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Operations adding value to society

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Abstract

Purpose – The purpose of this article is to discuss the role of operations management in society. The article detects trends, raises critical questions to operations management research and articulates a research agenda to increase the value of such research in addressing societal problems.

Design/methodology/approach – This paper evaluates the papers presented at the EurOMA 2019 conference to detect trends and discuss the contributions of operations management research to society. It further goes to identify gaps in the research agenda.

Findings – The article finds several important streams of research in operations management: sustainable operations and supply chains, health care and humanitarian operations, innovation, digitalisation and 4.0, risk and resilience. It highlights new trends such as circular economy research and problematises when to stop implementing innovation and how to address and report their potential failure. Importantly, it shows how it is not just a question of offshoring vs reshoring but of constant change in manufacturing that operations management addresses.

Originality/value – The article highlights not just novel research areas but also gaps in the research agenda where operations management seeks to add value to society.

Paper type Research paper

“Operations Adding Value to Society” was the theme of the 26th conference of the European Operations Management Association (EurOMA). The idea behind the theme was to extend previous conference themes beyond manufacturing and services to wider societal and community implications and impact. The conference theme highlighted a move beyond goods manufacturing to considerations of the shared economy, the circular economy, and also, to critical infrastructure and supply chains. EurOMA has had a tradition of tracks in

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various industries, and this theme specifically welcomed also health care operations, humanitarian operations and public sector management. Notwithstanding the more outspoken humanitarian operations topic, who would have thought this to be one of the last face-to-face events of the association for such a while? While it was wonderful to see the full auditorium that even had to be streamed to another room for people to follow, our congratulations go to the conference organisers in 2020 who managed such a lively online conference during the current pandemic!

The 26th conference of the EurOMA was jointly hosted by the Aalto University Business School, Hanken School of Economics and the HUMLOG Institute, in Helsinki, Finland, 15–20 June 2019. “Operations adding value to society” strongly relates to the research at our universities, but also to the mandate of universities, and of research, to impact on society. This was the more emphasised by the rector of the Hanken School of Economics, Karen Spens, herself a professor in supply chain management, who gave the opening keynote at the conference on how to use operations management principles when leading a university. After all, service operations, but also total quality management, come together in the continuous improvement efforts of universities as well.

The dissemination of knowledge at conferences, the outreach to society and the interaction with society are key to operations management. As for us organisers, we considered organising EurOMA as a way to pay back our debts to the EurOMA community and taking a more active role. We are still incredibly proud of all the reviewers of the conference who supported us in getting the review process done ahead of time!

Operations management seeks to have an impact on business and is crucial to the economic bottom line of companies but also plays an important role in making operations sustainable, in relating to the environment and to society. The very impact of research is something the next keynote, Prof. Janet Godsell, underscored when talking about engaged scholarship and the “time for a rethink” in operations and supply chain management through storytelling, videos, art and social media.

Societal impact was even at the heart of the reception at the Helsinki city, where the deputy mayor emphasises the importance of operations to the city’s mantra of making Helsinki the “most functional” city. Yet another angle to it came through the practitioner keynote, with Kalle Löövi, the head of international operations of the Finnish Red Cross, sharing his stories and perspective on humanitarian operations, according to which, occasionally, Finnish midsummer can cause supply chain disruptions in Yemen.

But EurOMA 2019 was not just about talking about societal impact but about making one. Minimising the ecological footprint, there were no prints nor conference bags but an app, no buses but walking around the city, no bottled water but vegetarian and vegan meals with flowers on dessert. New rules were applied to all panels and special sessions, which required people to come together from various countries, and have representatives of both genders. Some of the new sessions truly embraced the conference theme, with there being one on increasing the relevance and reach of O&SCM research; and another hands-on workshop on the bottom-up nurturing of an inclusive operations management community. It is high time for our discipline to embrace scholars of diverse backgrounds, in the veins of Black Lives Matter. Being in Europe, EurOMA itself has made quite an effort to include scholars from the “Danube” section, building bridges rather than walls. Where else is that better placed than in Helsinki, the neutral city where East meets West?

The story does not end there. The programme finished with industry visits to the Science Centre Heureka, and the new cargo terminal of Finnair Cargo. At the conference, the outgoing EurOMA president Giovanni Perrone also passed the baton the incoming president Taco van der Vaart. Besides embracing Finnish oddities from bird karaoke to playing air guitar at the conference dinner, let us have a more serious look at the

implications of the 26th EurOMA conference for the operations management research agenda.

Informing the operations management research agenda

The conference theme of “Operations Adding Value to Society” was well represented in the tracks with most submissions, which were the sustainability track (50 papers), SCM (46 papers), health care operations (33), innovation, product and service development (21), and risk and resilience (19). Interestingly, sustainability papers even outnumbered the traditionally strong supply chain management track.

A somewhat different picture emerges if analysing paper titles for keywords: according to this, 25 papers focussed on digitalisation, with another 16 on industry 4.0, compared to 14 papers on various food-related operations, 12 on blockchain, 8 on big data as well as 8 on the circular economy. Digitalisation and technology were also embraced by the teaching operations track where one could for example visit a French warehouse virtually from the conference in Finland. This is arguably even more important now in the age of distance education.

Let us analyse the track as well as prominent cross-cutting keywords for some highlights for the current and future operations management research agenda.

Sustainable operations and supply chains

Two streams of sustainable operations research were particularly prominently represented at the conference: (1) the sustainability of agri-food supply chains and (2) circular economy research.

The interest in agri-food supply chains spans both a variety of types of food (especially cocoa, coffee, but also whitefish) but also the entire supply chain. Interestingly, it was not only the sustainable performance of these supply chains and especially of food retail that was in the limelight, but more in detail, questions of fairness in retailer-led greening, or incentive alignment for collaborative carbon reduction. Research has also moved on to more concrete questions such as shelf-life-based inventory management, household food waste flows and how to enhance the last mile in grocery e-commerce. Overall, it can be stated that sustainability questions in this industry have gone beyond mere mission statements and have started to be addressed more seriously also empirically, and in detail. This is no surprise, as food and food supply chains affect every single person on the planet. The aspect of value to society starts to emerge by including performance measures that also capture environmental and social impacts. This gives hope for the potential impact of this research as well, where the impacts such supply chain have in emerging economies and at the base-of-the-pyramid still offers many research opportunities

The same applies to circular economy research. Conceptual papers notwithstanding, the circular economy has evolved from being a buzzword to research on its implementation. Conference papers reported on specific applications, from manufacturing in Norway, to the offshore wind energy sector. Beyond the use of the circular economy concept as yet another way to describe reverse logistics and closed loop supply chains, by now, research has moved on to embracing its novel aspects of the sharing economy (from truck sharing and bike sharing to new product-service systems), upcycling and product development overall, and the new business models the concept gives rise to. Even more to the point were the specifics of loop flows and networks in the circular economy, the purchasing of remanufactured materials, and the mitigation of intertemporal tensions in the circular economy. Relating again to the topic of “Operations adding Value to Society” the circular supply chains have to take all aspects of value into account, thereby moving beyond narrowly defined operational measures.

Health care and humanitarian operations

Following a long tradition, lean health care and health supply chain integration were rather prominent at the conference. Health care operations are often characterised by their complexity, and by multiple organisations being involved in the care of a single patient. Thus, there is a general strong focus on patient flows, care pathways, as well as process improvements across these myriads of organisations, and the modules of care they provide. Digitalisation in health, and the operational adoption and scalability of medical technology have also become rather classic topics by now. This was interspersed with a few new topics, from applying sharing economy principles to health care, to mapping the hospital supply chain of medical consumables, and even calculating the CO₂ emissions of mobile health care units. Given the current global pandemic, such research is particularly relevant and impactful. Not understanding the operation and supply chain logic puts many lives at risk.

The humanitarian operations section of the conference on the other hand is still less established; which shows in the abundance of conceptual rather than empirical papers. The focus drifts from the big picture looking at hunger, gender (in)equality, GDP and the environment; to climate science in humanitarian supply chains. The section has started to embrace more theoretical approaches, such as the social capital lens on humanitarian supply chains. These topics certainly set the agenda for research to come; but the devil is in the detail and the data. Few papers at the conference stand out with empirical studies, though the relevance and impact of research also in this sector will come with that. Hence, collecting data in such settings, often taking place in emerging and developing countries are encouraged.

Innovation, digitalisation and Industry 4.0

As innovation literature goes, we cannot be but fascinated with novel fashion styles and trends, and novel concepts, of course. It was about time to investigate the value of social media to the supply chain, or how to split team rewards in supply chain innovation.

One would expect the innovation section of the conference to be the most innovative, of course. That may be the case conceptually, but the overwhelming majority of systematic literature reviews rather highlight the still outstanding gaps and rarely go beyond mission statements. Blockchain as well as drones are still searching for their potential application. As one paper title amply puts it, if blockchain is the answer, what is the question? It is not much a surprise, that again a lack of empirical data can be observed. Here, we hope that companies implementing such solutions would benefit from the research at hand, but also be willing to allow us insights into their operations, so to learn and abstract from single cases. Given the huge potential and impact of digital technologies on many people's lives, this could be of great societal impact.

Digitalisation is perhaps too broad a term for the variety of operations management research that it covers. Papers referring to digitalisation investigated the traceability of pharmaceuticals; the performance of manufacturing networks, the use of 3D models in the workplace or the supply chain of satellite imagery. What stays quite open seems to be the link to some of the already mentioned tracks, such as the impact digitalisation has on sustainability, on health care operations or on humanitarian supply chains, but also into risk and resilience issue addressed in the next section. This seems to be a field warranting future research.

Other earlier buzzwords have come a long way. Additive manufacturing has now been studied in its application. Industry 4.0, often combined with leanness, has been evaluated in various countries and industries. There are case studies from Central and Eastern Europe,

impact measurements on buyer–supplier relationships and even board games to teach Industry 4.0 to enable the next industrial revolution. We cannot wait to see these results published in good journals.

With the maturing of innovation, one of the more interesting questions becomes when to stop the implementation of an innovation, and how to evaluate supplier development initiatives that have failed. This is a research area that would deserve more interest.

Risk and resilience

Studies in risk and resilience tackle operational glitches to larger risks. From an operational perspective, studies were presented on the risk and resilience in export, contingencies in emerging economies, risks in food and vegetable transportation, food loss and waste, to the procedural integration of spare parts in material flows. Different approaches are also highlighted in managing these, from predictive analytics, to buffering vs bridging, to the use of relational capital in the supply chain.

Some larger risks were either predictable or have already occurred, with studies addressing their aftermath. These include the imminence of Brexit, or the evolution of the Egyptian tourism industry after the Arab spring. The bigger picture further extends to resilience with regards to natural disasters, environmental risk management, food safety risks and more novel to this year, the focus on modern slavery in the supply chain. Others question the tensions between sustainability and resilience, or address the very risks of Industry 4.0 applications.

An interesting common theme could be observed in the focus on changes in operations, whether form public to private, or from own to outsourced. An increasing number of papers were focussing on reshoring rather than offshoring from a risk management perspective. This is to stress that reshoring has been on the (research) agenda for a while and is not in fact just a consequence of the current pandemic. Perhaps most interesting is the approach from one of the papers focussing on how to manage the continuous migration of manufacturing locations in the supply chain. The actual change of out- vs insourcing, off- vs reshoring may be different over time, what is constant is change itself and that is worth focussing on in operations management research.

Finally, the selected few – the papers in this special issue

A total of 561 presenters came from 44 countries to the conference, with presentations of 409 papers taking place in 20 parallel tracks. It is always difficult to summarise a conference in a few words or to select the crème de la crème of papers for a special issue. Luckily there are the award nominations that guide the selection, apart from journal editors attending the conference and spotting interesting papers and results. In 2019, 231 papers wanted to be considered for the Chris Voss Award, 79 of which had received the highest ratings by both reviewers. A further 170 papers wanted to be considered for the Harry Boer Award, with 61 receiving highest rates and 15 for the Nigel Slack Award, with five receiving highest ratings. The tremendous work of the award committees in their selections of further shortlists and winners was then combined with further readings of the proceedings to shortlist 35 papers, of which 15 were finally selected for further review for the special issue. It is of course based on this review that we can now present the final few that have also survived the rigour of the review process. At the end, they now give quite an interesting snapshot of both established and novel topics at the pulse of time.

Silvestre *et al.*'s (2020) article on “Supply chain sustainability trajectories: learning through sustainability initiatives” studies five supply chains from quite different industries, and the evolution of their sustainability considerations over time. Based on contingency theory, they develop a framework that categorises these trajectories in terms of path

dependence between sustainability orientation and the implementation of sustainability initiatives and the capabilities of supply chain members to embrace and learn from these. The framework helps in singling out the triggers that have led these supply chains to embark on their sustainability trajectory, as well as the supply chain partnerships that were required for their implementation. Rather than merely categorising the supply chains in the end, the framework is also used to illustrate different elements of these trajectories within these supply chains and contrast differing viewpoints in the supply chain that may distort the outcomes of sustainability initiatives.

[Fracarolli Nunes, Lee Park and Paiva \(2020\)](#) ask the important question of “Can we have it all?” when examining “Sustainability trade-offs and cross-insurance mechanisms in supply chains”. The focus on insurance and cross-insurance mechanisms in corporate social responsibility is certainly novel and adds to the estimation of corporate credibility and reputation. Through their study in the food industry, they show how sustainability trade-offs impact on different supply chain members differently. This further leads to hierarchies amongst sustainability objectives in the supply chain as a move away from the triple bottom line. It seems we cannot have our cake and eat it, too.

[Liu et al. \(2020\)](#) posit a different question in “When do 3PLs initiate low-carbon supply chain integration?”. They discover a paradox of the social network in this regard, where 3PLs that were more embedded in their network, and more integrated with their customers, had less room to lead and implement their own decarbonisation initiatives. On the other hand, low carbon supply chain integration has a positive effect on the 3PL’s firm performance, but also, 3PLs have a critical role to play as the orchestrators of such integration regardless of their degree of embeddedness in the network.

[Peters et al. \(2020\)](#) present the findings from the Chris Voss award-winning paper when “Elaborating on modular interfaces in multi-provider contexts” in health care operations. They look at the various closed vs open interfaces between health care providers and customers and across health care providers and investigate cases where the delivery of integrated patient care was jeopardised. Service modularity is used to understand the types of interfaces in multi-provider contexts.

[Stefanini et al. \(2020\)](#) embraced Finnish silence in their article “Silence is golden: The role of team coordination in health operations”. They report the findings from a study of routine surgeries where health care professionals wear devices monitoring every of their moves. The study focusses on implicit, non-verbal, vs explicit, verbal communication and finds that the lower the use of explicit communication, the higher a surgical team performs. That said, implicit communication occurs where team members can anticipate the behaviour of one another. Thus, team cohesion and soft skills decrease the risk for glitches.

The study by [Schiffling et al. \(2020\)](#) on the “Coopetition in temporary contexts: examining swift trust and swift distrust in humanitarian operations” was one of the few empirical studies in humanitarian operations at the conference. In this study, they expand on a previous study on swift trust by including also swift distrust in their scope and find evidence for the development of both in situations with a limited set of co-operation partners. The same operations are characterised by high uncertainty and interdependence, which is why it is the more interesting that swift distrust can in fact aid in managing uncertainty, enable co-opetitive relationships and contribute to risk management.

[Fabbe-Costes et al. \(2020\)](#) put supply chain mapping back on the agenda in their article on “‘The map is not the territory’: a boundary objects perspective on supply chain mapping”. There are so many different approaches to supply chain mapping that even in the same company, no two maps look alike. Boundary objects are used to overcome differences and align the understanding of a map and its purpose, in order to be able to increase its usefulness.

The study by Roscoe *et al.* (2020) puts the spotlight on the imminent event that was most discussed in the corridors of the conference: Brexit. “Managing supply chain uncertainty arising from geopolitical disruptions: Evidence from the pharmaceutical industry and Brexit” follows a particular industry in its journey to manage the already foreseeable supply chain disruptions. The study contrasts the approaches and possibilities of MNEs and SMEs in this regard, finding, perhaps less surprisingly, that approaches vary across company size, with larger companies having more resources at their availability to cope with a disruption. Apart from the use of tangible resources such as additional inventory, capacity and assets; the study highlights the importance of intangible ones such as the investment of management time and knowledge acquisition to reduce uncertainties related to the disruption.

Cotta and Salvador (2020) on the other hand, focus on more operational aspects of organisational resilience in their article “Exploring the antecedents of organizational resilience practices – a transactive memory systems approach”. Apart from investigating the antecedents of resilience practices, they further combine these with the individual characteristics of managers (heads of manufacturing) to understand their decisions when faced with operational disruptions. In the end, transactive memory systems are a combination of individual and firm capabilities.

Sousa and da Silveira’s (2020) “Advanced services and differentiation advantage: An empirical investigation” investigate a rather classical operations management topic. The servitisation of manufacturing industries supposedly brings great potential for market differentiation; which is corroborated here as well. Interestingly, servitisation itself is influenced by market complexity, however; indicating that it is more of a strategic move rather than a reaction to the market. On a further important note, the article also addresses the shortcomings of the IMSS data it uses as a basis of the study, which are important to bear in mind when using it.

Famous last words

Combined, the conference papers and their topics are a good reflection of the current research interests of the operations management community. Albeit conference abstract reviews are not quite the same as is then the peer review process of a journal – also the one for this special issue – a conference still provides a quick glimpse of what is current, topical and which insights are to come, quite a long time ahead of the articles being published. Attending scientific conferences such as EurOMA will continue to be of importance, whether we need to continue doing so virtually or can do so in person.

At the end, when it comes to the final papers selected for this special issue, they embrace *International Journal of Operations & Production Management*’s new mantra of being **bold** or *italic* in operations management research – but to stand out in quality, rigour and relevance. The latter is the more important for leaving our mark in society.

Operations management may sound mechanic and technical at times, but at the end of the day, it is what makes our world work, albeit from the backstage. Let us end with a quote from Kalle Löövi’s keynote at EurOMA 2019: “Supply chains are solidarity chains”. Now more than ever.

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