



ICONET team discuss progress at the General Assembly and Advisory Board meeting



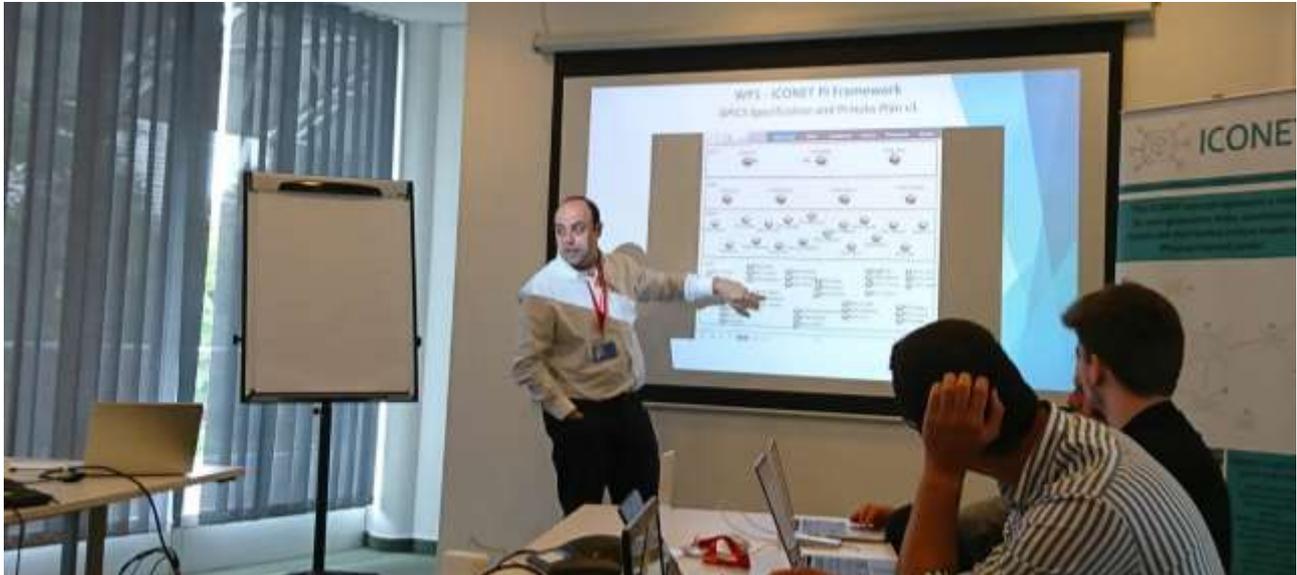
Team reviews achievements to date and next steps

At the two-day meeting held in Brussels in late September, hosted by Marc Verelst at Procter & Gamble, the ICONET team discussed the progress made to date, and plans for the coming months. Makis Kouloumbis, ICONET's project manager, summarised the timeline and schedule ahead of the mid-term review in March 2020, and David Ciprés of ITAINNOVA explained the options being considered in the design of the ICONET Physical Internet (PI) framework, including the simulation tool, rules and output measures. David also made the point that the simulation will be by necessity a simplification; "the European market is huge, and a scale representation will be necessary to make it manageable." Frans Cruijssen from Inlecom outlined current thinking on the PI network optimisation strategies and the relevant hub location modelling problem, taking into consideration the number and location of hubs required across Europe.

Claudio Salvadori, of NGS Sensors, outlined the requirements for Internet of Things (IoT) and smart PI containers; issues to be resolved include defining what will be described (for example, parameters for successful handling and storage of certain goods such as temperature control), and other considerations for creating robust, interoperable and open integration. He illustrated the point by explaining how gaps in connectivity coverage from one solution, such as GPS, can be resolved through substitution with another technology. Claudio also outlined similar principles for designing in the necessary redundancy and opportunistic routing of networks to enable for tracking and reporting as a service and demonstrated how the prototype sensors updated the shared data ledger. Asked about the current costs



of sensor technology, Claudio said, “The costs will depend on future volume, and functionality per beacon or sensor, but they are designed to be reusable, use existing energy sources such as watch batteries, and can last at least a year”.



Philippos Philippou of eBOS technologies discussed the evaluation of appropriate protocols and flows of information critical for real time rerouting and re-optimisation, whilst Alexander Papageorgiou explained the prospect use of blockchain transactional ledgers.

Steve Rinsler of ELUPEG reiterated the need to disseminate and communicate the outputs of the project as they arise and are ready to be shared, including conference and journal articles. Britta Balden discussed commercialisation, including the plans for a workshop after the main assembly to explore next steps. She reminded the team that to effectively communicate the transformation made possible by ICONET concepts, “the business case development should start with the customer value proposition.” The transfer and E-learning plans were summarised by Barbara Martini, CNIT, and Dr Pat O’Sullivan of Inlecom updated the team on the progress of confidential patent applications. Pat made the point that “although 39% of EU GDP is attributable to IP intensive activities, Europe lags behind the US and China in patent applications.”

John Farren of IBM went through the Proof of Concept (PoC) for the data integration platform, explaining which utility components were taken off the shelf and which were built by IBM, and Antonis Mygiakis of CLMS went through the data model requirements for building the PI reference architecture and PI twin for the physical supply chain. Gabrielle Ranco of IBM explained the plan for combining leading technologies with heuristic algorithms for optimisation of PI nodes, and the session concluded with Bill Karakostas from VLTN outlining the challenges for transport routing for PI, and why it is different to traditional routing problems.



Advisory Board convenes for the first time to review the progress and future plans

The ICONET project has engaged a highly experienced Advisory Board, through contacts provided by ELUPEG and ESC. Its role is to provide guidance and support to the research team in the development of ideas, solutions and real-world implementation. The Advisory Board will meet at intervals throughout the project and may involve themselves in the living labs. The members of the board have a wide range of commercial expertise and experience across manufacturing, retail, logistics and supply chain digitisation. Companies represented and attending included Renault-Nissan-Mitsubishi, Panasonic, Eddie Stobart and Vinturas.

Makis Kouloumbis and team members summarised the project scope and the key outputs, including PI routing, hub optimisation and the use of multiple devices and technology for building the IoT infrastructure.

This was followed by presentations on the plans for implementation of the four living labs, which combined the perspectives of the commercial living lab partners and the technical developers from the research team. The first presentation was delivered by Eric Feyen of UIRR, providing his perspective on Living Lab 1, a PI implementation based at the Port of Antwerp, explaining why the port owners want to take a more active role in the supply chain flows in the port area and how ICONET can contribute to this strategy. Hervé Moulin of Renault-Nissan-Mitsubishi asked whether the team had considered segmentation of types of goods and whether the pilot was able to assess urgency and so prioritise based on the contractual delivery lead times of users within the system.

Living Lab 2, which will test the PI corridor, and Marc Verelst highlighted the business goals which included addressing reliability of Estimated Time of Arrival (ETA), lead times, quality (such as shock or temperature control). Claudio Salvadori discussed the PI digital twin requirements to address the technical challenges in bringing together alternative routing on demand with sequencing and scheduling. There was a discussion led by Advisory Board members on whether pallet and container mix would be better understood, and how that data would be used. There was also an interesting discussion on the limits of accurate ETA prediction based on tracking alone, and the need to apply fuzzy logic to problems



where uncertainty is built into the logistics process, such as the impacts of passenger train prioritisation within railway network management.

Living Lab 3 involves SONAE in testing the implementation of final mile delivery within a PI supply chain strategy, and the company explained this within the context of their moving into omnichannel and online retail, and the approach planned for gain-sharing any realised revenue and cost improvements with their supply chain partners. Gustavo Siva Alves of SONAE responded to questions from the Advisory Board on planned lead times for home delivery and David Ciprés explained the need for precision in delivery location information, and the existing off the shelf solutions that might help that such as what3words.

The fourth living lab focuses on Warehousing as a Service and is led by Stockbooking and ITAINNOVA. They outlined their initial high-level networking plans for modelling Warehousing as a Service across a geographical area. The Advisory Board asked how the use case would be deployed and David Ciprés explained that the plan is to understand the implications of customer requirements on the network and deployment of hubs.

Finally, Brian Bolam of TGMMatrix presented his perspective on “The practical application of Blockchain in the Supply Chain” and emphasised the need to make users aware of the ability to ensure that commercially sensitive information is encrypted when shared.

Both days were well attended by the team, Advisory Board members and guests. The next internal review meeting is in December and the ICONET team welcome inputs and thoughts ahead of the meeting. The next Advisory Board meeting will be scheduled for Spring 2020.



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www.iconetproject.eu