Effective decision-makers in health care systems consider interactions and interdependencies of stakeholders and subsystems, system complexity and dynamics, multiple – potentially conflicting – objectives, and the role of incentives. In this seminar, we discuss strategic investment decisions by hospital executives. We studied hospitals’ investment decision processes for medical technologies, such as MRI scanners or surgical robots. To learn more about the current state-of-the-art in practice, we interviewed hospitals executives in the U.S. and internationally. Based on our findings, we propose a data-to-decision framework that integrates available data, expert knowledge, operations research methods and decision analysis.

Dr. Christian Wernz is an Assistant Professor at the Grado Department of Industrial and Systems Engineering at Virginia Tech. He received his doctorate in Industrial Engineering and Operations Research from the University of Massachusetts Amherst in 2008. He obtained his bachelor’s and master’s degree in Industrial Engineering and Business Administration from the Karlsruhe Institute of Technology, Germany, in 1999 and 2003, respectively.

His research focuses on health care systems, decision-making and multiscale system analysis. Research interests in health care include hospital operations, medical technologies, hospitals’ strategic investment decisions, and incentives affecting decisions at all levels of the health care system. Research methods include decision analysis, game theory, agency theory, Markov decision processes and multiscale decision theory.