

IN PRAISE OF SMALL MODELS

Sally C. Brailsford¹

¹Southampton Business School, University of Southampton, UK

ABSTRACT

Over the course of my 35-year academic career, simulation models have gotten bigger and bigger, due to the exponential growth in computing power and the increased availability of large datasets. This trend has culminated in the current popularity of so-called “digital twins.” The scientific definition of a digital twin is open to debate, but according to Wikipedia a digital twin is “a digital model of an intended or actual real-world physical product, system, or process that serves as the effectively indistinguishable digital counterpart of it for practical purposes.” In this talk I challenge the usefulness (indeed, the point) of such massive models and argue that based on my experience in healthcare applications, small models can often be far more impactful in practice.

SPEAKER BIOGRAPHY

SALLY BRAILSFORD is a Professor of Management Science at the University of Southampton, UK. She received a BSc in Mathematics from the University of London, and an MSc and PhD in Operational Research from the University of Southampton. Prior to her academic career, she worked as a nurse in the UK National Health Service. She has worked at the University of Southampton since the late 1980s, mainly using simulation approaches for a wide range of applications in healthcare. From 2010-19 she was Coordinator of the European Working Group on Operations Research Applied to Health Services (ORAHs), and in 2019 she ended a 7-year term of office as founding Editor-in-Chief of the international journal *Health Systems*. Her research interests include simulation modeling methodologies, in particular hybrid simulation (she was one of the instigators of the hybrid simulation track at WSC), and the modeling of human behavior in healthcare systems. Her email address is s.c.brailsford@soton.ac.uk and her website is <https://www.southampton.ac.uk/people/5wygls/professor-sally-brailsford>.