

mgr inż. Andrzej Nagórny

**INVESTMENT PROJECT MANAGEMENT  
IN TERMS OF ECOLOGISTICS  
AND HERITAGE PRESERVATION**

**ABSTRACT**

The importance of knowledge in project management and the difficulties in achieving the aim can be assessed after over ten-year experience at various levels of construction investment projects. The dissertation in its research part describes new specialisations in construction project management in revitalisation and sustainable development, threatened by the predicted energy, ecological and climatic crisis. The rules and conditions to meet result not only from Poland's membership in the EU, but also new development directions of society and scientific and research needs. The author has been working in environment protection and monuments conservation in investment since 1992, more intensively since 2005. Experience in construction management on various levels and continuing education in management proved variability of investment project execution.

The dissertation is composed of six chapters. Each of them is a separate study, a whole in itself, concerning construction management with consideration for the latest world's trends.

Chapter one presents the state of knowledge on management with the following methods: quality and cost and safety at work management. It presents the existing definitions of project, interdisciplinary aspects and scientific and practical connections between production process and logistics.

Chapter two shows two systems of construction waste recycling in ecologicistic aspect. Historic backgrounds, list of processes and components of environmental management form a chain which can lead to sustainable development in construction. The main aspect of recycling in investment process takes into consideration the potential of project management in investment process. Such directions of eco-friendly society development will ensure the well-being of future generations and help improve the quality of life of the contemporary ones. The environment is helpless against the waste we produce and growing energy consumption.

Chapter three presents the area of heritage protection in science, history and revitalisation. Heritage protection is the duty of every state and its citizens, and the scope and character of those duties are defined in many legal regulations. The maintenance and renovation of monuments was known and applied in ancient times, Middle Ages and

contemporary era. Monuments were renovated a long time ago. In ancient times and Middle Ages the idea of renovation works greatly differed from technologies used now. Revitalisation is aimed at improving living environment and preserving heritage while keeping the principles of sustainable development.

The author presents analyses, studies and the most reliable results of investment project management evaluation as well as a management model and scientific techniques with consideration for sustainable development, ecological safety and revitalisation. It presents the quality in the construction life process, quality of the environment, ecologistics and heritage preservation. The project management methods studied by the author are connected with the plans, standards and best practices used so far, as well as project definitions from scientific and technical literature.

Chapter four shows a scientific approach and assessment of management techniques and tools for revitalisation projects and sustainable development. An important aim of the dissertation is questionnaire study and case studies, which include industrial, scientific (also educational) and commercial projects (trade and services). Intensive improvement of task or construction project or investment management are connected with strategic management and logistics. The data from the questionnaire helped to define the directions of further research and assumptions in innovative management of construction investment projects at a project management phase.

The questionnaire answers, study and assessment as well as literature data and professional experience helped to create the following study questions.

*Study question no 1:* Is validation of ecologic and revitalisation construction processes a synergy of the quality of ecologistics and revitalisation?

*Study question no 2:* Is a non-stream construction process an innovative management of construction investment?

*Study question no 3:* Does investment management in terms of revitalisation and ecologistics lack of use of well-known and used in science investment management techniques?

*Study question no 4:* Is the theory of constraints a strategic element in construction organisation and buildings use?

Chapter five contains the results of studies, case studies and investment projects in terms of heritage preservation and ecologistics. Case studies in management included: Teatr Wielki, Łódź, University of Technology, Łódź (*Fabryka Inżynierów XXI wieku* and “Lodex” – a three-faculty building).

The dissertation finishes with an analysis and results of comprehensive studies. The results of a studies on a number of investments of various capacity and purpose, located on changeable soils, are some components of assessment. The study results prove that investment management systems used in industry are not used in building investment management, as they cannot be implemented.

In the part of the dissertation dedicated to research study cases of particular investments are analysed. A concept of creating universal methods and systems of scientific significance was created. They could be implemented in construction. The author defines problems, described new methods and models which positively influence the performance of complex investment processes.

Chapter six sums up the previous ones and presents models of project management in terms of logistics and heritage preservation. The author analysis study results, defines the grounds, aim and justifiability of creating modules to solve limitations in project management. A model of implementing innovative management methods and possibilities offered by using logistics in investment is presented.

The results in tables provided knowledge for further studies to prove plausibility and grounds for dealing with project management in logistics.

One of investment motives is globalisation, which generates an intensive flow of technologies to meet customer's needs. Construction market encounters a growing number of project tasks, which lead to new project and contracting services. The plan of investment management in revitalisation and ecologistics proved no possibility to use the management techniques known and used in science. A key element in investment project management is organisation and choice of management executives, which in part confirms the art of achieving aims by Richard Newton. It provides clues and interpretation of the latest trends in project management, presents the basis and directions as well as guidelines for their application.

A project execution needs comprehensive quality tools in every part of construction work and deliveries of materials, in line with technologies required by the project. Implementing new plans in non-stream production in building will generate savings, if parallel solutions are implemented with TOC. Legal problems were defined (systems location in legally limited zones; architectural solutions (compliance with building law and other acts of law). The author suggests implementing a line programme along with BIM Org, not used so far.

Investment project management involves all areas of science and practice. The systems adopted now do not include project management theories. Project managers should know management theory, in particular the risk in delivery chain.

Further studies should be aimed at creating an innovative, interactive programme based on positive and negative experience and implementing new and original management systems in construction, e.g.:

- 1) A spatial (virtual) project management programme connected with ecologistics and heritage in Org.bim.xd. (alternatively Bim.org.x);
- 2) TOCwB – a new strategy in construction project management;
- 3) Adjustment papers and programmes in ecologistics, heritage preservation and management for construction faculties at universities.

So the management should be educated to help them complete theoretical basic of economics, which is key to risk assessment in projects.

Research and assessment indicate many negative factors in building investment projects, resulting from non-use of systems known in organisation and management science. This generates many financial and environmental losses. Ecological tasks and heritage preservation can be executed by improving Poland's building image, which is not possible without the right investment project management.