



**POLITECNICO**  
MILANO 1863

**ABC<sup>PhD</sup> DOCTORAL PROGRAM**  
IN ARCHITECTURE BUILT ENVIRONMENT  
AND CONSTRUCTION ENGINEERING

**ABC<sup>PhD</sup> CALL4SCHOLARSHIP 32b**

Research topic T5: REENGINEERING ASSET MANAGEMENT  
BUSINESS PROCESSES

**(32b-T5 Asset Management Business Reengineering)**

# ABC PhD Program – CALL 4 SCHOLARSHIPS 32b

Thematic Scholarship 32b-T5 “Asset Management Business Reengineering”



**POLITECNICO**  
MILANO 1863



## Funding and management of the thematic scholarships

- Number of scholarships: 1 (one)
- Monthly net income: €. 1.016,37 (max 36 months)  
[In case of a change of the welfare rates during the three-year period, the amount could be slightly modified]
- Additional support: Funding for educational activities<sup>(\*)</sup> : €. 1.370 per student [for the 2<sup>nd</sup> and 3<sup>rd</sup> year]
- Starting of PhD activity: 1/11/2016
- Deadline for application to the call: 9/09/2016
- Research Director: prof. Enrico De Angelis
- Research Group: proff. Enrico De Angelis, Fulvio Re Cecconi, Giuseppe Rigamonti (Rigamonti spa).
- Funding and cooperating Institutions: the scholarship is co-funded by Politecnico di Milano, Department ABC and Rigamonti Francesco S.p.A..

(\*) (purchase of study books and material, funding for participation in courses, summer schools, workshops, conferences)

# ABC PhD Program – CALL 4 SCHOLARSHIPS 32b

## Thematic Scholarship 32b-T5 “Asset Management Business Reengineering”

### **Context of the research activity**

All over Europe old building stocks are faced with regulatory practices shifting toward reductions in energy use, with new users' needs and, most of the times, with the request for better economical performances. These stocks are rarely replaced with new and better performing buildings, been the replacement rate of existing buildings by new buildings only around 1.0–3.0% per annum, thus asset management is becoming more and more important in the construction sector also in term of economic impact. Effective control and governance of assets by organizations is essential to realize value through managing risk and opportunity, in order to achieve the desired balance of cost, risk and performance.

Current asset or portfolio management processes do not take advantage of the digital revolution undergoing in many different Industries and stick to old procedures, techniques and tools, thus there is the need for changing the way asset management is done. While Building Information Modelling (BIM) development and its application to date has largely focused on the design and construction phases of assets BIM has an important application across the entire life cycle of assets and is therefore a key enabler of improved asset management within the recognised ISO55000 framework.

# ABC PhD Program – CALL 4 SCHOLARSHIPS 32b

## Thematic Scholarship 32b-T5 “Asset Management Business Reengineering”

### **Motivation and objectives of the research (1)**

Asset management enables an organization to realize of value from assets in the achievement of its organizational objectives. The benefits of an asset management can include, but are not limited to the following:

- informed asset investment decisions and improved financial performance
- managed risk, improved services and outputs and demonstrated compliance;
- demonstrated social responsibility and enhanced reputation;
- improved organizational sustainability, efficiency and effectiveness.

Asset management enables an organization to examine the need for and performance of assets and asset systems at different levels. Additionally, it enables the application of analytical approaches towards managing an asset over the different stages of its life cycle but it requires large set of accurate information. The benefits from an integrated, enterprise-wide and life cycle approach to BIM and Asset Management, will include:

- Greater clarity on long-term in-service performance expectations and on the consequences of design-stage decisions over life cycle performance and cost.
- Reduced project start-up costs due to availability of better information at the beginning of the project.
- Reduced construction and operational costs as a result of reduced construction defects.
- Better lifecycle management from consolidated design and construction information as a single source of data.
- Reduced management process costs arising from incomplete data.

# ABC PhD Program – CALL 4 SCHOLARSHIPS 32b

## Thematic Scholarship 32b-T5 “Asset Management Business Reengineering”

### **Motivation and objectives of the research (2)**

The main objective of the research is to set up an innovative asset management system to provide a structured approach for the development, coordination and control of activities undertaken on assets by the organization.

This should be done taking into account latest development in information management for the for the operational phase of assets. The purpose is to optimize the whole life cost of managing portfolios of assets which can be complex and varied in nature, distributed over extensive geographical areas and may be subjected to differing demand/utilization requirements.

The main objective of the research can be reach through a series of steps (or secondary objectives):

1. Definition of some Key Performance Indicators able to benchmark energy and OM&R (Operation, Maintenance and Repair) behaviour of assets and portfolios.
2. Definition of the structure of a OM&R costs database and its implementation.
3. Organisation of information flows and definition of new asset management procedures.
4. Comparison of the innovative tools, procedures and benchmarks developed with current procedure with the help of some case studies, different for function, extension, age and technologies.

# ABC PhD Program – CALL 4 SCHOLARSHIPS 32b

## Thematic Scholarship 32b-T5 “Asset Management Business Reengineering”

### **Methods and techniques that will be used to carry out the research**

The research will be carried out in close cooperation with the sponsoring company of this research project, this will allow an on field testing of each step of the research and, moreover, a large amount of case studies for data collection. Information management system and related software tool will be widely used in defining new asset management procedures complying to the English standard PAS 1192-3 “Specification for information management for the operational phase of assets using building information modelling”.

The web will be the vehicle of asset information, each stakeholder and operator will access its own share of asset information stored in a central Data Base (used by the sponsoring company) through a web interface to be designed in this research.

The candidate is expected to choose, among the courses offered by both the Politecnico di Milano and the ABC PhD Program, the most useful classes about information management, BIM and IT technologies, according to the main target of the project and his/her training needs.

### **Educational objectives**

The candidate will learn how to deal with real estate complexity, to elaborate raw data coming from assets and portfolios to create reliable benchmarks. It is expected that the candidate will constantly review his/her work in a systematic confrontation with international experts in the field of Construction and Asset Management and Project Control, and will develop a publication record in recognized international journals and conferences.

# ABC PhD Program – CALL 4 SCHOLARSHIPS 32b

Thematic Scholarship 32b-T5 “Asset Management Business Reengineering”

## Skills of the candidate

At the end of the research project the candidate will have acquired skills and expertise to operate in the fields of Real Estate Development and Management, with a direct experience in the field, thanks to the direct interaction with the Construction Company that is co-funding the project. In particular, the experience of the Candidate will be in the development of innovative approaches and in a complete re-engineering of business processes.

The skills that will be are frequently asked by asset and facility management companies, which also claim for an upgrade of their internal standards. This will lead to a high international academic interest, as well as a pull from the industry.

## Job opportunities

OM&R market share in Europe is bigger than the one of new construction, i.e. more Euros are spent on constructed asset than on new projects. Many companies, not only construction and maintenance companies, employ asset managers thus job opportunities aren't limited to the construction sector, in any other industrial sectors companies have asset to be managed.

Besides, the sponsoring company of this research project may want to employ the candidate at the end of his PhD period.