

Magazine for Construction Management and Engineering

INTERVIEWS

December 2013 | Number 20 | Volume 11



**KNOWLEDGE
ECONOMY**

Knap

*als je met je
eerste carrièrestap
Nederland
vooruit brengt.*

Management Advies Automatisering *Bouw Huisvesting Vastgoed*



brinkgroep.nl

Bij Brink Groep maak je de ambities waar van onze opdrachtgevers in bouw, huisvesting en vastgoed. Dankzij onze medewerkers worden door heel Nederland prachtige projecten opgestart. Zo hebben we de bouw van het ADO-stadion gecoached en maken we de High Tech Campus in Eindhoven duurzaam wijzer door de inzet van biodiversiteit. Nederland mooier maken klinkt goed, maar hoe zit het met jouw eigen ambities? Wij geven alle ruimte voor je eigen ontwikkeling. In een dynamische organisatie met informele sfeer werk je samen met collega's die graag denken én doen. In kleine gespecialiseerde teams kun je jouw vernieuwende ideeën kwijt en leer je elke dag bij. Dus, ben je afgestudeerd en wil je het ver brengen? Ben je pragmatisch, ondernemend en ambitieus? Kijk dan op onze website voor passend knap werk.

[knap werk](#)

Colophon

General

Intervisie is a publication of of CoUrsE!, the study association of the master track Construction Management & Engineering (CME) at the Technical University of Eindhoven.

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Dear members and relations,

I am pleased and proud to present to you the newest edition of the Intervisie. The board changed and some changes to the Intervisie has come with it. As you can see, the old trusted 'of CoUrsE!-yellow' disappeared from the front page. But no worries, in this magazine the 'of CoUrsE!-yellow' is still strongly represented. The front page and theme have, from now on, every edition a different corresponding colour. For this Intervisie, we start off with white and from there we continue to a colourful new series of this magazine. Besides this, the inside of the magazine also knows some changes in order to make it look better and to make it better structured.

For this edition of the Intervisie, we looked at the export possibilities of our Dutch construction knowledge. With the current market conditions this subject becomes more and more important, and also for our international orientated master-track this is an interesting and related subject. We also have some interesting people who made their contribution to this magazine. As you will see, both the exchange students and alumni were picked to be in line with the theme of this magazine. An interview was held with one of the directors of DVP and with the director Corporate Business Development of Tebodin. Our columnist, Bert van Eekelen who is an international consultant at Arcadis, wrote an amusing column about his vision regarding the subject. This, and a lot more is for you to read in this beautiful magazine.

Enjoy reading and I wish you all the best in 2014!

Kind regards,

Malco van den Eijnde



Malco van den Eijnde | Chief Editor Intervisie

Construction Management & Engineering | of CoUrsE!

11th Board member | 2013-2014



Liverpool of CoUrs€!

CONSTRUCTION MANAGEMENT AND ENGINEERING ■

Manchester

22nd-29th of May 2014
Study trip

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NEWS AND ANNOUNCEMENTS

of CoUrsE! has provided a fair number of activities so far this year. On this page a grasp of what has been done and what is further ahead. If you want to join the activities, then make sure to keep a close eye on our facebook page or just call on at the of CoUrsE! corner on floor 5.

New Committee 03-09-2013

Fresh out of the airplane from Romania, the new board speeded into the General Members Meeting (Algemene Leden Vergadering). In this meeting, the last year was evaluated, the old board resigned and the new 11th board was presented:



The 11th board of of CoUrsE!

From left to right:
Cecile van Amerongen Secretary
Erik Vijverberg Chairman
Daan Stoop Commissioner Public Relations
Malco van den Eijnde Commissioner Intervisie
Ruben Dieten Commissioner Education
Ruud van den Bosch Commissioner Activities
Andreas Lem Treasurer

In the General Members Meeting, the board presents its policy plan for the year 2013/2014. Then, directly after this, there was the constitution drink. No time was wasted, because directly after this, the old and new board went out for dinner at Eetcafé Movies. Of course, the night continued and ended with a party in Stratumseind.

Free CME Lunch 19-09-2013

On September 19th the annual CME Lunch was organised, the first activity of the study year. Of CoUrsE organised this free lunch for a good integration with our fellow students. It was good to see that many people were present. Firstly we, the board, gave an informational presentation where we also introduced ourselves. Especially for first year CME students, it is useful to know where we are located and what we can do for them. After the brief presentation, everybody could enjoy the lunch. Liked what you got? Do not miss the next lunch!

Bowling Night 01-10-2013

Show your skills at this annual Bowling Night, or just have a good time. For the first time, there was a trophy to win. The winner went home with the exchange-bowling-pin-trophy, supported by of CoUrsE! More than 40 students and alumni took part in this fierce quest. After one round the players were shuffled around and after the second round we had a winner: Ritesh Brispat! Will he be able to successfully defend this trophy next year?



Bowling night

Drinks on floor 5 12-11-2013

On Tuesday November the 12th, we already had our second drink on floor 5. Every CME student can freely join, hop by, or stay all the way until the end. During the drink Alberto Perez Martinez was making a national dish; some of the best Nachos ever displayed in Vertigo! More drinks to come, also in the second semester.

Masterevent 18-11-2013

Everyone who is interested in CME, should be informed well of course. Therefore, the whole study committee was present in the Auditorium to answer all the questions that the Bachelor students might have. Professor Schaefer gave a presentation about the full study program, its contents and its fields of interest. After this, our Chairman Erik Vijverberg gave a presentation about the way we, as students, experience the study program and what obstacles you might find. Finally, there was a drink where the students could have a look at other studies and they could ask us questions about the study, of CoUrsE! study association or other fields of interest.

Beertasting 03-12-2013

It was cold and misty outside when the first beer fanatics entered the Bierprofessor. Luckily they were treated with a warm first beer, named St Louise Gluhkriek, heated on the stove. And have you ever heard of Fine Fleur, IJ Bock or Kasteel Cuvee de Chateau? Probably not, but these are just a few of the eight beers that were on the exquisite beer menu. Kees, the beerprofessor made a menu with a large variety of beers and the descriptions of the beers were also provided. The alcohol percentage was raised with every new beer. While the first one was only 3,5%, the final beer Kasteel Cuvee de Chateau had an alcohol percentage of 11%! By twelve o'clock, most people have drunk their last beer. Some have had enough, while others proceed for more and continued the night somewhere else on Stratumseind.

Bedrijven Orientatie Dag

On March the 11th there will be the annual BOD (company orientation days). So far Brink Group and DVP have confirmed to be present and more to come. This year there will be a new format. Instead of only presentations, there will also be an interactive session between students and companies. So this means a good opportunity for students to meet business, get to know what they do. If you like, stay connected with them.

Conference

On the 9th of May 2014, of CoUrsE! will organise the CME-conference for YOU, both students and alumni. The topic of this day will be "Sustainable innovative developments within the built environment". How can we, the people of CME, bring and implement innovative solutions in the actual market? And to what extent can we contribute to transform a city into a 'smart' one?

Nowadays, 'Smart' cities are a topic of high interest and you should know that almost 75% of the world population will be living in cities by 2050. As cities proliferate, they promote global economic growth and prosperity but they also threaten our climate. Cities account for almost 66% of our energy consumption and produce 70% of all greenhouse gasses. The foregoing means that there are severe problems ahead of us. During the conference day, several parties within and out of the construction world (think about e.g. engineering-companies, contractors, technology firms and energy suppliers) will give their vision on the future of cities, and are going to try to inspire you with a workshop to think about the future too and how we, as CME people, can contribute to the change.

For more information visit www.ofcoursecme.com/conference.

Main sponsor DVP

We are happy to announce that DVP is again our main sponsor for this study year. The CME students will be seeing plenty of DVP, for example in this edition of !ntervisie.

For more information about the company visit www.dvp.nl.

Study Trip 2014

Of CoUrsE! is planning a new study trip. Last year's trip to China was a great success. For 2014, the destination is going to be a bit closer to home. Manchester and Liverpool are going to be the destinations for the 2014 Study Trip and it is going to take place from the 22nd till the 29th of May 2014.

London is by far the largest city of the UK, both economically and in terms of population, but how do the smaller cities of the UK compete to this? Manchester and Liverpool are both industrial cities which are going through a redevelopment of themselves. So how can a city re-invent itself in a sustainable manner? How can smart and sustainable redevelopment be used to increase a city's attractiveness? Together with you we would like to explore these questions by doing several project and company visits, and of course there will be plenty non-study related activities to do during the eight day trip.

We would like you all to join us, so do not hesitate but subscribe!

BUCHAREST, ROMANIA

Text : Alexandra Tudorica
Photos: Guido van Veen

Thursday 29th of August, the day when the trip to Romania began. 18 CME students arrived in the beautiful country of Romania, all of them excited to discover it within 6 days. We visited two cities (Bucharest and Brasov), the Embassy of the Netherlands in Romania, one of the biggest Romanian construction companies and a bridge site. Besides the trips, we also participated in various cultural activities, which gave us the opportunity to become a close group. I am proud to announce that the excursion was a real success, from the beginning till the end. A short summary of the staying there follows. Enjoy reading!

It has been a busy summer trying to arrange the program of the entire excursion, especially due to a limited length and lots of activities to be scheduled. Some days before the beginning of the study trip, two members of the committee were in Romania to check the final details: meetings, hours, budget, and locations. Back in Eindhoven, another member was in charge of bringing the whole group in Bucharest and taking care of all the practical arrangements. Participants gathered at 12.00 at the central hall of Eindhoven Airport. After a delay of several hours, everyone was happy to arrive at Henri Coandă International Airport. The bus ride to the hostel gave everyone first impressions of a new place. Its architecture was the first difference that everyone noticed. Being known as the "Little Paris", the city's architecture is a blend of neo-classical,

interbellum, communism, as well as modern. The road network and structure was also a distinct element in comparison to the Netherlands: high-capacity boulevards, more car-friendly infrastructure and less people biking.

Of course, due to the late arrival, the program for the evening had to be slightly adjusted. City by night proved to be a nice experience: warm weather, Dambovită River, cars, people, busy streets, and the center with its historical buildings. The Bucharest Old Town is the area where capital of Romania was founded. The legend says that the city was first established by Bucur, a shepherd who gave his name to the village that he established on the bank of Dambovită River.





Next morning, a typically Dutch weather welcomed us as we were walking towards the Embassy of the Kingdom of the Netherlands in Romania. Paul Ymkers, Deputy Head of Mission, and Sonja van Zee, secretary to the Ambassador, received us. Over a coffee (or tea), we started to analyse the relationship between the two countries, their international image, the cultural differences and politics. We discovered the advantages and drawbacks of working in an Embassy. Regarding construction sector in Romania, Paul Ymkers stressed the need to invest more in the infrastructure, especially the roads and electricity, transmission and distribution grid. Such developments should be able to raise the absorption rates of Structural and Cohesion Funds allocated by European Union. However, he noticed that Romania is making efforts towards sustainability. For example, the EDP Dobrogea Wind Farm, consisting of 113 wind turbines will increase renewable energy capacity and has the potential to have a positive effect on the thermal rehabilitation of housings. It was an interesting meeting and almost 3 hours flew unexpectedly. After a group photo in front of the Embassy, we prepared to go to a construction site.

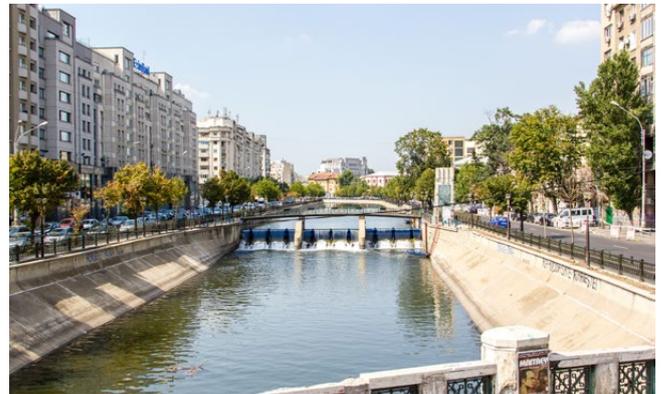
PhD, CEng Florian Burtescu from Technical University of Civil Engineering Bucharest, provided us with cross sectional views and elevation of the bridge which will link two large boulevards: Mihai Bravu and Splaiul Unirii. Valuable explanations were given, not only about technical, but also financial aspects. Mr Burtescu also commented on the current traffic problems and future benefits of placing the bridge in this area. This double bridge (one under each way) is expected to solve the traffic congestion since approximately 450.000 cars pass this crossroad every day. By the time of our visit, the work on the construction site was suspended, but we found out that it will continue starting from September and the bridge is expected to be finished in 2014.

A short walk through the city followed and we saw The Opera House and the building of the Faculty of Law of the University of Bucharest. The evening was dedicated to a culinary experience, where everyone could taste traditional dishes (sunculita de porc, sarmale cu mamaliguta/poleanta, pork steak with "peasant potatoes").

On the third day of our trip, early in the morning a bus was waiting for us to leave Bucharest. Our first stop was Bran Castle, situated on the border between Transylvania and Wallachia. A very enthusiastic guide was willing to share with us the history of the place and the legend that made this castle so famous. It is commonly known as "Dracula's Castle" due to Bram Stoker's main character Dracula. This name (Dracula) arises from the appellation given to Vlad Tepes (Vlad the Impaler) known also as Vlad Dracul, the ruler of Wallachia



Students and Paul Ymkers at the Dutch embassy



City of Bucharest



Opera house Bucharest



CME students at the University of Bucharest



(1431-1462). We could admire the furniture, metal objects, mirrors, wooden decorations and we “experienced” the secret staircase (well, not so secret anymore) and the small height rooms (they were designed for people of 1.54 m tall). Down the hill, a fair with traditional objects (ceramics, fur-based products, wooden souvenirs) was revealing in front of our eyes. Or our wallets.

We left Bran with its picturesque look towards Brasov, a city located in the center of the country where great German influences are present in terms of urban planning and architecture. An intermediate stop was made along the way for a bird-view of the city. After a quick check-in at the hotel we headed towards a restaurant with typical Romanian decorations and dishes, continuing the culinary delight that we had started a day before. Other recipes were tested, such as “pomana porcului” (a pork-based dish served with sour cabbage and polenta), beef soup and “papanasi” (a delicious desert). Discovering Brasov by night proved to be a great workout. Once we passed the pedestrian-only Republicii Street with its terraces and restaurants, the tour started from the Council Square, the main square, where medieval buildings, full of history, the Black Church (Brasov’s most famous landmark and one of the largest Gothic church), Council House and the Trumpets Tower (a watchtower once) are standing. We literally climbed the stairs and the hill to see the Watch Towers (White Tower and Black Tower) and (remainings of) the old citadel. These were built to fortify and defend the city from the repeatedly raids of the Turks and Tatars.

Next morning, after we packed our bags, the bus took us to Sinaia, a town and a mountain resort in Prahova County. There we visited The Peles Castle, which was built in 1874 from the initiative of King Charles I to serve as a summer residence. It was the first castle in the world to be fully powered by locally produced electricity. The castle has over 170 rooms with different themes, in terms of functions (offices, libraries etc.) or styles (Turkish, French, etc.), furnished and decorated until the last detail. Moreover, the castle hosts one of the finest collections of statues, paintings, furniture, ivory, tapestries, rugs, gold, silver, arms and armor, fine china in Eastern and Central Europe. The day ended up with a barbeque back in Bucharest and a free evening for everyone to recharge the batteries for the next days.

On Monday morning, a visit to one of the biggest construction companies was scheduled. Erbasu Group is constituted by companies with activities mainly in constructions (edilitary works, civil engineering, and infrastructure), a hotel, a pharm and a milk processing factory. The main focus of the company is on the construction market, but the other activities, belongs to other fields, were a way of decreasing the



Bran/Dracula's castle



Brasov



The Peles Castle



Visit to Erbasu construction company

BUCHAREST, ROMANIA

risks associated with the construction industry. Iuliana Miu, Human Resources Manager, Marius Antoniu, Quality Manager and Dragos Cazacu, IT Manager, gave us an extended presentation on how this group is operating. We received some market insights and had an open Q&A session where everybody could identify the characteristics of the Romanian construction sector and in particular of Erbasu (construct). However, what captured our interest the most, was the integrated management program that the company is using. This program allows all the departments to update their completed activities, expenses and revenues. The efficiency of the project and the overall activity of the company are increased.

The city center was our next stop. As real tourists, we took the hop in, hop off bus and made a complete tour of Bucharest's center. Calea Victoriei, Kiseleff Boulevard, the Triumphal Arch (built after Romania gained its independence), The Palace of Parliament (the world's largest and most expensive building with an administrative function) and National Library were just few attractions along the way. Together, we also visited "Dimitrie Gusti" National Village Museum, an open-air ethnographic museum where authentic peasant farms and houses from all over Romania are placed. Until

the evening, when we all went to a bowling center, we had an open program so everyone could explore Bucharest in their own way. However, the day ended early due to an early morning flight back to Eindhoven.

To conclude, the purposes of this study trip were fulfilled. During the stay, visual cultural differences (architecture, housing, people), behaviors and some in-depth values and norms were made more clear. Insights into the construction industry, market, politics in Romania, diplomatic life and much more were given by all the people, who we met. I want to thank everyone that joined the study trip for making it an unforgettable one and to all the people that helped me/us along the way. I would like to point out that it was my pleasure to present you my country and create a better perception of it. As the ambassador said, there is a need of mixing the old international image of Romania, as a communist country with the new one. Until the governmental PR allocates more money for this purpose, I am happy to contribute to this myself.

As the Romanians use to say, "Va las cu bine!" (engl. Farewell!)



ISTANBUL

Turkey | Ilse Megens

Here I am sitting, at the end of a sunny day in November, looking towards the lights that illuminate the Asian side of the Bosphorus. Since two months, this waterside has given me quite some moments to reflect on my stay in Istanbul. This enchanting city is the location of my exchange semester during the third semester of the master program Construction Management and Engineering. The striking division between the Western and Islamite world was one of the main reasons to choose Istanbul.

I am studying at İstanbul Teknik Üniversitesi. This university is one of the best universities of Turkey and has a high involvement of teachers. The small number of students per class result in drinking çay (Turkish tea) with professors who love to talk about the pleasant things in life and about our different backgrounds. A perfect opportunity to immerse myself in the Turkish live. I have chosen three courses. The first course, Urban Systems, introduces me to systems in population and urban area. For this semester we are focusing on slow cities around the world, environments that enhance their unique quality of life by focusing on local products and crafts. Secondly, the project (time) Management-course concerns the different phases in a construction project. The teacher enhances us with examples in Turkey, like the problematic construction process of the Galatasaray soccer stadium. In addition, with three fellow students we are starting up a fictitious construction management company, which gives real life insights of this field of expertise. Thirdly, I have chosen for Public Infrastructure Management, which enriches me with a topic that is not available at the TU/e.

The Turkish pace of working and education is characteristic for the Turkish culture. Rushing and strict planning are not part of the daily routine. This would be impossible in the traffic jams that cover a big part of this 15 million-inhabitants city. Part of the inhabitant growth is the number of exchange students. According to estimations, this year Istanbul attracted 2.500 exchange students. However, this is not a problem for a city with 45 universities and more restaurants, bars and clubs than you could ever visit in a single semester.

For construction managers, this developing country is very interesting. Notably, because it seems that Turkey is experiencing economic growth. Also, Turkey is building projects that are not comparable with the construction market of the Netherlands. An intercontinental metro tunnel has

just opened, which should make the connection between Europe and Asia stronger. In 2015, a third bridge over the Bosphorus should improve the flow of cars, but it also results in cutting the scarce trees in Istanbul. Furthermore, trees are now also cut for the construction of a third airport which should serve as a hub function for flights between the Western and Eastern world. Then, there is 'the crazy project' (luckily still in initiation phase), a channel which connects the Black sea with the Marmara sea, parallel to the Bosphorus. With a size of 42 kilometer by 500 meter, this would be bigger than the Panama channel. I feel lucky that I have teachers with practical experiences about these projects, who are willing to discuss these contentious subjects in class.

All these plans come from a government that, besides building infrastructural facilities, is also building new big mosques. And guess who do not support these ideas: the students. In this secular state there is seemingly a division between supporters and non-supporters of the current government, most of the time the non-religious and the religious population. And in the news of last June you probably saw the resulting riots in Taksim Square. This authoritative way of making politics is nauseating to many students. It is a heavy and much discussed subject among students and teachers.

Besides these new projects, Istanbul also offers a heritage from the Ottoman empire. Turkish people are sincerely welcoming you to their mosques, shops and houses. My roommate, her mother and local friends are still amazing me with the Turkish cuisine. For what I have seen so far, the size of Turkish heritage is also very clear in other parts of Turkey: Ancient history from Ephesus and an 'cotton castle' in Pamukkale are old wonders. Next week I will visit Cappadocia, where I hope to see even more of this hospitable and dynamic country.

Görüşürüz!



The Netherlands | Alberto Perez Martinez

When people see some pictures of the town I come from, I often get questioned about being here instead of being in a paradisiac Caribbean atmosphere. I'm an international student living in Eindhoven, I come from the beautiful island of Cozumel, Mexico, and follow the two-year Master track Construction Management & Engineering (CME) at the Eindhoven University of Technology (TU/e).

The main reason of the particular choice to study in the Netherlands is because that the TU/e is one of the top 200 universities of the Times Higher Education Ranking, and I wanted to study my Master at one of the best programs in the world. Unfortunately, Mexico does not have universities in this ranking, although we have great universities and programs. I got acquainted with the TU/e and other universities in an exposition about 'master studies abroad' that took place in Mexico, the expositors there underlined the easy way of living in the Netherlands.

My main interests are Project Management & Urbanism. After 1,5 years working in several construction companies in my country, I noticed that Mexico has massive construction happening (with approximately 118 million inhabitants). So I would like to acquire more experience about Project Management in order to be able to handle the biggest and most complicated construction projects. I also would like to gain experience in Urbanism to contribute to any country's development plans. My knowledge about these subjects is intended to be improved with the CME program of the TU/e, this program has a strong managerial approach and several elective courses about Urbanism.

About the city Eindhoven, I already have a good idea about how the living is in the Netherlands. I have lived here four months. If you are reading this article you are probably from the Netherlands (an expert in the matter), so I would like to mention only two outstanding cultural differences with Mexico. The first one is the lack of car traffic and the short distances for traveling from city to city or even within a city to reach college, supermarkets, malls, etc., that is closely related with having the bicycle as main vehicle. Another big difference is the weather, even when Mexico has very cold cities (as cold as here) they do not have that much rain. I personally have always lived in warm cities (28°C – 32 °C) so cold is not my best friend and I was not impressed about sunny days during summer, but now I understand why a lot

of people enjoyed the sun those days.

Netherlands is a beautiful country, with a colourful autumn. It has amazing places to visit, a soccer Stadium where I had the chance to watch some Europe League matches, and great events like GLOW, but the best feature of this city is its people. In the introduction week, when I had no Dutch acquaintances I was lucky enough to get to know a couple of friendly CME students, that were my introduction guides. Today, the amount of Dutch friends I have has increased and they always happen to be amazing people. Student associations ("Fellenoord" from Tennis and "Of Course!" from CME) have been helpful to get to know more locals; recently, we had a great time when "of CoUrSE!" got a Mexican's Nacho tasting. However, there are only a few international students in CME, so it is always hard for local people to speak in a foreign language when the majority of people in the room speak their native language (it happens to me when I am surrounded with Mexican friends). Thus, learning Dutch is a good decision, even when it is a really difficult language. Dutch people are always happy to help.

The Master-track CME requires time, organisation and hard work. At the beginning, I was a little worried about the lectures, but after the first exam round you get familiar with the system, you had already survived to the cultural "shock" and life starts to get easier. This experience has been amazing so far, I am comfortable about calling Eindhoven "my home", even when I am from another continent and my family is far from here. When I arrived at Schiphol Airport on August 7th, 2013 a two year life journey began, that has been and will continue being full of great experiences, great people, wisdom, hard work and friendships. It makes me really happy of being here and it is motivating me to obtain my Master of Sciences Degree.

Hasta luego.



GRADUATION THESIS

RUDY VAN BEURDEN

Transportable CO₂-neutral houses for one-person households

'Getting things done' (GTD) is the title of a book by David Allen I came across some years ago. The sentence got stuck in my head ever since. With this approach, as a specific management method is covered by this name, one is able to clear up ungraspable 'to do lists' in no time and to actually do all the stuff he is aiming at. This, together with my conviction that, in the first place, I had to enjoy myself during my graduation process, were some of the philosophies I took on board before I kicked off my graduation period, last February. I promised myself that my graduation project had to become the crown to my study.

Wondering

One of the best things about studying at a university is the freedom you have. As a student you have the absolute privilege to spend a lot of time wondering about various topics that you like to unravel. It is a non-committal period in which you can just try stuff, make some errors and learn from them. Still, I strongly believe that all things you do and say actually have a goal. When one is highly aware of his/ her specific goal, you are able to score with full conscious. And that, well.. that just feels great. In January 2013, I set myself two goals. My graduation thesis would have to result in at least an 8 on my list, and the out comings of my efforts should really contribute to a better world, in a practical way. I refused to work on a paper that eventually would end up in someone's drawer.

Getting started

After participating in the Heijmans Masterclass 2012 program, I took on a three days a week internship at the company. By doing so, I was able to experience how it was to actually work at the office of a big company, something I had never done before. Within five months I got to know the company and many of its employees rather good. With my mentor I thought about how Heijmans could participate in the grand development of Smart Energy (simply put: exchanging energy with each other). I was able to speak with a large number of people, who had various positions throughout the company. We came to twelve propositions, one of them being focussing on energy neutral dwellings. When the start of my graduation period was approaching, I knew I wanted to work on a topic in the sector of Real Estate and Housing, as their activities fascinate me most within the broad field of the Built Environment. Already as a young boy I dreamed of

becoming an architect, so I could design wonderful houses to accommodate people.

Even though I knew in which direction I could find an interesting topic, precisely what I wanted to do was still vague. So I simply planned an appointment with Bert van der Els, CEO of Heijmans. I had figured that he would oversee all the roads of opportunities as he stands at the absolute top of the mountain. Taking along three possible graduation topics, I went to him. After speaking with each other for 30 minutes I came out of his office with an additional twenty ideas... I did not quite expect that he, obviously, would point out dozens of options to subject to an academic research, as really anything is researchable.

Together with my own ideas, the feedback of mr. van der Els led me to several employees of the company. Eventually I found an awesome match at the department of area development. They were seeking for possibilities to use their vacant ground positions in another way than the traditional manner of putting concrete buildings on them and hoping that they would sell big time. Since some years it is proven that this tactic is not beneficial these days.

Harvesting information

Knowing the company of Heijmans already from my previous internship, made access to certain people easy. In the first months of my graduation period I spoke to dozens of employees. They provided me with useful information, shared their vision on the future of real estate and connected me with new people, also external people. I strongly recommend you to blend with other people yourself. Not only if you want to succeed in finishing your graduation project or studies in a nice way, but also in a broader context, for example after your studies. Visualize your dreams, make them as concrete as possible, share them with all sorts of people and you will see that people are actually going to help you realizing them.





Besides the numerous conversations, I read dozens of articles to get a better understanding of the Dutch housing market. I found that one person households had major difficulties in finding suitable, and especially affordable, housing. Most houses and apartment are designed for multi people households while the Dutch Statistical Office is expecting another 500.000 (!!) one person households in the upcoming 12 years. A concrete plan was born.

Bring the action

First, I started myself to draw a compact house for singles in the age of 18-30. Such a dwelling needed to be both affordable for the target group (designing from end to front) as well as transportable. Because permanent development proved not to be profitable on numerous vacant land positions, temporal solutions could make a difference instead. The dwelling should be able to be placed on various locations during its lifetime.

On top of these requirements I decided that the dwelling had to be self-functioning. The dwelling should have as little impact on the environment as possible. All sorts of innovative technologies are out there to be used already. Mostly the culture of the construction world prevents them to find their way into our houses. Thus, aiming high and starting from a high level of ambitious could maybe get me somewhere. Soon I found that tap water and sewerage had to be connected with existing infrastructure. As hygiene was an important aspect, dwellings would become too expensive if we did not connect them in a common way. By making the dwelling all-electric, gas could be knocked out. Solar panels and a vacuum boiler would generate the amounts of electricity and warm water that is needed by a one person household. These (integrated) panels would not only limit the impact on the environment as they diminish the use of fossil fuels, but could also seriously decrease the costs of electricity bills.

To be honest, my own design looked terrible. People who saw my sketches said it was no wonder that I let go my dream to become an architect. I decided that I needed professional help for the design of the dwelling. Through a mutual friend I found the perfect guy for the job. Immediately the young architect and I were on the same vibe. He understood what I was aiming for. Based on my information he presented an awesome first design.

Scientific research

I used the first design to set up an online discrete choice experiment (DCE). All actions needed to set up a proper DCE took a lot of time, this is something I should have been starting earlier with. It would have saved me a lot of stress by the end of my graduation process. By changing different aspects

of the dwelling I was able to present various configurations of the one person dwelling. Respondents were asked to provide their preferences by choosing between various configurations. They could choose of three options (I, II or none of both). Each respondent was asked to do this eight times.

The DCE resulted in 280 valid responses and showed that people certainly appreciate (close to) energy neutral homes. In addition, they wanted to have a separate bedroom, even when the home should be compact, a studio had to be reconsidered. Furthermore, I thought of providing tenants with (built-in) furniture, but the response to this was negative. Probably because most people have already furniture of their selves or personal taste is part of the story.

Finishing university

Wednesday 28th of August 2013 was a big date for me. After seven years I finished my entire studies at the TU/e. I was extremely relieved when I was rewarded with an 8.2 for my efforts. At least one of my goals was achieved. That felt great!

Since September, I can finally state that I am a full time entrepreneur. And guess what? Being an entrepreneur is even better than to be a student! You have all freedom of the world, you get to do the things you absolute love and when you do them right, you even get paid for them. I consciously decided to only involve myself with awesome projects. I strongly believe in the potential of the compact, affordable dwelling that was designed as a bonus next to my graduation report. With its awesome appearance and functionality, maybe soon graduates will find themselves having another option then to move back to their parents after they finished their study.

One of my new goals is to realize two prototype dwellings to experience hands on how these transportable dwellings should be put together. The final design is nearly finished on paper. Right now I'm actively seeking for possibilities to collaborate together with Heijmans to get this wonderful job done. There are still some roadblocks to take, but I am convinced we can actually get there. Then, finally, we can prove the world that even in this time it is able to get things done!

We are still in search for a catchy name for this specific dwelling. Are you able to offer me suggestions? Please contact me right away: rudyvanbeurden@gmail.com

M.Sc. Rudy van Beurden
Graduation date: 31-08-2013



HOW ARE YOU DOING?

I was very pleased when the commissioner of Intervisie asked me, as an Alumni of Construction Management and Engineering, if I would like to write an article about my international work experiences, in particular about Dutch knowledge as an export product. I did not hesitate at all and it is great to share my experiences with students that do the same study as I used to do. First of all I am going to give a personal introduction about how I got interested and finally involved in international projects. Secondly, I am going to tell something about the international projects I worked on and the role I had as a CME professional. Last, I will describe how these projects are part of Dutch know-how in a worldwide construction market.

My name is Jos Appelhof and I am 32 years old. In 2007 I graduated from the master study of Construction Management and Engineering. During my study time I had my first international work and study experiences. The year between HTS Bouwkunde and the master of CME I went to Australia and New Zealand for a year of 'working-holiday'. This was the start of some great international experiences that were related to study or work. During the summer break of 2005 I went to Tanzania for two months to do some voluntary work for a small community in Dar es Salaam. We helped this community with the development of a piece of land that they got from the Local Government. In 2006, I attended the University of Washington in Seattle for four months, together with a friend of mine, where we completed our Master Project 'Underground Structures'. Whilst we were there, we had the opportunity to visit some impressive underground projects of the metro lines in Seattle (USA) and Vancouver (Canada).

After my graduation I joined Royal BAM Group as a management trainee. One of the main reasons that I decided to work for BAM was the possibilities that they had to work abroad. In this two year trainee programme I worked for three different companies within the BAM Group in different roles. One of these was an eight month period for BAM International in the Middle East as material engineer. I was located in Abu Dhabi in the United Arab Emirates for the construction of a new Crowne Plaze hotel next to the Formula 1 race track on Yas Island. My responsibilities for this project included the monitoring of all material submissions of our subcontractors.

In the years that followed I worked for BAM Utiliteitsbouw in the region Eindhoven as commercial and tender manager. The work was interesting, but I missed the international envi-

JOS APPELHOF

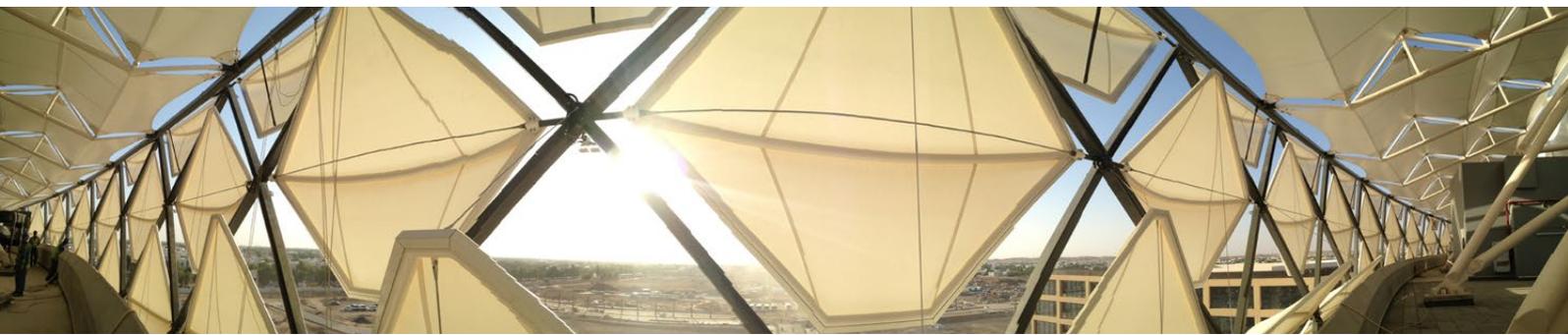
ronment and working in an international project team. I decided to look for international opportunities within the BAM Group and had the possibility to join the BAM International Stadium team. Stadium building is a perfect example of specialist knowledge that a Dutch company has and exports it all over the world. There are not many, maybe even no other, companies in the world that have a separate division that is specialised in designing and constructing stadiums all over the world.

Stadiums

Sports, concerts, festivals and all kind of cultural events. Modern stadiums are the scene of some of the most emotional moments. Building a stadium is like setting stage for unforgettable experience: the excitement of a match, or the joy of seeing your idols live on stage. BAM is right on the ball when it comes to stadium and arena construction. They have the know-how to design, construct and manage the complexity of these multi-purpose creations.

BAM International Stadiums offers specialist know-how and world wide experience in stadium building. As a subsidiary of Royal BAM Group they are able to deliver the full range of services to achieve their clients' ambitions. From design studies to actual construction and commissioning. BAM built many stadiums in different European countries, including The Netherlands, Germany and the United Kingdom. Projects include the Amsterdam Arena, Gelredome in Arnhem, O2 World Arena in Berlin, Veltins Arena (Schalke '04) in Gelsenkirchen and the new venue for Manchester City's Football Academy. Most famous and worldwide recognised are the two stadiums that BAM built for the FIFA Soccer World Cup in South Africa, in 2010. The World Cup Final Stadium 'Soccer City' in Johannesburg is the largest stadium in Africa with 94,000 seats.





Stadium projects have always greatly interested me. As a big football fan I have visited a lot of stadiums in Europe and all over the world. This time I had the chance to be part of international project teams for the Design & Build of a stadiums in the Middle East. Initially I worked half a year in the pre-construction phase for the King Abdullah Stadium in Jeddah, Saudi Arabia. Followed by a period of 1,5 years for the multi-purpose stadium of the Hazza bin Zayed Stadium in Al Ain, United Arab Emirates.

King Abdullah Sports City, Jeddah

The King Abdullah Sports City Project contains a luxurious soccer stadium for 60,000 spectators, including large royal suites for the Saudi Arabian Royal Family. A 380 million euro project for King Abdullah in Jeddah, Saudi Arabia.

The team of the pre-construction phase was based in the head office of main contractor Besix in Brussels and engineering consultant Arup in London. Besix had asked BAM to consult them on the specific stadium related know-how and experience. I worked as a project engineer within this team. Together with a colleague, I was responsible for the design and engineering of precast concrete elements for the stands of the stadium and the preparation of the production, erection and storage program for these elements. Furthermore, we designed the layout for the precast concrete yard and the work strategy and installation sequence. Last September I had the chance to visit Jeddah and see the on-going construction of the stadium with my own eyes. This was a very interesting experience to see on site what you have devised in the pre-construction phase.



Jos Appelfhof at King Abdullah Sports City

Hazza bin Zayed Stadium, Al Ain

Construction of a 25,000 seat multifunctional football stadium with a gross floor area of 45,000 square metres. The contract also comprises a six-storey office building, a sports centre, roads, car parking, playing fields and landscaping.

The construction of the stadium is a combination of structural steel and reinforced concrete on piled foundations with aluminium and PTFE fabric external cladding and a palm bowl envelope. Included in the main contract was the integration of value engineering proposals from the tender stage and obtaining new building permit for the new design. A construction period of 16 months for a world-class stadium is unprecedented. The façade represents the palm tree so typical for the region, and all shading elements can be lighted separately with LEDs in different configurations. The large main roof on the western stand creates the so needed shadow on the pitch with a dramatic curvature towards the north, east and south stands.



Hazza bin Zayed Stadium

My role in this project was as package manager and site coordinator. I was responsible for a few stadium specific packages, including the pitch package, the entrance gates of the stadium and all handrails and balustrades in the stadium. For these packages I carried out the design and engineering coordination with our subcontractors. Especially in a fast-track project like this it is important to manage the program, because of the time constraints. Most subcontractors are non-European and they have a totally different approach of the works, which required some flexibility and adjustment to manage these people. It was very interesting to work with these international subcontractors, have technical and commercial meetings with them, visit their factories and work close together with the client's consultant.

Conclusion

I am currently back at the BAM International head office in Gouda working on a new international project. This time it is not a stadium, but the Design & Build of a new airport terminal for the international airport in Dar es Salaam, Tanzania. A very interesting project in another country, another continent and in a total different environment than the Middle East. But again a great opportunity to expand my international experience. I can recommend every CME student to follow at least a part of your study abroad, for instance one of your master projects. If you have the chance to work on international projects for some time, I would say 'just go for it!'

Jos Appelfhof



THIJS WOESTENBURG

The international challenge

Getting a job could be a challenge, working international as well. It is already more than one year ago I graduated on the TU/e and an exciting period started. I travelled a couple of months through Asia and discovered new cultures, places and eat a lot of Asian meals. I enjoyed the freedom and the unknown surprises every day. After this experience a period of job orientation, job interviews and starting with work followed. In this article I am going to tell more about my work experience, one year after graduation.

Finding a job is an interesting and challenging period. In the past you told someone that you had a technical degree and the first job offer was already in the pocket. Now you need to tell a better story and present yourself. What I experienced was that companies are still interested in technical educated young people. However, they are more critical in the selection process and challenge the candidate during interviews. The selection is not only based on your study, what you tell is just as important. You need to prepare yourself and think about what kind of work you like and even more how to explain this to others. Companies want to know what you like and why! Clarify your story with examples and tell your good points, and points that could be improved as well. The challenge is to distinguish yourself, be open and ask questions.

With my background of civil engineering and financial interest on one side, and the interest to work international on the other side, I applied for a job at Van Oord. After a couple of challenging interviews I started in January, together with seven colleagues in a technical trainee programme. Van Oord is a Dutch dredging and offshore contractor, active in the field of dredging, offshore pipeline installation and offshore wind projects. In the past van Oord has worked on the Palm in Dubai, the second Maasvlakte in Rotterdam and the first Dutch wind farm “Princes Amalia”, located 23 km from the coast of IJmuiden. In general, approximately 85% of the total turnover comes from outside the Netherlands, so in my opinion Van Oord is a good example of “exported knowledge”.

Shown this number, it will not be a surprise that during the trainee programme I worked for two periods of 8 weeks on international projects. My first international working period was in Jakarta, a city with 9 million inhabitants and the capital of Indonesia. Van Oord was working on a reclamation project just on the front of this enormous city. The project

involved dredging 20 million m³ of sand from a borrowed area at sea and delivering the sand for the construction of an island. I joined the team of superintendents, facilitated the dredging vessels during operation and started to learn all the aspects of dredging. Working with local people in combination with the unorganised city of Jakarta is quite a challenge. For the second period, Dubai was my destination. In this part of the UAE we build an island just in front of the coast. This island, called Bluewaters, will feature the Dubai eye, a 210m tall Ferris wheel. To give you some reference, the London eye is 135 meter high.

What I experienced during these international working periods is the need for flexibility and communication skills. You work with local people who have a total different culture in comparison with the Netherlands. An example? When you ask a local Indonesian employer to jump into the water he will do it, either he can't swim or is wearing a life jacket. This illustrates the fact that they don't think by themselves and are not used to say no. But, after a couple of times we learn how to work with these cultural differences. Besides all the fantastic aspects, working international also means a long time from home, living in hotel rooms and working at least 80 hours a week. So personal challenges as well.

Besides the international projects, I also got the chance to see other departments within the company during the trainee programme and followed a various number of courses based on safety, project management and dredging.

Next month the trainee programme is finished and I start in the operation department working on the execution of international dredging projects. The first year was interesting and I look forward to the next challenge. Do you want more information about my working experience, please contact me at LinkedIn.

Kind regards,

Thijs Woestenburg





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An aerial photograph of a vast tulip field, showing neat rows of flowers in various colors including red, orange, and yellow. The perspective is from a high angle, looking down at the rows that stretch across the landscape.

KNOWLEDGE CO

**DUTCH
CONSTRUCTION KNOWLEDGE
AS AN EXPORT**

INOMY

Our Construction sector, part of our knowledge economy?

The world's knowledge and innovation are important topics on each political agenda. Europe spoke out her ambitions and strives to become the world's number one platform in knowledge and innovation. The Netherlands shares this ambition and stimulates her development towards a so called Knowledge economy*.

**A Knowledge economy can be defined as an economy from which its economic growth origins from (technical) knowledge, a society wherein the production factor knowledge reaches an increasingly important position instead of labour, nature and capital (world's most traditional production factors)' - Wikipedia 2013.*

Since the beginning of 2013 the Netherlands has taken a position in the top five knowledge economies of the world and a top three position when it comes to scientific research. To stay ahead of its competition, the Netherlands aims on specific predefined fields of knowledge in which they want to be the world's leading country, from which its economy will benefit the most. These knowledge fields are called 'the nine top sectors' and includes the following disciplines: (1) Horticulture; (2) Agriculture & Food; (3) Water; (4) Life Sciences & Health; (5) Chemicals; (6) High Tech; (7) Energy; (8) Logistics and (9) Creative industries. All these disciplines are eminently sectors in which the Netherlands can excel and these disciplines can benefit from the growth of the global economy.

Text: Dennis Bakker

PRODUCT



‘Is our construction sector not a part of our knowledge economy?’

The decision to choose for a high end Knowledge economy forms a good step forward. Stimulation of interaction between private companies and universities ensures us that the necessary steps will be taken. Nevertheless, it seems like our construction sector and many others are not a part of the desired developments, while our domestic economy for the most part depends on precisely these sectors. Of course, we cannot deny that our construction sector is pretty conservative and our sector belongs for a bigger part to a production economy. Nevertheless, also within our construction sector, we as highly educated engineers are making a difference throughout the world. Therefore, the decision to stimulate just a few top sectors raises multiple questions: Is our construction sector not a part of our knowledge economy? Don't our engineering skills form an export product? Can we not operate at a number one position with our industry? The aforementioned questions suggest that our industry has insufficient knowledge and innovation in house. However, it appears that this will certainly not be the case!

‘Dutch engineering skills, an export product for sure!’

However, the construction sector is not predefined as one of the Netherlands its top sectors, Dutch companies deliver their services within their own country and far beyond. These services often stand on the basis of the world's largest and most complex development projects. Also in this sector universities and private companies are sharing knowledge. Cooperation between students, researchers and professionals brings renewed insights, new knowledge and eventually innovation to the construction industry. While our government won't initialise our sector to one of their top priorities, the initiative lies with the entrepreneurs. The choice to be proactive as a construction sector, to take advantage of our knowledge lies with ourselves.

Within this edition of !ntervisie we will find out about the richness of the knowledge, skills and ambitions that our sector has. This edition focusses on the export product which follows out of the knowledge of our Dutch engineers. CME alumni speak out about their experiences in foreign countries (BAM International, Van Oord). A foreign student, from Mexico, state out why he decided to study in Eindhoven. At last, some interesting companies state out their ambitions and opportunities which they see for our services on a global scale (Tebodin, Heijmans and DVP).

We are curious to the opinion of all readers of this edition of !ntervisie and to the thoughts of all highly ambitioned engineers within our sector. With this edition we think we have made a first step to create awareness on this topic and we hope to inspire and activate our sector to strive for its number one position worldwide. Comments are always very welcome and put on LinkedIn page of study association of CoUrsE!

EXPORTING DUTCH KNOWLEDGE

The contribution of the Dutch construction sector to the national 'knowledge economy' is rather limited. Several Dutch companies, who are related to the construction sector, are strongly represented beyond our national borders and even across the European borders. It are mainly the dredging companies, engineering/consultant firms and architects who get a fair percentage of their turnover from abroad. In terms of construction output (the construction companies), the percentage of the turnover that is exported is only a low 2,5%, while construction related sectors, like the construction material industry, engineers and architects, export for almost 20% of their turnover across national borders. The construction-export to countries far away mainly comes from dredging companies. All together, the export of Dutch construction related activities and products is high compared to foreign construction sectors. Though, the export of our construction industry is relatively high compared to other countries, but compared to other industries the export percentage is very low. For instance, the Dutch manufacturing industry sells more than 50% of their products overseas. Why are other industries more successful to sell their products and services abroad? After all, the first multinational in the world was Dutch (VOC), and also the current biggest multinational originates from the Netherlands (Shell).

Text: Malco van den Eijnde

For this article we asked ourselves which Dutch construction-knowledge can be valuable for clients in foreign countries. An interview was held with Hans Diepenhorst, one of the directors of Diepenhorst de Vos en Partners (DVP), an ambitious company with a clear vision regarding the subject. DVP is a Dutch company that houses project management, real estate consultancy.

Distinctiveness of the Dutch

The actual construction of structures and buildings is an activity that is only exportable to a limited extend. The construction process knows many physical tasks for which we, Dutch people, are too expensive. The construction costs of Dutch contractors belongs to one of the highest in Europe, which makes our competitiveness across borders weak. For example, German construction companies are able to produce 15% cheaper compared to Dutch construction companies. Which knowledge of the construction process is suitable to export overseas, and what are the strengths of the Dutch?

According to Hans Diepenhorst, the strengths of Dutch people and companies are the ability to devise new construction methods, organise and optimise construction processes, and to devise and elaborate alternatives of this all. Moreover, the Netherlands is ahead in the field of sustainability. Compared to foreign parties, the Dutch want to completely devise projects before they even start the actual construction. Because of this, potential problems are tackled beforehand, and there are less problems during the actual construction. Labour costs can be seen as a problematic factor for Dutch companies, because the labour costs are high in the Netherlands. Therefore, we want to make the construction process quicker in order to generate revenues earlier. "If you are here in the

Netherlands or on the other side of the world, having a proper cash-flow more quickly is in everybody's favour." Devising and organising projects completely beforehand can result in lower risks during construction, and the client is able to move in quicker. A good quality, thinks Hans Diepenhorst, but in foreign countries this is not always the standard way



HANS

DIEPENHORST



of working. Our way of working can be seen as less flexible towards foreign builders, who are used to another attitude. In other countries, one begins to build before everything is totally thought out. For example, the structure of a building is practically finished, while the façade of the same building has still to be designed. This kind of phase annulus is scarcely done in the Netherlands. Though, it is not always possible to devise and organise projects completely in advance, but with a mix of phasing, devising and strictly monitoring projects we are able to protect foreign clients from failures. With strictly devising and managing construction projects, the Dutch must be able to make a valuable contribution for clients abroad.

Benefit-cost ratio is very important in the Netherlands, according to Hans Diepenhorst. “When this is correctly mastered, a lot of money can be made, but when this is not correctly mastered, a lot of revenues will slip away, both in financial and functional terms.” Mastering benefit-cost ratio is a characteristic of Dutch people and Dutch companies. The Dutch look to the future of buildings. Looking at a longer lifecycle, with for example multiple users, is a mentality which you will not always find across borders. Facilities that are built should be able to be used optimal over a longer period of time. Dutch buildings generally know a high quality standard, a standard which is not always reached in countries across and this makes the lifecycle of buildings shorter. Foreign countries are increasingly realising that high quality, durable and sustainable buildings are better. Dutch companies have extended knowledge on these fields which can be used to convince clients abroad.

So, it are not the physical tasks which we should export to other countries, but the knowledge and expertise of the Dutch construction industry on a higher level. The construction industry is able to make a contribution to the knowledge economy, but people have to be open for it. This means that we must not fall back on old habits, but we have to think ‘out of the box’. The conservative attitude of the construction industry is a negative image and an obstacle in this. “With that attitude we are not going to make it, not here

and especially not abroad.”

Going abroad

The Dutch construction industry is in heavy weather. The demand is low and the forecasts do not look favourable. The economic prospects do not look good, the number of households will grow less hard in the next few years, there is a lot of vacancy in the office market, new working methods have a negative impact on office usage, the Dutch working population is shrinking, and there are cutbacks at government expenses. All together leaving little room for financial investments. From all this, a logical consequence is to look for better circumstances elsewhere, and so, a reason to orientate on exporting current knowledge to countries where the market conditions are better, so too endorses Hans Diepenhorst.



DE ROTTERDAM

Project:
De Rotterdam

Location:
Rotterdam, the Netherlands

Client:
OVG and MAB

Complexity:
160.000m², 3 combined towers of 150m. Logistical challenges. Impressive technical challenges. Coordination of 7 contractors in the preparation and execution phase.





Project: Rotterdam Forum

Location: Rotterdam, the Netherlands

Client: Multi Vastgoed

Complexity: Project is partly monument. Major multifunctional development in the heart of Rotterdam. Rotterdam Forum is directly connected to a busy shopping centre (Koopgoot) which needed to stay open during construction.

ROTTERDAM - FORUM

However, for DVP this is not the only motivation to orientate there self on exporting there knowledge and expertise. Going abroad is mainly seen as an interesting opportunity to participate in complex and prestigious mega projects which are being developed on a much larger scale outside the Netherlands. They want to participate in these 'mega projects' out of love for the profession, and to gain and share knowledge. In the Netherlands 'mega projects' are rather scarce, explains Hans Diepenhorst. "It may take a while before a project like 'De Rotterdam' occurs again in the Netherlands."

DVP was involved in the realisation of some world class projects, 'De Rotterdam is an example of this, but also 'Aquanura' and 'Rotterdam-forum' are highly complex projects which indicates that the Dutch possess the qualities to manage complex project from world class. Projects like 'De Rotterdam' are rather unique for the Netherlands, but projects of this size (and bigger) take place on even larger scale overseas. Why shouldn't we export and share the knowledge that we gained with these projects?

At the moment, DVP is occasionally active beyond our borders, but has certainly the ambition and knowledge for extending their activities overseas. Buying companies, who are established in foreign countries, is a way to become known in other countries. The firm's character will be lost this way, while it is most important that the character of a firm should be maintained. Getting on a plane and 'take what you can grab' is also not preferred by DVP. It is key to construct solid durable relations with international partners. At the moment, DVP is orientating to go abroad with renowned partners who are already settled abroad, or with partners who come from abroad and are settled in the Netherlands. There is no specific nation which DVP is concentrating on, but partners are located for instance in China and Singapore. In addition, nations in Africa, Eastern Europe and the Philippines are upcoming and therefore interesting. At last, getting in contact

with international students who will return to their country of origin can help. DVP thinks it is good to meet these students in order to share knowledge and experiences, and maybe they can be valuable to each other in the future.

Internationalising also has the attention when it comes to attracting new employees. Because you are in the exploratory phase you have to be able to rely on your experience, but not on old habits and patterns. Integrating young talent, who have fresh new ideas, can be the key to success. New innovative solutions are something you cannot make with people who are running in comfort mode, but you make it with young people who are willing to think 'out of the box'. To a certain extent, you most certainly need experienced people, but additionally also young people in order to be flexible.

Barriers for succeeding abroad

Internationalising an organisation also includes barriers which are too adventurous for some. These barriers can become obstacles that can make organisations fail to succeed. Understanding these barriers is important for succeeding abroad. Barriers for succeeding abroad are for instance: differences in culture, other norms and values, other habits and other regulations. One could tackle this by binding local people to the firm, but what is the added value of your organisation compared to local organisations when you take this approach? Not knowing what you are up against increases the risk of a project. Not every organisation is able to encounter the risks or to absorb it when something goes wrong. This is another reason for DVP to orientate with known partners, so risks can be divided and everybody is responsible for their field of expertise.

AQUANURA

Project: Aquanura

Location: Kaatsheuvel, the Netherlands

Client: Efteling

Complexity: 3rd biggest fountain show in the world. 45.000m² fountain show. Collaboration with an American company, WET. Local conditions, like Dutch regulations and weather conditions (frost), where challenges.



Hurks bouwt en oogst lof

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onopgemerkt. Zo werd het Ketelhuis Ceres van de
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‘How do we retain markets? By retaining clients.’

Hans Kleiboer, Director of Corporate Business Development at Tebodin, on international market development and the Dutch commercial spirit.

‘Markets are interesting to us if they’re interesting to our clients,’ says Hans Kleiboer, Director of Corporate Business Development at Tebodin. The consultancy and engineering company was founded in The Hague in 1945, and has grown organically to 50 offices in 24 countries thanks to its focus on clients. Regular clients account for 75% of the turnover.

Hans Kleiboer’s previous positions at Tebodin include project manager for multidisciplinary projects, head of department, and office director for various offices. What he finds most interesting about Corporate Business Development is the international aspect – and the focus on clients.

Follow the multinational

‘We try to serve our multinational clients in countries where they’re located or where they’re planning to go. These can be new countries for us, in addition to the 24 where we already have a presence. For example, we have a large client in the food sector for which we’re currently working in three countries. This client asked whether we’d be willing to follow them to Myanmar. That country is becoming increasingly attractive for investments, due to its growing middle class. So we keep up-to-date with developments and follow international clients, but we don’t go ahead of them.’

Concrete reasons

‘Our preference is to link our entry into a new geographic market to a few concrete projects, as the starting point for our presence. We then begin with a small project office, and add people later for business development. In Vietnam, for instance, we started three years ago with a couple of people in a small office in Ho Chi Minh City. As a result of new clients, Tebodin has now expanded in Vietnam to more than 100 people. For industrial activities in the north, we’ve now opened a second office in Hanoi.’

Corporate Business Development

‘Each of our offices is responsible for its own results in its own market. But because we work a lot with multinationals, we serve them from a central point. My Corporate Business Development team has the task of putting the multinationals, which are often located in Europe and the US, and the local offices in contact with each other. We also try to create new opportunities with other multinationals, and constantly monitor our cross-border performance.’

Local expertise

‘When we open a new office, we appoint a manager with extensive experience in different countries, because at first you

often need to fall back on your network within the global company. In Vietnam, the manager happens to be a Dutch person with experience in China. However, most of the employees are Vietnamese: the country has a good labour market, with well-educated people who speak several languages and have tremendous drive. At Tebodin India, 99% of the people are Indian and the rest are employees who share and supplement their expertise, usually in job rotation. In the Middle East, the situation is very different. In the Emirates, Bahrain and Qatar, for instance, there’s hardly any local workforce available. But in Oman it’s compulsory to employ a minimum percentage of locals, so there you do in fact see a mix.’

Competitive strength

‘It doesn’t always work, but we look for as many local people as possible. If competition develops locally, it’s a lot less expensive than experts from the West, so then you’re going to lose out against local parties. We remain competitive by employing good local people, who then take part in our international training programs for project management and construction management. In this way, everyone in a local project is at the level of internationally accepted standards.’





Organic growth

‘Our growth has always been organic, without the acquisition of companies. This sets limits to what you bring in. For instance, we still don’t have a presence in the Americas. Our growth has proceeded eastwards, step by step: to Eastern Europe, the Middle East and the Far East, following our clients, who saw growth markets in those regions. A year ago we became part of Bilfinger, which is much bigger, so we expect that our expansion will now speed up. Bilfinger has a presence in Scandinavia, where we’ve never done much ourselves. This also means a greater demand for manpower, and space for upcoming talent. Bilfinger, on the other hand, is very interested in our client orientation and geographic development model.’

Successful model

‘Our business model is so successful because we simply do a good job. We have people with the right quality, with international training, and we have good contact with clients – not only about new projects. We’re always open to complaints and suggestions, and we implement the lessons learned in other countries. If you do your work well, especially for larger multinationals that start a lot of new projects, and if you ensure that intelligent people are responsible for contact with clients, then new opportunities will naturally arise.’

Core competences

‘We’re an organisation of engineers, but we’ve defined core competences that fit in with our goals. Things that you can’t train, but can select: client orientation, results orientation and adaptability – because markets change fast. At the end of the 1990s, we had a lot of work in the roll-out of mobile telephony. In 2000 all the work had been done, and that market collapsed. We were able to rapidly deploy our people on other projects in other markets. We look for flexible engineers who also want to do something new, in the Netherlands or internationally.’

Dutch spirit

‘In the past, Dutch people dispersed all round the world; it’s very different today. Twenty years ago, area managers or office directors were mainly Dutch. Now, you’ll see all the nationalities of the countries where we work – and not only in their own country. We look at quality and knowledge of the business. What remains of the Dutch spirit is the commercial spirit. We look for client oriented and opportunity driven people. The country of origin is less relevant. But a good knowledge of English is an absolute must, almost a fourth competence. Our employees consist of 900 Dutch people and 4,000 of other nationalities. And the great thing is: everyone mixes with everyone else. Our people don’t split up into their own little national groups.’

Knowledge with substance

‘I don’t know what the knowledge economy is. It seems to me that people in the Netherlands discovered we’re too expensive for manufacturing things, and thought we should do more in the knowledge area. I think the knowledge industry doesn’t work if we don’t have a good manufacturing industry. Look at Germany, where knowledge, innovation and development are successfully linked to the manufacturing industry – such as Audi and BMW – and at the same time the German model also ensures that people with a lower educational level have employment. The Netherlands has an important international role in water management, because we have expert knowledge in this area. Knowledge economy that has substance, that’s about something. People with a lot of knowledge aren’t very useful to us. You must also be able to apply that knowledge.’

International orientation

‘Dutch people shouldn’t be over-confident. It’s no longer the case that the whole world is eager to employ you because you’ve just graduated in the Netherlands. China, for instance, provides many intelligent, highly educated people. My advice to students is: have an international orientation. A good education is a must, but that’s not sufficient in itself. See the whole world as your potential workplace. Learn Chinese. Learn English to a high level: not just from the internet and television, that’s really not enough. Students at the University of Twente learn German, which immediately makes them more attractive to the market. The good news is that there’s currently a shortage of highly educated engineers in Western Europe, so you’re in a very good position for the years to come.’

TEBODIN

Tebodin B.V. is a multidisciplinary consulting and engineering firm. Tebodin offers independent services to clients worldwide, based on the knowledge and experience of 4,900 employees in the market sectors: industrial, health & nutrition, oil & gas, chemicals, infrastructure, property and energy & environment. The company has a network of 50 offices in Western Europe, Central Europe and Eastern Europe, the Middle East, Asia and Africa. Tebodin is part of Bilfinger Industrial Technologies GmbH, which is a subgroup of Bilfinger SE, an international engineering and services group with 70,000 employees.

The village is your world, and the world is your village

The Netherlands is trying to be "in the picture again". There is a new policy to stimulate the knowledge economy and the possible export of this knowledge. The question is; how can we export the knowledge which is available in the Dutch construction sector?

I have my own opinion about the construction sector, the construction knowledge, and the possibility of exporting this knowledge, but I will come back to that later. First, it is better to see "in which movie we are". The different functions of the construction sector will be elaborated.

Export or import

Let's start with the export and the boundaries that are required for that. Due to an ever growing European Union, we are living in a world with a diminishing amount of national/geographical borders. Polish and Romanian people have entered in great numbers to our country, and are fulfilling executing functions in the construction sector. They do not have years of education about construction processes, quality assurance and safety, but they do this on the basis of willingness to do heavy labour for a low salary. Ukrainians are protesting in their own country, because they also want to be part of the ever growing Europe. On the same time, Europe will formulate legislation for cement packing, to restrict the weight of the bags to one kilo a piece, in order to prevent back injuries. To be followed by these new Europeans who will possibly work for even lower wages than the Polish and Romanian people in the near future, even if they have to carry 50 kilo's. In fact, we have to speak of import instead of export when we are thinking of the executing tasks in the construction sector

To organise the traffic, you have to know the traffic rules

The construction industry is a production facility where the product does not leave the factory, but the factory leaves the product. Even though more and more is being prefabricated and assembled, construction as a project is a temporary factory to produce one single product. In this temporary factory, there are many management functions. We do have the design managers, tender managers, procurement managers, quality managers, data managers, and etcetera. The way we, Dutch people, do this shows great courage and resilience, because the teamwork (or the lack of it) is quite primitive and is still far from the level of production processes in other sectors. Average livestock farming is even more successful in

securing quality. One of the main problems in the construction industry is the complexity of its projects; practically no one can have an entire overview of the project. Let alone that all the different interests are coordinated in such ways that the project could be prepared and executed in one try. It is mainly due to the large problem solving capacity and the fact that relatively few casualties occur, that the construction industry can function like it does.

When trying your luck abroad as a manager in construction, you will have to invest heavily in your professional education. Achieving success is much more than only mastering the language. Understanding your fellow players literally and figuratively is essential. In addition, understanding is much more than hearing each other out. Understanding is: interpreting, respecting and understanding the language. Controlling construction processes is like knowing in which movie you play: understand which roles exist and how they are location-specific described. Knowing the legislations and how the responsibilities are assigned is also important. Being a good manager in the Netherlands does not automatically make you a good manager abroad; you have to understand the traffic rules.

Creativity is reinventing yourself

Creativity and inventiveness are not identical. Creativity is about creation, creating something, something out of nothing, or creating something out of something existing. Inventiveness, however, is about you capacity to solve problems, finding clever solutions. A striking fact is that 70% of the Dutch architects have disappeared, because the Dutch construction market is stagnating. However, the other 30% is possibly surviving, because they found their success partly abroad. Probably, the Dutch creativity is being experienced as attractive. This means that adding Dutch creativity is the key factor on which the Dutch realise cross-border success.

A lot of Dutch urban-, architectonic-, constructive-, and technical installation designers, released themselves the past decennia from the dogmatic way in which governance prescribed the what and how of most construction, in the way it was restricted by legislation in the Netherlands after the Second World War. This role of governance did not only prescribe where and how much was allowed to build, but also how to build in very detailed specification. The time of monotonous apartment buildings, standard schools, and boring nursing homes is far behind us. Nowadays, even the fast-food stall, on the Mahler square in Amsterdam-South, is a design

BERT VAN EEKELLEN

executed in stainless steel. I forgot to ask if the food also tastes better.

Dutch designers, from all shapes and sizes are meritorious abroad. But how proportional is this actually? We are aware of this, due to the fact that there are relatively few designers left in the construction sector. Those are the designers who were successful enough to survive the transition in the market. Evidently, they reinvented themselves to find a connection with clients abroad. According to me, there are not many designers, but since we know them all, there seem to be a lot of them.

The world is a village; the village is your world

We are not in crisis but we are entering a new reality. Numerous of borders are gone and will never come back. The fact that we experience borders is only present in our thinking and acting, formed in the past. Let alone that you can see knowledge as your own possession, and that you can cherish or export it as a unique product.

Construction processes around the world are about the fulfilment of social needs. Construction processes on themselves are not a goal, but they facilitate processes that are creating value. If society wants to build products, then construction processes come into being.

Construction is about content, processes and relations. Nowadays, in terms of the content, we live in a village. Twenty years ago, students sought for standard construction details in textbooks, in handbooks for architects or in supplier catalogues. Nowadays, integral design solutions, including strength calculation and costing, can be downloaded or can be obtained from a person's relational network. You only need to understand how to use these information that's available anyplace anytime. But to export? Across the borders, it is as much available as it is in the Netherlands.

In term of the process, construction processes are always location-specific. This will, despite the European regulations, not change. There will always be a "couleur locale". Domestically, it is difficult enough to properly organise a construction process. In order to be successful abroad, there is so much to experience and learn on the spot, making the export value of gained experiences and competences difficult to monetize abroad.

Relationships are closely related to the construction processes. Construction is about teamwork, but interests differ and processes always involve negotiations. Often the gain of the one is the loss of the other. Or is it possible to create a win-win situation? The only choice to be made is to negotiate by

collaboration or to negotiate by 'fighting'. Perhaps, there is a culture-bound added value in negotiation by collaboration because 'polderen' (the Dutch word for our specific attitude) is in our blood. But the only way to 'export' this is when you get room for it on the spot.

The village is your world; the world is your village

All in all, the segregation of different functions in the construction sector, and the search if it is realistic to export the present knowledge, is a catastrophic search. It is not dramatic, but we will not find the answer there. The question is whether popular terms like "knowledge economy" are not dated from times where "knowledge is power" was adopted as the truth. Nowadays, it is more: "Connections is power". The question is: does export still exist in out-of-the-box thinking? Let's return to the point where business/trading started: I have something that is worth more to you, than it is to me, if I can trade it with something else that is worth more to me than it is worth to you, we both want to make a deal.

In my opinion, value of knowledge can be much broader defined than material and financial. Let's trade and exchange knowledge, instead of wanting to export it. In that case, we might have a little less prosperity, but there will probably be a lot more cosiness.

COLUMNIST

Bert van Eekelen is International Consultant at ARCADIS (22.000 staff), involved in feasibility studies, business development and decision taking processes, both in the Public and the Private Sector.



His competences are about facilitating cooperation between different stakeholders in multi-actor environment (competitive cooperation) His expertise is based on long term relationships with Schiphol Airport, Dutch Rail, KPN, NAM, Zuidas Amsterdam, and the Province of Limburg. He was also involved in feasibility studies for the Museum of National History, the development of the Aircraft theme-park Aviodrome, the International Airport of Kuala Lumpur Malaysia, the Dutch National Water Centre, the International Rail Link between the south of the Netherlands and Germany.

Bert van Eekelen graduated at the Universities of Delft and Nijmegen, is visiting professor at the University of Eindhoven and involved in PhD research at the faculty of Social Science at the University of Amsterdam.

Images: Studio Roosegaarde & Heijmans

One of the benchmarks of a knowledge economy is the innovation power of a country, but as mentioned before, the Dutch construction industry has a conservative character. In order to conquer the world with our construction knowledge, we need to be more innovative and have to bring unique concepts overseas. Unique innovations can be a way to be valuable for clients abroad. In this article we look into a pure innovation from a Dutch construction company.

International interest in the Smart Highway

At the moment, highways are indispensable for smooth road-transportation. This applies to the Netherlands as well as for the other countries in the world. Globally, millions kilometres of asphalt connects cities and villages with each other. In addition, they connect cities with main ports and foreign countries. Altogether, we drive hundreds of billions kilometres per year and this amount is still increasing. Hence, it is important that the highways are functional and in need of low maintenance. They need to have sufficient capacity and need to lead to less environmental nuisance. Therewith, the discussion about highways normally ends.

SMART HIGHWAY

One of the largest Dutch road construction companies, Heijmans, took the plunge to approach highways from an alternative perspective. Together with the internationally renowned designer Daan Roosegaarde, they approached the highways as the centre of mobility. A functional thought, but with a variety of innovative aspects that are never implemented before.

It is generally known that mobility via roads plays an important role for us as a transport country, but it also causes problems such as: air pollution, noise nuisance, traffic jams and the depletion of fossil fuels. Thus, smarter solutions are sorely needed. Nevertheless until now, the 'smart mobility' discussion was about the question: 'How to make cars smarter?'. Roosegaarde approaches this question the other way around: 'What can we do in order to make the highway smarter? And which impact does all these highways have on our perception of the landscape?'

Driving as an experience

The highway of the future is not only the surface on which smart cars can drive; in Heijmans' and Roosegaarde's vision, the highway is to be seen as the central point. The so-called Smart Highway adapts itself to its surrounding and the motorist, it communicates with the vehicles on it, generates energy, defrosts itself and it provides power to electric vehicles wirelessly. The smart highway makes driving an experience. Smart Highway receives worldwide attention and appreciation; earlier several international media stations paid attention to Smart Highway, for example: BBC, CNN, Wall Street Journal, New York Times, ZDF and the state broadcasters of China and Russia.

Over the past decade, the number of vehicles on the Dutch roads has grown from 8 to 9.5 million and the number of cars grew from 6.5 to 7.7 million. The traffic congestion increased with 55% despite the current economic crisis. In the year of 2011, the total traffic emissions of carbon dioxide accounted to 31 billion kilograms in the Netherlands. The latter is one seventh of the total emission of carbon dioxide in the Netherlands in that year. The needs of motorists are changing: people are online, work at home and are accustomed that everything they do entails an experience, except driving on the highway.

If we want to do something about that, than we need to think 'out of the box'.





When it comes to road construction, the client and contractors are 'stuck' in a traditional think- and role pattern. Although, the roles of client and contractor have changed, there are hardly any genuine innovations and ground breaking new insights brought to the field of road construction. Heijmans is trying to break this mind set and chooses for co-creation, with unconventional, less obvious partners outside the construction sector.

Daan Roosegaarde is known as the apostle of the techno-poetry, which means extracting technology from the computer and make it tactile, so people can react on it on an emotional level. Studio Roosegaarde innovates, asks 'what if' questions and makes technology to become an experience that reacts on attention, touch, temperature or even the heartbeat of people. Not for the purpose to hang as art objects in the museum, but to update the landscape with it. Roosegaarde drew attention in both domestic and foreign media with inventions like the 'sustainable dance floor', a dance floor that generates energy on the basis of dancing people and with the high tech dress 'Intimacy 2.0' which reacts on physical reactions of the wearer and then becomes more or less transparent.

Total concept

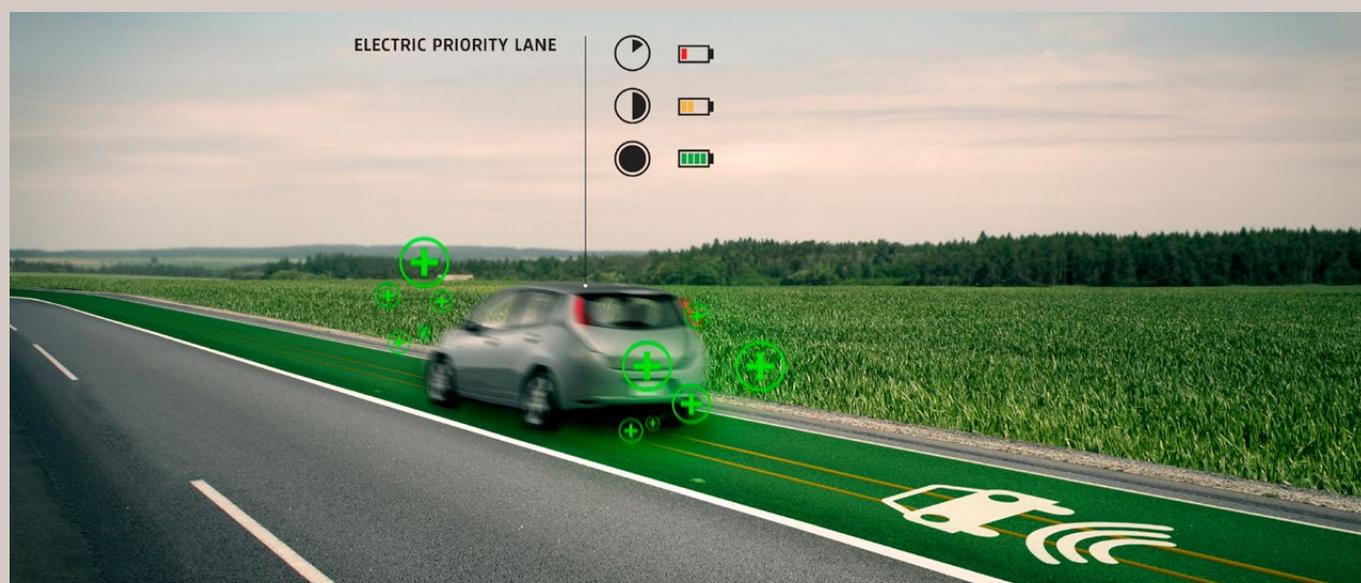
In a similar innovative way, Roosegaarde approaches the Highway as a large-scale, sustainable landscape that does not have to be static, but that interacts with its environment and users. The smart highway is a total concept, a different way of approach that leads to a collection of innovative en sustainable ideas that deal with the opportunities which new technologies offer. Technology, which until now was of pivotal importance, is linked to shape and interactive experience.

The attention in that case does not only focus on the client or the contractor of roads, but as much on the road user. How does he/she experience the highway and which interest does he/she have? Therewith, it is also an adaption to shifts in emphasis, which are current in the focus of attention at large clients (e.g. Rijkswaterstaat). They don't only ask road builders to think with them, but they also challenge them to take further steps.

Meanwhile this attracted international attention. Mid-November this year, Daan Roosegaarde won the 2013 World Technology Award in New York. Strengthened by this happening, Heijmans will export their smart highway product to the international market. Smart Highway is going international in 2014. Since the summer of 2013, preparations are in full swing, with regard to organisational, commercial and technical field, in order to internationalise the Smart Highway. In this stage large volumes for export are not yet at issue. Heijmans is orientating on the most interesting and relevant countries to exploit the Smart Highway. The major emerging economies: Brazil, Russia, India and China (BRIC) receive special attention. The main reasons for choosing these countries are the economic developments, the underdeveloped road network and the accompanied safety issues.

Smart Thinking

The smart highway fits in the Heijmans' vision of 'smart' thinking, which is focused to devise new solutions through smart and innovative use of capacity and technology, both in the area of mobility (smart mobility), energy (smart energy), and materials (smart materials).



SMART HIGHWAY

What is the concrete contribution of these concepts to the approach of smart highways? In the first place a collection of ideas to create a sustainable and interactive road, through smart lighting, farming of energy, and road signs which adapt to road situations. The following five components are feasible:

1. Road lining integrating luminous pigments (photo luminescent powder). The energy of passing cars' lights is, more or less, stored in the road lining, and is 10 hours later still visible, which increases the road safety during the night even without permanent lighting.
2. Dynamic paint can be used to alert drivers for potential frost. Depending on the temperature, ice crystals will become visible which alert the driver for potential frost in corners and driveways.
3. Interactive light is road lightning that moves with the car and that is depending on the traffic congestion, the time of the day, the weather, etc. In the future, this will be a sustainable and cost-effective alternative for traditional road lightning.
4. Applying dynamic road markings using LED technology. This technology can replace markings on or around the road. One of the biggest advantages is that road markings become flexible and that you can adjust them based on the

current situation (continuous line or dotted line). Thus these markings can contribute to capacity management at peak hours.

5. The Electric Priority Lane. A sort of express lane for electric vehicles whose batteries will be charged via induction while driving or standing in a traffic jam. Through an electrical wire or multiple coils in the road, an electromagnetic field is generated. A coil that is mounted under the car captures this field. The system will only be activated when a car is passing by. This component can be an important incentive for electrical transport. In this case, electrical cars are no longer dependent of the available charging points, while batteries become smaller and therefore cars can be made lighter and cheaper.

All these ideas have already passed the fantasy phase. The first prototypes are presented during the Dutch Design Week in 2012. The smart highway is also awarded the 'best future concept' by the Dutch Design Awards. Heijmans is introducing the first applications in practice on Dutch roads. The design and the interactivity of Studio Roosegaarde and the specialized knowledge and experience of Heijmans are combining the best of two worlds. Co-creation appears to be the way to surprising new concepts, which are feasible in practice within The Netherlands and abroad.

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