THE MERGER OF INTERESTS
On sustainability and benefits in the construction sector

SPEECH

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by

Prof. J.D.M. van Hal MSc PhD
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Translation José Hoppenbrouwer

Nyenrode Business Universiteit
Center for Sustainability
Straatweg 25
P.O. Box 130
3620 AC Breukelen
The Netherlands

The presentation shown upon the delivery of this inaugural speech can be found at www.nyenrode.nl/facultyandresearch/cfs.
Sir Rector Magnificus
Fellow colleagues,
Honorable guests,
Ladies and gentlemen,

The times are turbulent. Our economic system is showing its weak points in a dramatic fashion, unemployment is growing at a frightening fast rate, the end of our fossil energy and other resources is apparent, more people become aware of the consequences of the climate problem and the speed at which the biodiversity is diminishing, is far beyond our imagination.

In the middle of this economic and ecological crisis I may hold my inaugural speech and introduce to you the grounds of the chair I occupy since January 2008 at the Center for Sustainability (CfS) of the Nyenrode Business Universiteit: the chair Sustainable Building & Development. There could not be a better moment. Since that which occupies us at the Center, was never before so topical. The ecological crisis has been our starting point for years now, our goal reaching benefits by means of process innovation. We strive to care for the interests of people and the environment and for economical interests. We look for the intersection of the well-known People, Planet, Profit-approach of Elkington. The place where interests merge.

It is possible within the construction sector; we have known for quite a while now – and proof is piling up – that sustainable housing is often accompanied by cost reduction as a result of a lower energy bill or less sickness thanks to a better indoor climate.
Experience teaches us that generally users of a sustainably built office building are very appreciative. Research of the University of Maastricht and the University of Berkeley has shown that in the United States sustainable office buildings do have a higher return on investments for the project developer than non-sustainable real estate.

**Thinking benefits**

Therefore the term ‘benefits’ does in this case not exclusively mean financial benefits. The opportunities that are offered by thinking sustainable also include benefits that cannot be expressed in euro’s. Benefits for all those involved, for the users of buildings and the tenants of houses, but surely for the world of business. Think of competitive advantages, a better image, increased brand positioning and an enhanced integral quality of the product or service to be sold. Pleasant living and working surroundings, a safe neighborhood, a better indoor climate and more comfort not only deliver advantages to the tenants and users of buildings but indirectly also to the business partners involved. And looking to the future, it becomes more clear that protecting and preserving ecosystems and natural resources is of great economical importance. Showing the business world the connection between financial and social benefits and in practice helping to attain those benefits through process innovation, form the crux of my chair. From the most recent Sustainability Impact Assessment by PriceWaterhouseCoopers it appears that many companies see a future in
sustainable entrepreneurship. Seventy-five percent of the 238 companies they surveyed has no plans to adjust current sustainable initiatives and investments as a reaction to the economical crisis. Almost a fifth (18%) of the companies has even decided to concentrate more on sustainable entrepreneurship. Only a small group of 6% has reduced or stopped running sustainability investments.

The construction sector is also positive. ‘The Dutch Day of Building’ was this year dedicated to sustainability and the chairman emphasized that the opportunities for the building sector with sustainability are numerous. The fact that politicians are proposing to greatly gain from making existing housing sustainable, since this may promote employment, is another example within this framework. And also, the fact that the Dutch Green Building Council is growing in these times of economical crisis is an illustration. This organization aims to greatly increase sustainability within the construction sector by making this abstract term ‘measurable’. The Dutch Green Building Council is an initiative of market parties and is financially supported by participants within the market.

Whilst the economical crisis slows the economy, the requests for sustainable solutions increase. Now that everything must change, why not go sustainable at the same time? The signees of The Appeal of Antwerp – amongst them economist and former SER-chairman Herman Wijffels –, European leaders – such as our prime minister Balkenende and the German prime minister Merkel –, business guru C.K. Prahalad, former prime minister of Great Britain Tony Blair…; thus many ‘big names’, plead for a new and sustainable view on economics. They even plead for a ‘Green New Deal’, amongst others former Secretary of State Willem and minister Vermeend of the Netherlands and President Obama of the United States do so.7

Companies may profit from sustainable entrepreneurship. But it is not a matter of course, as illustrated by an article in Trouw.8 The companies that currently focus on sustainability do not stand separate from the ‘normal’ economy and the banks are not generous with loans either for companies that wish to switch to a focus on sustainability. Turning sustainable profit into cash is therefore not easy. It demands courage, perseverance and strength in dealing with disappointments. Those that appeal for a
sustainable economy fully realize that. But when the old road does not get
you anywhere, why not search for a new one that offers profitable chances
on several fronts and that guarantees success for the long run?
As I mentioned just now: everyone has known for a long time that the
world of business is intertwined with the environment. Our economy is
completely dependent on natural resources such as energy, water and raw
materials for products. By exhausting these resources the ‘old economy’
facilitates its own demise. And the system shows more weaknesses, such as
we experience daily in the current crisis. The current approach has led to a
loss-loss situation. We actually have no other choice but to do it differently.
Searching for a win-win situation seems the obvious road to take.

The way of thinking that the Center for Sustainability at Nyenrode has been
developing for a long time under the leadership of Professor Gerard
Keijzers, seems to find fertile soil these days. I am therefore grateful and
proud that I have been given the opportunity to follow up on this challenge.
And I do not stand alone, but amongst an inspiring group of colleagues
whom all contribute to the goals of my chair with their own specific areas
of knowledge. I may be the only person standing in front of you today, but
I represent a close group of people. This story today is not my story. It is
most certainly our story. A story that will explicate the opportunities that
are offered in this specific time, that will make clear with which parties we
wish to grab these opportunities and most of all, a story which will explain
how we wish to do that.

A special moment in time

At the Center for Sustainability we have for many years employed ourselves
with the question of which opportunities the ecological crisis offers to
business. In that, history largely determines our way of thinking. For
thinking on sustainability we distinguish three phases:
- The phase of cleaning up, pre-1985;
- The phase of controlling from 1985 till 2007;
- The phase of integration, apparent since 2007.
The approach in the phase of cleaning up was characterized by a fairly passive role for companies. Care for the environment, the term sustainability was not yet used, was seen as a task for the government. Emphasis lay on laws and jurisdiction. For the construction sector the Lekkerkerk-affair of 1980 is a good example of this time. It was discovered that houses had been built on contaminated ground with all the consequences thereof. But already in that time, a few parties in the Netherlands were actively involved with what was then named ecological building. The first exemplary projects were realized by these leaders.

However, the success of this approach appeared finite. Even before the success reached its climax, a new era began. In this phase of controlling socially responsible entrepreneurship entered the business world. Companies became accountable. This period is characterized by detailed measures and agreements. The so-called packages sustainable building that were developed under the policy of former Secretary of State Tommel, are a good example of the spirit of this age. Looking at those lists you realize a lot has happened. Much of what was not yet accepted then is now standard.

But this phase has also passed its climax. In recent years the phase of integration started. In this phase companies further acknowledge that there are company profits to be made from working sustainable. An entrepreneurial approach towards sustainability arises. Worries about and care for the future are important motivations. Climate change and the exhaustion of resources are increasingly taken serious. Through this the problems are viewed from a broader perspective. A growing number of parties search for the earlier mentioned merger of interests. The problem is no longer approached as local but as global. The realization that a company may only make a difference in cooperating with other parties, grows. Cooperation throughout the supply chain forms a new focal point.
This figure gives an outline in an historical perspective. Reality is of course more complex. Parties focusing on cleaning up or controlling still exist in the current phase. Anyway, the current economical crisis arises in a period in which a changed view on sustainability emerges. We find ourselves in a transition period in two areas. When we zoom in on the current time the following figure arises.
Figure 3: Actual transition phase to entrepreneurial approach

Our current manner of working has passed its climax and the new phase has begun.

It is exciting that we find ourselves in the transition period of these two phases and that we cannot yet be ensured that the enterprising approach of sustainability will truly be the new phase. We can however, together try to coach the future down this road. Within my chair we try to do that by optimally using the opportunities this phase presents for the construction sector.

**Parties for grabbing opportunities**

With whom do we wish to optimally grab the opportunities? Naturally, with parties from within the construction sector. As you can see in the following figure, these parties are many and diverse.9
Our target group varies from producers to government, from local contractor to multinational. Are all these parties evenly suited to grabbing opportunities with? They are for their knowledge and background. We need parties from the whole chain. The vision of these parties determines whether they are suitable partners in making steps towards the future we so wish for. Therefore we have developed a way to divide the target group that is based on the vision on sustainability of the parties involved. The division we made, is amongst more, based on the innovation-adaptor-diffusion theory by Rogers\textsuperscript{10} and the sustainability classification within the SME of my colleague Hilke Bos-Brouwers\textsuperscript{11}. Inspirational were also the axes system on which my colleague in Delft, Vincent Gruis\textsuperscript{12}, based his typology of leadership styles at housing associations and an article by Van Marrewijk\textsuperscript{13}. 

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**Figure 4: Overview stakeholders construction sector**
In our daily work we use these four quarters with some shading. People cannot be put into categories. And since companies are formed by many different people, companies cannot be put into categories either. In a very conservative company you may find early adaptors and vice versa. But for clarity and the limited amount of time I have for this speech, I will forget about the shading and explain our division with key words. Starting with the first quarter: these are the parties that still work with the cleaning up viewpoint on sustainability problems and that regard the government as the party that should take the initiative for change. Parties that fall within this category may see that things are changing but they do not take the initiative. They tune their actions to laws and jurisdiction and to the demands of their contractors. In our division we have labelled this category ‘the traditional craftsman’.

There are parties that equally hold on to their old beliefs but in a very different manner and these are the parties that have always seen that the usual way of working in construction contributes to the ecological crisis. This category of companies and people has for years now been active in the specific area of sustainable building. They see working from a sustainable
viewpoint as self-evident. The parties that were busy with what was then called ecological building during the phase of cleaning up, certainly belong to this group. Parties that have become active now largely profit from the work of these forerunners. You could call them the traditional sustainable builders, since they have made sustainable construction a tradition for years. However, because it needs courage and leadership to play such a forerunner role, we have chosen to label them ‘sustainable leaders’ in this division.

The third category is formed by parties whose work is led by their need for innovation. Parties that fall within this category find themselves challenged by the conjunction of the economical and ecological crisis and they consciously make sustainable entrepreneurship their business. They choose to change course. Within my chair we label these parties ‘innovative leaders’.

The last global category within this figure relates to parties we have labeled ‘concerned partners’. These are people and companies that are aware of the fact that they find themselves in a transition phase, but whom, for whatever reason, are not capable to rigorously break with the familiar working manner. They find their way towards a new working manner via adaptation in steps. They often try to follow the road that was scouted and outlined by the earlier mentioned leaders. Though indeed, this is not so simple, as was shown in our recent research amongst SME’s in the installation and contractors branch. In this survey we sought how to seduce this group of SME’s into playing an active role in making privately owned houses energy saving.
At the start of this research we assumed that the innovation curve as outlined by Rogers would apply.
Figure 6: Innovation-adaptor curve by Rogers

![Innovation-adaptor curve by Rogers](image)

This curve shows the innovation process as it generally develops according to Rogers. His claim is in short, that innovative parties start with a new development (the ‘leaders’ I mentioned earlier, labeled ‘innovators’ by Rogers) and that their new manner of working is slowly adapted by other people until there is a moment when that which was first new and less current is considered self-evident. In this specific research it appeared that following this curve is not so self-evident as it may seem at first glance.

Figure 7: In diffusion of innovations among SME’s the early majority seems to be the weakest link

![Innovation-adaptor curve by Rogers](image)
The manner of working within the installation and contracting branch has been standardized to such an extent that it has become very difficult to change to a new working manner. Even when forerunners have proven the relative advantages of the change. The disadvantages often outweigh the advantages. The fact alone that tendering at the lowest price is common in the construction sector makes it difficult for SME’s to distinguish themselves with quality.

So, which parties are interesting to work with for our chair? As I said in the introduction, it is our aim to show the business world the advantages of working from a sustainable viewpoint and to help coin the advantages in practice through process innovation. The innovative leader is, in view of this goal, a self-evident partner, as is the category we labeled ‘the concerned partner’ in our division. In working with this last category we see it as our responsibility to outline the impediments these people experience and to research – preferably in conjunction – how these impediments may be overcome.

The other two categories are less evident as target groups for this chair. The traditional craftsman is a category that is hardly susceptible to our working manner. Generally they await law and jurisdiction. The category of the sustainable leader is a less obvious target group because these parties have already worked from a sustainable viewpoint for quite some time and do not really need us. This category serves primarily as a source of knowledge and inspiration. Parties from this category that search to find new roads to economically coin their sustainable working manner, do form a target group however.

By placing this division in the figure of our current time, the position of these parties may become clearer.
In the transitional space we find ourselves, the four categories each interpret the facts differently. The traditional craftsman follows his or her old path as before until it is truly no longer possible. The sustainable leader continues further on the ‘new’ road he had already taken. The innovative leader chooses without any doubt for this new road too but has only done so recently. The concerned partner chooses the new road but does not really leave the old road behind. Sometimes because he or she is not completely convinced of the necessity or because it is hard to change the old ways. For this party the transition comes in steps. You don’t throw out your old shoes before you have new ones.

**Grabbing opportunities**

Now I arrive at the part of my speech that covers how we work with the parties mentioned, in order to realize our goals in practice. There are many opportunities available for the world of business and we wish to help grab them. That is not simple, since grabbing the opportunities that appear now, calls for a radical change in both thinking and doing. And, as many of you
know from experience with eating less, exercising more or stopping with
smoking, change is difficult. Our brains are not geared for change.\textsuperscript{15}
Still, change is necessary, in view of the urgency due to the economical and
ecological crisis. I did not mention the term process innovation idly.

The ‘concerned partner’ should also be open to real change. For even when
a choice is made for the new road via changes in steps, with just optimizing
and rubbing off the edges of the current situation, the goals will not be
reached. Nor by making things better, or an extensive change in ‘doing’
within traditional thinking. ‘Better is not good enough’, say McDonough
and Braungart so justly in their Cradle-to-Cradle-book.\textsuperscript{16} More must be
done. We must truly renew.
To the question of \textit{how} that should be done, we try to find the answers
together with others. It is also the question a large part of the business
world is asking. The question \textit{whether} it should be done, has already been
answered by most parties. That is why companies and governmental bodies
that consider themselves innovative, put ambitious goals to paper. Many
find themselves in the phase of changed thinking. Realizing these ambitions
in practice, is often still a bridge too far and that is the field in which my
chair wishes to be active.

The following figure shows what we would like to achieve and with whom.
What this means in practice, I would like to illustrate with the four characteristic angles of approach of my chair, angles that partly overlap. These are:
1. Creating business opportunities
2. Promoting cooperation
3. Leading through dynamics and complexity
4. Focusing

**Angle 1: Creating business opportunities**

One of the main things we do is critically view from our sustainable perspective existing convictions on how to promote business. This perspective is, as I told you in my introduction: we wish to care for both the interests of people and the environment, and for economical interests. We look for business opportunities and in our conviction these are not created by somewhat adjusting existing manners of working but by working differently. By striving for a simultaneous care for several interests, a change
in perspective appears, a paradigm shift. And because then the old ways of thinking and doing become almost impossible, such a shift in perspective leads almost naturally to innovation, both in regard to products as to processes.

We are very definitively not talking about an angle of thinking Profit whilst looking out for People and Planet. We focus on the point where the interests of People, Planet and Profit come together. The place where a merger of interests arises, a situation where the outcome is more than the total sum of parts.

Figure 10: The traditional approach ‘thinking profit’ versus the merger of interests

Allow me to illustrate this somewhat abstract description of our approach with two elements from the well-known competitive strategies by business guru Michael Porter. Porter received a Nyenrode Honorary Doctoral degree earlier this year for his pioneer work. He distinguishes two strategies in reaching top achievements in a certain branch of business: cost control (making less costs than the competition) and differentiation (by distinguishing the qualities of a product, for example its uniqueness or service). Recently we have focused on these two strategies from our sustainable perspective.

To explain our vision, we have made a matrix in which the terms ‘cost reduction’ and ‘creating quality’ are significant. This view is very familiar to
the construction sector. For parties in construction mainly differentiate themselves on the basis of costs and/or quality.

How do we fill this figure from our sustainable viewpoint?\textsuperscript{18}

**Figure 11: Interpretation of Porters competitive strategy from a sustainable viewpoint**

<table>
<thead>
<tr>
<th>Short term cost reduction</th>
<th>Long term</th>
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<tbody>
<tr>
<td>1. save on non-renewable resources</td>
<td>1. manage environmental business risks</td>
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<tr>
<td>2. save on environmental costs</td>
<td>2. stay ahead of new jurisdiction</td>
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<tr>
<td>3. reduce costs by supply chain cooperation</td>
<td>3. encourage appropriate jurisdiction</td>
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**Short term cost reduction**
Considering the possibilities of cost reduction on the short term, we currently see three possibilities. Each of these I shall illustrate via an example of a realized sustainable construction.

a. Save on non-renewable resources
b. Save on environmental costs
c. Reduce costs by supply chain cooperation

**a. Save on non-renewable resources**
A much used example within this framework is making existing housing energy-saving. By doing this the comfort for the tenants improves (People), the pressure on the environment is reduced by saving on fossil fuels and reducing CO\textsubscript{2}-emission (Planet) and the costs of living are lower for the
tenants (Profit). The chair at the faculty of Architecture of the Delft University of Technology, that I hold next to my chair at Nyenrode, especially focuses on this task.

However, there are more non-renewable resources than just energy. For example, raw materials for construction. Cirkelstad Rotterdam is an initiative in which the company Oranje Demontage cooperates with other companies. The aim of this initiative is realizing high-grade re-use of materials that come from demolition. Re-usable materials are extracted from the buildings that are to be demolished and offered as raw material for construction, preferably at the same site. Demolition company Oranje expects to be able to completely deconstruct a house and offer it as new construction material within 10 years. By this working manner transport of materials is minimized and a large CO2-reduction realized (Planet). Oranje employs people from the lower end of the labor market, schools them and offers them help in paying off their debts when necessary (People). The company seems able to do this against a competitive price and without being dependent on subsidies (Profit).

b. Save on environmental costs

One of the first projects in which the abstract Cradle-to-Cradle-thoughts of McDonough and Braungart were put into practice, was de renovation of the Ford Rouge Center in Dearbron, Michigan. The Rouge Center was rebuilt into a kind of industrial nature park. An important adjustment to the terrain was the factory roof. Actually, the roof was changed to a landscape of vegetation. This remarkable roof enhances the wellness of the people that look out on it (People), buffers rainwater and creates a biotope for many plants and animals (Planet) but on top of that saves Ford millions of dollars (Profit). This because the life span of the roof was doubled, maintenance costs lowered substantially, the green roof gives protection from UV-rays and the energy costs were reduced due to better isolation. The main financial advantage however came from the absorbing and filtering working of the roof, so that the usually obligatory filtering system could be left out.

c. Reduce costs by supply chain cooperation

Marcel Noordhuis holds under the wing of Professor Jack van der Veen, former Nyenrode-colleague, a PhD research on the reduction of internal failure costs through optimal cooperation at urban renewal. The aim of
the research is to find out whether failure costs may be reduced by better supply chain cooperation. Noordhuis and Van der Veen establish that chain management demands the type of person that is a specialist on his own turf but can understand the processes beyond the boundaries of his own department. In construction, they conclude, that is not always easy since constructors are in the first place mainly specialists. They are, however, convinced that when entrepreneurs and constructors realize that they may also save on failure costs, chain management will become common sense in the construction sector also.

A good example of reducing costs by supply chain cooperation is the Cooperative Union Q and the Q-construction method they have developed. By a transparent cooperative working manner between many partners they build comfortable (People), sustainable (Planet) and affordable (Profit) housing of a steady high quality. That quality is laid down in a specified code that the union assembled from several independent criteria such as from the ‘Groenfinanciering’ (green financing). The house is for 90% made out of renewable materials, is energy-saving but also very affordable. In comparison with a traditional house with similar results this type of house is about 5 to 15% cheaper. The cost reduction comes from a shorter building time and from minimal failure costs and is a direct result of the cooperative working manner that was chosen.

Another manner of cost reduction by cooperation comes through design. This appears for example from a competition that we were involved with as advisors. In order of housing association Vestia we jointly worked on a sustainable design for the new building location Almere Benoordenhout for 4,500 new houses and an industrial site. The energy concept thought up for this location, forms a collective whole by which as many parties as possible find gain. Energy is generated by a combined heat and power plant (CHP), that uses local waste products as a bio-fuel (such as animal waste from farmers in the area and bio waste from the district). The remaining need for electricity in the district will be covered by solar cells on roofs and fronts of the buildings. The systems complement each other in time since the CHP-installations produce electricity during the cold season and the solar cells produce it in summer. By building a sufficient number of windmills outside the city’s borders, the need for electricity for a larger part of Almere is met and the bad return on investment of the solar cells compensated.
Long term cost reduction
Considering the possibilities of cost reduction on the long term, I also wish to explain three possibilities:

a. Manage environmental business risks
b. Stay ahead of new jurisdiction
c. Encourage appropriate jurisdiction

a. Manage environmental business risks
It is well known that producers of toys suffer great damages when somewhere along the production chain a harmful substance is found. In construction we have a similar situation with the material asbestos. What will appear to be harmful in the future, is yet not known. A negative remark about the bio-industry by Oprah Winfrey in 1996 in America, led to great losses in the meat industry. The construction sector is equally vulnerable. The image of balanced ventilation has been heavily damaged as a result of health complaints in Amersfoort. Housing associations too, saw their reputation change quickly recently. It is not unthinkable that in the future more such developments will take place and that companies will be made accountable for things that were earlier hardly given any attention. The only thing companies can do to brace themselves for future public emotions, is to carefully analyze the supply chain for possible future problems. As worded in the book Green to Gold: ‘Finding the risk before it finds you’. For this reason IKEA checks securely the entire supply chain to prevent wood from tropical rainforests being used in its products. Should construction companies do the same, it will cost effort, time and money with no insurance that the investment will pay back. Problems that do not arise, form a strange kind of success. But imagine the use of tropical hardwood suddenly becoming a widely spread great shame in the public opinion, and it is immediately clear which companies will profit: those that had foreseen this.

b. Stay ahead of new jurisdiction
An example: future tightening of the Dutch demands for energy-saving in new buildings is something most parties in construction already take into account. But the possibility that similar demands may be put to existing buildings, is hardly considered as being realistic. Whilst it is not unthinkable, considering many national and international developments. Minister Van
under Laan and minister Cramer both have indicated that they are preparing such new compulsory jurisdiction and that these will be ready shortly. The consequences of such new jurisdiction will be huge for the construction sector. Parties that are prepared for such developments, will profit in the future.

An other appealing example is project developer Seinen from Leeuwarden, who has, anticipating more strict energy-saving demands for new housing, developed a financing scheme through which even energy-producing houses become affordable.

c. Encourage appropriate jurisdiction

Proactively developing instruments within the area of sustainable construction, reduces the chance that governmental instruments that the construction sector does not wish for, are imposed. This idea partly forms the grounds for the introduction of the benchmark BREEAM by the earlier mentioned Dutch Green Building Council. And also of the Toolkits Sustainable Construction, an initiative the Koninklijke BAM Groep developed with several other parties. There are Toolkits Sustainable Housing, Existing Buildings and Sustainable Offices. In these Toolkits the complexity of sustainable construction is translated into concrete manageable concepts. These give parties the possibility of employing the Toolkits in an integral way and technically correct.

Creating quality on the short term

Distinguishing yourself from the competition by quality on the short term, may from our viewpoint be done in two ways:
a. Market sustainable products/services so that it feeds the needs of the target group
b. Adjust existing products/services

a. Market sustainable products/services so that it feeds the needs of the target group

This working manner is not emphasized without reason in figure 11. It stands central in the approach that is characteristic of my chair. The insight that comes with it, formed for me personally a turning point in my career eight years ago. Therefore I gladly explain the importance of this insight
some more. It is definitively not the clincher it may seem at first sight. Look to the past. In 2001 we found ourselves in the era of controlling in The Netherlands. Companies were made accountable for their responsibility towards the environment. I worked as sustainable construction advisor and my colleagues and I made parties accountable by often stressing the negative consequences of their working manner for future generations. We worked with long lists of do’s and don’ts. Guilt and responsibility formed the leading motives of parties that let us convince them. Parties that were not convinced saw those sustainable construction lists mainly as a burden. In that time I left for a year and went to the east coast of the United States where sustainable building was only just up-and-coming. I worked together with The Green Round Table in Boston where I received the insight that was to define my working manner, and now the working manner of my chair. The working manner of my American colleagues was almost directly opposed to mine. Instead of talking like we did, they did the listening. And that is a crucial difference. By listening you get information that may not at first sight seem relative to sustainable construction, but may be crucial for an enthusiastic response to the subject. For that is something the Americans and I were jointly convinced about: In making sustainable construction a success you must really want it. That was already proven by experiences with Dutch exemplary sustainable building projects. ‘Nothing great was ever achieved without enthusiasm’, quoting the American philosopher Emerson. The so-called Green Mindset Approach that defined the work of my American colleagues stated: creating enthusiasm for sustainable construction is almost impossible, but by hooking sustainable construction up with existing enthusiasm, you create the same desired result. This is in fact the same as ‘offering products and services in a manner that feeds the needs of the target group’. Only by listening well to what moves the target group, those needs will become clear. And those needs are often very different to what you expected before you entered the conversation. The insight that you must listen instead of convince through talking, brought me to well-known turf. For a long time I worked for the magazine Puur Bouwen (Building Pure), together by the way with my current Nyenrode-colleague Anne Marij Postel. Thanks to many interviews on sustainable construction we are familiar with that moment in a conversation when real emotion shows itself. The moment when people become very enthusiastic, or as happens often, very
angry. Those are the moments you look for as a journalist since they deliver the best quotes. In my current work I look for those moments since they often mark the place from which a bridge can be built towards sustainable construction. Sustainable construction is such a large area of expertise that fairly always a point of contact can be found from which a problem may be solved or a dream realized. As starting-point for most of our work we therefore choose to get under the skin of our target group. For that purpose we have developed several manners of working and research methods that distinguish themselves from the usual.

Allow me to illustrate the power of this method with a practical example. The Genzyme-office in Cambridge near Boston. The location of this building is a former industrial site, hidden behind an energy plant. Five architects were invited to present their views on this building during the preliminary phase. Four of them came with impressive models. But the fifth, Stephan Behnisch from Germany, came empty-handed. He came to listen instead of to talk. He appeared very good at it and by listening he got a clear picture of the needs of those involved. The entrepreneur wanted the building to show the character of the company. Therefore Behnisch concluded that the building should be nothing but very sustainable. This since Genzyme is active in health care. The company develops new products aimed at the treatment of very complex diseases. This development requires much innovation, patience and attention, but upon success the products create a sustainable life. Making concessions on quality during this product development is out of the question. Therefore no concessions on quality should be made at developing the building. Sustainability became self-evident for both the architect and the entrepreneurs.

The building stands a few years now and has proven to mirror the character of the company. The focus on sustainability defines the radiance of the building and according to the CEO, has proven to contribute to the good name of the company. Technically it was not difficult to reach this level and the ease grew at sequel projects. The extra costs were reduced with the growing familiarity of the company with this building method. Genzyme now only builds with the highest standards for sustainable construction. Soon a Genzyme sustainable office building will arise in Almere.
Looking back, the CEO can only conclude that the choice in Cambridge for a building with a very high sustainable standard, has raised the level of the entire company and has led to a striving for sustainability as leading element for all the activities of the company since then. He even states now: “Companies that take themselves seriously and consequently strive for quality in their dealings and organization, cannot really allow themselves to develop buildings that do not apply to high sustainable standards. When you wish to radiate the quality you stand for as a company, sustainable construction is self-evident.”

In this case, the listening well by the architect had a great impact. Listening very well to the target group forms the backbone of our approach. Each group gives a different story and as such a different bridge towards sustainable construction. The building blocks for that bridge require creativity every single time. Therefore they look different every time. Made to measure is required.

b. Adjust existing products/services
At this point I limit myself to two practical examples; the ClickBrick and the service with which a growing number of companies try to make privately owned housing sustainable: the ‘carefree-concept’. The ClickBrick is a brick that no longer needs mortar. Both use and re-use become much easier.

The service I mean is the offer of an integrated constructional and technical installation advice, made to measure, for making a house sustainable. This advice comes with a plan of execution for which tenant-owners will have only one contact person to deal with. This person can also help them with applying for a loan and all other related matters. Tenant-owners are relieved of many worries which reduces the chance of it coming no further than plans, and in practice not to execution. Already several parties have such a concept on the market.
Creating quality on the long term

Finally I come to the fourth quarter of the matrix: creating quality on the long term. For this too, we see from our viewpoint two possibilities that are both based on the development of new products or services:

a. Redesign

b. Re-imagine

a. Redesign

Redesign means that existing products, services or manners of working are completely reviewed. Two great examples are in this framework the ‘ultra-fine-particle-sound-screens’ and the sun terp\textsuperscript{25}. The ‘ultra-fine-particle-sound-screen’ was developed by the BAM and the TU Delft. This screen does not only reduce sound but it also improves the air quality.

We often use the sun terp as an inspiring example whilst cooperating with clients. In this concept a greenhouse, in which plants and vegetables are grown, is part of the energy concept. The greenhouse also improves the air quality and reduces CO\textsubscript{2}-emissions from the building since the plants need CO\textsubscript{2}. The vegetables may be used in a local restaurant and the greenhouse can contribute to the architectonic quality.

b. Re-imagine

Re-imagine has to do with the development of totally new products, services or working methods. A wonderful example of such a product is, we find, the Living Machine developed by Jonathan Todd. A project in China clearly demonstrates the threefold functionality of the principle of the Living Machine: a polluted canal in a city is transformed into an attractive recreational area (People), the heavily polluted water is naturally purified (Planet) which saves the costs for a traditional water purification system (Profit).

An example of re-imagination in services is to be found in the multiple prize-winning project Wallisblok in Rotterdam. In this project the local government granted a totally run-down housing block to the current and future tenant-owners for free, with the condition that they would themselves invest in their houses. Under guidance of architect Ineke Hulshof, the tenants together transformed the housing block into an architectonic highlight that brought the whole district an uplifting and relatively low costs of living for the tenant-owners. For each house much
attention was paid to the environment, which is apparent through the awarding of green financing.

With this last example, the matrix is filled. Generally, a selection of these possibilities will present themselves in any specific project. In a recent survey of ours on the possibilities for financing energy-saving by housing associations, surprisingly all of these aspects were more or less applicable.²⁶

**Angle 2: Promoting cooperation**

The second characteristic angle of my chair that I wish to explain is promoting cooperation. On one of the well-known Dutch Loesje-posters a maxim was written which describes our intention well: ‘Why make it difficult when you can make it together?’ Cooperation can lead to a reduction in costs, as I have told you. That is a practical argument for cooperation. However, at the start of my story I mentioned another argument that explains why cooperation is increasingly appreciated by market parties. This reason results from the fact that environmental issues are no longer viewed at a local but at a global scale. Fairly everyone is aware of the globalization of the world economy and the interdependence within chains of suppliers, partners and clients. The realization that companies may only make a difference through cooperation with other parties, grows. From this chain of thought we see the most inspiring combinations of companies come about. Senseo-thinking wins terrain. The development of that coffee machine was determined by the surprising combination of Philips and Douwe Egberts, we now see comparable combinations form in the construction sector. Heijmans and Philips joined forces for the area of street lighting. Together they offer community councils to exchange lampposts with posts of a material that is less harmful to the environment and that are attributed with the most modern energy-saving lighting technique.

We, however, have a third reason for being fond of cooperation. This reason is extensively illuminated in the book we published as Center in 2008, *De preekstoel voorbij*²⁷: New cooperations form fertile soil for innovations. Equally for products, services and processes. We not only
research the forms of cooperation, for this reason we also promote and facilitate them. Often we initiate contact between parties and we encourage them to work together. Naturally, we also often cooperate with other parties. With the TU Delft for example, where I hold a chair in the area of Sustainable Housing Transformation.

Our view on facilitating and attending to processes of cooperation has a scientific base. Amongst other things, we base our working methods on scientific sources aimed at interest- and transition management and on the approach through the so-called U-process. Starting-point of the U-process is creating a safe environment in which all parties concerned may work together in openness. One of the working methods we have developed thereto, is the Innovation Lab. Through the Innovation Lab we try to create cooperation between companies or other organizations. The aim is to realize both their own and social sustainable goals but above all to create business opportunities and in conjuncture models of business.

We are convinced that innovations are created fastest when parties work together that are not accustomed to working together. When this cooperation is realized in a safe environment they cannot avoid, the so-called thinking and doing out-of-the-box comes about and following that innovation. Those innovations may be in the area of new techniques, products, methods and processes, new contract forms, new financing structures or any other area.

A great example of such an approach is the Innovation Lab Sustainable Building Renovation in which we were focused on making apartment buildings of the sixties more sustainable in the district IJsselmonde in Rotterdam. The concept ‘pimping’ that was created in this Innovation Lab and that is related to making existing serial housing more sustainable at an accelerated pace, has in the meantime found its way into the TU Delft. Such an approach demands renewal in technical and process areas. Cooperation on this matter between both universities seems inevitable. From this project several new business models emerged which must now be tested in practice in a follow-up.

Aiming for cooperation forms the backbone of much of our work. Besides our projects in this area within the business world, we also do scientific research in this area. We embed our practical experience in a scientific
framework. The scientific knowledge we develop because of this, we in turn use for our practical projects. This is the characteristic of a true Business University: the continuous exchange of scientific and practical knowledge.

**Angle 3: Leading through dynamics and complexity**

The third angle I mentioned is the working method that we name ‘leading through dynamics and complexity’ in following of my colleague Rob Wetzels. The term dynamics covers the influence of changing circumstances. We are used to things often going differently than expected (‘Life is what happens while making other plans’, John Lennon wrote). That changing circumstances may lead to extremely unpredictable and unsure situations is shown by the current economical crisis. Complexity is a result from, amongst other things, the growing number of parties. Was at one time the architect the building master and he or she the one person that took the decisions, today, with new contract forms that sometimes have consequences far beyond completion, that is no longer the case. An architect has, just as most parties in construction, become a team player. And with that, the game has become a lot more complex.

What we try to do within CfS, is to not let us get bowled over by these dynamics and this complexity. On the contrary, we try to, by a sound preparation and analysis of the underlying mechanisms, make ‘leading by dynamics and complexity’, possible. The following metaphor may clarify our aim best: our research on the underlying mechanisms leads to a road map. Our analysis of the actual situation then shows us the best route that gets us to our goal. That route we can only determine with the help of the road map. Therefore we must both analyze the underlying mechanism and the actual situation to be able to reach made to measure conclusions in our research.

Our research on the role of the SME’s at making housing owned by tenants more sustainable (see reference 14), illustrates this working manner. In this research we tried to pick up as many signals as we could from factors that influence the role of the SME and to value these signals correctly. By thus gaining knowledge, chances improve that we will be able to react more effectively to complex and changing circumstances. To enable this reaction
and to illustrate our working method, we put a large part of our results into a kind of control panel. This control panel, a different metaphor to the road map, but comparable, has knobs which can be turned more or less. After that we outlined three possible future scenario’s by turning the knobs. Coincidently, we did this just before the summer vacation of 2008. The most likely scenario we had in mind was the situation of that time. However, after the vacation a totally different scenario had become reality. A scenario with much less employment than we had foreseen but it was one of the scenario’s we had described. Our approach in this research immediately showed its value.

We would like to start a follow up research in which we will check who, in the current situation, should turn which knobs and how far. Speaking from the earlier metaphor: we now would like to plan the route that should lead us to concrete actions that have the biggest chance of giving the SME’s an active role in making housing owned by tenant-owners more sustainable.

Angle 4: Focusing

The last working manner I wish to explain, is actually closely connected to the former. Since the problems for which we seek an answer are so dynamic and complex, we may not have the illusion that we may play a role in all areas where constructing and sustainability are related. The initiatives in the area of sustainable construction are fortunately plentiful, both in the Netherlands and abroad. Contrary to the past, it has therefore become impossible to have a complete overview. In order to truly grab opportunities we must focus, both as regards to fields of knowledge as to fields of attention.

Our choice of fields of knowledge will not surprise you after all I have said. Based on the many practical cases that we are involved with as Center, but also on basis of literature studies and scientific research, we shall further develop the vision presented in this inaugural speech.

We will especially focus on creating business opportunities from a sustainable perspective. As well we will, as said, further develop the opportunities that cooperation may offer and we will study the principles that make leading through dynamics and complexity possible.
As a private university we are dependent on sponsoring for the scientific deepening of our fields of knowledge. Thanks to two generous sponsors it is possible to spend a lot of time in the next few years on developing the general view of this chair on the one hand, and on the other hand developing further insight in the marketing of sustainable innovations and the value of certain forms of cooperation.

We are still looking for practical opportunities in order to check the theory on leading through dynamics and complexity in the construction practice. The knowledge we will acquire in this way will naturally be used in the many individual tasks we execute. These projects in their turn add to our knowledge, as I explained earlier.

This is different for our fields of attention. Fields of attention in my chair are formed by specific construction tasks in which we try to specialize. We give special attention to that part of the construction task that is best suited to the specific qualities of the people related to my chair. For that reason the following construction tasks have our special attention: an accelerated sustainable refurbishment for serially produced existing housing (named ‘Snel and Slim’, ‘fast and smart’, in this figure) and making sustainable buildings of great historical value (sustainable care for monuments, in Dutch short named DuMo).

I gladly explain to you these two fields of attention.

**An accelerated sustainable refurbishment for serially produced existing housing**

As mentioned earlier, at the TU Delft I hold the chair that is specifically aimed at making existing housing and districts sustainable. I regard it a great privilege that I may combine this chair with the one at Nyenrode, since in my view, making existing housing sustainable is the task the Dutch construction sector is facing today. In the Netherlands we have circa 7 million houses. Before the economical crisis an average of 70,000 more were built every year. That is 1% of the total. Of that number, only a quarter replaces old housing. This means that only a quarter percent of our existing housing stock is demolished and replaced by new buildings. This rate is so low that in practice, houses will need to last hundreds of years. We think that logical for houses such as the Amsterdam authentic
mansions. But also far less future proof housing, such as the post-war serially built housing, will have to last longer than expected. The theoretical life span of these houses, generally fifty years, is coming to an end.\textsuperscript{31} These facts, in combination with the CO\textsubscript{2}-reduction task our country is facing, have led to my wish to especially focus on a new approach for existing housing. Considering most post-war housing was serially produced, it seems logical to look for solutions that may be produced serially. My chair at Nyenrode has taken upon itself the specific task of researching the technical and procedural possibilities of an accelerated sustainable refurbishment for serially built post-war housing.

A nice illustration of such a working manner is the concept the French architect firm of Lacaton & Vassal developed for the Parisian corporation OPAC de Paris. The architects developed a self-supporting prefab module which could be added to the apartments of a typical nineteen-sixties apartment building and thereby create an indoor garden. The old façade was removed and replaced by a glass sliding door. The tenants did not need to leave their apartment during the renovation.

In the Netherlands we have the inspirational example of the rucksack bathroom of Heijmans servicebouw. This prefab-bathroom is shoved into the side of the building and in a short time a large improvement in quality is realized.

Besides the TU Delft we work with many parties from the practical field on the task of accelerating making serially built existing housing more sustainable. Our goal is to shortly get this sustainability process going in practice, by an organized network. We hope to soon find a sponsor that will advance the realization of this network.

**Sustainable care for monuments**

I am not the only one of my ‘construction team’ at Nyenrode that combines working at Breukelen with other activities. Besides her work at Nyenrode, my colleague Birgit Dulski keeps herself busy with the technique of sustainable construction at NIBE, an office in the field of environmental and ecological engineering. This office studied for many years, in conjunction with the Rijksdienst voor het Cultureel Erfgoed (formerly Rijksdienst voor Monumentenzorg) and by order of the Stichting Bouwresearch and the Rijksgebouwendienst, the possibilities of sustainable
care for monuments. There is a great need for knowledge of this specific field. The fact that this category of buildings has been excluded from the compulsory energy label, unfortunately implies that no big amount of energy saving could be made in this area. There certainly are, however, technical possibilities for adjustments in monumental or otherwise important buildings that do not affect their monumental or otherwise special quality, but do lead to a lower use of energy, more comfort and adjacent to that, a better use of the buildings and lower maintenance costs. The development of these adjustments for special buildings, always demands a made to measure solution, but already many inspiring examples are available. Standard solutions cannot be applied but the examples show that with good cooperation between different disciplines, surprising solutions may be found. Solutions that will both contribute to the preservation of cultural and historic values and further the sustainable results for these buildings.32

These possibilities are yet only applied at a very small scale and that, so teaches practice us, has more to do with the procedures than with the techniques. That is why my Nyenrode-colleagues and I have decided to make sustainable care for monuments and other buildings with a great cultural and historic value, our second field of attention. For a year now we have been active for several projects in this field. In many cases we combine the knowledge of procedures of Nyenrode with the technical knowledge of NIBE. An example is a project in Amsterdam for Ring '20-'40 and the Nineteenth Century Ring, in which we try to balance the CO2-reduction ambitions of the city council with the motivations of parties such as the housing associations and the local planning authorities (‘welstandscommissies’). Many houses in Amsterdam, but also in other communities, have a cultural or historical value that should be preserved for the future. With this project we concentrate on eye-catching and historical housing blocks (that were not labelled as a monument) and owned by housing associations.

Our challenge is to help parties find win-win-situations in the field of sustainability and the preservation of cultural and historic values. Within the network that we are founding around this field of attention, we merge the interests of several parties, especially of local councils, we gather knowledge and we share that knowledge. I hereby invite anyone with an interest for this task to join this network.
Finally

Herewith I almost come to the end of my inaugural speech. Gladly I recapitulate its contents for you.

- Through the coincidence of an economical and an ecological crisis we see opportunities for the construction sector.
- We wish to grab these opportunities in cooperation with many parties involved. Our partners are people whom are willing to change their ways of thinking and doing in order to truly grab those opportunities that arise.
- By creating a merger of interests from a sustainable viewpoint, innovative solutions emerge. We focus especially on process innovation.
- A thorough analysis of the needs and motivations of the diverse target groups is a requirement for success. Made to measure is required.
- Through a substantial preparation and analysis of underlying mechanism, we try to make ‘leading through dynamics and complexity’, possible.
• Cooperation is central to our approach since we believe that through such a working manner, the current complex problems may be dealt with and innovations may emerge.

• In order to deal with the complexity of our task, we restrict ourselves in our knowledge and working fields. We develop knowledge in relation to creating business opportunities from a sustainable viewpoint and in the field of cooperation in the entire construction sector. By leading through dynamics and complexity we wish to further develop the concept. Working from our fields of knowledge we are involved with all fields of attention in construction. However, from our specific background, we pay extra attention to the challenge of an accelerated sustainable refurbishment of serially produced existing housing whilst occupied and on making buildings with monumental characteristics more sustainable.

• And with all that, we wish to optimally use the unique opportunities of Nyenrode as Business University. Nyenrode is both a company and a university. The immediate exchange between scientific and practical knowledge and the close cooperation with the business world and the trust we enjoy from the business world, characterizes the university and its Center for Sustainability and my chair.

Finally, as I said at the beginning of this inaugural speech: these times offer opportunities, but gaining financially from sustainability is not an easy matter. It demands courage, perseverance and the strength to deal with disappointments. Thanks to many people that display this courage and have dared to break the so-called ‘circle of blame’ open, the road has been cleared for those that wish to change more gradually. I would like to use this moment to praise all these people. They have paved the way for the future. A future in which all is well for both the economy and ecology. A future that is characterized by ‘the merger of interests’.

Thank you for your attention. I have spoken.
Anke van Hal is Professor Sustainable Building & Development at the Center for Sustainability of Nyenrode Business Universiteit and also Professor Sustainable Housing Transformation at Delft University of Technology, Faculty of Architecture.

In 1989 she graduated at the Department of Architecture at Delft University of Technology. For four years, she subsequently worked for the municipality of Delft in the capacity of Employee Sustainable Building.

From 1993 to 1996 she worked as a senior consultant for the environmental research and design firm BOOM in Delft. During this period she was also involved in the implementation of environmental education at the Architecture Faculty of the TU Delft.

In October 2000 she obtained her doctorate on a thesis entitled ‘Beyond the demonstration project, the diffusion of environmental innovations in housing’.

During her studies she combined her technical work with journalistic activities. In 1995 she and a number of colleagues started the technical journal Sustainable Building (Duurzaam Bouwen). Until September 2005 she was chief editor of this journal, which was later named Pure Building (Puur Bouwen). She was the chief editor of the biannual consumer magazine Pure Living (Puur Wonen) and co-initiator/organizer of the annual Pure Living Relay (Puur Wonen Estafette). She worked as an editor at the internationally oriented English technical journal Sustainable Building.
Between September 2000 and November 2007 Anke van Hal was active as an independent consultant on sustainable building. The main goal of her work was to use market demand to promote environmentally friendly and healthy building and housing products. For a year she lived in the United States to conduct research into the market opportunities for sustainable house-building.

Anke van Hal published several books on sustainable building as well as many articles for national and international technical and scientific journals.
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