design and manufacturing of two technological prototypes for both space and civil applications. These prototypes are used as test benches to improve the nano-structured anti-bacterial coatings performances on technical textiles, to test them in operative conditions (including mechanical and thermal strength) and evolve the coating deposition process on full-scale items.

Timescale

2014-2016

Result achieved

- Economic result: the foreseen impacts were economic (e.g. reduction of maintenance costs in manned space structures where technical fabrics are applied and to enhance their life cycle).
- Networking opportunities: for Po.in.tex, for project partners, new sectors of knowledge for textile Companies.
- New skills and know-how: the main objective of the project was increasing the crew's health conditions or to protect workers who operate in civil services where the bacterial proliferation must be strictly controlled.

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GP4 – TOTAL SCORE: 76 (TTP 31, M 19, BCO 26)

Title of the Good Practice:

NU-ELBOW project

ALLIANCE Partner:

SIIT

Stakeholder involved:

Main partners:

- Stam S.r.l. (Italy, coordinator)
- Active Space Technologies, Actividad Aeroespaciais S.a. (Portugal)
- Bierens Machinefabrieken B.v. (Netherlands)

A series of stakeholders has been involved as an Advisory Board, specifically during the initial and final phases of the project. The stakeholders involved belonged both to Defense & Health sectors, and they had first to help the consortium in define system requirements and functionalities. Finally, they tested the product in real conditions to evaluate its performance and to provide the developer with useful feedbacks for further improvements.

Typology:

R&D Performing SME

Keywords:

Medical devices technology, NUGEAR technology, robotics, myoelectric, Defence and Health application

Description of the Good Practice

The goal of the NU-ELBOW project was the development of a totally innovative actuated elbow orthosis, both for Defence and Health applications. In particular, it was designed for patients afflicted by Neurologically Impaired Arms pathologies, as well as to enhance the physical abilities of soldiers. The system was composed by two main parts:

- the artificial articulation consists of a gearbox system based on the concept of nutation coupled with spiral bevel gears;
- the control is operated through myoelectric signals, electrical impulses that produce contraction of muscle fibres in the body.

The main breakthroughs of NU-ELBOW were:

- increased system reactivity, high torques and overloads resistance, noise minimized thanks to the nutating transmission;
- The myoelectric control increases the human-feeling of the orthosis and minimises negative psychological effects, because it mimics healthy limbs control operated by the nervous system;
- The orthosis provides an opportunity for patients to be able to become more independent;
- The system provides soldiers with a mechanical arms exoskeleton able to increase their power, speed and strength.

Timescale

May 2011 – November 2014 (42 months)

Result achieved

Realization of the NU-ELBOW orthosis equipped with the nutating gearbox and the control system based on myoelectric signals.

Develop a specific production process to manufacture spiral bevel gears with very small dimensions and also internal gears.

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GP5 – TOTAL SCORE 74 (TTP 26, M 27, BCO 21)**Title of the Good Practice:**

The Legion Combat Kit for USA Market

ALLIANCE Partner:

OTIR 2020 – TFC - Next Technology Tecnotessile

Stakeholder involved:

- European and Italian partners for developing the basic design
- Italian and North-American suppliers for the materials
- USA manufacturers for the production process

Typology:

SME

Keywords:

Military forces, combat kit, NyCo, Cordura, Aramid fibres

Description of the Good Practice

S.O.D. Srl is a leading company in the production of military technical clothing based in Empoli (Florence, Italy). At present, S.O.D. is actively collaborating with the most prestigious military units in service in Italy and allied countries. One of the main goal of the organization is to stay in constant relationship with its different users, to meet customers' needs and develop high quality products.

Their flagship product is "The Legion", a kit which includes combat tactical jacket and pants specifically developed for the military forces. The product is ergonomic, comfortable and resistant. The goal of the company is to make product easy to wear, light, flexible and usable in any circumstance.

For the manufacturing process, S.O.D. uses high quality materials like NyCo and Cordura fabrics from Italian, American and Canadian suppliers. These fabrics are engineered by the providers with a blend of nylon and cotton staple fibers, to enhance abrasion and tear resistance performances.

A strong point of the product is its versatility, thanks to the possibility to adapt its design to the different end-user needs.

S.O.D.is now developing a specific "Legion" kit for the USA market, according to the USA Special Forces requirements.

Timescale

The project started in 2016, with the design phase. In early 2019, S.O.D., thanks to its American partners, will start the manufacturing process in the USA.

Result achieved

- Economic result: the Legion is an excellence of S.O.D. and one of the best-selling product line of the last 2 years. Thanks to its characteristics, Legion is also suitable for dual-use (civilian/military), and this makes the potential market wide and profitable

- Networking opportunities: the experience for the Legion development was gained by S.O.D. during past works for similar products made for French and Belgian special forces. However, the most important partner for The Legion development is North America (especially USA) where S.O.D. has the most important suppliers for special components like the Multicam® camouflage patterns.

- New skills and know-how: With the development of The Legion, S.O.D. has gained several skills in terms of networking and relationship with USA suppliers and manufacturers. Nowadays, the company knows very well the North America defence market, the product standards and the production and logistic systems.

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GP6 - TOTAL SCORE 72 (TTP 25, M 23, BCO 24)

Title of the Good Practice:

Design risky event layout

ALLIANCE Partner:

SIIT

Stakeholder involved:

- STAM (SIIT affiliate company)

- Romanian Software House

Typology:
SME
Keywords:
Safety and security events issue (terrorist attack, panic attack, structural collapses), Risk assessment, GIS system, Crowd Behavior Modelling
Description of the Good Practice
<p>The project allows developing a commercial software tool able to perform the design of ‘risk-proof’ public event layouts and to evaluate the effectiveness of the implementation of risk reduction measures. The software is a comprehensive and easy-to-use graphical tool aiming at supporting a series of potential stakeholders involved in public events design and management, which encompasses from technical personnel of public administrations (Municipal Authorities, Police and Defence Departments) to private subjects and societies responsible for public events organization and management. In details, the tool is a web-based platform which has the following features:</p> <ul style="list-style-type: none"> – Address both safety (e.g. panic attack or structural collapse) and security (e.g. terroristic attack) scenarios issues during public events; – Be easily adaptable to a wide range of events (concerts, sport events, exhibitions...); – Guide the user in properly design the optimal event layout, in order to minimize the incident risk; – Support the user in Identifying risk-reduction measures through the implementation of a comprehensive Cost-Benefit Analysis; – Integrate the evaluation of Crowd Behavior Modelling in the event design; – Give the user a simple and interactive GIS environment, where can upload available spatial data and visualize the results of the analysis; – Identify minimum design standards for public event layout and management and address current regulatory framework. <p>The tool includes the modelling and simulation of crowd behavior through a user-friendly graphical approach.</p>
Timescale
From January 2016 to January 2018 (24 months)
Result achieved
<p>The project had as final objective the development of a risk assessment tool almost-ready to be commercialized. Three months after the end of the project the tool has been successfully launched on the market, generating significant revenues in its first year of sale and expanding company products and services portfolio. In details, during the last year 4 licenses of the tool were sold and 7 consultancy activities were performed using it, for a total of more than 150 k€ in revenue. It also contributes to the establishment of a new network including all the stakeholders involved in public events organization, such as public administrations (Municipal Authorities, Police and Defence Agencies of big European Cities) and private companies. This cooperation is bringing fruitful opportunities to the organisations for the participation to future projects concerning security and protection of citizens. People who worked in the described project had developed advanced skills in a specific sector which are now exploited to develop new products and carry out new activities related to the implementation of safety and security countermeasures to manage audience health during outdoor public events.</p>
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GP7 - TOTAL SCORE 72 (TTP 23, M 28, BCO 21)

<u>Title of the Good Practice:</u>
Tactical Nemesis 4.0 GTX®, Tactical Nemesis 6.0 GTX®, Reebok Duty Military Boots
<u>ALLIANCE Partner:</u>
OTIR 2020 – TFC – Next Technology Tecnotessile
<u>Stakeholder involved:</u>
<ul style="list-style-type: none">- Garmont: design and manufacturing partner (Italy)- Reebok: design and manufacturing partner (USA)- GVT Guang Zhou Vaiano Textiles: partner for the manufacturing process (China).- Vibram S.p.A.: design and manufacturing partner (Italy)- USA, Italian, Korean and Japanese Army: customers, tester and influential on the final design of the products.- Suppliers: Usa suppliers for Cordura, European partners/suppliers for nylon and microfiber.
<u>Typology:</u>
SME
<u>Keywords:</u>
Technical footwear, military combat boots, PTFE, Vibram, Gore-Tex, Kevlar
<u>Description of the Good Practice</u>
<p>The aim of the partnership between FF, Reebok (for the USA prototype) and Garmont (for the Japanese and Korean prototype), is creating a different kits of military combats boots for the USA and South Korean Army and Special Forces.</p> <p>Design: The upper part of the boots are designed with abrasion-resistant threads directly woven in high resistance fabric for textiles. The boots have Extended outsole for more grip and better protection when edging, with Vibram® outsole for balance of traction and durability. The design has been influenced by the Army of the different country involved.</p> <p>The products main feature are:</p> <ul style="list-style-type: none">– Tenacity: the boots are used in a lot of different scenarios so the product need to be resistant to several sources of damage.– Comfort: the boots have heel slide in the back for smooth fitting, and lace pocket in front for increased comfort, and roomy toe box.– Lightweight: is a main concern for the military equipment, less weight on foots or legs equals more energy saving for the soldier or more weight carried elsewhere. The prototype are up to 1.5 pounds lighter per pair than the current boots used by the USA Army.– Waterproof/breathable protection: military boots requires to be very functional in every situation, so waterproof attributes are an essential feature for the Army. <p>The products are manufactured with Gore-Tex, a waterproof, breathable fabric membrane and registered trademark of W. L. Gore and Associates. Gore-Tex can repel liquid water while allowing water vapor to pass through and is designed to be a lightweight, waterproof fabric for all-weather use. It is composed of stretched polytetrafluoroethylene (PTFE) or commonly known as Teflon.</p>
<u>Timescale</u>
2018 - Ongoing
<u>Result achieved</u>
<p>Economic result: even though the projects are still in testing phase, the products could have a successful market launch, not only for the military market but for the civilian market as well. As of today, 800.00 units are the current production lot for the USA market, if this project will be successful, large quantities are envisaged.</p> <p>Cost Savings: thanks to the product particular design, FF can benefits efficiency and cost saving. The entire upper part of the boot is one continuous piece of fabric with no seam. This type of design can</p>

give different levels of flexibility and support around the foot and avoid the use of superfluous glue. There is a consistent saving in terms of material consumption and production cost, as the seaming phase is avoided.

Testing: FF have done several laboratory test to provide some data on the features and the quality of the product. The main test done were resistance/tenacity test, breathability test, and test on impact footwear. All the test give very good results, proving the high quality of the materials and production process.

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2.3 SUMMARY TABLE – COLLECTION OF ALL GPs

	TITLE OF THE GOOD PRACTICE	ALLIANCE PARTNER	Organisation involved	Typology	Sector of the GP	Type of Innovation	Keywords	SHORT DESCRIPTION
GP1	The Legion Combat kit	NTT	S.o.d. Srl	SME	Textile, D&S	Product	Military forces, combat kit, NyCo, Cordura, Aramid fibres.	<i>For more details, see the complete description in the section above</i>
GP2	Innovative combat boots	NTT	FF Srl, Garmont, Reebok	SME	Textile, D&S	Process, Product, Technology	Technical footwear, combat boots, PTFE, Vibram, Gore-Tex, Kevlar	<i>For more details, see the complete description in the section above</i>
GP3	Project Smartpro	NTT	MIRTEC S.A. (GR), LEITAT (SP), NTT (IT), FORTH (Greece), KOSTAS SIAMIDIS S.A. (GR), RWTH/ITA Aachen University (DE), B.C.B International Ltd (UK), SOLIANI EMC SRL (IT, SME), E. CIMA SA (SP, SME), Depart. d'Interior - Catalunya (Mossos d' Esquadra, SP)	R&D Centers and SMEs and public insitutions	Textile, D&S	Process, Product, Technology	Ballistic textile, Kevlar, Graphene, Ceramic coatings, Vectran, Dyneema, Zylon	The SMARTPRO project developed optimized ballistic textiles (both woven and spacer knitted fabrics) and applied innovative surface treatments (e.g. shear thickening fluids, ceramic coatings) to improve their performance on an areal density basis. Main parameters considered also included physiological comfort and ergonomic design, reached thanks to increased flexibility and reduced weight. Additionally, smart functions, including positioning systems, were integrated to further increase the efficiency of the body armour, leading to reduced casualties. Finally, while a main limitation is that existing protective gear is usually limited to the body armour, innovative solutions were proposed for the protection of vulnerable body parts other than the torso.
GP4	Project Marte	CS-POINTEX	Thales Alenia Space, Aerosekur (SME), Iniziative Industriali (SME), Politecnico Torino, UNITO	SME, R&D center, Cluster Org.	Textile	Process, Service, Technology	Nano-structured coatings, anti-bacterial, technical fabric	<i>For more details, see the complete description in the section above</i>
GP5	Project MCA	CS-POINTEX	CS-POINTEX, Famas, Fibertec	SME, Cluster Org.	Textile	Process, Service, Technology	Basalt, flameproof technology, thermal insulation, fire barrier	The objective of the project is to develop a basalt-made textile product prototype that is able to provide an optimal thermal insulation. The developed product is composed of multiple layers and can be coupled, so as to obtain insulating products with the desired performance. The project was based on the use of basalt, an effusive rock with excellent thermal and sound insulation. The product assembled with multiple layers of basalt fabric, it can be used as fire barrier in buildings and industrial installation. Thanks to his particular design, the product maintains lightness and flexibility even after be assembled with multiple layers.

GP6	Project MULTILAYER	CS-POINTEX	CS-POINTEX, Marchi & Fildi (SME), Caipo Automazione Industriale (SME), Famas (SME), Tessitura Pertile (SME)	SME, Cluster Org.	Textile	Process, Service, Technology	Technical Yarn, Para Aramidc, Meta Aramidic, Cotton/Viscose, Wool, Poliester, Tencel/Trilobal Nylon, Dyneema	The project's objective is to develop an innovative yarn, in which each fiber layer has its own structure (different quality and chemical-physical characteristics), in order to obtain yarns/fabrics with different characteristics. The main activity of the project was the realization of yarns for technical sector (using different type of materials like Para Aramidic, Meta Aramidic, Cotton, Viscose, Nylon, Dyneema, Wool). The fabrics realized with this technology can be used in several sector: clothing, furnishing, protective garment and sportwear, medical and automotive.
GP7	Project PROMOTE	CS-POINTEX	CS-POINTEX, Zanolo (SME), Yanga (SME), CNR-ISMAL	SME, Cluster Org.	Textile	Process, Service, Technology	Bioactive molecules, natural cosmetic	The project objective is to develop a process for the application of natural cosmetic bioactive molecules on the textile substrate, by using an innovative technology with a low energy and environmental impact that allows to obtain high cosmetic performances without adversely affecting the textile properties of the substrate. This innovative process is based on a "dry cleaning" technology, an alternative to the common wet treatment process. In this process low amounts of non-bioactive chemicals are used, increasing the effectiveness of bioactive substances. This new process does not involve the use of water: washing steps and drying steps were eliminated, while minimizing waste pollution and water and energy consumption.
GP8	Project IoT4Industry	Pôle SCS	Pôle SCS (FR), mTSW (GE), DSP Valley (BE), MESAP innovation Cluster (IT), MBI (FR), PMT (BE), MTC (UK), inno TSD (FR)	R&D center, Cluster Org.	D&S, IT	Service	IoT, A.I., Smart Factories, smart manufacturing, ICT	<i>For more details, see the complete description in the section above</i>
GP9	Tages SAS	Pôle SCS	Tages SAS	SME	D&S	Technology	Cyber Security, Java, E-Banking, binary code	The project's aim is to bring security to Software Defined Networks emerging in the telecom industry. The project uses a technique called "code split", that means being able to recode the SW in two parts executed on two machines, without access to the source. The objective is to make the machine unreachable by cyber-attacks. This particular Java code virtualizer is used for security java written ebanking apps.
GP10	i-Vital	Pôle SCS	CETEM, Fraunhofer, TECOS, NZI Helmets, Lookwell	SME, R&D center	Textile	Product, Technology	Motorcyclists, Real-time health monitoring, body temperature, humidity, consciousness detection, bluetooth, eCall, energy harvesting unit for helmet and garment.	<i>For more details, see the complete description in the section above</i>
GP11	Trade mission to Japan	Techtera	Techtera	Cluster Org., SMEs, local institutions, etc.	Textile	Service	Japan, textile industry, business development.	The aim of the project is to organize a trade mission to Japan involving 6 companies from the textile industry. The project was divided into 7 phases: market study, market study results workshops, creation of the trade mission program, prospection of the members, implementation of the trade mission, follow-up with the participating companies, mutualisation of one business development resource to follow Japanese contacts and find new ones.

GP12	Support for R&D project.	Techtera	Techtera	Cluster Org., SME	Textile	Service	Market study, communication media, collaborative project, R&D.	The goal of the project is to develop the services of the cluster in order to support more globally the members during and as a result of the collaborative projects, by integrating more the business component to the technological component. Techtera helps the companies in marketing their know-how, and to have a stimulating effect on the launch of new products developed by collaborative R&D projects.
GP13	Support for internationalisation projects	Techtera	Techtera	Cluster Org., SME	Textile	Service	Consortia, EU calls, support for the SMEs on EU policy and technology	The goal of the activity is to support the SMEs for Europeanisation of their R&D actions. To reach this objective Techtera proposes three possible strategy: build a small consortia (like EUROSTAR, SMEINST) based on pre-existing cooperation between SMEs and their partners; identify consortia and help SMEs to market their competences; generate and build consortia ex nihilo on dedicated calls.
GP14	Stratobus	SAFE CLUSTER	Ass. PEGASE SAFECcluster	4 SMEs, THALES.	D&S	Process, Product, Technology	Stratospheric airship, Drone, satellite	Safe cluster has participated in the creation of the Stratobus project coordinated by THALES. Stratobus is an autonomous, multi-mission stratospheric airship, midway between a drone and a satellite for surveillance missions, including land, maritime, oil platforms, piracy at sea, etc. This project is a mix between the use of technical textiles and the security & defense applications. SAFE worked with THALES on this structural project since 2014. The consortium involves 4 SMEs, members of SAFE. This a project with an aggregation of innovative SMEs for a structural project at national level.
GP15	DEC'POL and ENCIRCLE	SAFE CLUSTER	Ass. PEGASE SAFECcluster	Cluster Org., Consultants, SMEs	D&S	Process, Product, Technology	Support for R&D project, Protective systems	Since 2005, SAFE Cluster helps its members (SMEs, R&D centers, associations etc.) to build Defense and Security R&D projects at national and European level. The cluster has a strong link with the ministry of Defense and the ministry of Interior in France. For example, the SME OUVRY (specialised in CBRN Protective System) had two projects financed under the security and Defense program, the first one financed by the DGA (Ministry of Defense) DEC'POL® the new emergency NRBC decontamination glove and the second project as partner in the H2020 ENCIRCLE project.
GP16	International Business Mission	SAFE CLUSTER	Ass. PEGASE SAFECcluster	SME, Cluster org. Business France	D&S	Process, Product, Technology	Japan, Canada internationalization mission, Aerosmart Nagoya, Business France.	Safe Cluster has organized several international business missions for its members especially for SMEs in Japan and in Canada (for the latter, in partnership with Business France). For the case of Japan, Safe Cluster organised an International mission for the trade show Aeromart Nagoya (5 SMEs were accompanied by the cluster).
GP17	Design risky event layout	SIIT	STAM	SME	D&S	Technology	Safety and security events issue (terrorist attack, panic attack, structural collapses), Risk assessment, GIS system, Crowd Behavior Modelling	<i>For more details, see the complete description in the section above</i>

GP18	LEAPFROG	SIIT	Hugo Boss, Grado Zero Espace (IT), Institut Francais Du Textile Et De L'habillement (FR), UniGe (IT), Centexbel (BE)	SME, R&D center, Cluster Org.	Textile	Process, Technology	Nanotech, 3D garment design, textile, customized manufacturing	The LEAPFROG project initiative is the outcome of a thought process within the European textile and clothing industry and its manufacturing associations. The initiative was focused on 3 major objectives: 1) improve in productivity and cost efficiency in the garment manufacturing process (radical reengineering and intelligent automation in labor-intensive process in clothing factory). 2) pathing towards rapid customised manufacturing, through flexibilization and integration of cost-effective and sustainable processes from fabric processing through to customer delivery. 3) a paradigm changes in customer service and customer relationship management with a focus on value-adding product-services.
GP19	NU-ELBOW	SIIT	STAM	SME	D&S	Technology	Robotics, myoelectric, Defence and Health application	<i>For more details, see the complete description in the section above</i>
GP20	International Corporation (Partners International Business)	NIDV	NIDV, 15 companies from the D&S sector	Cluster Org., SME, institutional partner, local partner	D&S	Services	ASEAN, business opportunities, G2G, K2K	NIDV has brought together 15 companies to create new business in South East Asia. The companies, the majority SMEs, are complimentary and not in competition with each other. The focus for this initiative is to share knowledge with the commitment of the government (G2G) and knowledge institute (K2K) resulting in better access to the market and a broad network. Furthermore this has to result in an identification of important partners in the area.

2.2 ANALYSIS AND EVALUATION OF THE GPs

The GPs collected prove the wide range of activities, projects and initiatives in which the ALLIANCE partners are involved and the role that these organizations play for the development of SMEs both for technological improvement and internationalization opportunities growth.

These exchanges of competences and experiences allow to have a greater awareness of the synergies, opportunities and competences existing in the different clusters and sectors involved in the ALLIANCE project.

Regarding the 7 GPs selected, these are about innovative technologies and processes related to the D&S and Textile Sectors (e.g. GP “iVital” or “The Legion Combat kit”); in this group of projects, the success of the activities implemented is mainly due to the use of innovative technologies, materials and processes. These elements, in the D&S and textile sectors, if well combined, are able to generate interesting projects such as, for example, the “SmartPro”.

Other GPs collected are about the services offered by the ALLIANCE partners in terms of internationalization. Excellent examples are the two French cluster organizations, Techtera and SAFE Cluster, which have a relevant experience in the organization of trade-mission towards Extra-UE countries with the participation of SMEs.

Similarities in the selected good practices.

We notice that common characteristics color the success that are highlighted:

- Presence of a local stakeholders in the value chain.
- A direct (or indirect) design thinking method, where the final user is closely taken into account during the building phase. The end user is integrated in the project.
- All projects are based on a very innovative technology, that cannot be found in the country. Another way to express this item is to speak about the excellence of the innovation (not only breakthrough innovation, but always high-tech ones).

3. CLUSTER INTERNATIONALISATION AND SME NEEDS ANALYSIS – COLLECTED DATA FROM THE GPs

3.1 WHICH RESOURCES ARE NEEDED FOR THE SUCCESS OF A PROJECT?

The analysis of the GPs selected point out that several skills and resources are needed to develop a success project.

The most important are the following:

- **Project Management:** project management skills and competences are essential to create a good project, to involve the right stakeholders and to clearly define the targets, the time frame, the risks and the budget for the implementation of the activities.
- **Networking skills:** the capability of creating the right partnership for the right target is essential; this is particularly true in the case of internationalization project when become essential to have good contacts with potential customers, suppliers, subcontractors, service providers, technology providers at national and international level.
- **Market knowledge:** the market knowledge is a relevant skill for the creation of an interesting internationalization project; in particular, it is essential to have strong research and strategic skills. It is also important to be able to analyze the target markets/countries and to be constantly update about economic, legislative and industrial evolutions of a country/sector.
- **Business development skills:** a very important step for the success of an internationalization project/process is the information gathering and data analysis in order to identify arising business opportunities and build long-term relationships.
- **Competences in specific technologies/sectors:** for the development of innovative projects specific competences, know-how and skills are essential. These features enlarge the possibility to penetrate international and advanced markets. In the GPs analyzed, the most relevant are:
 - Mechanical and Biomedical:
 - 3D Printing Technology:
 - Risk Assessment and Crowd Simulation
 - Advanced materials
 - Nanotechnologies
 - Internet of Things
 - Sensors
 - Information and Communication Technologies
 - Smart Systems
 - Textile innovative treatment
 - Technical and innovative textile fibers
 - Enterprise content management (ECM)
 - Next Generation Protocols (NGP)
 - Multi-Access Edge Computing

Self recommendations

- Capitalize on the existing network already available within the consortium.
- Identify already existing frame for cooperations (bilateral EU-third country fundings for example), to facilitate the building of the project

3.2 BARRIERS AND DIFFICULTIES ENCOUNTERED BY THE SMEs IN THE INTERNATIONALISATION PROCESS

International competition requires higher standards of know-how, technologies and skills compared to those of European market. In particular, SMEs have to make great efforts to compete in the international market, due to their limited economic and human resources compared to big enterprises. The most important and advanced international markets possess high technological knowledge, especially in the field of defense and security. Therefore, these markets are already well-populated of forefront solutions and products. For these reasons, SMEs should focus on their resources' capabilities to create competitive products and also to offer advanced skills in cooperation with those international companies.

There is also the need to establish a communication network between EU SMEs cluster and international companies' associations, in order to create new opportunities of cooperation and a fruitful exchange of feedbacks. This is particularly true, considering that Europe produces nearly 30% of the world's knowledge – with a roughly 7% share of the world population. At European level, there is an increasing number of market analyses on D&S and technical textile sectors published primarily by consultancy firms. The problem with these studies is that they are very heterogenous in terms of scope of coverage, quality, transparency and research method used. In the case of cyber-security markets and industries there is no study that covers the complete market, either in the EU in general or at the level of an individual member state.

The market analysis is a key point for boosting the internationalization process of SMEs, also because one of the difficulty encountered by SMEs is not related to the realization of competitive technologies and products but is the need to produce and sell products at an adequate price. But this is possible only with high cost in terms of economic and human resources. This kind of barriers could be considered internal to each SME, while there are also external barriers such as lack of capital, adequate information, and public support but also market constraints. As far as some international markets are concerned, also some constraints are hard to overcome and almost always these rules favor the interests of local companies.

The internationalization process of SMEs is hard also for the specific characteristics of many SMEs. One of the weakness of the EU's SMEs internationalization process is the lack of resources to exclusively dedicate to it. The internationalization process has high costs and therefore lack of capital could discourage and hamper SMEs wishing to expand their business. High costs are also due to the lack of a well-structured and solid international networks which could foster a worldwide companies cooperation in diverse sectors.

In the case of the security world, the needs of this sector are continuously evolving and require a cross-border and often cross-sectoral response. This requires cooperation among industry, governmental organisations and knowledge institutions to stimulate collaboration, facilitate co-investment in key facilities, establish contact with end users, steer innovations towards the user's needs and enable the valorisation of research. Yet, collaboration and the valorisation of research and innovation remains a big challenge, leading to non-optimal uptake of results, duplication and missed opportunities to accelerate innovation. Some of the main reasons explaining the gaps between research and market and limiting the EU's ability to effectively tackle security threats and respond to societal needs are, amongst others:

- market fragmentation: many buyers (public/private) with different purchasing conditions buying different technologies; many actors and fast technologies renewal; the risks and threats evolving constantly with new forms of attacks;
- institutional nature of the security market;
- limits of the existing funding schemes;
- misalignment between demand and supply;
- suboptimal communication and uptake of security research results.

More generally, the most relevant difficulties and weaknesses of SMEs for the access to international markets are the following:

- access to market; it refers specifically to the presence of value chain linkages between producers and buyers and how they can be established;
- access to specific and targeted training for entrepreneurs, sales and account managers;
- lack of internal managerial skills for supporting the internationalization process;
- lack of horizontal coordination amongst companies in order to find new opportunities and to valorize the local productions;
- lack of vertical coordination and collaboration for the interaction with other actors of the chain to establish strong linkages, find synergies and share information in order to improve the performance of the chain as a whole;
- Access to finance; the costs for the internationalization process are very high in terms of human resources, infrastructures, obtaining certifications and so on, and SMEs often face several difficulties in obtaining loans and credit;
- general difficulties in the identification of foreign business opportunities.

3.3 BRIEF FOCUS ON USA, JAPAN, AND SOUTH KOREA

ALLIANCE proposes to build a sustainable meta-cluster that aims to support the development of an integrated value chain led collaboration between the SMEs representing the advanced materials and the ICT segments in order to address the international industry of the aerospace, the robotic and the protective equipment and associated solutions. These industries have been chosen as their supply and value chains are global, and the final markets international.

The three target countries identified are: **USA, Japan and South Korea**.

The major and world class players in the Advanced Materials are in the USA and in South Korea (3M Advanced Materials (USA), Huntsman Corporation (USA), Hexcel Corporation (USA), Hanwa Group (South Korea), and Materion Corporation (USA) and Japan is a world leader on chemistry and new manufacturing processes.

The Research and technology investment in these countries is important, and the local companies are dealing with European companies, for new technology integration. USA, Japan and South Korea are key players for ICT, and represent countries covering all the value chain (electronics, data, telecom). Furthermore, these countries are hosting the major aerospace, robotics and personal protective equipment industry players. In addition, the USA is an integrated market, with access to Canada and Mexico, two other key players for the targeted industries. Collaboration with Japan and Korea may offer the capability to address the Asian continent market; which is offering a high level of growth in the next decades.

According to the experiences described by the ALLIANCE partners, there are several aspects that can influence the capability of a European SME to penetrate these markets. Following, for the three target countries of the ALLIANCE project, some concise notes about law, regulations, standards to be considered in the preparation of an internationalization activity.

USA: The United States is the most important market in the World in terms of security and defense; in the designing phase of an internationalization projects several elements have to be considered such as: protectionist policies (like high tariffs), the imposition of non-automatic import license requirements, limit demand for products exported from the United States, the request of extensive documentation. The two most important laws to know when approaching the USA are known as the **Berry Amendment** and the **Kissell Amendment**. These are two separate but closely related laws requiring that certain goods purchased by national security agencies be produced in the United States. The Berry Amendment is the popular name for a law requiring textiles, clothing, food, and hand or measuring tools purchased by the Department of Defense (DOD) to be grown, reprocessed, reused, or produced wholly in the United States. US Congress over the decades has varied the list of products covered by the law. Under the Kissell Amendment, textile, apparel, and footwear products purchased by certain Department of Homeland Security (DHS) namely, the Transportation Security Administration (TSA) and the U.S. Coast Guard must be manufactured in the United States with 100% U.S. inputs. The Berry and Kissell Amendments have created niche markets for domestic producers

Japan: in addition to the global standard norm ISO, Japan has its own national standard called, Japanese Industrial Standards (JIS) covering a various range of products and technologies. Products made by foreign companies can be also certified JIS by authorized institutions. Not only the foreign companies but also Japanese distributors which treat the product can apply the JIS certification. For the Japanese companies, both ISO and JIS are an important; it is decided case by case what certification is needed for the requested products. In general, as with any other government procurement, potential vendors to the Japan Ministry of Defense (JMOD) and Japan Self Defense Forces (JSDF) are required to apply for and register with the Japanese Government. For approaching the military market in this country, a partnership with a Japanese SME or institution is recommend considering the local language and unique cultural and business practices.

South Korea: There is a Free Trade Agreement (FTA) in place since 2011 between South Korea and EU, covering goods and services. Custom tariffs have been removed except on a limited number of items (such as agricultural goods). The current FTA also provides mutual recognition on a large set of standards, certifications and regulations, although a few barriers remain in markets such as drugs and cosmetics. Policies about procurement in the Defense & Security sectors are set by the DAPA (Defense Acquisition Program Administration - http://www.dapa.go.kr/dapa_en/main.do) that was created as an administrative center specializing in defense acquisition to carry out business related activities directed at improving the defense capabilities, procuring military supplies and fostering the Korean defense industry. DAPA is in charge of improving the defense capabilities of the nation, providing military supplies and fostering the defence industry. The Defense agency for Technology and Quality (DTaQ) implements the quality assurance and quality management system for the DAPA. Every Defense related foreign supplier needs to register on the DAPA platform in order to participate to tenders. In accordance with the growth of the defense technology in Korea and the increase of exports, the defense business base has been strengthened by the enactment of the Defense Technology Protection Law in 2016 and by the construction of a system to protect the national defense industry technology.

CONCLUSION

This document was created as a tool to favor and strengthen the knowledge by the ALLIANCE partners of D&S and advanced textile sectors. It can be also used as an instrument for the generation of ideas, cooperation opportunities, initiatives to accomplish the goal of creating cross-fertilisation among project partners and also from SMEs, research centers, cluster associations and other institutions not directly involved in the ALLIANCE activities. All the GPs reported contain the contact info to remain updated about the projects activities and results.