

**A LIFE DEDICATED TO SCIENCE:  
ON THE OCCASION OF THE 70<sup>TH</sup> BIRTHDAY OF EDITOR-IN-CHIEF  
EDMUNDAS KAZIMIERAS ZAVADSKAS**

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## Introduction

Born on the 12 May 1944, Professor Academician Edmundas Kazimieras Zavadskas, Editor-in-Chief of the *Journal of Civil Engineering and Management*, celebrates his 70<sup>th</sup> birthday.

Professor E. K. Zavadskas, Member of the Lithuanian Academy of Sciences, winner of the Lithuanian Science Award in Technical Sciences (awarded in 1996 and 2004) is a reputed scholar with many years of editorial experience. He is the founder of the Journal and has been serving in the position of the editor-in-chief from the beginning of the Journal publishing in 1995, i.e. this is his twentieth year. During this period of hard work and due to enormous efforts of the Editor-in-Chief, the Journal has achieved remarkable results: it has become abstracted/indexed by several international databases; it has obtained the Impact Factor, the number of submissions as well as publishing frequency increased, and its internationalization and visibility expanded in the international academic world.

On the occasion of Editor's jubilee, editorial staff of the Journal wants to dedicate this short overview of his biography and especially – his research activities in the field of civil engineering.

## 1. On the way to science heights

Born in Vilnius, Lithuania, and having been deported with his parents to Siberia during the Soviet times, E. K. Zavadskas returned to his motherland. Having suffered political exile, E. K. Zavadskas persistently aspired to obtain knowledge and education. Having overcome many political and everyday life obstacles, he finally became a civil engineer (first degree in Construction Engineering in 1967). His career started at a laboratory of Vilnius Branch of Kaunas Polytechnic Institute (now Vilnius Gediminas Technical University, VGTU) in 1968. After two years of work there, he took a postgraduate degree study course in building structures.

In 1968, E. K. Zavadskas became an assistant; in 1974 – lecturer; in 1977 – associate professor; and in 1988 – a professor. In 1990, Professor E. K. Zavadskas became Rector of Vilnius Civil Engineering Institute (VISI). He successfully reorganized the Institute to Vilnius Gediminas Technical University (VGTU) and became its Rector for the period of 1996–2002. In 2002–2011, he was Vice-Rector of VGTU.

1986–1990 and since 2001 till now, Professor E. K. Zavadskas has been Head of the Department of Construction Technology and Management, VGTU.

## 2. The evolution of scientific thought

### 2.1. Earlier activities as a young researcher

During the earlier period of research in 1969–1972, E. K. Zavadskas mainly focused on doctoral studies in the field of the actual problem of structural engineering for improving concrete and reinforced concrete and gluing of concrete elements. These research efforts resulted in his doctoral thesis, which was successfully defended in 1973.

When preparing the thesis, a young researcher proved to be a true inventor, able to master innovative research and data processing methods. Already at this stage, the characteristic feature of the scientist was revealed in published scientific papers. Main publications of the period comprise: Kamaitis *et al.* (1969, 1971, 1972), Kamaitis and Zavadskas (1970), Zavadskas and Kamaitis (1973), Zavadskas *et al.* (1974).

### 2.2. Optimization of decisions in construction

“At some point, the question has to be asked: Has the former eastern European countries anything of value to offer in this field? Are they ahead of the West? On the evidence of this book (i.e. Zavadskas *et al.* 1994) the answer is clearly big YES. ... Lithuania at least has made great strides. ... The spectacular developments in practice in this field as described in the book offer a golden opportunity to those in the West committed to a more participative, socially orientated approach to construction project decisions, and to which multicriteria evaluation is eminently suited” (Skitmore, Kozan 1997).

E. K. Zavadskas started working at the Building Technology Department of Vilnius Civil Engineering Institute (at present – Vilnius Gediminas Technical University) in 1973. Resuming his previous research on polymeric materials, he expanded his research field by including technology problems, closely connected with monolithic concrete. For the analysis of building construction methods, he applied modern calculation techniques and, finally, concentrated on design of automated construction technology process. This provided him with possibilities of finding essential new directions in optimization of technological decisions.

As a result, many research papers and other scholarly works have been published in the area. In 1987, E. K. Zavadskas defended his Dr. Sc. Dissertation “*Multicriteria Decision Making in Construction*” (Zavadskas 1987a). The list of publications consisted of 193 sources, including a monograph, a dozen of textbooks and manuals and numerous scholarly papers.

Results achieved during his fourteen years of work were summarized in Zavadskas (1987b) and Zavadskas (1991).

Since 1987, E. K. Zavadskas continued his research in optimizing constructions, technologies and organisations. At first, a selection of decision-making solutions dominated in his research. He developed some elements of rational decisions theory. Multiple criteria decision-making methods were applied for solution of different construction tasks. These methods were used for development of decision support systems. Later, Zavadskas

and his team developed new methods and software for performing multiple criteria analysis. The methods were applied in such areas as building life cycle, quality control of construction projects, sustainable development in civil engineering, etc. Many journal papers have been published.

The achievements have been summarized in a number of individual monographs or in collaboration with colleagues (Zavadskas 1991, 2000; Zavadskas *et al.* 1994, 1995, 1999, 2001a, 2004; Zavadskas, Kaklauskas 1996, 2007; Peldschus, Zavadskas 1997; Kaklauskas, Zavadskas 2002, 2010, 2012, 2013; Ustinovičius, Zavadskas 2004).

The number of textbooks for teaching purposes have also been published (Kriukelis *et al.* 1981; Zavadskas *et al.* 2000, 2001b, 2006, 2007, 2008, 2009; Ustinovičius *et al.* 2006; Kaklauskas *et al.* 2012b).

## 3. Latest achievements

### 3.1. Published research papers

Professor E. K. Zavadskas continuously develops new and researches existing multiple criteria decision-making methods as well as their application in civil engineering. The main results in civil engineering have been published in highly ranked international journals, entering the first and the second quartile (Q1, Q2) in “Engineering, Civil” category of the Institute for Scientific Information (ISI) Web of Knowledge Journal Citation Reports.

During the last ten years, the number of highly ranked publications in civil engineering, grouped according to publishers and journals, is as follows:

- Elsevier – 27 papers, including:
  - *Archives of Civil and Mechanical Engineering* (9 papers),
  - *Automation in Construction* (4 papers),
  - *Engineering Applications of Artificial Intelligence* (4 papers),
  - *Energy and Buildings* (4 papers),
  - *Expert Systems with Applications* (4 papers),
  - *Building and Environment* (2 papers);
- Taylor & Francis – 9 papers (*Journal of Civil Engineering and Management*);
- Vilnius Gediminas Technical University “Technika” – 5 papers (*Baltic Journal of Road and Bridge Engineering*);
- Willey – Blackwell (*Computer Aided Civil and Infrastructure Engineering*, 1 paper),
- *IEEE Transactions on Neural Networks and Learning Systems* (1 paper).

The above mentioned papers are available on the Web; detailed references for every paper in a ten years period are not provided.

Some of the most important publications in civil engineering produced during last two years deserve to be mentioned individually, i.e. Zavadskas *et al.* (2012a, b, 2013), Fouladgar *et al.* (2012), Peldschus and Zavadskas (2012); Kaklauskas *et al.* (2012a), Skibniewski and Zavadskas (2013), Turskis *et al.* (2013), Staniūnas *et al.* (2013), Yazdani-Chamzini *et al.* (2013).

Scholarly papers produced by Professor Zavadskas are of great interest to the scientific community and are highly cited by other researchers. E. K. Zavadskas is placed on the preliminary list of Highly Cited Researchers (<http://community.thomsonreuters.com/t5/InCites-Customer-Forum/Preliminary-publication-of-new-lists-of-Highly-Cited-Researchers/td-p/36685>), which is established by the Centre for World-Class Universities in Shanghai Jiao Tong University and Thomson Reuters. Table 1 provides data on citation of papers authored by Professor E. K. Zavadskas.

Table 1. Published and cited papers in ISI Web of Science database (assessed on the 1<sup>st</sup> of May, 2014)

Results	All items	From the category "Engineering, Civil"
Published papers	238	141
Number of the Times Cited	3493	2098
h-index	36	26

### 3.2. Supervised dissertations

Prof. Zavadskas started supervising PhD students after defending his Dr. Sc. dissertation. During the period 1987–2014, he prepared 34 Candidates of Technical Sciences (T. M. K., before 1992) or Doctors of Philosophy (PhD since 1993), including 31 in Civil Engineering, also 2 in Engineering Informatics and 1 in Social Sciences.

It should be mentioned that four of them became Full Professors. These esteemed Professors as well as some Associated Professors, formerly supervised by Prof. Zavadskas, have already had the privilege of supervising PhD students. The second level of the scientific school of Academician Professor Zavadskas consists of 27 PhDs. Still, there has been the third level of the scientific school and one PhD Thesis was defended in 2012.

The scientific school involves researchers not only from Lithuania, but also from Denmark, Germany, Belarus and the United Kingdom.

Three levels of the scientific school of Professor Zavadskas are presented in Figure 1, as the study conducted by Tamošaitienė (2014) suggests.

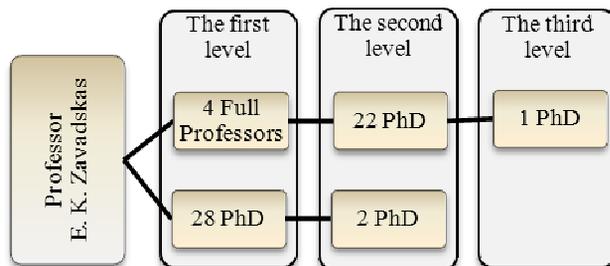


Fig. 1. The scientific school of Professor Zavadskas

### 3.3. Honorary titles, awards

The main Honorary titles, membership of the Academies of Sciences, awards and official appreciations for research and social activities of Professor Academician Zavadskas are listed below:

- Selected into the list of Highly Cited Researchers, Thomson Reuters, 2014;

- Honorary Professor of the National Taipei University of Technology, Taiwan, 2012;
- Full member of the Lithuanian Academy of Sciences, 2011;
- Honorary doctor (Computer Science), Herzen University (St. Petersburg, Russia), 2003;
- Honorary doctor (Civil Engineering), National Aviation University (Kiev, Ukraine), 2003;
- Honorary doctor (Civil Engineering), Poznan Technological University, 2001;
- Foreign member (academician) of the Russian Academy of Engineering, 2001;
- Corresponding Member of the Lithuanian Academy of Sciences, 1993–2011;
- Expert member of the Lithuanian Academy of Sciences, 1991–1993;
- Foreign member of the Russian Academy of Architecture and Construction Sciences, 1996;
- Award of Honour of the Lithuanian Association of Civil Engineers, 2010;
- Award of Honour for the Builder of Lithuania, the Lithuanian Construction Association, 2007;
- Lithuanian Science Award for research achievements in Technical Sciences, 2004;
- Award of the Parliamentary Assembly of Lithuania and Poland, 2004;
- Lithuanian Science Award for research achievements in Technical Sciences, 1996;
- the 4<sup>th</sup> Class Medal of the Lithuanian Grand Duke Gediminas, 1996.

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