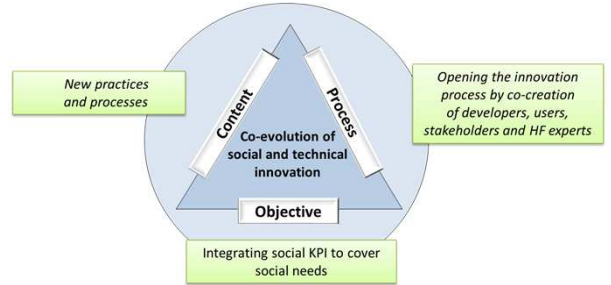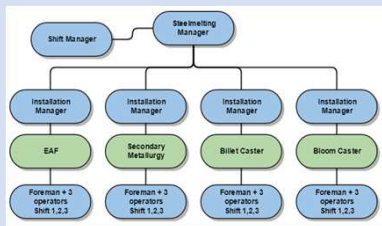# Combining Technological and Social Innovation

Need

- New challenges and low impact of new software systems (e.g. by poor user acceptance) creates a need for a new innovation paradigm
- Creating an excellent system and making the best use of it needs considering the ideas of future users and internal stakeholders
- A joint optimisation of technology, people and organisation is needed to unfold the full potential of a new digital solution

New practices and processes

Content — Process

Co-evolution of social and technical innovation

Objective

Opening the innovation process by co-creation of developers, users, stakeholders and HF experts

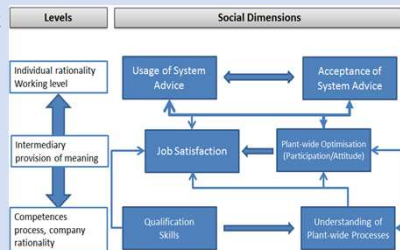Integrating social KPI to cover social needs

Approach

- Identifying future users and internal stakeholders to get them involved in the development process (by raising their requirements and early feedback to mock-ups, prototypes)

- Integrating a set of social key performance indicators (KPIs) to get early feedback during development
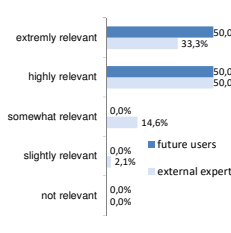
- Conducting surveys (questionnaire, interviews and workshops) among future users and external experts
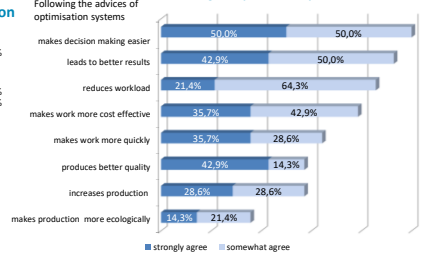
Application

- Analysing survey results

Relevance of Plant-wide Optimisation

	future users	external experts
extremely relevant	50,0%	33,3%
highly relevant	50,0%	50,0%
somewhat relevant	0,0%	14,6%
slightly relevant	0,0%	2,1%
not relevant	0,0%	0,0%

Following the advices of optimisation systems

Usage of Optimisation System

	strongly agree	somewhat agree
makes decision making easier	50,0%	50,0%
leads to better results	42,9%	50,0%
reduces workload	21,4%	64,3%
makes work more cost effective	35,7%	42,9%
makes work more quickly	35,7%	28,6%
produces better quality	42,9%	14,3%
increases production	28,6%	28,6%
makes production more ecologically	14,3%	21,4%

- Deriving human factors requirements

	Person-to-person requirements	Person-to-system requirements
Process-oriented requirements	Communication between sub-processes aligned with the plant-wide optimisation approach	Support of the best possible interaction of using data and practical knowledge
Result-oriented requirements	Plant-wide processes as part of operator training ratio relative to baseline	Usage of system advice

- Developing action plans (currently draft)

Human Factor Requirement	Acti-vities	How many, how long, at what time?	Involved People	Request from SIDENOR/Tecnalia
Future changes of work content		2 hours During testing the prototype	Company project manager, Developer, Future users/internal stakeholders (interviewed people from the first run of surveys), Human Factors team (HF)	Job profiles of future users and internal stakeholders
Needs for detailed information from the system and/or other sub-processes	Work-shop	1 hour During testing the prototype		No requests
Needs for further communication channels		1 hour During testing the prototype		Preparing a list of practices, how and when future users are communicating with preceding and subsequent areas/processes up to now
Visibility of decisions of users on the final product		1 hour During testing the prototype		No requests

Benefit

- Ensures that plant-wide optimisation brings the envisioned benefits
- Ensure that the system fulfills the end user needs
- Improves user acceptance
- Supports learning of end users
- Helps the end user to use the COCOP system more effectively
- Better process operation via best fit between technological tools, organisational practices and user skills