

## ADaptive Virtual ENTERprise manufacTURING Environment



**European Commission**  
Virtual Factories  
and Enterprises



[www.fp7-adventure.eu](http://www.fp7-adventure.eu)

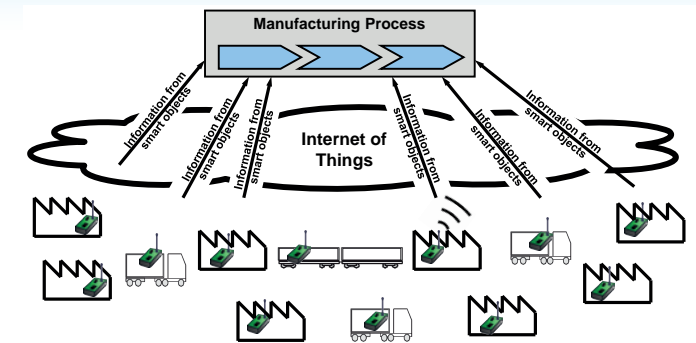
## Connecting Companies

The goal of ADVENTURE is the creation of a framework that provides the tools to combine factories in a pluggable way to manufacture a particular product. This includes the creation of manufacturing processes, finding partners as well as real-time monitoring of the processes that are put into play.

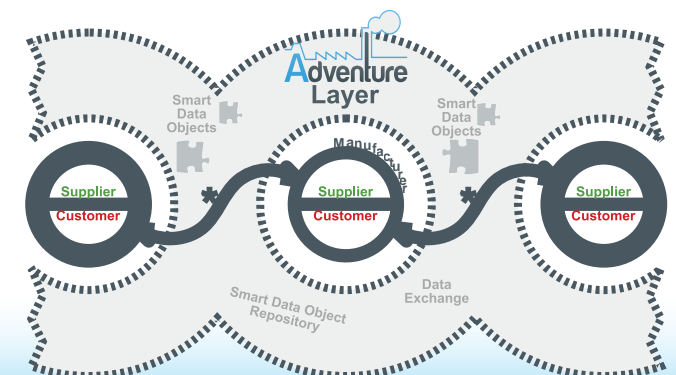
The concept of combining the power of several independent factories to achieve complex manufacturing processes as so-called virtual factories is not new and has been addressed by several research projects in recent years. However, most of them are limited to create virtual factories at a business level and in many cases they concentrate on the partner-finding and factory-building processes. Still, no proven tools and technologies exist in the market to provide valuable end-to-end integrated Information and Communication Technology (ICT) in such environments.



ADVENTURE will help virtual factories and enterprises move beyond existing operational limitations by providing concrete tools and approaches for leveraging the information exchange between factories. Factory process optimization will be enabled by the integration of runtime factory selection, forecasting, monitoring, and on-the-fly collaboration.



ADVENTURE aims at simplifying the establishment, management, adaptation, and monitoring of dynamic manufacturing processes in virtual factories by building on concepts and methods from the field of Service-oriented Computing and therefore benefiting from the progress that has been made in this domain over the last few years. Technologies from the field of Ubiquitous Computing and the Internet of Things, e.g., wireless sensors, will be adopted in order to support the monitoring and governance of processes, i.e., give information about the current status of manufacturing and delivery, as seen above.



## Consortium

### Technology



### Science



UNIVERSITY of VAASA



universität wien

### Users



Azevedos Indústria  
MÁQUINAS E EQUIPAMENTOS INDUSTRIAIS, S. A.

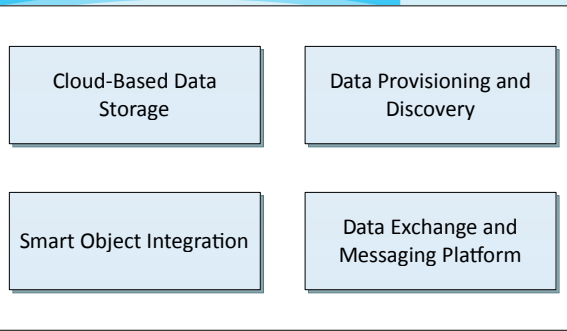


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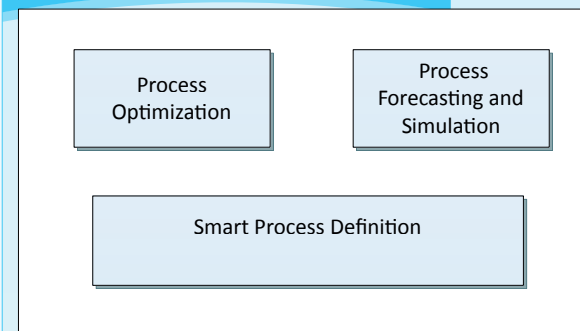
## Overview of Components

### ADVENTURE

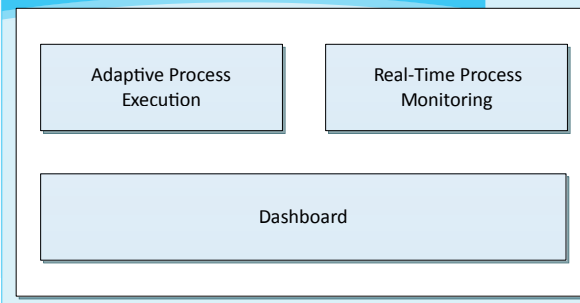
#### Virtual Factory Management



#### Process Definition, Forecasting & Simulation



#### Real-Time Process Monitoring, Adaptation & Dashboard



### Data Provisioning and Discovery & Cloud-based Data Storage

This Framework supports the (semantic) description, annotation and handling of manufacturing-related data according to the patterns, standards, and/or description schemata, that will be designed. This data as well as sensor data, product status information and Virtual Factory data will be stored in a cloud-based solution.

### Data Exchange and Messaging Platform & Smart Object Integration

The messaging platform will consume information by smart objects and will be used by the system to inform partners about issues, upcoming production processes and status information. Smart objects are employed to get information about the process, which includes information about the products, parts, raw materials as well as information about manufacturing utilities and delivery status.

### Smart Process Definition

The designer module is accessible from the Dashboard. It allows the definition and orchestration of full manufacturing product processes. These include product steps, supplier / partner / product parts and other elements relevant to manufacturing resources.

### Process Forecasting and Simulation & Process Optimization

Designed processes can be simulated and results can be precalculated. Based on this data, the actual processes can be optimized before they are deployed.

### Adaptive Process Execution & Monitoring

The Adaptive Runtime Manufacturing component provides the process runtime environment, covering the live-execution and real-time-monitoring of the production processes.

### Dashboard

The Dashboard is a Graphical User Interface that integrates all components into a complete virtual factory management utility.