

# altitude

IN THE KNOW

## Watches: success in the making

P.08



IN THE LABS

## Immortality: from dream to reality

P.06

IN THE WORLD

## Belgium: delegated expertise, quality assured

P.14

> Caroline Possemiers, Altran Belux





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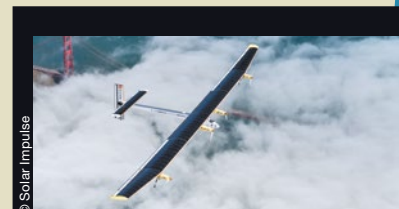
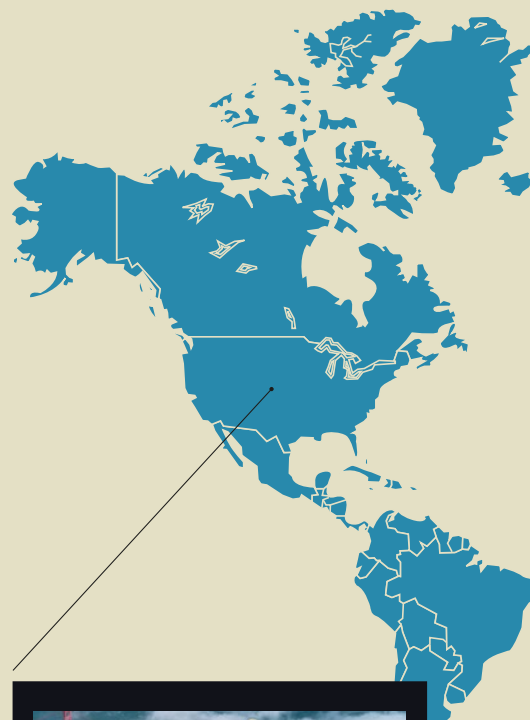


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### EDITORIAL BY MICHEL BAILLY EXECUTIVE VICE-PRESIDENT IN CHARGE OF PROGRAMS & INNOVATION

#### Our diversity, a key strength

Over the past 20 years, major international companies' expectations in terms of engineering services have changed. They are still in search of a reservoir of skills capable of providing them with high-quality technical assistance. However, these companies increasingly look to entrust their partners with comprehensive projects based on all-inclusive service packages and a guaranteed level of quality. To meet this challenge, we introduced the Altran Delivery Management System, which serves to standardise our project management tools, methods and processes worldwide. Nonetheless, a global leader like Altran has ambitions that go well beyond quality-, deadline- and cost-based competitiveness. Going forward, we want to raise the bar, strengthening the role of innovation in our offering. From this perspective, the extraordinary diversity of our teams and our areas of expertise has always represented a key strength. Moreover, this year we launched a vast internal initiative called THE i PROJECT. The first step, a call for innovative projects from our teams based all over the world, exceeded our expectations in terms of both volume and quality. As always, these projects focus on offering our clients new approaches that come from our wealth of cross-industry experience. Wonderful news for the future of our group!



© Solar Impulse

#### UNITED STATES

##### SOLAR IMPULSE

As we go to press, Solar Impulse is set to complete its Across America mission, flying from the West coast to the East coast. During this American adventure, the solar plane successfully rose to new challenges, mainly linked to the weather. As part of the Mission Control Team, Altran developed the flight strategies and routing of the plane.



© Altran

#### FRANCE

##### EVENT

Last June, for its 5th season as an exhibitor at the Paris Air Show - Le Bourget, Altran developed and implemented a proactive, customised approach based on innovative methods specifically designed to offer its clients the best solutions in terms of Intelligent Systems, Lifecycle Experience, Mechanical Engineering and Information Systems. The programme featured conferences, a daily TV show, meetings with Altran's team of experts, presentation of demonstrators, lunches and cocktails on the private terrace.



© Altran

#### ITALY

##### INAUGURATION

On 21 May, Altran Italy inaugurated the Altran Testing Centre – a laboratory for functional testing and diagnostics on vehicles – in Turin in the presence of more than 50 clients, representatives of the most prestigious Italian automotive companies. This event was also the opportunity to showcase and test the innovative features of the "Open & Connected Car" created by the Altran group for the development of intelligent systems.

## 04 | IN THE AIR

### Altran and the Lille metro: on track for innovation

Alstom has entrusted Altran with the design, manufacture, installation and launch of the assembly line that will produce the 27 new trains.

### New networks, new challenges!

Altran aims to be the European leader in network consulting by 2016.

## 06 | IN THE LABS

### Immortality: from dream to reality

Today science allows us to regenerate body parts. Next step: stop cell ageing and foster widespread use of robotic prostheses... And then, immortality?

## 08 | IN THE KNOW

### Watches: success in the making

Luxury watchmaking is experiencing spectacular growth. Backed by the strength of a longstanding tradition, this sector has successfully reinvented itself and is off to a fresh start.

## 12 | IN THE LOOP

### Deciphering the future of mobile telecommunications

With the introduction of 4G, mobile telecom networks are entering a new age. Vodafone, Italy's largest mobile operator, relies on Altran Italy's expertise to develop its networks and invent new services.

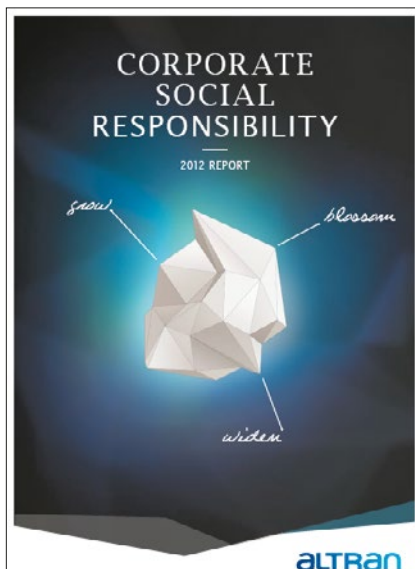
## 14 | IN THE WORLD

### Belgium: delegated expertise, quality assured

For two years now, Techspace Aero has called upon the expertise of the Aeronautics, Space and Defence Division of Altran Belux for the development and production of modules and equipment for the engines of Ariane launch vehicles.

## 20 SECONDS

**THE TIME NEEDED** to recharge a mobile phone battery. This innovation was presented in May 2013 by Eesha Khare, an 18-year-old American high-school student. The battery is based on a supercapacitor capable of storing large quantities of energy in a small volume.



Altran's 2012 CSR Report presents the Altran group's commitments and actions in terms of corporate social responsibility in the countries where it is present.

**More:**  
[www.altran.com/about-us/corporate-social-responsibility-csr/publications.html](http://www.altran.com/about-us/corporate-social-responsibility-csr/publications.html)

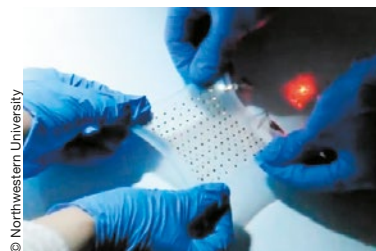
## 1 BILLION

**THE NUMBER OF MONTHLY** visitors to Facebook in October 2012 and to Youtube in March 2013, thus making them the world's most popular sites after Google.

### ELECTRONICS

## A battery under the skin

**V**ital for sensors or pacemakers, batteries built into the human body are nevertheless rather unwieldy. The solution? The stretch battery designed by two researchers specialised in flexible electronics at Northwestern University and the University of Illinois. It took four years to rise to this major challenge: power the components of a stretchable battery, which usually must be highly compact



to function correctly. Researchers overcame this obstacle by attaching components to an elastomer substrate on which only the interconnecting wires, in the form of self-similar "S"-shaped structures of varying sizes, stretch and return to their initial length. Expandable up to 300 times its original size, their lithium-ion battery offers many opportunities in the field of embedded electronics, both in living beings and on material subject to high elastic stress. With a battery life of eight to nine hours, it charges without contact – essential for a battery located under the skin!

**More:**  
[http://youtu.be/Sgf7LSz\\_JVs](http://youtu.be/Sgf7LSz_JVs)

### RAIL altran

## Altran and the Lille metro: on track for innovation

In response to the ever-growing number of passengers on line 1 of the local metro, in the second half of 2012 Lille Métropole initiated a project to double the platform length and introduce new trains. As the primary contractor for this aspect of the project, Alstom decided to entrust Altran with the design, manufacture, installation and launch of the assembly line that will produce the 27 new trains. "We will put our responsiveness and agility at the service of Alstom, since the project must be finished for the end of 2013. At the same time, we will offer them our expertise in the field of industrial integration. Our two teams are closely working together on co-engineering. The solution we put forth is a world first in the rail sector", points out Ali Benamara, Site Manager at Altran France. "It is also the first time that Altran has been so deeply involved in every phase of the project. This is a new experience that will be beneficial for all concerned."



### TELECOM altran

## New networks, new challenges!



**S**martphones, tablets, HDTV and streaming videos: uses and connected tools have evolved considerably over the past two years. More bandwidth-intensive, they require operators to rethink their networks to continue offering quality service to customers while remaining competitive. These changes, although necessary, are rather complex in practice, as they require players to mobilise numerous resources in a relatively short period of time. "At Altran, we are fully aware of the challenges operators face; that is why we designed a tailored offering called NEX (Network EXcellence)", explains Amadou Diop, Director of Business Development - Infrastructure & Réseaux. "Thanks to NEX's 900 employees grouped into three skill centres, we can handle all kinds of questions brought by our clients: choice of infrastructure, implementation and optimisation. Centralising our know-how allows us to gain experience that we can bring to other projects around the world."

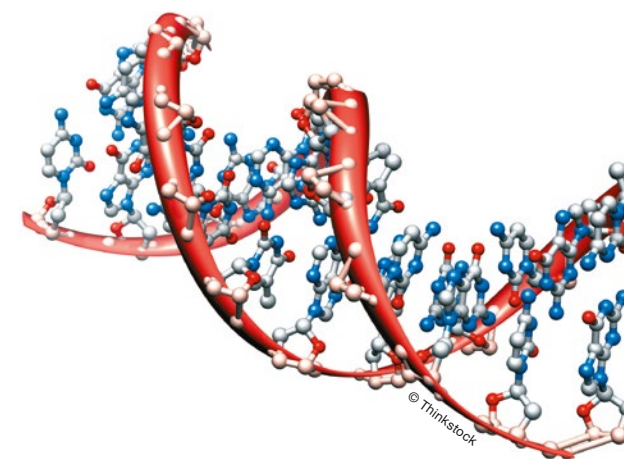
Partner of all major operators and equipment manufacturers worldwide, Altran aims to be the European leader in network consulting by 2016.

**More:**  
[www.altran.com/our-services/industries/telecoms/altran-a-key-partner-for-networks-transformation.html](http://www.altran.com/our-services/industries/telecoms/altran-a-key-partner-for-networks-transformation.html)

### INFORMATION TECHNOLOGY

## DNA: the hard drive of the future?

**D**NA, the building blocks of all life forms, is set to become a new means of storage, not just for genes, but for any type of file: text, image, video, etc. Two teams of scientists have succeeded in transcribing several megabytes of information on a few grams of synthetic DNA. No fewer than 115,000 strands were necessary to code a Martin Luther King speech, Shakespeare sonnets and a scientific text. The strands were then freeze-dried, giving them a dust-like aspect for easy and cost efficient storage. Simply sequence the DNA to recover the data. The only downside is the cost, estimated at around 10,000 euros per megabyte, to which we must also add the cost of sequencing to access the information... USB drives still have a bright future ahead of them!



## Online

INNOVATION MAKERS, visit the blog dedicated to Altran employees! Every week, the platform highlights several stories, photos and testimonials from the people who craft innovation at Altran.



DISCOVER THE OPEN & CONNECTED CAR, designed by Altran, featuring access to an application platform, new services and new functionalities.



THE LASER CANNON is no longer a sci-fi fantasy. The U.S. Navy has succeeded in destroying a drone in flight thanks to a laser beam built into a ship in its fleet. The system performs with extreme precision at a short distance from the target.





## HEALTH

TODAY SCIENCE ALLOWS US TO REGENERATE BODY PARTS. NEXT STEP: STOP CELL AGEING AND FOSTER WIDESPREAD USE OF ROBOTIC PROSTHESES... AND THEN, IMMORTALITY?

# Immortality: from dream to reality

## MEDICINE

Knee and hip regenerated through cell therapy

"The age at which patients require treatment of the hip and knee joints has lowered considerably in recent years", says Adam Stops, Principal Engineer in the Medical Technology division of Cambridge Consultants, a subsidiary of the Altran group. "Largely due to the rise in obesity, today disorders such as osteoarthritis are found in adults aged 45-50, instead of 70-year-olds as was the case in previous generations. For the last five years, new innovative tissue therapies have allowed us to treat these joints by focusing on just the damaged part of the tissue and not having to replace the entire joint. Not only do these tissue therapies delay the need for whole-joint prostheses, which last about 15 years, they also minimise damage to the surrounding tissues due to the non-invasive nature of the key-hole surgery. These technologies provide real comfort to the patient, allowing him or her to sustain a healthy and active lifestyle from middle age to old age."

## INSIGHT

Living things are born, reproduce and die. Yet man has long sought to break free from this natural cycle. The key to fulfilling this aspiration? Progress in genetics and robotics over the past several decades. Used to treat various ailments, solutions have become so effective that they seem nearly able to shield the human body from death. Significant obstacles remain, however, before we can hope to rise to this challenge. We must at once stop the ageing of the human body, be prepared to repair it in the event of trauma, and render it immune to disease... areas in which we have already made great headway.

## Understand ageing

While immortality has long been a fantasy for human beings, it is already a reality

for *Turritopsis nutricula*. This tiny jellyfish is just 4 to 5 mm long, but it is the only creature on Earth capable of reversing the ageing process via cell transdifferentiation\*. This unique ability fascinates geneticists. It appears that DNA holds the key to understanding ageing. Several avenues are currently being explored to explain the phenomenon. One is based on an enzyme called telomerase, used to avoid shortening of chromosomes, and thus cell degeneration, subsequent to each division. However, the only two possibilities we have seen observing human cell cultures are less than ideal: either the cells eventually become senescent and stop dividing, or they turn into cancer cells, immortal but not functional.

## Stem cells: the modern Grail

Stem cells captivate researchers because,

## BIONIC EAR

Thanks to 3D printing, electronic and biological components come together to manufacture artificial ears. These organs allow patients to hear sounds that are usually inaudible to the human ear.

## ARTIFICIAL RETINA

The video stream generated by a mini-camera installed on the rim of eyeglasses provides electrical stimulation to the remaining functional nerve cells in the retina, thus restoring visual sensations to the user.

## BIONIC HAND

Operated by two electrodes linked to the arm muscles, it can perform up to 14 different movements in response to commands coming directly from the brain.

## ARTIFICIAL HEART

Organ transplant rejection is a problem of the past thanks to the artificial heart. Initial tests on humans should take place in the coming months.

## BIONIC LEG

No fewer than 11 electrodes are required for the brain to operate this artificial leg, which is capable of climbing stairs or kicking a ball.



© Sylvie Dessert

unlike ordinary cells, they are capable of self-renewal, can develop into other cell types and proliferate in cultures. They may thus be used to regenerate or recreate destroyed tissue. This makes them especially promising for treating Parkinson's disease, multiple sclerosis, heart disease and spinal cord injuries. Present in large numbers in the foetus, stem cells are much rarer in adults. Collecting them thus poses both a technical and ethical challenge. In May 2013 American researchers succeeded in circumventing these problems, creating the first human embryonic stem cells from skin cells using a cloning technique. This is a major innovation, even if further study will be necessary before new therapies can emerge.

## Towards a human-robot

But what if the solution to repairing the human body – intrinsically fragile – were not biological but mechanical? In this field, one of the most spectacular examples is the artificial retina that has allowed

blind patients to distinguish silhouettes through a camera connected to the optic nerve since 2010. Other failing parts of the body have been recreated by increasingly efficient biomechanical prostheses. This is the case for the heart, in the total artificial heart project in which Altran participated in 2009.

The ultimate obstacle to this new human-robot, creating an artificial brain, will soon no longer be a utopic vision. Launched in January 2013, the Human Brain Project, which aims to achieve a complete numerical simulation of the human brain, was one of two projects to compete successfully for the most significant scientific funding offered by the European Union. With a budget of one billion euros over ten years, the Human Brain Project is expected to lead to new therapies to fight against neurodegenerative diseases.

\* Process that enables a differentiated cell to change its identity and take on new functions.

● DNA holds the key to understanding ageing. ●



FABIOLA MUNARIN

Researcher at Politecnico di Milano

## "ALTRAN WILL HELP US BRING THIS IDEA TO FRUITION"

At the age of 29, you won the Altran Foundation Innovation Prize in the "Bio-engineering and stem cells: ideas for life" category. What is your project?

For a year now, I have been working to create an injectable gel containing stem cells. This gel holds a great deal of promise in the field of regenerative medicine. It could be used to treat breast cancer, for instance, in the case of mastectomy (removal of the breast). The gel could also improve quality of life for patients with lipodystrophy (decrease in the amount and weight of adipose tissue), especially by reducing the number of surgical interventions.

## In what ways is this project innovative?

Up until now, prosthetic devices replaced tissues but did not regenerate them. This bioactive gel loaded with stem cells will make it possible to regenerate different kinds of tissues, such as cartilage or bone tissue.

## What does Altran bring to the project?

First, Altran is going to help us establish a business plan and develop the project by devoting time to our idea; a group of experts will assist us for six months. On the scientific side, they will give us the means to test the reaction of cells in the gel and study how the latter behaves upon injection. It will then be up to us to raise the funds necessary to make this project a reality. Our goal is to carry out the first clinical trials within 4 or 5 years.

## INSIGHT

1953

Discovery of the double helix structure of DNA. The complete sequencing of the human genome took place 60 years later.

1958

Discovery of the first integrated circuit, also known as the chip, by American Jack Kilby. A supercomputer should be able to simulate the functioning of the brain by 2020.

1967

First heart transplant in Cape Town, South Africa, performed by surgeon Christiaan Barnard.

1996

First successful cloning of a mammal. Dolly the sheep was a genetic copy of the sheep from which she originated.

# Watches:

**\$6.8  
million**

The price of the most expensive watch in the world. Adorned with 233 diamonds, the Snow White Diamond Watch was designed by Qatari watchmaker and designer Mouawad.

© Altran

## LUXURY

LUXURY WATCHMAKING IS EXPERIENCING SPECTACULAR GROWTH. BACKED BY THE STRENGTH OF A LONGSTANDING TRADITION, THIS SECTOR – ONCE THREATENED BY THE ARRIVAL OF QUARTZ – HAS SUCCESSFULLY REINVENTED ITSELF AND IS OFF TO A FRESH START. HERE WE TAKE A CLOSER LOOK AT AN INDUSTRY THAT HAS LEARNED TO ASSOCIATE TRADITION AND HIGH-TECH BETTER THAN ANY OTHER.

# success in the making

In mid-April 2013, the largest jewellery and luxury watch store in the world opened its doors in Paris's Opéra district. The inauguration of this 21,500-ft<sup>2</sup> (2,000-m<sup>2</sup>) megastore speaks to the vibrant market for luxury watches. A market in which a tiny country, Switzerland, reigns supreme. In 2012, the Swiss Confederation exported over 95% of its production, nearly 29 million watches, for a total of over 20.2 billion Swiss francs (€16.25 billion). Today, watchmaking is Switzerland's third largest source of exports, behind only machinery and the chemical industry. It represents approximately 40,000 jobs in the country. Switzerland is of course home to prestigious brands like Patek Philippe, Cartier, Rolex and Omega, whose timepieces sell for over 4,000 euros. But the Confederation also produces more widely accessible watches, such as the famous Swatch.

## A RETURN IN FORCE

In recent years, this market has gained momentum thanks in part to growth in Asian countries, especially China, where



LUDOVIC JANVY,  
Business Unit Director  
and Head of the  
"Industry" section of  
Altran Switzerland

## SWISS MADE: THE REFERENCE

To fully enjoy the aura of products made in Switzerland, some watchmakers repatriated certain operations that they had previously subcontracted abroad. We provide support so that the process goes as smoothly as possible and that the difference in labour costs does not lead to a sharp drop in margins. Our clients also seek solutions to negate increasingly irregular spikes in workload and reduce time to market for new products. One year China is on top, the next year it is the US. However, models generally do not appeal to both sides of the Pacific, and it often takes a great deal of time to produce a watch... Lastly, we provide technical expertise that we have acquired on certain materials in other high-tech industries: cross-fertilisation is our motto.

## INSIGHT

Swiss watches are seen as status symbols. And despite the crisis, luxury continues to delight.

Yet this industry has come a long way. In the 1970s and 1980s, high-end timepieces – hit hard by the onslaught of Japanese-made quartz watches – faced an unprecedented crisis. Until then, watches were considered family heirlooms that people often kept throughout their lives. With the advent of quartz, inexpensive and synonymous with precision, the watch fell from its pedestal. It became a consumer good like any other, if not mundane, at least ordinary. Many thought that the Swiss watch would never regain its glory. But Sleeping Beauty met her Prince Charming. His name? Nicolas Hayek. In 1983, Hayek launched an affordable and sexy quartz watch that would turn established notions upside down. This visionary entrepreneur imposed the idea that people could own several watches, and could even change their watch several times a day according to their moods and environment: work, party, sports, etc. This trend gradually caught on with high-end watch wearers, who also took the habit of changing





Girard-Perregaux Constant Escapement watch.

► their watches from time to time. Seizing this precious opportunity, the Swiss watch industry rapidly recovered. Not shying away from quartz (which has many advantages), manufacturers – in Vallée de Joux, La Chaux-de-Fonds and Geneva, for example – began to refocus on what they did best: exquisite mechanisms that exalted time through the perfect assembly of hundreds of components often thinner than a strand of hair! Since this time, many of these watches have had transparent backs so owners can enjoy the detailed mechanisms at leisure.

### CONTROLLED INDUSTRIALISATION

Today, Swiss watchmaking is entering a new phase in its history. After years of euphoria, the industry must now manage its success and continue to grow, without neglecting the fundamentals: quality, hand craftsmanship, tradition, image and history. In other words, the challenge for some is to produce parts

# \$739

The average value of the 29.2 million watches exported by Switzerland in 2012. Meanwhile, Chinese watches fetch for an average of 3 euros.

in large volumes. These manufacturers learned to domesticate materials from other industries, like titanium, ceramics and sophisticated alloys. Others have adopted high precision machines from aerospace capable of ensuring a breathtaking degree of precision. “One of the challenges is to incorporate new technologies that allow us to produce better and more quickly while at the same time keeping specialists at the heart of certain key areas such as time pieces”, says Ludovic Janvy, Business Unit Director at Altran Switzerland.

Large brands are not simply enjoying their comeback and resting on their lau-

rels; they cultivate success and do it with great skill. Most seek out ambassadors, personalities who embody their values. A pioneer of this type of action, Omega made waves when it combined its image with that of Cindy Crawford and Solar Impulse. A number of large brands followed suit, displaying celebrities in stores around the world with Swiss watches on their wrists. This work on brand image further accelerated recovery and attracted new categories of customers to the watch industry, especially a high net-worth clientele from booming emerging markets. Its comeback also owes much to a growing interest in Swiss manufacturing (see box), synonymous with authenticity, tradition, precision and quality.

### SPIRIT OF INNOVATION

Now the watch industry is bracing for another challenge, the connected watch. Smart Watches should make their debut with potential products like the Apple iWatch and a similar item developed by Samsung. “Seeing that many people now

## FROM COMPONENTS TO BUSINESS ORGANISATION

“Altran helped us strengthen the reliability of certain components and enabled us to make progress in the field of packaging”, says Raphaël Ackermann, Director of Production at Sowind group. “One critical issue in our business is handling the tiny pieces that we must transport, clean, tool, process, etc. Altran even assisted us in optimising our business organisation, setting up a tool that allowed us to better synchronise production with commercial trends – a key capability in a market where demand changes rapidly.”



© Sowind

look to their mobile phone instead of their watches to tell time, the big names in electronics decided to invest in this market”, says Olivier Picard, Senior Solution Manager at Altran Pr[i]me\*. This new competition does not daunt Swiss watchmakers; they’ve faced other threats and lived to tell the tale.

Since then, master watchmakers have boldly kept competition at bay by pushing the limits of their mechanisms. Several years ago, Altran consultants played a major role in developing a revolutionary mechanism. For some time, Tissot has offered a touch watch called T-Touch. Last year, Cartier rolled out a watch with a 32-day power reserve: exceptional! In short, luxury watchmaking is an ever-changing industry that has always managed to keep up with the times. And come out on top with time to spare.

\* Altran Pr[i]me, the Altran entity specialising in innovation management, has been working for many years in close collaboration with Altran Switzerland to develop innovation-based activities in the watchmaking sector.



> **Daniel Herrera**,  
Managing Director,  
YJOO Communications  
Lausanne

Swiss watchmaking is going strong, but it must not get carried away by its success. The sector needs to continue nurturing its traditional strongholds, Europe and the United States. It must also make sure to maintain the quality of its distribution network as the cornerstone of this market. A third challenge will be to respect the identity of its brands, to stay in areas in which they have true legitimacy, without yielding to the temptation of diversification or fashion.



> **Romain Chaillet**,  
Project Manager, R&D  
and Industrialisation,  
Altran Switzerland

More than just a beautiful object, a luxury timepiece is concentrated technology and the fruit of genuine technical prowess. Most large watch brands have an R&D department that develops highly innovative ‘showcase’ watches. These prototypes speak to brands’ desire to forever push the limits of mechanics and physics, and form a reservoir of ideas for future consumer products. We have the necessary skills to support the biggest brands in their quest for innovation. For one of our clients, we developed a mechanism with no adjustment or lubrication, and featuring a nonmagnetic box that shields the mechanism from possible electromagnetic interference.



> **Nicolas Chavan**,  
Project Manager,  
Industrialisation  
and Process, Altran  
Switzerland

Watchmakers are placing the quality bar ever higher: they constantly renew their tools and resources. We work with them to confirm the relevance of investment projects, identify the most suitable resources, choose suppliers, adapt machines to the specific needs of their trade and ensure optimal operation. Altran’s knowledge in other industrial sectors is an asset for this type of project.

## CULTIVATING EXCELLENCE FOR AN EXCELLENT PRODUCT

While luxury watches may seem timeless and unique, their design and manufacture nevertheless require conventional development parameters: quality, cost, schedule, procurement, control of relationships with suppliers, etc. Altran thus recently helped a big name in watchmaking renew its Product Lifecycle Management, the system that supports the development of a new product. “We helped them define the scope and architecture of the new Product Lifecycle Management, choose the solution and design a roadmap. We also allowed them to discover tools and best practices in the automotive and aerospace industries, where we have extensive know-how”, explains Gilles Lerouley, Senior Practice Manager at Altran.

### INSIGHT



INTERVIEW

# Deciphering the future of mobile telecommunications



• We have set up a cooperation model with Vodafone •

> **Laura Muratore**,  
Managing Director  
Telecom&Media, Altran Italy

• We particularly appreciated Altran's help in launching 4G ago •

> **Nadia Benabdallah**,  
Head of Regional  
Engineering,  
Vodafone Sud Europa

WITH THE INTRODUCTION OF 4G, MOBILE TELECOM NETWORKS ARE ENTERING A NEW AGE. VODAFONE, ITALY'S LARGEST MOBILE OPERATOR, RELIES ON ALTRAN ITALY'S EXPERTISE TO DEVELOP ITS NETWORKS AND INVENT NEW SERVICES.

## How are mobile telecom networks changing and what risks do they face?

> **Nadia Benabdallah**: In the end, individuals and businesses have rather similar needs, albeit at different levels. Everyone is looking for integrated mobile solutions, in other words solutions that feature a wide variety of communication applications while remaining economical, technologically simple and safe. At Vodafone, we believe that excellent service will increasingly outstrip price as the primary criterion when it comes to choosing a mobile operator. Our goal is to be the best mobile operator in every country where we do business. The introduction of LTE technology, commonly known as 4G, is a fundamental step in this approach. This technology considerably increases the speed and bandwidth of mobile transmissions, offering an ever broader scope of services, particularly multimedia.

> **Laura Muratore**: The mobile market is changing rapidly, with a very sharp increase in broadband services and a decline in voice and SMS communications. Consequently, data traffic is expanding exponentially, but mobile operators' unit margins are shrinking as a result of competition. Against this backdrop, development of network

infrastructures and services will be the key to differentiation: operators have to rationalise costs, invest in solid infrastructure and revitalise their mobile revenue thanks to innovative business models and convergent services.

## What does Altran bring to Vodafone Italia?

> **Laura Muratore**: Altran Italy has been working with Vodafone for more than 10 years with an integrated "end-to-end" approach. Our technical expertise, our in-depth knowledge of network architecture and fixed and mobile technologies and our experience with multiple vendors made it possible for us to set up a cooperation model with Vodafone addressing the entire value chain, from engineering to development, as well as network operations.

> **Nadia Benabdallah**: Altran has been very successful in Italy, supporting Vodafone with its expertise, its commitment and its flexibility. Altran must continue its technological developments, both through theoretical studies and practical experiences in the field...

## In what ways has this partnership been a success?

> **Nadia Benabdallah**: The best measure of a successful partnership

is how long it has been going on. To take two significant examples, I would say that we particularly appreciated Altran's help in launching 4G and developing our offering for both business and consumer segments.

> **Laura Muratore**: We focused on providing Vodafone with high-quality service from day one, through a clear and complete understanding of our client's needs, as well as the commitment of our dedicated teams. This service quality can be found at every level of Altran's organisational structure thanks to our client-centred approach.

## How do you see the future of this relationship?

> **Nadia Benabdallah**: We will transfer our network configuration business to Altran, thus reducing time to market. We expect Altran's teams to continue in their role as driving forces, in terms of both the way we work together and the quest for innovative solutions to promote greater regional development.

> **Laura Muratore**: With its extensive expertise from 4G evolution to new services development and its network of engineers established throughout four continents, Altran aims to enlarge its global partnership with Vodafone at the European level. To do so, we are investing in skill centres in Italy, Spain, and Portugal, and providing Vodafone with our global account organisation in every country. Our ambition is to contribute to Vodafone's strategy to tackle changes in mobile networks in an innovative and cost-effective manner, providing newsolutions and innovation in the revolutionary fields of home services, intelligent networks and mobile convergent services.

## ALTRAN ITALY: NUMBER ONE IN THE FIELD OF NETWORKS

Today, the telecom market accounts for nearly a third of Altran Italy's business. Thanks to its 550 dedicated engineers and its worldwide organisation, Altran Italy works for all telecom operators and vendors in Italy, mainly for network development and evolution. Number one in the field of networks, Altran Italy covers the entire value chain, from the design of components to network development and management; the subsidiary is also highly active on IT system integration and management.

## INSIGHT

• *Vodafone and Altran share the same business culture, focused on client satisfaction, optimal service quality and personal development.* •

> **Nadia Benabdallah**, Head of Regional Engineering, Vodafone Sud Europa



## MECHANICAL ENGINEERING

# Belgium

## Delegated expertise, quality assured

**The Belgian company Techspace Aero, a Safran subsidiary, specialises in the design, development and production of modules and equipment for aircraft and rocket engines.** For two years now, it has called upon the expertise of the Aeronautics, Space and Defence Division of Altran Belux. For Altran Belux, aerospace is one of the most prom-

ising industries in terms of business potential. The project to develop a skill centre for Techspace Aero is an excellent illustration. Working at the site of the supplier in Milmort, near Liège, in an independent and specialised organisation, a dozen Altran consultants are involved in developing equipment for the engines of Europe's new generation of Ariane launch vehicles.

## BIO

**1995** Degree in Mechanical Engineering / Catholic University of Louvain (UCL)  
**1995-1999** CESAME Research Engineer at UCL  
**1999** Joined Techspace Aero as a Design Engineer  
**2005** Project Manager for engine equipment at Vinci  
**2008** Pre-project Engineer for rocket engines, Snecma in Vernon  
**SINCE 2010** Head of the Equipment Studies Bureau at Techspace Aero



**GARY DANTINNE** Head of the Equipment Studies Bureau at Techspace Aero

### For us, it has been a positive experience

**W**e call upon Altran to carry out studies, mainly on space equipment. Two years ago, we set up a skill centre with Altran that allowed us to keep apace with significant increases in workload. In just a year, we nearly doubled the number of studies dedicated to the development of equipment for Ariane launchers. We greatly appreciated how Altran took charge of integrating and supporting the engineers they assigned to Techspace Aero. Altran provided expertise to conduct our studies while improving the way in which we structure our activities, establishing performance and quality indicators, mapping skills and effectively organising workload. We are especially pleased with what Altran did during the creation and implementing of this platform. These past months have met our expectations. For us, it has been a positive experience.

### Learning through versatility

**A**s part of a team of engineers assembled by Altran Belux for Techspace Aero, I work on the design of a helium pressurisation unit for Ariane 5 ME (Midlife Evolution) engines. This equipment will fill the helium tanks, and once in flight, supply the upper level engine systems with helium. At the same time, I lead several missions on mechanical strength, modelling, dependability and parts supply monitoring. As part of this expert division, I participate in the various tasks that must be carried out in every phase of the project. It is a wonderful learning experience.

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## BIO

**CAROLINE POSSEMIERS**  
 Consultant in the Aeronautics, Space and Defence Division, Altran Belux – Future Head of the Altran / Techspace Aero skill centre  
**2002** Degree in Electromechanical Engineering from Groep T in Leuven / Engineer at Ford  
**2004** Engineer at General Motors  
**2007** Joined Altran Belux  
**SINCE NOVEMBER 2012** Project Integrator for the development of a solenoid valve box

### Working for space: an exciting challenge

**I** hold two positions in the space equipment skill centre of Techspace Aero. On the one hand, I am Project Integrator for the development of a solenoid valve box that controls the amount of helium required to operate the other valves of the future Ariane 5 engine. And soon, I will succeed the previous manager and supervise the ten Altran consultants dedicated to the skill centre, who are mostly working as study engineers on the design and development of space launcher equipment. Among their various tasks, the consultants analyse client specifications, work on the technological concepts and are also involved in the technical documentation. This also includes a fair amount of simulation, dimensioning and follow-up tests, all done in synergy with the Techspace Aero teams. As leader of the skill centre, I will manage the workload, priorities, and regularly report to Altran and Techspace Aero by means of dedicated key performance indicators.

## BIO

**LOÏC LE BARS**  
 Consultant in the Aeronautics, Space and Defence Division, Altran Belux – Design Engineer for Techspace Aero

**2010** Degree in Mechanical Engineering / University of Lille – joined Altran Belux as a Mechanical Engineer specialising in numerical computation  
**2011** Management planning mission at Alstom Transport  
**2012** Design Engineer in Techspace Aero's space equipment skill centre

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## ALTRAN BELUX

The leading technological innovation consultant on the Belgian and Luxembourg markets, Altran Belux has 750 employees, 90% of whom are engineers. This cross-cutting solution centre has leading clients in pharmaceuticals, aeronautics and aerospace, the automotive industry, and telecommunications.

## INSIGHT



# Luis de Matos, 2012 Altran Foundation Award winner

## How do you feel about winning the 2012 Altran Foundation prize in Portugal, the 2012 International Jury Award and the Innovation Makers Award?

It always feels good to win a competition like the Altran Awards. Moreover, it is an important recognition of both our project and our company at the national and international level, which is crucial at this stage of the wi-GO's development.

## What are the next steps of your project?

We have a very well-defined strategy at this point. We intend to complete the product within the next 3-4 months and immediately begin the internationalisation of the wi-GO. We plan to start a pilot test period next month with a Portuguese supermarket chain and then conquer international markets.

## What are your future plans or expectations for your project?

We have very high ambitions and even higher expectations. We are aware that our product is unique and that it can really change mobility in retail spaces, helping those who it need most. We also know that our project can grow quickly and be profitable. Our company can be successful.

## What do you expect from Altran's support?

Altran's recognition and support are very important to us. Altran will be a key partner that will help us take the project abroad thanks to its expertise, network and partners.



Wi-GO is an intelligent shopping cart designed to assist those with disabilities or reduced mobility in an independent and safe manner.



ALTRAN  
FOUNDATION  
FOR INNOVATION

award<sup>12</sup>  
INTERNATIONAL

Fulfilling its ambition to support and promote technological innovation for human benefit, this year the Altran Foundation granted awards to seven national innovative projects in Belgium, France, Germany, Italy, Portugal, Spain and the

United Kingdom. All national laureates will benefit from personalised technological support offered by the Foundation.

In April 2013, the seven national projects were also submitted to the vote of a jury made up of an independent experts committee of national jury representatives for the 2012 International Jury Award. Altran group employees meanwhile cast their vote for the Innovation Makers Award.

Luis de Matos, the Portuguese laureate, won general approval with his project, the wi-GO. Altran Portugal will help Luis de Matos find potential investors and develop a communication plan, in addition to providing technological support and training.