

MIPIM 2014

minutes of the conferences

Summaries by students
of the ESSEC Business School,
Real Estate and Sustainable Development Chair



Real Estate and Sustainable Development Chair

Created in January 2003, and sponsored since 2010 by Poste Immo, since 2012 by Foncière des Régions and since 2013 by BNP Paribas Real Estate, the purpose of the Real Estate and Sustainable Development Chair is to support both teaching and research in economy, financing and management of the real estate industry by taking into account the sustainable development stakes. Prof. Ingrid Nappi-Choulet is the founding Director of the Real Estate and Sustainable Development Chair.

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Emerging trends in real estate: the global outlook for 2014

TUESDAY 11 MARCH 2014 | 11:30-12:30

Moderator: Joe Montgomery, CEO Europe, Urban Land Institute – ULI Europe

Speakers: Simon Hardwick, Partner, PricewaterhouseCoopers Legal LLP
Ian Hawksworth, CEO, Capital & Counties
Craig Hughes, UK and sovereign wealth fund real estate leader, PWC
Ann Kavanagh, Global Head of Asset Management and Transactions, AXA Real Estate
Jon Zehner, Global Head of Client Capital Group, LaSalle Investment Management

>>Key findings of the ETRE® outlook from PWC and the Urban Land Institute:

The battle of assets goes global

- Direct investment in real estate is back to pre-crisis levels. Capital availability is expected to increase because of low interest rates, with an increasing importance of China as a source of investment. New York, London, Tokyo, Los Angeles and Washington are the top five destinations receiving investments.
- Investors are seeking the same type of assets, and want to lock them up, which increases the shortage and prices of these assets. 42% of respondents estimate that prime assets are already overpriced in Europe. Capital flows as well as assets values are increasing, investors start taking risks for specialized assets, development or secondary cities.
- In Europe, top-rated assets are student residences and data centers, and residential assets have better rates than commercial assets. In the US, industrial properties are preferred. In Europe development is considered a good way to acquire prime assets. In Asia, Jakarta and Tokyo are the most interesting cities for development. The shortage of supply is favorable to development.

Placemaking reaping the rewards

- Placemaking is one of the biggest trends, defined as the interest in building places contributing to health, productivity and consumer activity. The main reasons to invest in sustainability for landlords are to attract tenants, reduce obsolescence and get better overall returns. Sustainability is definitely a mainstream objective in real estate to watch in 2014.

Demographics in work

- A lot of cities have disequilibrium between supply and demand of available spaces. The world population is expected to increase, only Europe's population is supposed to remain stable. The growth of generation Y is the dominant trend. New cities in Asia need to incorporate this trend to match the demand.

>>Comments on the key findings:

- Long term demographics are the issue.
- There is a need to pay attention to mergers and averages for demographics across countries: UK population is expected to increase. Not only is the demographic aspect important, but there is also a cultural change so that

some occupiers want to go back to CBD from further locations: people expect a new role from the real estate developers.

- Europe is still a focal point, whereas the US is stabilized and fully priced, and Asia is still growing.
- Spain is the next country for investments, with a difference of actors between prime assets global investors and secondary cities local investors. Some investors' expectations don't meet other business specialists' expectations: foreign direct investment is down by 77% in France but prices are tightening in Paris. The difference of yields between prime and secondary assets in Europe is at its peak.
- Energy cost is also a big issue in Europe, because it is 50% to 2/3 cheaper in the US.
- African growth is creating great opportunities, but there is a need for more stability before investors move into new regions, it is a 10 to 20-year trend. China has still big issues because loans and bonds are not fully convertible; there is a currency problem. For countries with convertibility, unless the currency is clearly overvalued, it is not the main problem for cross-border investments.
- The risk is being too optimistic: is the recovery strong enough? Real estate is cyclical, with decreases every 7 years, and the last crisis was 6 years ago... The monetary policies are still crisis policies. At some point, interest rates will be going up, and borrowing costs as well, so that asset allocation decisions will change. If assets prices go to high, capital will disappear.
- Plus, political insecurity and social unrest or external shocks are possible, such as in Ukraine and with regulations still changing or being put in place, unforeseen consequences could occur.

Conclusion

- Tempered optimism.
- It is important to learn to match up local talents and foreign capital.
- Economic fundamentals have to be constantly watched.

Getting to zero today: how zero net energy buildings will define the next decade of development

TUESDAY 11 MARCH 2014 | 11:30-12:30

Moderator: Ralph DiNola, Executive Director, New Buildings Institute

Speakers: Steven Borncamp, Managing Director - Europe, International Living Future Institute
Kasper Guldager Jorgensen, Architect MAA, Partner 3XN and Director GXN, 3XN architects
Arch. Massimo Roj, Founder & Principal, Progetto CMR

Definition of zero net energy buildings:

- Trying to get zero net energy (ZNE) buildings is a revolution. A ZNE building produces as much energy as it consumes on an annual basis. In 1997 it was a disruptive innovation since it created new markets and value networks.
- In 2000 BedZed was the first net-zero community of the world. Today, California has the goal to make all new residential constructions zero net energy buildings by 2020.
- In the US, 76% of net-zero buildings are new construction, the rest being renovations. Private actors finance more than a quarter of these buildings. It shows that it is in a good way.
- These buildings have devices plugged to monitor the fact that they offset their consumption of energy, which is 1/3 less than average. Nevertheless, according to Steven Borncamp, the most ambitious definition of zero net energy buildings should also include zero waste during the construction, zero net consumption of water and a low level of toxicity in building materials.
- Certifications and rating tools apply to the less bad buildings. We should go further and aim at ZNE buildings that would have the same impact on the environment as a flower.
- Feasibility in the market:
- It is possible to develop such buildings in the market. Looking programmatically at these buildings and producing many of them should bring costs down, as it was the case for mobile phones. It is possible to quickly provide users with net-zero energy buildings, but it will depend on investors.
- Net-zero buildings can be also projected in a biological context. Kasper Guldager has developed the Green school of Stockholm, a school for agriculture in a city centre. It is a key project because this building enables them to produce food and oxygen.
- Net-zero buildings require also responsible users. Thanks to a Smartphone application connected to an intelligent indoor climate and energy monitoring, users can adjust their consumption of energy or water. They know when there is a pick of consumption, a pick of production of wind or solar energy. Therefore, consumers can understand the building better and adopt responsible behaviours.

The Oxygen eco-tower in Indonesia by Progetto CMR:

- It is important that ZNE buildings be well located. Suburbs generate enormous daily commuting: people live outside the city, but work in the city.
- Thus, the architect Massimo Ruj has developed a vertical villa system in Jakarta. Each floor of the tower consists of three villas of 200 sq m, with a garden for each of them. Therefore the inhabitants have not the impression to be in crowded tower.
- This integrated construction uses less soil and reduces traffic jams. It is a ZNE building: it does not use more energy over the course of the year than it can produce from on-site renewable sources like geothermal energy. Besides, the energy cost is less than €5 per sq m.

Conclusion: technology and materials are available. Scaling-up ZNE buildings depends now on investors and fund managers.

China: Is it still the investment haven it used to be?

TUESDAY 11 MARCH 2014 | 14:30-15:30

Moderator: **John Stinson**, Head of Capital Markets, Asia Pacific, Cushman & Wakefield.

Speakers: **Stanley Ching**, Senior Managing Director, Head of Real Estate Group, CITIC Capital Holdings Limited
Goodwin Gaw, Chairman & Founder, Gaw Capital
Keith Griffiths, Chairman, Aedas Group International Limited

How did the decrease of the global GDP impact the Chinese economy?

- China has been used to a 10% annual GDP growth for the past ten years and has become one of the top investment destinations.
- The economy has been fuelled by credit for the past years and by rising exportation levels. Considering the current global crisis the Chinese government has made transition a top priority. China must shift from an export-driven economy to a national demand economy. Therefore domestic consumption must be improved. In order to boost domestic consumption, China must provide a better social security net and give more flexibility to companies so that they increase their workforce. Furthermore, housing should be provided to workers moving to cities.
- China also needs its growth model to become more sophisticated and work as an efficient market. Thanks to the fact that there is less liquidity in the market, the Chinese government is experiencing a more open model. For instance it is letting companies such as Alibaba and Tencent go to the open market. China may shift from a state-funded economy to a market-funded one.

How do you explain the presence of ghost towns in China?

- Chinese people consider real estate as a safe investment and therefore invest their savings in residential properties. Moreover in China a girl has to own an apartment the day she gets married; otherwise it is a *naked marriage*.
- However investors should be cautious since local governments can put pressure on them so that they invest in new cities developments. However local governments sometimes lay out a new city from no prior village and do not create the infrastructure needed to attract future inhabitants. These new cities therefore need two or three years to take off.
- For the past eight years Chinese developers have been building more quality offices and shopping centres, using building types coming from the USA.

What do you think about shadow banking?

- Shadow banking represents 40% of assets and credit in China. They lend to small enterprises and investors for which big banks are not equipped to lend.

Cities' transformation: urban regeneration strategies

TUESDAY 11 MARCH 2014 | 14:00-16:30

Master of Ceremony: Peter Woodward, Lead Facilitator, Quest Associates

Experts: Paul Reynolds, Chairman, Urban Design Group
Dr Laurent Schmitt, Vice President Innovation & Strategy, Alstom Grid

Regeneration:

- Regeneration is the replacement of built fabric with an increased density and improved efficiency for urban planners.
- Regeneration creates better habitat for people to live in, work and play, but also creates gentrification issues.
- Results of regeneration are seen across generations, whereas the property industry generally focuses on short-term results.
- 4 types of regeneration: urban expansion (example of Masdar City, Abu Dhabi, 50,000 people); major intervention and redevelopment (Earls Court, London); post-industrial transformation (White City, Baku); urban intervention and revitalization (Crown Estate, London).
- Regeneration can take many shapes and sizes.
- Cities' population will grow from 3.5 billion inhabitants in 2013 to 9 billion in 2050.
- Better quality of life means reduced traffic congestion, multi modal transportation, creation of new innovation clusters, micro social networks, growing social activism towards climate change, energy efficient infrastructures.
- The trends are: smart cities, productivity, more public space and green infrastructure.
- New business models for smart cities: peer to peer, open interconnected and interactive model.
- New smart cities require IT connectivity with citizens, moving demand for energy into new time slots and data transparency.
- Citizen's aspirations: efficient transportation, business development & education, positive environmental impact and resiliency (social activism): from consumers to prosumers.

>No single solution

Case study 1: Derby – UK capital for innovation

Speakers: **Prof. Keith Horton**, Dean Faculty of Business, Computing & Law, University of Derby
Adam Wilkinson, Chief Executive, Derby City Council
David Rose, Corporate Development Executive, Rolls-Royce

- Out of the 3 million pounds forecasted by the masterplan, 2 billion were spent.
- The masterplan includes retail, culture, offices, hotels and infrastructures.
- The Infinity Park of Derby was opened as a joint-venture with Rolls-Royce (they took 350 ha), Bombardier and Toyota and host an innovation hub for supply chain innovation.
- 3 Universities are key partners of the Infinity Park because they supply research and skills, workforce development and foster enterprise creation.
- The partnership of a city with a company makes sense in the context of shrinking public funds, and means a shift in action for the city: facilitating becomes more important than delivering.

Case study 2: Maranello and Ferrari Museum

Speakers: **Architect Roberto Bolondi**, Chief Urbanist, Maranello Municipality
Gianfranco Sassi, Key Account and Business Development Director, FIANDRE

- City of 17,000 inhabitants, place of the Ferrari factory (550,000 sqm) since 1943.
- Ferrari attracts tourists, especially in its museum.
- The new pedestrian Ferrari square is covered with an innovative ceramic with anti-pollution, self-cleaning and anti-bacterial properties, produced locally, Active™ ceramic. The pollution removed by the ceramic in the Ferrari museum is equivalent to the pollution removed by 20,000 sqm of green space.
- Maranello also develops a new public library (that used to be an abandoned manufacturing building), a new racing department with the architect Jean-Michel Wilmotte, a sporting center, and offers private citizens funds for sustainable renewals.

Case study n° 3: Barcelona-La Sagrera: the gate to Europe

Speaker: **Albert Civit**, Chief Urbanist, Barcelona City Council

- Barcelona was voted the European capital for innovation on the 11th of March 2014.
- The masterplan of Barcelona includes many slow cities inside a smart city, productive and self-sufficient neighborhoods, connected to the other neighborhoods and the rest of the world.
- 5 clusters and key strategic nodes: university sport and health hub with the new stadium; harbor district; highspeed hub; the Sagrera hub with the new subway station; and the knowledge and energy cluster.
- Sagrera station will be Barcelona's Grand Central station and the district will also develop new residential neighborhoods from former military headquarters, the largest park in the city and retail space (La Marquinista developed by Unibail).
- Mantra: many slow cities inside a smart city.

- Different scales: metropolitan, urban, human.
- The project is supposed to be finished in 2019.

Case study n°4: Torino: successful development in hard times

Speakers: **Dr Stefano Lo Russo**, Counsellor Cabinet Member for Urban and Strategic Planning, Private Real Estate Development and Policy Coordination on the Urban Renewal Projects, City of Torino
Branimir Medic, Senior Partner, de Architekten Cie
Prof. Ezio Micelli, Senior Partner, Mesa Srl

- Variante 200 is a regeneration project of more than 1 million sqm
- Torino is known for having hosted the Winter Olympics in 2006, as well as for its culture. It is a city of 910,000 inhabitants in a province representing a GDP of 63 billion euros.
- City ranked first for sustainability in Italy.
- 5 million sqm of the postindustrial city were reconverted since 1995.
- In 2012, there was an international competition to deliver a masterplan, to regenerate industrial properties and involve citizens in the process.
- 3 different spaces and a new metroline will be developed during 17 years. Scalo Vanchiglia development will start only after the metro line 2 is already advanced.

Insurance companies, pension funds and sovereign wealth funds: competitors or partners?

TUESDAY 11 MARCH 2014 | 17:00-18:30

Moderators: Melanie Epp, Head of Communications, Allianz Real Estate
Jane Roberts, Editor, Real Estate Publishing

Speakers: Dr. Frank Billand, Member of the Management Board, Union Investment Real Estate GMBH
Antoine Castro, Managing Director, Quantum Global Real Estate
Pascal Duhamel, Head of Europe - Real Estate Investments & Infrastructure, ADIA
Wenzel Hoberg, Managing Director Real Estate Investments - Europe, Canada Pension Plan Investment Board
Pierre Vaquier, Chief Executive Officer, AXA Real Estate
Olivier Piani, CEO, Allianz Real Estate, France

- Real estate is a cyclical business. One can think of the early 1990s real estate crisis for instance. The arrival of US investors in the mid 1990s enabled the market to rebound.
- The investment activity in our period is driven by the level of interest rates and not by excess leverage.
- The panel represents more than 25 billion euros of investment for the next year.

Advantages of partnerships:

- You need a partner when lot sizes are so big that you have to share the risks.
- Partnering is an advantage when the other has organizational skills that you don't have - with retail investments especially. For instance one has the money, the other has the brain.
- Because of the circumstances: you may prefer to do something with a partner than compete against each other.
- To access opportunities you wouldn't have otherwise and enter new markets (investing in partnerships is the only way to enter India).
- To avoid crossing the 50%-ownership-line, after which you pay more taxes.
- Bigger investment, less competitors.

Downsides of partnerships:

- It is difficult to share the governance, and to agree on time horizons, goals and strategies.
- Time horizons can change unexpectedly after the beginning of the partnership.
- Different access to cash can create problems within the partners.

- The regulations for SPV structures are very complicated.

Strategies of the panel:

- ADIA doesn't get involved in partnerships with small ownership percentages.
- The Canada Pension Plan Investment Board always invest in joint ventures, with only one partner at a time.
- AXA can invest up to 500 million without partners, but tend to share investments before.
- Union Investment Real Estate use partnerships to invest in retail, unless it represents less than 50 million euros.
- The investors are not all looking for core assets. First, there are some opportunistic investors. Second, investors can build core assets, and not only buy it.

Selecting a partner:

- Better to have partnered before, otherwise check if you share the same goals and philosophy. You need a like-minded partner.
- You need the right partner for the right strategy.
- Real estate is local. Investors need local people in partnerships.
- You don't know at the beginning if a partner is going to be good, it takes 5 years.
- AXA wouldn't partner with a retail fund because they have too different ways of managing.
- ADIA is careful about reputation and leverage, because they had a past experience of a need to re-leverage. They always allow for a decrease in capital value when they forecast their investments.

Leverage:

- Leverage allows tax mitigation.
- Even in the cases of problems arising from a partner's excess leverage, it is very difficult to put an end to the partnership.
- It is a good time for leveraging a partnership because of the low levels of interest rates, but you still have to be careful of the soundness of the partnership.
- Allianz and the Canada Pension Plan Investment Board have leveraged partners.
- Quantum Global Real Estate goes full equity, and leverage after.
- AXA hedges against currency problems, but sovereign funds have more flexibility concerning currency because they don't have the same recurring commitments
- Leverage is not possible in some markets. For instance, only Chinese investors can take a loan to invest into Africa, but they can have as high as 100% debt.

Just imagine: real estate in 2030

TUESDAY 11 MARCH 2014 | 17:30-18:30

Moderator: Sean Tompkins, RICS, CEO

Speakers: Michael Newey, RICS President
Hugh Kelly, NY University Schack Institute, Clinical Professor of Real Estate
Steven Norris, BNP Paribas Real Estate UK, Chairman
Markus Reinert, FRICS, Cushman&Wakefield LLP, Partner, EMEA Head of Property & Asset Management and Investor Services
Neil Singer, Singer Vielle, Senior Partner
Eric Dahl, World Trade Centers Association, CEO

Some figures:

- The construction sector provides 10% of global GDP
- Today cities cover just 1% of the surface of the earth but 3 billion people live there
- According to the UN, 2050 will see the number of inhabitants worldwide reach 9 billion. 70% of them will live in urban areas

7 essential pillars to the future according to the RICS:

1. Thinking ahead
2. Leadership & inspiration
3. Sustainability
4. New skills and multi-disciplinarity
5. Networks
6. Technology
7. Ethics, values & standards

The RICS is an independent professional body setting and upholding standards of excellence and integrity in the real estate business as a whole. It counts over 100 000 members all around the world.

"Just imagine!" – Professor John S. Ratcliffe (July 2011)

Urban world:

- How to make a urban world a human one? By building resilient cities. "Social" has to become the new "green". Resilient cities attract investors. Resilient cities offer large social mobility. In a city like NY, although facing high discrepancies in terms of salaries, a working class inhabitant has 1 chance out of 10 to reach a higher social and economic status whereas in Atlanta his chances are 1 out of 25.

IT:

- According to Neil Singer, the professions of investment agent and broker will disappear because IT now offers the possibility to access all the information. But this transparency will also lead to an intensified liquidity and volatility on the markets. That is why real estate will turn into an advisory business by 2030.
- New technologies will definitely change ways of living and working and with the fast growing urbanization IT will transform corporate organizations and thus real estate. Local town centers, at walking and cycling distance of large residential areas, will develop as new working places to become alternatives to overcrowded CBDs.

- As a conclusion, advices for the panel to young people interested in a real estate career:
- Schools, institutional organizations and firms must increase their cooperation to train adaptable professionals because the real estate business is changing.
- Learning at least to speak one other language is essential. Indeed, according to CEO surveys, getting the right skills in cross boarder businesses is the largest challenge.

Workspace in transformation: the face of tomorrow's buildings

WEDNESDAY 12 MARCH 2014 | 10:00-11:00

Moderator: Timothy Johnson, Design Partner, NBBJ

Speakers: Philippe Chiambaretta, Architect, Philippe Chiambaretta / PCA
Isabelle de Ponfilly, General Manager, Vitra
Pierre Deheunynck, Chairman, Crédit Agricole Immobilier
Dr Jan-Peter Kastelein, Partner, YNNO

- Today we are in "the second machine age" for offices (according to the title of a book by Erik Brynjolfsson and Andrew McAfee).
- Millennials (people born between 1982 and 2004) arrivals in offices change the trends, just like the economic crisis, knowledge economy and sustainability topics do.
- There are opposite trends: it is technologically possible to work alone at home whereas productivity and innovation are better when we work together in the same space.
- Similarly, the generation Y wants to be in the center of cities, whereas generation X and before want to be outside of cities.
- By 2020, 80% of salaries will work part-time outside of the office according to Isabelle de Ponfilly. There is a need to manage the office space in order to avoid empty spaces for two reasons: savings and image for the client. The solution is to share the space and then "break the rules in people minds", share offices while respecting intimacy. Offices should integrate a sense of life, create the feeling to be at home and create curiosity in the workspace (for example by putting books and arts in lounges).
- Different spaces within the office address different needs: the office can be open, social or slow.
- Furniture is only 2% of the cost of hiring someone (versus 80% for the salary).
- Nature has to be in the office, because you are more productive when you have a direct view outside and daylight. Natural materials such as wood and leather are also a way to have nature inside the buildings.

The example of Crédit Agricole:

- Crédit Agricole invested one billion to move from towers in downtown Paris to a campus in the suburbs, and changed the strategy by having one site for all business lines.
- Going to the suburbs was an issue for the clients (who wondered if the bank was still good enough to be downtown) and for employees.
- The first to move were the C-suite in 2010. Moving was difficult for people of every generation, but it created new interactions: the CEO started talking to everybody, and vice versa.
- Only 10% of the offices are closed, there are 27 lounges changed every few years.

Financial impact of CRE: how to influence the C-suite and business strategy?

WEDNESDAY 12 MARCH 2014 | 11:30-12:30

Moderator: **Alex Andel**, Head of Client Solutions, EMEA, CBRE Ltd

Speakers: **Paul Crayford**, CRE EMEA Director, AON
Jane Hamilton, Consultant, Hamilton Corporate Real Estate Advisory
Scott McMillan, Division Chief - International Real Estate, Capital Projects and Facilities, International Monetary Fund
Karine Rougé, Director Service and Industry sectors, Ocea smart building

72% of occupiers think that better alignment of real estate with their business and location strategies is the key area for improvement (according to a CBRE survey).

To align business strategies and real estate, there is a need to get business skills to the CRE teams, with business consulting analysts for example.

It often is not easy to convince C-suites to invest in CRE because there is not always a visible direct operational impact but it is important to show them that high returns can be expected in financial and non-financial terms. CRE teams have to prove that they can bring more to their company than just getting the basics (toilets, heating, cooling...) right.

The key is to make investments work properly, and to focus on the re-organization per se. There is only one Google, and each company has its own business characteristics to build successful real estate policies.

Real estate is at the heart of two corporate units:

- Financial matters, as an important source of savings as real estate is 2nd line of costs of most P&Ls
- HR

Costs:

- Real estate is not only a cost center, but also a marker of companies' identity
- Optimization of real estate costs is not only done with a CFO perspective, but also with a strategic view of the portfolio by real estate experts
- Too many savings can also lead to less employee happiness

Metrics:

- AON doesn't benchmark its real estate portfolio with KPI
- The IMF uses 5 or 6 common metrics for the common understanding of the portfolio, the KPI cannot only be cost metrics, it has to represent how business, productivity and organization are facilitated through real estate
- Measuring sustainability is still considered as difficult for most companies

Languages:

- Being able to speak a language that the C-suite understands is key for performance, as well as recognizing the knowledge of the people you are talking to
- Cultural differences, cross-border definitions are very difficult to implement, successful strategies in London are not adapted anywhere else so that it is very important to cautiously always define what you are talking about when speaking about real estate with different companies, different teams in different countries. Real estate in a sector with very strong jargons.
- Building credibility for the CRE with past records where you did what you said
- Paying attention to always get the C-suites informed to keep their attention

Relationships with landlords:

- Landlords differentiate when they offer help to the occupiers for the technology investments, when they align to the business
- Black books: landlords have a black book of occupiers they don't want to deal with, and it can also happen that occupiers don't take a building because of past negative experience with the landlord.

Retrofit strategy and smart buildings: towards high-performance buildings (Part I)

WEDNESDAY 12 MARCH 2014, 14:00-15:30

Experts: **Ralph DiNola**, Executive Director, New Buildings Institute
Jon Seller, Chairman, International Facility Management Association

Speakers: - Case study 1:
Dr Manuel Oomen, Senior Director, Philips Lighting
Christelle Granier, Alliances & Partnerships Manager, Somfy
- Case study 2:
David Cox, European Business Development Manager, 3M

Overview by experts

- How can we transform existing buildings into models of sustainability and high performance? According to the panel, the aim is to make an existing building the best it can be. There is no “one solution fits all” that could be applied to every building.
- Can the same methods be applied to residential, offices, commercial and historical buildings? It cannot be the same method because expectations are different. In the case of residential buildings, it often is private person's money that is directly invested, whereas in office buildings, investors' funds are used.
- How can design and architecture make a project cheaper? They have to focus on the whole life cycle of the building. They also have to make the building maintainable.
- Buildings' retrofit strategies face different challenges: financial, energy efficiency, technological and innovative ones.
- We replace 1% of the stock of existing buildings in the world each year. 95% of the existing buildings are less than 4,600 sqm. When replacing this stock one should first benchmark one's portfolio – what is its energy use intensity? Then comes the understanding of its energy consumption and uses through an energy audit – heating, lightening. After that one should develop an improvement plan and think of Energy Efficiency Measures (EEM). To finish, appropriate Energy Conservation Measures (ECM) should be implemented.
- Climate change affects the construction and retrofitting of buildings. With lower energy costs a better return on investment is expected. In North America ¼ of the building renovations plans on producing net zero buildings.
- The biggest cost-effective solution is to work on envelope insulation. We can also think of favouring daylight, HVAC (Heating, Ventilation and Air-Conditioning) and plug loads.

Case study 1: Light balancing in Lille: a case study on a lighting retrofit for more comfort and less energy

Sponsored by Philips and Somfy

- This partnership brings together to leaders on their markets: Somfy for automated daylight management and Philips for electrical lighting. The alliance resulted in automatic light management thanks to their innovation called light balancing, using natural daylight whenever possible and adding electrical lighting when needed.
- The aim is to improve comfort and make energy savings at the same time.
- Their joint innovation has been implemented in the OIX building in Lille, Northern France. At first the technology has not been tested on every floor in order to make a comparison. Even though users are satisfied today, they first experienced noise and excess lighting. However these early adopters have been able to test various lighting scenarios and adjust the one they chose.
- The technology should be better explained to users, so that they understand why blinds are moving for instance. We could imagine pop-up windows on computer screens to explain if blinds are moving because of the heat or because of the light.
- This technology enables gains of productivity for the tenant. It raises the building value and lowers operation costs.

Case study 2: Smart innovations for sustainable buildings

Sponsored by 3M

- 3M (for Minnesota Mining and Manufacturing) spends \$1,7 billion in R&D and related investment to improve its energy efficiency solutions. Energy efficiency comes with insulation, building techniques and networks operations (IT).
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- This technology has been applied in countries like Finland where the search for daylight is important and on historic buildings like embassies.
- 3M's window films are taken into account while trying to obtain a LEED® Certification.

Rethinking asset allocation for long term investors: strategic and tactical real estate investment

WEDNESDAY 12 MARCH 2014 | 16:30-18:30

Moderator: Allan Saunderson, Managing Editor, Property Investor Europe

Speakers: Dr Philippe Ithurbide, Global Head of Research, Amundi
Prof. Amin Rajan, CEO, CREATE-Research
Adam Cibik, Portfolio Manager, Real Estate Investments, ERS of Texas
Laurent Luccioni, Executive Vice President, Portfolio Manager and Head of Commercial Real Estate - EMEA, PIMCO Europe Ltd
Gordon Marsden, Director, Investment and Advisory Services, Asia Pacific, DTZ Debenham Tie Leung Limited
Ben Sanderson, Director - Fund Management International and Debt Investment, Hermes Real Estate
Stéphane Tortajada, Group Head of Finance & Investments, EDF

Part 1 - Strategic asset allocation for long-term investors

A list of five key drivers of strategic asset allocation can be drawn up:

1. The level of rates
2. Deleveraging
3. The level of private debt, which is fine in Germany and Italy
4. Growth and employment
5. Demographics and immigration

What is the global real estate economic situation and context?

- Quantitative easing in the USA managed to raise real estate investments in the USA. The FED is ending this policy - markets expect quantitative easing to be over before October, but interest rates are expected to remain low for the next years. There is a global excess of liquidity, which can cause bubbles to develop when economic growth is high and the level of interest rates are too low. On the opposite, all the countries rated AAA have problems with real estate investments because their orthodox policies deter investments. Employment rates are improving, except in deleveraging countries. In Europe, excess of liquidity will fuel long-term investments. When considering deleveraging, private and public debts are both to be examined: for instance, the levels of public debt is very important in Italy, but its private debt is really low.
- Divergencies, especially in Europe, create a lot of opportunities.
Germany is doing way better thanks to low rates of debt, strong growth, important immigration of young workers coming from countries like Spain, Portugal or Italy seeking for better professional perspectives, and prices of real estate relatively low compared to the rest of Europe; but Germany is also not a major source for investible assets, due to the aging demography and the fact that assets are locked in for a long time.
- Europe's divergencies are materialized by a low correlation between real estate markets. Therefore it is interesting to use real estate assets to diversify a portfolio. The UK is more sensitive to interest rates, followed by core countries and then the periphery. Demographics are very important: real estate is owned by retirees who are looking for low volatility, fixed income and to hedge against inflation; these retirees don't belong to any pension plan, and are risk-averse. With changes in demographics, buildings can be vacant for a long time, because it takes time to convert buildings from one using to another.

- Concerning the emerging markets, these economies face very different situations. Even within an emerging country, the market is not the same. For instance in China, some local markets are booming, while some others are falling. Investments in these markets were fueled by excess liquidity in western countries and by delocalisation movements; both of these factors are decreasing now. Interest for real estate has grown in these markets. Investors want to satisfy at least three of the following criteria: to get significant returns, high income, regular cash flows - made possible by the demographical reasons explained above -, inflation protection and/or liquidity.
- Center locations have high valuations. When the economy started to recover, investments went first to the US, then to Europe and then to peripheral countries. Investments in real estate tend to be made in countries where high quality infrastructures are available. Assets in the part of Europe that exited drama and with growth potential are undervalued.

What is the role of real estate within a long-term investor asset allocation? Its weight? Its evolution?

- Real estate has a different role depending on the critical size of the investor. Indeed, huge investors have the structure to purchase core assets, which are almost riskless. On the contrary, some investors cannot afford core assets - because real estate investments are not scalable - and have to do opportunistic investments which are riskier, and require specific skills sets.
- Since 2005, allocation in real estate has increased. It now reaches 11-12% in most institutional portfolios whereas it had fallen from 20 to 5% between 1990 and 2005, at a time when the equity market was working well. The part of real estate represents 10% to 20% in the total asset allocation of a long term investor.
- Real estate is attractive for institutional investors because it provides regular cash flows, hedge against inflation and offers good returns; institutional investors mix real estate in their portfolios with equity for high yields. With the growth of investments in equity, worries of higher correlation are developing, and reinforce the attractiveness of real estate, because it enables diversification.
- On the other hand, investors held fewer bonds, because the number of bonds rated AAA has decreased by 70% since 2011. But bonds yields have started to grow again because the economy is recovering and quantitative easing is finished in the US.

What are the features of real estate within an asset allocation strategy?

- According to Prof. Amin Rajan, real estate provides investors with three out of five goals an investor want to achieve. An investor wants high incomes, regular cashflows, inflation protection, return and liquidity. Real estate reaches the three first.
- Lots of companies want to have proxies, financial models to value their investments every few months. It is a wrong idea because these models tend to overstate correlation and understate the diversification potential. Interest for real estate was a cultural change in the way real estate was perceived, but investors specialized in equity still do not invest in real estate.

Part 2 - Investors discussion: their conviction concerning real estate investments

Where do they invest: Geography, sector, strategy...?

- The panel focused on investing in Europe. According to them, sectors which are interesting in Europe are logistics and shopping centers. In countries such as the UK and Germany, investments are really profitable. They provide security and good yields. In Europe, yields are still good and if economic conditions are improving, prices will follow.

- Considering geography and profitable sectors, it appears that the best places to invest in are: Central London office, UK retail, key German cities office, German retail and France retail. Spain is the flavor of the day, but there are not enough assets on the market for every investor, which pushes returns down, even if they are still good. Investors start looking at the peripheral countries
- In terms of strategy, two main points are explained. First, investors do not purchase what they like, but what they can reach: it depends on their size. Second, investors need ground knowledge before investing in a country. A key tool for a successful investment is that the investor feels local when he does an operation overseas.

Two examples of investors: EDF and Hermes Real Estate

- EDF is a particular company for investment, because they invest mostly in France, and in a few other European countries only (Italy and the UK). They invest where they have a ground knowledge, and in France they have access to whatever they want because of their huge size. They have a long-term strategy and try to get 5% returns. They use a lot of equity, and opportunistic assets represent less than 10% of their real estate assets (which represents 20% of their portfolio). For EDF the global outlook for the markets is not so good, with huge unemployment rate and a zero-growth. Hence, the returns are single digit, even if they use leverage to increase returns.
- Hermes Real Estate is a UK-based investor, which moved beyond the coast of the UK lately. Their advice for investors would be to invest overseas in the same way as they do at home, and to never take different positions on leverage because it is overseas.

What formats do Asian investors choose in order to deploy their equity in Europe?

- Asian investors used to do only single investments. However the Asian investment market is currently in its second phase: Asian investors are starting to invest into a variety of funds' products. They want to have either good returns when investing in Europe or want to bring back skills at home. South Korean groups have appetite for debt nowadays.

How does European Real Estate investment compare with other international alternatives?

- Banks came back fast to the US market because they think that there is too much competition in core European markets, and that they are not paid for the risk they take. There is excess liquidity in the European market, and they fear that the risk of deflation is not taken into account by markets. Rates for senior mortgages in Europe are artificially low because of the low rates provided by the ECB, so it could be a good time to invest. In the US the window for artificially low mortgage rates is already closed.

Functional diversity: shared buildings and spaces

THURSDAY 13 MARCH 2014 | 10:00-11:00

Moderator: Prof. Ingrid Nappi-Choulet, Head of the Real Estate and Sustainable Development Chair, ESSEC Business School

Speakers: Christian Cléret, Chief Executive Officer, Poste Immo
Olivier Estève, Deputy Chief Executive Officer, Foncière des Régions
Philippe Zivkovic, Executive Chairman of the Executive Board, BNP Paribas Real Estate

The aim of the conference is to determine how dense cities can become more sustainable and preserve the well being of workers and inhabitants. Sharing buildings, spaces and energy can be a solution.

Which interviews of the second Cahier of the Real Estate and Sustainable Development Chair sparked your attention?

Christian Cléret – Poste Immo

- According to Christian Cléret the second issue of the Cahiers has the advantage to stress the complexity of the mixed-use approach. As complex as this approach may be, it is nevertheless essential when it comes to rebuilding a part of the city.
- Christian Cléret agrees with Marie-Anne Belin – General Manager of Semavip, the Mixed Economy Planning Company for the City of Paris – when she observes that investors are reluctant to the vertical mixed-use approach. Office investors prefer to have full control over their buildings and manage only one tenant.
- According to Christian Cléret it is important that logistics remain present in city centres, even if this activity creates negative externalities such as traffic or noise.
- The interview of Christophe Ripert - director of Real Estate at Sogaris, Rungis - lists some logistic facilities adapted to urban areas. "Logistics hotels" should be set in dense peripheral areas; they gather different activities such as logistics, offices or data centres in a single building with multimodal connections. They are a good example of vertical cohabitation and mixed-use approach. "Urban logistics spaces" are suited to city centres, for retail trade.

Olivier Estève – Foncière des Régions

- Workplace management is a good way to make buildings more flexible. This organizational tool provides opportunities for cost savings. It is described in the interview of Catherine Gall, Research director at Steelcase Europe.
- Olivier Estève and Alain Maugard – President of Qualibat – agree that energy efficiency issues are prevalent today. If BEPOS buildings are becoming the norm for new constructions, considerable improvements have still to be made in existing properties.
- Olivier Estève points out that functional diversity shall not be limited to housing, offices and retail. Leisure and public equipments must also be taken into account.

Philippe Zivkovic – BNP Paribas Real Estate

- Philippe Zivkovic reminds us that single-function buildings emerged at the beginning of the 20th century with the arrival of elevators. They suppressed the traditional vertical diversity of residential buildings. Indeed there were shops on the ground floor, housing on the first floors and modest households on the highest floors. This phenomenon is described in the interview of Jean-Pierre Caffet - French Senator and Paris city councillor.
- Philippe Zivkovic also points out the scarcity of mixed-use towers in France. This can be explained by various reasons. Towers are associated to social housing and come with an important economic cost of construction and maintenance.

What added value can real estate actors, and the city itself, draw from these shared uses?

- Christian Cléret reminds us of the diversity of the assets it manages. They include offices, retail, and logistics buildings that are located in city centres for historical reasons. Poste Immo regards shared uses and functional diversity as a response to a societal issue. It has to be favoured even though it creates regulatory issues.
- According to Olivier Estève, the mixed-use approach enables investors to make their investment more sustainable in the long run, even though it is more complicated and costly in the short run. The mixed-use approach is more easily implemented at the scale of a district.
- Sharing spaces can reduce the cost of a project. For instance the mutualisation of parking places at Euromed Center in Marseille has enabled Foncière des Régions to reduce the size of the car park by 30%. The economies enable more services for users and a better quality of the project.
- According to Philippe Zivkovic, investors accept horizontal mixed-use initiatives at the scale of a district. On the contrary, it is still difficult to create vertical mixed-use buildings.

Logistics and property: drivers and booming places

THURSDAY 13 MARCH 2014 | 11:30-13:00

Facilitator: Rob Coston, Editor, Logistics Business Magazine

Speakers:

- Overview:
Mike Hillis, SIOR, CCIM, President, SIOR - Society of Industrial & Office Realtors
Mari van Kuijk, Managing Director & Partner, Groenewout
- Case study 1:
Amaury Gariel, Managing Director, CBRE
Pascal Aujoux, CEO, PRD
- Case study 2:
Remon Vos, CEO, CTP

Overview by experts:

- The US market has been hit very hard by the economic crisis. But now vacancy rates are decreasing in logistics real estate and there was more absorption in 2013 than in the last five years.
- E-commerce has a big impact on logistics and traditional facilities are not adapted anymore. People now want to be able to order four pairs of shoes, keep one and return three. This has a huge impact on distribution centres.
- The new trend is developing green facilities.
- Germany is the main platform for Europe, France is an important place for logistics because of its geography and the UK logistics market is very mature.

Case study 1- Bringing it all together: XXL warehouse for Castorama

Sponsored by CBRE

- Finding a suitable land for a logistic facility is quite difficult. The right place is highly connected to roads and harbours, is close to a suitable employment area with a flexible workforce and near important economic places and customers. Moreover the project must gain approval from local associations. Regarding the red tape needed to obtain a permit, it is less a concern for logistics than for office buildings.
- The creation of an XXL warehouse of 123,000 sq m for Castorama has raised the interest of the investment community. It is located in Saint-Martin-de-Crau and is Castorama's major warehouse in France. It has been developed by PRD and the investor is AG Real Estate.
- This XXL warehouse will regroup various logistic facilities of Castorama. Therefore the company is likely to make over 20% of economies of scale during the coming twenty years.
- According to AG Real Estate logistics is a good diversification product. It represents 25% of its portfolio.
- Logistics platform on two floors are reserved to prime new buildings in popular area because they are very costly.

Case study 2: Built to suit with land to grow

Sponsored by CTP

- CTPark opened its first business park in 1998 and responded to a demand since Central Europe had low wages that attracted companies, but it did not have any logistic facilities.
- 40% of supply chain flows come from the country where the warehouse is located. The remaining 60% come from the whole continent. The Czech Republic is therefore a good spot for e-business in Europe.

Masterminds architecture: flexible and adaptable architecture

THURSDAY 13 MARCH 2014 | 11:30-13:00

Moderator: **Stefano Boeri**, Chief, Stefano BoeriArchitetti

Speakers: **Mette Kynne Frandsen**, CEO & Partner, Henning Larsen Architects
Dominique Perrault, Architecte DPLG - Urbaniste SFU, Dominique Perrault Architecture
Prof. Ir. Winy Maas, Director - Architect, MVRDV
Mark Middleton, Managing Partner, Grimshaw
Msc Auguste van Oppen, Architect / Partner, O+A Strategies and Architecture

Relation between flexibility and modularity:

- Flexibility can only be achieved if there are specific spaces alongside the modular and generic spaces
- Flexibility is usually easier outside of big cities, where architectural obligations are more important and density restricts the possibilities
- Many vacant buildings were built following the ideas of Le Corbusier of a space where you can host any kind of activity in the space. Nobody wants these spaces because they are not specific enough. Auguste van Oppen worked only on existing buildings, with the idea of an acupuncture development, where social structures are not destroyed, but specificity is re-introduced in the building. For example they used a grid made of containers

Relation between flexibility and adaptability:

- Adaptability and flexibility are not synonymous, adaptability allows for a change of the uses of a building, whereas flexibility allows doing anything in any place
- Many buildings were built for obsolescence which contradicts the idea of flexibility
- 90% of built buildings are similar, they can always adapt it, but this neutrality creates excess competition and less flexibility (because you first have a lot of adaptations to do) MVRDV worked on specific features and characteristics for Banque Populaire in Rungis (France) to add to the flexibility
- Buildings adapt themselves over time in cities, just as antic cities did. The next idea to adapt buildings is to find a material that can adapt, a kind of rubber or cotton candy, called "barbapapa"

Relation between flexibility and sustainability / durability:

- Sustainability is considered as the fact that people want to keep the same building for a long period of time, more than as an energy issue
- 3 types of sustainability: technological, social and urban sustainability
 1. Technical sustainability objectives are sometimes contradictory: you cannot have a building with a thick envelope for isolation and optimal daylight. To achieve sustainability goals, new materials using nanotechnologies are developed

2. Designing buildings with a unique function is not sustainable, by contrast to mixed uses developments. It is especially true for the towers, perceived by citizens as symbol of the strong power from a company and better accepted if they have mixed uses

3. Urban sustainability is the research of global reversibility. Introducing reversibility with the heritage of the 70s architecture is another way to be sustainable

- The issue of daylight is a very important European debate, questioning the existing buildings. The minimum of 3% at least of daylight is a European challenge for investors and house owners. There is a need for research on how to use natural resources at best to cope with the 2020 goals, and for more input from contractors and subcontractors who have not always the knowledge and materials

Participation:

- Is it possible for architects to invite each other to participate in common works?
- For the Banque Populaire building in Rungis, the neighbors had a say in the matter and asked the architects to avoid doing another bar
- Siemens in Munich wanted to engage with communities and stakeholders, dialogued with the municipality, and turned spaces on the ground in public spaces

People love to be in spaces that have a history. Dominique Perrault advises that we should develop patrimony concepts to protect and transform the past buildings, connect past and present buildings, which used to be outside the cities 30 years ago.

Working with artists often proves to be an initiative well appreciated by the local inhabitants. Interaction helps to solve some social problems and real estate can be a way to achieve this goal. More generally, a building today has to be integrated to its surroundings.

Keeping the social structure should also be a predominant concern while building or retrofitting whole neighborhoods.

Conclusion: the key points for the future are sharing the cities, and approaching development and buildings as a whole.

Global healthcare real estate: the boom market of the next decades

THURSDAY 13 MARCH 2014 | 14:30-16:00

Moderator: **Stéphane Pichon**, Managing Partner, Your Care Consult

Speakers: **Nicolai Kobliakov**, Member of board, Senior Cottage
Fabrizio Pucciarelli, CEO, INSO S.p.A.
Sébastien Berden, Head of Healthcare, Cofinimmo SA

Strengths of healthcare real estate:

- A strong demand growth driven by demographics: the population is ageing in the West and growing in the South East. We also witness a rise of chronic diseases caused by alcohol consumption and tobacco.
- It is a less cyclical market.
- Constrained government budgets favour private funding.
- This sector is characterized by long leases, with capacities of extensions provided by renewal opportunities.
- A mix of government reimbursement, private insurance and pay secures the tenant EBITDA.
- There is a potential of leverage.
- Healthcare real estate is less location-dependant than commercial real estate.

=> Healthcare real estate is suited for core and core plus investors.

Overview of major healthcare real estate markets:

- Across France, Germany, the UK, Belgium, Italy and Spain market volumes range from 100 M€ (Spain) to 500 M€ (UK) and yields range from 6% (Belgium) to 7,50% (Germany). The average duration of leases is of 9 to 12 years in France and Italy and can be over 20 years in the other European countries considered here. Excepted in Germany, escalators cover inflation.
- Healthcare real estate can interest Real Estate Investment Trusts (REITs) such as Cofinimmo in Europe, the Senior Housing Property Trust in the USA and Parkway Life REIT in Asia.
- The problem is that people have much knowledge about health but less in real estate management.

A need for reform:

- The real estate expenses in Europe will escalate unless we profoundly reform the healthcare sector. We are today confronted to outdated care delivery channels. The Netherlands has successfully reformed its healthcare sector by introducing more competition thanks to more private clinics.
- The company Senior Cottage provides modular prefabricated senior care facilities, such as city residences of 80 to 200 beds, senior clusters of 10 to 50 beds and senior cottages to be set close to the house of an ageing person's relatives. Senior Cottage sees a huge development potential in Slovakia and in Poland.

Case study - The Hospital of Vimercate: an integrated approach to healthcare facilities

- The hospital of Vimercate is located 20 kilometres away from Milano. The project of INSO S.p.A enabled the construction of a new hospital of 520 beds to replace the old one.
- Key drivers in hospital implementation plans:
- Developed countries are confronted to a high level of healthcare expenditures. They need to reduce running costs, enhance the quality of service, and provide assistance to the elderly. This can be achieved by decreasing the level of beds and by closing non-profitable hospitals. In the meantime we should implement new medium-size hospitals with a high level of specialization in strategic locations. We should also create nursing homes and facilities for the elderly.
- This strategy was achieved in Vimercate. The new hospital has fewer beds but is equipped with more technology and equipments; it conducts more diagnoses. Its circulation flows are optimized.
- The project's repayment is expected in 22 years.

Transform Real Estate into a performance asset

THURSDAY 13 MARCH 2014 | 14:30-16:00

Moderator: Joris Gaudion, Directeur Segment Immobilier, Schneider Electric

Speakers: Marcus Täck, Real Estate and Office Market, Schneider Electric
Prof. Dr Norm Miller, Professor & Editor, University of San Diego
Pascal Brosset, Senior Vice President Innovation, Schneider Electric
Gilles Cordon, Sales Developer, Schneider Electric
Univ. Prof. Dr Alexander Redlein, Board of EuroFM, Vienna University of Technology

- Sustainability started the trend of maximizing information technologies (IT) into buildings to improve the services offered and collect data about energy consumption, unoccupied spaces and so on.
- Real estate assets stopped to be seen as square meters and started to be seen in association with the services provided inside the buildings.
- The equation in the real estate business today has three entries:
 1. What do landlords want? Return On Investment (ROI), higher rents, lower expenses, faster absorption, longer economic life, higher residual value, lower Green House Gas (GHG), to meet Corporate Social Responsibility (CSR) goals
 2. What do business tenants want? Productivity, greater employee attraction, greater retention, less sickness issues, more output relative to costs, business success
 3. What do occupants want? Good natural light if possible, less noise and interruptions, ability to focus, ability to collaborate, good air and temperature, healthy ergonomics, amenities and diversions

The issue is not the technology. Technology is abundant, ready to use and relatively cheap (cloud computing, big data...). The need is to work on the requirements of people, on data to measure comfort in working places.

Majunga Tower:

- Schneider Electric illustrates these statements with the example of their collaboration with Unibail-Rodamco (one leading listed commercial property company in Europe) on the Majunga Tower in La Défense, Paris. Their motto: comfort to productivity. They strongly developed services to the occupants with a unique portal accessible through smartphones and Majunga Apps® aiming at controlling facilities (HVAC, light, blinds), finding available meeting rooms, avoiding long waiting times at the restaurants... Radio-frequency identification (RFID) technology measures occupation in the building at any time.
- These types of services also benefit to the tenants by improving space occupation, bringing alert and lower expenses. The question is: does it implies higher rents?
- Every investor is afraid of emptiness rates. Whenever a client needs new spaces, the technology and services of the building should enable not to tear walls and recable everything. The problem is that only 2% of buildings are new every year, so we are stuck with old buildings. To use them better, wireless services, photovoltaic and reprogramming spaces are the keys.

- Main drivers at work are changing, so need to do offices. The demand for different office spaces like airports is growing thanks to and with technologies. Management has to switch from a model based on hours at the office to a productivity based one.
- But surveys show that private tenants' mentality is not quite ready yet as having a green building and optimizing space comes last in their preoccupation list where saving energies and reducing CO2 emissions place first. The focus of new buildings shouldn't be put only on energy consumption, because it sometimes hinders the space programming (in the greenest building Vienna, it forbade fridges in kitchens and freedom to choose different computers), but also on systems connected with end-users to reserve spaces or interact with the HR.

Conclusion: the future is going to be connected buildings and services to improve comfort, savings and global environment protection. The important is for buildings not to go in the way of collaboration.

Ten must-have innovative solutions: a selection of 10 must-have innovations

FRIDAY 14 MARCH | 11:00-12:00

Moderator: Peter Woodward, Lead Facilitator, Quest Associates

Speakers: Marek Pärtel, Founding Partner, Estateguru OÜ
Prof. Carlo Ratti, Director, MIT Senseable City Lab & Partner, Carlo Ratti Associati

10 innovations:

1. **Crowdfunding** for real estate: Estateguru is a website offering to its clients to invest in real estate projects through crowdfunding, with a minimal investment of 100€. It provides a solution to the problem of scales of real estate investment, and increases the number of potential investors.
2. Contour Crafting is a project to develop **3-D printing** of tools, by Behrokh Khoshnevis from the University of Southern California. In 20 hours, they built a 230-sqm-house with concrete and composite fibers. Printing houses reduces the cost of labor, the cost of financing – because the duration of the project is much lower – and the cost of materials.
3. Sharing spaces has always existed. What is innovative is the emulation it creates. **Mixed-use spaces** make the headlines in urbanism newspaper. It has two advantages. First, it is better for users because districts are more dynamic. Thus, it is a solution for empty business districts in the evening. Second, mixed-use spaces are better for investors in terms of sustainability of investments.
4. **Strong alliances between market leaders** in different sectors aiming at joining forces, talents and resources to bring new goods and services to the markets, especially the real estate one, tend to develop fast. Knowing that 75% the buildings' energy is due to lightning and heating/cooling, Somfy and Philips invented automatic daylight management with their innovation called light balancing (blinds and lights adjust automatically depending of the sun position and the room occupation).
5. **Virtual reality** is increasingly being used in real estate. Companies such as MyCloud 3D use architect plans to virtually construct a building before its actual construction. It is therefore possible for the client to virtually visit it, envision what the building is going to be and ask for adjustments to be made in the actual building. It is therefore an effective marketing tool.
6. **Active building materials** will continue to play an important role in the next generation of green buildings and they appear to be ever more efficient. Active™'s self-cleaning, antibacterial and anti-pollution floor and wall ceramics constitute innovative examples which, if scaled up, could make a real difference in terms of reduced environment impact in big cities.
7. Smartphone applications are developed to help citizens participate in their cities, both before projects are developed and after, for the maintenance. The **application Street Bump**, for example, allows people to order repairs for street bumps automatically. When they are driving, bumps are detected and repairs order placed. It lowers the cost of maintenance for the companies responsible for the streets, because they don't need to pay inspectors to detect bumps anymore.
8. **Smartphone applications are developed to link people with their offices**. Schneider Electric developed such a technology in Majunga Tower purchased by Unibail Rodamco. It enables colleagues to meet them in a meeting room and to reserve it directly with an app. Workers can also manage their office: luminosity, air and so on.

9. **Smart grids** are being developed at the scale of neighborhoods to improve their energy efficiency. Using brand-new information technologies, they monitor and optimize the production and distribution of electricity. Smart grids therefore turn the electrical system into a more flexible one, more adapted to using the renewable but intermittent sources of energies. They also turn the end-user into an actor that adjusts its energy consumption to the availability of the resource.
10. The audience found the last innovation. It consists of **self-driving cars**, developed by Google and the MIT. With these, the number of cars will decrease, and traffic jams as well, because the same car can give a lift to a whole family.