



European Factory
Platform

ExtraCash

EFPF Open Call Pitching and Exhibition

27.09.2022

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About MASTA

We are a developer and integrator of the low-entry Industry 4.0 manufacturing operations management platform, SME focused.



Incorporated in 2011



EUR 400k funds raised for new product development in 2020-2022



Based in Poland



7 people, including industry experienced developers

About the project

ExtraCash - EXecution TRACKing and CAPacity SHaring



A main idea of the project was to improve communication related to order processing between cooperating factories being SMEs to increase their OEE and shorten lead times, making them more competitive on the market.



A solution developed with the project is a web application supporting lot-size-one manufacturers in exposing their production capacities and machines capabilities as well as status of the customers orders and supporting their customers in getting near-real time insights into production schedules of their suppliers.

ExtraCash project objectives



Software components for exposing the production status, capacities and capabilities of a manufacturing company developed and tested in near-industrial settings. This prepared ground for future development and marketization of the developed technology.



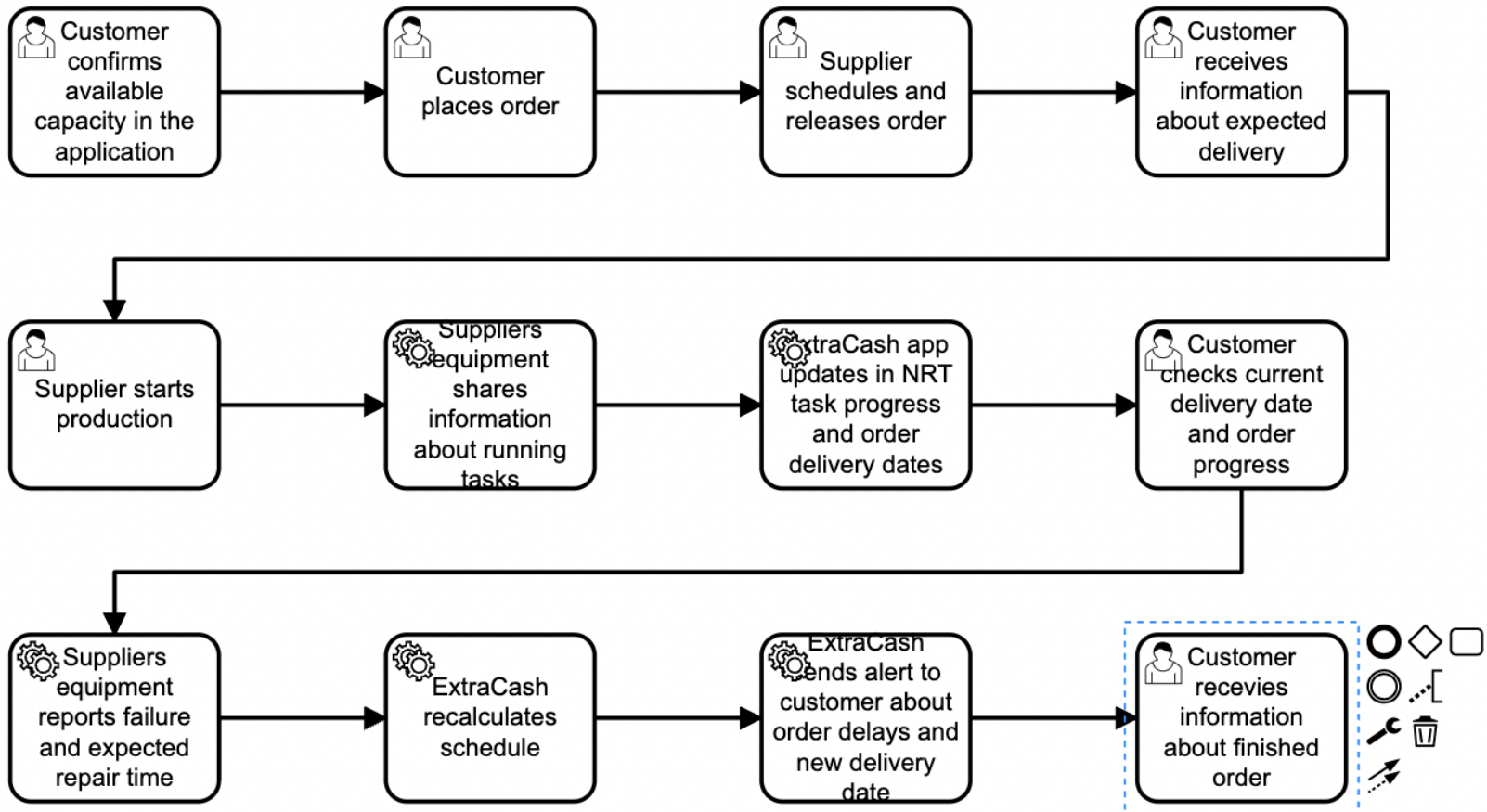
Validation of our technological and business assumptions – both in terms of the usability of the developed features and the market response to the proposed solution. Those insights helped us in fine-tuning the functionality of the software and potentially adjusting our business model (e.g. the licensing schemes or foreseen fees).



Access to the well-established innovation ecosystem of EFPP – by participating in the project events and dissemination activities, we established a number of contacts with companies and RTOs from across Europe, which further facilitate our plan to become a company offering innovative, knowledge-based solutions.

Technical Achievements

Orders realisation process supported by ExtraCash

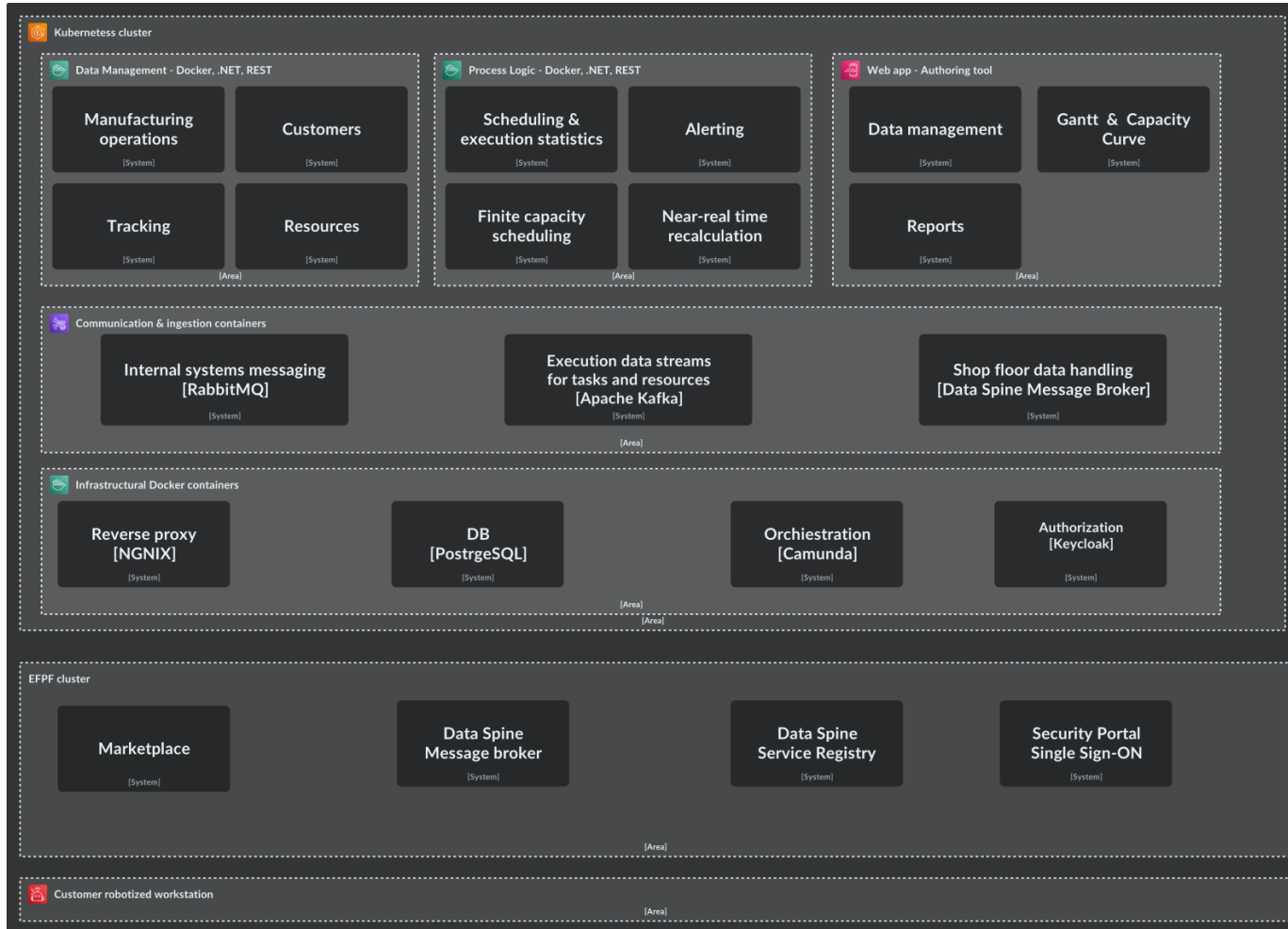




Technical Achievements

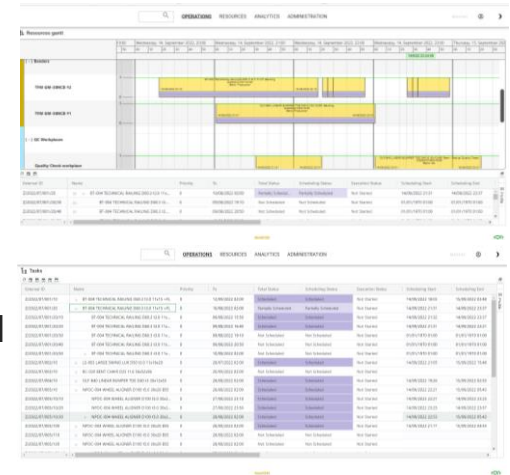
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ExtraCash architecture and involved technologies



Main functionalities of the ExtraCash application

- Single sing-on with the EFPF identity
- Scheduling component with the Earliest Dates algorithm maximizing efficiency of the equipment with respect to constraints like available capacity of all required resources considering available technological dependencies, alternatives and shopfloor situation
- Execution tracking by receiving Work Journals from the shop floor both human and robotic agents
- Re-calculation for real time updates of expected deliveries steps, task and orders
- Visualisation of the capacities of the machines park on Gantt chart updated in near-real time
- Alerting mechanism informing about changed expected delivery dates by any defined communication channel








Validation environment consisted of the following organisations:

- CMBIT - a contract manufacturer of custom metal components
- PPHU BiT – a customer of custom metal parts (manufacturer of complex assemblies)
- MASTA – a service provider



Technical Achievements

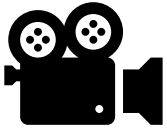
	definition	achievement	status
KPI1	ability to integrate with existing machines, at least 2 different machines will directly report work order progress	A bender and a saw were integrated	
KPI2	ability to retrieve existing orders from a database – at least 10 different orders requiring a different set of capabilities will be retrieved from an exemplary customer database	10 orders were retrieved	
KPI3	ability to react to the shop floor situation and update the lead time estimate in near real time – we will demonstrate and document it in at least 5 different simulated fault scenarios	5 out of 20 testing runs involved simulated fault scenarios, all of those have been properly handled	
KPI4	monitor and expose the status of an existing order to the client – we will showcase and document monitoring of at least 5 end-to-end orders by BIT	we successfully monitored realization of 20 test orders of BIT	
KPI5	expose the capacity and capabilities of machines to a potential customer – we will expose the data of at least two different machines via the developed API	The capacities and capabilities of the integrated saw and bender has been successfully exposed via the EFPF Service Registry and app Open API	

Deviations from the work plan

- Originally, we had planned to develop the whole project as a software monolith but after internal research we decided to split the solution into independent services and head into direction of event driven architecture.
- We were offered paid license to access the Industrieweb component. In this situation we resigned of using Industrieweb component in connection with secure API gateway and decided to develop our own Data Spine based shopfloor integration.
- We decided to change the deliverable of submitting a paper to a selected manufacturing sector journal to submitting an article about project and share it on our blog and in social media. Targeting broader, business-oriented audience was a significant boost for our experiment that has strong commercial focus. Our comparison shows up that ranges generated by manufacturing sector journals are significantly lower than ones generated by social media and differs in target audience as well.



Demonstration of the Outcomes

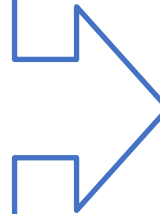


<https://youtu.be/MisUnhF5PO4>

Impact Achievements

Dissemination Results

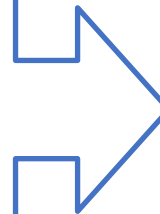
- Educational impact for the manufacturers
- Number of visitors on our website and social media is increasing
- Interest in EFPP platform
- Credibility of MASTA improved



Increase in prospects coverage

Exploitation Plan

- Continuing fund raising for the application development
- Participation in BIND4.0
- Self-hosted digital Appstore
- Business model development
- CMBIT and BIT as early adopters
- EFPP platform exploitation



Further development and commercialisation of the application



Our biggest gains:

- High performance execution tracking pipeline validated in industrial scenario capable to collect, process and aggregate almost all types of execution data in the resource and work context via parallel, scalable data streams which enables great opportunities in real time management of the Quality, Maintenance, energy, personnel and material related operations
- Near-real-time decision-making loop
- Data security and Gantt features

EFPP Remarks:

- We would expect more support for SaaS app delivery model in the marketplace

**Thank you EFPP! We are happy to have developed
the ExtraCash project with you.**



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Thank you for your attention!