DEI WG2

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Manufacturing (agri, data, IoT)

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The vertical topics are appropriate. Smart Industry, Smart Health (Care and Food), Smart Mobility. In this list I encounter sometimes also Smart Finance (Fintech) and Smart Energy. It might be that you need to include these too with topic as blockchain and distributed energy generation and storage for which many smart devices will be needed. Bockchain will appear as a key aspect in manufacturing and IDP/IoT too.

On the horizontal topics, Industrial Data Platforms, please mention explicitly also in the key aspects blockchain or distributed ledger technologies (DLT). The use and benefits of BC/DLT is most sensible in the interconnecting many parties in a platform environment.

Question 1

The Netherlands has the Smart Industry program. In 2015 10 fieldlabs and in 2016 another 15 fieldlabs were established as high TRL environments for innovation and education/training in public/private partnerships on the topic of the acceleration of the digitalization of industry.

Several of them, e.g. Smart Connected Supplier Network, but also the 3-6 preventive maintenance fieldlabs are spot-on. In all these fieldlabs multiple partners exchange order or sensor data with others. They require standards, security, etc. And in all cases, it is about parties offering data and others processing the data in a situation when more providers offer more data, more processing services will be attractive to join and to extent the value of the platform. But as said, we need standard that are applicable elsewhere in Europe/global too, as well as the proper security solutions.

The Smart Connected Supplier Network, but also the Smart Bending Factory, and the Techruption fieldlab will also focus on the use of distributed permissioned ledger database technologies. Here an interface with the financial world is of importance. In many cases these platforms deals with transactions where each action, e.g. a shipment or bill, requires an acknowledged response as with the transaction value has shifted from one party to the other. This is fundamentally different that a data upload/download/exchange platform, often with one central server where everyone must trust the webserver provider.

Question 2

We want for manufacturing a transparent digital market place where e.g. requests for quotations, quotations, orders, order confirmations, shipments, arrivals, billing and payments between as many partners (end customers, product producers/service providers and the full supply chains can see such that the market demands transparent and all players can undisputable and immutable make business. And ultimately have suborders and sub deliveries executed automatically. This is the holy grail were a centralized webportal server of one party is replaced by a blockchain solution were no party can take a big a disproportional part of the value (as today’s Ubers and AirBnB’s).

To evolve from today’s webportals to a distributed digital market an evolution from small scale demo and pilot projects to a larger and more and more commercially supported network will be required. It might even require some form of regulation or support as guide lines for governmental purchasing where the best offer for the lowest price, best quality and exact delivery is selected.

For the Industrial Data Platform, large scale data collection platforms in the form of a (relational) databases are available, but large scale (open) blockchain environment are still on the drawing boards. In the Fintech world, a lot of development is ongoing with respect to value transfer, but we also need smart contract solutions based on blockchains. E.g. you want to register through a signal from an IoT device that a condition is fulfilled after which a transaction (e.g. a payment) can be executed automatically. In case of a smart contract within a blockchain environment it is always automatically executed without delay.

IoT will be connected to applications and services. As described in the above sentence, it will enter in most cases into an Industrial Data Platform environment. We need to interconnect these two worlds of IoT and data bases.

But IoT can also be described more intelligent machines as it will also be the environment where Moore’s law, after computers and smart phones, will have the most noticeable impact, from cobots, robots working together with humans, and cooperative driving by the car becomes smarter than the human. This is not an Industrial Data Platform issue. In this case the robot or car is the platform. (with interconnections to their environment.)

Question 3

We need to accelerate as European community and European companies as sofar USA based ICT companies created a winner-takes-all solution. (Google, Apple, Uber, AirBnB). No single European companies can compete and it might not be necessary either. By creating cooperation’s and implementing, first regional/national initiatives that use standards, we can expand solutions and interlink them up till a European platform without a single (USA) key player in control.

We do not believe that yet extremely large activities are needed. First we need focussed and regional/national initiatives (focussed on the regionals smart specialisation) that form the start, but who are also support to become part of a European network where they exchange ideas and align the solutions. We need European or open source solutions as a base/starting point and these initiatives should not re-invent the wheel or just select an USA-based ICT solution. Today H2020 calls with their specifications, call texts, review procedure are not suitable to orchestrate and steer by the regional/national initiatives. It will require some new form of governing regional/national initiative to cooperate with equal initiative. Today it is either a competition on excellence, not on fitting to the overall picture, or it are initiatives where top regions are invited to cooperate with less far developed regions and where the top regions, in the global competition, are totally interested to one-directional projects where they will loss time and energy on topics that will not help them forward.

Neither do we need large-scale demonstrators, we need sectorial demonstrators where companies in a value chain can be distributed over the whole of Europa and where the smaller key companies have already started regional/national projects in their home region.

But there remains one condition: regional/company initiatives must follow or help to establish standards. Or in the case of a chicken-egg situation, much attention in the first (regional/national) projects is spend on aligning with standardisation. Today H2020 calls must allow for more support for standardization efforts during the project duration.

H2020 call texts are evolving too slowly with trends in industry. If we want to become successful as Europe, we need to accelerate developments. 2 years for a call to be formulated, then 1 year call and project selection, and then 2-3 years before the first results implies a cycle time of 5 years. In ICT/platform a dominant platform is establish long before the original ideas for a call on such a topic has reached some H2020 results.

Question 4

A very concrete activity is the ongoing work by the Industrial Data Space organisation (industrialdataspace.org) started in Germany at Fraunhofer and many German companies and now within an EARTO project being “Europeanised” by RTO’s as TNO, VTT, Technalia, Sintef, amongst others such that it can be applied in other European country in their respectively national projects and programs. The problem here is that there is no EU funding and that national funds are different. Without EU funding/support it will evolve much slower, whereas in this ICT world and in realizing the benefits of Industry 4.0 speed it needed.