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You have the floor, Mr Anderson

Chris Anderson, with unveiled enthusiasm, tells Interactions about a new revolution he has described in his latest book 'Makers', published by Pearson [www.pearson.com/]. Former Head Editor of Wired, Chris serves up some examples of how the Makers are already industrialising the DIY world, thanks mainly to new digital equipment.

Tell us Chris, who are the makers?

A maker is anyone who belongs to the Web generation, who chooses to make a move from a virtual world to a real world situation. Such people have been using digital and network tools to actually 'make' things. Given their familiarity with Open Source software, they know that by sharing a bit they can obtain much more. And in much the same way as Internet has changed the place of business companies in the communications sectors and information processing (ICTs), Makers are now modifying the place of conventional companies and industrial sectors. They continue to sell goods, but the latter are created by communities working together on a common idea, in an open and totally transparent process approach. Internet has itself led to even more competition and innovations in the ICT world and has generated what Anglo-Saxons call "the long tail" [ed. another of C Anderson's books, where he explains how Internet enables sales of many, many objects, but in small quantities each time, in other words selling less of more »]. Products for sale with small volumes can, when aggregated, represent a market-place share at least equal or even higher than for best-selling items. The Makers phenomenon is opening up a truly revolutionary prospect with an associate explosion of creativity in goods manufacturing and production...

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UTC IN THE NEWS

UTC awards an Honoris causa doctoral degree to Prof. Klaus Mosbach,

U.Lund, Sweden

Friday April 5, 2013, on the occasion of the Guy Deniélou thesis Prize ceremonies, Prof. Klaus Mosbach, University of Lund, Sweden was awarded the UTC Honoris Causa Doctorate received from the hands of Rector Bernard Beigner, Amiens, of Prof Alain Storck, President and Vice-Chancellor UTC and Karsten Haupt, Director of the GEC Laboratory and Olivier Gapenne, Director of the UTC Doctoral School.



d'iRlos www.klausmosbach.com interactions.utc.fr/le-8eme-Prix-de-these-Guy-Denielou

Designers to the forefront at the Industrial Spring Show, UTC

For the 8th edition of the

Industrial Spring Show at Compiègne, UTC Compiègne organised an exhibition "Design – at the crossroads of arts, technologies and social sciences - aids innovation. Visitors were welcomed to two public lectures, one on the topic "Universal design" by Jean-Yves PRODEL (President of the French Association for Universal Design) and one on Eco-design, by Jean-Baptiste PUYOU (independent designer who studied Industrial Design at UTC-Compiègne).



driftes webtv.utc. fr/watch_video. php?v=D6UAS76YD10R

UTC ranks second on the French engineering school digital hit-parade

UTC Compiègne confirms its 2nd place ranking on the French engineering school digital hit-parade for the month of March. Moreover, UTC Compiègne has joined the top three for social merit.

diplus www.ingenieurs.com/classementecoles-ingenieurs-2013.php

APPOINTMENT



For over 10 years now, the CNDP has been focusing on participative 'devices' and new technologies used to help public debate. "In the early 2000s we participated in a European project about electronic voting procedures, then "on-line" participation and electronic democracy, using an international comparative method", recalls Laurence MONNOYER-SMITH. "At the COSTECH Laboratory, the research team known as Research on Digital practice and Interaction (EPIN in French), to which I belong, is currently studying participative, on line and off line practice".

COSTECH and Public Debate

This University Laboratory has close links with the CNDP, whose remit is to organise public debates of national interest, via experiments in debates on a River Seine public sewage water treatment site and plans for a new incinerator at Ivry. Internet blogs were created, as were forums, retransmissions of public debates and possibilities to ask questions "on line" were investigated and tested "live". "These arrangements "opened up" the debates, bringing in other less expert profiles, from a distance and even in a deferred time mode. Often in public meetings the time for interventions is limited. Information and communication sciences indicate to us how actors can get involved in the ongoing debate using various tools. We investigate the links between the technologies to hand, whether they are lo-tech or hi-tech, the forms of expression and this was credited to the research team for the excellence of their analyses, both in theory and in the field", underlines Laurence MONNOYER-SMITH. The EPIN research team members supervise theses on a posteriori assessments of the public debate held in 2010 about offshore wind-turbines planned near Treport, in the English Channel, about e-consultation in European contexts, or about participative member mapping. "We really need to experiment and explore new protocols and develop new methodology over and above the standard lecture room and dais", surmises Laurence MONNOYER-SMITH. This sort of approach is part of the

At the centre of the debate

The recent 5 year appointment of Laurence MONNOYER-SMITH - an academic and a women, Head of UTC's COSTECH Laboratory – to the position of Vice-President of the National Committee for Public Debate (CNDP in French), is almost a revolutionary event. We recall that the CNDP is an independent administrative authority, created by law in 1995.

project that Laurence would like to see conducted within CNDP, totally absent as the latter is for the moment from social networks!

Three challenges for the CNDP

The appointment as VP of the CNP has encouraged Laurence MONNOYER-SMITH to rethink about research into public debate matters. "We did have excellent ties with the CNDP in the early 2000s, but focus on possible research, shall we say, cooled off somewhat. My being appointed to a position usually ear-marked for professional politicians or high ranking civil servants is quite unique. It serves to demonstrate that the ministry in charge of the Environment would like to bring research back on stage here," feels Laurence MONNOYER-SMITH. She indeed is the first female academic to occupy the position and she wasn't even a candidate for the job! The objective for the CNDP is federate in a sense then regional and local authorities, the think-tanks, the practitioners, etc., to think about the tools, and to share "best practice" protocols and finally to improve the image of public debates. "The CNDP here is faced with three challenges: 1° low or inexistent participation by the public in debates - this being largely the result of unchanged methods ; 2° to identify a better fit between representative and participative democracy, in close liaison with the elected representatives and 3° to see the needs for training of persons in charge of public debates and also to ensure that the CNDP met its objectives in line with its remit". "We must now develop digital monitoring tools to identify better the actors in public debates. This would for example allow those who want to contact the right persons to do so easily and thereby enhance skills, know-how, knowledge where they exist." This year, there will be major debates about offshore wind-farms and geological repositories for nuclear wastes. "I shall personally continue to oversee the upstream research about debates; in particular to see how we can encourage better citizen participation. I would like to see the CNDP use the thematic of pubic debate to introduce a major evolution of modern democracy and that it can become the bench-mark for such work and studies."

d'infos www.debatpublic.fr

Vualita 2013

Should the "quality" criterion be reinstated today ?

"Yes, indeed!" chorus all the protagonists at the 10th edition of the Qualita International Congress, organised by and at UTC- Compiègne, March 20-22, 2013. Quality Assurance (QA) is here to stay and is even gaining ground in the French Administration.

Demonstration? - "The Qualita Congress began as an astute association of academic spheres and the industrial world", recalls Prof. Alain STORCK, introducing the two day event where dozens of speakers took the floor to address themes like Quality 2.0, reliability testing, QA in R&D, eco-design, rare occurrences, extreme risks, etc. The President also stressed that the ambition of QA must not slow down or other aims: innovation, design, safety, sustainable development, etc. "Quality must serve innovation and not inhibit them". From the industrialists' viewpoint, real progress is patent and goes beyond lip-service. Claude CHAM shows us how this can be (and has been) achieved.

Facing up to customer demand and the crisis

Claude CHAM is now President of FIEV* and AFQP*; formerly (1987-2000) he has been Chairman and CEO for Dunlop France and Deputy Chairman for Goodyear Dunlop Tyres Europe between 2000 and 2007. He entertains and defends a wide-ranging vision of quality, which he esteems must not be sterilised by rigidly complying with standards. He had noted on one hand the growing demands of consumers, whose criticisms were levelled at every sector in the market-place, sparing none and spreading like wild fire via Internet and, on the other, the economic crisis which calls for structural answers if we wish to recover our competitivity - as he sees it, quality should be at the heart of corporate strategies and the preoccupations of public authorities. "But this just is not true!" adds Claude, regretfully. "You only need to look at the organisation charts: when (and) staff members are appointed in charge of Quality Assessment, they no longer hold a position close to the chief executives, contrary to what was common in the 80s and 90s. What amazes me is that the quality criterion is no longer the backbone of corporate policies and no longer irrigates managerial culture up to the highest levels, but is now a subject for debates among specialists who specialise in tool improvement and methodology".

In support of innovation

As we live in times where the slogan "All change; now" can take you to the highest executive and political spheres, Claude CHAM reminds us that quality is a powerful lever for change, in that it can be used to federate colleagues. "Current approaches to sustainable development all rely on the concept of quality which spread throughout France in the 70s." recalls Claude



CHAM. "If we do not have quality, the various strategies in favour of sustainable development do not go beyond the green marketing flyer and this alone will not bring staff and teams together. Innovation is presented everywhere as THE solution to get us out of the crisis. But if there is no underlying quality process, targeted to higher performance, then we shall only get to enjoy a marketing fireworks show. Research and innovation can only progress if there is a quality assurance". For those who hold that quality is an "outdated" concept compared with the more recent 'corporate social responsibility' (CSR), Claude simply retorts, that whatever the term you prefer "What really counts is total respect for the men, women and purpose of your enterprise". Indeed quality assurance is not seen as out of date in other countries: in the USA, for example, there is a national prize known as Malcolm Baldridge Quality Award), ceremony under the auspices of the USA's Vice-President's office. "Compare this with the AFQP Prize in France which is not exactly what we could call a crowd-stirring event. "This association tries to reinforce the visibility of quality and would like to be seen as a vector for a national industrial policy, inclusive", insists Claude CHAM, "of a transverse section within the National Industrial Council (CNI)".

"Lubricating the wheels of enterprise"

To understand better why Claude CHAM places such a level of trust in quality, we only need to refer to his industrial experience which convinced him. He was recruited by Dunlop in 1983 – after two earlier successes with Chrysler and Paris Airports Authority - to get the tyre maker back on track; he did so in just 3 years. "Not once did I let up my efforts to instil quality assurance practice, which act as a strong federating component. We set up progress groups, organised meetings with all our colleagues to present common goals and the results; we replaced the ageing "suggestion boxes" by a process that saw ideas and proposals move up through the organisation chart together with the guarantee of a reply within one week. I was a very demanding boss, and I did not hesitate at all to get my own hands into the oily, messy business. Proceeding in this way means that you must show the example, in a word be and act as the boss should. I had to close down some factory sites, reorganise work-forces and machines, and in all this my relationships with the trade unions always stayed polite and respectful. The company continued to be profitable and the number of employees remains practically the same throughout the shake-up. When people assert that quality costs money, I say this is an aberration.



UTC IN THE NEWS

The head in the stars and the feet firmly on the ground

During the "French national week for sustainable development" organised April 1-7, 2013, there was a presentation to visitors (mostly from the city of Compiègne) of initiatives combining Sustainable Development and Technology. UTC-Compiègne and its partners strongly encourage these initiatives, notably in the framework of Mineur DD-Reset with its research programme to "cartography" actions undertaken by and within UTC-Compiègne. The second event was devoted to astrophotography. It showed astronomic photographs taken by various sky-watcher clubs in the Picardie Region. A planetarium, open to the public allows visitors to admire starry skies overhead, using equipment installed for 2 days April 3-4 at the University.



driplus webtv.utc.fr/watch_video. php?v=YN280717B3S6

A Safran Round-Table at UTC



A one-day Round Table was organised at UTC Compiègne on the theme of Innovation, Thursday March 21, 2013, by the Innovation Directorate of the Safran Group. Didier GODART, Safran's Director of Innovation spoke about the need to take many sectors into account during the whole process of product creation, the need also to create break-through thinking, notably so in the aeronautical fields and markets. He and the other speakers demonstrated how useful Safran's Innovation think-tank has been for the Group, bring together as it does the expertise of personalities from various milieus, various companies ... who think collectively about possible future changes.





On the contrary, quality is a guarantee of competitivity; it amounts to lubricating the wheels of enterprise. If we want the enterprise France to be able to take off, then we should consider applying QA thinking to get the teams involved: who is not proud when someone admires the work done?" In contradistinction, who wants to face a displeased customer? To avoid this as much as possible, Oxylane (the mother company for Decathlon (sportswear and equipment)) openly plays the QA card, as they see it, synonymous for customer satisfaction. Fabien BROSSE, a graduate from UTC Compiègne and Director QA and sustainable development for the groups, gives his views on how quality can be seen in all Oxylane activities.

Should we consider turning the "10 year guarantee" into a standard commitment?

"When quality is taken into consideration at the highest corporate executive level, it proves to be a factor to success", recalls Fabien BROSSE. If we raise the question of planned obsolescence in products, Fabien immediately replies "The most important feature for a product is its operational life expectancy. That is why at Oxylane we placed quality and sustainable development under the same directorate." For those who remain stubbornly sceptical, Fabien illustrates with two lines of product. Firstly, the back-packs, some models designed for hill-walking, some for long hikes, some for trekking – all of them area guarantee level for all our bags and packs. To do this, we carry out multiple quality tests. Second example, batteries designed for electric bikes



Fabien Brosse, graduate from UTC and Director QA and sustainable development for Oxylane

that we'll be selling soon – we hope to be able to extend their guarantee beyond the 18 months you usually get. As far as pricing is concerned, Oxylane can use its enormous sales records as leverage in price bargaining with the suppliers: the Group has more than 800 outlet shops in 20 countries, with an annual turn over of 6.5 billion euros for 2011 and a 10% growth rate at over the past 5 years.

Customer satisfaction is the barometer

Quechua, Artengo, Inesis, B'Twin, etc.: all are Oxylane brand-names and represent most of the articles sold. They are made buy 1 500 sub-contractor companies, even if Oxylane does have some factories of its own. "These factories allow us to learn the manufacturing skills and practice needed to make our products and provides us with an input for better management policies vis-à-vis our sub-contractors. They must be profitable, competitive and quality seeking", explains Fabien BROSSE, who graduated from UTC Compiègne in 1999, in Mechanical Engineering. "UTC enabled me to develop personal skills that are really important for the job I now hold: a sense for responsibilities, self-reliance and an open international vista, all of which are key not only at UTC Compiègne but also at Oxylane. When I first applied for a position in the job-market, I had a concrete approach to QA issues and thus was operational from the start". Fabien now follows clients' posted notes very carefully. "Here we have the N°1 marker of our performance rating. We took the decision to publish them all on our Internet site, running, of course the risk of having to stop certain products, for the obvious reason that the 'next day' the sales of these items cease immediately. Getting a bad mark is a signal that we must move in and check the product". A QA approach relies on methods that involve every stage, from having an excellent knowledge of what customers expect, thanks to information that returns to our outlets and via the network of amateur sports-people and professionals that we hire to test our products thoroughly. The tests are designed by the product engineering teams and they reproduce the real life constraints that the items will be facing, etc. "We carry out 60 000 tests a year and the 700 QA engineers check out the work conditions and the quality of the production at all our suppliers," adds Fabien. Not forgetting after sales services (ASS): "When a customer returns a faulty product and is dealt with satisfactorily, this actually increases client fidelity. The return rate of Oxylane products to the sales outlets dropped by some 30% over 5 years and for the first time, in 2012, we had no returns from clients or items withdrawn fro our goods".

Quality assurance depends on specialist laboratories

In order to innovate, feels Fabien, good ideas must come in from users and the company must gain an excellent



knowledge of their needs. "Quality problems link more to innovative product lines and quality assessment must accompany the policy rather than hold things up. This means that we must remain careful and not attempt to bring everything into a methodological framework. We brought out 2 800 new products in 1012, all designed by our 800 strong engineering team. Their excellent knowledge of the customers' needs and the technical equipment they dispose of allows them to move from a prototype to a 'sellable' product in less than 24h! Such an approach could not be envisioned without a strong quality assessment approach, to be used intelligently and flexibly, accepting the possibility of making errors". Oxylane has been setting up exclusive partnership contracts with external laboratories to help in making innovative progress, for example, to develop a battery specific to an electric bike use. Movea, for example, a leader in movement analysis also accompanies Oxylane to integrate devices in tennis rackets - to be used to measure speed of racket strikes, the number of 'right' hand strokes, back-hand, etc., in the context of an interactive programme to coach tennis players. This trend to generalised assistance can also apply to the automobile sector, where QA methods are being strongly modified, updated.

Work more with risks and utilisations rather than on methods

Another example lies with PSA's (French car manufacturer) Annie BRACQUEMOND, who is in charge of Quality and Operational Safety at the Innovation Directorate that reconciles innovative and safety seeking approaches on a day-to-daybasis: "Vehicles are incorporating more and more mechatronics and constantly propose new equipment that marks a frontier between comfort and safety. This raises problems of quality and safety that we have to apprehend upstream to avoid having t return the vehicles and have legal issues arise. It is of course unacceptable that any onboard system may lead to an accident due to equipment failure." We have to reconsider risks in the new environment of "smart" cars, where the calculators are all interdependent. "Since 2000, we definitely have changed era, moving on from AMDEC methods to risk control protocols," sums up Annie BRACQUEMOND. "From this point forward, we are working on utilisations, getting to better understand the most unexpected situations arising related to real utilisation conditions and to innovations and the identification and processing of associate risks. We are drafting a risk bench-marking process that presents a twofold advantage in that it reduces the number of investigations we have to make, compared with the previous approach which was topheavy and to systematic, and it covers a wider range of situations, focusing the risky situations". This change of method stemmed from three strong requirements: 1° to avoid overheads that would be incurred by an "overhigh" quality demand; 2° to react responsively to a growing number of legal cases and media pressure that can impact the image of PSA negatively and 3° to adapt to the new safety requirement contained in a European directive that followed the classification of vehicles as consumer goods.

And what about the Administration?

Quality assessment is gaining ground in our Administration, to the extent that Government is seeking to raise productivity and competitiveness. "I myself discovered quality concepts about 3 years" says Yves TALAUD, Head of the Quality Mission at the French ministry for Economy and Finance. Yves has spent his entire career in public service. To initiate a quality approach in the Secretariat General at the Bercy ministry buildings, which houses 3 000 people out of the ministry's total of 12 000, Juan-José PEREZ was recruited as Head of Quality Control, coming in from the private sector; quality was something that came "naturally" to him. Thanks to this double approach a good knowledge of the Bercy Administration culture and skilled with methods as applied in the private sector. For these reasons, a Quality assessment was conducted in certain directorates at the Secretariat General, to improve internal service-to-service quality. The approach includes a historic aspect, if only to observe semantic change; for example, moving from the word "beneficiary" to that of "client" is tantamount to breaking long-standing habits. "Building up a quality assessment approach took us 18 months" underlines Yves TALAUD. "We took the time to listen to all the directors, service heads, and staff at all levels, so that we could define priority areas. This phase, listening to everyone, unusual as it was, showed that the quality of service was in fact satisfactory but not so the quality of the relationships between the services themselves." To summarise what the services were looking for: more transparency, better reactivity, better acceptance, a single authority and the assurance that request would indeed be processed.

N°1 commitment: reply under 5 days

"We took the engagement to acknowledge requests within 5 days and this led to a series of debates: the



Alain Storck, President and Vice-Chancellor, UTC / Zohra Cherfi, President of QUALITA 2013 and research scientist, UTC



Claude CHAM, President of FIEV and AFQP

staff thought that this was simply impossible", says Yves TALAUD. This commitment was top of a list of 5 taken by the transverse working parties on the quality assessment approach. In parallel, 32 "job" commitments were approved, including transparency on pay changes or better co-ordination of numerous office furniture removals. "This approach revised management thinking round shared objectives; it proves a cohesive cement for team members", says Yves, proudly. "On occasion, our approach was not well perceived, but the intrinsic quality of our dialogue evolved positively as we progressed. Indeed, it amounts to an unnamed break-through: quality no longer inspires fear and each ministerial structure now has a person in charge of quality assessment. By 2015-2016, we hope to qualify under the ISO 20000 standard." The same goes for the France's Directorate for Civil Aviation. Quality is used there as a federative tool to modernise service operations, via a digital portal called Bravo Victor. This allowed the authorities to frame communications of some 12 000 staff, in order to replace informal staff communities by about 100 formal communities (organised round projects, sites, etc.), to create a transverse dynamics, to improve collective performance levels ... "In an administration where the very word "quality" carried a negative overtone, following some unfortunate experiments with dogmatic ISO approaches carried out by external consultant agencies, we are now practising quality without boasting about it" says Jean-Pierre DESBENOIT, Director for the Information Systems and Modernisation of the DGAC, with a knowing smile. "The portal opens up processes, concentrates the returns on experience (ROE), while integrating the culture and needs specific this ministry. 'Quality' allows you to do more with less: the portal itself cost 6M€ but also saves 1M€/yr thanks to a sharing of the support functions, for example". Quality, therefore, allows you to announce good news in these times conducive to public savings.

d'IPLUS **qualita2013.sciencesconf.org** webtv.utc.fr/watch_video.php?v=SK631B6SD409 * Fédération des industries des équipements pour véhicules * Association France Qualité Performance

The UT Group advances, in network formation!

The network approach, under way for a year now, began in compliance with the wish to see joint strategic views and actions undertaken by the French Universities of Technologies (UTs), viz., UTC (Compiègne), UTBM (Belfort-Montbeliard) and UTT (Troyes).



Collaborative logic

We all have in mind the aborted plan to merger the 3 UTs. "The conditions necessary for success were just not there; notwithstanding, the dynamics of moving closer together are under way, in a collaborative format, with joint, shared projects in view", adds Prof. STORCK. The statutory regulations of the UT Group were adopted, end 2012 with the home office of the Group located in Paris; 3 delegate generals were appointed to ensure correct functioning of the Group. There are also 5 associate members: Escom-Compiègne, EPF-Troyes, ESTA -Belfort Montbeliard, the University of Shanghai and the ETS-Montreal. "This flexible, pragmatic organisation enables us to build confident relationships and assures shared success", underlies Pascal BROCHET, President and Vice-Chancellor of UTBM-Belfort Montbeliard and Group Secretary.



Six thematic Standing Committees

The UT Group will progress as a function of the findings and recommendations s of 6 Standing Committees, each of which has a road map to define: training and pedagogy; research and innovation; campus life (undergraduate/graduate); development and finance; best practice and communications. Each Committee has a moderator, 6 volunteers from staff and student ranks, a referee director (one of the UT presidents). "We are making sure that there is a coherency between the work achieved in the Committees and the overall Group strategy. WE could in fact create more Committees", adds Prof. STORCK "but our aim was not to get dispersed just as we were starting". Presidents STORCK and LERMINIAUX, for example, are the referees for the Standing Committee on Development and Finance, the remit of which is very wide-reaching: Should we envision creating a 4th UT? How could we diversity our financial resources? What should be our international stance and policy? "The UT Group", underlines President LERMINIAUX "has every reason to build up international partnerships" and President BROCHET

adds "Gaining an engineering degree is something that attracts more and more countries and companies round the world. The French UT Group carries a 'clout' that is more efficient than many others to convince new partners to join forces with us".

Enhanced attractiveness

Could the same logic, we surmise, be applied to our relationships with the economic spheres? "Increased notoriety of the French Universities of Technologies Group (UT) will reinforce and enhance our level of attractiveness. We could the think of sharing our means, to propose new opportunities, along the lines of the Complexcity joint research programme UTC-Compiègne has initiated with UTSeuS (Shanghai)" says Christian LERMINIAUX. Another path to explore, in the words of President Alain STORCK, this could consist in our "Positioning ourselves to study subjects that are transverse to the three French UTs, a case in hand here being transport systems, that we can collectively valorise in France and internationally". Looking at sharing means and skills, the three UT Presidents identified several paths, one of which is pedagogy. "We should put our heads together to renew our pedagogical thinking, integrating approaches made possible by ICTs. "Teaching has now become more interactive and student-focused", underlines Pascal BROCHET. "We could likewise bring the alumni networks closer, or facilitate transfer moves from one UT to another for students who wish to follow given courses. We might even, why not, set up a joint Foundation. Let's dream our future into reality!" The first challenge in this line of thought and ambitions will be to federate the teams in each UT to make the UT Group as a whole prosper and flourish. As Christian LERMINIAUX sees it "We must mobilise our forces and convictions to demonstrating just how the advantages accrue from devoting time to committee work - in this way we can clearly foresee some future prospects, ideas that will support and uphold the specific brand of the French UTs".



Belfort-Montbéliard Compiègne Troyes "We are living in a competitive world, where

strength lies in united forces", recalls Prof. Alain STORCK. President and Vice-Chancellor of UTC-Compiègne and President of the UT Group. "When university competition is international as it is today and comes under endless legislation changes; we have every interest to join forces, but not to merger. It's a question of critical mass". Over and above a site logic, encouraged by the Government, the UT Group also defends a brand-name, a special training model, a trade-mark almost. The UT Group must promote this identity. "Our trademark", deplores Prof. Christian LERMINIAUX, President and Vice-Chancellor of UTT-Troyes and UT Group Treasurer "does not enjoy the notoriety it merits. It was becoming a matter of urgency to position ourselves in a network formation, if only to share "best practice" noted in each of our institutions over the past few years. The UT Group must facilitate the rehabilitation of the model, must continue to develop it and progress continuously."





The spirit

of entrepreneurship at UTC

UTC, a three stage rocket **boosting entrepreneurship**

"In order to boost innovation and creation of enterprises, the UTC rocket has been designed as a 3-stage vehicle", says Benoît EYNAUD, UTC Director for Innovation and Partnerships. Stand-by for lift-off!

The first stage comprises modules that initiate the undergraduates to creation and management of innovative companies - these courses are given by Joseph ORLINSKI. "One prerequisite we have here, enabling registration in the courses, is to present a project!" Under the course code GE15, the students approach the corporate world in terms of company creation and development. Joseph himself graduated from UTC in 1986, became a company director. He therefore is in an excellent position to provide pragmatic lessons. He has been doing so since 1995, a time when the former President François PECCOUD decided to make valorisation of innovation through corporate creation one of the University's priorities. "The very first thing I ask my students to do is to dream! says Joseph. They must follow these dreams and passions; in a word "think big", before coming back to Earth and becoming pragmatic." This approach marks the minds of the students, and those who later set up a business often call back - even after a few years have elapsed - to ask for advice or help or to join the UTC Business Club.

"Creating a business enterprise is not just wishful thinking"

"UTC-Compiègne offers two assets, beginning with a training that encourages and enhances students' initiative and the the spirit of enterprise". There are course modules like Project Management (GE37) or Management and Marketing of Innovation (GE39) and the minor option FIRME (Training in Innovation and global enterprise relationships" or gain the speciality "Management of Innovative projects, which is in fcat transverse to all UTC's technical Departments. "UTC-Compiègne also offers tailor-made assistance for those who have a project. Creating a business enterprise is not just wishful thinking and the young entrepreneurs must not get locked into accountingfinancial objectives - they must light fires everywhere. We do a lot of exchange work with the project proponents, future bosses or bosses in position, to help break down the isolation and avoid their losing precious time." Joseph ORLINSKI himself has

many projects to hand: setting up a training course module for 1st year undergraduates, organising open days to have students, entrepreneurs et ali get together and exchange. The first such event was organised with the IAR Invest Club, and will be convened June 6, 2013; it will serve to introduce actors from "green" technology sectors, including 5 business angels. The theme will be "Entreprise- taking reasonable risks – and the risk of being unreasonable". "The entrepreneurs present will not be invited to hard-sell their products or business" adds Joseph ORLINSKI, "but on the contrary to mobilise the young students and explain why it is necessary to raise our heads in France, in a very low profile economic context".

Gaining a label, a first step towards creation

The second stage of the UTC rocket is the University's Innovation Centre. "For 3 years now", explains Benoît EYNARD, "the Innovation Centre has been initiating competitions for innovative projects and the Centre's Jury awards labels to the most promising received. Labelling a project opens the way for the proponents to mature, to take the new idea to the stage of creating a business

operation and place its products on the market-place." It is the UTC's Directorate for Innovation and Partnerships that assists and oversees the technological, economic and marketing aspects of the project as it progresses. External actors are also brought in as and if they can provide an added value to the project: market analysts, designers, biotechnology experts, etc. These add-ons are financed through a maturation fund with the UTC-Compiègne Foundation and represents an envelope close to 125 000 €/yr. The project competition is open to the undergraduates, to teaching and research staff and even to external actors, if they can bee seen to contribute to the local eco-system we have set up in and around Compiègne, initiated by President STORCK. Among those projects that have been awarded a label, some have already reached corporate creation level, an example being Closycom (July 2012) or Novitact (cf. intra p.15). Others have registered patent claims, e.g. Tatin. When the building programme is finished, the premises of the UTC Innovation Centre will be a focus point for valorising

innovation, with sectors reserved for create activities for prototyping, for meeting rooms, etc; "The Innovation Centre will vitalise a proximity network function dedicated specifically to entrepreneurship", says Benoît EYNARD. There is only one shadow cast on the scene; the Picardie Incubator is undergoing rehabilitation at the moment, and this has left a temporary void in the normal UTC follow-up operations that run from project stage to the market-place. "A second competition has been launched in parallel, used to select student projects even before they reach possible UTC labelling - this enables projects in their very early stages to obtain some financial support and human assistance where needed over a one-semester period. Students here are brim-full of projects, stresses Vanessa CAIGNAULT, who works at the Directorate for Innovation and Partnerships. Some of the pre-labelled selections we help in this way will definitely, I feel, go forward to full label status."

Third and final stage of the UTC rocket – the SATT unit

The SATTs (acronym in French for Technology Transfer Companies plc) were created by the French Government to accompany those innovative projects that called for high-level support; consequently the SATTs dispose of considerable amounts of human and financial means, explains Benoît EYNARD. "UTC-Compiègne has entered into an agreement with the University Paris VI (Pierre et Marie Curie), the CNRS, the national Museum of Natural History, with INSEAD-Fontainebleau and the University of Paris -Pantheon-Assas in what is known as the SATT Lutech. One of the projects awarded a label by the Innovation Centre, the IDCCM is currently being valorised by Lutech. This is an business start-up offspring of UTC's BMBI (bioengineering) Laboratory which has developed an innovative system for cell culture protocols that can be of interest to the pharmaceutical, cosmetic and/ or chemical sectors at large." This ISCCM project needed $300\ 000 \in$ to move on to the next stage and the Lutech SATT saw fit to help out and finance this", recalls Benoît EYNARD. "Among our coming events, do not miss out on the "Forum Entreprise" specially aimed at SMEs and innovative companies, organised by the UTC Directorate for Innovation and Partnerships; this will be held May 2, 2013. "There is by the way another "Forum Entreprise" organised at and by UTC but we saw that the SMEs found it hard to have their say faced with the large multinational groups," adds Benoît. "What we have decided now is to hold a special SME Day, once a year, organised along the same lines".



UTC'S FIRST PROMOTION GRADUATE

Noise and vibrations an endless, timeless problem

On the business card of "Accord Acoustique", we note that it is an polyvalent engineering design agency, specialised notably in noise abatement and vibrations.

n an urban setting, or at work or even out in the wilds, noises can be perceived as nuisance factors; indeed they are ranked among the most common and damaging nuisances met. Accord Acoustique is there to answer a single question: how can we protect people from noise and improve 'listening' acoustics? The missions of the agency are of a wide scope, from drawing-board studies, to field monitoring and diagnosis and in-house modelling of situations. "our missions can last a few hours or run to a few years", explains Jacques MILLOUET, who was a graduate in UTC's first class, 1977 - he has chosen Mechanical Engineering (Acoustics) as his speciality at the time of doing his degree. "We really felt like pioneers!" recalls Jacques; he wanted to set up a business, create a company as spoon as he graduate, but this opportunity only came to be some 20 years later, following suit to an economic layoff that allowed him (through the compensation award) to become an entrepreneur under optimal conditions. "One of the problems attached to creating an enterprise is that, simultaneously, it is the right moment, for example, to found a family. Between the years 1985 and 1997, I had acquired an excellent experience in acoustic analysis bureaus. That was beneficial, enabling me to understand fully the techniques involved, but also to help build up a network of contacts and gain some professional recognition

for my capabilities and skills". Accord Acoustique has an order-book with a wide variety of missions: in industry (working line position noise), machinery, noises affecting the environment, etc., in building sectors (residential homes, cultural sites, university premise, etc.) in the environment (transport, neighbourhood problems, etc.) Ten people work at Accord Acoustique, including 3 UTC graduates! The annual turnover is 925 000 € for 2012, both in France and abroad. The assigned business objective is to maintain this level for 2013 and to develop further in a somewhat ambivalent context. "On one hand, you have the changes in regulations, notably in terms of environment-compliant certificates in the building sector, with new acoustic performance levels as standard; on the other, there is a clear slowing down and thinning out of major work sites, because of the morose economic conditions prevailing today" underlines Jacques MILLOUET - who is still a member of the Mechanical Engineering Bureau at UTC and he hosts placements of 4th (final), year UTC students.

d'IR^{Lus} www.accord-acoustique.com www.utc.fr/formations-enseignements/filiereacoustique-vibrations-industrielles.php www.utc.fr/recherche-innovation/umr6253-mecaniqueacoustique-materiaux.php

Technology applied to plants

Sophie DECOBECQ - after a final year project on fermentation that took her into the world of distilleries and on to Mexico – created Imex there in 2003; her brand of tequila, Calle 23, is now sold round the world.

equila is distilled from a blue agave (agave tequilana) that only grows in Mexico. Only 5 Mexican States are entitled to use the trade name 'tequila'. The mature plant is only cut once, after growing fro 7 to 9 years. Sophie decided to respect the plant and valorise it completely. Her brand of tequila is 100% tequila plant sugar, contrary to other low-cost brands called "mixto" that only contain 51%. Forget your student day boozy nights out. Most of the Calle 23 production is exported, the first market being Australia. "Soon we hope to set up outlets in India. Our reputation was via the grapevine, with one importer in each country we targeted." To begin their operations, Imex dealt with the customer connections between the Mexican distilleries and the clients abroad. But Sophie also carried out some experiments in the distillery lab.kitchens, "part scientific curiosity and part personal!" "My scientific background enabled me to value add to the nature of tequila and its 'character'. Then I received advice to find a brand-

name for my version!" Imex is located in Guadalajara, employs 4 persons, while the distilling, bottling, etc., is externalised. Ten years later Sophie is faced with a decision: to continue to grow or to stay with an artisan type structure. She is also looking for a manager, to whom she could delegate the administration side of the company, leaving her some time to indulge in what she likes, viz., research and experimenting with new products. "Production organisation, flow management control, quality assessment, etc., all of these points were included in my training as a UTC-Compiègne student engineer, and prove very useful. But my links with UTC come mainly via my class-room friends. These are tremendously rich relationships - lie a second family, full of good advice and thanks to which I do not feel at all alone, even when the going gets rough", adds Sophie, who now holds dual Franco-Mexican nationality. Mexico is a country which enjoys a real and sincere 'joie de vivre' despite current social unrest, safety and corruption. "Here, nobody get

hot under the collar, because there is a risk of losing face. We have to spend some time outside the work circles creating new links. Punctuality is sort of random here, refusing an invitation or a business rendezvous is badly looked upon: the Mexicans, consequently accept invites, knowing full well they will not turn up. If, for example, a delivery is delayed, they much prefer explaining that the van is on its way rather than admit that the labels for the bottles were not ready on time, despite their determination to get thing done properly ... Imex is a sort of buffer-unit, between this Mexican culture, likeable but lax and what we experience on more Western market places which are more rigorous. But myself, I'm like a fish in a stream and I do see time go by!"

d'index www.utc.fr/formations-enseignements/genieprocedes.php

www.utc.fr/recherche-innovation/ea4297transformation-matiere-renouvelable.php

FUND RAISING

A complex subject that has been resolved : dealing with old tyres

So, what can we do with old, worn-out tyres? Why not burn them to get all the value embodied in them? This is the project advocated by Pneutech, a company created in December 2012 by Gregoire JOVICIC, after he had done the rounds, globally, to see and assess tyre incinerators.

Today most worn tyres end up in a refuse tip or in cement furnaces, where the rubber is used as a substitute for fossil fuels. "But, in these utilisations, they are not used to produce electricity and the pollutants released into the atmosphere should be looked at carefully. And, if there are only a few old tyre burning installations, the reason is that they are just not worth it", explains Gregoire. But, he goes on to explain, maybe he has the answer: "I apply the mineral treatment used to extract zinc oxide and cobalt from furnace ashes. There is a process for this, but I am engaged in research work with French, Moroccan and South-African laboratories to improve on the process. Zinc oxide is on the market place for 17 000\$US/tonne, cobalt comes in at 47 000 \$US/tonne". Gregoire graduated from UTC-Compiègne in 1982 and was even instrumental as an undergraduate in starting the "students' office" BDE. He pursued his studies with an MBA at a French School of Management, Lyons (EM-Lyon). A highlight posting came when he was appointed Director of International Affairs at the Energy and Environment Division of Charbonnages de France Ingénierie (France's national coal-board). He is readving 3 projects fro tyre incineration, the most advanced being at Strasburg, East France and in Polgar, Hungary. The fist named facility is designed to burn 11 000 tonne/yr tyres in a 31MW co-generator unit (the latter remains to be

designed) for a total estimated outlay of 156 M€. In Hungary, the idea is to rehabilitate a power station that has gone

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bankrupt, with a target of 23 000 tonnes of tyres, with ash processing in France. Now what Gregoire needs now is the hard currency and for this has launched a 78 M \in subscription. He is negotiating currently the worn tyre supplies with French, Luxemburg, Belgian and German.

dinfos http://pneutech.fr

www.utc.fr/formations-enseignements/genie-procedes. php

A strategic vision

Hervé GOMAS, who climbed the career ladder to the top of Stanley Black & Decker, decided in 2012 to do a U-turn and start a new career in wine-trading. "Thanks to my training as an engineer, I in fact looked at this trading job as I would in my former position, viz., with an ambitious strategic vision".

was the only French national on the American SB&D executive board, with 2 500 people reporting to me and a turn-over of 800 M\$US. But at that point I knew I could go further. It was the job however that enabled me to set up my own company", explains Hervé GOMAS. He also had the time to build up an extensive address book with potential buyers and good wine amateurs round the world to whom he started selling some excellent vintages. He has just returned from Taiwan, where he had done some prospection. "I have readied a 3 axis strategy: sales outlets in shops (in a shopping mall near Paris), B-to-B sales and export which will be the strong business growth axis. I have developed a modern stock management system which allowed me to double up my level of activity", he adds. The company Cave d'O, employs 5 personnel and has a turn-over of 700 000€ already. "What you must do is talk a lot about your business and not get

isolated. To create a company you really have to believe in it and yourself and stay lucid at all times; you must have a vision and accompany it with a development plan which avoids mistakes in commercial safety margins. You must also be prepared to change your plans. UTC Compiègne teaches you how to do this. For the moment I don't have that many people reporting to me but that will come ... in time. For the time being the important thing is that I'm a happy man''.

INTERNATIONAL

"Staying technically connected"

Saigu Technology & Developments operates between China and France, producing one-off machines and generating connections between Asian and European purchasers and clients.

am approached increasingly in my role as a mediator or go-between," says Christophe DAUGNY. "I assist French companies who are looking either for suppliers or for market opportunities in China; in reverse and thanks to my address book. I have gradually developed a machine design activity, mainly for

QA (quality assessment)" The French companies who use his services are assured of having an intermediate broker who knows French law and understands their needs. Saigu Technology & Developments set up business in China in 2007, via a large contract to install a giant telescope control system for the Celestial Empire. The company now employs 5 persons, all Chinese nationals, head office in Nanjing and an annual turn over of 400 000€. The regular customers come from various sectors: automobiles. astronomy, R&D ... A special, advantageous feature is the fact that Western technologies can be implemented in a Chinese workshop, and this makes for a lead position in terms of quality-price ratio. "When I graduated from UTC Compiègne, in 1988, the French Atomic Energy Agency (CEA) asked me to finish an in-house project. To do this I had to set up my own business concern. I had thought of looking for a job after the mission was over, but finally I

decided to continue my entrepreneurial adventure", says Christophe. "I am an engineer at heart, and I love technical things and technology in general. Indeed, if I can give this piece of advice to UYUC students: stay technically connected, close to the terrain. Know what you are talking about. This is important to be a good manager. It is also a quality assurance marker, as well as having the Western image which is well perceived in China. I spend about the same amount of time, year in year out, both in France and China." His latest order: 3 tonnes of aluminium profiles, made in China, to be assembled in Saudi Arabia. Welcome to global affairs!

d'infos www.utc.fr/formations-enseignements/geniemecanique.php

www.utc.fr/recherche-innovation/umr6253-mecaniqueacoustique-materiaux.php



Adapting your location

Biotech Quality Group, located in Belgium is a consultant company in bio-pharmaceuticals and is a regular visitor to UTC to seek future employees.

True Compiègne. We are proud of our technical teams!", says Yvan GOUTTEBELLE, co-founder of the company and a graduate himself, in Mechanical Engineering. "It was totally by accident that I found myself in pharmaceuticals. After 5 years spent in Chicago, where I used tools I had acquired in UTC Compiègne, specifically industrial quality UV devices and control, I went on to work in Ireland before deciding to set myself up as a consultant: the pharmaceutical sector uses consultants regularly to accompany their plans to improve products and processes". With 3 associates, forming "a complementary trio with an excellent track-record", Yvan

created the Biotech Quality Group with its home office based in Brussels. The choice of city came by observing the central position of the Belgian capital and the fact that "Seven of the ten largest pharmaceutical companies are less than one hour drive from Brussels. Moreover, setting up a company in Belgium is rapid and easy, there is a far more dynamic entrepreneurial culture in Belgium compared with France. Belgium is a place where the "influence" of Grandes Ecoles (French elite engineering establishments) is less overbearing than in France". For Yvan, personal development does not necessarily need a large group formation. He contacted UTC Compiègne to present his company to undergraduates and graduates who were or might be interested. "Biotech Quality Group has developed its own tools to assess the maturity of QA systems, for rapid diagnosis and tailor-made improvement schemes. The main problems we are asked to resolve are product returns, labelling errors or even formulation errors." Biotech Quality Group works both with multinational groups and SMEs and shows an annual turn-over of 1.2 M€ after only 18 months business. So, what is your secret, Yvan? "Get to know yourself well and join forces with complementary associates!"

d'inflos www.thebiotechqualitygroup.com www.utc.fr/formations-enseignements/filiere-qualiteindustrielle.php



But this move was not self-evident: "undergrad. Moreno" had some well-anchored anti-enterprise ideas. She changed her mind after a seminar organised by Joseph ORLINSKI "I modified some of my a priori concepts: bosses can in fact be nice! As soon as Bioparhom was launched, we tried to reconcile the prerequisites for a solidarity- intensive economy: job creation, reinvesting in the company, limiting the executive e salaries, developing our activities without a need for subsidizes or grants, assessing anonymous CVs, etc. I wanted to have the best possible functional mode, combining associative and entrepreneurial. We are still thinking about adopting a co-operative statute", says Marie-Valérie Moréno. When she defended her thesis,

THESIS

Research and personal balance

For Marie-Valérie MORENO, setting up a business company rhythms with freedom. She set up Bioparhom as soon as she had presented her PhD thesis.

measuring body composition by bio-impedance, with adults and children, whether they are in good health or suffering from some pathology. The tools we have today are inadequate. But before she started, she had a doubt: is the creation of an enterprise compatible with a raising a family or enjoying a certain life style? "I was confronted with terrifying images of working non-stop 70h a week! Fortunately, for me, the son of UTC's President Françis Peccoud, opened my eyes: there are, he said, ways to be an entrepreneur in a context of more feminine relationships to positions of power". Marie-Valérie was laureate of the Oseo competition for creation of innovative companies after her thesis and this enabled her to develop a first prototype sensor. She then decided to move and settle I Grenobles, where Bioparhom found an incubator structure to house her your creation and benefit from support from the Entreprendre network. "I associated myself with Florent HUBERT, also a graduate from UTC Compiègne who had followed the UTC courses on Project management and who shared the same sort of vision I had about enterprises. He is a keen sports fan, and he developed our devices to be used in the sports worlds, with partners such as Decathlon, for example". The technique behind bio-impedance consists of studying the physiology of a living person by measuring the voltages created by very small currents running through body tissues. This has possible applications in numerous areas: nutrition, nephrology (balancing artificial kidneys), oncology, cardiology, neurology, etc. "This opens up some attractive

prospects to personalise treatments. This, in the framework of the French Government's Investments for the Future Programme, we are working on the development of a biochip that will assist in detection of skin cancers. With our partner Ifremont we are putting together remote medical kits with sensors to allow remote diagnosis. We have already sent some kits out to Mali in Africa to measure the degree of malnutrition of mothers and children there and we hope to be selected as suppliers of UNICEF. We are doing real research that takes time but we are convinced it will be productive and profitable. The home appliance company Seb have approached in the framework of its Open Food System, the aim of which is to design our kitchens for tomorrow. "Sensors disappear and service appears - and we are changing our business model in this direction. » she notes. Bioparhom will soon be celebrating its 5th birthday; the company employs 5 persons and has an annual turn over of 300 000€. The corporate objective is to reach 1M€ in 2014 and have 12 staff. The enterprise has become synonymous with freedom, in the business affinities and in life style. She makes the most of life with her two children, and of the Alpine environment which she adores, plus the pleasure of lecturing and pursuing scientific research. "Women should not worry: it is possible to marry business and family lives!"

d'iRfes www.bioparhom.com

www.utc.fr/formations-enseignements/genie-biologique.



FUND RAISING

UTC's after sales service at its best

"We are enjoying a strong soldier's wind. Our market opportunities are wide open, our teams motivated and our customers satisfied", says Jordy STAELEN, co-founder of 3mundi, a business travel agent created in 2006 who today employ 52 staff.

Between 2011 and 2012, sales doubled to reach 38 M€. The success met by 3mundi depends on 3 factors: 1° investments in the best technologies, 2° an exclusive tool to detect fare changes and 3° high quality service. "The most efficient tools can do nothing when a volcano erupts or when heavy snow falls. Many of our customers joined us following episodes like this and this is where the term "service" takes on its full meaning, in a very competitive mature market-place", underlines Jordy, who graduated from UTC Compiègne 10 years ago. "My job today is not at all in engineering but without my training at UTC, I would not have known how to set up a

business concern! My own family background is far from the entrepreneurial world, but I admit that my salary in consulting is quite comfortable. I had followed the course given by Joseph ORLINK at UTC-Compiègne; I took part in the local UTC associative life, spent a semester abroad, all of which opened my eyes". With his two associates, the urge to set up a business came before the idea took form. Together, they explored ways and means. "Our idea, we thought, was ingenious but nobody wanted to buy it. So we decided to adapt, and that is a thing we do learn at UTC. At the age of 25, we compensate for lack of maturity by a very rich structured support, provided by the young business incubator of the Picardie Region, where we were introduced by Joseph ORLINSKI. Seen in this light, UTC's, the after-sales-service (ASS) worked very well. Sooner or later, of course, we shall cut the umbilical of aids and support, to sign our first contract". In 2012, 3mundi raised 2 M€ and this reassured the clients in the major groups and helped accelerate growth? "We shall even start recruiting this year". This is a rare event in this sector.

d'influs www.3mundi.com www.utc.fr/intent/?p=coursge15

Innovative computer science solutions

UTC engineers have close connections with the world of finance. We have an excellent example of entrepreneurial success with Bi-Sam, a software editor in the field of managing financial assets, created by Alexandre HARKOUS in 2000.

hen he graduated from UTC in 1992, this computer science engineer already had the entrepreneurial fibre and calling. He started working in the banking sector and finance, before becoming a consultant and deciding to "fly with his own wings". What he needed were innovative computer systems that could be useful in the world of finance. Bi-Sam came up with its first viable solution after 2 years' research and continued to invest, 3M€ in its R&D programmes. The company today has an annual turn-over of 20M€. "We depend a lot on the concept of intellectual property rights", underlines Alexandre. Today the company registers an annual turnover of 20 M€ and employs 100 persons. It is a leader in software designed to measure the performance of portfolio managers and the risks that they take as a function of then market-place, depending on economic and geopolitical actors. Thus, the clients of Bi-Sam are portfolio managers who can compare their results with

those of other managers and their levels of performance. In today's age and world, the figure make us reel: the biggest customer of Bi-Sam is Fidelity: an American company whose portfolio amounts to 3 000 billion \$ US! Alexandre created Bi-Sam with Christophe VOLARD and Xavier CHAUDE, the last named is also a graduate from UTC, in computer science. They first spend 2 years at the UTC technology transfer centre, where, in their own words, the support from Joseph ORLINSKI was "primordial". We validated the Bi-Sam concept with colleagues at the TT Centre and defined what would be the factors of a future success. But they still had to identify their first clients and investors". notes Alexandre. He was also President of the Alumni association, "UTC teaches us how to improvise and this is an essential advantage. François PECCOUD, who was President and Vice-Chancellor at UTC-Compiègne from 1995-2005 introduced a real vision of entrepreneurship to UTC; he was a great mentor for me". The three acolytes opened an office in Compiègne before setting

off for Paris, London, New York, Hong Kong, Singapore and Melbourne. "We had to prove tenacious, have a strategic vision and not be afraid at all of 'failures and flops" or international challenges. We opened an office in New York in 2008 while the world financial crisis was rampant. We were "in the black" after two years in neutral gear: we were able to demonstrate that our solutions corresponded to the problems the American financiers were facing. Now we are working with the finest management companies", adds Alexandre. 80% of the turn-over comes from international business contracts. So, what, Alexandre, is the recipe for success? "Compose a good team, if only to avoid solitude when times get hard and widen the scope of the skills your company can use".

d'infos www.bi-sam.com

webtv.utc.fr/watch_video.php?v=S96RRRU27S24 www.utc.fr/formations-enseignements/genieinformatique.php







Renewable energies, a reasoned option

Latest news from the Sofren Group: a PhD student is conducting an R&D project with the group to valorise tree bark. Let is now recap on this excellent entrepreneurial success story.

felt fine as an employee. I learned a lot here. But I always had a desire to create my own company and at 48 years of age, I decided "the time has come". Fabrice GIRARD who graduated from UTC in Mechanical Engineering, first joined Bertin Technologies and the Altran. In 2006, he set up a engineering consulting agency specialised in electricity production (oil, gas, nuclear and renewables). "With my associate, another graduate from UTC Compiègne, we followed a purely economic logic, based on a single question: if a crisis occurs, which sector will suffer least? Energy is an obvious domain and in a few years this prediction was borne out." Sofren Group had an annual turn over of 17.1 M€ for 2012, compared with 6.9 M€ for 2010; the company employs 200 collaborators. The Group now has expertise in several sectors and numerous speciality areas, from mechanical engineering to civil engineering, project management and electronics. The client portfolio contains names like EDF, Areva, Technip, etc., who subcontract work packages to the Group, often adjudicated by tender. "In renewable energies, Sofren Group works a lot with EDF Énergies nouvelles to develop rooftop solar photovoltaic arrays", says Fabrice. He is also involved in a bio-mass valorisation project, in partnership wit UTC Compiègne. "Since last October, we have been hosting a PhD student from Prof VOROBIEV's team; she aims at valorising barks, which prove very rich in polyphenol contents and is of interest to the cosmetics sector. Fabrice adds "The subject is captivating; it makes me dream and together I think we can make it work. I'm very happy to be able to collaborate with UTC Compiègne".

d'iRfos www.sofrengroup.com

www.utc.fr/formations-enseignements/genie-systemesurbains.php

www.utc.fr/formations-enseignements/genie-systemesmecaniques.php

THE OSÉO COMPETITION

With 3 energyintensive graduates

With their UTC diploma scrolls tucked under the airs, three UTC graduates from Lille, Cyril DUBUS, Camille THIRIEZ and Clément RAFFIN set up Effigénie, an innovating start-up in the field of energy efficiency for buildings

Cscience; he also followed the course on enterprise creation and spoke to Joseph ORLINSKI about the project he had been preparing with his two high-school friends. "Thanks to his support, I did my end of studies' project in development of the exclusive technologies we would be implementing". Effigénie proposes two solutions: "Effivision", used to monitor water, electricity, gas consumption via a web-site interface and "Effipilote", to optimise the energy consumptions. So, what is special about the applications? Effipilote takes into account parameters that are generally ignored in other management tools, such as weather forecasts, over and above the thermal features of the building or its occupation (persons present). "This computerised system allows us to pilot the consumptions case-by-case. "Effigénie" won the Oseo competition (for innovative business creations) two years running and that allowed us to actually set up our company". Commercialisation began in September 2012. "We target the SME executives who are also proprietors of their premises, such as storage hangars, warehouses, office space, etc. It is, in fact, a diffuse market, neglected as such by our major competitors such as Schneider Electric or Siemens", adds Cyril Dubus. Effigénie has already been chosen to equip a dozen or so buildings in the Lille metropolitan area, where the trio's Effigenie home office is located. "These are pilot building sites who trust in our work: the École Centrale de Lille, housing the project, the École des Mines de Douai, a subsidiary of the national electricity utility, EDF at Saint-Quentin, workshops of the Trigano group that assemble caravans, etc." The average energy saving amounts to between 15% and 30%,depending on the type of building configuration, with a return on investment (ROI) within 2 years. Cyril Dubus gives this piece of advice "Go for it! If your project is not good enough, you will learn this far before you launch the business. Do not be afraid to knock on every door, sacrifice the opportunity to earn an early high salary. Believe me, it's worth it!"

d'infos www.effigenie.com

www.utc.fr/formations-enseignements/genieinformatique.php

www.utc.fr/formations-enseignements/genie-systemesmecaniques.php



The name of the Eco Solar Breizh car is Heol; it will soon be shipped to Australia t take part in the now famous World Solar Challenge. Since it began in 1987, the race has brought together every year dozens of solar-driven vehicles, driven across the Australian bush from Darwin to Adelaide, with its 3 021 km (as the crows fly) and just as many kangaroos on the way! In fact, Jean-Luc changed to the Australian event after Shell stopped

Solidarity Solar-powered car, an associative enterprise

Jean-Luc FLEUREAU's objective is to cross the Australian sub-continent in a solar-powered car, 100% "Made in Brittany". The project has been under way since 2010 with the association Eco Solar Breizh.

accepting private cars in its annual Ecomarathon. "Our association has about 60 members who are benevolent and passionate about solar cars. We have hosted training sessions for over 110 young persons since 2010, including 3 UTC-Compiègne and 2 UTBM-Belfort-Montbeliard students who stayed 6 months with us. If you want to be an entrepreneur, you gave to believe in what you are doing, in your projects; you have to have good associates and adapt the way you talk about it to the audience you are trying to convince!" explains Jean-Luc who graduated himself from UTC-Compiègne in 1987, following courses in robotics and electro-mechanical drive systems in the mechanical engineering speciality. In order to succeed in this venture, he put to good use his address book he built while Cap'Tronic adviser to the French Ministry for Industry. Cap'Tronic is a ministerial programme to help in innovation and competitivity questions for SMEs using electronics. Eco Solar Breizh today has some 40 partners and associates, from the Brittany Region to Sojasun (the

two principal financiers of the project - total cost 300 $000 \in$), and not forgetting the manufacturer of the solar panels Sillia Energie. The vehicle Heol weighs 150kgh and can reach 100km/h. "Our objective is to finish the race. To do this we have to reduce energy consumption as best we can, an lighten the vehicle, simplify everything we can, optimise the systems ... For someone who like technical things, a technophile, it represents a marvellous challenge" adds Jean-Luc enthusiastically. The major innovation we have introduced is that the dash-board is a digital pad and it connects into the electronics of the car. This pad was developed by a Brittany SME Niji. Another innovative feature is the campaign we launched "Adopt a cell!" For just 25€, contributors can 'purchase a cell' and thereby support the project. The Bretons have already answered "Ready!"

diplus www.ecosolarbreizh.com wwwassos.utc.fr/event/show/246

INNOVATION An optimised network

Eric FRUIT set up the Midi-Pyrenees UTC alumni chapter in 2003 and, in so doing, he met his future associate, Eric SZYMKOWIAK.

When I felt sure that my former CEO did not want to develop new solutions, I decided the tie had come to start afresh and create my own company", recalls Eric FRUIT. Eric graduated in 1988 from UTC Compiègne in Computer Science. He was engaged for several consultancy missions via Uteam, a UTC subsidiary, as and when he created the alumni chapter in Midi-Pyrenees. "Eric Szymkowiak and I shared complementary skills and we had the same desire to set up a business. That was how ephoneNet came to be", explains Eric Fruit. The company proposes combined communication protocols (using telephone

networks and computers) to lower the customers' bills. "An incoming (or outgoing) call may transit via an operator, over Internet or any equivalent quality network. The choice of the most economic solution Is made automatically, and then user does not see how this is actually done, viz., it is a totally transparent process". As a result the telephone bill drops by up to -70%. "Our clients are SMEs and SMIs, local authorities and over the past year we have moved to include some medium sized and even large sized companies. Most of them however are start-ups such as, for example, the network of business nurseries in and round Toulouse, mainly hi-tech units or in the ICT Valley, Midi-Pyrenees. The alumni net has also served to open up business opportunities" ephoneNet employs 3 persons and has an annual turnover of 200 000€. "UTC-Compiègne is well placed to train the entrepreneurs that France really needs today. It is my feeling that there is a wind of change, a more positive attitude now to company heads. We are, at last, realising that they constitute the vital bloodstream of the economy!"

d'infos www.ephonenet.com www.utc.fr/formations-enseignements/genieinformatique.php

INTERNATIONAL

The secret lies in *complementary approaches*

Paul-Victor DUQUAIRE established his assets management company LMP Duquaire Conseil in 2007, when he still an undergraduate at UTC-Compiègne, studying for his mechanical engineering diploma; he literally knew nothing about assets or this sector.

Ut taught me how to tackle a given problem from differing viewpoints, all of which prove necessary to gain a global vision and "to get quickly to the core"", to coin a phrase by UTC Founder President Guy Deniélou. "Engineers, financiers, lawyers will have different visions of a building but they can be made complementary if we are seeking the best investment for our clients", adds Paul-Victor DUQUAIRE to exemplify his point. The agency proposes net and future revenue control, fiscal control and forward savings plans. "We work with

some very solid partners, such as Bouygues Immobilier, Vinci, Axa, Generali, SwissLife, etc. when we propose safe asset acquirements, adapted to the customer's situation". The agency has all then certifications and approvals that are needed in the sector; it employs 4 collaborators. It works both in France and abroad (China, Canada, etc.) with several clients wishing to invest in property assets. "We are in a sector where recommendations are the name of the game; you must take your time to become fully trustworthy." Paul-Victor pursued studies in philosophy after graduation from UTC Compiègne, up to and gaining his PhD. Then he discovered the "sales side" of commerce, learned the tricks of the trade and then created his own property and assets management, whereas he had originally thought he would end up in a research laboratory. "The key point I'm making here is that you must be in phase with your vision of what the enterprise is and where it's going. You must also combine creative unconscious forces with that dose of consciousness you need to channel the energy in the right directions!"

YOU HAVE The Floor

THE NEW INDUSTRIAL REVOLUTION CHRIS ANDERSON Author of the bestseller The Long Tail

The Entrepreneurial Man

How can conventional companies adapt to this ongoing revolution?

Good question. Very easily! They can take part in creation of communities round an idea, a product concept and integrate their own contributions into the design and innovation process. The members of a community, for example, can design a new telephone set. The Maker model opens up the 'creative' role to everyone interested and it is the community that decides on the future of a given contribution based on the positive support it gets. Large scale companies can also encourage and enhance a creative

eco-system round their core activities, integrating the SMEs into their community. Together they act in a complementary manner, through the large companies' specific knowledge of the market place and the possibilities and the ways in which they can help the SMEs to expand their market positions and networks. Transparency and openmindedness are key to the game and essential to federation of ideas, energy and the contributions generated within the community.

In economic terms what does the Makers' movement represent?

Hundreds of companies are now using this model ands some have a turnover that reaches millions of dollars. The company I created, 3D Robotics is a case in point. We started from literally nothing and now we are assembling civilian use drones in two factories in Mexico. We employ 64 persons and have a cash flow of 99 million dollars; we also watch over a DIY drone community with some 36 000 members! Most Makers companies simply could not have developed ten years ago, if only because the tools needed for their development did not exist or were not as yet democratised: open source software, user communities, the possibility to purchase components, parts and raw materials in small quantities anywhere in the world, development of e-trade, logistics solutions and more recently the advent of 3D printers which make prototyping and small scale production possible. All of this is conducive, as I explain, not only to seeing entrance barriers come down, but also it facilitates production and even enterprise creation.

Do you feel this announces a new era for globalisation?

Indeed, yes. The last few decades have seen manufacturing delocalisation, guided mainly by the cost of labour. Today, these

The Makers phenomenon is opening up a truly revolutionary prospect with an associate explosion of creativity in goods manufacturing and production costs are smoothed out, so to speak, and it is the arrival and deployment of robots on the assembly lines that is accelerating the movement. The key factor now in the policy decisions as to where to locate an assembly plant is time. The rule is that we must always work faster and faster, be more and more flexible, and this itself leads in creation of companies even in traditionally high cost countries, but also located close to creation and consumption intensive areas. Take the case of 3D Robotics: the design office is only 10 metres or so from the assembly line!

What role will qualified engineers have in this movement?

The movement depends far more on engineering than on highly qualified Engineers (note the capital "E"). Thanks to progress in e-learning, there is an increasing easy access to design and manufacturing tools and you do not need to possess an engineering diploma to do engineering. In the Makers' companies, the ratio of qualified engineers is definitely far lower than in conventional companies. You no longer need a diploma to begin: all you need is some talent, some ideas and a driving force to succeed, viz., a passion for the job.

DID YOU KNOW THIS?

In a global network of local laboratories, the fab labs encourage inventions, enabling private individuals to have access to digital manufacturing tools

Cf. the list of the MIT network fab labs http://fab.cba.mit.edu.

The French Fab Labs http://fablab.fr

THE UTC INNOVATION CENTRE



Innovation : focus on three UTC label award projects

Through its in-house label awards, the UTC Innovation Centre encourages ideas that will mature tomorrow and become commercial and industrial realities. Interactions singles out 3 examples for the readers:

Vibration Communication

Imagine you are a private detective, and your target takes a wrong turn. How do you discreetly warn you colleague, hunkered down a few streets away? The answer is a Feeltact bracelet that allows you to communicate by vibration.



The bracelet has 4 vibration points, which when activated deliver a message in a language that is known only to the users. For example, a circling effect can mean "I need help", or if circling but the other way, this can mean "All is fine", says Thibaud SEVERNI, who promotes Novitact, which received its UTC label in 2010 (specialised in vibration interactions). "The idea in fact came from Nicolas ESPOITO, a lecturer and research scientist at the UTC Costech Laboratory. After that label award, it was the Innovation Centre that contacted me to take the project further – with a 200 000€ grant to do so", adds Thibaud, who has his UTC diploma in Computer Sciences and is currently employed at and by the Innovation Centre. "With the help of the Centre, we identified a real need for this sort of device and solutions, notably useful in the security sector. We patented the technology and set up the company. I contacted and negotiate with a Finnish supplier to start fabrication and with other prospects to market the product, on an international scale. The financial support by the UTC Innovation Centre comes to an end in May 2013. And because there is, currently, no incubator structure in Picardie, I shall no doubt have to migrate and set up shop in another Region" adds Thibaud, regretfully.

Recreating the sound environment using virtual reality (VR)

The second project that is maturing also relates to our senses, but this time to hearing. The so-called Aspic Engine pre-labelled in 2011 and labelled in 2012, is the work of two UTC undergraduates in Computer Sciences, Marc MULLER and Quentin GEORGE; both are dedicated 'sound sensitive' enthusiasts. The solution they came up with relates to the computation and treatment of sound waves, for the purpose of assuring a realistic transposition of a sound environment, in a VR (virtual reality) set up. "Our Aspic Engine makes the sound and the sight coherent in a VR situation and replaces long, costly and fastidious methods - with an efficient, real-time solution, give or take a few almost imperceptible approximations" summarises Quentin. The areas of application are of course video gaming, VR, acoustic prototyping for buildings and urban schemes, etc. These two students are taking a "semester out" to develop their Aspic Engine and hope to use their end of studies project to progress. "We recently presented our prototype at the Laval Virtual Reality venue and the professionals there gave us some very positive echoes. Some of them want to be re-contacted when we can



be sure that our software package can be integrated to theirs, in some 6 to 12 months", underlines Marc. Over and above the support form the innovation Centre, in respect to market positioning and intellectual property rights, these two students appreciate the training the have received so far at UTC Compiegne and the fact that the University taught them, encouraged them to "go it alone".

d'iRfos http://aspic-engine.com



Making identical microcapsules

It is not only the students who present projects. A team from the BMBI Laboratory -(bio-engineering): Anne-Virginie SALSAC Eric LECLERC, junior research scientists with the CNRS and Dominique BARTHES-BIESEL, UTC professor have invented a device they would like to transfer to the world of industrial applications. "Today, microcapsules are made by emulsion techniques, and this enables you to make them with a wide variety of sizes and specific features. By combining the powerful digital computers we have at UTC for simulations and by experimenting with prototype products, we have developed a technology that we patented in October 2012 that enables production of identical sized capsules that can be characterised in situ", details Anne-Virginie. The invention comes as channels that measure a few microns to several tens of micron in diameter, printed in a transparent organomineral polymer, called PDMS (Poly-Di-Methyl-Siloxane), implementing techniques used in electronic circuit making and fixed to a glass substrate. The actual size of the channels produced varies according the properties we are seeking; they are very much in use in pharmaceutical sectors, cosmetics, chemistry at large, etc., to encapsulate high added value active substances. "Our label award came just at a time we needed some financial support to conduct a market survey and to identify as well as possible those industrial actors who potentially would be interested in our invention", underscores Anne-Virginie. "We hope to have some positive results before summertime 2013".

d'iR^{IUS} webtv.utc.fr/watch_video. php?v=0W4S5YHRYH5M interactions.utc.fr/mot/centre-d-innovation

d'infos www.novitact.com

AGENDA

The Innovation Summit "Innovative city areas", Liege (HEC-ULg), Belgium November 14-15, 2013

November 14-15, 2013 will see Liege hosting the "Innovation Summit: Innovative city areas", covering sustainable and innovative land and urban planning: technological and social, organisation, cultural challenges". The event will allow participants to look at various sizes and shapes of territory (cities, milieus, districts, Regions, etc.) in their relationship to sustainable policies for socioeconomic development based on creativity, transformation changes and hybrid mixes of land uses.

www.utc.fr/utc-evenements/page001501e2.php

The C.U.R.I.E. Congress - ecosystems and innovative city areas

June 3-6. 2013

UTC-Compiegne will be participating in a workshop, 3:30 p.m., Tuesday June 4, 2013; it will be devoted to "Ecosystems and innovative city areas" at the annual congress of the C.U.R.I.E. Network which, this year will be convened at the Palais des Congrès, Ajaccio, Corsica. What we designate as "innovative city areas" are in fact ecosystems in an urban milieu that encourage innovation. creativity and job creation. The objective for the Workshop is to allow and enhance exchanges among actors from various known innovative places round the world; this will enable the participants to share their views on the means need to progress in developing such districts, areas or precincts. Prof. Alain STORCK, President and Vice-Chancellor of UTC-Compiegne, will address the Congress, reporting on how the Picardie local innovation eco-system is faring ww.congres-curie.fr

24h Innovation at UTC May 21-22, 2013

The 24h Innovation are coming back to UTC-Compiegne – May 21-22, 2013. Last year, we recall, a UTC team won the First Prize (International). The objective of the competition is to find and propose innovative solutions to industrial problems, in teams of 5 to 8 members, in a maximum allotted time, viz., 24h. The teams will edit a short video to explain their solutions and will present their results before an international Jury. interactions.utc.fr/L-UTC-remporte-le-1er-prixdes-24

The very first international Workshop of the MS2T Labex September 4-6, 2013

UTC-Compiegne is organising the 1st Workshop of the MS2T LabEx called "Systems of Systems in Technology Foundations". This event will welcome international specialists of Systems of Systems, in bio-mechanical engineering, bio-engineering, ICTs, mechanical engineering and robotics. Applications will be forthcoming in Transport systems and mobility, Safety, Engineering and technology in Health, the Environment. www.utc.fr/labexms2t/

RESEARCH

Might we in the future have a single data base storing all human knowledge?

Over recent years, knowledge bases such as Wikipedia, Allociné, or social networks such as Facebook have multiplied via the Internet. These bases, built up by Internauts or created automatically by computers, are becoming more and more important or containing more and more data. The problem is that their size makes them extremely difficult to handle and even to study. We can deduce that studies on large-scale data bases would be highly valuable at the present time.

Example is a graph in which each node represents a concept and each link a special relationship between two concepts. These links are therefore of different natures. For example, social networks are data bases where the nodes are people and the link are those that interconnect the people. Today's data bases, such as the social networks or knowledge bases (Allociné, Imdb ...) have millions of nodes and often a hundred or more types of relationship possible. Most bases are collaborative, i.e., these are augmented and improved by the Internauts themselves. They may, naturally, contain errors or double entries. Other vases are created by robots that collect their information from the Web, and consequently, they also are error-prone. If we wish to fully and efficiently use the bases, then we must be able to identify and correct errors. However, according to Antoine BORDES "the bases have now reached a size such that the error seeking

analysis cannot be carried out by human agents. We have to come up with a system to handle them and a software package designed to extract data that doe not appertain to the regularities that underpin the data (as identified by the software above). In most instances, the analysts are faced with false data and they require new investigation." The ANR project supervised and managed by Antoine BORDES began in January 2013 for duration of 4 years. The objective assigned is to "make the bases more readable and simpler by summary techniques". In order to do this, the UTC Heudiasyc Laboratory will project the bases studied into a vectorial space so that the links among nodes using probability functions. The probability values will enable the research scientists to establish distances between nodes and therefore identify forms of similarity between some nodes. The aim is to group together millions of nodes that more or less contain all the data. Modelling the data base allows you to see the regular features, i.e., those groups of entities that express similarities or links that express similar things. The vectorial space can then be projected to a 2D surface helping visualisation and analysis. Thus, explains Antoine BORDES "by applying these calculations to the Wordnet data base, where each node represents a group of the word sleeve, which can carry several meanings will be represented by as many nodes as there are meanings), and each link the lexical relationships among the lexicographic meanings (thus, a sleeve is part of a pullover). We can start with a word and determine the other words or synonyms that are "closest" in meaning or connotation". The algorithm used groups together several European countries, but can also be used to "see" countries close to Europe but not Member States. The algorithm can then suggest missing links or relationships in the knowledge base, using a probabilistic method. It could therefore prove extremely useful to suggest new links in social networks, for example. Likewise it could serve in genetic engineering, using the protein and gene bases to suggest possible interactions between a gene and a given protein, even if, as Antoine points out "this will never replace conventional genetic research, but could suggest new areas for research scientists to investigate". A longer range objective of the project would consist of merging several complementary knowledge bases together, thereby avoiding double entries, the latter stemming from different encoding procedures. As an example, if we merge two cinema bases, with the link "actor So-and-so played in this film" and "this film's actors are" will inevitably lead to double entries. Our algorithm will detect this and delete as appropriate. Once the bases are correctly merged and 'cleaned up' (double entries, etc.), they can provide far more information and with a much better quality.

Signalisation et automatismes ferroviaires Railway signaling and automation

311 101

Rail-ready!

With no less than 3 illustrated volumes, in French and in English, this publication directed by Walter SCHÖN can rightly be called "the Bible of railroad signalling in Europe".

In the beginning, there were 11 professors from the Railroad ad urban transport system Master's degrees (Ecole nationale des Ponts et Chaussées, which trains young recruits for the SNCF), Alstom, the RATP, Bombardier, etc. The professors in fact were all professional engineers from the ranks of the companies named above, Walter SCHON himself having spent 10 years with Alstom and Matra. "The Master's degree provides a general cultural, insight in railroad transport systems, and has a professional dissertation to obtain the diploma", details Walter SCHON. "Given the excellent level and reputation of the group of lecturers we have, the background d information on the subject is extensive: indeed, that is how the idea to produce a book-form emerged". After 3 years' work, the total edition will be presented in 3 volumes, the first of which came out in March and the 3rd and last is planned for Autumn 2013. The subject matter covers signalling systems, railroad automats, major rail systems and functions, and their applications in France and abroad. The examples are chosen from France, the UK and Germany which are "the three principal rail cultures in Europe." "Many rail safety systems were installed following accidents, but we chose not to show these in the publication. Rather than show photographs of the scenes, we placed miniature trains in similar mock-ups", stresses Walter SCHON. "What we wanted was a book that would be reader-friendly, to skim through at leisure, for professionals but also for railroad fans. 1 500 copies of each volume will be printed and the Parisian transport consortium, RATP, has already acquired 200. The books will become a reference text-book, adding visibility to the UTC, which already has recognised skills in rail signalling and safety measures."



Green chemistry in the limelight

If the plan was to demonstrate that green chemistry exists in Compiegne, then it was successful. Compiegne has just held its first international congress on "Catalysis applied to bio-mass". We present an interview with Prof. Christophe LEN, UTC, Member of the UTC-ESCOM Laboratory "Integrated transformations of renewable matter (TIMR)" who organised the congress.

"The international experts present belong to the world's Top 50 scientists, all specialists of bio-mass. It was considered important to show them the remarkable progress accomplished in 4 years, since ESCOM was invited to join forces with TIMR" explains Christophe LEN. On March 12 and 13, the visitors, all specialists of biomass met at UTC-Compiegne: Professors Dirk De Vos and Bert Sels (KU Leuven, Belgium), Tomislav Friscic (Mc Gill, Canada), Rafael Luque (Universidad de Cordoba, Spain), Michael Meier (Karlsruhe Institute of Technology, Germany), Ashok Prasad (University of Delhi, India), not forgetting Franck Dumeignil (Lille 1), François Jérôme (Poitiers, CNRS) and Christophe Len.

Green chemistry is not a radicalized science

The participants carried out a critical overview of possible scientific hurdles to cross in the areas covered by green chemistry, beginning with safety issues for bio-refineries where bio-mass is transformed into an energy source, into agro-materials, bio-molecules, etc. "It is not just a case of replacing oil by bio-mass! Enzymes, ferments used to fraction, viz., to crack the vegetable structure are corrosive and can lead to serious industrial problems", explains Prof. LEN. Another research topic, worth investigation deeper, is that of green solvents. Substituting bio-source solvents for fossil origin solvents implies changing the industrial processes used and adapting the distillation sites. These alternate techniques are also becoming common in the energy sector: instead of using conventional thermal activation, which uses a lot of energy, with solutions that involve micro-waves and ultrasonic techniques, and which seem promising. Characterising molecules that can be attractive (active substances used per se to fabricate medicinal drugs) and new molecules (raw materials for example incorporated in paints) must also be developed. "We must not adopt a radical posture in favour of green chemistry", recalls Christophe LEN. "We must discover the right mix between bio-sourced and oil sourced molecules, for each use envisaged - with a priority where possible for renewable bio-mass. For the moment, biosourced molecules cannot replace oil sourced molecules for every use possible. It will take us 30 to 50 years' research before we will be able to produce polystyrene from bio-mass: lignine - obtained from ligno-cellulose, could be used to produce plant polystyrene - remains complicated to recuperate and to valorise".

International recognition

The two days' debates allowed the participants to measure the forces and weaknesses of the major families

of renewable resources. Let's take an example: cellulose which is the matter of plant stems, but it is not soluble in water. "This property requires us to use emergent technologies, such as plasmas or ionised liquids", details Christophe LEN. His hope is that the Congress - that he plans to organise each year now - can be a prelude to structuring national and international research that will involve UTC Compiegne and ESCOM and will lead to a recognition of the city of Compiegne as a show-case lead-city for research and innovation in the field of bio-mass studies and applications. "Research scientists present already recognise each other's merits on the basis of respective publications. The Congress allowed us to get to know each other better, to visit our laboratories, to create a desire and almost the reflex to imagine and set up joint, collaborative, projects. I have already been invited to McGill in Canada, to Cordoba in Spain and to Hong Kong". Three industrialists among the sponsors and partners for the Congress addressed the audiences: Tereos, Novance Oleon (Sofiproteol Group) and SAS Pivert. "They are very attentive to science and its progress and in particular this promising thematic".

d'inflos www.utc.fr/recherche-innovation/ea4297transformation-matiere-renouvelable.php

* The National Research Agency (ANR), the IAR pole, the Picardie Region, SAS Pivert, Novance Oleon, Tereos, Chimex, Solvay, Clariant, Total, Bostik, PCAS, UTC, ESCOM, Agglomération de la Région de Compiègne, the City of Compiegne, the CNRS and Société chimique de France.

SPORTS



The game is played with a Frisbee, that is passed from player to player to the goal line to mark one point. Two special features, the players referee the match and the teams can be mixed. "There are some highly interesting values of respect for each other; this probably explains its gradual growth in France even though, for the moment, there are only 4 000 license-holders", adds Florent, who is also a member of the French national team. "It's very physical and my class mates love the game, thanks to Guillaume ESPITA, who like Florent is a

UTC is French University champion of the Ultimate Frisbee

The UTC team has just won a French university championship, in a speciality that is not well known "the ultimate frisbee". "And when we realize that it is the 3rd university sport in the USA!" exclaims Florent SOCRATE, member of the UTC team.

member of the national French team. He converted us during a freshman weekend!" The title "French university champion" was almost too easy. The score was UTC 13: Rouen 5. We can add the level is high and homogeneous – apart from the two nationals, the is a member of the national Columbian team and two license holders. "The team trains twice a week, and once or twice a day". Florent SOCRATE is getting ready for the World championships in the less than 23 years old bracket; these championships will take place in Toronto, July 2013. To last the distance, this UTC undergraduate in Mechanical Engineering, his courses were reprogrammed in compliance with UTC Sport Elite. "The ultimate Frisbee was recognised last year by the French ministry in charge of Sports, and this was what enabled us to be admitted to the Sports Elite category. We are going to give everything we have, but the American and the Canadians really are of an exceptional level"; he will therefore finish his course in one year and not 6 months. Later, he would like to become a sports equipment designer!





To mark its 40th anniversary, UTC-Compiègne tops the billboard







UTC'S HALL OF FAME



China : a land of discoveries and growth

Nicolas SOURAQUI did his end of studies project in Italy; this probably gave him a taste for living and working abroad. He has now been working in China for the past 4 years for Oxylane, the mother company of Decathlon. His job is to decipher scope of features of the Chinese market-place, with its communicative dynamism.

"they listen well and learn fast".

and they need our presence in the field to solve technical problems

and guarantee the quality standards we demand". But adds Nicolas,

Nicolas, as a qualified mechanical engineer is responsible for

suppliers located in three provinces in East China, all working

in mechanical engineering sectors: parts for bicycles, fitness

machines, camping equipment, scooters, sports accessories (basket-

ball nets, football goal posts and nets, etc.). China's industrial

policy relies on massive R&S investments, technology transfer. The

aim is to position the Celestial Empire on very high added value

markets. Already in sectors such as textiles, the world's workshop

True, there is the pollution, the noise, the traffic jams, the ever-present cultural differences, but living abroad is an extraordinary source of perpetual discovery" explains Nicolas. In the city of Shanghai, our Parisian has

found an urban, cosmopolitan, universe that he finds pleasant. His home there is 2h away from his office in the area of Suzhou, but that does not worry him. "The train has only been late twice – the underground works very well ... and I work in the transport sector!" Over the 4 years he's been there, his life style has changed a lot, somewhat like this new China, engaged as it is in endless public works: a road under way has become an almost saturated overhead ring road; the city of Suzhou has grown in an exponential manner and now houses 6M inhabitants with an important international community, whereas when he set foot there in the beginning,

Utc Université de Technologie Compiègne

Interactions

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If you prefer receiving a digitised version of Interactions, Please make your request via : communication@utc.fr there was literally nowhere to go out "on the town". "In France, the works programmes can last for decades such as the Greater Paris project. China only counts in months I read lots of French newspapers, but between ex-pats here we rarely discuss the global economic crisis. In fact, the situation is not overbearing", adds Nicolas.

Nicolas has just spent 4 years supervising the purchasing office for Suzhou, with 50 collaborators to follow up 50 Chinese suppliers, as well as a Oxylane factory with 70 staff to assemble bikes for the local markets. "We became very involved with our suppliers to develop the products, to optimise production capacity, to follow up purchases and quality. Contrary to European and North African markets, the Chinese suppliers foresee the future with high potential and they invest in new production units to meet the coming demand levels. But, their industrial know-how is not yet up to European standards and their work methods are les reliable. They are not very self-reliant

BIO EXPRESS

1979 Born in Paris

1998

Bac S *cum laudae*, after which he went to UTBM (Belfort-Montbeliard) 2000

Semester at Montreal, Concordia University, after which he registered at UTC-Complegne in Mechanical Engineering

Gained his engineering diploma from UTC, V.I.E. for DECATHLON, Italy, Milan, In charge of Supplier Quality

2005 In charge of Supplier Quality at the production bureau for DECATHLON France, Lyon

2006

In charge of Quality-Industrialisation for DECATHLON France at Lyons (expanded foam processes

2007 Director for QA (mechanical parts) with the Oxylane headquarters at Lille

2009

Directed the purchasing office for mechanical engineering parts needed in China, based at Suzhou

2012

Director at the bike assembly factory at Suzhou

2013

Joined the EMBA UCLA-NUS programme (5th world, Financial Times 2012)

becomes less competitive than some of its neighbours. "But Chinese engineering schools have not yet reached the level we have in France. When the Chinese graduate from their universities - where personal initiative is not valorised, whereas the prefect execution of orders is - they must almost everything about problem detection, analysis and resolution. If we can speak Chinese and if we learn about Chinese culture, it proves very advantageous. On the other hand, European manpower resources will not always be welcome here. To obtain a work permit, you must be able to prove you have 2 years' experience; this way they can privilege the recruiting of young Chinese as a priority. Chinese is now only looking fro profiles with a really high added value. This is a trend that will be reinforced over the coming decade, given the number if graduates from Chinese Universities". We the support of UTSeuS, Nicolas SOUARAQUI would like to boost the network of UTC-Compiegne alumni who are resident in the Shanghai area - they are estimated at about 40; they would be most useful to guide graduates who would like to work in China.