

GEORGE RZEWSKI**Emeritus Professor, Complexity and Design Research Group, The Open University, Milton Keynes, United Kingdom**

George Rzevski is an academic, entrepreneur and consultant.

Until 1999 George was a full-time academic and Professor in Department of Design and Innovation at The Open University, UK, where he was Director, Centre for the Design of Intelligent Systems. His Centre was well funded by grants from government, European Union and industry and his Department was rated 5 out of 5 in the two UK Research Assessment Exercises.

Upon his retirement as a tribute to his successful research career, the University established “The George Rzevski Complexity Laboratory”.

During the last 15 years George founded a network of companies in the UK, USA, Germany, Finland and Russia, specialising in research, design and implementation of large-scale complex adaptive software tools aimed at helping organisations to become adaptive and to identify and eliminate causes of disruptive events. The most successful tools for adaptation developed by George’s teams have been real-time schedulers, capable of rapidly identifying disruptive events, assessing the scope of disruption and re-scheduling available resources to eliminate consequences of the current disruptive event before the next one occurs.

George’s complex adaptive schedulers are currently successfully used for logistics supporting the delivery of astronauts and cargo to the International Space Station, the management of crude oil transportation by seagoing tankers (10% of the world capacity), a taxi service consisting of 2000 diverse vehicles in London, cargo road transport management across Siberia, train scheduling for the busy mainline St Petersburg - Moscow, the allocation of car rentals to clients across UK, distribution of Coca Cola products in Germany and many others.

In March 2014, he published with his close collaborator, Petr Skobelev, a book summarising 15 years of their entrepreneurial activities, entitled *Managing Complexity* (WIT Press, Southampton and Boston, available from Amazon). The book contains conceptual foundations of Complexity Science illustrated by many complex commercial case studies.

Managing organisation complexity: Practical methods and tools for adaptation and causality analysis

Since the beginning of the 21-st century, complexity of the geopolitical, social, economic and technological environments, in which we live and work, increased rapidly to unprecedented levels affecting lives and working conditions of the increasing number of world citizens.

To prosper under conditions of complexity we need to develop a mindset, supported by methods and tools, for perceiving complexity as an opportunity rather than as a threat and we must learn how to manage complexity.

Two important aspects of complexity management will be singled out in this talk: (1) how to establish causality and (2) how to adapt to our ever-changing environment

The speaker will describe fundamental principles of intelligent software tools that can help organisations to eliminate a drift into failure – the accumulation of small, individually insignificant errors that in time causes the occurrence of extreme disruptive events such as the global financial collapse of 2008. Speaker's causality analysis tools in addition to identifying and eliminating certain causes of failure in complex real-life situations, also prevent the propagation of those disruptions that for some reason escaped detection.

For cases where environment dynamics is such that there is no time for causality analysis, there are tools for adaptation. These tools are effective not only in eliminating consequences of frequent unpredictable disruptive events but also in defending organisations from fraud and cyberattacks. They increase resilience of organisations.