



Professor Yu Xiong of Newcastle Business School

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## Research published in world-leading Journal

**Northumbria academics identified important factor missing in managing omni channel business**

Northumbria University academics have published research in world leading journal, *European Journal of Operational Research*.

Led by Professor Yu Xiong and Doctor Gendao Li from Newcastle Business School, the paper in the *European Journal of Operational Research* explored

why major manufacturers use sham e-channels as part of their online selling strategies. The research found that product durability impacted significantly on the success or failure of selling through the Internet – and that getting it wrong was costly.

Knowing the typical lifespan of a product – its durability – appears to be crucial in determining whether manufacturers of say computers used their websites to physically take orders and sell their goods or merely provide information on them. These decisions can affect their own profitability and that of the retailers selling the products on the high street.

From the research, Professor Xiong says manufacturers of durable products such as Lenovo, HP, Epson and IKEA, who are expanding their business online face a great challenge in channel conflict. He explained: “Online channels will often cannibalise more traditional physical selling channels. To make things worse, when facing encroachment from a manufacturer – as the upstream agent - a retailer of durable goods – as the downstream agent - is in a far more difficult position than the retailer of non-durable goods. This is because with durable goods, the retailer is not only essentially competing with the new products from the manufacturer today but also dealing with older product lines and associated servicing costs. Durability has an important role in the channel decision, but is not clear to practitioners and researchers.”

Professor Xiong and Doctor Li, together with their collaborators used game theory – mathematical models of conflict and cooperation between rational decision makers – to understand the business problem. They set the research in a dual-channel context for a durable goods manufacturer that can sell directly by its own e-channel and indirectly via an independent reseller. This allowed them to investigate how product durability and the channel structure create strategic issues that are significantly different from those in managing a dual channel for nondurables.

Professor Xiong added: This research has generated two important managerial insights for durable goods manufacturers. First, if product durability is moderate, for any direct selling cost, manufacturer’s encroachment is always detrimental to the reseller. Second, under certain conditions, the manufacturer may be worse off selling online. It shows that opening an inactive e-channel demonstrating product information only, rather than taking orders online, is optimal for the manufacturer.”

By using data from the U.S. x86 computer server market to test their results, Professor Xiong and his team found strong empirical support that profitability of both manufacturer and reseller is higher when product durability is sufficiently low or sufficiently high, and lower when durability is intermediate.

Also funded by China's National Nature Science Foundation, this research is being conducted across three countries with collaboration from Professor Junhong Chu, National University of Singapore, and Dr. Wei Yan, University of Electronic Science and Technology of China.

Professor Xiong already has several articles published in leading journals to address the missing issues in omni channel management practice. His team will consider how e-business can be used to rescue high-street shops in challenging economic situations.

Professor Xiong concludes: "e-business should not be a killer to traditional business, but a good addition to help develop high street retailing market."

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