



LIFETIME ENGINEERING

of Buildings and Civil Infrastructures



Objectives of NATIONAL DISSEMINATION GROUPS in Thematic Network Lifetime:
National information, demonstration, education and training of lifetime engineering

Demonstration project of lifetime engineering in LITHUANIA :

- **Vilnius Gediminas Technical University introduced “Building Life Cycle and its Multiple Criteria Analysis” module in e-learning master’s degree programmes “Construction economics” and “Real Estate Valuation and Management”** (<http://odl.vtu.lt>). The preparation of the subject was made with reference to the experience gained in the project. Currently 136 employees of Lithuanian companies are taking in above two Distance Learning studies. The module “Building Life Cycle and its Multiple Criteria Analysis” includes:

- o printed book,
- o electronic format of the book,
- o video material,
- o audio material,
- o computer learning system,
- o intelligent testing system.

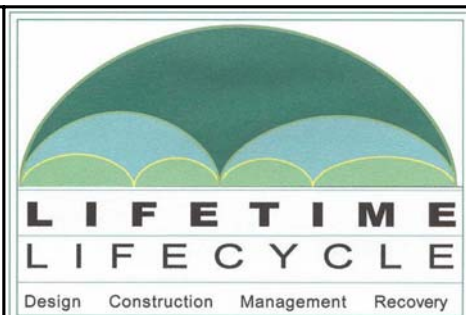
- **A Model for a Complex Analysis of a Building’s Life Cycle was developed.** The model’s objective is an analyzes of a building’s life cycle, interested parties who are striving to attain their goals and the micro and macro environment that makes up the integral whole. Various interested parties (clients, users, architects, designers, utilities engineers, economists, contractors, maintenance engineers, building material manufacturers, suppliers, contractors, finance institutions, local government, state and state institutions) are involved in the life cycle of a building and try to satisfy their needs and affect its efficiency. The efficiency of the life cycle of a building depends on the influence of many complex macro level factors (e.g. policy executed by the government, legal and institutional infrastructure, physical infrastructure, financial sector, environment issues, unemployment, interest rates, inflation, innovations and exchange rate). The efficiency level will therefore, vary depending on the aggregate effect of these macro level factors. The efficiency level of the life cycle of a building also depends on various micro level factors (e.g. sources of company finance, information system of construction, types of contracts, construction employers associations, education and training, brief, designing, manufacture, construction and maintenance processes, etc.). The problem is how to define an efficient building’s life cycle when many various parties are involved, the alternative project versions add up to hundreds of thousand and the efficiency changes with the alterations in the environment’s conditions and the constituent parts of the process in question.

- **Decision Support System for Building Life Cycle has been developed.** The stakeholders of building life cycle referring to develop system and database of the best practice would be able to estimate the most suitable variants for them. The presented System enables one to form up to 100,000 alternative versions and allows one to determine the strongest and weakest points of each building’s life cycle and its constituent parts. Integrated databases consists of the following parts:

- o Initial databases. These contain the initial data provided by various interested parties allowing to carry out a complex design of the whole building life cycle or its parts.
- o Evaluation databases, containing integrated explicit and tacit information provided by interested parties allowing to get a full description of the alternative variants. Based on the evaluation databases multiple criteria analysis of a building life cycle and its stages is carried out.
- o Multivariant design databases consisting of integrated explicit and tacit information about possible combinations of the alternative variants available.

Principal contractors of Thematic Network LIFETIME:

- VTT Technical Research Centre of Finland, FI
Coordinator Prof. Dr. Asko Sarja, asko.sarja@vtt.fi
- Taylor Woodrow Construction Ltd, UK
- CSTB Centre Scientifique et Technique du Bâtiment, FR
- Imperial College of Science Technology and Medicine, UK
- Universität Karlsruhe, DE



Thematic Network LIFETIME in figures:

- Working period: 1/6/2002 - 31/5/2005
- Participation: 96 partners from 28 countries
- Plenary workshops: 2002 Norway, 2003 Finland and 2005 France
- 25 National Dissemination Groups
- Funding from 5th Framework Programme:
Competitive And Sustainable Growth (GROWTH) Programme



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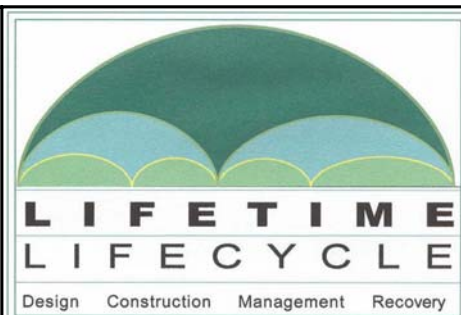


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