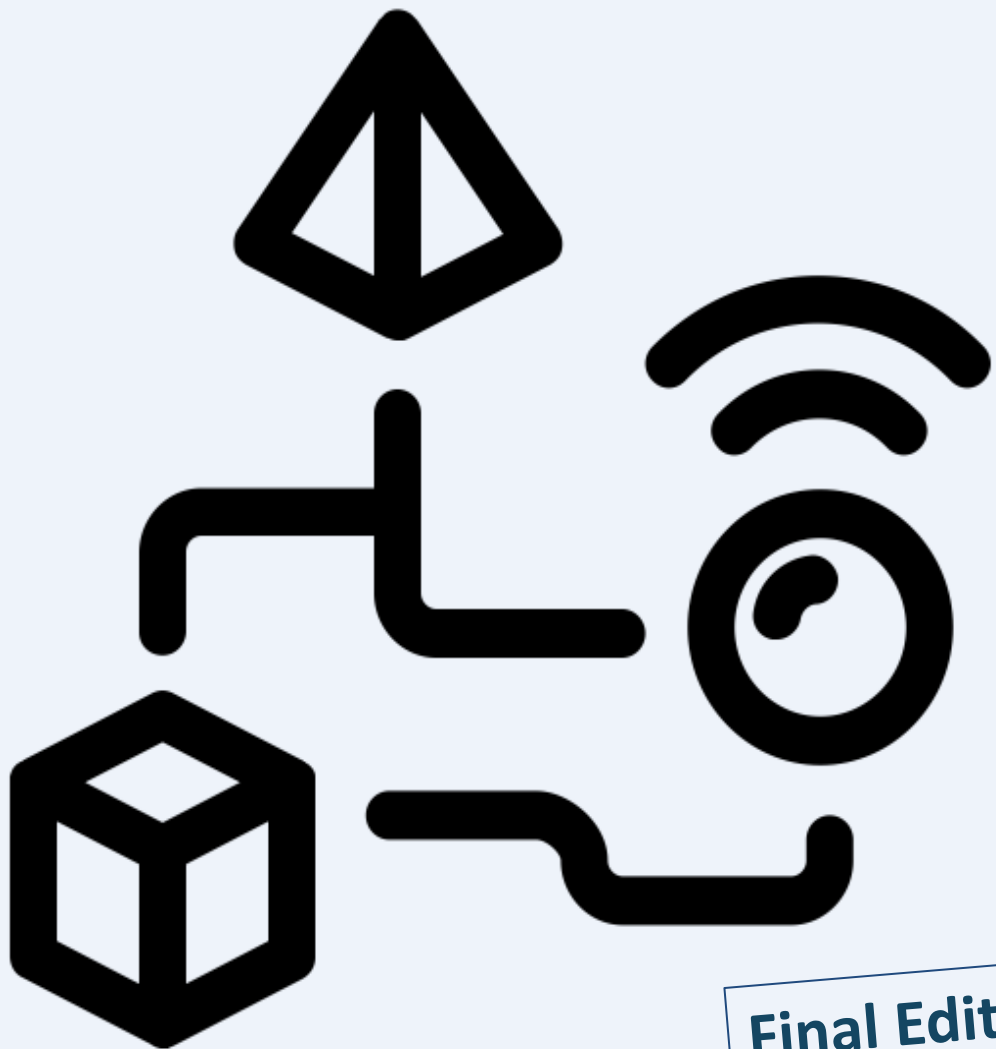# The Value Creation Observatory
an EIPM Laboratory

Final Edition

Welcome to the **Internet of Things**!
It's time to rethink The Purchasing Business Model

OSL

EIPM
The source for Excellence

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About EIPM

EIPM is at the intersection of the business and academic worlds, with an approach to education (grounded) established in the reality of business.
Currently, with branches in Geneva and Shanghai and partnerships in Brazil, Mexico, Poland, and India, the Institute has developed a complete range of solutions to meet the training needs of its large base of international clients in all sectors of industry and service.

About Old St Labs

We build software that enables Enterprises to forge deeper and more valuable relationships with their Buyers and Suppliers. Our products and platforms increase innovation, collaboration, alignment and agility. Decrease risks, costs, duplication and time to action. And they improve processes, productivity, accountability and connections.

We call it 'Enterprise Level Innovation.

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The Value Creation Observatory

EIPM has embarked on a major Research project to measure the progress of the Purchasing profession towards Value Creation.

The ongoing research project consists of a series of surveys, workshops, case studies and publications.

We thank all the interviewees provided input for this observatory report.

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Time to re-think the purchasing business model

With the advent of the internet of things, a number of mega-trends have started to collide. How companies strategise, innovate, operate and engage with external players will become utterly important. Purchasing teams have an opportunity to rethink their Business Models and to be amongst the pioneers who will lead this transformation.

AUTHORS

Hervé Legenvre, PhD, MBA Director at EIPM

Hervé blends the best of the academic and practitioner thinking to create a unique learning experience and engaging articles. He continuously looks at the trends that will shape the business world in the future. He believes that the competitive edge of companies will increasingly be co-created with suppliers as innovation needs to be seized outside. He builds on his wide knowledge of invention, innovation and business excellence to create new tools and practices that help engage everyone on what counts most in a fast changing world.

Hervé has worked for Renault Consulting where he transferred some of the first lean six sigma programs to Europe. He later joined EFQM where he led the latest major revision of the EFQM Excellence Model and the European Excellence Award. At EIPM, he is responsible for the EIPM Executive MBA since September 2011. Furthermore Hervé acts as an assessor for the EIPM-Peter Kraljic Awards and he is the Director of the Value Creation Observatory. Hervé is a regular speaker during in-company and public conferences, he is also the author of two books and he frequently writes articles and research reports

Maximiliane Glas, MBA, VP Customer Success, Old St Labs

Maximiliane Glas, MBA, Maxi is a bi-lingual international change leader, a champion of sustainability who has successfully delivered business transformation and benefit through strategy development, process transformation, and change management. She has worked for top FTSE 50 companies in Telecommunications, Banking and the Pharmaceutical sector. Maxi is responsible for Customer Success at Old St Labs and focuses on the delivery of effective and efficient supplier management solutions.
Moving to the UK at a young age to learn English she gained an MBA in Business Administration and an advanced postgraduate diploma in Management Consultancy. Now with 20 years experience, she has worked in multiple international locations including the Far East and China. Prior to working in Procurement and Supply Chain, she held different roles in Finance responsible for Business change, Planning, and Process definition.
Maxi is always looking for better solutions; passionate about making a difference to the world she operates in and strongly believes in business creating a shared value. Driving and delivering change to make business functions more effective and efficient.

CONTENT

EXECUTIVE SUMMARY

The Internet of Things (IoT) will bring tectonic changes in the structure of industries over the next 20 years. More disruptions and value chain reconfigurations will have to be anticipated. We have only seen the first sparks of a broad transformation.

All companies will need to reinvent their customer experience, their offerings, their processes as well as their supply chains by integrating and co-creating new solutions. They will need to tame unfamiliar business practices by engaging with innovation networks. In these unknown territories, their past experience will be of limited value. Collaboration will be required amongst players who currently see each other as coming from different planets. Some traditional entry barriers will be ineffective and will slow transformations. Collaboration amongst unexpected players will emerge over time and will decide of the fate of many companies

The type of collaboration needed will vary across industries, companies and activities. Some will source IoT solutions offered by rapidly changing markets, others will combine multiple external opportunities to enrich their process offerings and business models, others still will need to harness external knowledge to reinvent their core process or even their core business. A few will co-create new competitive foundations for extended efficiency, while others will launch new applications and business models to extend their activities. In such a context, as opportunities come from outside, purchasing teams have a unique opportunity to play a role as a transformation orchestrator.

This is not a monolithic transformation; purchasing teams will need to diversify their practices and use them adequately, with agility to help their industry and company. Like a Track and Field National Team, purchasing teams and their peers will require perseverance supported by common ambitions, spirit, and practices but, most importantly, they will need a diversity of capabilities that can be combined and recombined effectively depending on the context. Speed, Endurance, Baton Passing Accuracy will be required for some, Intense Repeated efforts and Perseverance will be required from all.

Results will continue to include cost, efficiency and performance, but we will see more and more involvement of purchasing teams in visible projects that foster differentiation and the creation of new business segments. The following table illustrates some of the changes that will take place in the future for procurement.

From	To
Buying raw materials, parts, services or CAPEX projects	Rethinking our segmentations, Buying integrated solutions and implementing innovative commercial models
Taking an active part within cross functional teams	Enabling efficient collaboration and seamless interactions across companies
Challenging the expression of needs	Anticipating company needs and spotting opportunities
Focusing on volume as a source of power. Seeing the world as markets where competition dominated	Recognising data ownership as a source of power. Seeing the world as ecosystems with collaboration and competition
Establishing a strategy as a set of action plans and projects to be executed	Crafting a strategy as a set of options to be activated in a timely manner
Jump quickly from a purchasing project to another	New organisational models for fast introduction of innovation, Accompanying the change throughout the business
Leveraging process skills and purchasing levers to deliver the expected target	Combining analytics and relationships to deliver the expected business outcomes

METHODOLOGY

An exploratory research project

In order to realise the present findings, the authors decided to adopt an exploratory research approach. They initially logged and reviewed and discussed their assumptions. This helped them to come up with a set of key questions and topics to be investigated.

As a first step, the authors interviewed 15 CPOs across diverse sectors: FMCG, Chemicals, Telecommunications, Public Sector, Energy and Financial Services. They engaged respondents through semi-structured interviews based on a list of pre-established questions and topics communicated to them prior to the interview. A semi-structured interview guide provided a clear set of instructions for interviewers in order to develop reliable, comparable qualitative data. The authors also included open-ended questions which provided the opportunity for identifying new ways of seeing and understanding the topic at hand. Findings were recorded independently by both interviewers and discussed afterwards.

From this series of interviews, a first analysis was performed and some early findings were identified. A presentation of these findings was prepared for the 2015 EIPM Annual Conference.

Focus Groups

Focus groups were conducted as part of the EIPM's annual conference in 2015. Data was collected through facilitated group interviews. One hundred and Twenty people were involved in these focus groups. They were moderated by EIPMs Executive MBA students and members of EIPM faculty. Questions investigated were as follows:
* What will the IoT do to our Industries?
* What will be the impact of the Internet of Things on our Purchasing Business Model?
* What will be the Human Dimension of the Transformation?
* What are our key learning's?

From this, the present findings were finalised. They will serve as a basis to further investigate this topic in the future.

Workshops and case studies

A toolbox was developed to support IOT purchasing It was tested during workshops during the first Quarter of 2016. A series of interviews were conducted all over the year to provide real life cases and a diversity of perspectives. We thank the companies and individuals who have agreed to have their case and interviews published.

1. The Impact of the Internet of Things on Industries
The Internet of Things will Connect trillions of smart objects together. It will merge the physical and online worlds. However, it is not one but four colliding and coalescing trends that are rocking Business to Business relationships. Open innovation, Sustainability, the Blurring of Industry Boundaries are joining forces with The Internet of Things to drive changes across all industries.

THE INTERNET OF THINGS

Once Arthur C Clarke, the famous science fiction writer, wrote that advanced technology is indistinguishable from magic. Far from being an anecdotal comment, he claimed that this was a law. If this thought bruises any rigorous scientific mind, you just need to watch the recent keynotes from leading high-tech firms to understand the relevance of his observations. Gartner, the market intelligence company has taken this seriously and issues every year a series of hype curves that illustrate if new technologies are going through a peak of inflated expectations or if they are heading toward disillusionment. With the rise of the Internet of Things (IoT), large scale disruptions, outstanding societal benefits, fear of job losses and massive productivity gains are announced. It will take a few years to understand the real speed and impacts of the transformation starting now. However, it is not one but four colliding and coalescing trends that are rocking Business to Business relationships. Open innovation, Sustainability, the Blurring of industry boundaries & the Internet of things are combining forces and strengthening each other to drive changes within business ecosystems.

Connecting trillions of smart things ranging from implants to industrial equipment, the Internet of Things merges the physical and online worlds. Companies, governments, and consumers are now faced with endless new opportunities and challenges. Machines will increasingly be connected together. In 2015, we only used 1% of all data generated. And more data will be generated in the future...

We are in the middle of a revolution. The IoT will change how we do things as a consumer and this will drive changes through the Business to Business activities. The impact on B2C and even more in the B2B & M2M* is enormous. Companies not jumping on the IoT bandwagon will be left behind. Others might suffer from acting as pioneers.

This will significantly impact resources usage but it will also offer opportunities to rethink business models. The Supply Chain will become more and more automated, but this is only one element. Focusing on automation is missing the wood for the trees. There is more to come.

With new opportunities come new risks. Mission critical activities will depend on the IoT and expectation for reliable, precise and seamless support will be essential. Data security and confidentiality will also gain attention.

*Machine to Machine

FROM THE INDUSTRIAL REVOLUTION TO THE INTERNET OF THINGS

## People behaved and organised themselves in a new way

With the industrial revolution, new technologies such as the steam engine and the factory system lead to productivity gains and wide industry changes.

What were the change characteristics of the industrial revolution in comparison to what is happening now? In a nutshell, the industrial revolution caused people to organise themselves in a new way.

The Industrial Revolution changed the players in the ecosystem and the way people behaved. Amongst many changes, the way time was perceived had a major impact. Alun Davies explained the magnitude of the changes using time as an example. Typically time was measured with a stick in the ground casting shadows whose lengths varied as the day progressed. Sundials were a more sophisticated version, unfortunately not of much use when it was cloudy. Candles helped to measure time inside, with marks linked to usage providing an approximate measurement of time. A major advance was the creation of giant hourglasses. Time zones didn't exist and time was bound to the location. Long-case clocks with one dial were the next iteration in the evolution, however, they were rare and not available for common use. The best accuracy level of time in those days was approximately 20 minutes. With the emergence of factories more sophisticated measures of time were required. New roles evolved such as people who needed to make sure factory workers woke up in time so they could start on time. Big clocks in and outside factories informed management and workers when they were due to start and end work. Timely delivery of raw material into the factory enabling the prompt delivery of finished goods to customers. Logistics became important, shipment on canals needed to be co-ordinated. An increasing number of factories and industrial production required industrial clock and watch production. Captain Cook used a chronometer on his voyages, which enabled him to measure in Greenwich time. As such he was able to determine longitude with high levels of accuracy. His maps were only outperformed in terms of exactitude when satellites were introduced.

FROM THE INDUSTRIAL REVOLUTION TO THE INTERNET OF THINGS

People behave and organise themselves in a new way
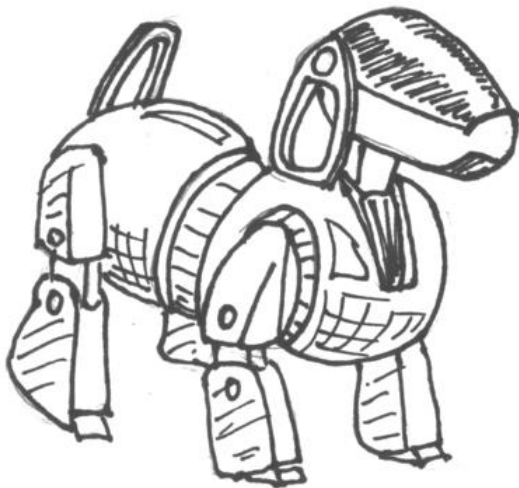
The Internet of things brings connected objects and advanced use of data to deliver productivity gains and reshape industries.

Over the past few years, we have increasingly heard about driverless cars, smart metering, contactless payments and smart cities. Examples are piling up and take us well beyond the outmoded vision of a fully automated warehouse.

Across different industries, new perspectives are being debated and experimentations are taking place. John Deere, the agriculture equipment manufacturer is collecting and processing massive amounts of data hoping to revolutionise agriculture. Automotive players are rethinking their strategies as Tesla, Google and Apple are entering their space. The 2016 Consumer Electronic Show was full of connected devices such as smart craft-beer brewer developed by former Microsoft computer scientists. Amazon is piloting drones that would deliver products by landing on the customer's front lawn. President Obama announced recently the Precision Medicine Initiative to take into account individual differences in people's genes, environments, and lifestyles. ABB rereleases robots capable of collaborating with humans. Banks are creating start-up accelerators to speed up Digitalisation. Predictive maintenance is making its way across assets: from oil rigs to hospitals. It builds on clouds, drones and additive manufacturing technologies and offers new business models.

We are in the middle of a massive change. We are in the process of behaving and organising ourselves in new ways. This will impact us in the way we live, in the way we work and in the way we do business.

AND OTHER REINFORCING TRENDS

Open Innovation
Open innovation is used to come up with new solutions. On one hand It allows us to establish and develop relationships with disruptive or highly innovative players. On the other hand, it helps to initiate collaboration across industries. A lot still needs to be done in order to adequately identify potential sources of innovation.

Blurred Industry Boundaries
Some industries have gone through some significant transformations. Many companies have suppliers that are also competitors and clients. Many businesses will attempt to build new connections all along their value chain The Internet of Things will reinforce this.

Sustainability
One of the key promises of the Internet of Things is a better use of resources and, therefore, a contribution to the sustainability agenda. At the same time, the strategic concerns related to environmental and social issues will foster interest for innovative solutions.

HOW THE 4 TRENDS COLLIDE AND COALESCE

The case of the Unilever Ice cream cabinet

Internet of things
The cabinets of the future are expected to be more interactive and engaging to stimulate ice cream consumption. They will also provide a wealth of useful data back to the food company.

Open Innovation
Using its open innovation platform, Unilever has posted an internet of things brief to engage with start-ups on this matter.

Blurred Industry Boundaries
This will allow Unilever to build stronger bonds with the consumers while the retail chain used to be in between the two.

Sustainability
Unilever already offers solar-powered ice cream freezer for outdoor sale and super energy-efficient cabinets for indoor retail spaces. The Internet of Things might help to further fine tune energy consumption.

3. The Impact of the internet of things on The Purchasing Business Model

The four trends will impact Purchasing teams. They will increasingly look for innovative solutions that could combine the strengths of more than one player. It will impact their approach to markets. They will need to look beyond the obvious and to map their ecosystems and the role of data across them. The Purchasing Business Models will evolve and offer new ways to positively impacting cost and revenues.

THE SIX DISCIPLINES

The four trends presented above will encourage Purchasing Teams to rethink different facets of their activities:

- What they buy
- How they analyse their supply market
- How they work within and across companies
- How they impact on cost and revenues

Through our research, we have summarised these implications in Six new Disciplines that will need to be incorporated by Purchasing Teams.

Buying Solutions

Thinking in Data Ecosystems

Thinking in Options

More Automation

Transparent Supply Chains

Cost, Revenue and Price Modeling

Buying Solutions

Today Purchasing activities are still segmented around the nature of what people buy. Teams are often structured using the traditional direct materials versus Indirect materials logic. They might use a slightly more sophisticated approach that differentiates, for instance, services, parts, technology and investment projects. In the future, purchasing teams will increasingly look for solutions that integrate offerings and capabilities across multiple markets but within a particular ecosystem where opportunities and challenges have emerged. If we think of maintenance services, a company might want to move ahead of its competitors and bring together: cloud based solutions, analytics services, 3D printing solutions, logistics services and varied sources of expertise. Alternatively, they might decide to monitor development over time and buy an established integrated commercial solution when it is available. Also, as we are moving from supply chain to supply cycle, solutions will need to include options to re-use, recycle and reduce resources consumed.

A solution differs from a product or service bundle. It is an integrated answer to a specific problem. This include the ability to benefit from capacity as it is needed, pay for performance schemes, licenses instead of packages, immediate turn on turn off options, Intellectual Property packages, risk sharing agreements, "… as a service" or continuous innovation services.

To do this, Innovative commercial models are needed. And in some instances, we saw organisations moving toward integrated contracts involving all relevant parties. All this will require us to rethink our way of segmenting what we buy.

Thinking in Data Ecosystems

The four trends lead Purchasing Teams to think beyond silos, usual suspect and classic market offerings – they need to look at all the actors within the value chain of their company and in some instances at established or emerging solutions that are not yet integrated into their existing network.

From Markets to Ecosystems
Depending on the industry dynamics, the IoT will make some markets more open and fluid and others more closed and controlled. With the IoT, one company will not always be able to come up with a full solutions result delivered by one supplier.

You will need an Ecosystem of Partners to obtain what is needed to deliver the expected performance. At the same time, more people will create start-ups and offer innovative solutions. We will work more in ecosystems. At best, roles across the industry will experience turbulence and then stabilize.

Big Data needs to be turned into information
Big data also provides a great opportunity for predictive analytics. IBM's Watson was created as a way to assist humans and improve decision-making capabilities. For the medical profession, Watson can examine millions of medical scans and look at millions of medical journals enabling medical staff to operate in better ways. IBM has started to leverage its own tool within its procurement activities. It allows to navigate and maintain knowledge, to enhance performance and to help take key decisions based on a deep market analysis.

Competition and Collaboration on Data
Key issues will be data ubiquity. To whom is the data available? Who owns and controls the data? To what extent can a player appropriate the data and build a business model around such data? There will be a full spectrum of situations from open-source to proprietary solutions. Companies that will master data and will be good at mining them will gain competitive advantages.

In an industry where data is openly available entry barriers will lower. This means that expertise and technology will be more widely available. Some small players will play a more active role and challenge the traditional players. Solution designers need to look in conjunction with procurement to create Plug and Play solutions. They will need to leverage current and future capabilities in the ecosystem.

In close markets where data is owned and controlled by a few players new entry barriers and dependencies amongst industry players will emerge. Some will gain, others will lose. The role of government will also be key due to both their buying power and the regulations they establish. Regulators won't accept speed and innovation as an 'excuse' for non-compliance. Vice versa Regulators need to adapt to deal with the accelerated pace of change.

Thinking in Options

We are moving from Category Strategies to Integrated Business Strategies based on options.

Customers are looking at more complex services with options. This logic of offering options will be cascaded along the chain. Purchasing teams will, therefore, need to think in options and to develop scenarios that can be proposed, implemented and revised dynamically with business partners.

Instead of having a 9 months' plan as a category strategy we can go to the business with a set of options and they can choose amongst them… applying what makes sense where it makes sense. This highlights the importance of agility: managing multiple strategies at the same time depending on location, business lines or business dynamics. As illustrated beyond Scenarios can be created along one main customer trend and one main supply trend.

Major trends on
The customer market
Slow change

Major trend on the supply market   Slow change   Fast change

Fast change
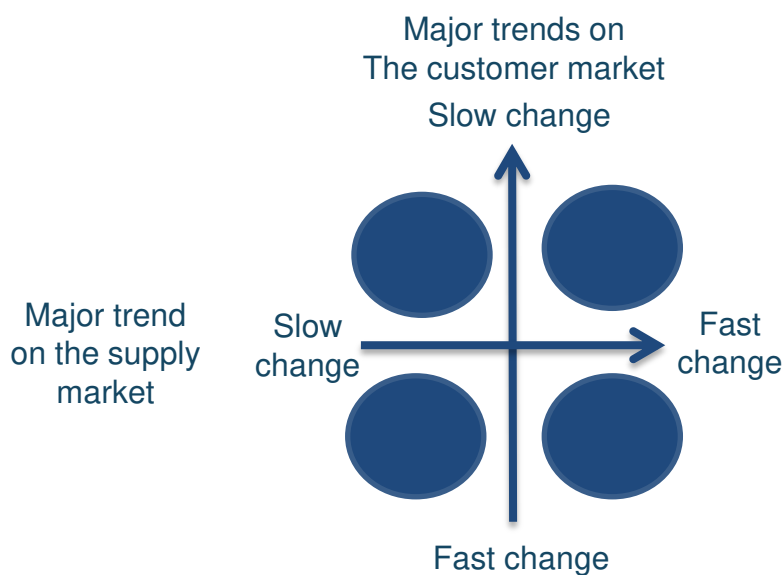
More Automation

Tactical work will be completely automated. In many business areas, the trend is to move toward self-service and automated solutions. We will see more stock management autonomously performed by vending machines that will trigger orders when a minimum stock level is reached. Robots are invading factory floors and expanding into other areas. They are now able to collaborate and share space with humans. 3D printing is still a technology in its infancy stage and will offer higher performing lower cost solutions to redesign supply chain in the future. Smart temperature management will ensure maximum environmental efficiency within buildings and transport solutions. Customer interaction will also be increasingly enabled by machines. The impact on the workforce is not yet known and we will need to consider the social impact on employees. The only certainty is that most jobs will have to be redesigned to a certain extent.

Supply Chain Transparency

Supply chain transparency is not just about gaining better sales forecasts, reducing risks and achieving more effective delivery performance. Of course, warehouses are becoming more automated, effective and adaptable. But transparency brings other benefits. This includes the ability to better segment customers and to better serve them according to their needs. The example of the success of product recommendations on Amazon illustrates this point perfectly. But examples on the B2B side also exist Dow corning has re-invented its silicon business by de-bundling its offerings and creating radical visibility for its cost-conscious clients. Transparency also relates to developing a sustainable value chain. Health and Safety, environmental performance can be monitored remotely now. However with Transparency, confidentiality and security matters will also become more critical.

Cost, Revenue and Price Modelling

If we look at a car insurance: it is not difficult to imagine a pricing scheme where the driving style impacts what is paid to the insurance company thanks to the data transmitted by connected devices. Such solutions are likely to appear in specific market segments first and then to migrate to other segments. Also, if we think of the life cycle cost of industrial equipment, we will be able to validate, refine and improve the cost models throughout time. Solutions that already exist for jet engines will become more and more available.

In the future data will be available all along the life cycle of assets. People will easily validate the quality of their prediction. This will provide opportunities to build financial models that will help to assess the impact of specific parameter changes on cost or on revenue. Today we work on cost models... Tomorrow we will use data to create cost or revenue simulations. Feedback from the real world will be re-injected in the models to see if our assumptions hold or if we should revisit them....

Interview: The impact of IOT on Schneider Electric purchasing team

Source: Interview with Loic Perret, Purchasing Director - Co-Innovation - Global Supply Chain - Schneider Electric

EIPM: How will your industry be impacted by the Internet of things?

Digitalization and the Internet of things will have a major impact across Schneider Electric and its ecosystem. It is already a core pillar of our company strategy. For a few years we have developed and sold products that are connectable. Today they are being connected and new layers of controls, analytics and services are added. Across the world, energy and information architectures are going through radical changes along the power and the information lines. There are more opportunities to connect to the energy grid, more opportunities to leverage information all along the chain and more opportunities to create services for the smart home and the smart city. From energy generation to energy consumption, architectures become more open and decentralization is at work.

In terms of industry players, if you look upstream, strong entry barriers remain but as we go towards analytics and services, we see new players coming in. Some of them can come from radically different industries. This is the case of Tesla with its network of charging stations for the electric vehicles and this is the case of Google with its investment in Nest which offers smart-home appliances. IT, software and analytics players are also entering our attractive business arena. We will be facing leaders from other industry and it is hard to predict what the architecture of the overall ecosystem will look like in the future. Multiple business models will complement each other's. Schneider Electric will compete, collaborate or co-exist across different segments of activities with these new players.

EIPM: How does this impact the purchasing function and the supply base?

First, technologies and business models are going through a Darwinian evolution process. If you miss a generation it is very difficult to catch-up. It is impossible today to wait for a technology to mature and stabilize to take the "right" decision. You need to remain ahead of the learning curves. This is challenging and we need to look at risk and opportunities with a radically different mindset. Searching for perfection is no more a viable strategy, purchasing needs to accompany a broader and faster experimentation process.

Second, the internet of things combines hardware and software together. To deliver an outstanding overall performance and to optimize interfaces we observe new convergences between some R&D and some Manufacturing activities. Integration is Key. Tomorrow, as we will move beyond the hype curve we will see if this "full stack" business model that revives vertical integration is here to stay or if a new wave of industry unbundling will take place. In the meantime, in purchasing, we need to park aside our existing segmentations and remain open to new ways of looking at this emerging business landscape even if they don't fit with our traditional categories.

Third, our supply markets continue to evolve. Our tier-two suppliers provides building blocks to us, they often own key pieces of intellectual property while tier-one suppliers act as integrators. The first group which includes semiconductor companies is going through a process of consolidations. We are used to interact with both layers; we will have to adapt our strategies and tactics as the power balance and the wider ecosystem evolves.

Fourth, beyond the battle amongst giants, the value in our ecosystems is being redefined by a myriad of startups and new players. Here we need to unlearn. After years of supply base rationalization and strict risk management, we need to rediscover how we can work with such players and how we can integrate some of them in our ecosystem architecture.

EIPM: How can purchasing teams cope with these challenges?

We are building and using new processes and new forms of organization that favor speed, autonomy and linkages across rich networks.

In an industry that blends the power of software and hardware, the pace of change will be the one of the software. Becoming agile means: (1) Sensing and seizing opportunities as they emerge; (2) Taking an active role in accelerated innovation process; (3) Looking at risks and opportunities through new lenses.

As Schneider Electric increasingly adopts open innovation practices, we work with marketing teams to better understand our users' pain-points, our offer gaps and to spot complementary solutions that could be rapidly mobilized. We work with corporate innovation teams to take an active role in innovation clusters and to be part of multi-players collaborative innovation processes.

EIPM: And how do you approach startups and other disruptive players?

For startups, we have a new engagement and development process. They belong to a dedicated segment so we can "register them" well before "a classic audit" is necessary. Nine out of ten will not become active suppliers of Schneider Electric but a tenth of them can help us to rapidly generate value in the future. We therefore need to: (1) be close to them right from their early stages of development; (2) be perceived as attractive and valuable partners by them; (3) and be easy to work with as they can dare to walk away. We have developed simple tools to assess them and integrate them in a list of potential partners. Effective early conversations are essential to sometime temper over-optimism or to reveal their full potential. Specific guidelines help us draft contracts and Intellectual property deals with them. We also help some develop and scale up especially if their business model entails hardware manufacturing.

EIPM: all this will require new skills? Right?

The Internet of Things brings extremes innovation challenges as it combines software and hardware. However, in the current innovation landscape, new knowledge and skills are anyway needed. Beyond technical expertise, we need, people with solid business foundations and a genuine marketing mindset. This is essential to develop a 360 degree vision, to spot new opportunities and create value ahead of others.
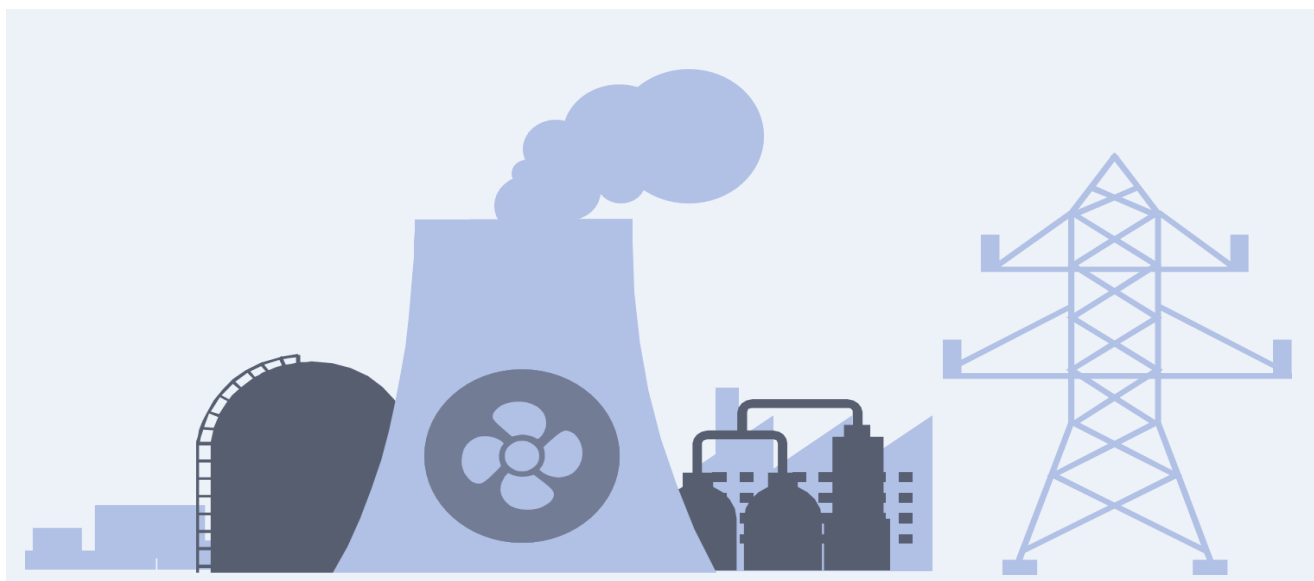
4. The IOT Purchasing toolbox

As part of a workshop organised in 2016 we have developed a toolbox to help purchasing teams investigate the Innovation ecosystem that their company can work with to leverage IoT opportunities.

The IOT – Purchasing Toolbox

This toolbox was presented and tested at a Workshop organized by EIPM in March 2016. For more information, please contact EIPM.

1

Looking forward:
Map the key trends that will impact the demand and supply side of the business

2

Define solutions:
Define what specific problems IOT will help you solve and how it will drive competitiveness

3

Ecosystem Mapping:
Identify the key players within the overall ecosystem that you should be working with
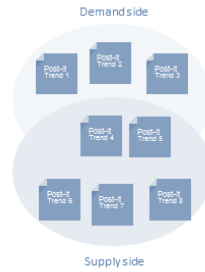
4

Define scenarios:
Propose future scenarios outlining your options and who could do what across the ecosystem
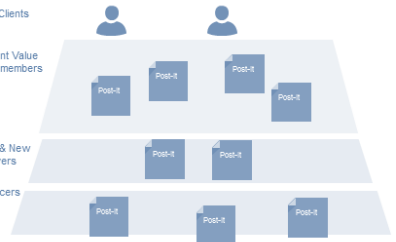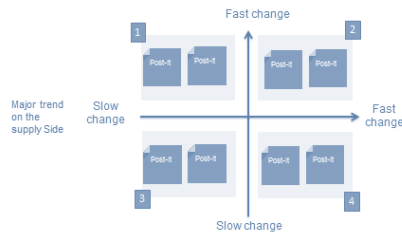
The IoT Purchasing Toolbox

Case study: *Oil Industry: an IOT ecosystem analysis*

Nowadays, innovation opportunities in the exploration and production sector of the oil and gas industry can help companies boost their efficiency and differentiation. Such opportunities are crucial in the current context of low oil prices and uncertainty. They could turn into long-term competitive advantages. Moreover, the focus on green technologies and climate change requires drastic changes in the oil and gas industry. Innovation can also help to: increase operational reliability and reduce disruptions and waste. Such Innovation can be acquired by leveraging the existing supply base or new external players. Companies' key challenges include "costs" (how to reduce capital and operating spending) and "time" (how to make faster and better decisions), while maintaining the focus on environmental impact and social acceptability, across all phases of the development projects.

The oil and gas industry is facing a number of challenges:
1. The access of independent oil and gas companies to conventional resources is becoming difficult as national oil companies, owned by governments regain precedence. However, their know-how is still deemed necessary to develop deep offshore discoveries, shale oil and gas and other non conventional resources;
2. The depletion of major oil and gas fields has forced companies to find reserves beyond existing frontiers, in challenging environments, with technical and operational difficulties leading to higher costs and risks;
3. In the upstream stages, the low oil prices have reduced cash flow and spending, causing delays in new exploration and development projects;
4. The recent oil price recovery has increased optimism in the industry, but still companies are postponing projects and cutting investments. Therefore, companies are taking less risks, and focus on already-discovered fields;
5. Due to the lack of investments, the proportion of new oil that the industry has added to offset the amount it pumps (reserves replacement ratio) has dropped drastically. The effects of abandoned exploration will become visible in the future;
6. The global oil demand will grow from today's 95 million barrels a day to 105 million barrels a day in 2026, according to U.S. Energy Information.

New opportunities: IOT and Digitalization

To respond to these challenges, Oil and Gas companies can look into Digital technologies. The "Internet of things (IoT)", robotics & drones, artificial intelligence, Big Data advanced analytics are growing fast, and offer huge improvement potential in the oil and gas industry. According to MIT Sloan Management Review and Deloitte's 2015 global study of digital business, the oil and gas industry's digital maturity is among the lowest, at 4.68 on a scale of 1 to 10, with 1 being the least mature and 10 being the most mature. Digital innovation into the oil and gas process can introduce real-time access to operational data sets, across all plant and well facilities, it can provide instantaneous information to make better and faster decisions, this will improve efficiency by preventing failures and downtime. The physical data, collected by sensors, can be managed by Big Data advanced analytics to strengthen assets management. The rising complexity of oil and gas operations, moving to harsher fields, will lead to an explosion of data. This will require advanced sensor technology, significant architecture change and robust data process capabilities.

Companies, innovating through digital technological advances, will improve operational asset performance ahead of competitors. In order to understand the advantage of digitalization in upstream stages, we can use the example of standard oil and gas field operations, operators are required to regularly visit each wellsite, storage area, treatment plant, etc. to check the status of facilities and to investigate problems, such as leaks and inoperable assets, like pumps or chemical injection units.

This could be radically transformed by the automation of wells and the continuous monitoring of multiple facilities. Data can be collected using sensors which help operators to remotely monitor chemical usage, status of machines and to receive alarms when problems arise.

Digitalization will further advance, through the use of smart sensors, machine-to-machine connections and Big Data advanced analytics. This will lead to predictive maintenance capabilities and improved preventive maintenance. Operators will anticipate interventions and increase plant-operating time. A software model, for instance, can replicate the physical asset or process, by receiving real-time data, as virtual replica of the physical plant, it can predict and respond to problems, substituting operators and allowing faster and better decisions. Further example of digital use in the field of upstream oil and gas can be extended to the management of transportation assets, such as pipelines and other transportation means, or to the protection of the environment, collecting environmental data and responding to problems will help to prevent pollution. This will be very effective in development projects, while digital advances, such as seismic data acquisition and computing power, already exist in exploration projects.

Ecosystem analysis

Building on the ecosystem methodology developed at EIPM, the following analysis has been drafted. As the context and scope are already defined, key trends and associated players can now be listed:

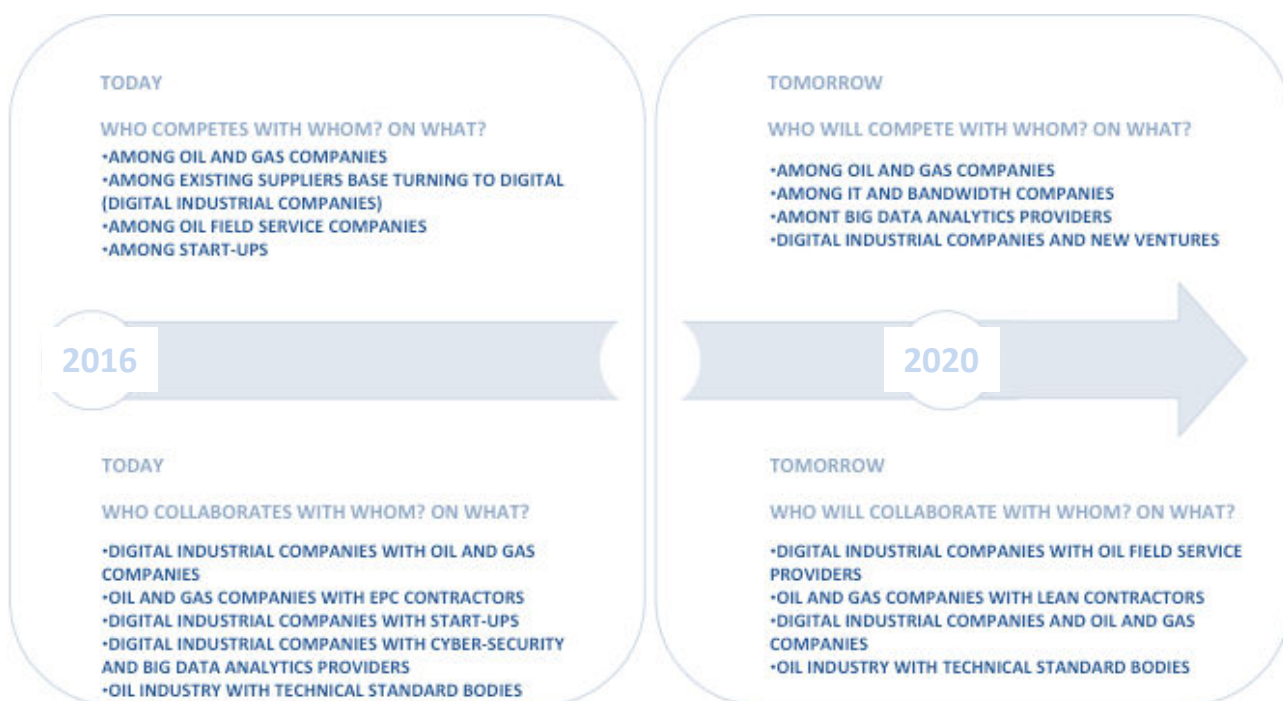| Type	Trends	Players/ Stakeholders
Customer's side	Oil and gas companies have the opportunity to achieve performance results through innovation coming from digital technologies and lean management	International, independent, national Oil and gas companies, shareholders and partners investing in oil and gas fields
Market side	Technology providers redefine product and service turning to digital, therefore creating a new business model: not only providers of machines and equipment, but also suppliers of advanced services, where digital services are strictly linked to products	Technology providers, hardware and software vendors (becoming "digital industrial companies", i.e. ABB, General Electric, Siemens, Schneider, etc.)
Economical	Profit opportunities related to new digital business and the need of defending industry market share	Existing supplier base, new ventures and start-ups
Social	Labour opportunities created by the development of digital technologies. Need of training program required for specialized personnel. Social trend oriented to digital technologies helps to enhance company image	Workforce Concerned authorities and Communities Company image
Technological	Shift to information-based value creation requires sensors, advanced wireless networks. Increase of projects complexity requires huge data collection and architecture	Oilfield service companies, hardware Vendors. IT providers (i.e. Huawei) and bandwidth and broadband providers. Also Cyber security companies
Environmental	Environmental physical data can be captured and managed through digital devices and advanced analytics	Oil field service companies and oil companies, vendors and suppliers Concerned authorities and Communities
Production	Lowering disruptions through digital technologies and lean initiatives helps companies to have better control on the process and avoid leakages and waiting time	Oil and gas companies, shareholders and partners, oil field service companies
Safety	Lean management initiatives decrease process complexity and workforce interventions, with advantage to reduce safety issues	Oil and gas companies, workforce, company image, Standard and norms
Policy and regulation	Ensure the compatibility and interoperability of different systems – industry standardization	Oil field service companies, technology providers and vendors, Certification bodies, Technical Standard bodies (i.e. American Petroleum Institute, International Association of Drilling Contractors, International Organization for Standardization (ISO))
Know-how and business development	Companies need to restructure themselves in order to promote digital knowledge, develop innovation initiatives with internal resources and be able to scout start-ups and identify business opportunities and develop open innovation models with suppliers to acquire competences	Oil and gas companies, suppliers for long term relationship, Top management

Using the players previously identified, the ecosystem can be represented as follows:

CUSTOMERS
Major, independent, national Oil and gas companies

CURRENT VALUE CHAIN MEMBERS
Specialized Vendors
Oil field service companies
Technology providers (Siemens, General electric, ABB, etc)
Engineering and Construction contractors

RISING & NEW PLAYERS
Oil field service companies   Standard bodies
New ventures and Start-ups
Engineering and Construction "lean" contractors
Bandwidth providers   Cyber Security companies   IT providers

INFLUENCERS
Major oil and gas companies   Main technology providers and Vendors   Technical Standard bodies
Authorities
Associations of oil and gas industry   New ventures and Start-ups   Entities certifying lean management tools

<u>The Oil and Gas IoT Ecosystem</u>

In order to enhance processes and operations, oil and gas companies can leverage suppliers' complementary capabilities and innovation. As oil and gas companies will require significant capital investments, opportunities will be attractive to both incumbent suppliers, such as technology providers and software & hardware vendors, and to new external players, such as new hi-tech ventures and start-ups. Incumbent suppliers will also need to look into digital opportunities to defend their market share from new entrants and start-ups. Collaboration between oil companies and ecosystem players can enable the co-design of new solutions. Moreover, collaboration across industry players will also help to ensure the compatibility and interoperability of different systems, oil field service companies have a key role to play in standardizing the data sets, based on their extensive experience in collecting and interpreting physical data. The stream of data that will need to be captured by sensors and then processed, will require significant architectural change and capacity, therefore capacity providers (IT and bandwidth suppliers) will focus on helping companies leveraging scale.

The following analysis helps to show who competes and who collaborates with whom today and tomorrow:

TODAY

WHO COMPETES WITH WHOM? ON WHAT?
- AMONG OIL AND GAS COMPANIES
- AMONG EXISTING SUPPLIERS BASE TURNING TO DIGITAL (DIGITAL INDUSTRIAL COMPANIES)
- AMONG OIL FIELD SERVICE COMPANIES
- AMONG START-UPS

2016

TOMORROW

WHO WILL COMPETE WITH WHOM? ON WHAT?
- AMONG OIL AND GAS COMPANIES
- AMONG IT AND BANDWIDTH COMPANIES
- AMONT BIG DATA ANALYTICS PROVIDERS
- DIGITAL INDUSTRIAL COMPANIES AND NEW VENTURES

2020

TODAY

WHO COLLABORATES WITH WHOM? ON WHAT?
- DIGITAL INDUSTRIAL COMPANIES WITH OIL AND GAS COMPANIES
- OIL AND GAS COMPANIES WITH EPC CONTRACTORS
- DIGITAL INDUSTRIAL COMPANIES WITH START-UPS
- DIGITAL INDUSTRIAL COMPANIES WITH CYBER-SECURITY AND BIG DATA ANALYTICS PROVIDERS
- OIL INDUSTRY WITH TECHNICAL STANDARD BODIES

TOMORROW

WHO WILL COLLABORATE WITH WHOM? ON WHAT?
- DIGITAL INDUSTRIAL COMPANIES WITH OIL FIELD SERVICE PROVIDERS
- OIL AND GAS COMPANIES WITH LEAN CONTRACTORS
- DIGITAL INDUSTRIAL COMPANIES AND OIL AND GAS COMPANIES
- OIL INDUSTRY WITH TECHNICAL STANDARD BODIES

Ecosystem's Dynamics

This analysis shows that oil and gas industry companies need to pursue the following objectives:

- *Monitor* existing supplier base and new ventures advancements in digital technologies, to "foresee opportunities. Beyond traditional technology and partners scouting practices, Oil and Gas Companies can arrange dedicated Fairs or Technology days, in which suppliers are invited to participate and present their roadmap and innovation intent. Meanwhile, specific initiative can help with scouting for start-ups offering innovative know-how and future potential business opportunities.
- *Involve* oil field services and technology suppliers in workshops and projects to exploit and explore innovation opportunities.
- *Partner with* digital industrial companies to acquire capabilities, develop prototypes and innovative projects. Such collaborations require a long-term perspective in order to maximize efficiency and profitability along the value chain.
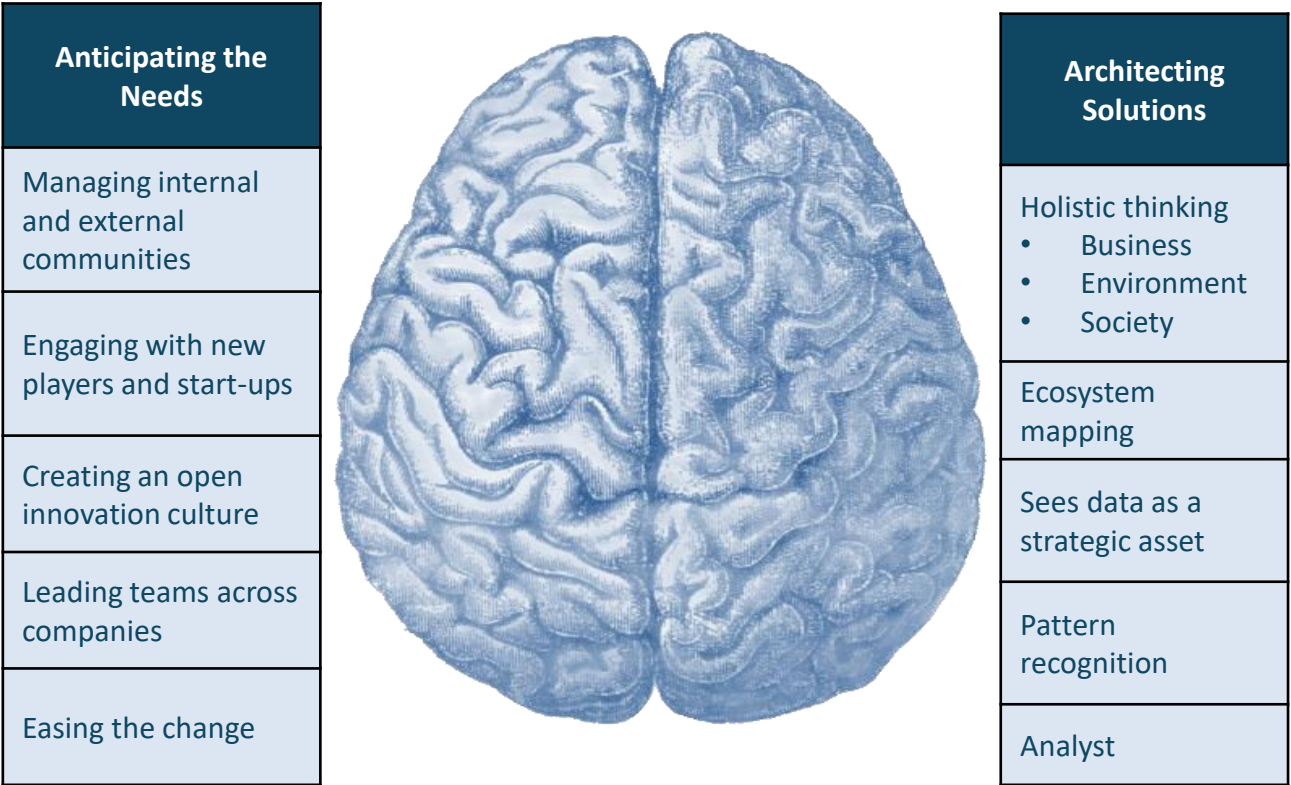
The Internet of things and digitalisation will offer significant opportunities for oil companies to improve their efficiency and differentiation. To fully leverage them they will need to think in ecosystems and to develop new forms of partnerships within the ecosystem.

4. The Human Dimension of the Transformation

The magnitude of the change is enormous and we will need to embrace the unknown. People are changing the way they organise themselves and how they behave. Early adoption will be critical to be able to adapt to the ever-changing ecosystem.

THE BRAIN OF THE BUYER

Operating in this changing world will require new skills. On one hand it will be about managing anticipating needs and constraints. On the other hand, it will require more analytical skills.

Anticipating the Needs
Managing internal and external communities
Engaging with new players and start-ups
Creating an open innovation culture
Leading teams across companies
Easing the change

Architecting Solutions
Holistic thinking • Business • Environment • Society
Ecosystem mapping
Sees data as a strategic asset
Pattern recognition
Analyst

Anticipating the Needs

- **Managing internal and external communities**: traditional communities for purchasing were the internal stakeholders and suppliers. This is changing, the communities are evolving. Suppliers may be customers, partners and in some cases competitors.
- **Engaging with new players and start-ups**: Purchasing is becoming pivotal in dealing with new players, smaller players who operate with agility and are not constrained by established processes.
- **Creating an open innovation culture**: Innovation will be delivered through many players, co-creation, co-working and collaboration.
- **Leading teams across companies**: influencing, managing relationships and delivering through all relevant players, companies are becoming boundary-less.
- **Easing the change**: human beings like to operate in their comfort zones and we need to work on making the change into the unknown frontiers as easy as possible.

Architecting Solutions

- **Holistic solutions**: Buyers will need to think more holistically about the needs and constraints they have to take into account. They will need to navigate through a multitude of players to understand where problems exist and where solutions can be found. This will include neighbouring functions, industry bodies, regulators, customers, suppliers, partners and disruptive players.
- **Ecosystem mapping:** They will have to map their ecosystems beyond their current suppliers. Purchasing is moving will have to drive collaboration across functions and companies to help see where opportunities exist.
- **Pattern recognition:** Data will have to be addressed as a strategic asset and as a key contractual aspect. We need to manage multiple touch-points and understand the importance of them. Problems and solutions will have to be anticipated.
- **Analyst and Relationship Manager:** In a fast moving ecosystem, data needs to be translated into valuable information. Buyers need to distinguish between what is important and what is noise. The core skill set of the buyer will move traditional purchasing skills to analytics and relationship management.

CROSSING THE CHASM

The internet of Things is about bringing new ideas to life, and success will be driven by quick adoption of promising solutions. Slow adoption could result in diminished performance.

People fall into two categories: Visionaries who are ready to try new things and take risks. They will have opportunities to be ahead of the curve. Pragmatists who are cautious, reasonable, and pay attention to costs. They like slow steady progress and avoid some of the major risks.

Visionaries*	Pragmatists*
Daring	*Cautious*
Ambitious	*Risk adverse*
Want to be first in implementing new ideas in their industries	*Stay within budget*
They are annoyed by Pragmatists	*Support slow, steady improvements*
	They fear Visionaries

Where does the Purchasing function sit in all this?
What is your company's risk appetite?
What is the right mix you need to be successful?

* Adapting from Moore – Crossing the chasm (1991)

Interview: Fujitsu - A view from the supply side

Fujitsu is a leader in the digitalization of the Physical world. Over the year Fujitsu has been active in enabling a series of digital transformations. It started with the Internet where physical transactions where by digital ones. Then, the mobile internet allowed accessing and consuming digital services anywhere people go. Now The Internet of things provides the possibility to sense and control the world around us and to create new services and business models with the data generated. The present interviews were conducted with David Gentle, who is Director of Foresight and Planning at Fujitsu. It looks into the challenge of foreseeing future IoT applications and at the potential of the key players within the Internet of Things Ecosystem.

EIPM: When it comes to the application of the Internet of Things, are your clients ready to express their needs?

The key challenge is to realize the full landscape of benefits that can be delivered and this can vary from one area to another. Take the Smart City for instance. People easily picture the overarching vision and it is easy to express the need for something quite basic such as a Wi-Fi system that operates in the subway. But true benefits and promising developments lie in between the basic and the vision. And it is difficult to capture them within a business plan. Let me give you an example. Fujitsu developed SPATIOWL. This system gathers data from taxi and other vehicles in real time. This can provide opportunities for public transportation operators and urban city traffic managers to optimize their services to passengers. It also offers opportunities to the police forces that can then deploy security personnel at strategic locations and have access to real time information. Some private companies can use this information to schedule maintenance activities. Logistics companies can use the same information to optimize delivery of products. Telematics services can be integrated in other platforms so tourists can effectively combine different transportation services. And more services and opportunities will emerge as you can merge data across platforms. What you see here is a classic tension between tactical and more strategic application. You might start on the tactical side but the full benefits will only be realized after some time. The challenge is not the technology but the pathway through a diversity of applications.

EIPM: Is this something inherent to the smart city or do you see this as well in private sector applications?

In private sector companies you might find some straightforward applications that respond to operational issues but the tension between tactical and strategic application is still at play. We work with Airbus. They have a complex supply chain and hold significant level of inventories along it. Sensor based solutions can show in real time where inventories are located. Here, the operational benefits are clear from the start as some cash can be freed. Nevertheless some benefits will only emerge afterward as Airbus will be able to visualize the overall flow and to come up with a new design for their supply chains. Also if we take the case of a dairy company for which we develop a cold chain infrastructure. The immediate benefits will be to send some alert if the cold chain has been broken. But the true value lies somewhere else. With all the data available more can be done to optimize delivery and to provide benefits and added value service to customers and partners along the chain. So here again we find the tension at play.

On one hand we have tactical issues. They might be problems of the past for which the Internet of things can offer a new layer of solutions. They are very practical challenge where solution can be rapidly envisioned. In such case, we know the key stakeholders, and we can easily understand what works and what does not work for them. Articulating the benefits and putting forward a financial impact can be done.

On the other hand we have the more strategic opportunities. The true benefits emerge over time as new players get involved. This might require a business platform where players can start experimenting with and building their own applications. Here no business case can capture all benefits from the start.

EIPM: In a company which functions are best place to identify unmet needs and solutions? Is there a role for Procurement and IT?

The Internet of things covers a broad spectrum of activities that can require collaboration across functions and companies. Challenges exist all for all players involved. Procurement teams might find it challenging when they cannot come up with an immediate equation that outlines the financial benefits. IT teams are often challenged to rethink the information architecture. Putting everything behind a central firewall is not viable when you need objects equipped with decision making capabilities in multiple places. Achieving the full benefits can also bring integration challenges across systems and sources of data. Also it is not unusual to have engineering teams that have difficulties to get mechanical engineers and software engineers to work effectively together. For them skills gap can also a common challenge. Then getting the customer experience right requires more than straight marketing involvement. And finally when a business platform is needed getting all the relevant players involve with it can be demanding. We are increasingly talking with business teams on this matter but in the end it is a change management challenge in a context where speed can be key.

EIPM: Now could we look at who are the key players within the IoT field?
First, traditional ways of thinking might have some limitation here. The IoT is not supported by one industry but by what is best described as an ecosystem with multiple layers of players who collaborate and compete building on the key capabilities they can bring to the party. First, startups are best place to deliver innovation. They are very active in this the ecosystem. They can leverage and transform data into neat user experience but they often have to rely on others to succeed. I.T. companies such as Fujitsu are redefining their strategies by moving from a focus on products toward offering a diversity of business models that support digital transformations. Some traditional players such as heavy engineering leaders or leading domestic appliances providers are nicely positioned within the ecosystem. Take the example of General Electric for instance. They have solid experience with software and sensors; they experienced business model transformations in the aircraft engines fields. They have capital intensive settings where the Internet of Things is best place to help and. And they invest in startups. Another illustrative case could be Philips, They have built a vision around technology and customer experience. They have developed business platforms that can already serve a diversity of applications. They pursue business collaborations with both small partners and strong complementary brands. These two examples are not the only ones. And even when companies lack some key capabilities, they will build alliances and come in this business arena to try to take a stake.

EIPM: Will these ecosystem be managed or will they evolved own their own?
There is not a single model. Some ecosystem can be dominated by key players who orchestrate the involvement of others and shape the development of business models. They will therefore influence the sharing of financial benefits across the ecosystem. Being an orchestrator is an attractive positions. Other ecosystem will be more open and will evolve more organically over time. There is something nonlinear in ecosystems. Some players will act as utility companies with high volumes and small profits while small star players could capture the largest share of the profit in specific areas.

EIPM how can innovation emerge from such ecosystem?
This requires collaborative efforts with of a subset of players from the wider ecosystem. Here we can take the example of a project related to health care in Ireland. The project is called KIDUKU. The aim is to discover how we can help patient recover within their home by using sensors and other devices. Results are very promising. For such a project, we had to work over the past three years with three research institutions already active in this field to ensure that long term goals could be achieved. We also worked with other companies to experiment with applications in more specific area as part of this project. Experimenting with new technology nowadays requires bringing different players to the table. Some require long term investment and need structured collaborative governance. Others engage in more opportunistic experimentations and call for more agile ways of working. Orchestrating or shaping the evolution of such innovation networks is a key capability in the emerging economic landscape.
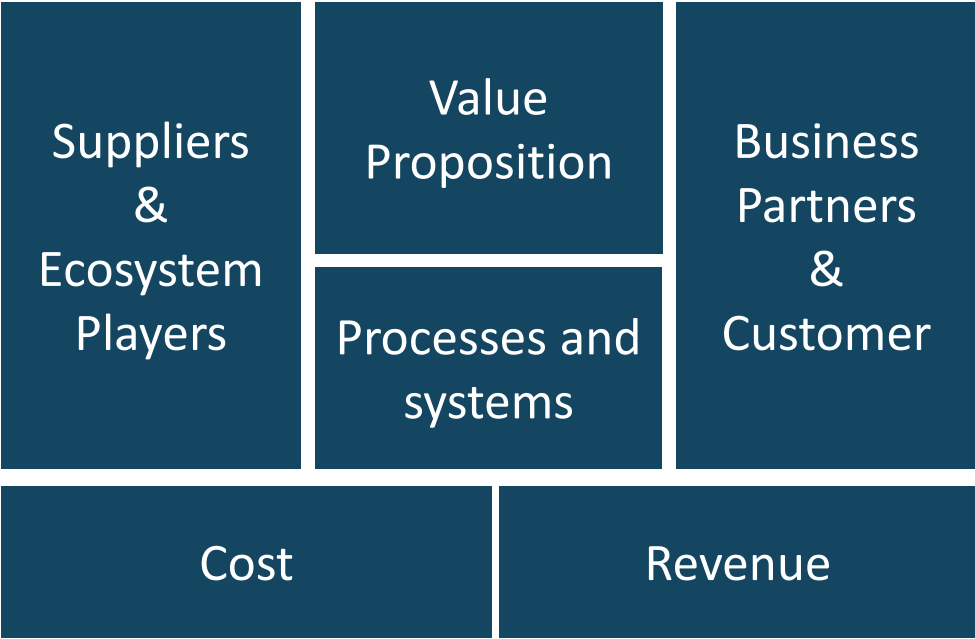
5. Rethinking the purchasing business model

The traditional buyer and seller relationships are changing fast. New emerging companies, changing industries, new ways of working, cross-industry collaborations are changing the Business Landscape.

RETHINKING THE PURCHASING BUSINESS MODEL

A business model is a simple way to describe what value you offer? to whom? With Whom? And with what impact on cost and revenue?

It is a great way to discuss what you can holistically improve or innovate…. We took inspiration from the business model canvas (Barquet, Ana Paula B., et al., 2011, Osterwalder 2008) and simplified it for the purpose of this research.

Suppliers & Ecosystem Players	Value Proposition	Business Partners & Customer
	Processes and systems	

Cost	Revenue

Some questions to explore your Purchasing Business Model:
What will the IoT do to your Industry?
Who are your key business partner and customers?
What can the IOT help them achieve?
What do they expect from IOT?
What is the value proposition you offer them?
What can the IoT add to it?
How can you leverage analytics, and digital technology in your processes and systems?
Who are your existing suppliers?
Who could be a supplier in the future
How can they all help you leverage the IOT?
How can you bring positive impact on the company revenue?
How can IOT contribute to this?
How can you bring positive impact on the cost base?
How can IOT contribute to this?

....

6. Conclusion – The Emerging purchasing playing field
We are moving from Today's World into Tomorrow's World. Our once clear cut Ecosystem is changing fast with many new players appearing. A new Purchasing generation is emerging amidst the change.

THE EMERGING PURCHASING PLAYING FIELD

Through the interviews and case studies, a number of critical dimensions have emerged. In some instances, Purchasing will operate close to its traditional portfolio of practices. But, as the uncertainty and the stakes increase, it will need to explore new frontiers.

	Sticking to the knitting ← →		*Exploring New Frontiers*	
Focus	Category	Business Processes	Core Business	New revenue streams
Results	Cost Efficiency	Performance	Differentiation	Multi dimensional Innovation
Needs	Efficiency Requirement	Pain-Points	Customer needs Roadmaps	Blue ocean
Search	Market Intelligence	Natural Attractiveness	Ecosystem analysis	AI + Ecosystem intelligence
Integration	Outsourcing	External Integration	Collaborative Integration	Vertical integration
Organization	Category Supplier development	Competence center	Alliances	Agile team Startup Mode Startup accelerator
Collaboration	Early involvement	Startup collaboration	Core business collaboration	Multi players Collaboration

Interview: PSA – start -up accelerator

Source: Interview with Céline Heissat Le Cotonnec, Head of Connected Services, Digital and Mobility at PSA Peugeot Citroen – Asian Business Unit

EIPM: Celine, How did you go from Purchasing to managing a start-up accelerator at PSA in China?

I spent nearly four years as R&D purchasing manager at PSA in China. This is where I started to be exposed to connected services as some Chinese internet players wanted to partner with PSA. After a brief mission as innovation and resources manager in the R&D team, I was offered at the End of 2014 to set-up a team in charge of connected services, digital and new mobility solutions. This included various activities ranging from media buying, e-business intelligence, benchmark on website and car-sharing. This personal change happened as the automotive industry was entering into the early stages of a metamorphosis still ongoing today.

EIPM: Well in this case, can we come back to the broader picture. Is the Internet of Things (IoT) about to disrupt the automotive industry?

Yes, The Internet of things will soon disrupt the automotive industry value chain. Sensors and artificial intelligence and self-driving technologies increasingly connect the car to the rest of the IoT ecosystem. The traditional automotive manufacturers (OEMs) become the target of Silicon Valley's Internet Giants. They are attacking the affective link between the consumer and its car; the automobile is an object that has always fascinated consumers. For many years, car ownership, and still today in emerging countries, was a proof of a person social status. However, changes are occurring in the new generation. In the big cities, young people are getting their driving licence later compared to previous generations, preferring other modes of mobility such as public transportation, bike, car-sharing or new mobility solution such as Lyft, Uber or Blablacar. Seeing this shift from the car being a fascinating object to a commodity product, internet giants started to wonder what could have happened if the computer had been invented before the automotive. Apple through Carplay® and Google with Android Auto® have already imposed their User Experience within the car environment. The automotive industry is, till now, protected by the capital intensive and logistically complex nature of its activity. But the emergence of car-as-a-service will make the automotive industry next in list for disruption. Step by step, disruption will take place in every aspect of the automotive usage we know today. The value will be transferred from the mechanical side (hardware) to the algorithms (software). By embracing the Internet of Thing, automotive won't be any more a stand-alone object but a system of systems.

EIPM: Are the Chinese customers ready for this?

The Chinese customer profile, its age and expectations varies drastically from Europe or US. Young with still very little car culture, the Chinese average customers is looking for plug and play solutions and innovation in the field of entertainment and car-as-a-service. With little car culture, the Chinese customers do not show specific interest in the 'pleasure of driving'. Proof is that 50% of the cars sold on the Chinese market are automated gearbox while in Europe people have been used to manual gearbox. On the contrary to European customers, they prefer being assisted by a user-friendly high tech. Studies shows that acceptance of Chinese customers toward Automated Driving Assistance system are much higher than the US consumers. Looking for simplicity and usability, the Chinese customers expect plug-and-play solutions, interactivity is mandatory for all future functions. Car connectivity as well as available hotspot WIFI in the car is becoming a must-have feature. On the contrary to European customers, with their unlimited data packages, who are used to switch on their smartphone hotspot to bring connectivity into the car, an embedded connectivity module is a must-have for Chinese customers who are looking to a seamless user experience with minimum of actions to do on their side.

EIPM: Is the Chinese industry model supportive of it as well?

Yes modern China, is now the world biggest market operating under a controlled economy. Under the cover of censorship, China is the only country in the world that has succeeded in creating its own digital ecosystem and prevents American Internet Giants to dominate. On one hand, urged by the Internet+ strategy of President Xi, State-owned automotive OEM such as Dongfeng Motor have to follow the ambition of China to become the global leader in IoT and promote new ways of mobility. . China is developing a play field in the sector of Internet of Things and connected car that would be unimaginable elsewhere. The lack of Android Auto in China as well as the OEM integrated network offered by the China Joint Venture Industry model is the opportunity for OEM to take over control of their "5th screen". On the other hand The boom of the Chinese E-commerce Economy along with the central policy of Beijing government of restricting foreign website in China gave birth to the Chinese Tech Giant know as BAT (Baidu-Alibaba-Tencent) controlling most of the digital ecosystem of China. In recent years, the BAT have entered the automotive value chain. In 2014, the Giant e-commerce website Alibaba acquired the Chinese map and service provider Autonavi for $1.5bn less than 9 months after it took 28% shares of the company. The same year, Baidu announced the launch of its proprietary solution, Baidu Car life, under integration by Audi, Mercedes, and Hyundai. In the past few years, Tencent, Alibaba and Baidu have been investing in a growing number of tech startups, in order to stay ahead in China's internet sector. Encourage by the Internet + policy of the Chinese government Tencent has announced he would build 25 start-up tech incubators around China in the coming years. China is leading the deployment of the Internet of Things and Machine to Machine technology. This success in due to various factors: a growing economy, targeted governmental investment and a controlled economy. Chinese government supports IoT deployment through the Twelfth Five-Year Plan. Beijing has set-up Smart- City project in Shanghai and Hangzhou to collect, store and analyses information related to transportation or electricity. The Chinese government wants to reinforce cooperation between the Telecom Operators and the OEMs in order to favour connected car market. Along with its wish to develop cleaner car technologies and promoting Electric vehicle in the cities, central government has recently published a regulation making compulsory the sharing of data coming from electric vehicles. Shanghai and Beijing have already set-up data monitoring centers with huge capacity in order to collect datas from various car manufacturers and actors along the EV value chain. By centralizing information on EV consumption, infrastructure usage and EV consumer behaviour, the municipalities intend to manage from a Big Data perspective the promotion of electric vehicle usage in the cities.

EIPM: So back to your own experience, How did the UX Lab & the CarEasyApp Accelerator emerged?

In the field of connectivity, Customers were facing various players and brands, sometimes in partnership but often in competition. Offers and innovations came from App Developers and Service Providers. And yet, few solutions using vehicle data exists today on the market. Due to the variety of solutions among OEM and their closed API ecosystem, car-centric applications were not attractive to for APP developers.

Since 2009, the PSA Innovation Department has joined a consortium, Car Easy APP (CEA), aiming at defining a standard communication protocol between the car and an external connected device. Coupled with an open sourced solution developed by Ford, Smart Device Link, the technology Car Easy APPs, in the absence of Android Auto in China, is an answer for OEM to regain power in the value chain. We have focused on the creation of a dedicated Lab on Chinese User Experience, including an Accelerator program to create a favourable environment to the development of an integrated solution.

With Car Easy Apps, the PSA group has in hand a developer friendly environment in China. An alliance between Ford, PSA and DFM, enable the scalability of the eco-system and bring opportunity for standardization across the industry.

EIPM: What is a startup accelerator programme?

Startup Accelerator programs have become popular over the past years. They have now been adopted by many large corporations. A Corporate Accelerator programme last for a few month, it builds on multiple interactions between the big firm and the startup and it entails an intense mentoring investment program. It is a partnership where the corporate sponsored Accelerator help tackle specific issues faced by the industry or develop an ecosystem around a core technology.

EIPM: Why was an accelerator a viable solution in your context

The innovation team I was managing during my stay in R&D had already started to work for a year on connected services, launching successful open innovation challenges on 'Big Data' and 'Gamification'. We collected many ideas from those challenges, now was the time to implement, transform ideas and studies into real connected services. But quickly I was faced to the fundamental time-to-market difference between the 5 years needed to develop a car versus the 3 months we needed to develop an APP. All the processes around us are designed for car-as-a-product: engineering, sales even the purchasing process, good for parts purchasing do not make sense in the field of working with a start-ups. My Colleagues performance measures were based on the number of car sold and few people, in the current economic context had time to dedicate to the digital activity that very few understood. Looking at others industries past example, the growth of the tech giant today, we concluded the main issue is not the collection of ideas but mostly the fact that PSA did not have a the proper agile structure for scooting, designing and testing at a small scale in a 'test & learn' approach, new concepts, business or services.

EIPM: So what are the objective of this accelerator?

The Car Easy APP Accelerator program of the China User Experience lab, its mission is to enrich the ecosystem around Car Easy APP. Our role is to scout, invest and support promising start-ups in the fields of car-centric application for smart cities. We bring insights to the Group, we support the creation of user-centric applications. We experiment with new business models that lead to revenue generation.

EIPM: What are the key success factors for an accelerator programme in this dynamic environment?

For a corporate accelerator program to succeed, the corporation needs to give the necessary independence to the Accelerator/ Innovation Lab for it to work at the same pace of the start-ups. It needs to be given the same agile, test-and-learn environment where it is OK to fail. The key success factor of a good accelerator is first the people and the involvement of the mentors in the program and throughout the start-ups. Allowing a start-up to integrate your accelerator program is expensive, apart from covering the cost of the program; the accelerator usually trades a percentage of equity in exchange for seed-funding (from 10k to 60kE). When focusing on an Accelerator promoting the creation of start-ups around a certain technology, the corporation also needs to promote the expansion of this technology and its ecosystem and not limit it to its own product.

EIPM: What are the skills you need to lead such an enterprise?

Firstly you need to be start-up minded, think as an entrepreneur, and understand their problems. People in big corporations capable of launching a new organisation on their own are also referred as intra-preneurs. This also requires good interpersonal skills and leadership in order to align the various actors (mentors, start-up, VC, corporation) on a vision and work in a matrix organisation.

The new landscape!

Previously our ecosystem was quite clear cut. It consisted of systems processes and people. Now many more components with changing degrees of urgency and importance are part of our ecosystem. The challenge will be to stay on top of all the components and we need to adapt. Chains are turning into cycles, outcomes rather than input, collaboration, data mining, automation, new players and disruptive players will drive the emergence of a new procurement generation. There will be a lot of change, challenge, and excitement.

As Purchasing Managers, Executives, CPOs we need to ensure we connect all components and that we enable our people to deliver in this environment. It is within our ability to shape and drive this.