MONSOON Newsletter 2018, Issue 3

18 months after…

Dear reader,
We have reached the middle of the project duration.

In these last 6 months the consortium has worked on several areas, refining the bases of the project scope and preparing the incoming developments:

- an update to the process industry domain analysis was performed, orienting the target to a more user-perspective and user-centered use cases;
- development of a model, that will unify existing standards for data analysis, with standards related to manufacturing processes and their linking with ERPs, to be, further on, supported and maintained by a Semantic Framework for dynamic multi-scale industry modelling;
- designing of a monitoring framework to assure the communication interoperability of data exchange and communication on site;
- conception of tools and methodologies to support the creation of the site models specified and simulation of leverage semantic framework, as well as tools to validate the quantitative evaluation of the predictive functions;
- definition of the approaches for the core set of algorithms, techniques and methodologies for trend analysis, as too the preliminary specifications and first list of KPIs for the evaluation framework on each domain.

In these first 18 months the developments were quite related to connection to the domain areas and the data acquisition for further analysis and evaluation. Paralleled to this, the consortium partners have been attending to events, disseminating the project and the new developments, sharing experiences and evaluating opportunities for new approaches and application of tools. Also, based on the developments of the project, quite a few publications were published and can be viewed through the project website.

The MONSOON consortium has maintained its External Stakeholder Group (ESG) updated, sharing the development strategies, obtaining in return a valuable feedback that allows to delineate approaches more oriented to end users and industrial segments. The close relationship with this ESG allows to consolidate the robustness of the tools and contribute to obtain a more objective platform and oriented to the real needs of the production processes.

Find out more in this newsletter and continue to follow us for further developments and news.

Marco Dias [GLN]
Project Dissemination Manager

IN **THIS ISSUE**

CEN/CENELEC Workshop Agreement Development

Many of the R&D projects funded by the European Commission include a specific part devoted to Standardization, as a way for:

- facilitating the acceptance and utilization by the market of the developed solutions;
- ensuring compatibility and interoperability with what already exists in the market through standards;
- using the standardization system as a tool for dissemination of the project results and interaction with the market stakeholders.

These objectives are usually accomplished through the identification of related applicable existing standards and the projects of standard under development and the standardization technical committees where they are developed, the collaboration and communication with the relevant Technical Committees and also making contributions to the on-going and future standardization developments.

There are several ways of contributing to the on-going and future standards. One way is for example, to joint the international working group where an important standard for the project is being developed, but each working group has its own timeframe for developing standards and it's very difficult to combine this work with the normal development of the project.

Another way is the identification of "gaps" where there are no suitable standard for a specific need, and report these gaps to the suitable technical committee, in such a way they can be included in the working plan of the committee in the future.

But an alternative way to accomplish the objective of a contribution to the standardization system is the development of a CEN/CENELEC Workshop Agreement (CWA).

A CWA is a document agreed by the participants of a Workshop, which is designed to meet an immediate need and form the basis for future standardization activity. The direct participation of interested parties and the rapid development opportunities offered by a CWA are considered to be particularly attractive for European research projects, because the secretary of the workshop is hold by the national standardization body member of the consortium developing the R&D project and the timeframe of the CWA development can be combined with the one of the project.

Additionally, the process of development of a CWA includes several stages where the information is shared among the national standardization bodies' members of CEN/CENELEC, o a period of public enquiry and the participation of experts external to the project, so the development of a CWA includes a dissemination aspect.

The MONSOON project will develop a CWA as a way of contribution to the standardization system.

Asociación Española de Normalización at Madrid-SPAIN

The Spanish Association for Standardization (UNE) is a non profit-making, private, independent and multisectoral organization, recognized at National, European and International level. Through the development of technical standards, it helps to improve the quality and competitiveness of companies, products and services. As standardization body, UNE is the national representative and member of the European (CEN/CENELEC), International (ISO/IEC) and Panamerican (COPANT) Standards Organizations, and member of the European Telecommunications Standards Institute (ETSI). More than 30000 standards in catalogue, 200 national technical committees and 150 responsibilities (chairpersons, secretariats, convenors) in international standardization committees are a sample of the experience developed as national standards body during the last 30 years.

UNE will advise, manage and develop all the activities related with standardization. European Standardization Organizations, CEN and CENELEC do not participate directly in research and innovation projects, delegating this participation into their national members.

UNE will be involved in WP8, which deal with dissemination, exploitation of the work and standardization. In particular, the association will lead the task 8.3 of standardization providing contribution for facilitating the acceptance and utilization by the market of the developed solutions.

Life Cycle Management inside

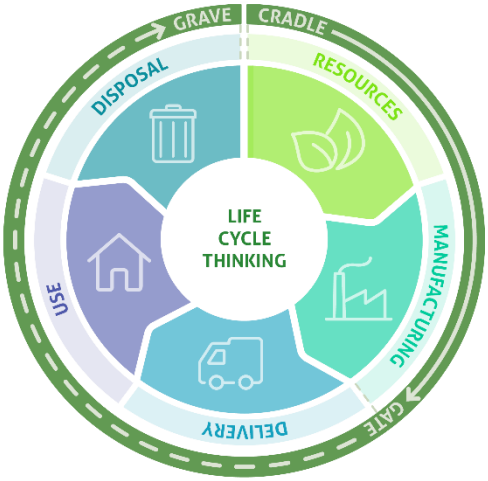
National and international environmental regulations and new paradigms coming from the circular economy approach are fostering companies to embed environmental sustainability in their way of doing business. This is also part of the continuous effort made by the European Commission to transform Europe's economy into a more sustainable one (http://ec.europa.eu/environment/circular-economy/index_en.htm). In this context, life-cycle-thinking perspective and environmental respectful practices are no longer seen as an option, but a fundamental prerequisite to remain competitive over time; this means to embrace in the business strategic vision various aspects associated with a product over its life cycle, from cradle to end of life opportunities.

Since no environmental improvement action can be done without a careful assessment of the baseline situation, the most acknowledged ways of doing so is through Life Cycle Assessment (LCA), a standardized methodology for evaluating the environmental impacts associated with a product or a process throughout its entire life cycle.

The LCA approach considers the production system as a whole: from the production of raw materials to the use phase, final disposal and recovery of resources. An advantage of this methodology is to consider the different forms of impact: polluting emissions, use of resources and waste generation are all on the same level.

Results are then communicated through a set of synthetic indicators (KPIs), chosen considering the most important environmental aspects of the production process analyzed. In the case of industrial processes, for example, some of the most significant indicators are: emissions of greenhouse gases (also known as Carbon Footprint), direct and indirect energy consumption of the analyzed system, impacts related to waste management, water consumption and so on.

By providing a broad and comprehensive perspective of a products' footprints, LCA is widely used to support internal research & development and eco-design activities. Furthermore, LCA results offer a credible, verifiable and scientific basis for environmental communication tools and activities, thus helping companies to express the sustainability value of their products to the stakeholders.



What's new with LCA and MONSOON?

The MONSOON platform hosts a dedicated Life Cycle Management plugin. This tool exploits innovative data handling techniques to quickly retrieve a huge amount of site data. This eliminates the need of time-consuming data collection procedures, typically carried on via spreadsheets with high potential for filling errors and misunderstandings.

Thanks to this dynamic approach, MONSOON is expected to bring LCA to a higher level of adaptiveness and flexibility, boosting even more the adoption of LCA in a wide range of sectors. With the LCA plugin, HSE (health, safety and environment) managers can easily quantify process environmental performance in a selected time range and compare it with historian records and trends over time.

The LCA plugin allows the MONSOON platform to easily compute savings in terms of energy and resource depletion, as well as process environmental footprint. Results of the plugin can be visualized by means of interactive dashboards where the trend of relevant KPIs can be monitored and explored for reporting purposes.

Thanks to the LCA plugin, all the benefits coming from the application of MONSOON optimization techniques can be easily communicated to the stakeholders and can be used by energy intensive companies to transparently communicate their efforts towards a sustainable and circular industry.

LIFE CYCLE ENGINEERING Srl at Turin - ITALY

Life Cycle Engineering (LCEN) in an independent company providing research & consulting services to support companies and organizations in improving and communicating their environmental, social and economic sustainability.

From early nineties, LCEN provides professional solutions and software tools for Life Cycle Assessment (LCA), eco-design and environmental communication such as Environmental and Sustainability Product Declarations (EPD and SPD), making available more than twenty years of experience and a reliable multidisciplinary team.

Important activities are also implementation of environmental management systems according to ISO 14001, safety management systems according to OHSAS 18001 and ISO 22000 standards. LCEN undertakes educational activities in LCA and eco-design as well, regularly offering company seminars and higher education for Master Degree Courses.

LIFE CYCLE ENGINEERING
we support your sustainable business

The major involvement of LCEN on the MONSOON Project will be in WP5, where they will lead the task 5.4 "Lifecycle Management plugin" concerning the development of the Life Cycle platform and in WP7 where they will manage the evaluation framework specification, leading the Task 7.1.

As a consortium partner, LCEN will also be involved on the remain Workpackages, contributing for management, development and also supporting for life cycle management.

DELIVERABLES Release

In the last 6 months, the Monsoon Consortium worked in several areas concerning the solid and functional base for the Platform. Since the last release, 12 deliverables were provided to the European Commission:

D3.7 Initial Runtime Container [PU]
This document collects the initial specification of the Runtime Container along with the description of the environment infrastructure, in both pilot sites, and the initial architecture and modules. It also provides the initial description of the fundamentals of the container components used for the period 1 of the MONSOON project and an overview of the role that the components will cover in the final framework (period 2).

[read more]

D4.1 Initial Semantic framework for dynamic multi-scale industry modelling [PU]
The purpose of the Initial Semantic framework for dynamic multi-scale industry modelling deliverable is to provide an initial overview of the semantic framework tools architecture by providing architectural views and perspectives of the various system design models.

[read more]

D5.1 Initial Trend Analysis Function [PU]
The D5.1 presents the initial trend analysis functions developed until M15 of the MONSOON project and means to design and implement trend analysis techniques for and on significant and key process variables of both aluminium and plastic domains. This deliverable defines the initial approaches for the core set of algorithms, techniques and methodologies for trend analysis. With the implementation of such techniques we aim to provide detection of possible deviations from normal conditions, based on the need of aluminium and plastic production processes.

[read more]

D5.3 Online and deep machine learning techniques [PU]
This document describes the data science approaches lead during the first iteration of the MONSOON project. The analyses were done by applying machine and deep learning algorithms, in order to answer the different industrial use cases identified in the first iteration. The analyses are related to abnormality detection or process optimization for Aluminium and Plastic domain.

[read more]

D5.7 Initial Life Cycle Management plugin [PU]
The Life Cycle Management plugin represents the core activity of the MONSOON work package 5 in task 5.4. This deliverable represents the first step towards the complete definition of LC plugin properties and architecture, expected at the end of the MONSOON project. In this version, focus will be devoted to methodological aspects, to highlight the role of the component in the platform, as well as its similarities and differences with the rest of the toolkit which is the core, innovative potential of MONSOON.

[read more]

Besides this selected Deliverables, other document were provided to European Commission:

D2.3 Updated Process Industry Domain Analysis and Use Cases [PU]

D3.2 Updated Real time Communications Framework [PU]

D3.5 Updated Virtual Process Industries Resources Adaptation [PU]

D4.4 Updated Big Data Storage and Analytics Platform [PU]

D4.6 Initial Multi-scale Model based Development Environment [PU]

D5.5 Initial Integrated Resource Optimization Toolkit, Decision Support [PU]

D7.1 Initial evaluation framework [PU]

[CO] Confidential; [PU] Public

PROJECT MEETINGS

Workshop Meeting in Dunkerque - FRANCE
[18 JULY 2017]

Consortium Meeting in Thessaloniki - GREECE
[17 - 19 OCTOBER 2017]

Consortium Meeting in Marinha Grande - PORTUGAL
[27 FEBRUARY – 01 MARCH 2018]

MONSOON Social Communication

SMART INDUSTRIES [PARIS] 2016
 # 7000 visitors

Autonomous Machines World [BERLIN] 2017
 # 200 Experts and attenders

Capgemini Week of Innovation Networks [PARIS] 2017
 # 150 Attenders

Affidabilità & Tecnologie [TORINO] 2017
 # 150 attenders

BIGDATA PARIS 2017

BIG DATA PARIS 2017
 # 13 000 Visitors

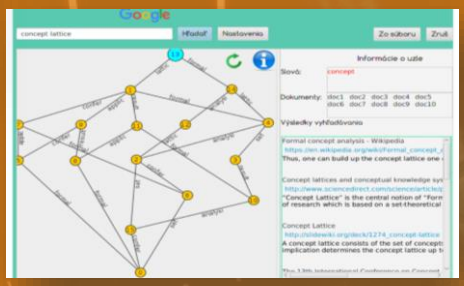
Assises du MES [PARIS] 2017
 # 300 Attenders

Data a znalosti [PLZEN] 2017
 # 80 Attenders

INES [LARNACA] 2017
 # 60 Attenders

MONSOON Newsletter

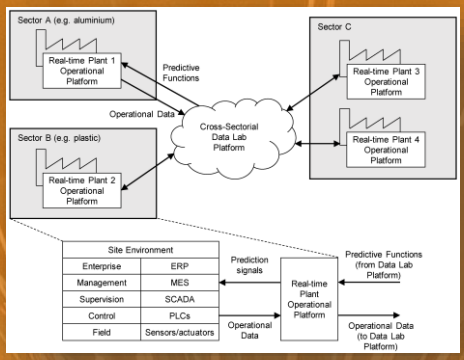
PUBLICATIONS



MONSOON project – design of big data analysis plaform in process industries (in Slovak)

[BEDNAR, Peter &SARNOVSKY, Martin]

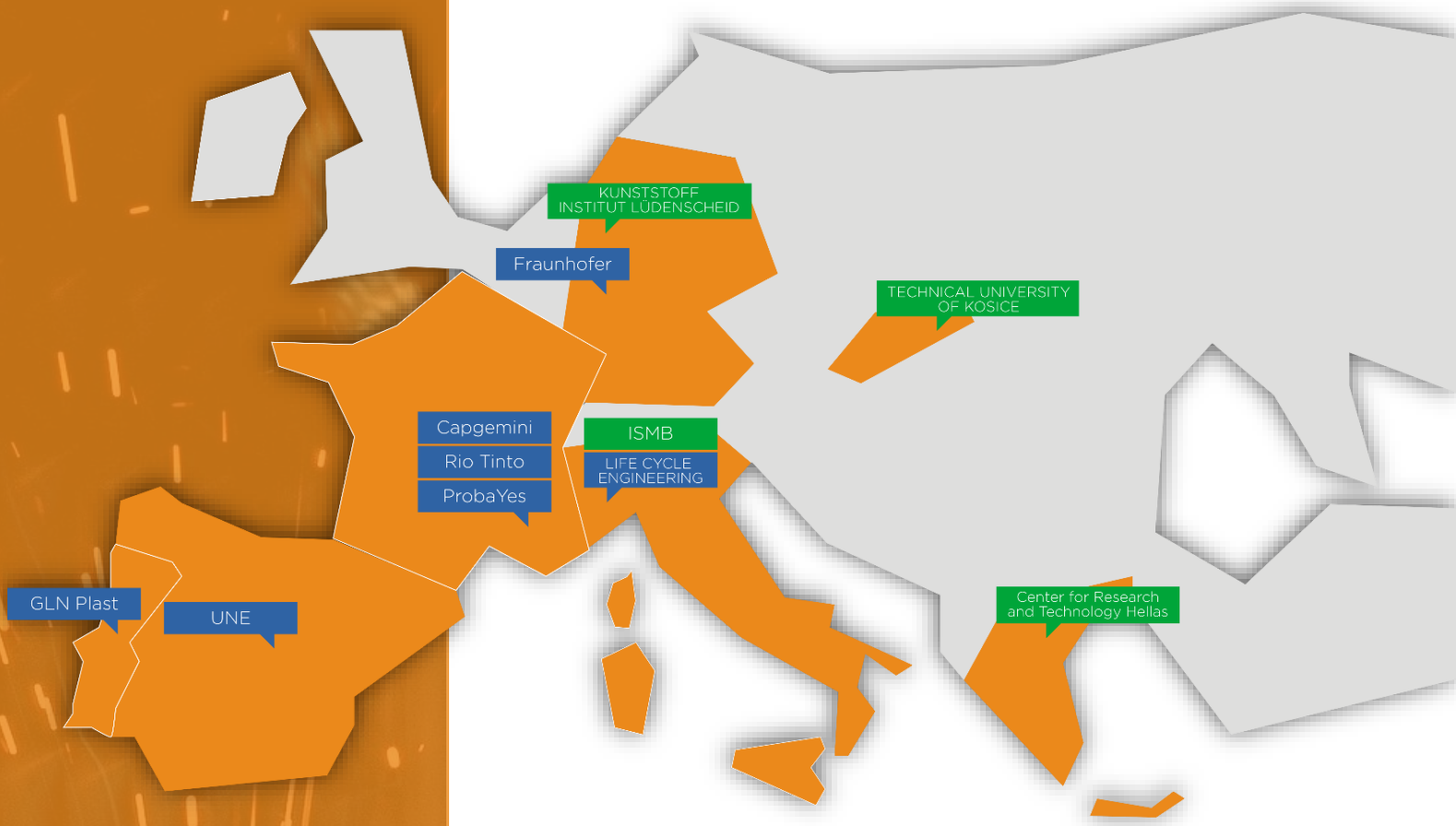
[read more]



Big Data Processing and Analytics Platform Architecture for Process Industry Factories

[BEDNAR, Peter, SARNOVSKY, Martin & SMATANA, Miroslav]

[read more]



Companies
Research Institutes / University

ISMB Istituto Superiore Mario Boella — ITALY

Fraunhofer FIT — GERMANY

CERTH CENTRE FOR RESEARCH & TECHNOLOGY HELLAS — GREECE

TECHNICKÁ UNIVERZITA V KOŠICIACH — SLOVAKIA

RioTinto — FRANCE

Capgemini — FRANCE

GLN PLAST Molding the Future — PORTUGAL

UNE NormalizaciónEspañola — SPAIN

LIFE CYCLE ENGINEERING — ITALY

KUNSTSTOFF INSTITUT LÜDENSCHEID — GERMANY

probayes — FRANCE

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