Responsible operations: How the devil in the detail helps build a path to sustainable business

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Atasu's impact in brief

- Atasu's research has made invaluable contributions to the design, improvement and implementation of US and EU extended producer responsibility legislation, making companies responsible for electrical and electronic waste.
- His studies are widely acclaimed in academic circles and have advanced the field of closed-loop supply chain research. By working with companies and solving practical challenges of competition and consumer behaviour, Atasu has produced findings that have transcended academia and been applied extensively in the real world.
- Determined to make his work as valuable as possible, in 2016 he edited the book *Environmentally Responsible Supply Chains* aimed at getting practitioners to explore how and why firms engage in environmentally responsible operations.
- He has authored and co-authored 55 papers over the past 14 years and been cited in more than 4000 publications.
- Atasu was recently elected President of the Manufacturing and Service Operations Management (MSOM) Society – the Operations Management field's leading academic society.
- He is editor of the *Production and Operations Management Journal's* Sustainable Operations department and associate editor of *Manufacturing & Service Operations Management*.

Every year medical surplus recovery organisations (MSROs) collect millions of dollars' worth of superfluous medical supplies and distribute them to struggling hospitals and clinics in the world's poorest countries. From MRI machines to laboratory equipment, demand is immense. Supply on the other hand is limited and unpredictable as MSROs have little control over the volume, makeup or timing of donations. Managing supply chains is problematic and there is little help to be gained from industry expertise, which is largely focused on traditional supply chains where supply is controllable, and demand is not.

When these challenges were brought to the attention of Atalay Atasu, INSEAD's Professor of Technology and Operations Management, he immediately started searching for a way to help.

Atasu is preeminent among the sustainable operations management community for his ability to demonstrate why many intuitive policies and strategies fail in implementation. By approaching issues from an operational perspective and drilling down, he is able to identify what he refers to as "the devil in the detail". He designs models that crystallise problems in a language that industry leaders understand and show how minor changes to policy can make a world of difference in terms of outcomes. His research has helped dozens of businesses and governments in the United States and across Europe implement successful waste take-back initiatives and other socially and environmentally responsible programmes.

Keen to help solve the medical supplies problem, Atasu took a team of academic colleagues to visit the headquarters of the US MSRO, Medshare. There they examined the organisation's award-winning pull-based allocation model. The model, used by many MSROs, required recipients to place an order based on available inventory. Atasu and colleagues found that the system incited competition and premature ordering, leading to inefficiencies and hospitals receiving goods they did not need.

According to Atalay's modelling, Medshare would be better off implementing a provider-driven allocation mechanism where recipients would fill out surveys indicating what they needed, without seeing what was available in Medshare's inventory. Medshare could then allocate the inventory it had, strategically choosing recipients and determining the best supplies to serve them.

The organisation's executives wasted little time in implementing the recommendations. They obtained remarkable and immediate results.

"Atalay's research has allowed us to better tier our bio-med (products) and set expectations which increased recipients' satisfaction," said Medshare CEO Charles Redding.

Evidence from Atasu's research is still being used to increase efficiencies at Medshare while many of the suggestions put forward have broad applications right across the non-profit sector.

Award-winning practical focus on sustainable operations management

Outside of his NGO work, Atasu has focused on helping organisations and governments develop and implement strategies that are both environmentally sustainable and profitable. His research follows two streams: closed-loop supply chain (CLSC) projects which include the recycling, remanufacturing and remarketing of used components and products; and extended producer responsibility (EPR), a policy approach to sustainability giving producers the financial or physical responsibility for the treatment or disposal of discarded products.

Working closely with industry, he has authored and co-authored 55 papers since 2006 (including 34 peer-reviewed articles in leading academic journals). He has received numerous accolades, including the Wickham Skinner Best Paper Award (2007), the Wickham Skinner Early-Career Research Award (2012), the Paul Kleindorfer Award in Sustainability (2013) and the MSOM Society Award for Responsible Research (2019).

Breaking down barriers to a circular economy

Atasu's practical approach to circular economy research demonstrates how an operational perspective can help companies use CLSCs as a strategic tool. Studying CLSCs through the prism of real-life challenges, he examined the impact of competition, consumer behaviour, product design and salesforce management. His work motivated by a problem Bosch Tools faced broke new ground by showing how remanufacturing can help companies maximise profits in a competitive market. It also illustrated how, through careful timing and strategic pricing, firms can actually benefit from competing through remanufactured products – particularly against low-end rivals.

Some of Atasu's most impactful work draws on findings made when, as an INSEAD PhD student, he and Roland Geyer, now Professor at the University of California's Bren School of Environmental Science and Management, examined ways Kodak could recycle its single-use camera. Their work noted three barriers to success: a lack of access to used products; the need to find a design that was durable and easy to recycle; and the lack of a market for refurbished or remanufactured cameras. Fifteen years later, Atasu recognised these same constraints were preventing many companies from reusing products or their components in the context of the recently popular circular economy movement. Working closely with the DLL Group, he delved deeper and in the successful *Harvard Business Review paper* "Rethinking Sustainability in Light of the EU's New Circular Economy Policy", he demonstrated how companies that successfully developed circular economy systems had addressed these issues by changing their business models to include strategies such as modular design and leasing instead of selling.

"There's a tremendous need for people who can bridge the gap between theory and practice and Atalay's work does that. He's good at inspiring thought, at being a facilitator, someone who asks the right questions," said Rob Herb, a co-author of the paper and DLL Vice President, Global Asset Manager, Healthcare & Clean Technology.

Reid Lifset, Associate Director of the Industrial Environmental Management programme at the Yale School of the Environment and Editor-in-Chief of the Journal of Industrial Ecology, describes Atasu as a stand out in the sustainable operations management community for his ability to identify and ask the important, practical questions and then bring rigour and academic expertise to bear on them.

Most importantly, said Lifset, he ensures his work is presented in a way that people outside the field can understand.

"There's not always a lot of incentive to write for a non-technical audience. Atalay is notable in that he has a very practical perspective and is ready to invest the time," he added.

An operational perspective on extended producer responsibility

Atasu's greatest practical impact has been in helping countries implement take-back legislation, putting the onus for the disposal of used products back on the producer. The expectation was that producers would expend greater effort on designing and manufacturing products that are more easily recycled.

Unfortunately, many of these laws were based on untested assumptions and not implemented in a way that incentivised this intent.

Working with Luk Van Wassenhove, INSEAD Emeritus Professor of Technology and Operations Management and the Henry Ford Chaired Professor of Manufacturing, Emeritus, Atasu developed models showing how different actors may interrelate and unexpected scenarios may play out. These models were instrumental to the passing of workable amendments to the European Union's WEEE Directive to address the growing problem of electrical and electronic waste.

In the US, Atasu's work helped shape the execution of early EPR legislation implementations such as the Minnesota Electronics Recycling Act. Other legislative bodies and implementation agencies across the country drew from his research, according to Garth Hickle, an independent consultant and former product stewardship team leader at the Minnesota Pollution Control Agency. Today, 118 EPR laws have been adopted across 33 US states.

"While practitioners had identified a lot of concerns around the new EPR legislation, before Atalay most of the research being done was from a policy or legal perspective; input from business was having little impact in the policy debate," Hickle said.

"Atalay has been, and is still, clearly a thought leader in this area. He came at it from an operational perspective and showed the need for more defined responsibilities for manufacturers, local governments and recyclers."

Bringing insights to decision makers who make a difference

While much research in the sustainable operations management field is theoretical, the preponderance of Atasu's work is informed by industry. Determined to make a practical difference, he has inspired other young scholars to conduct practical research. When editing the book Environmentally Responsible Supply Chains, he sought contributions from early-career academics and encouraged them to present their work in a way that practitioners could understand. Later he initiated a series of sustainable operations management workshops providing opportunities for young academics and industry leaders to network and exchange ideas.

Atasu's passion, notes Lifset, is *"not just to advance his discipline but to engage with the world and bring insights to people who are actually trying to make decisions that make a difference."*