



Thoughts on the state of OM

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As an emeritus professor one has the time and perspective to look both at the state of Operations Management (OM) today and its development over the years. When my father, who was a physician, retired, he commented on the fact that when he started, he covered all the specialties required for pathology; when he retired these needed four or five specialists to cover. I see the same in OM today, the field has many areas and OM professors frequently specialize in a narrow field of focus and methodology. Such trends in medicine or OM can lead either to fragmentation and rivalry, or to cohesion and collaboration. As I will discuss later, I am not sure in which way OM is moving.

Over time, OM has built on its roots in many areas in engineering and the early days of Operations Research (OR) (see the special issue of the Journal of Operations Management, 2007 (25)2). Over time it has been strongly influenced by a wide range of disciplines including mathematical modeling, strategy, economics and most recently behavioral science and ethics. All have helped to build up the area. It is natural that we have both specialization and collaboration. In parallel it has moved from its original base in manufacturing to include services, project management, supply chain and logistics. A second important area of diversity is in research methodologies. OM from its foundation has been a mixture of many quantitative and qualitative; modeling and empirical, methodologies. All have contributed to the growth of theory and practice of OM. I delight in the richness and contribution of the area.

However, I see symptoms that cause me to worry. The first is the separation of much research from practice. In 1984 I published a paper on the “lot size algorithm industry”, where I analyzed and commented on the stream of papers on this topic that continued even after the arrival of JIT had led to massive reductions of batch sizes and thus in practice, the problem was becoming trivialized (Voss 1984). Even today the European community continues to produce lot size papers, with the European Journal of Operational research publishing five papers in 2007, four in both 2008 and 9 and two in the first four months of 2010. Plus ça change! In the US things are better, POM published just one in 2003 and 2007 and Management Science published three papers on lot/batch sizes in 2004 but none since. Such separation of research from practice is not confined to any one research tradition. Too often I see a survey of a trivial area or a model of very narrow problem, neither of which has the potential to influence practice no matter how rigorous the method or elegant the solution. Editors and reviewers of all leading journals do their best to prevent this, but it still happens too much.

The second symptom that I see that causes me to worry is the growing separation of different research groups and the efforts of one to potentially gain ground over the other. At its simplest it can be seen as competition between modelers and empiricists, though this is an oversimplification. All research traditions have their strengths and

weaknesses and have contributed greatly to OM. For example almost everything that is worthwhile about JIT and lean production has come from empirical research. On the other hand almost everything that is worthwhile in revenue management has come from modeling and optimization methods. The development of areas such as supply chain management and performance management has received equal contribution from both fields and increasingly from behavioral OM.

So, is one approach better than the other? Clearly not; but from the perspective of a long established and a European OM researcher I see much fighting for position. What triggers this is uncertain. I have been told that one trigger might be some schools cutting back on OR course and forcing their professors to teach OM... and then claim

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that they are OM researchers. I have no evidence of the former, but I increasingly see research that would have been called operations research being called operations management.

The main evidence of competition rather than collaboration seems to be in the area of promotion and tenure. If one group seeks to gain ground over another in academia then this is the area in which it is easiest to do so. The mechanism whereby this happens is through journal rankings. Many schools, though interestingly often not the very top ones, rely on various lists of top journals. People on tenure committees from outside OM use these as proxies for quality. From a European perspective I see this as the area where the forces for fragmentation and rivalry are battling against those for cohesion and collaboration.

Increasingly business schools have broad based departments with a wide variety of names from Supply Chain, OM, Management Science and Operations Research. These departments, such as the one I belong to, contain people from a wide variety of disciplines such as OM, OR and Systems Dynamics. In addition the OM researchers may come from a wide variety of research foci from field research to behavioral modeling. This naturally creates a difficult question as to how to evaluate the quality of journals that these diverse groups choose to publish in. An obvious solution is to select a set which is both high quality and allows for diversity. The widely used UT Dallas list does just this. It contains Management Science (MS), Operations Research, Journal of Operations Management (JoM), Manufacturing and Service Operations Management (M&SOM) and Production and Operations Management.

Unfortunately a list such as this is often perceived as too long and schools seek to reduce it. To do so they look at published rankings. The problem with this is asymmetrical views of journal quality. For example most empirical researchers in OM today will have a strong math and modeling training, whereas most OR and modeling oriented researchers will not have a strong training in empirical methods. Thus when asked to rank journals, empiricists will rate journals such as Management Science and Operations

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Research as being of high quality as well JoM and POM. However, the reverse is not true modeling and OR researchers will not rank empirically oriented journals highly. This occurs in journal ranking studies. This is compounded by many OR researchers seeing themselves as OM researchers and thus adding further asymmetry to rankings. This was very apparent in a recent study of factors affecting journal rankings (Theoharakis, Voss, Hadjinicola and Soteriou, 2007). If we take the UT Dallas list and use their data to see how OM modelers and OM empiricists rate the OM journals we see this pattern (figure 1). Whilst both groups rate the quality of Management Science and M&SOM highly, modelers give low ratings to JoM and POM. Theoharakis et al. (2007 p 94) state “it is clear that top journals for empirical research are not necessarily the same as those for modelers. This information must be considered by the various stakeholders, including business schools and tenure committees”. Unfortunately the pressures are for the reverse. In the context of limiting the number of journals, too many schools neglect the diversity of their OM/MS/OR groups. The asymmetric perceptions of journal quality and the combining of OM with OR groups naturally leads to journals ranked for promotion and tenure being drawn just from INFORMS and OR journals.

I see this as a potential threat to the future of OM. First, there is a real danger of Operations Research being seen as the same as Operations Management. A core OM course, and possibly a core supply chain course, can easily be taught by someone from a variety of intellectual backgrounds. However the future of OM lies in its research as well as the teaching. The second threat is the narrowing of the research base of OM. An assistant professor will naturally focus on those outlets seen as important for tenure by her or his department, and conversely the department will seek to recruit those who can do so. In many schools I this see a twin threat, the squeezing out of OM researchers by OR researchers who can teach but not research OM, and the squeezing out of empirical researchers by those who are modelers.

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This is of course an oversimplification of a complex problem. However at its root lies the choice between fragmentation, narrowness and rivalry or breadth, cohesion and collaboration. Although at heart I am a, mainly qualitative, empirical researcher I believe in the need for diversity in our approach to OM research. There are many different foci and methods each of which has its strength and weaknesses. Even within empirical research there are at least four dominant approaches with different methods; objective data with econometric methods, psychometric based survey methods; field and observational data using methods such as case research and experimental and lab methods. Each of these approaches is of value with major strengths but also have weaknesses.

OM has played and continues to play a major and creative contribution to management in manufacturing, services health care and logistics. It has done so through evolution into new fields, embracing new approaches and methods. It has also done so by interacting with other fields from economics, behavioral science and marketing to OR. However there are forces which if not balanced may threaten both the level and diversity of research in OM. Some

have said to me this is part of a campaign by INFORMS to dominate OM. I have no evidence to support this and the growth and success of POMS to a certain extent counters this. However I identify in this article two critical issues. First, the asymmetric views on journal and research quality which in turn has led in many institutions to a narrowing of criteria for tenure. Second the growth of combined OM/OR or OM/MS departments that see all of their work as OM.

To counter these problems it is crucial for departments and tenure committees to recognize the diversity of approaches, to recognize that the high quality outlets for empirical research are not the same as for modeling and OR research. Second, it is important that schools and departments recognize that OM is a distinct research area not a subset of OR or Management Science. Third, individuals should recognize and celebrate this diversity

References:

Theoharakis V., Voss C., Hadjinicola G.C., and Soteriou A.C., Insights into factors affecting Production and Operations Management (POM) journal evaluation, *Journal of Operations Management*, 2007, 25, 932-955

Voss C.A. 'New Technology and the Lot Size Algorithm Industry', *Operations Management Review*, Summer 1984, 32-39

Journal	Empiricists' quality rating*		Modelers' quality rating*	
	Mean	Rank	Mean	Rank
Journal of Operations Management	6.7	1	4.95	5
Management Science	6.16	2	6.56	1
Manufacturing and Service Operations Management	5.20	6	5.83	2
Production and Operations Management	5.03	4	3.80	6

* mean of 1-7 scale

Source: Theoharakis et al (2007) table 6.

Figure 1 Differences between modelers and empiricists in rating journals