



Innovative and efficient solution, based on modular, versatile, smart process units for energy and resource flexibility in highly energy intensive processes

Summary of Deliverable 5.3

Title: CIRMET Monitoring and Control tool, Functional Design Specification

Due Date: 30/06/2019

WP5 AFF40 (Analytics For Factories 4.0) PLATFORM

T5.3 CIRMET Monitoring and Control tool

Dissemination Level: Public

Website project: <https://www.spire2030.eu/cirmet>

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CO	Confidential, restricted under conditions set out in Model Grant Agreement	
CI	Classified, information as referred to in Commission Decision 2001/844/EC.	



Sustainable Process Industry through
Resource and Energy Efficiency



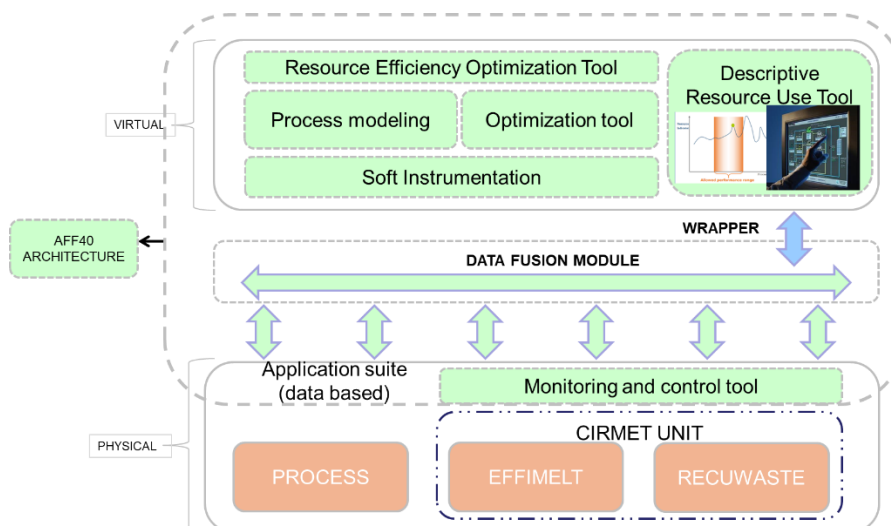
“The project leading to this application has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 820670”.

D5.3 Summary

This document is a **public summary** of the complete D5.3 deliverable on the functional design specification of the M&C tool of CIRMET. The complete report contains some confidential data, so a summary will be submitted and the request to change the nature of this deliverable from public to confidential will be included in the amendment that is going to be prepared in the following weeks. If the EC accepts this request, the complete report will be uploaded as soon as the nature of the deliverables is changed in Sygma.

Deliverable 5.3 contains the functional design specification of the monitoring and control tool (M&C). The described functionality is structured in two levels: the functionality necessary to satisfy the different interactions between the stakeholders of the project and modules of the AFF40 architecture, and the inner functionality of the M&C tool that must be developed to support it, such as configuration functionalities, etc.

The M&C tool is the module in charge of collecting relevant data in industrial plants and transmit them to the modules that will transform and extract relevant knowledge from them. It can be considered as the link between the real world and the digital one. The following picture shows the interaction of the M&C tool with the AFF40 modules (data fusion layer) and the industrial processes.



Its validation in CIRMET will be achieved in two different use cases: Effimelt and Recuwaste. The required measurements for these specific use cases have been defined by WP3 and WP4 members with the collaboration of WP5. A complete list of measurements is included in D5.3; a preliminary version of the respective off the shelf sensors to collect these measurements is included in D5.3. This list will be concluded when the specificities of the physical sites and installation details for Effimelt and Recuwaste are known. The M&C tool can manage wireless and cable sensors.

The management of the controlling signals of the industrial processes are an important part of the knowledge and business core of Effimelt and Recuwaste. From a business perspective, they need to keep in control that management and do not open it up to third parties, as it would be the AFF40 platform.



The controlling functionalities of the M&C tool are focused on and designed for the monitoring of sensors performance and for generating alarms when measurement limits are reached. Alarms will be managed through email and smartphone text messages.

AFF40 will be implemented as an open loop decision support system (DSS), which means the AFF40 system will give relevant information to the operators, so that they can adjust setpoints and settings in the production line control system.

The M&C tool will store data in a data base for future use and comparison between real time data and historical data. Both historical data and real time data will be made available for the data fusion layer via a server to server connection.

The M&C tool central processing unit will be set up in a local server with WebSensys installation. This is a server application from the WiSensys platform developed for monitoring, alarming, reporting and control.

The server application uses a SQL server for data storage and a web interface for configuration and presentation purposes. Wireless sensors can connect through an ethernet base station to the server.

Third party connection to the server is possible using the "virtual sensor" capacity of the server, which gives a possibility to get bidirectional access to the SQL database. By using this "virtual sensor", also soft sensing data could be inserted in the system. The current connection to a virtual sensor is ethernet based.

This capacity is crucial and makes the AFF40 architecture highly flexible, which will be used by the data gathering box from ARC in order to connect to the system wired sensors. The following picture shows the M&C architecture.

