

Sustainable Supply Chain for a Sustainable Construction

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Key Words : Supply Chain, Value driven processes and Functional Analysis

Today, obtain new markets or take up a new business challenges is not the matter of a single company but a strong collaboration between companies. While manufacturing companies became aware in the mid 1990s that competition no longer exists at the level of individual companies but at the level of supply chains, construction firms don't consider that they are agents of clusters that still lack collaborative, long term partnering and consequently miss all the advantages it could provide to them. Today the construction sector confirms that a big part of the perturbations to which they are subjected come from a lack of collaborative working and associated means. This paper underlines the necessity for the construction sector to focus on a Supply Chain key principle consisting of upstream integration of those involved in a construction project, allowing each one to understand:

- The value expected in the project and their contribution.
- How processes should be driven by value expected.

Given the considerable debate around environment and sustainability development, the construction industry is entirely involved in this new Sustainable Construction challenge: Classical construction processes generates significant quantities of waste or non added value or rework. An important reason is that construction companies often tend to optimise their own performance thus limiting their ability to improve the global outcomes of building project. This compartmentalized view, opposed of Supply Chain view, is the root cause of poor productivity performance in construction industry and a brake on the sustainable construction.

This paper aims to focus the significant contribution of Functional Analysis, for a supply chain, as means to define and characterize the stakeholder needs in the construction planning. Considering the context and the complexity of the supply chain in construction, Functional Analysis still unknown by construction industry, is an important means of transfer to the right people, at the right time of all needed planning information. All information about the building definition, including environmental and sustainable criteria have to be considered as soon as possible in the built process, by key actors, so that appropriate measures could be taken.

The functional analysis, collaborative work tool in programming phase, segments precisely phases of planning and design and identifies the main functions, functions constraints and the complementary functions of a building. *Primary Function*: This is the function that meets the need. It ensures the delivery of the service rendered. That is why the building has been created. *Function constraint*: The constraint is the limitation on the freedom of choice for designers and directors. It is to identify the conditions which must be verified by the building, but are not its raison d'être. The sustainable construction became a Function constraint which all actors must be subordinated. *Function complementary* function to facilitate, complete or improve service delivery. This type of function is not the result of an explicit request from clients, and is not a constraint. It is imagined with the clients to increase the building value.

The following figure illustrates the value in term of outcomes and is compared to others construction phases. It proves that a minimum investment in planning should have enormous outcomes impact.

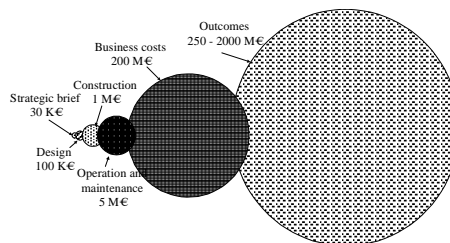


Figure 2: Outcomes : what the customer really needs (Don Ward, 2007)