

# THE **AGILITY** EFFECT

MAGAZINE

IS INNOVATION  
THE ENEMY  
OF MAINTENANCE?

CARLOS EMILIO GOMEZ  
"AGILITY  
IS A MINDSET"

THECAMP,  
"CREATING  
THE FUTURE"



**"AS A SERVICE",  
THE NEW  
REALITY**

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## EDITORIAL

The world is changing. And fast. For VINCI Energies, the starting point for this new medium, named The Agility Effect, which is available both as an online information platform and a twice-yearly magazine, was a desire to look closely at world developments. And in particular at energy transition and digital transformation, concepts at the very heart of so many of these developments. We believed it was necessary to explore subjects using a multifaceted, multidisciplinary approach, as a way to achieve a better understanding of the changes and needs at the city/building/industry level, and to measure the scope of the opportunities offered by new services in the energy sector or by information and communications technologies. We also felt it was crucial to see how changes take place, and how they transform and accelerate our environments; to find out how, and through which players, innovation is brought to fruition most efficiently; and to determine to what extent usage patterns are becoming increasingly important and are guiding our decisions. This new medium is produced for and with our clients and partners in a transparent manner. Theagilityeffect.com is available online, and features new content every week. A selection of articles will be published in this magazine every 6 months. I hope the material makes for interesting reading.

Yves Meignié  
Chairman and Chief Executive Officer



## AGILITY PICTURE

# THE FACTORY OF THE FUTURE PICKS UP PACE

The industry of tomorrow is at the centre of two initiatives that were unveiled back-to-back at the end of September 2016 at Paris-Saclay (France), the science and technology cluster to the south of Paris. Factorylab, which is managed by the French Atomic Energy Commission (CEA), is a testing ground for the developments driven by new technologies.

The CEA is supported by institutional and industrial founding partners, including Actemium, the VINCI Energies industrial performance brand. The other initiative, from Boston Consulting Group, is the Innovation Center for Operations, a pilot factory based a few kilometres from Factorylab on the same Plateau de Saclay.

# THECAMP, “CREATING THE FUTURE”

**In Aix-en-Provence, on the boundary between the country and the city, a new-generation international campus will open its doors in a year’s time. This ambitious project, of which VINCI Energies is a founding partner, reflects the growing importance of issues relating to smart cities.**

Introducing “thecamp”: this project, set in Aix-en-Provence, was inspired by initiatives dedicated to transformation, such as the Singularity University in Silicon Valley and the Center for Urban Science and Progress in New York.

**Open 24/7, it will welcome students, renowned speakers, executives, leading business figures, chiefs of state, and Nobel Prize winners**

Located near La Montagne Sainte-Victoire, thecamp will be a gigantic hub of collaborative projects focusing on the smart city and transformation. It will also be an alternative international location for innovation, experimentation, and development – at the same time a thriving laboratory and a stimulating living environment.

The figures are eloquent enough: thecamp is seven hectares of land nestled in splendid natural surroundings, 12,000 m<sup>2</sup> of buildings, 250 residential units, two restaurants, and a budget of 80 million euros.

Open 24/7, it will welcome students, renowned speakers, executives, leading business figures, chiefs of state, and Nobel Prize winners. It will be a place where researchers can focus on their work and where companies can develop new technologies and carry out initiatives in conjunction with players in the environmental, transport, energy, education, and health care sectors. Building on partnerships with local communities and national governments, thecamp will conduct large-scale experiments on emerging urban practices.

While dedicated to high-level work, thecamp will also be a relaxing, inspiring, and friendly place, where architect Corinne Vezzoni has allowed nature to put its stamp on the site’s design, including





# ANGERS, A SMART CITY LABORATORY



the abundant use of wood and translucent materials, and the generous presence of green spaces.

## Public and private founding partners

The person behind the project is entrepreneur Frédéric Chevalier, founder of the HighCo Group, which specialises in digital marketing. "Cities have become humanity's predominant ecosystem," states Frédéric Chevalier, who has a passionate interest in urban development. "As a result, they confront us with significant challenges that have critical consequences. Cities raise complex, diverse, and intertwining ecological, scientific, and social issues that require collaborative approaches. We cannot tackle these issues in isolation. Collaboration is the key, and fostering collaboration is thecamp's mission."

According to the American Academy of Sciences, urban areas worldwide will triple in size by 2030, covering more than 1.2 million square kilometres. The planet will then number 37 megalopolises, each with a population of 10 to 30 million. To initiate this project, Frédéric Chevalier invested 12 million euros.

A group of public and private founding partners, including VINCI Energies, has also invested in this ambitious project, whose delivery is set for spring 2017 and whose launch will occur in September 2017. According to projections, thecamp will create some 150 direct and indirect jobs.

## Going from "think tank" to "do tank"

As a public-private partnership initiative, thecamp has brought together founding partners from various backgrounds, including communities, start-ups, and major companies such as VINCI Energies. "We share thecamp's philosophy, which provides a virtuous circle driven by economic players, public-sector players, and trainees of varying age, young and old, including company personnel, who, together, will build the city of the future," states Lydia Babaci-Victor, Director, Development and Innovation at VINCI Energies (1). "We need to conduct experiments on twenty first century urban development in a setting that is free from the pressure of commercial imperatives – that's fundamental. We need to move from think tank to do tank." 1 La Tribune, July 3-9, 2015

## Angers, a city in western France that is a pioneer in the field of geographical connectivity, has launched a collaborative platform for experimentation in the internet of things (IoT).

In addition to its commitment to the development of smart and connected cities and its recognition since June 2015 as a "French Tech" (as an active participant in France's start-up market), Angers is attracting attention once again thanks to a novel programme called PAVIC, which was launched on 21 April 2016. The programme is ambitious: it seeks to lay the foundations for a future smart city using an actual size IoT experimentation platform where business entities (start-ups or major companies)

can get the logistics support they need to deploy their innovations, including hosting, user panels, infrastructure and technical support, partner networking, administrative authorisations, and access to public data.

The platform is designed as a collaborative resource – both in terms of use and governance. Its partnership model brings together the city of Angers, the Angers Loire Métropole urban community, the trade and industry board for the Maine-et-Loire region as well as academic partners, namely, three engineering schools specialising in electronic and digital technology (ESAIP, ISTIA, ESEO).

Last but not least, companies are also included in the platform.

WifiLib, which specialises in total wi-fi coverage and uninterrupted mobile service, is working on aggregating data generated by connected objects. Lacroix is developing new solutions for detecting human and mechanical movement using wireless sensors. In conjunction with Cegelec, these companies are putting their expertise to work for traffic control and public lighting. Another project leader, Octave, is working to deploy connectivity solutions in support of businesses' transition to the omnichannel universe.

In all, PAVIC is already handling some fifteen projects in complementary fields of application.

# BROOKLYN RESIDENTS INVOLVED IN SCHEME TO SELL THEIR OWN ENERGY

**Blockchain technology could be as big a revolution as the internet, and the household energy market is right at the forefront of it. The trendy New York neighbourhood of Brooklyn is the testing ground for a peer-to-peer electricity system.**

The first practical applications of blockchain, the system that underpins the bitcoin currency, look promising and are already helping to solve certain conundrums relating to “clean” energy supply. The start-up TransActive Grid set up a system this spring in New York’s Brooklyn neighbourhood to enable consumers whose homes are equipped with roof-mounted solar panels to sell their excess energy to their neighbours, without intermediaries.

**The home electricity producers set their prices themselves**

The equipment transmits the number of electrons generated in real time to the IT system, this data is then registered on the blockchain.



Households wishing to buy electricity connect to the platform of this secure log, select the amount and price that suits them best, then validate the transaction. It’s as easy as buying groceries!

The home electricity producers set their prices themselves according to what kind of profit they want to make or whether or not they want to offer preferential rates to lower-income households. This peer-to-peer grid is fully secure thanks to the decentralised nature of blockchain technology. A blockchain is a record of transactions comprising unique identifiers – a sequence of numbers

and letters – which are generated mathematically following a highly complex “mining” process.

To validate a transaction, each identifier must be confirmed by the relevant computers using a synchronisation principle. This decentralised system of energy generation is highly resilient in that it can potentially protect households in the event of severe weather conditions and natural disasters.

## New reality

Big utility companies will have to adapt to this new reality sooner or later. At present, energy generated by utility grids cannot be exchanged, but peer-to-peer transactions are on the horizon.

“There’s an opportunity for big suppliers to evolve their business models to include blockchain,” explained the CEO of TransActive Grid, Lawrence Orsini, to the Fast Company website.

The rules of free market are clear: “You can pay anybody anything you want for whatever they have. It’s not a transaction across the utility grid, it’s happening above the utility grid between people. Until the policy changes, you’re not going to be able to transact that through a utility grid.”

Other tests of the same kind have been undertaken in recent months in Europe, for example the Grid Singularity and SolarCoin schemes.

Besides being used in the energy sector, blockchain is also now being applied in a number of other sectors and particularly in banks, whose original role as intermediary in financial transactions will undergo a step change.

# BIM IS SET TO CONQUER FACILITY MANAGEMENT

**Augmented maintenance, new features, new uses, improved performance – Building Information Modelling (BIM) has made quite an entrance into the operations process.**

How far will BIM go? Building Information Modelling, which is now widely used by contractors, design and study offices, architectural firms, and construction companies, has taken a further step along the building value chain. This 3D modelling tool, which enables the sharing of information around a digital model, has been ushered into the field of building operations processes. Welcome to the era of BIM FM: Building Information Modelling for Facility Management.

The first large-scale application was implemented by VINCI Facilities with Thales at its Vélizy-Villacoublay site in the Yvelines (France), with participation from Foncière des Régions (the owner of the building) and VINCI Construction France. This is a 49,000 m<sup>2</sup> space designed to test and assess BIM FM functionalities, establish prerequisites, evaluate impact, and envision new applications. And the results are plain to see. Digital modelling fosters augmented maintenance, with

gains both in terms of technical operations and performance. Less time is spent on technical activities, there is minimal inconvenience for occupants, and operators enjoy greater autonomy. In addition, there is more accurate costing of services and works, as well as a more detailed monitoring of technical facilities.

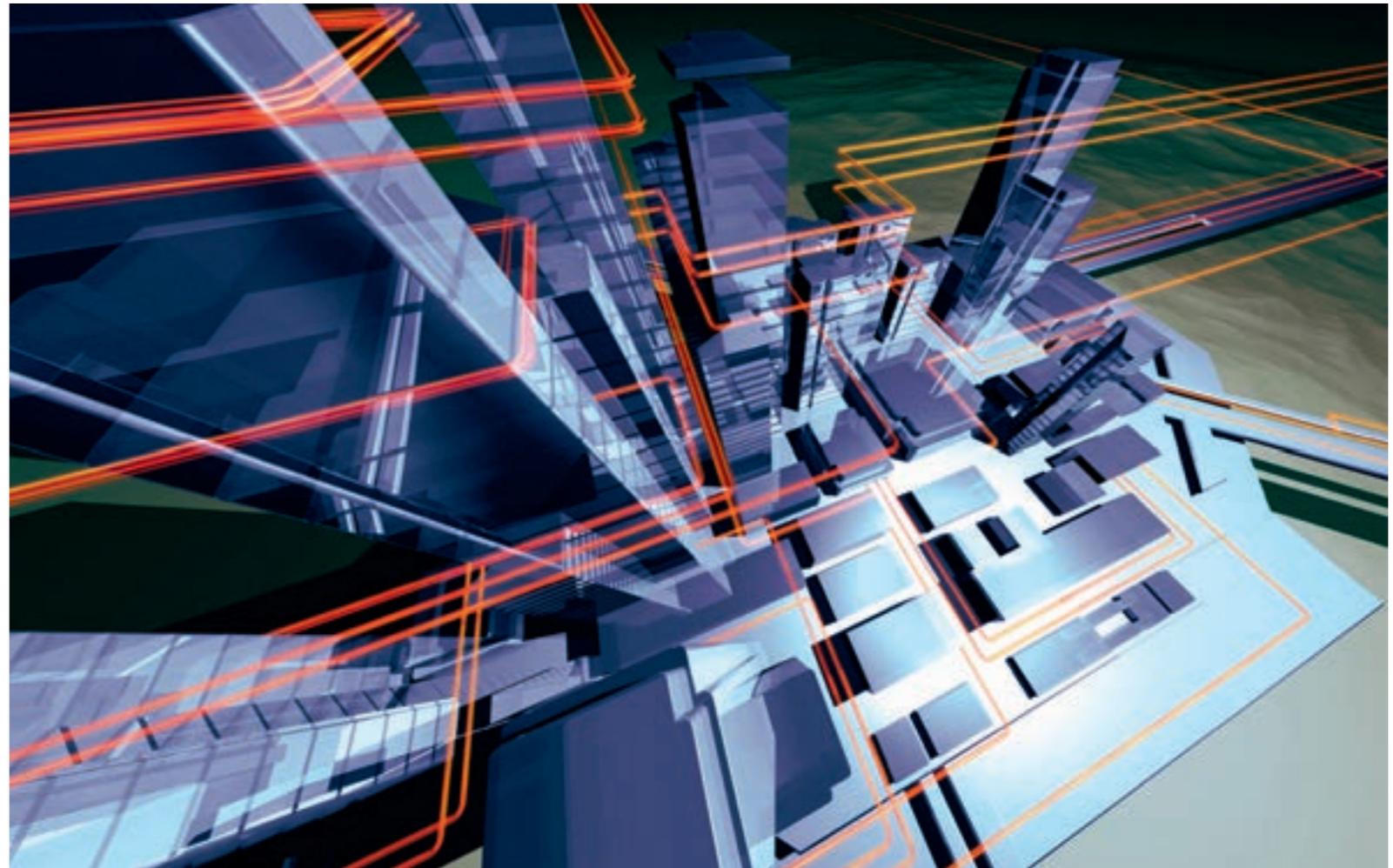
**“Digital modelling optimises maintenance operations for managers and provides new purposes for users”**

“Digital modelling optimises maintenance operations for managers and provides new purposes for users,” states David Ernest, Innovation & Energy Director, VINCI Facilities. The most immediate potential uses include geolocation for the purposes of technical management

or the delivery of services to occupants, dynamic space management, space planning, asset management, and thermal simulations (for optimal energy efficiency).

New uses require new skill sets. New professions will emerge as BIM FM takes hold, including BIM FM manager (ensuring the validity of data for the FM, owners, and occupants), BIM FM modeller (overseeing updates to the digital model), and assistant to the BIM FM project owner (responsible for integrating BIM in the property management process and in pre-project phases).

“BIM FM will not only give rise to new employment positions, it will revamp our industry, integrating more data and information, more detailed analysis, and more accurate calculations. It will also allow us to apply our expertise more widely and across the building’s life cycle,” as points out David Ernest.



# A “CARBON-ENERGY” LABEL FOR BUILDINGS

**The buildings of the future will not only consume less energy – they will also reduce their carbon footprint.**

Until recently, the building industry’s contribution to environmental protection was essentially limited to the High Quality Environmental (HQE) Standard, which focuses on buildings’ energy use. In early July, the French Ministries for the Environment, Energy, and the Sea and for Housing and Sustainable Habitat complemented the HQE standard with a carbon-energy label that takes into account CO<sub>2</sub> emissions.

## **Positive energy and low-carbon-emission**

As Emmanuelle Cosse, the French Minister for Housing and Sustainable Habitat, stated when the label was launched, this approach “is designed to bring together the issues of positive energy and low-carbon-emission buildings.” Positive energy measures the difference between buildings’ consumption of primary, non-renewable energy and the energy they produce.



Measuring a building’s carbon footprint is a matter of adding the carbon emissions of each of the building’s components, that is, the quantity of CO<sub>2</sub> released in producing, transporting, and implementing these components. A lighting fixture has a given carbon value. A wood structure’s carbon value is different from a concrete structure’s carbon value. The carbon footprint of wood is three times smaller than that of concrete.

**Wood is emblematic of carbon reduction, a cause that players in the building industry are encouraged to adopt**

“Carbon is becoming a critical consideration,” states Arnaud Scalbert, Director in charge of the animation of Service Sector Network, VINCI Energies, underscoring the advances made in the use of wood. The seven-storey Perspective building in Bordeaux, set for delivery in 2018, is a wood construction, making it the tallest such structure in France – that is,

until a seventeen-storey building project is completed.

The use of wood, which is an imaginative option, is still a marginal practice in office construction and development, but it’s not rare. Wood is emblematic of carbon reduction, a cause that players in the building industry are encouraged to adopt.

Though the carbon-energy label is still at an experimental stage, it could be awarded as early as autumn 2016 to companies wishing to engage in exemplary practices. “Due to its positioning as a supplier in the technical finishing phase, VINCI Energies is not at the forefront of projects, but we can still be proactive on this matter,” asserts Arnaud Scalbert. In his view, the inclusion of the carbon label in buildings’ thermal regulations represents an opportunity to “help our clients stand out from the competition” and “allows us to work closely with them” to include this new expertise into the building life cycle.



## AGILITY **LEADER**

CITY

ACCELERATION

# “AGILITY IS A MINDSET”

**Masterminding the development of a navigation application in Europe requires flexibility and speed. That is the job of Carlos Emilio Gomez, 33, based in Madrid, for Waze.**

Waze is accelerating. Since its acquisition by Google in June 2013 for \$966 million, the GPS-based geographical navigation mobile application created five years earlier in Israel, has gone a step further. 65 million users now use it, mainly in Europe. Next target: the United States. Based on maps built up by its own users, Waze takes into account the road traffic, updated in real time. Agility is the core model.

“For us, agility is critical because of the size of our driver-community,” says Carlos Emilio Gomez, ‘Senior Lead of Growth’ at Waze Europe. “They are building our application, they are giving us data, and we need to read, edit it, and get their maps updated in real time. Their data needs to go into maps quickly and that means we have to create solutions and processes that are very easy for them to edit.”

## Feedback, a key element

Spatial intelligence of drivers using Waze is then optimized, and adds to the satisfaction that passengers experience on-board.

Traffic flow, incidents, and roadworks are notified to users, who can choose the best possible routes, recalculated accordingly. Maintaining a permanent interaction with users is essential, their feedback is the propellant of the app.

## “More agility means we can experiment faster”

“For us agility is a mindset”, Carlos Emilio Gomez explains. “But it’s also an attitude on how we do business. More agility means we can experiment faster, bring in new features, bring new products onto the market and the community, at the right time. That means impact for the users, impact for the application. With this agility we can get everything they want to tell us in real time.”

“As the organisation grows”, he adds, “the amount of noise and obstacles grows,” he adds. “So it’s very important to focus on agility, to be very quick. You need to focus, you have to try every day to make it happen.”

## Management models

Team management is a key element in the agility of an organisation. But Carlos Emilio Gomez does not have a magic formula. He works with various management models, depending on the context. For example, “we have these standing up meetings where we share what’s happening on the day and we keep everyone connected to each other, with small goals that are

relevant to that day.

We also work in three-week development cycles so every feature we launch is developed in three weeks. This agility enables us to innovate faster.”

As a seasoned team manager able to build teams of 15-20 members from scratch, Carlos Emilio Gomez insists: “It’s all about culture, of what kind of people we hire in our teams. We need people who have the right culture, the right mentality, who can work easier in an agile way in the team, and with users and customers. If you can spread this culture of agility, everyone will follow, and you will not have obstacles. If you don’t have this attitude, obstacles will come up naturally, tensions will grow. With the wrong kind of mindset, obstacles pop up much faster.”

Agile methods and creative thinking are clearly the best way to respond to unpredictability, to optimize traffic fluidity and to catalyse long-term urban space transformation.



# “AS A SERVICE”, THE NEW REALITY



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**THE CLOUD, THE PROMISE OF BUSINESS AS A SERVICE**

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**As a Service. The expression has become the credo of proponents of a new approach to the way in which relationships, information and business are balanced within companies. It’s a buoyant market, but one that is still developing.**

Originally, the expression “as a Service” comes from the acronym SaaS, or Software as a Service, a model in which a supplier remotely hosts a web-based software that is delivered over the internet and charged according to usage. The term spread rapidly to different areas of IT services: Infrastructure as a Service (IaaS) and Platform as a Service (PaaS).

The various as a Service platforms already represent a real market. According to a recent press release published by the firm Gartner (January 2016), the sum of the solutions used by businesses for online storage of data and applications on shared servers should generate \$204 billion in business in 2016. And high growth rates are expected for as a Service platforms: 20.3% for SaaS, 38.4% for IaaS, 21.1%

for PaaS and finally 24.7% for IT security services.

**At the crossroads of major challenges relating to the triple digital-energy-social revolution**

The model offers real advantages: extremely low set-up costs compared to investments in “traditional” solutions; an often less expensive total service cost, with operational costs included; and a scalable pricing structure depending on usage levels.

Where as a Service can truly grow in scope beyond Business Process as a Service (BPaaS), which is modelling business functions one by one (HR,

accounting, logistics, etc.), is in the ability of businesses to extract these new production and usage models from the confines of the field of IT and apply them to entire areas of activity: Industry as a Service, City as a Service, Energy as a Service, and so on. This puts as a Service at the crossroads of major challenges relating to the triple digital-energy-social revolution.

**Cloud at the epicentre**

At the epicentre of all this is cloud computing. More of a concept than a service, cloud combines outsourcing with digitisation, opening up immense possibilities for new business models based on moving and sharing resources. In this respect, as a Service can be considered a catalyst for a new service economy, a usage-based economy and a function-oriented economy.

The path may appear to be mapped out, but there are many obstacles yet to be overcome. “Enterprises are

facing enormous challenges from the digital business evolution and other competitive forces to increase revenue and decrease costs while improving the client experience. But there’s still not enough of a burning platform – or capability – to drive change in the near term,” stresses Michael Corcoran, senior managing director, Global Growth and Strategy, Accenture Operations. In July 2015, the firm published a study entitled “Opportunities in the Emerging as a Service Economy”.

**Breaking down barriers**

In order for the as a Service model to filter down to the major markets, driving innovation, a number of barriers – whether technical, cultural or organisational – must be broken down within businesses.

For companies, the gradual migration to a service-based approach does not involve mobilising all stakeholders from the outset. A more agile way is to opt for graduated approaches and

investments. Making best use of the technology’s potential helps to simplify processes, to support data analysis and to model organisations on internal and external usage.

For VINCI Energies, as for most large industrial groups, this represents a major change in the way in which offerings are built and markets are understood. Not only that, but it also offers significant opportunities to develop the value chain in favour of the most agile and innovative companies.

## AGILITY FOCUS

CITY CUSTOMIZATION

# TOWARDS LIGHTING AS A SERVICE

**In time, towns and cities may no longer own their lighting infrastructure, but will instead buy access to levels of illumination.**

Cities will not only be part of the service delivery revolution, they are likely to be the most obvious source of the various forms of connected intelligence. Their size and their concentration and range of activities mean they represent a key laboratory for the as a Service approach. And this is a laboratory that businesses are especially interested in since it meets B2B2C requirements. "Our offerings will be increasingly geared towards end-use service proposals that satisfy both our local and regional authority clients and their general public clients," explains Xavier Albouy, director of the Citeos brand of the VINCI Energies group.

The first urban application of the as a Service model will probably be seen in public lighting. Cities will no longer own lighting assets, as the acquisition and operating costs will be covered by their suppliers and service providers who will guarantee a level of illumination. Authorities will only be purchasing access to light. "This type of service contract doesn't yet exist at city level, but it is already being used in the private sector by property managers or

owners," points out Xavier Albouy. For instance, Schiphol Airport in Amsterdam no longer invests a single euro on lighting its terminal; it simply buys access to a light level.

### LED lighting leads the way

In the space of a few years, LED technology has had a substantial impact on both private and public lighting networks. With a semiconductor chip as their light source, LEDs can be easily controlled and enable connectivity. As a result, using IoT across all outdoor urban lighting facilities makes it possible to monitor in real time the state of connected bulbs and to control intensity and hue using just a smartphone. This flexible solution helps manage energy consumption and optimise infrastructure maintenance more effectively.

However, for local and regional authorities, migration to connected LEDs represents a substantial investment. "We are developing LED lighting service solutions that include a guarantee to cut energy

consumption in half," states Xavier Albouy. To work to optimum effect, this performance guarantee involves migrating all assets to LED. "The investment is not insignificant, but by halving the energy bill over a two to three-year horizon, the amortisation period is also reduced," adds the Citeos director.

### Let there be light

Another idea being examined for cities is li-fi (Light Fidelity), in other words data transmission by LED light. Bulbs will have geolocation capabilities, enabling information

to be sent to pedestrians or drivers with smartphones to help guide them from A to B and to enrich their "street experience". Light is therefore set to become a source of intelligence for cities, delivering better road visibility and safety, reducing energy consumption and operating costs for outside areas, and pushing local authority alerts to residents' smartphones. Furthermore all of these applications will be increasingly managed by service providers as part of comprehensive offerings that will gradually start to incorporate an as a Service approach.



INDUSTRY PERFORMANCE

# WILL “INDUSTRIAL MANAGEMENT SERVICES” BE NEXT?

**As a Service contracts are starting to emerge, albeit hesitantly, in the manufacturing world. Chemical leasing in particular has made its debut in some European plants.**

Connected supply chains, breakdown predictability, equipment maintenance flexibility, broader consideration of customer requirements... These are just some of the ways in which Industry 4.0 is radically changing industrial facilities. And although CAD/CAM systems, sensors and 3D printing have made significant inroads into production lines, it's less about getting rid of machines than about introducing new ones. So does the manufacturing sector's receptiveness to digital technologies stop at manufacturing processes or might industry, too, be open to a transformation of its business models?

Clearly, the industrial world starts in adopting the as a Service approach. Because it is in their culture to be attached to their equipment and infrastructure, manufacturers remain focused on the concept of ownership.

## As a Service contract

Still, an increasing number of businesses are making the change, and instead of buying lighting systems, printers and computers, they are turning to leases that offer light, per-page printing, and storage capacity.

As a Service contracts are also starting to reach the chemical resources sector. Indeed, chemical leasing has already been adopted in a few facilities. Under this system, it is no longer a question of plants buying detergents but a cleaned surface area, or of ordering paint cans but a volume of painted parts, or of being billed for solvent weight but for a quantity of treated metal parts. In this as a Service industry model, which is currently in place across several Renault, SAFECHEM and BASF Coatings Services sites, the supplier retains ownership of the chemical that it leases to its customer.

## A virtuous model

This is proving to be a virtuous model in terms of resource efficiency. In conventional models, suppliers are encouraged to sell an ever-greater amount of products to boost turnover. However, with chemical leasing, the cost structure is reversed: it's no longer the customer who pays for products consumed, but rather the supplier – who will seek to reduce quantities to increase profit.

In Europe, Germany and Austria have started to assess the impact of this on their industrial sectors. In the US, businesses have been turning to chemical management services (CMS). In this business model, customers buy chemicals and related services, in other words supply, transport, inventory management and management of end-of-life chemical products. Suppliers are paid on the basis of

the quality and quantity of services provided so as to reduce resource consumption. So will “industrial management services” be next?

## Actemium, a key player in the industry of the future

As a Service industry technologies such as IoT, robots, cobots, augmented reality and cloud computing, have already been partially integrated into businesses. But a migration to the “factory of the future” requires specific expertise. From design and installation through to maintenance, Actemium assists a large number of businesses with their industrial performance

strategy. This includes setting up collaborative robots (cobots) to support packaging at the Valeo plant in Amiens (France) and handling at the Snecma plant in Gennevilliers (France); installing decision support systems to manage the Val-de-Marne (France) wastewater network; and producing virtual digital models for the A320neo assembly workshop at the Airbus plant in Hamburg (Germany).



## AGILITY FOCUS

BUILDINGS

CUSTOMIZATION

# FORGET CONVENTIONAL COMMERCIAL LEASES?

**Using a pay-as-you-go system for a ready-to-use workspace is becoming more pertinent to businesses than renting floor space. This as a Service approach must be integrated at the design stage of future buildings.**

The uberisation of the economy is forcing businesses to accelerate the adoption of digital technology, not just in terms of information system updates and big/smart data integration, but also in terms of habits and human relationships.

It's more of a cultural revolution than a transformation in IT behaviours. Collaboration, roaming, disruption, social media, interoperability, simplicity and agility are the key words from this paradigm shift that are leading businesses to rethink their property approach.

"Businesses wonder the relevance of a conventional commercial lease, whose inflexibility and content don't meet all needs in the current context," says David Ernest, Innovation & Energy Director at VINCI Facilities, before adding: "What they want is to have a particular working environment for a given number of people and a fixed period of time." The pay-as-you-go

model for ready-to-use space may become more relevant than renting square metres.

### Plug-and-Play model

The capacity to continuously adapt resources must no longer be the sole preserve of start-ups. Agility is a key competitiveness factor for businesses, which must be able to innovate and react just as easily as its young challengers.

"For example, a company with unoccupied floor space will be able to let it on a serviced basis for a limited amount of time. Conversely, a company moving into a building will allow for additional floor space in order to let service areas which, if necessary, will enable it to spread out when the times comes," points out David Ernest.

This modular and scalable approach will be all the easier to implement since building contractors will have

integrated it at the design stage. "It's with this in mind that VINCI Energies designs its buildings, so that they are ready to receive all types of service," says Arnaud Scalbert, Director in charge of the animation of Service Sector Network in France, VINCI Energies, who believes that the key aspects of a real plug-and-play service delivery model are simplicity and interoperability.

### Well-being

With the Building as a Service model, "it's no longer a case of the client renting floor space but of buying services," resumes David Ernest.

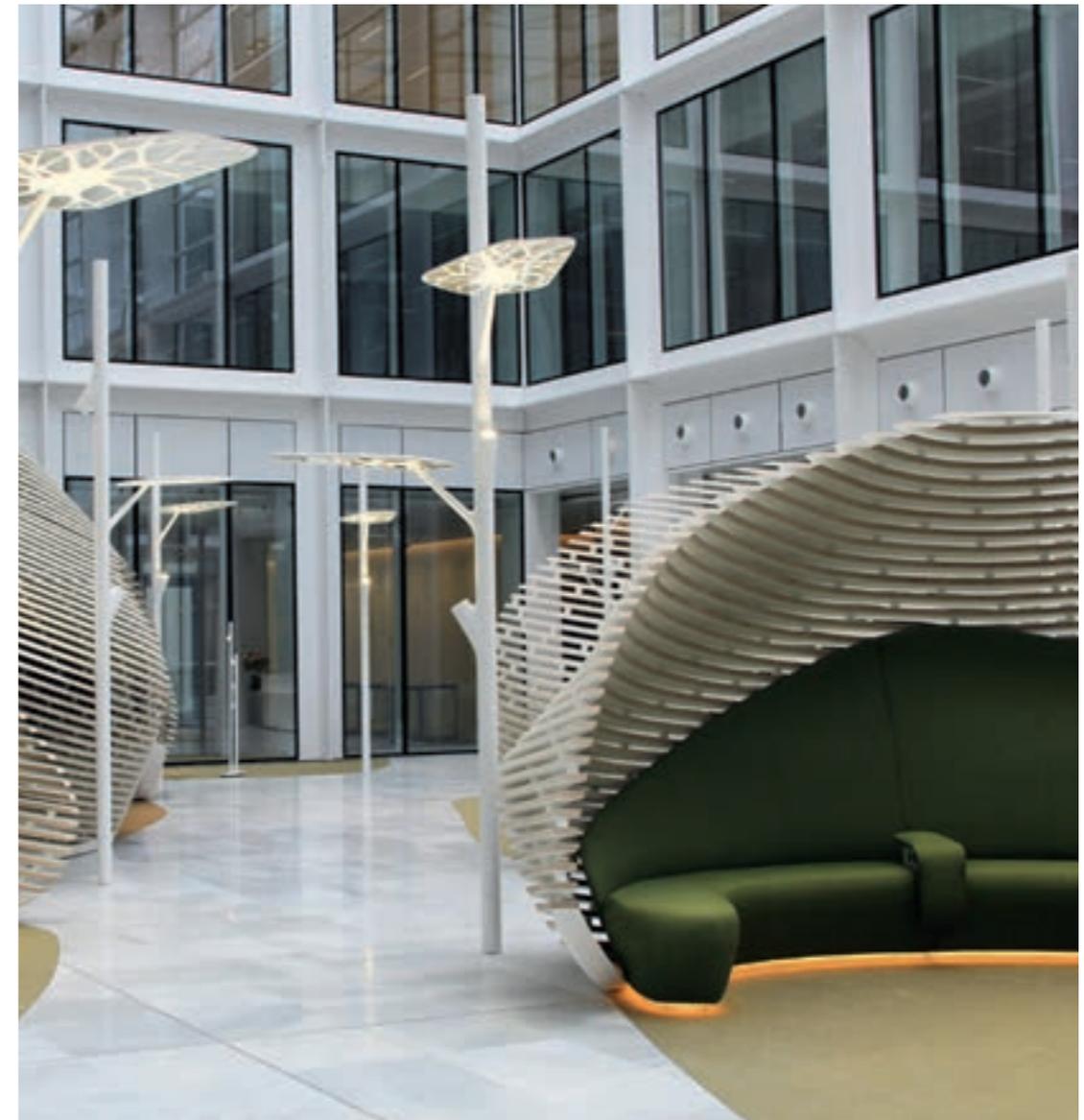
VINCI Facilities has a number of strengths in this area. Backed by a network of 120 companies, its strong presence across its sites means it is already in a position to manage issues such as multi-technical maintenance, front desk,

cleanliness, waste streams, room bookings, mail, etc., for businesses.

The as a Service approach has prompted it to fully integrate pooling and sharing practices and pay-as-you-go systems so that, in the future, it can manage flexible workspaces for its clients and cover the entire range of personal services, from dry-cleaning, massage and travel arrangements to organic food baskets. The "cultural revolution" linked

to digital technology requires redefined living and working patterns that fit with horizontal relationships, social media and a collaborative spirit. To engage with the young graduates who will invent the "Ubers" of tomorrow by working their way, the concept of well-being must become part of the HR and property equation. This well-being data is reflected in the WELL standard, which includes topics that will run through the

Building as a Service model such as water, nutrition, light, fitness, comfort, air and the mind.



ENERGY TRANSFORMATION

# DEMAND SIDE RESPONSE, A GATEWAY TOWARDS ENERGY EFFICIENCY

**Global electricity demand will double over the next 25 years. The task facing market players today is to show what monetary value can be offered by energy consumption management.**

More flexible, more proactive in maintaining a balance between production and consumption... Electricity networks, too, are getting smarter. And with good reason: "Whatever type of primary energy is used to generate electricity, worldwide demand will double within 25 years and the demand for operator services will become increasingly global," points out Olivier Monié, Director of the VINCI Energies group's Omexom brand.

**Demand for energy-efficiency products could generate €65-€80 billion per year through as a Service schemes**

Although offerings are set to become increasingly global, the development of as a Service models in the energy sector, and particularly in the electricity sector, faces three obstacles: the abundance of players across the value chain – from production through to delivery point; regulatory burdens; and the impact of monopoly positions.

Putting together as a Service offerings isn't impossible, but the focus will be on building segments of services within a highly fragmented ecosystem (producers, network operators and managers, energy suppliers, large electricity equipment manufacturers, power-intensive manufacturers, aggregators).

That said, the as a Service energy market does exist. Indeed, it's essential from an energy efficiency standpoint. According to a study by Accenture Strategy and CDP (Carbon Disclosure Project) published at the end of 2015, demand for energy-efficiency products could generate €65-€80 billion per year through as a Service schemes. Electricity operators would offset losses from a reduction in demand by capturing a share of this growing energy-management products and services market. One of the possibilities that has been examined most extensively is demand side response (DSR). The idea is to optimise infrastructure by financially incentivising consumers who agree not to use electricity at peak times, thus providing a solution to the ever-growing peaks in electricity consumption (which have grown by approximately 30% in 10 years). VINCI Energies has



acquired Smart Grid Energy, provider of energy asset optimisation and utilisation services for industry and local authorities. In the US, original solutions are emerging in this niche, like MeterHero, a Californian start-up established in 2014, which "resells" the savings generated by consumers to organisations engaged in sustainable development.  
**New service activities**

If the demand side response (DSR) concept is to expand, its proponents will need to show what monetary value can be derived from reducing consumption. Omexom monitors regulations and technology in this area, with the aim of staking out a position as a benchmark facilitator in the development of DSR. "This requires control and

instrumentation systems that check and ensure the configurations needed for DSR in the relevant consumers' homes. There are an increasing number of businesses who believe that energy efficiency, in particular, will drive the emergence of new service activities. We want to support them in this," explains Olivier Monié.

# THE CLOUD, THE PROMISE OF BUSINESS AS A SERVICE

**Increasing digitisation enables IT managers to make the transition from investment to operations; even better, it allows them to “resell” this model to their own internal clients.**

All functions within companies are changing quickly due to information technology: internal processes, supplier integration, broader business ecosystems, client relationships, new services, and new business models.

These transformations generate increasing demand for IT resources, which in turn must adjust to the pace of business. Flexibility and quick response are the main expectations of managers and users, who are increasingly central to the development of IT strategies and are targeted by “booming supply,” including the cloud and Business as a Service models.

## Goodbye “capex” and hello “opex”

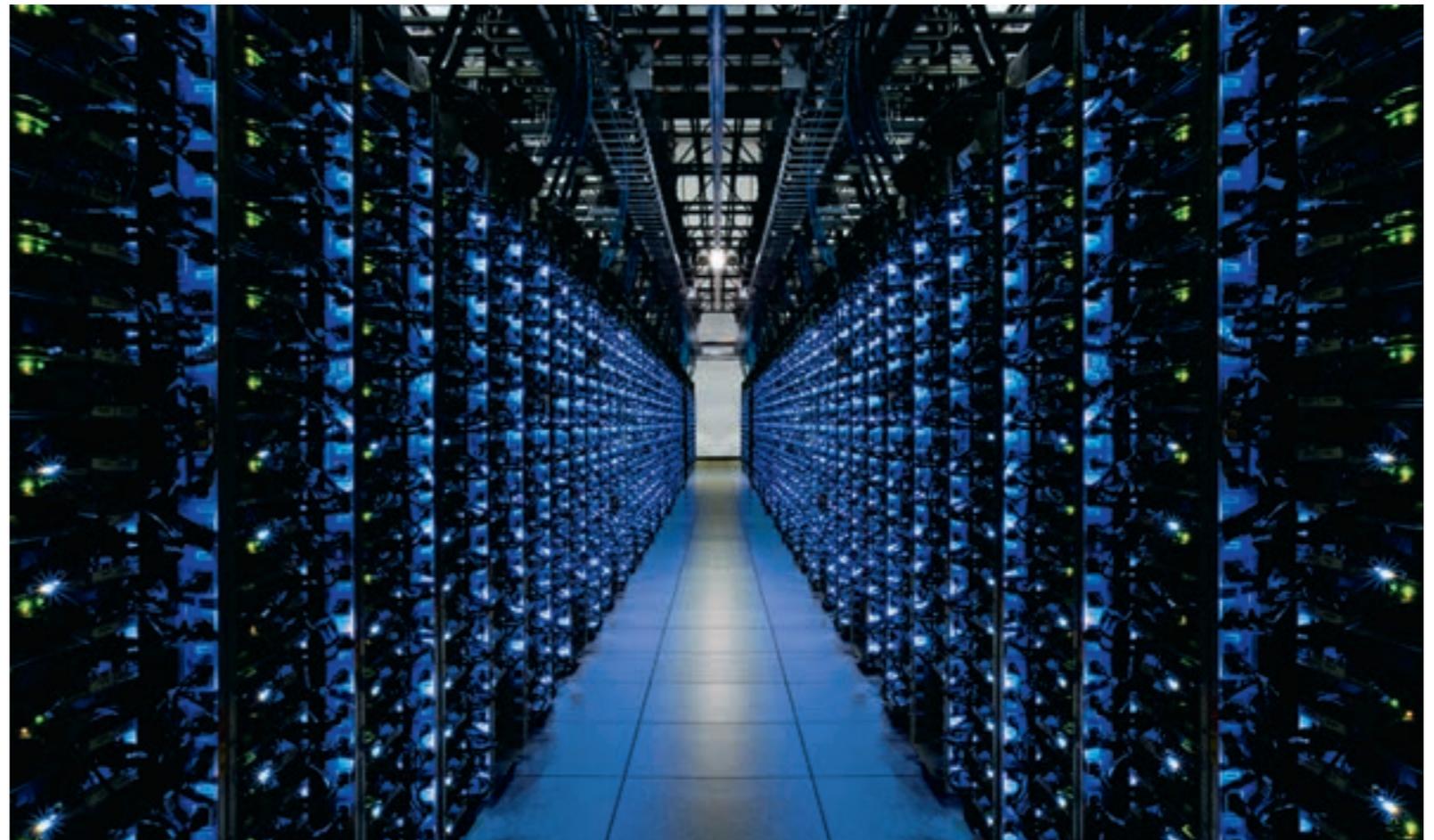
What can be more flexible than these solutions that require no further investment and are billed on a per-use basis? Thanks to

automation technology and virtualisation, all resources may be “software-defined” and deliver greater agility, thereby allowing managers to adjust resources to consumer needs in real time. This marks the end of “capex” (capital expenditures) and the beginning of “opex” (operational expenditures), where costs reflect the level of activity. Are we now living in an era where all users or company departments can define the solutions they need in just a few clicks and, thereby, configure the appropriate resources? Well, we’re nearly there, as Olaf Niemeitz, Sales Director at Axians in Germany suggests: “The IT manager at one of our clients did not want to use cloud solutions, but by conducting an audit of this company, we found no fewer than 1,500 cloud services. So, without a clear offer from the IT manager, users go into self-service mode, which leads to the development of shadow IT services.”

## Transforming the IT department into a service centre

Behind this apparent ease in obtaining services lurk major issues for companies including controlling costs, providing coherent solutions, and ensuring cybersecurity. IT managers play a central role in enabling companies to make the most of the cloud and Business as a Service offers. Most IT managers choose to transform their IT infrastructure into a service centre. By developing private cloud functionalities, they can put forward flexible solutions provided as a Service to their internal clients. They can also find the best hybridisation solutions with public cloud services, depending

on the applications and varying capacity needs. Providing coherent, secure, and cost-effective information and communication technology (ICT) Solutions as a Service is how IT managers are speeding up their companies’ digital transformation.



# ENERGY EFFICIENCY DRIVES COMPETITIVENESS

**A competitive landscape requires competitive performance, which is why efforts to improve energy efficiency are key to drive industrial performance.**

The challenges are high in the very competitive industrial sector. According to ADEME (the French Environment and Energy Management Agency), 20% of energy saving can be achieved by 2030 through investment in efficient equipment, the use of innovative solutions, and minimising energy waste.

Some energy-intensive industrial sectors would greatly benefit from an energy efficiency approach, including the food industry, which could achieve savings up to 29%.

## Lighting is a first step toward energy efficiency

This type of approach can be deployed in various forms and with varying scope according to the needs, maturity, and industrial strategy. It could include raising awareness among co-workers in order to reduce energy waste, implementing monitoring tools,

conducting energy audits, making changes and investing in new equipment which is more productive and consumes less energy, such as lighting systems.

While lighting is not the main energy consuming asset, upgrading it represents “a first step toward energy efficiency that is easy to implement with minimal investment, and gains at various levels,” states Juliane Jundt, Energy Efficiency Engineer at Actemium, the VINCI Energies brand dedicated to industrial performance.

By mapping energy consumption of industrial sites and analysing Energy Performance Indicators (EPI), energy audits provide actionable recommendations targeting technical operations, process control, and behaviour change.

As a complement to traditional audits, Actemium develops innovative solutions such as systemic audits in partnership with PS2E. By focusing on industrial processes, which represent two-thirds of energy consumption,



the systemic audit “provides a comprehensive in-depth view of the system, which is what is needed to uncover its inefficiencies,” states Paul Dède, Energy Efficiency Engineer at Actemium.

“Instead of focusing on major energy consumers, we use a reverse approach that consists in calculating the amount of energy required to produce final products and checking if equipment and utilities are sized and dimensioned accordingly,” points out Juliane Jundt. Raised awareness, innovation, and more efficient equipment add up to a smarter and more energy-efficient industry, this shall be the basis of the industry of the future.

### Systemic energy audit

From 2013 to 2016, Actemium has been a member of Paris-Saclay Energy Efficiency (PS2E). This research and training institute focused on energy transition issues was mandated by the French Government and the French Environment and Energy Management Agency (ADEME) to develop systemic energy-audit methods, in partnership with major industrial actors.

# HOW SPARTOO MANAGES TO PROCESS 1,500 PACKAGES AN HOUR

**E-commerce at Actemium is a logistics process that adapts to evolving needs, boosting its ability to prepare and handle orders.**

In e-commerce – more than in other trades – logistics is the very lifeblood of business. Logistics is sometimes confused with the mechanised supply-chain lines that convey products and packages at a regular pace onto trucks for delivery to the buyers’ front door.

The software-assisted brick-and-mortar facility is not essential. What matters – and this is something online shoestore Spartoo has understood, is continuous engineering, which has not only created this efficient process but has built agility and vitality into it in response to ever-evolving needs.

“Requirements evolve very quickly in this sector, and we need to be extremely responsive,” says Bruno Maisonneuve, Business Unit Manager, Actemium Lyon Logistics, which developed Spartoo’s mechanised warehouse near Lyon (France). The warehouse is calibrated to process 1,500 packages an hour. In order to enable Spartoo to meet requirements that change every day and even stay ahead of the change curve, “we at Actemium make almost zero use of outsourcing”, adds Bruno Maisonneuve.



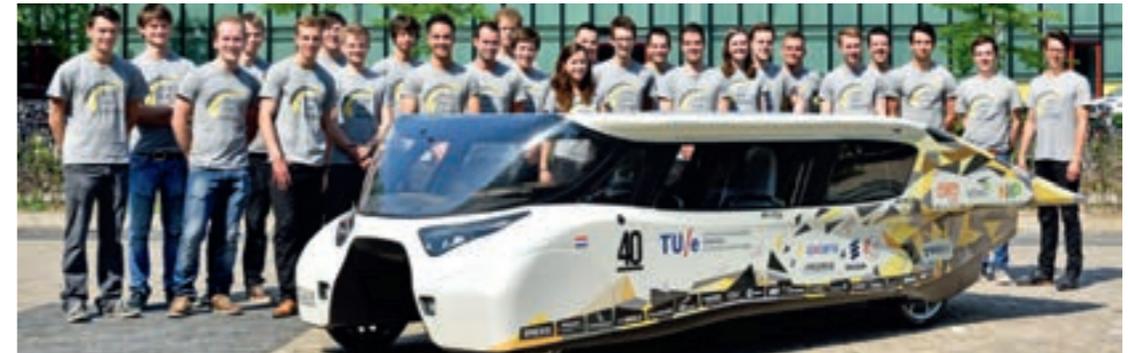
## Co-construction approach

Unlike most of its competitors, which focus on the production of mechanised lines, Actemium, VINCI Energies’ 100% industry brand, concentrates on engineering, brick assembly, and ever-evolving change.

This co-construction approach in conjunction with Spartoo to build a full RFID line has enabled a further deployment of innovation. In this 23,000 m<sup>2</sup> warehouse with four storage levels, we were able

to build in – not a conventional lift that would have taken up space and reduced output – but a rotating vertical elevator device in continuous operation, which has since been adopted by other clients. These clients include TopTex, a clothing brand for professionals, which signed a contract with Actemium after touring the Spartoo facility.

# WORLD SOLAR CHALLENGE: AXIANS ON BOARD FOR 2017



**The third edition of the World Solar Challenge, a race featuring solar-powered vehicles, will be held in 2017. Students from Eindhoven University of Technology (TU/e) in the Netherlands are preparing a novel car model with support from Axians Netherlands.**

Following its victories in the Cruiser Class in the first two editions of the World Solar Challenge, held in 2013 and 2015, the Solar Team Eindhoven has competed once again at this event in October 2017. A new team of 21 TU/e students is preparing a new kind of solar-powered automobile designed to race across Australia from north to south.

Once again, Axians, the VINCI Energies brand dedicated to Information and Communications Technology (ICT), is managing the geostrategic internal

communications system, an essential resource that enables the two passengers in the vehicle to pinpoint their location, anticipate potential obstacles, and maximise solar radiation uptake whatever the weather conditions.

## Stimulating innovation

The World Solar Challenge is much more than a frantic race where speed is the only thing that matters. “The objective is to stimulate innovation and show the world what can be achieved with technology,” says Jan van de Bovenkamp, Marketing Manager at Axians Netherlands. “Our dream is to build the car of the future powered solely by the sun’s rays.”

By 2013, it was already possible to travel the 3,000 km distance between Darwin and Adelaide using 64 kWh of electric power on average. This is much less than

the 1,500 kWh required by the most energy-efficient conventional cars.

Repeated participation in the event fuels progress. “We know that many key improvements will be achieved in the years to come in terms of distance, speed, and feasibility,” states Jan van de Bovenkamp.

As a result of Solar Team Eindhoven’s insistence on designing a prototype every year, Axians has had to redefine the dashboard’s wi-fi systems. Consequently, experts at Axians have been able to explore new avenues of development and make the most of their mental agility and creativity.

# THE IOT: SEEKING COMMON GROUND

**To achieve optimal development and innovation, the connected-objects market must meet a key requirement: interoperability.**

From both functional and economic perspectives, the internet of things (IoT) is full of promise – this is one of the most appealing features of the digital revolution. According to French GfK polling form, two thousand million connected devices will be sold in France from 2015 to 2020.

## New smart devices

However, to be truly effective, all of these new smart devices must satisfy a major requirement: interoperability.

Let's consider home automation. This is a key growth area for connected objects according to GfK, which has forecast that every home will include, on average, about 30 IoT products within the next four years. Smart technology is still in the very early stages of development in our homes, but there is great potential for transforming the way things are



done within our four walls and radically changing our daily lives. According to Gartner, homes may contain up to 500 smart devices by the year 2022.

The stakes are high. Not only is the number of connectable objects growing at an ever-accelerating pace, there is also a surge in the number of players in the market, including telecoms, application developers, and appliance manufacturers.

## Establishing a common language

How do we get all of these people working toward establishing a common language? Through the traditional ploy of alliances, of course. In 2013, a few industrial giants, such as Technicolor and LG, laid the groundwork for the first IoT open-source consortium: the AllSeen Alliance. The objective: to enable devices from various manufacturers to

interact in a secure and transparent manner, beyond their proprietary characteristics. In the three years since its founding, AllSeen Alliance has attracted more than 200 industry partners.

Other consortia are trying to put their stamp on this market. The Open Connectivity Foundation, which was created in February 2016 and brings together companies such as Samsung, Intel, and Dell, is positioning itself as AllSeen Alliance's chief competitor.

The International Organization for Standardization (ISO) has also become active in the field of IoT interoperability. ISO is funded by nations according to the principle of "one member, one vote"; therefore, its operations are more "democratic" than those of private consortia, where large companies have more influence than smaller ones.

Major players such as Google, Apple, and Amazon are more concerned with protecting the data that generate most of their revenue; accordingly, they are jealously guarding their proprietary systems. Will a single agreed-upon protocol emerge for the IoT ecosystem?

How will this affect this market's growth? What collateral damage will it produce? And when? There are many questions to be answered, but, by way of analogy, in online communications, the wi-fi standard did eventually win out.

## The IoT should be a boost to many sectors in difficulty

In sectors such as textiles, vehicles, and consumer goods, the IoT should revive sales figures that have been flagging for years. It is estimated that, in three years, the number of connected cars on the road will be 420 million and that the number of connected clothing – such as, for example, Kaporal and Buzzcard connected jeans – will rise to 19 million by the end of this year! The IoT will also foster development in these sectors by creating jobs. In 2014 alone, 1.7 million developers worked, on a full- or part-time basis, on projects relating to the internet of things.

## A standard for the industry?

What is true for homes is also true for the industrial sector. In Germany, the community of industry professionals in charge of the Industry 4.0 program has announced its decision to adopt the OPC UA standard, a secure machine-to-machine communication protocol. This technology is less widespread in France than in Germany and the United States – will it emerge as the future industry standard? Currently, industry professionals in France seem to favour another system: Modbus TCP.

# IS INNOVATION THE ENEMY OF MAINTENANCE?



Reinhard SCHLEMMER

Andrew RUSSELL

Innovation is overvalued and maintenance often matters a lot more, according to Andrew Russell, Professor and Dean of Arts & Sciences at SUNY Polytechnic Institute in Utica, New York, and his colleague Lee Vinsel. Provocatively titled “Hail the Maintainers”, their essay, which makes the case for industry to tone down the innovation fever and put its focus back on maintenance, has stirred many conversations since it was published last April. Reinhard Schlemmer, Deputy Managing Director of VINCI Energies in Europe and responsible for smart industry solutions provider Actemium and Axians in Germany, sat down with the technology-obsessed historian to discuss the limits of innovation and the importance of maintenance. Together, they explain why innovation is sometimes the enemy of maintenance, and sometimes its best opportunity.

**Has the digital acceleration of the last decade led businesses and organisations to neglect maintenance?**

**Andrew RUSSELL.** It’s probably culturally specific, and it certainly changes over time. In the last twenty years, there has been a great uptake in innovation talk, notably in Silicon Valley, around the internet and digital disruption, start-up culture, these sorts of things. Since I’ve been talking about innovation, one of the first things I always point out is the distinction between the act of innovation (or creativity, or invention) and the talk about innovation.

Everyone gets excited and distracted about innovation in a way that they never do with maintenance. People like to talk about innovation, like a value that they deeply care about. Of course, we like creativity, we like

inventiveness, we think it’s important, but all this talk and the consequent policies and fundings have led us off track. The red herring has been overblown. The more time we spend talking about innovation, the less time we spend speaking or thinking about maintenance. In some ways, it’s a zero-sum game.

**Reinhard SCHLEMMER.** There are a lot of differences between the United States and Europe. In Europe, notably in Germany, while there’s a lot of talks about innovation — about industry 4.0 or the internet of things — our customers still have a different approach. When we talk to our industrial customers, we can see their confusion. They’re not used to thinking in short term, in short investment cycles. And we see their reluctance to immediately adopt innovation. They do it very cautiously and with a lot of planning. American

industrial customers are much more willing to switch to new technologies and test out new things than Europeans.

### Have you identified cultures, countries or sectors that have a more prominent “maintenance tradition” than others?

**Reinhard SCHLEMMER.** We see a lot of pressure on the maintenance side with our European customers, due to their large industrial equipment base. There is a lot of thinking ongoing among our customers about how to reduce maintenance costs. We explore new ideas, like “preventive maintenance,” or smart maintenance. Our customers are more willing to talk to us about all this than they were in the past. In Europe, we are talking with a large, worldwide leading customer in the chemical field. They have more and more difficulties finding people to operate their plants who are willing to work on 24 hours/7 days a week shift-like programs. We do have a lot of very interesting discussions with them when it comes to what is called “smart maintenance.” But at the end of the day, even if you invest to upgrade your maintenance process with the latest innovation, you have only one budget. It’s up to the clients to decide if they want to invest in maintenance or to build a new plant extension.

**Reinhard SCHLEMMER.** I can fully see the way you view things and I completely agree. The long-term thinking is a different way.



**“Clients are actively thinking about ways to innovate in order to reduce maintenance costs and optimize efficiency.”**

Reinhard SCHLEMMER

### It’s up to the clients to decide if they want to invest in maintenance or to build a new plant extension.

**Andrew RUSSELL.** Smart maintenance is fascinating from an industrial perspective. The notion of smart maintenance suggests that the distinction we’ve been setting up between innovation and maintenance has a lot to do with who is speaking, and what perspective they are coming from. Most spectacular innovative things that we have read about in the newspapers lately come from the digital sector. These people don’t need to care much about the underlying infrastructure, they don’t have the same obligations as established industrial organizations. Theirs is the Silicon Valley start-up mindset: short-investment returns, updated every three months, basically. They need to show results fast. But these people who are obsessed with digital technology should be a little more mindful about maintenance... and vice versa.

### Couldn’t both innovation and maintenance benefit from a better planned complementarity?

**Reinhard SCHLEMMER.** The question is : does innovation kill maintenance? In IT, that’s sometimes the right path! You don’t build for the long term, everything is built only to be renewed anyway. But when I look to our industrial customers and their operations, I see a different behavior. In the industry, innovation plays a more and more important role because maintenance costs are a big challenge for our clients. That’s why we’re actively thinking about ways to innovate in order to reduce maintenance costs and optimize efficiency.

**Andrew RUSSELL.** I think there are three ways to reduce maintenance costs or optimize its benefits. The first thing is to be mindful of what we do with technology, how we invest our time. Even the most innovative person, the most creative person you know—maybe yourself—can’t escape maintenance.

You may ask yourself how much time in a day or in a week you spend doing creative things, versus maintaining yourself, washing your hands, preparing food, cleaning your house and the like. Simply observing yourself or the world around you is a good way to understand the value of maintenance. The second way is statistics: The World Bank has provided some data about how much investment in infrastructure and maintenance is important for development. Their ways of classifying jobs, for example, makes it possible to estimate how many jobs are provided by the maintenance and repair sectors in the global economy. Quantifying these things may be a way to keep us from forgetting about how important they are. The third way is to build a narrative around the maintainers, in order to approach broader audiences who like to read interesting human-interest stories. For instance, I want to know a lot more about the personal stories of the people who keep the IT system running at my university or the air-conditioning working, or the people who move the furniture in the classroom and clean the place. Just gaining awareness of these people and the work they do can be powerful.



**“There is a certain linguistic aspect in the word “innovation” that leads towards the common interpretation that it’s about overthrowing the existing order, while maintenance essentially is preserving an existing order.”**

Andrew RUSSELL

### Don’t we innovate in maintenance?

**Reinhard SCHLEMMER.** You can apply innovative approaches to maintenance. Our people innovate daily in small skills in their fields, including in maintenance — trying to improve, trying to optimize, trying to cope with the pressure to bring down the cost of maintenance and repair. These two concepts of innovation and maintenance are not just connected like plus and minus poles.

**Andrew RUSSELL.** I agree with that. We could talk a lot more about innovative ways to deal with maintenance. Take Uber for example, a company that uses IT in an interesting, innovative way. If existing companies could be persuaded to use these ideas in their own business, that would be innovation. They could adapt in an incremental way and there wouldn’t be the disruptive effect that Uber brought about. Another example: public transit companies now put their timetables online so that customers can track where their bus or train is, using their phones. This is a nice example of innovation and it is not at all opposed to maintenance.

**Reinhard SCHLEMMER.** Exactly. Uber is a good example. In Germany, a similar concept is sponsored by Daimler as a venture partner. There are now numerous imitations of Uber throughout the regular taxi networks. They are trying to imitate and adopt that technology quite quickly to cope... or survive. The way they adapt to this innovation to maintain their business is quite amazing.

**Andrew RUSSELL.** But the fact is that maintenance and innovation are opposite when innovation is linked more directly to the notion of disruptive innovation. There is a certain linguistic aspect in the word “innovation” that leads towards the common interpretation that it’s about overthrowing the existing order, while maintenance essentially is preserving an existing order.” This is a caricature of innovation but it has some powerful cultural resonance. Especially in a world that strongly associates “innovation” with “disruption”, and where digital businesses cause big problems for established industries — even running companies out of business in some cases. Using the power of IT to essentially take business away from established enterprises like hotels or taxis, that is a little bit more disruptive, this is where the caricature of innovation as an exclusively or fundamentally disruptive act might come from.

ICT INNOVATION

## THE STADIUM OF TOMORROW WILL BE CONNECTED OR NOTHING

The 10 stadiums across France, most of them revamped for the occasion, offered a range of innovative connected services, which were particularly appreciated by fans.

### 'Real-time-experience' generation

This is the 'real-time-experience' generation, who share everything, all the time and with the whole world. Everyone at a stadium today, whatever their age, expects this kind of public venue to let them share their experience as it happens. So they need a connection that works perfectly in all stadiums, whether it has 35,000 seat capacity, such as the highly connected Allianz Riviera stadium in Nice (France), or 80,000 like the Stade de France.

### Digitization isn't just for fans

Today's sports venue, however, is more like a fully fledged shopping mall. There's the ticket offices, of course. But also stores where you can buy team kits and club merchandise, plus food outlets and conference suites. Then on match days, when the venue is packed, a genuinely multinational business operation comes to life. And its connectivity infrastructure must be up to the task. It must meet the challenges of a complex architecture (car parks, outside areas, lounges, various levels of the stands, gangways, etc.), huge demand on bandwidth for web browsing, email (with the necessary upload speed), video streaming, videoconferencing, sharing pictures,



etc. and support for a wide variety of mobile devices. To cope with these fluctuating loads, the stadium, like a multinational, needs a solid and agile cloud infrastructure, suitable for routine activity and able to massively increase capacity for high-attendance fixtures.

### Delivering end-to-end connectivity

The technologies are diversifying and a simple 4G or wi-fi connection is a thing of the past. The stadium must also be connected before an event. Take a fan purchasing a match or concert ticket on the web, for example. They'll then be invited to download the stadium app, which tells them how to get there, with the various road routes, car parks and public transport options. Thanks to cross-referenced big data sources, fans can plan their journey times and even choose alternative routes to avoid congestion on the day. Once at the venue, having presented their ticket directly via their smartphone screen, they're

directed to their seat, thanks again to the stadium app. During the match, they can check waiting times at the in-stadium food outlets, or even place an order for delivery to their seat. This is the direction connected stadiums need to go in the years ahead. The digital environment at the stadium must be operational from one end of the experience to the other, from the moment the fan buys their ticket and throughout the event. Smarter connectivity at stadiums is fundamentally important for all, whether official partners or stakeholders involved closely or more remotely in a tournament.



**Francis Espoey**  
Managing Director  
Axians Communication & Systems

INDUSTRY INNOVATION

## NOW IS THE TIME TO MAKE INNOVATION OPERATIONAL AND TO EQUIP OUR FACTORIES!

There are many useful industrial innovations driven by digital development. Indeed, new technologies have the capacity to make factories more productive, more agile and more intelligent, while allowing people to refocus on their core activities. However, due to a lack of resources, time or information, there are still too few French businesses moving into the industry-of-the-future age. We must not delay any longer, we must help manufacturers to make innovation a reality and integrate it into their factories.

### It's time for action, for putting innovation into practice

Today, the talk is all about innovation, when in fact the priority is no longer theory-based invention but operational implementation. Many disruptive technologies already exist and have the full potential to make factories intelligent very quickly. Collaborative robots are a case in point. They relieve operators of repetitive – even dangerous – tasks, and improve production line output while at the same time tackling the issue of musculoskeletal disorders. Despite its many advantages, the technology is underused in the production system, even though France is working on modernising its production facilities. So what is the best way to support professionals in the fourth industrial revolution and to put innovation into practice in factories?

### Tailoring innovation to each manufacturer's issues and promoting existing offerings

It would be counterproductive to want to apply innovation indiscriminately. Integrators have a key role to play here. Responsible for auditing, installing and maintaining production equipment, they have extensive knowledge of the processes involved. They can therefore provide manufacturers with tailored advice about the technologies that will make their factories more intelligent. But, precisely because there is so much of it, innovation is complex to understand for manufacturers, and common preconceptions persist. The reality is quite different however, and the drop in the cost of technologies is now resulting in much faster returns on investments. To put innovation into practice, efforts must be made to educate the sector, by communicating about offerings and financing, and by promoting public programmes. It is up to integrators to act as a channel for innovation in order to speed up the transformation of French industries.

### Favouring operational innovation by uniting the industrial ecosystem

Because France has a diverse industrial ecosystem, it is in a position to take the lead on the subject. The creation of pilot sites, such as the Factorylab inaugurated at the end of September at Paris-Saclay and in which Actemium is

involved, could result in significant progress. Integrators would act as interface within this ecosystem. Proofs of concept are also useful in selecting the relevant technologies to be deployed. Ultimately, we must remain convinced that the sector has all the tools and expertise required to help manufacturers quickly implement innovation in factories. We must not delay; now is the time to make innovation operational and to set in motion a process that will boost productivity and jobs in our country!



**Olivier Albessard**  
Actemium Director

## THE AUTONOMOUS MOBILITY REVOLUTION

Will our children need to sit a driving test? Nothing could be less certain. Tomorrow, autonomous cars will drive their occupants without them needing to take the wheel. But private cars are not alone in being concerned by the autonomy revolution in the transport sector. Public transport systems will be affected just as much. Far-reaching changes are now emerging against the backdrop of energy transition. Whether we are talking about mobility, its usage patterns, its private and public players, or about the urban and interurban areas which they are part of, the cards are being reshuffled.



## VINCI ENERGIES, ACCELERATOR OF ENERGY AND DIGITAL TRANSFORMATION

In a world undergoing constant change, VINCI Energies focuses on connections, performance, energy efficiency and data to fast-track the rollout of new technologies and support two major changes: the digital transformation and the energy transition.

Keeping pace with market change, VINCI Energies supports its customers by offering increasingly innovative solutions and services, from design to implementation, operation and maintenance.

With their strong regional roots and agile organizational structure, VINCI Energies' 1,600 business units boost the reliability, safety and efficiency of energy, transport and communication infrastructure, factories and buildings.

The Group's business units are organized around five international brands – Omexom, Citeos, Actemium, VINCI Facilities and Axians – in addition to brands with a more regional identity.

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