

# A Personal Point of View

## Prosperous Innovative Activity in the Construction Industry

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### Construction is a Low-Tech Industry

We are living through a most interesting period in the history of the European construction business. The major events of recent years in the restructuring of Eastern European countries have opened up huge opportunities for the construction industry of Western Europe. On the other hand, the global economic situation has given rise to great uncertainty thereby putting a brake on the growth of construction volume.

Not surprisingly discussions on the technology intensity of the construction industry within the framework described have been very lively. Two topics in particular have come to the fore in the course of discussions: the role of the construction industry in the national economy on the one hand and the aspect of sustainable development on the other.

In some countries the market itself demands new innovations on the part of the construction industry so that it takes into account life cycle costs, health, conservation of nature, pleasant environment and cultural heritage. Traditional solutions no longer satisfy the needs of an educated customer but on the other hand it is difficult to find people willing to pay to develop new innovations. Can we help this development by regulations from authorities? Or do we have to trust in sufficient growth in the number of educated customers?

It is clear that different countries have different operational logic in their construction industry depending on their cultural heritage. And of course there are major variations in the different sectors of construction. But no doubt the common feature is the low technology intensity. The share of R&D is ordinarily less than 1 % of turnover whereas for example the contribution in the cellular 'phone business is on the level of 15 %. (Of course we should not make comparisons between two different businesses in such a simple manner.)

The construction business is, as stated, a typical low-tech industry. Strong bonds with the mechanisms of the national economy inhibit those market mechanisms that are natural to other industries from working. The construction industry is typically fragmented and a synergetic interaction between different parties is occasional, and occurs mainly during projects. On the other hand it can also be said that effective planning of a construction project to produce a unique product is in itself and in most parts R&D work.

Should we organise  
a CIB Round Table?

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And a virtual one at that ...

## **Innovation - Is it Necessary?**

When reflecting on it in a philosophical sense, is a prosperous innovation activity necessary or if it is, is it indeed possible?

Can the construction industry benefit from innovations in its own business?

As to the necessity of innovative work, it is very easy for a person who earns his living from developing the construction industry to reply 'Yes'. Though I must confess that it takes far too much time to translate a good idea into profitable business, that is into a real innovation. This is on the one hand due to fostering "the traditional culture" which is typical for the business, and on the other hand to the rigidity of authority regulations: for example in the EU internal market the common technical approval process for innovative products does not work even today. The construction industry is not willing to give up its traditional processes and products because the risk is imagined to be too high.

### **Threefold Barrier**

As for myself I can discern three essential obstacles to prosperous innovation activity:

1. The most serious obstacle is the inherent ambiguity of the term "customer". The customer of the producer of building materials is the building products industry and its customer in turn is the contractor. The one who finances the final product, in other words the builder, often does not know the needs of the client, that is the user of the building. When the production chain is so fragmented how could the needs of the final client steer the innovation process? Why should the industry develop its products if the clients do not demand it?
2. The other problem is to a great extent a consequence of the above mentioned. The development of construction products lacks a so-called solid innovation chain. The real need of the client (which in many cases can also be latent) coming from the market and the possibilities of the production technology of a product and the demands of the construction site regarding installation do not meet in the product development process. The fragmented production process serves to obscure a real development of the whole.
3. The third problem arises from the typical ways of doing business in the construction industry. In Europe especially it is difficult to make such ways of doing business common where the functional properties of a product would more and more form a factor of competition. Still the competition happens mostly with the price of completing a construction project. The conservative parties in the construction business who stick strongly to their own roles oppose producing new forms of contracting. It is difficult to identify the driving force behind R&D: Why should I invest in R&D if I do not myself benefit from it?

### **Change the Modus Operandi**

An essential launching point for prosperous innovative activity in the construction industry is to change the way of operating throughout the whole business. We have to be able to create attractive final products on the basis of the real needs of customers. These products should above all compete in their functional properties with different alternatives but also especially in housing production they should be in a position to compete with other private consumption. We must create market demand for innovative business!

How can we bring about such a change in the whole operating environment? It is far too easy simply to answer: by increasing the financing of the public sector to R&D. This is, of course, a good thing but what is even more important is to be able to create competitiveness mechanisms leaning on the market forces, which encourage versatile development of the competitiveness of the construction industry. This calls for many and versatile activities.

I am sure that sustainable development will become the dominant philosophy that governs the future of

construction. And this framework provides a sound base for the discussion on how to improve R&D activity in the construction sector. Sustainable development can be thought of as having four simultaneous aspects: economic, ecological, sociological and cultural.

The price of construction is made up of a number of factors, only one of which is the building cost. In the future **life cycle assessment** will assume a much higher profile.

In some countries, most notably Germany, **ecological** perspective is very important, and this applies in construction, too. The healthiness and recyclability of materials, energy consumption of building production and the use of final products, and nature conservation in general are not transient phenomena. Wood construction is already making good use of this ecological climate in its marketing efforts.

How content people are with their living environment is posing an increasingly important challenge for architects. It should be noted, however, that the materials used in construction as well as the architect who makes this possible are important factors from the **sociological** perspective.

Construction is essentially a local activity and so the **cultural linkage** is strong. Cultural linkage is also reflected in building codes - the variability of fire regulations for steel structures in different countries being a good example.

A competitive product range and efficient operations throughout the production chain constitute essential prerequisites for success in construction. It is also important to be able to make uninterrupted links between research and development and actual business strategies and operations.

### **To Summarise:**

- Customer orientation must be increased.
- The value for money point of view must be emphasised.
- Life cycle cost thinking must be introduced to the clients and specifically through information rather than by rules and regulations.
- Products of sustainable development must be produced on a win-win principle. It cannot be accepted that construction with sustainable development is by its very nature more expensive as compared with the present level. The products must be designed so that the construction process itself will be simplified.
- The ways of doing business and the forms of contracting must be developed. Competition must be developed between different product solutions. The productivity of construction should be increased (also the ways to measure the productivity must be developed). We must learn from other industries (e.g. benchmarking, technology watch etc.).
- Technology strategies must be taken as a firm component of the business strategy of construction companies. It could even be considered that the quality management systems include not only the environmental systems but also the systematics of innovative activity.
- We must generate technology programmes that extend over the whole construction cluster which are customer oriented and industry led, and in which the financing share of the public sector reduces the risk threshold to a marked extent (the research programmes of the EU are one example).
- New financing and insurance instruments should be developed to lower the risk threshold as a means to encourage implementation of new innovations.
- The image of the whole construction business must be improved. Otherwise the business cannot compete successfully with high-tech businesses in the career planning of young and talented people.

The management of technological innovations and technology transfer is a very diffuse question. One can claim that innovation activity has not attained a sufficient level today. On the other hand one can also state that progress cannot be achieved by any single act or by simply promoting a spirit of innovation. The only possibility is to create functional preconditions for new innovations which really do

improve both the built environment in the spirit of sustainable development and at the same time serve to enhance the profitability of construction companies.

### **What Place for CIB?**

And what kind of role could CIB play in this context? CIB provides an excellent framework for both concrete work and for philosophical discussions. A host of activities are already going on to improve sustainability and to develop the building process. However, by themselves these activities are not enough.

Obviously it is necessary to have a good platform for interactive discussions between research fora. But if we really want to achieve positive progress we have to include all stakeholders of the construction cluster in these discussions. And not only in discussions - we have to try to influence the real business methods.

I wonder whether it would be a good idea to organise a CIB Round Table? This could perhaps be also a virtual one. Could we create a successful discussion platform on the World Wide Web?

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