



System integration on multiple levels

A talk with Alessandro Perozzo, Alessia Padalino, Stefan Popa, Guido Piccoli and Matteo Benvenuti on Living Lab #16 D4You (Optimization for you) ¹

Codognotto was founded in Italy in 1946 as a road transportation company, and since then it has been expanding its services and presence around Europe and beyond. Today, Codognotto Group not only runs a fleet of more than 1500 units, it also manages local yards and warehouses annex distribution centers. Codognotto-offices can be found across Europe, in Asia, the Emirates, and Turkey. In recent years, much of the Codognotto's attention has turned to innovation, in order to further expand its competences and knowledge, focusing on testing and implementing new multimodal routes, alternative fuels solutions and new technologies. European projects like FEDeRATED give Codognotto the opportunity to test their innovations and collaborate with government agencies and big players in the market.

At Codognotto, Alessandro Perozzo is the Head of the ICT department, and the mind behind Codognotto's technical activity within the FEDeRATED project. Introducing himself, he says: "Together with my staff I am responsible for all activities regarding ICT-matters within Codognotto. While in the FEDeRATED project I am involved in all technical matters regarding services and applications, and of course the preparation of the FEDeRATED architecture."



Alessandro Perozzo

Together with Stefan Popa, external consultant who does the technical project management for Living Lab #16, Alessandro is member of the FEDeRATED Architecture Board on behalf of Codognotto. Besides that, he supervises the project management of the Living Lab from a technical point of view, while external strategic consultant Guido Piccoli and Codognotto's Innovation and Digital Transformation Specialist Alessia Padalino play their own role in the overall project management, administrative tasks and deliverables, and the coordination of communication & dissemination activities at consortium level. The Codognotto's team for the FEDeRATED project has recently been strengthened with the entry of Matteo Benvenuti, who supports the whole team in the administrative and reporting tasks. He has just started to work at Codognotto and claims: "I had the chance to be involved in FEDeRATED project and it was a big pleasure because it represents a learning opportunity for me."

Alessia, Stefan, Guido and Matteo join the interview, but Alessandro does most of the talking. Yet, he explicitly talks in terms of 'we' all the time.

¹ Interview by Minne Buwalda





A focus on people and processes

According to the Factsheet of Living Lab #16 “D4YOU”, Codognotto adopted an approach that focusses on ‘people and processes’. Asking Alessandro what this means in practice, he says: “In Codognotto we established a Business Process Department in order to define the standard process we want to use at Group level. Since Codognotto has several offices and legal entities in the EU & beyond, every specific legal entity and/or foreign office has a sort of autonomy in defining how they want to manage their business. Therefore, when building a new Codognotto Transport Management System (TMS) at Group level, we had to deal with many different processes from many different business areas, which were impossible to assemble in one single platform. That is why we needed a dedicated Business Process Department. The goal was to collect information about the different processes used, for example processes belonging to multimodal transport, or processes connected to transport with our own fleet, and to define a standard business process inside our TMS platform.” To which he adds: “Now every dispatcher who works in the Codognotto environment uses a standardised process, with specifications regarding their specific area of business. Therefore, today I can work in the Italy-UK corridor and tomorrow in Italy’s North-South corridor, using the same process.”

The data-lake approach

A special feature of Living Lab #16 is the data-lake approach. Asking Alessandro to describe this specific approach, and tell me what its advantages are, he says: “In the beginning we wanted to build another data-warehouse, which is more or less the standard approach. But when we started to define our idea for a pilot within FEDeRATED, we broadened our scope from building a data-warehouse to building a data-lake.” He starts explaining: “Data-warehouses and data-lakes have different structures. A data-lake is a platform in which one can integrate many different data-warehouses. Where a data-warehouse can be seen as a specific building in a city, a data-lake is more like a city with many buildings, connected by streets.”

Alessandro clearly enjoys the subject and continues: “With this kind of structure, we are more flexible, and we can collect a lot of data, also big data.” He comes with an example of such big data: “Our GPS tracking system generates a lot of information, i.e., location data or combust data from our trucks. In a data-lake environment we can build this specific data infrastructure from TMS data, then formalise the information and, if necessary, connect the data to other ‘building blocks’ within the data-lake. This way we can use these data for business intelligence purposes. But we can also share such data with external partners.”

And: “Our new TMS (2022) enables us to carry out predictive modelling of the data, for example about the best way to manage a specific order, based on historical data.”

Internal system integration

Coordinating several data-warehouses in a data-lake requires integration efforts. According to the FEDeRATED Factsheet, one of the goals of Living Lab #16 is to demonstrate ‘how internal IT-system integration can be done in a FEDeRATED way’. The Codognotto data-lake interfaces with several





business applications that work separately yet are integrated within the wider data-lake environment.

Alessandro: “Within our internal data-lake environment we create a communication network for every specific application. This way we can have many different applications for specific business purposes, but they are integrated within one and the same architecture. We create a unique environment that enables us to collect and redistribute all the necessary information between applications.”



Stefan Popa and Alessandro

Three layers of integration

But of course, it is not only about internal system integration. It is increasingly about digital integration with external partners, for supply chains have many actors, especially in multimodal supply chains. Alessandro: “We defined the standard integration for data exchange with our customers and suppliers. This way we are able to receive data from them in whatever form, and then normalise these data for use in our Codognotto environment. At the same time, we can grab data from our systems and share them with customers and suppliers in the format they use.” And: “In cooperation with Wout Hofman and the FEDeRATED Architecture Board we started building the FEDeRATED integration layer with the other Living Labs.” A layer that is built in order to be used by all European transport and logistics stakeholders.

Wrapping up the subject, Alessandro mentions three layers of integration that are being executed: “First of all there is the layer that integrates the internal Codognotto system; then there is middle layer that integrates the Codognotto system with external systems; and in this middle layer we experiment with elements from the third layer of integration, the FEDeRATED layer, which is being worked out by the FEDeRATED Architecture Board.”

Asking about the ‘stability-issue’ raised in the FEDeRATED Factsheet – Alessandro says: “The internal integration layer is stable. But regarding integration with the FEDeRATED layer, we are still in the testing phase, in coordination with FEDeRATED IT Architecture Board members, to be tested with LL#20. Therefore, the FEDeRATED layer is not yet stable, but that is logical in this phase. Our goal is to close this phase in July or August this year (2023).”



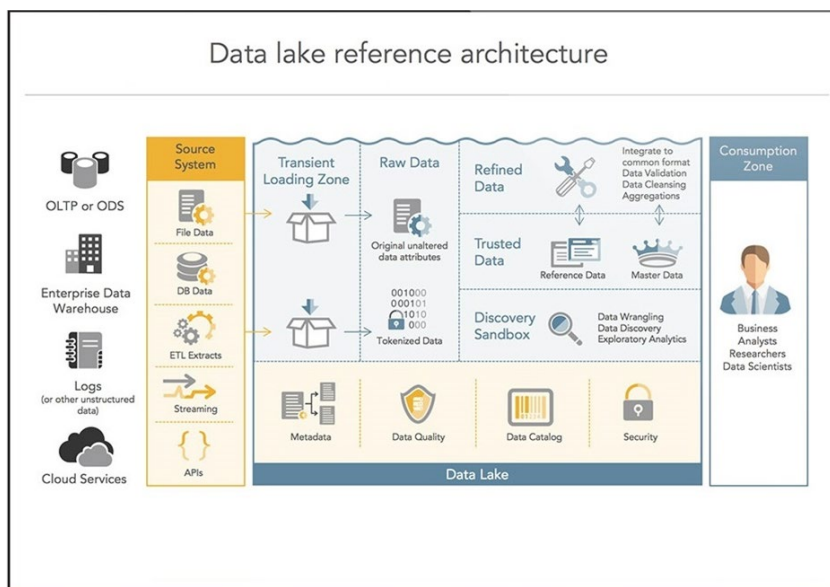


Helping SME’s in road transport to digitalize

FEDeRATED partners Codognotto (Living Lab #16) and Ahola/Attracs (Living Lab #23) are the big trucking companies annex logistics providers within the FEDeRATED context. Together, they represent road transport in multimodal chains. Asking Alessandro if they can help the European SME’s in road transport to digitalise, he says: “Yes, of course. This is one of the principles of FEDeRATED. We cooperate with Living Lab #23 in the FEDeRATED Architecture Board, to define a European standard for all.”

He continues: “With the integration layer we are building as FEDeRATED Living Labs we can provide some sort of standard communication for the road transport sector. This way every stakeholder can register in an even platform and automatically receive all the information needed from business partners in a standard way. In time, the European SME’s in the road transport sector will get the chance to connect to a FEDeRATED technical environment, where they can use all the services provided, for example the services of Codognotto or Ahola/Attracs, but in a standardised way. Therefore, they do not need to know all the system specifications of their separate business partners. They only need to know how the FEDeRATED environment works. Then they know the services provided, they know what information needs to be sent by way of a push or by way of pull mechanism, etcetera. In short, they can share data the FEDeRATED way.”

Confronting Alessandro with the question ‘You can lead the SME-horse to the data-lake, but can you make it drink?’, he says: “An important goal of the data-lake is to create this network for transport and logistics, because it is all about collecting and sharing data in order to manage the business in the right way. We want to improve our company and our business, and the only way to do that is to create this network of companies that work together. And by helping to co-create this standard FEDeRATED network as one of the bigger road transport and logistics companies, in time the smaller road transport companies can create their own business networks.”



The role of consultation and communication

Asking what the importance and role of consultation and communication are, activities for which Codognotto is FEDeRATED Activity leader, Alessia steps in and says: “Consultation and communication





play vital roles in the success of any project. They are essential for effective project management and collaboration among team members. Consultation and communication – the core of Activity 4 - are critical throughout the project lifecycle. They facilitate information exchange, stakeholder engagement, decision-making, risk management, collaboration, and conflict resolution. By prioritising these aspects, project managers can enhance project outcomes, minimise misunderstandings, and build strong relationships with stakeholders, project’s observers, and team members.”



Alessia Paladino

Asking how Codognotto shapes the FEDeRATED consultation and communication goals, Alessia goes into more detail: “In general, within Activity. 4 we focus on progress tracking and reporting: consultation and communication allow project managers to track project progress effectively. Regular meetings, status updates, and progress reports help in keeping all stakeholders informed about project milestones, achievements, issues, and challenges. It enables timely adjustments, corrective actions, and keeps everyone aligned with project objectives. In parallel, we work in order to engage stakeholders in the field of both transport & logistics and ICT through project’s activities promotion on the official website and social media.”

And what does Alessia expect from the FEDeRATED Final Event in this respect? “The FEDeRATED final event is important because it will celebrate achievements; it will enable evaluation and feedback; it will support knowledge sharing, assesses performance. It will serve as a significant milestone in the project lifecycle, allowing stakeholders to reflect on the project's outcomes, learn from their experiences, and prepare for future endeavours.”



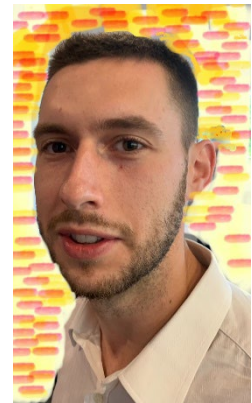
Guido Piccoli (chairing) and Alessandro (presenting) at the FEDeRATED Mid term Event





A week before the interview, Codognotto participated in the Munich Fair (Logistic Transport Messe), where they organized four FEDeRATED workshops. Asking Alessia what these workshops were about, and what was achieved there for Codognotto and for FEDeRATED, she says: “The Munich Fair is a big event, where one simply has to show oneself to the logistics community. During the event, many companies and institutions organize workshops to make themselves heard. We managed to arrange a FEDeRATED stage at our Codognotto booth. In two days we hosted four workshops featuring various Living Labs: #5, #12, #16, #20 and #21. Although there was a lot of competition between the various booths on attracting attention, we were positively surprised by the number of people attending our four workshops. We counted over 200 attendees.

In short, we attracted very positive attention and the follow- up discussion and interactions were engaging and stimulating. I think we hit a cord, while showing the logistics community the opportunities FEDeRATED offers for decentralized and cross bordering data sharing. Our approach towards sharing based on trusted data at source is the way to go.” Asking Matteo what his role in FEDeRATED is, he answers: “From now on I will take over from Alessia and work hard in order to make the final event successful, which is a big chance for all Living Lab teams to share knowledge and achievements.”

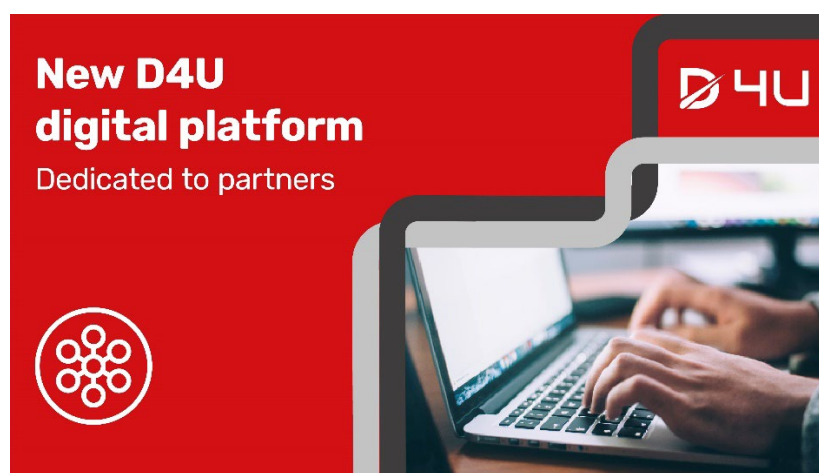


Matteo Benvenuti

Multimodal corridors and Living Lab cooperation

Asking about the different opportunities regarding different corridors Codognotto works on, Alessandro takes over from Alessia again and starts explaining: “Our company’s development is based on different corridors, and all of these corridors have their specifics. The Italian North-South corridor deals mainly with road transport with our own fleet; the Italy-Poland and Italy-UK corridors include multimodal transport.” Within the context of FEDeRATED the focus is obviously on the multimodal corridors.

Concerning cooperation with other Living Labs, Alessandro says: “We are working on a pilot together with Verona Freight Village rail terminal (Living Lab #12). We share certain data with them, for example about the order of accessing the terminal, or about the position of the Codognotto trucks and their estimated time of arrival at the terminal.”





The cooperation with the Living Lab of Verona Freight Village is a steppingstone for Codognotto's endeavour to strengthen its multimodal corridor to Germany. Asking if it is feasible for Codognotto to become the main regional logistics platform in Northern Italy on this road-train corridor, strategic consultant Guido steps in and says: "Our FEDeRATED platform will allow us considerable transparency and data sharing possibilities, both internally and externally with customers and suppliers, and this could certainly allow us to improve our position as carrier throughout Europe."

In order to test the FEDeRATED interoperability, Codognotto joined a cross-pilot carried out between FEDeRATED Living Labs #16 and #20, focusing on a multimodal transport business case on the Italy-UK corridor. The transport runs from Italy through Austria and Germany to the Netherlands, and then to the final destination within the UK. This cooperation with Living Lab #20 eGovernment Logistics could possibly be expanded to include other LLs within 6 months. Perhaps this will then become a prototype.

Asking about this cross-pilot, Alessandro says: "The idea is to develop a pilot that explains in real world cases how the system can work regarding European e-CMR. A transport starting in Italy and ending in the UK crosses many borders. Therefore, we also needed to consider integration with government agencies like Customs in this cross-Living Lab. The pilot should explain how the system can work in a standard way. As FEDeRATED partners within this pilot we want to help define a standard eCMR and customs clearing that can be adopted by the European Commission."

A FEDeRATED future

Codognotto (Living Lab #16) is commissioned frontrunner of the four Italian Living Labs. Asking how they fulfil this task, Guido says: "The Italian partnership within the FEDeRATED project is about complementarity in operational terms. As Italian Living Labs we have the ships, the ship terminal, the



Guido Piccoli

road transporter and the train terminal operator. In a multimodal transport context, together we are able to cover the various stages of transport and map the criticalities."

Codognotto participates in several EU transport & logistics projects. Asking how these projects relate to each other from the point of view of Codognotto, Guido says: "Codognotto is an innovative company, and as such it is constantly updated in terms of technologies, both digital and operational. EU projects represent an opportunity to test these innovations, and collaborate with big players in the market, both at an operational, administrative and academic level. EU projects make us feel part of something bigger, which can be taken as an example for all other companies that, like us, want to keep up with market needs."

Asking what advantages FEDeRATED brought, Alessandro says: "FEDeRATED is an opportunity for Codognotto, because we can speak to different actors, and we are able to collaborate. Besides that, we can co-define a European standard for the future. That is why FEDeRATED is a strategic project for us." To which he adds: "It also gives us the opportunity to build a kind of internal board of expertise within our





company.”

Alessandro concludes: “My idea is that in FEDeRATED every Living Lab now achieved a good result. They developed what they suggested at the beginning of the process. The common goal now is to start to improve the integration of the Living Labs, to improve the standard FEDeRATED layer for the European transport market. In case we start a second FEDeRATED project in the future, we need to work on this FEDeRATED integration layer. My idea, from a technical point of view, is that the second step of FEDeRATED needs to go in this direction: creating a standard that connects all actors in the European transport and logistics business.”

FOR THE ARCHITECTS AND HUMANS

