UNIMORE
UNIVERSITÀ DEGLI STUDI DI MODENA E REGGIO EMILIA

Direzione Ricerca e Trasferimento tecnologico

Panel Industrial Leadership: focus area FoF, Robotica, ICT

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Dipartimento di Scienze e Metodi dell'Ingegneria (DISMI)
Modena, 29/11/2016

Agenda

- Prerequisiti – il punto di partenza per una proposta.
- Analisi di un ESR di (in)successo
- L'eccellenza tecnica – raccontare una storia – usare la terminologia corretta – pensare da valutatore.
- L'impatto del progetto – convincere che i soldi pubblici siano spesi bene
- L'implementazione del progetto – ognuno ha la sua parte – l'importanza della catena del valore in un progetto di ricerca.
- Formattazione della domanda – anche l'occhio vuole la sua parte.

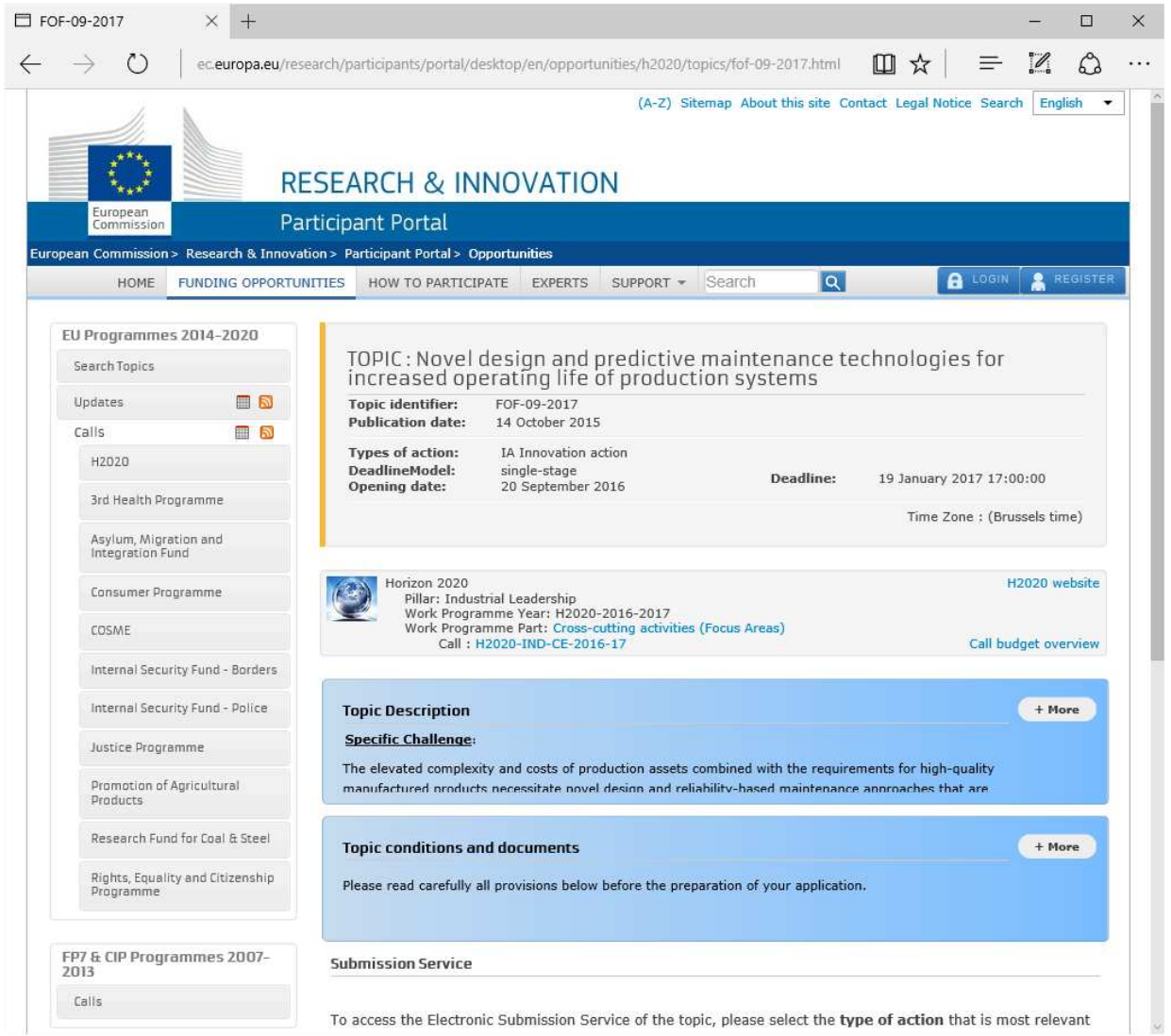
Progettazione di Progetti

Lo sviluppo di una domanda deve essere considerata essa stesso un progetto, con azioni, scandenze e risultati di una azione.

1. Networking (partecipare agli eventi di promozione delle call, partecipare a piattaforme di «stakeholders», partecipare agli eventi pubblici di progetti, etc.)
2. Analisi delle call (portale della commissione).
3. Sviluppare il concetto di base – formare lo scheletro del consorzio.
4. Dal concetto di base ai WP – inserire partner se manca qualcosa.
5. Sviluppare il budget – commisurato all'effort.
6. Sviluppare le parti di completamento – tutto il resto del documento di proposal – Registrazione sul portale – contatto con i partner, etc.
7. Altre cose utili:
   - Adivsory Board di progetto
   - Lettere di supporto da stakeholders.

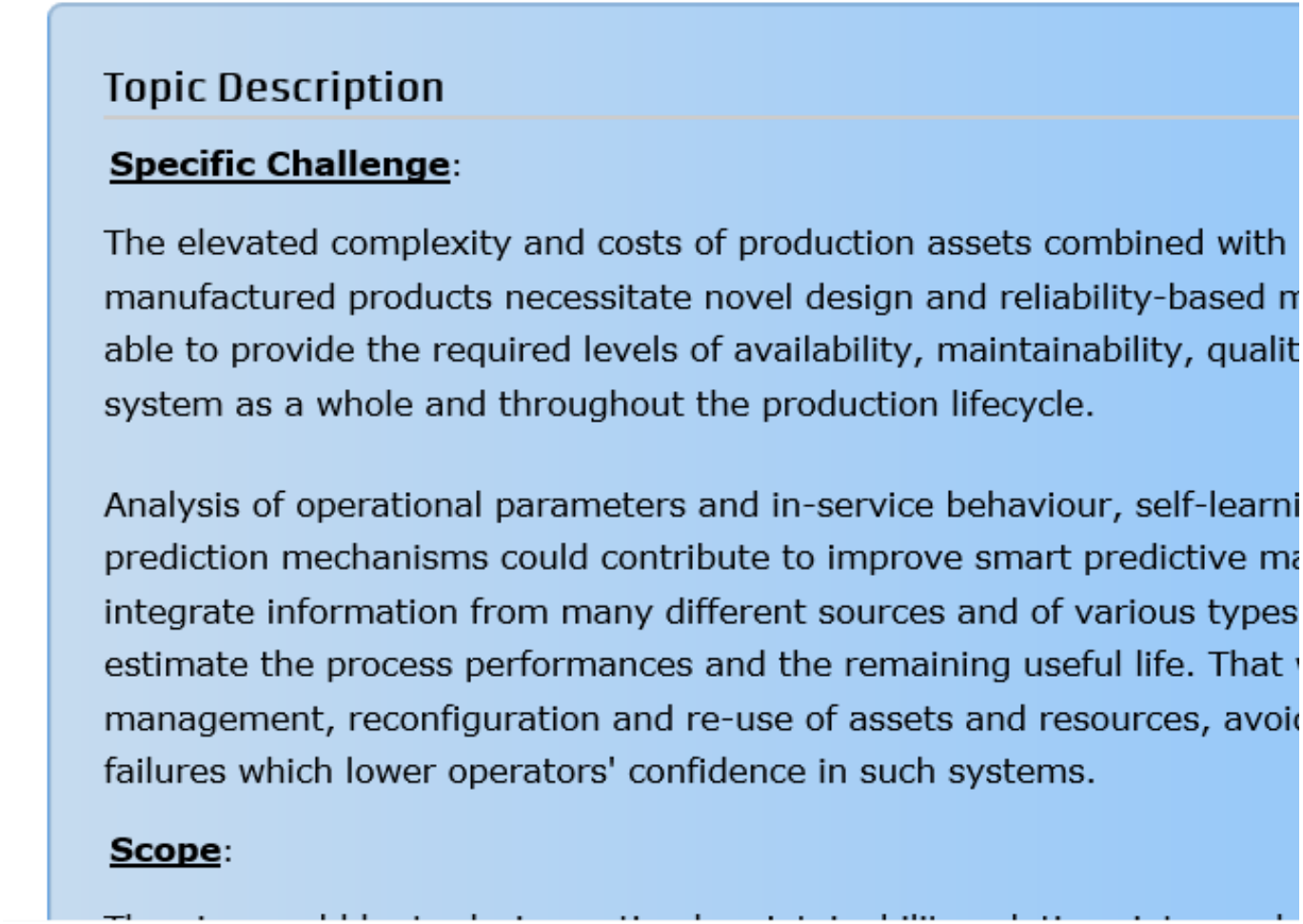
Analisi della call

http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/fof-09-2017.html



Specific Challenge

- definisce quali sono le sfide a cui bisogna dare una risposta con il progetto.



Topic Description

Specific Challenge:

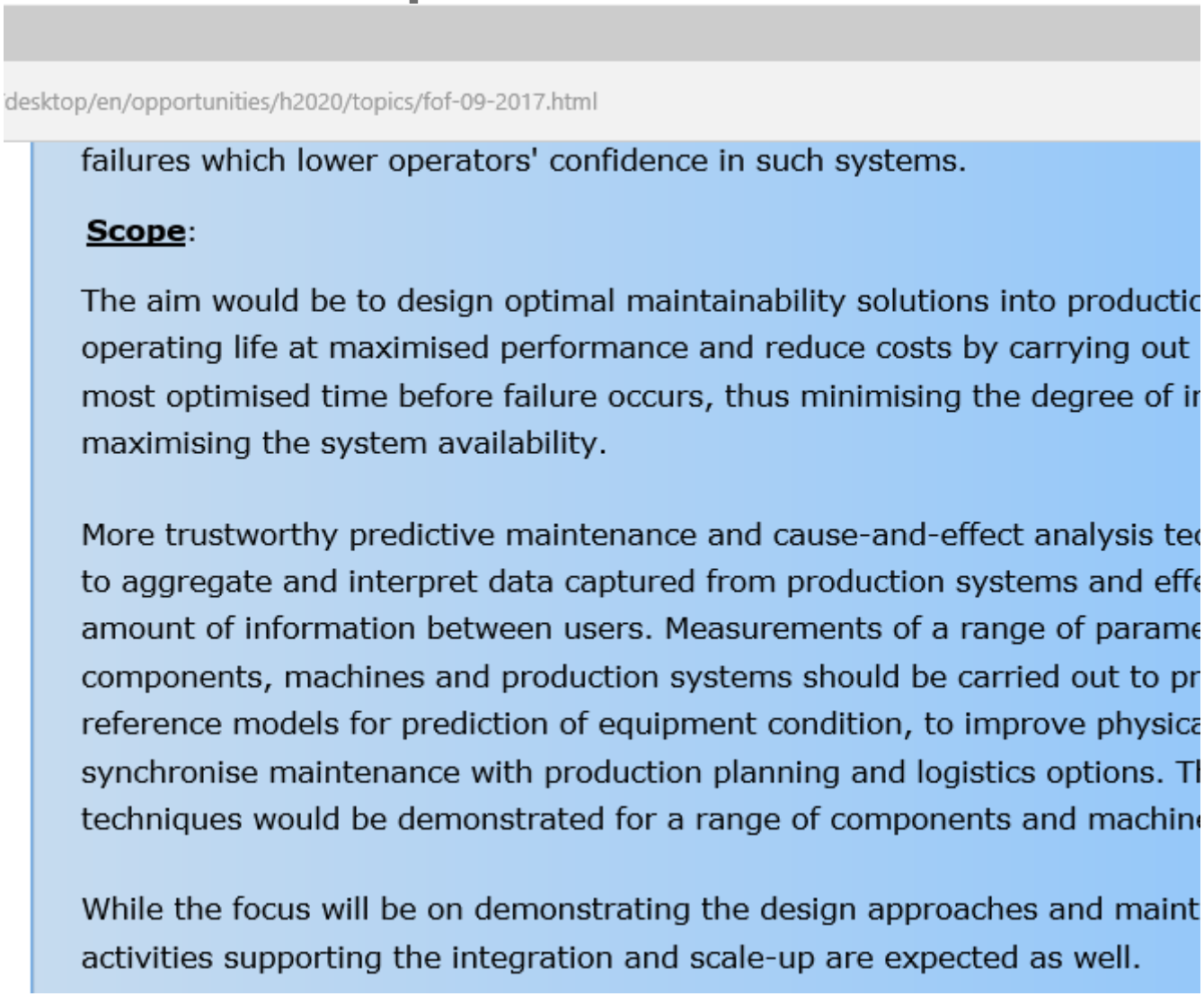
The elevated complexity and costs of production assets combined with
manufactured products necessitate novel design and reliability-based m
able to provide the required levels of availability, maintainability, qualit
system as a whole and throughout the production lifecycle.

Analysis of operational parameters and in-service behaviour, self-learni
prediction mechanisms could contribute to improve smart predictive ma
integrate information from many different sources and of various types
estimate the process performances and the remaining useful life. That
management, reconfiguration and re-use of assets and resources, avoi
failures which lower operators' confidence in such systems.

Scope:

Scope

- Definisce quale deve essere l'obiettivo del progetto.


desktop/en/opportunities/h2020/topics/fof-09-2017.html

failures which lower operators' confidence in such systems.

Scope:

The aim would be to design optimal maintainability solutions into productio operating life at maximised performance and reduce costs by carrying out most optimised time before failure occurs, thus minimising the degree of in maximising the system availability.

More trustworthy predictive maintenance and cause-and-effect analysis tec to aggregate and interpret data captured from production systems and effe amount of information between users. Measurements of a range of parame components, machines and production systems should be carried out to pr reference models for prediction of equipment condition, to improve physica synchronise maintenance with production planning and logistics options. Th techniques would be demonstrated for a range of components and machine

While the focus will be on demonstrating the design approaches and maint activities supporting the integration and scale-up are expected as well.

Impact

- Definisce quale deve essere l'impatto dei risultati del progetto.

Expected Impact:

The developed new technologies should lead to a significant impact in the follc

- 10% increased in-service efficiency through reduced failure rates, downtim plant/production system outages and extension of component life.
- More widespread adoption of predictive maintenance as a result of the dem secure and trustworthy techniques at component, machine and system leve
- Increased accident mitigation capability.

Proposals should include a business case and exploitation strategy, as outlined LEIT part of this Work Programme.

Analisi di un ESR di (In)successo

Proposal Evaluation Form

EUROPEAN COMMISSION

Horizon 2020 - Research and Innovation Framework Programme

Evaluation Summary Report - Research and innovation actions

Call: H2020-ICT-2015
Funding scheme: Research and Innovation action
Proposal number: 688432
Proposal acronym: MIRADOR
Duration (months): 36
Proposal title: Multi-redundant and dexterous mobile repackager for value-added logistics
Activity: 2015.ICT.24a Robotics RIA

N.	Proposer name	Country	Total Cost	%	Grant Requested	%
1	ASOCIACION DE INVESTIGACION METALURGICA DEL NOROESTE	ES	532,500	15.27%	532,500	15.27%
2	UNIVERSITA DEGLI STUDI DI MODENA E REGGIO EMILIA	IT	432,750	12.41%	432,750	12.41%
3	THE SHADOW ROBOT COMPANY LIMITED	UK	671,500	19.26%	671,500	19.26%
4	TECHNISCHE UNIVERSITAET WIEN	AT	496,166	14.23%	496,166	14.23%
5	UNIVERSIDAD DE VIGO	ES	320,375	9.19%	320,375	9.19%
6	SCHUNK GMBH & CO KG SPANN- UND GREIFTECHNIK	DE	231,125	6.63%	231,125	6.63%
7	VASCO GALLEGA SOCIEDAD DE CARTERA SL	ES	137,782	3.95%	137,782	3.95%
8	CDISCOUNT.COM	FR	129,375	3.71%	129,375	3.71%
9	MOBILE INDUSTRIAL ROBOTS ApS	DK	534,875	15.34%	534,875	15.34%
	Total:		3,486,448		3,486,448	

Abstract:
The number of service robots used in the logistics domain increases year by year as intra-logistics in manufacturing lines is moving towards servitization, where Third Party Logistics Providers have to offer new value-added services to get market share. Different factors are forcing the change in the logistics market, most notably the e-commerce and the manufacturing of custom-made products. Customers look for personalized products and mass customization is pushing the industry to reduce time to market and enhance production flexibility. This fact is highly linked with warehouses management, where the exploitation costs increase with the value-added tasks. MIRADOR proposes to develop a breakthrough repackaging system for value-added logistics. It will be built on a novel mobile and dexterous bimanual robotic manipulator concept that will be demonstrated in two scenarios: in warehouse facilities performing re-packaging of parts for the automotive industry and in e-commerce fulfilment centre performing custom packaging for direct delivery. De-palletising, unpacking, handling, packaging, repackaging and palletising of goods will be performed autonomously, thanks to the combination of advanced robotic technologies such as perception, navigation, cognition and mechatronic. MIRADOR aims to go a step forward in service robotics, promoting the application of new autonomous robots in the logistics domain. The proposed approach includes developments in hardware and software that will lead to obtain advances in several abilities. Manipulation, perception, motion and cognitive abilities are among the most relevant ones.

Score

Evaluation Summary Report

Evaluation Result

Total score: 10.00 (Threshold: 10)

Form information

SCORING

Scores must be in the range 0-5.

Interpretation of the score:

0 *The* ***proposal fails to address the criterion*** *or cannot be assessed due to missing or incomplete information.*

1 Poor. *The criterion is inadequately addressed, or there are serious inherent weaknesses.*

2 Fair. *The proposal broadly addresses the criterion, but there are significant weaknesses.*

3 Good. *The proposal addresses the criterion well, but a number of shortcomings are present.*

4 Very good. *The proposal addresses the criterion very well, but a small number of shortcomings are present.*

5 Excellent. *The proposal successfully addresses all relevant aspects of the criterion.Any shortcomings are minor.*

Criterion 1 - Excellence

Score: **3.50** (Threshold: 3/5.00 , Weight: 100.00%)

Note: The following aspects will be taken into account, to the extent that the proposed work corresponds to the topic description in the work programme. If a proposal is partly out of scope, this must be reflected in the scoring, and explained in the comments.

Clarity and pertinence of the objectives

Credibility of the proposed approach

Soundness of the concept, including trans-disciplinary considerations, where relevant

Extent that proposed work is ambitious, has innovation potential, and is beyond the state of the art (e.g. ground-breaking objectives, novel concepts and approaches)

Criterion 2 - Impact

Score: **3.50** (Threshold: 3/5.00 , Weight: 100.00%)

Note: The following aspects will be taken into account, to the extent to which the outputs of the project should contribute at the European and/or International level:

The expected impacts listed in the work programme under the relevant topic

Enhancing innovation capacity and integration of new knowledge

Strengthening the competitiveness and growth of companies by developing innovations meeting the needs of European and global markets, and where relevant, by delivering such innovations to the markets

Any other environmental and socially important impacts (not already covered above)

Effectiveness of the proposed measures to exploit and disseminate the project results (including management of IPR), to communicate the project, and to manage research data where relevant

Criterion 3 - Quality and efficiency of the implementation

Score: **3.00** (Threshold: 3/5.00 , Weight: 100.00%)

Note: The following aspects will be taken into account:

Coherence and effectiveness of the work plan, including appropriateness of the allocation of tasks and resources

Complementarity of the participants within the consortium (when relevant)

Appropriateness of the management structures and procedures, including risk and innovation management

1. Eccellenza tecnica

- Il progetto deve essere innovativo...

  ..... ma fattibile.
- Il progetto deve avere un impatto nello scopo della call.
- La descrizione deve essere chiara, e raccontare una *storia*, anche attraverso la descrizione di una (o più) applicazioni.
- Il valutatore ho pochissimo tempo per «capire» il progetto, occorre aiutarlo con una formattazione adeguata del testo, schemi logici, figure chiare. Fare uso estensivo di tabelle riassuntive.

Mappa logica

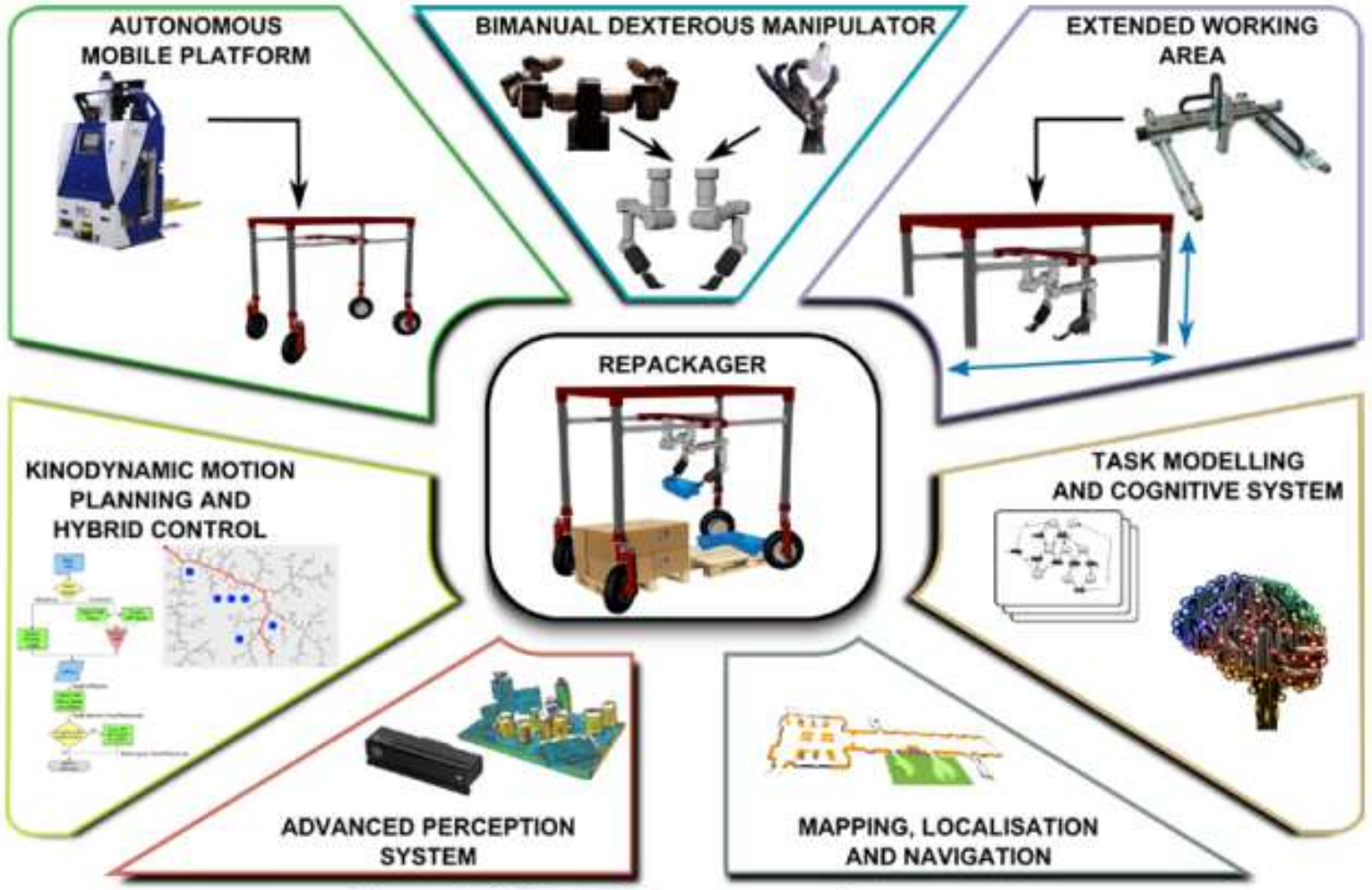


Figure 1. MIRADOR concept and prototype.

Dalla Mappa logica ai WP

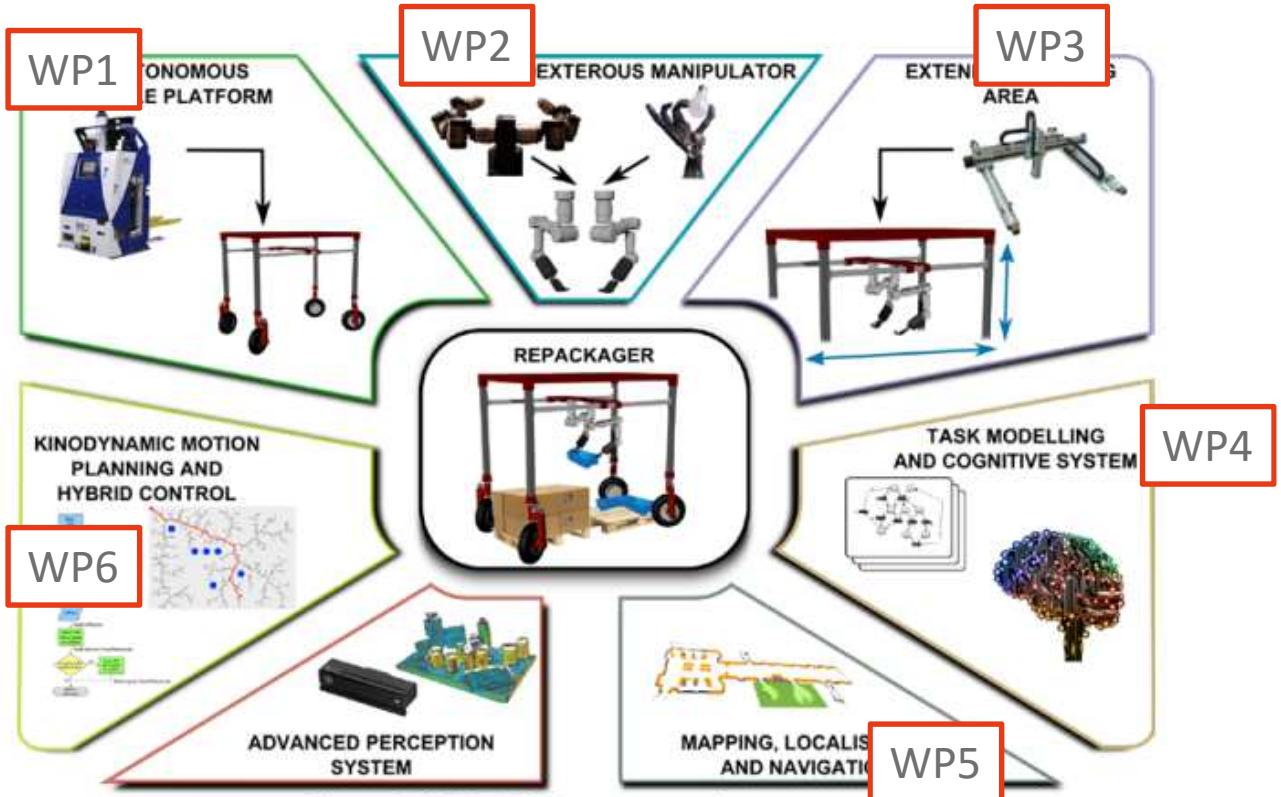


Figure 1. MIRADOR concept and prototype.

Come sembra una buona proposta?

- Descrivere il problema, spiegare perché è importante e come si intende affrontare il problema.
- Descrivere lo stato dell'arte specifico fornendo riferimenti specifici (casi industriali, articoli, etc.)
- Usare i documenti di descrizione delle roadmap (position papers).
- Descrivere quali progressi rispetto allo stato dell'arte garantirà il progetto.
- Descrivere in che maniera si potrà misurare l'avanzamento rispetto dello stato dell'arte.
- Dimostrate di comprendere ed essere padrone dello stato dell'arte - non fornire solo un elenco di articoli, articoli o brevetti, ma un commento ragionato.
- Verificare di non replicare ricerche esistenti, soprattutto quelle finziate dalla EC.

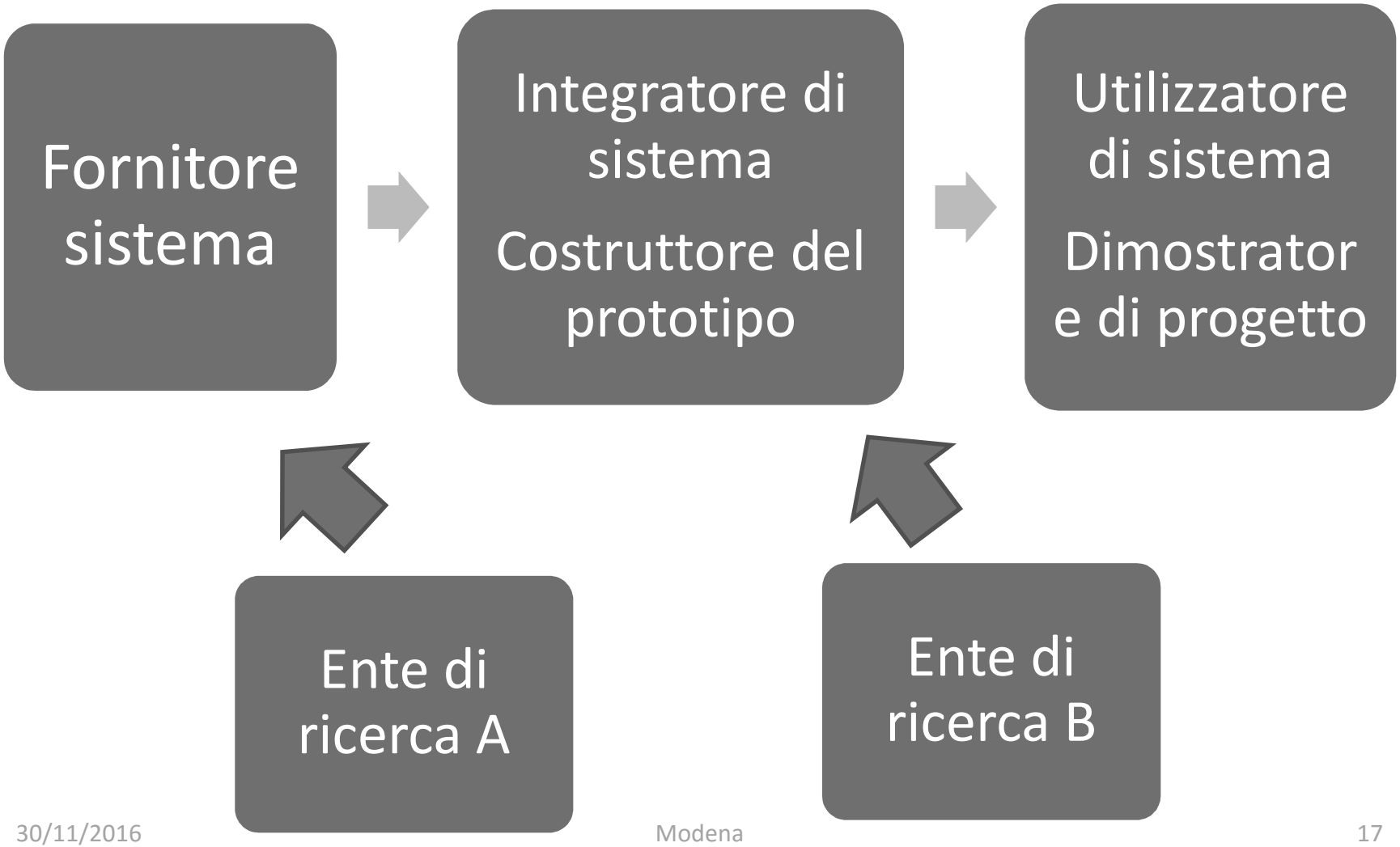
2 - Dimostrare l'impatto del progetto

- In Horizon 2020 l'impatto di progetto è di grande importanza.
- Occorre convicere che i soldi pubblici che si ricevono costituiscono un investimento fruttifero.
- Spiegare l'impatto del progetto in termini di incremento di fatturato, progresso della conoscenza scientifica, etc.
- Occorre dare elementi oggettivi, non vanno bene cifre «tirate a caso».

3- Implementazione della domanda

- E’ essenziale che ogni partner abbia un ruolo preciso, ben identificato, che porti un valore aggiunto al consorzio, e che non sia in sovrapposizione con altri.
- E’ buona regola preparare **prima** lo scheletro del progetto e **poi** invitare i partner.
- Un buon partenariato identifica una catena del valore nel caso d’uso descritto nel progetto.

Catena del valore del progetto



Formattazione delle informazioni

FoF-08-2015: ICT-enabled modelling, simulation, analytics and forecasting technologies

Call: H2020-FoF-2015
Topic: FoF-08-2015
Type of action: RIA
Proposal n°: SEP-210229728

Innovative Modelling Approaches for Production Systems to Raise Validatable Efficiency

Participant No		Participant organisation name	Country
1	HS-OWL (Coo)	Hochschule Ostwestfalen-Lippe	DE
2	TUM	Technische Universität München	DE
3	UNIMORE	University of Modena and Reggio Emilia	IT
4	Mar	Marmara Üniversitesi	TR
5	IOSB	Fraunhofer IOSB	DE
6	Reicofil	Reifenhäuser Reicofil GmbH	DE
7	Brückner	Brückner Maschinenbau GmbH & Co. KG	DE
8	Arc	Arcelik A.S.	TR
9	OCME	OCME S.r.l.	IT

Relation to the work programme

Work programme: FoF-08-2015		IMPROVE
Challenges	*Simulating continuous and discrete manufacturing processes*	Future simulations must cover multiple-phenomena, be multi-scalable, integrate continuous, discrete and hybrid (continuous and discrete) manufacturing processes. UNIMORE (P3) and XELGO (P12) have experience with simulations and both are able to tackle this challenge. A combination of discrete event simulation and dynamic simulation will solve this challenge and can be used for optimization (WP5) e.g. for packing lines of OCME (P9).
	Forecasting the behaviour of manufacturing systems and processes	Models of IMPROVE are learned (WP3) by sensor observation of the manufacturing system. This will increase the accuracy of models and lead to an increased forecasting quality. The forecasting will be used in all IMPROVE demonstrators for optimization (TUM (P2), IOSB (P5)) and predictive maintenance (Mar (P4), IOSB (P5)).
	Designing products to an even larger extent through virtual mock-ups and optimisation methods	Customer demands of individual products require an easy and fast adaption of the production plants. This will be realized through virtual mock-ups, which are used to optimize the operation phase and minimize time for product changes. For this reason manufacturing systems are suitable to produce small batch sizes efficiently, due to

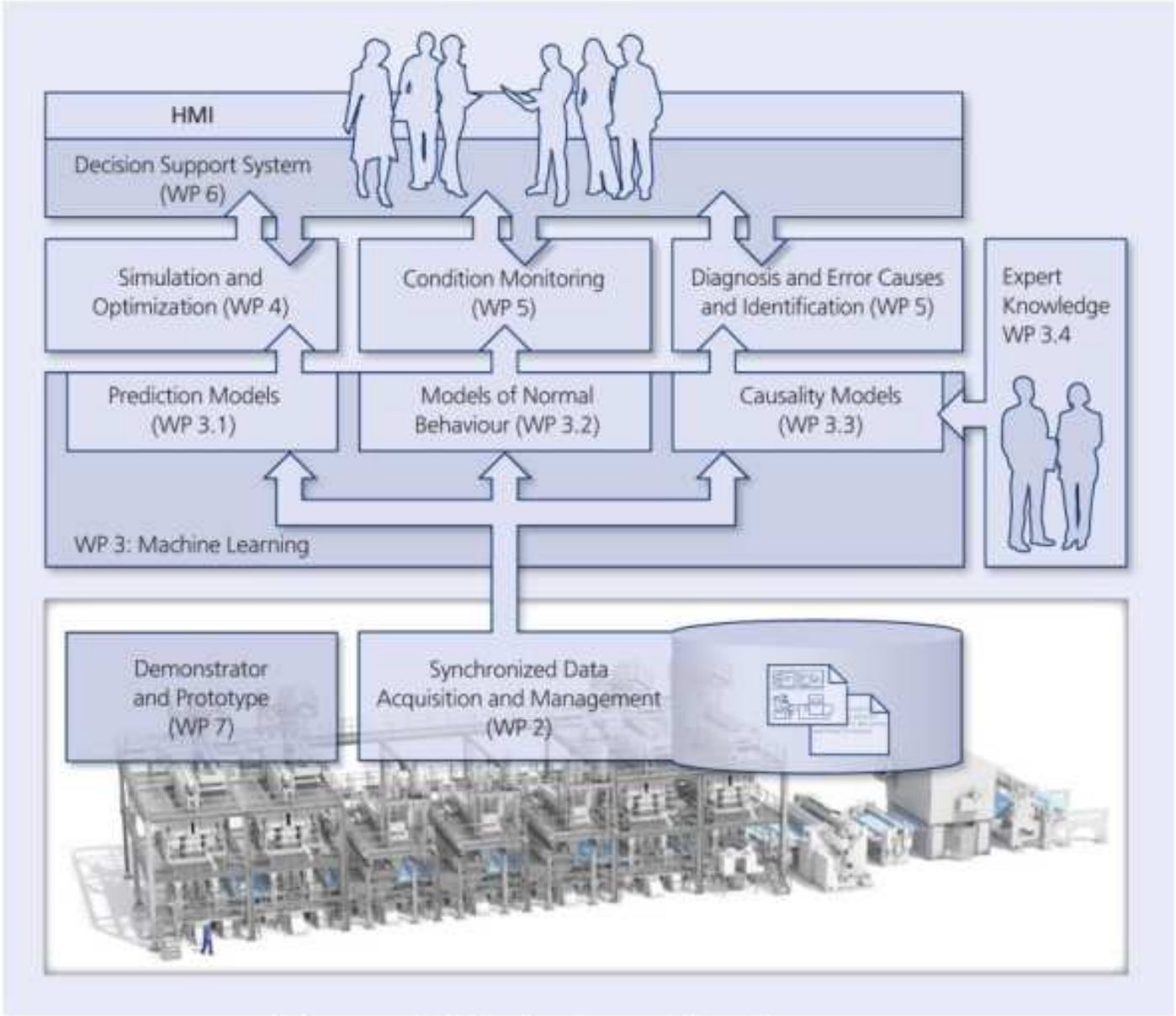


Figure 2: Project contributions