ISSN 2029-4913 / eISSN 2029-4921



2014 Volume 20(2): 184–192 doi:10.3846/20294913.2014.937585

Review

# 70<sup>th</sup> ANNIVERSARY OF THE BIRTH OF ACADEMICIAN EDMUNDAS KAZIMIERAS ZAVADSKAS

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### Introduction

Born in Vilnius on 12 May 1944, the Academician and Professor Edmundas Kazimieras Zavadskas turned 70. He is the founder and the Editor-in-Chief of the Journal "Technological and Economic Development of Economy" (TEDE). To honour the Professor on this occasion, the editorial staff of the Journal TEDE issued this short biographical overview.

As a sole author or co-author, Professor Zavadskas has published over 50 books, including 5 textbooks and 16 monographs, 10 popular science books, over 400 research articles as well as several hundreds of articles on various social and cultural topics. He has edited over 20 collective volumes. About 20 papers have been nominated as Hot Papers in Thomson Reuters database. Professor is one of the most cited scientists in Eastern Europe.



Thirty-four PhD dissertations have been defended under the supervision of Prof. Zavadskas and four of his former students have been awarded the title of Full Professor.

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#### 1. A biographical note

Prof. Zavadskas took his first steps down the path of education in Vorkuta (Russia), where he attended a seven-year evening school for workers, from which he graduated in 1959. Next, he continued his education in Dūkšto Secondary School, Ignalina District (Lithuania). After graduating from the school in 1962, Prof. Zavadskas entered Kaunas Polytechnic Institute as a part-time student. In 1963, he moved to Vilnius Branch of Kaunas Polytechnic Institute (VB KPI, now - VGTU). After he was awarded his first degree in Construction Engineering in 1967, he took the position of a mathematics teacher at Gubava Secondary School, Ignalina District (September 1962 - July 1963). During his further studies, he also joined the team of Vilnius and Utena Construction Trusts (September 1963 - August 1964). Since January 1968 to November 1968, he worked as a senior laboratory assistant at the Department of Building Constructions. From November of that year to December 1969, he headed the laboratory of the Department of Mechanics of VB KPI. Soon after, Prof. Zavadskas became a doctoral student at the Department of Construction Technology; and finally in 1973, he became the Candidate of Technical Sciences (Dr) of Vilnius Civil Engineering Institute (VCEI, now - VGTU). The Department of Construction Technology had the privilege of seeing Prof. Zavadskas in the capacity of an assistant (January 1973 - September 1974), senior lecturer (September 1974 - January 1977) and Associate Professor (January 1977 - February 1985). Then during the period February 1985 - February 1987, Prof. Zavadskas conducted a research to attain the Doctor sc. Degree (post-doctoral studies) as a senior research worker of VCEI and became Doctor of Technical Sciences (Dr Sc., Moscow Civil Engineering Institute, 1987). Since February 1987 to February 1990, he headed the Department of Construction Technology of Vilnius Civil Engineering Institute (VCEI) as an associate professor and full professor. In February 1990, Prof. Zavadskas became Rector of Vilnius Civil Engineering Institute. In February 1990, Prof. Zavadskas became Rector of Vilnius Civil Engineering Institute. By initiative of Prof. Zavadskas, VCEI was reorganised into Vilnius Technical University (VTU) in October 1990 and Professor became its Rector. In August 1996, Vilnius Technical University was awarded the name of Gediminas. Prof. Zavadskas continued as Rector of this institution till August 2002. Meanwhile in 1993, Prof. Zavadskas became Dr Habil. of Technical Sciences, VGTU. In addition, he was a Member of the Research Council of Lithuania (1994–2000) and Vice-Rector of VGTU (September 2002 - September 2011).

Currently, Professor is Head of the Department of Construction Technology and Management, VGTU, (since September 2001) and Chief Researcher at the Research Institute of Internet and Intelligent Technologies (September 2010–2013). Since 2014, Professor is Chief Researcher at the Research Institute of Smart Building Technologies.

It must also be underlined that Prof. Edmundas Kazimieras Zavadskas is founder and Editor-in-Chief of "Journal of Civil Engineering and Management" and co-founder and Editor of the scientific journal "International Journal of Strategic Property Management" (both are referred by Thomson Reuters Web of Science Database). In addition, Professor is member of editorial boards of 34 different publications.

One can find detailed biography and activities of Prof. Zavadskas in books (Nakas *et al.* 2002; Liekis, edit. 2004, 2014).

## 2. Research activities

Prof. Zavadskas is co-author of "The strategy of construction sector development till 2015" and "Feasibility study, vision and development of the strategic research plan of the Lithuanian construction technology platform for 2007–2030".

Professor acted in his capacity as researcher in following projects: in 2004–2007, project "Bringing retrofit innovation to application in public buildings (BRITA in PuBs)" under the Sixth Framework Programme of the European Commission, 23 international partners. In 2003–2005, project "Global education in manufacturing – EUROPE" (GEM – EUROPE) under the Fifth Framework Programme of the European Commission, 14 international partners. In 2001–2004, Shared-cost RTD project "Promoting Innovation in Construction Industry SMEs" under the Fifth Framework Programme of the European Commission, 6 international partners. In 2001–2005, the project "Sustainable construction" under the Fifth Framework Programme of the European Commission, 6 international partners. In 2001–2005, the project "Sustainable construction" under the Fifth Framework Programme of the European Commission (Prof. Zavadskas was appointed to supervise the project on behalf of VGTU).

## 3. Published research papers

Most researches authored by Prof. Zavadskas focus on the theory of multiple criteria decision-making and its application in different areas (Kaplinski *et al.* 2014; Kaplinski 2009). The main results in social sciences have been published in international journals under "Social Sciences" category of the Institute for Scientific Information (ISI) Web of Knowledge Journal Citation Reports.

During the recent years, the number of publications in social sciences, grouped according to publishers and journals, is as follows:

Elsevier – 4 papers, including:

Computers & Education (Kaklauskas et al. 2010),

European Journal of Operational Research (EJOR) (Zavadskas et al. 2004),

Omega (Banaitienė et al. 2008),

Land Use Policy (Kaklauskas et al. 2011).

Taylor & Francis – 48 papers, including:

Technological and Economic Development of Economy (20 papers) (Zavadskas, Turskis 2010, 2011; Brauers, Zavadskas 2010; Hajiagha *et al.* 2013b),

Journal of Business Economics and Management (15 papers) (Zavadskas *et al.* 2008, 2010; Keršulienė *et al.* 2010),

International Journal of Strategic Property Management (13 papers) (Mickaitytė *et al.* 2008; Brauers *et al.* 2013; Kracka, Zavadskas 2013; Kalibatas *et al.* 2012).

Vilnius University (Transformations in Business & Economics, 10 papers) (Brauers *et al.* 2007; Kaklauskas *et al.* 2009; Brauers, Zavadskas 2013).

Kaunas University of Technology "Technologija" – 10 papers (Inžinerinė ekonomika – Engineering Economics) (Zavadskas *et al.* 2010).

Academy of Economic Studies (Economic computation and economic cybernetics studies and research, 5 papers) (Fouladgar *et al.* 2013; Zavadskas *et al.* 2013).

Juraj Dobrila Univ. Pula (Ekonomska istraživanja – Economic Research, 4 papers) (Yazdani-Chamzini *et al.* 2012b).

Technická Univerzita v Liberci (E&M Economie a management, 3 papers) (Brauers, Zavadskas 2012)).

Inderscience - 2 papers, including:

International Journal of Environment and Pollution (IJEP) (5 papers) (Zavads-kas et al. 2007).

International Journal of Technology Management (Zavadskas et al. 2009).

Wiley-Blackwell Publishing (Computer-aided civil and infrastructure engineering (Za-vadskas, Vaidogas 2009).

IEEE Transactions on Neural Networks and Learning Systems (Raudys et al. 2010).

The above mentioned papers are available on the Web. Some of the most important publications in social sciences produced during last few years deserve to be mentioned individually, i.e. Yazdani-Chamzini *et al.* (2013), Hashemkhani Zolfani *et al.* (2013a, b), Hajiagha *et al.* (2013a, c), Aghdaie *et al.* (2013a, b, c), Yazdani-Chamzini *et al.* (2012a), Fouladgar *et al.* (2012), Dadelo *et al.* (2012), Antuchevičienė *et al.* (2012), Zolfani *et al.* (2012).

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

Results	All items	From the category "Social Sciences"
Published papers	239	109
Number of times cited	2554	1536
h-index	37	24

Table 1. Published and cited papers in ISI Web of Science database

#### 4. Other achievements

#### 4.1. Honorary titles, membership in academies of sciences

Prof. Zavadskas was Expert Member (1991–1993), then Corresponding Member (1993–2011) and Full Member (since 2011) of the Lithuanian Academy of Sciences. Professor is member of the International Management Academy since 2005 and member of the International Academy of Informatics since 1997. Prof. Zavadskas is Foreign Member (academician) of following institutions: the Russian Academy of Engineering, 2001; the Russian Academy of Architecture and Construction Sciences, 1996.

Since 2012, Prof. Zavadskas is Honorary Professor of the National Taipei University of Technology, Taiwan.

Moreover, Prof. Zavadskas is Honorary Doctor of: (Computer Science), Herzen University (St. Petersburg, Russia), 2003; (Civil Engineering), National Aviation University (Kiev, Ukraine), 2003; (Civil Engineering), Poznan Technological University, 2001.

### 4.2. Awards, diplomas and distinctions

Since 1996, Prof. Zavadskas is chevalier of the 4th Class Order of the Lithuanian Grand Duke Gediminas. In the same year, he received the Lithuanian State Award for research achievements. In 2004, Professor also received the Lithuanian award for research achievements (with professor Artūras Kaklauskas) for a cycle of works entitled "Modelling in construction (methods, simulation, decision support and information systems, web-based technologies, practical application)" (1996–2003); and the award of the Parliamentary Assembly of Lithuania and Poland.

Professor was also decorated with the 1st Class Cross "Artimo pagalbon" in 2000; Medal "Integral Humanism" awarded by Polish magazine "Lithuania" and Lithuanian magazine "Kultūros barai" in 2000; Memorable Badge "80th anniversary of the Ministry of Interior" for contributing to strengthening of law and order, 1999; Badge "Tëvynės labui" awarded by the Lithuanian Ministry of Interior, 1996; and Silver Medal awarded at the Exhibition of National Economics Achievement, Moscow, 1987.

Prof. Zavadskas won a number of prizes: VGTU prize (second place) for textbooks "Building construction technology" and "Organisation of construction", 2006; VGTU prize (first place) for monographs "Decision support systems in construction" and "Multicriteria analysis of building life cycle", 2005; incentive prize of the Lithuanian Ministry of Education and Science for textbook publishing, 2004; and the prize awarded by the Ministry of Environment in 1996.

Prof. Zavadskas was also awarded UNESCO UICEE diploma and a silver badge for contributions to training of engineers in 1997; two honorary diplomas of the Ministry of Higher Education of USSR for successful supervision of student research works awarded by gold medals (1978, 1979); honorary diplomas of the Lithuanian Ministry of Higher and Special Secondary Education for successful supervision of student research works in 1977 and 1978; and the honorary diploma of the Scientific-Technical Association of USSR in 1976.

### 4.3. Activities in professional organisations

Prof. Edmundas Kazimieras Zavadskas is Chairman of the working group and the publisher of the journal of EWG–ORSDCE, OR in Sustainable Development and Civil Engineering (EURO). In addition, he is a member of following organisations: the Committee of Construction and Hydroengineering of the Polish Academy of Sciences, 2001–; the International Association for Bridges and Structural Engineering (IABSE), 1998–; the International Council for Research and Innovation in Building and Construction (CIB); the European MCDA working group (EURO). Professor is President of the Lithuanian Alliance of Experts in Building and Projects, 2000. Prof. Zavadskas is one of the founders of Adam Mickiewicz foundation aimed at fostering Lithuanian and Polish relations and the founding member of the International Academy of Information Technology and Quantitative Management (IAITQM), established on 30 June 2012. He is also an expert of the Cooperation Bureau for Economic Research on Eastern Europe, Berlin.

Prof. Edmundas Kazimieras Zavadskas is a former President of the Lithuanian Operational Research Society, 2001–2011; President of Operational Research Society of the Baltic States, 2003; member of the Lithuanian Scientific Awards Committee, 2000–2002, 2006–2009; member of the Conference of Lithuanian Rectors, 1994–2002; and member of the Conference of the Baltic States' Rectors, 1995–2002.

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