

March 17, 2019

Dear Mr. Folkerth:

I am writing in response to your request to provide my opinion on two issues related to Dr. Kenneth Schultz's prior tenure review at the Air Force Institute of Technology (AFIT).

Let me first explain my own qualifications that inform this opinion. My research expertise is in the areas of Supply Chain Coordination and Behavioral Operations Management, which are both subfields within the broader field of Operations Management (OM). I have served in many editorial roles where I evaluate and provide guidance to researchers within the Behavioral Operations Management (BOM) community, which is Dr. Schultz's main research area. This includes serving as the founding Department Editor of the Behavioral Operations department within *Production and Operations Management* and Associate Editor for *Management Science* and *Manufacturing & Service Operations Management*. These three journals are flagship journals within the OM field. I also write external review letters to evaluate candidates for promotion and tenure for a significant number of universities each year, most recently including Cornell University, University of Wisconsin, University of Virginia, and Georgia Tech. I currently hold the position of Board of Overseers Professor in Supply Chain Operations at the Carlson School of Management, University of Minnesota, where I have been employed for the past 19 years. I earned a PhD from Northwestern University in Industrial Engineering in 1993, and, before my current position, served on the faculty at the Wharton School, University of Pennsylvania for six years. More information on my qualifications is available on my university profile page¹.

I have known Dr. Schultz for over twenty years and have worked with him as a co-author on two separate projects. We have also worked together on numerous professional service activities, including serving as co-organizers of the Behavioral Operations Management conference for many years.

Issue 1: Selection of External Reviewer

The evaluation of a faculty member for promotion and tenure at most US universities (including my own) requires soliciting opinions of the candidate's research from external reviewers who are experts within the candidate's field. At my own institution, this process combines input from tenured faculty within the department as well as within a school-level committee, to ensure that the list of solicited external reviewers are not only knowledgeable about the candidate's stated research area but also established thought leaders within this field.

The *AFIT Standing Rules for the Academic Rank Promotion and Tenure Committee of the Graduate School of Engineering and Management* aligns with my understanding of how external reviewers are normally selected. In particular, it states that the "academic reviewer should hold prominence within the candidate's particular area of specialty". That said, it is fairly obvious to

me that one of the external reviewers selected to evaluate Mr. Schultz's research, Dr. David R. King, does not fit this criteria. Dr. King's research focuses on "complementary resources, merger and acquisition (M&A) integration and performance, technology innovation, and defense procurement" (as stated on his university profile pageⁱⁱ). These research areas are clearly positioned within the Strategic Management field, which is a completely different academic field of study compared to Operations Management (OM). As such, it is not surprising that Dr. King has not published in any OM journals, including the flagship OM journals that Dr. Schultz targets in his own research (i.e. *Management Science*, *Production and Operations Management*, and *Journal of Operations Management*). While Dr. King may be an expert within his own field of Strategic Management, he is clearly not an expert in the field of Operations Management nor, more specifically, in Dr. Schultz's subarea of Behavioral Operations Management.

Issue 2: Evaluation of relative quality and impact of research

The second issue concerns the quality and impact of Dr. Schultz's academic contributions and whether they meet / exceed the standards for being granted tenure at AFIT. The answer, in my opinion, is that Dr. Schultz's academic contributions clearly meet this standard. His research is innovative, rigorously executed, and highly cited. To backup this claim, let me comment in more detail on some of Dr. Schultz's research contributions.

Dr. Schultz's early work is some of the first in the field of Operations Management to use human experiments to test the behavioral assumptions of traditional operations models. Dr. Schultz is well known for his research on the design and management of work systems. His earliest studies examine the impact of line design and production control policies on worker motivation. This research tackles a long-held assumption used in models of manufacturing flow lines, namely that processing times are independent of external factors such as the size of an inventory buffer or the processing speed of co-workers. For example, "Modeling and Worker Motivation in JIT Production Systems" (*Management Science* 1998), validates the existence and magnitude of these interdependences in low-inventory (JIT) systems through a carefully designed experiment. Another seminal paper, "The Effects of Low Inventory on the Development of Productivity Norms" (*Management Science* 1999), builds off these findings by developing a behavioral-based production model that captures the influence of feedback, goal setting, task norms and group cohesiveness. Further work focuses on understanding interdependencies between process characteristics and human behavior, and measuring the impact of these interdependences on operational outcomes. These process characteristics include the design of bucket brigades (*Manufacturing & Service Operations Management* 2000), management of worker flexibility (*Journal of Operations Management* 2002), line length (*Management Science* 2004), and heterogeneity of process speed (*Management Science* 2010).

Dr. Schultz's most recent work in this area examines load effects on service time. For example, "Load Effect on Service Time" (*European Journal of Operational Research* 2018) introduces a new conceptual model that organizes different types of loads and the various ways they impact performance, synthesizing results of prior literature. Also, "Inventory is People: How Load Effects Service Times in Emergency Response" (book chapter 2016) focuses on load dynamics unique to emergency situations where time is critical. In addition to this focused research stream,

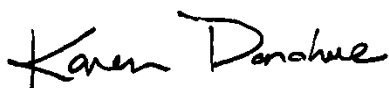
Dr. Schultz has also expanded his research interests to include behavioral issues impacting health care and environmental operations.

This stream of papers highlights several things about Dr. Schultz. First, he can provide sustained and substantial contributions to a specific research area (e.g., design and management of work systems) using a broad range of research methodologies (including modeling, econometrics, human experiments and Monte Carlo simulation). Second, he has a deep understanding of the manufacturing / work systems literature and the behavioral literature. This allows him to see interesting connections that a less broadly trained scholar might overlook. Third, he is clever and creative. He has a nice way of framing problems and designing experiments to tease out the elements of interest. This level and set of skills are well beyond what is typically found in faculty who are being considered to promotion to tenure. Similarly, the Dr. Schultz's citation count (1464, as reported by google scholar on 3/17/19) is easily in the top 5% of OM faculty being concerned for tenure at any university in the US. This is a clear indicator of the significance and impact of Dr. Schultz's research. Altogether, I believe this shows that Dr. Schultz's academic contributions clearly meet, if not exceed, the standards for receiving tenure at AFIT.

It is also worth mentioning that Dr. Schultz has devoted considerably energy to growing the larger community of Behavioral Operations Management scholars. Dr. Schultz has taken a leadership role in the Behavioral Operations Management section of INFORMS and the College of Human Behavior in Operations Management at POMS. He has also written three review papers that provide a jump-start for new researchers interested in Behavioral Operations Management (*Journal of Operations Management* 2006, *Production and Operations Management* 2010, *Journal of Operations Management* 2013). I had the opportunity to work with Dr. Schultz on two of these papers (the first as a co-author and the second as the DE who solicited the paper). These experiences reinforced my prior impressions of Dr. Schultz. He is focused in his pursuits, has a deep understanding of behavioral theories, and is innovative in his thinking.

I hope this information is helpful as support to Dr. Schultz's case. Please let me know if I can provide any additional information.

Sincerely,



Karen Donohue

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Academic Director, Masters of Science in Supply Chain Management

ⁱ <https://carlsonschool.umn.edu/faculty/karen-donohue>

ⁱⁱ <https://business.fsu.edu/faculty-and-staff/academic-departments/academic-departments-home/Detail/david-king>, accessed on 3/17/19.