Is interdisciplinarity the panacea against working in silos?

On July 4, 2012, the European Organization for Nuclear Research (CERN) announced the discovery of a new fundamental particle, which characteristics are compatible with the Higgs boson.

To prove the existence of this fundamental particle, which existence had been predicted in 1964 by Peter Higgs, Robert Brout and François Englert, the CERN had to build the Large Hadron Collider - LHC-a ring of 27 kilometers of diameter, buried 100 meters under the surface, in which protons collide at speeds close to speed light (Abdelalim, A., Ahmed, A. et al. (2012), p.1576). Moreover, scientists had to elaborate ATLAS , a gigantic detector weighting 7'000 metric tons, 44 meters long with a diameter of 25 meters, capable of detecting the Higgs boson, and to integrate it in the LHC structure.

No need to be a nuclear physician or an engineer to figure out the complexity of such a scientific challenge, be it in technical, financial, human as well as political terms (22 countries are members of the CERN, 5 have observers statutes, as well as the European Commission and the UNESCO).

To achieve this objective, Bertand Nicquevert, the engineer in charge of the project with the CERN, had to work in interdisciplinarity.

What is it? What does working in interdisciplinarity mean?

Interdisciplinarity is an epistemological, theoretical, methodological and practical problematic, which addresses all disciplines in their internal operation and which affect them as such, while also forming a field of study in itself, transversal to all disciplines (Darbellay, F. (2017), p. 29 ff).

In other words, and to come back to the ATLAS project, Nicquevert had to realize that the scientific, technical, organizational and geopolitical constraints of this enterprise could only be understood and integrated together by means of a systemic approach, each discipline seeing only a small part of reality. As Chamberlain writes: "All present a logical interpretation but their perceptions are misguided as they are unable to establish an holistic understanding of what they have encountered" (Chamberlain, P. (2010), p.166).

Therefore, the disciplinary borders must open up and let the room to a systemic opening, which is the only way to apprehend reality.

As Nicquevert writes: "Isolated, the physic of particles would never have discovered the Higgs boson" (Nicquevert, B. (2013), p. 186). This incredible scientific discovery was the result of interdisciplinary work, e.g. transcending the border of disciplines.

But is interdisciplinarity a "one size fits all" method?

In a study published in 2015, Mabey and Nicholds bring an interesting reply to this question (Mabey, C., Nicholds, A. (2015), pp.43-54). Starting from the premise that the ATLAS project had been a model of network organization and collaboration in terms of sharing information, they demonstrate that, as

a matter of fact, social codes, tacit organizational norms, hierarchy and competition between scientists, member countries and disciplines were underlying the institutional structure. These observations cast a doubt on the assumption that interdisciplinarity is systematically efficient.

The interest of the observations made by Mabey and Nicholds is that they apply to practically all matrix organizations. When departments and functions of a large company believe that they share information and work in a network model, as a matter of fact they rarely do so. Ego, personal objectives in terms of career, internal politics are most of the time limiting the true knowledge pooling. As a consequence, functions continue to work in silos, although they truly believe that this is not the case. The holistic and systemic vision of the common objective, combined with the trust in each other, is the only way to transcend the barriers between functions and to work in interdisciplinarity, thus solving extremely complex issues. Leadership must be convinced of the legitimacy of this approach and needs to insufflate this new spirit throughout the company.

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