

Creating the sustainable “Last Mile”: The implications on Profitability, Planet and People.

Richard Wilding OBE

Professor of Supply Chain Strategy

www.cranfield.ac.uk/som

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Notes:

Who am I?

- “Accidentally fell” into academia.
 - Engineer (CEng, Eur Ing, FIET)
 - Logistician & Supply Chain Professional (FCILT)
 - Procurement Professional (FCIPS)
 - Higher Education Learning & Teaching Professional (PFHEA)
- Professor & Chair of Supply Chain Strategy
 - Cranfield – Postgraduate – Technology AND Management.
 - First Professor of Supply Chain Risk Management
 - My goal is “Knowledge into Action”.
- Chairman of the Chartered Institute of Logistics & Transport U.K.
 - Movement of Goods and People and their associated supply chains.
- Work across all sectors and industries.

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Notes:

Professor Richard Wilding OBE,

BSc, PhD, CEng, Eur Ing, FIET, FCILT, FCIPS, PFHEA

Full Professor and Chair in Supply Chain Strategy.

As Chair (Full Professor) in Supply Chain Strategy at the Centre for Logistics, Procurement and Supply Chain Management, Cranfield School of Management U.K. is recognised globally for his thought leadership in Logistics & Supply Chain Management.

Richard is a highly acclaimed presenter and regularly speaks at Industrial Conferences and has undertaken lecture tours of Europe and Asia at the invitation of local Universities and Confederations of Industry. He is passionate about taking and creating academic knowledge that creates ACTION in business.

Richard was appointed in 2005 as the first ever Full Professor and Chair of "Supply Chain Risk Management" in the World in recognition of his significant contribution to this subject area. Richard works with European and International companies on logistics and supply chain projects in all sectors including pharmaceutical, retail, automotive, high technology, food drink and professional services to name a few. His international impact on the Logistics, Transport and Supply Chain profession has been recognised by multiple industry awards and he is endorsed as one of the top influencers globally within the profession both by the press and on social media.

Richard's special areas of academic interest include supply chain 4.0, e-commerce, the creation of collaborative business environments, reducing supply chain vulnerability & risk, time compression and techniques for aligning supply chains to maximise customer value and reduce cost.

Awards and Recognition

2019: Top 50 Influencers in e-commerce & shipping 2019. (scurri.com): A list of the Top 50 global experts & commentators in e-commerce and delivery.

2019: Logistics 100 (SHDlogistics.com): Outside Influencer 2019 - Most influential Logistics & Supply Chain individual in U.K. academia.

2018: The 2018 Annual UK Top100 Corporate Modern Slavery Influencers' Index Listed, recognising individuals from all business sectors, media and academia who are influence leaders in raising awareness to end modern slavery and labour exploitation.

2017: Winner - Logistics100 Award - singles out an individual from the U.K. SHD Logistics100 who has created the most significant impact within the profession during the previous year.

2017: Winner - Lifetime Contribution to Training & Development in Logistics - Talent in Logistics Awards.

2015, 2016, 2017, 2018, 2019: SHD Logistics 100 Listed - The definitive list of the UK Logistics Industry's most influential players.

2014, 2015, 2016, 2017: Rated No.1 Supply Chain Power Influencer on Twitter globally (SupplyChainOpz.com).

2013: Recipient of Institute of Engineering & Technology "Viscount Nuffield Silver Medal for Achievement in Design & Production".

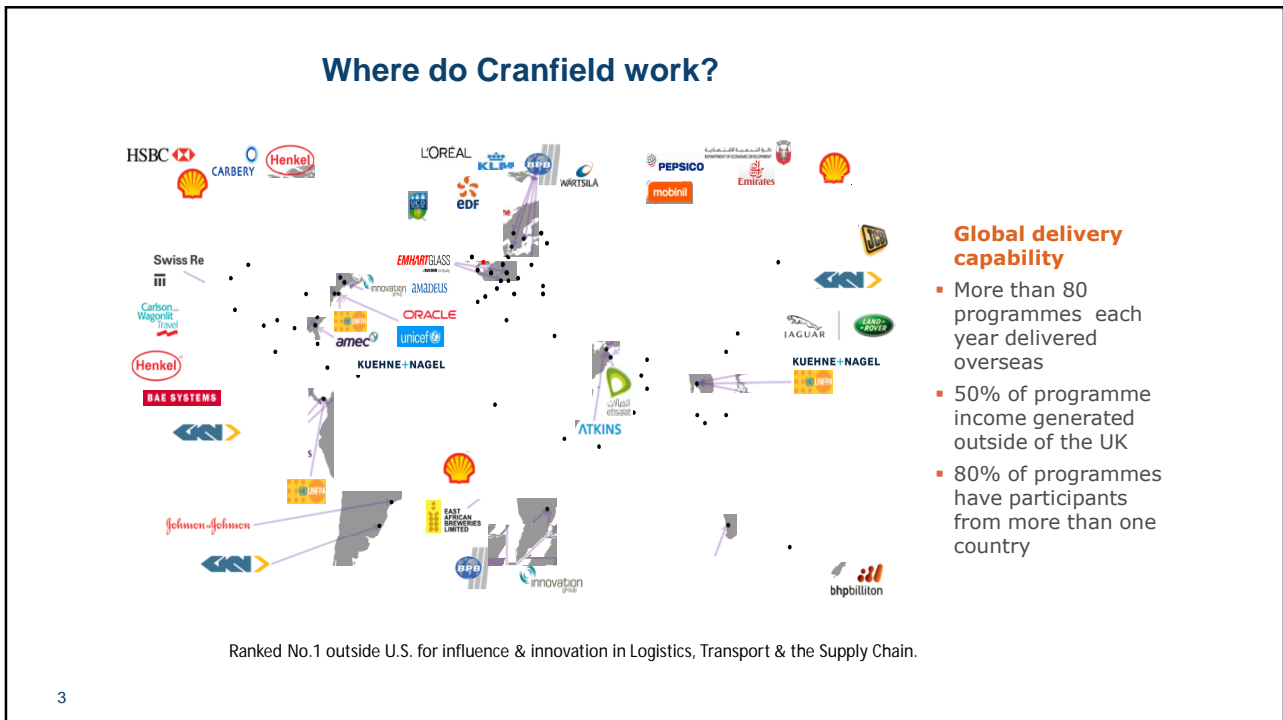
2013: Officer of the Most Excellent Order of the British Empire (OBE) by Queen Elizabeth II in the 2013 New Year Honours for services to Business.

2010: Honoured by and is listed in: "Who's Who" A & C Black, London (from 162nd Edition), Debrett's "People of Today" (from 2010 Edition), Marquis "Who's Who in the World" (from 2010 Edition).

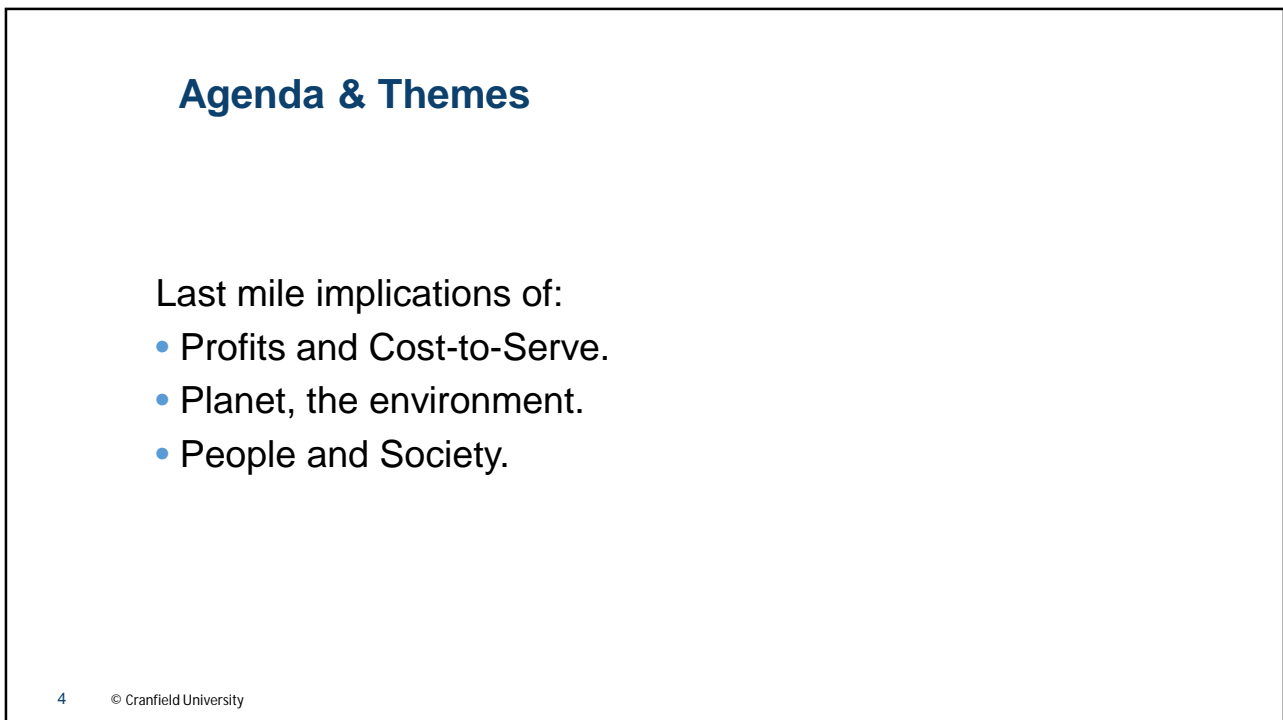
2010: Winner of the "Individual Contribution Award" at the "European Supply Chain Excellence Awards.

2008: European Supply Chain Distinction Awards 2008, he received the 'Distinguished Service Award for Thought Leadership and Service to Supply Chain Management'.

LinkedIn Profile: www.linkedin.com/in/richardwilding Wikipedia: https://en.wikipedia.org/wiki/Richard_Wilding



Notes:



Notes:

Retail today... Sales up, Profits down

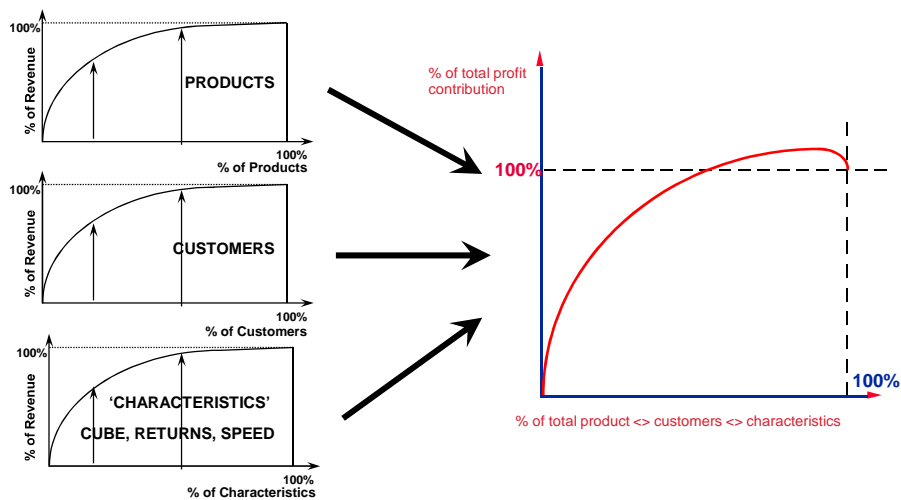
UNIQLO'S PROFITS CONTINUE TO SLIDE

Though sales were up, net profit declined almost 50 percent

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Notes:

Understanding the cost-to-serve of “Last Mile”. Product/customer profitability as a result of the chain



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Source: LCP consulting Ltd, www.lcpconsulting.com

Notes:

Product profitability – an extreme case



Source: LCP consulting Ltd, www.lcpconsulting.com

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Notes:

Customer profitability – an extreme case

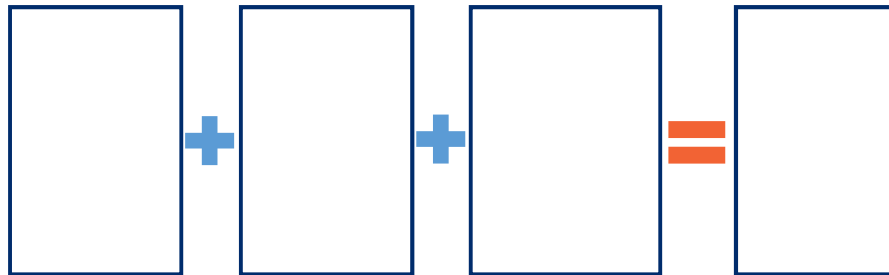


Source: LCP consulting Ltd, www.lcpconsulting.com

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Notes:

What is cost-to-serve?



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Notes:

Improving information flows

Supplier relationship management

Inventory management and
centralisation

Data integrity

System integration

Internal structure

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Where did our profitability go? GS1, Cranfield, LCP consulting research project
<https://www.gs1uk.org/our-industries/retail/apparel/cost-to-serve/cost-to-serve-downloads>

Notes:

Balancing service proposition

Peak management

Service promise and proposition
management

Investment in infrastructure

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Where did our profitability go? GS1, Cranfield, LCP consulting research project
<https://www.gs1uk.org/our-industries/retail/apparel/cost-to-serve/cost-to-serve-downloads>

Notes:

Carbon Auditing of the “Last Mile”.

- An average home delivery round: 50-miles and 120 drops;
- A city centre round: an average of 25-miles and 110 drops;
- A rural round: typically 80-miles round trip, with approximately 70 drops;
- A personal courier delivery: 40 drops and 25-miles (either with a local delivery to a courier's home first or the courier collecting deliveries from a local depot).

“An average home delivery round (50-miles) produces 181g CO₂ per drop assuming 120 drops (or 21,665g CO₂ over the course of the round). This can be compared with an average shopping trip by car (12.8-miles) generating 4,274g CO₂ (all of which is assigned to the number of items purchased by the individual shopper)”

“CO₂ from personal car-based travel is 24 times greater than the CO₂ produced by a delivery drop as part of a typical freight round when only a single item is purchased in each case”

Edwards, McKinnon, Cullinane: “CARBON AUDITING THE “LAST MILE”: MODELING THE ENVIRONMENTAL IMPACTS OF CONVENTIONAL AND ONLINE NON-FOOD SHOPPING” Proceedings of “14th Annual Logistics Research Network Conference”, 9th – 11th September 2009, Cardiff, Published by the Chartered Institute of Logistics & Transport, Corby, U.K.

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Notes:

E-Commerce is not the root cause of van growth

Unfairly demonised – and not the major factor in congestion

e-Commerce parcel volumes are growing at 9% annually ~ a rate that is expected to fall to 6% a year over the next four years

The vans in use by package and grocery e-commerce delivery operators < 4% of the van parc and make up close to 10% of van traffic

In overall traffic terms, vans used to service internet shopping orders account for only 1.5% of traffic in London where congestion is the worst in the country

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Braitwaite, A. "The Implications of Internet Shopping Growth on the Van Fleet and Traffic Activity" RAC Foundation, May 2017

Notes:

On-line retail means we travel less to shop

So e-commerce may be a benefit? Replaced by education and social travel?

❖ 19% of trips / 12% distance

❖ Declined by 20% and 18%

National Travel Survey 2015

❖ 17% make fewer trips

❖ 23% of these cite shopping online as the reason

Ipsos MORI 2016

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Braitwaite, A. "The Implications of Internet Shopping Growth on the Van Fleet and Traffic Activity" RAC Foundation, May 2017

Notes:

Supply Chain 4.0 - Nike's plan to cut lead times from 60 days to 10 days.

- **Current Model:**

- **1 Million workers at 566 factories**, 75 Distribution Centres to 30,000 retailers in 190 countries.

- **Future Model:**

- Installing 1200 new automated machines
- Nearshoring - reducing shipping expenses, import duties & over-production risks.
- 30% Fewer Steps, **50% less Labour**.

"To make this shift, we're digitizing our end-to-end supply chain and creating a model with shorter lead times to deliver what consumers want, when they want it, where they want it." Nike COO Erik Spunk

Source: <https://www.supplychaindive.com/news/nike-lead-times-innovation-automation-consumer/508606/> Access 06/11/2017

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Notes:

Concluding thoughts.

- Last mile impacts:
 - **Profitability** – There is no such thing as free delivery! Many organisations do not understand Cost-to-Serve.
 - **Planet** – Potentially a positive impact on the planet less CO2, less shopping congestion?.
 - **People and Society** – significant potential impact on communities and those not in cities. "Death of High Street", – a significant transition to navigate.

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Notes:

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Centre for Logistics, Procurement and Supply Chain Management

Thought leadership. Business results.



Cranfield School of Management

We are proud of our links with industry. They are an integral part of our history and vital for our future. Management theory and practice has been taught at Cranfield University since the 1950s. The University was founded on an old Royal Air Force site as the first postgraduate college of aeronautics. The School of Management grew out of industrial need for management training and was formally established in 1967 (although the Cranfield MBA dates back to 1964). The airfield the University grew up around is still in use.

We are globally recognised for our excellence in leadership development and for our powerful industry links and real-world focus.

Key activities

- Leading-edge, collaborative research and consultancy
- Postgraduate degree programmes (MBA, MSc, DBA, PhD)
- Master's level apprenticeship programmes - Masterships®
- Executive development for middle and senior managers
- Customised company programmes

We are one of only 90 business schools worldwide to be awarded Triple Crown accreditation:



Centre for Logistics, Procurement and Supply Chain Management

Engagement opportunities

We have a global focus and much of our work has an international dimension. This is reflected in our established links with leading centres for supply chain research and practice in Europe, North America, South America and Asia-Pacific.

Our Centre offers a number of programmes and short courses tailored to specific company needs, as well as research and project support opportunities in logistics, distribution and transportation, procurement and supply chain strategy.

Advisory Board

The Centre has an Advisory Board which ensures our relevance to current/future practice. This Board draws its members from across diverse sectors of industry, commerce, government, the armed forces and professional bodies. Members currently include senior managers and professionals from organisations such as ASOS, Damco, the Department of Transport, JCB, John Lewis, Nestlé, Odgers Berndtson, Sainsbury's, Vodafone, the Chartered Institute of Procurement and Supply (CIPS) and the Chartered Institute of Logistics and Transport (CILT).

As the Centre continues to grow and extend its global visibility, we will continue to rely on our Advisory Board in pursuing our long term goals.

Master's degrees

Cranfield boasts one of Europe's largest specialist logistics, procurement and supply chain management faculty and is renowned as a centre of excellence in this field. Many of our faculty are leading experts with international reputations for teaching and have held senior positions in multinational organisations. Our teaching is designed to nurture your practical business skills and confidence, and places significant emphasis on real-world challenges. We co-design our Master's degree programmes with senior professionals from logistics, procurement and supply industries.

All of our Master's programmes are accredited by the Chartered Institute of Logistics and Transport (CILT), the Chartered Institute of Purchasing and Supply (CIPS) and the European Logistics Association (ELA).

Logistics and Supply Chain Management MSc (Executive)

Our two-year part-time programme is designed for experienced logistics, supply chain, procurement and business managers who want to enhance their skills, knowledge and confidence to take on more demanding executive roles. It is also suitable for ambitious professionals who are keen to develop themselves and want a real-world education delivered by faculty who are actively engaged with business. This course meets the requirements of the Level 7 Senior Leaders Master's Degree Apprenticeship Standard, which means that eligible organisations will be able to use their Apprenticeship Levy to cover the tuition fees.

Logistics and Supply Chain Management MSc (Full-time)

Procurement and Supply Chain Management MSc (Full-time)

Our full-time Master's programmes are designed for recent graduates with a good undergraduate degree who want a broad understanding of logistics/procurement and supply chain and wish to prepare for their first professional role and future career in the field. It is also suitable for early-stage logistics/procurement and supply chain professionals looking to enhance their knowledge and skills and move to the next level.

For more information about our Master's programmes please visit www.cranfield.ac.uk/som/mscscm

"Every lecture, course activity and guest speaker session has been well thought out and planned. I now understand, and am aware of, the huge wealth of opportunity that exists in industry for us on completion of this course. I feel very motivated and well equipped for working in industry."

Abigail Dzomeku, student
(Logistics and Supply Chain
Management MSc 2018)



"Going to Jakarta and Bali on the study tour was a real eye-opener for all of us, and being able to come back and apply that knowledge to my everyday job has been really helpful."

Joel Brown,
Head of Supply Chain Development
Travis Perkins, (Executive Logistics
and Supply Chain Management
MSc 2016)



Master's theses projects (company-based research)

Each year, we develop around 200 high calibre professionals through our full-time Master's programmes. Your organisation can partner with our Centre to host a Master's project that can provide new business and supply chain insights.

Company projects are a key element of the Cranfield experience. Students are motivated to apply the knowledge gained through their Master's programme in a commercial environment and gain experience working on a real business issue. Projects cover a wide range of topics and are conducted from the end of April to the beginning of September.

Your organisation will gain access to:

- talented and motivated students working on a project within your business for four months,
- analysis that supports the business goals of your organisation,
- leading academics in logistics, procurement and supply chain management, and the latest research insights and approaches in the field,
- customised, high quality, low cost and objective research into areas that you may not have the time, resources or expertise to address.

Companies students have completed projects with include BAE Systems, Bentley Motors, Britvic, Crown Agents, Ernst & Young, John Lewis, Kuehne + Nagel, Nestlé, Pitney Bowes, PwC, Saint-Gobain, Severn Trent Water, Siemens, Volkswagen, and XPO Logistics.

For more information please visit

www.cranfield.ac.uk/som/scmthesesprojects

"Our business has been running Cranfield MSc projects for over 20 years, enabling the analysis of complex business challenges our supply chain is facing. The projects are providing us with profound proposals or feasibility studies which we use to drive tangible improvements. Recently a student completed an excellent study regarding the implications of Brexit to our supply chain."

Florian Wendt, Manager - Business Improvement and Product Compliance, Global Supply Chain, Pitney Bowes

Open executive programmes

Runs every February, June and October

Our programme will give you the very latest knowledge, tools, methods, strategies and solutions to manage your supply chain operations in the Industry 4.0 Digital Era.

Who should attend?

- Supply chain leaders, managers and executives.
- Marketing, customer service and manufacturing managers and directors seeking supply chain integration, or who need to understand the impact of supply chain decisions upon their company's performance.

Programme overview

You will gain:

- an understanding of Industry 4.0 - The Digital Era - and how to leverage transformative technology into your supply chain operations,
- insights into global megatrends and their impact in supply chains,
- knowledge of how to map the supply chain, applying our time based strategy approach to add value to your organisation,

- an understanding of how to optimise your agile supply chain methods to increase resilience,
- smarter supply chain capabilities to achieve competitive advantage,
- an understanding of strategic approaches to sustainable supply chain management.

The programme is led by award-winning academics, Professor Richard Wilding OBE and Professor Martin Christopher, and endorsed by The Chartered Institute of Logistics and Transport (CILT). It has been awarded 30 hours' continuing professional development (CPD).

"The Supply Chain Management Programme was one of the most rewarding courses I have ever attended. The networking opportunities were fantastic and the quality of speakers and course material was equally top notch."

Steve Packer, Head of Supply Chain,
Pizza Hut Restaurants

Runs every June and November

Our leading procurement strategy programme has been co-developed by, and is co-delivered with, the Chartered Institute of Procurement and Supply (CIPS). It supports the transformation of procurement into a business-critical function driving working capital efficiency and effective cost management strategies.

Who should attend?

Procurement directors and senior procurement managers, in both private and public sector organisations.

Programme overview

You will gain:

- an understanding of the impact of procurement on competitive advantage,
- an increased ability and confidence in influencing, managing and motivating teams responsible for procurement,
- skills to enable you to manage and mitigate risks in your supply chain,

- skills and knowledge to enable you to foster effective supply chain collaboration to achieve both financial and reputational benefits,
- the knowledge and skills to be more creative in the responsible sourcing of products and services.

The programme is led by academics who are experts in the field, Dr Soroosh Saghiri and Professor Martin Christopher, and is endorsed by the Chartered Institute of Procurement and Supply (CIPS). It provides 21 hours of continuing professional development (CPD).

"The interaction with the other participants was very informative. Having all the break-out sessions and interactive discussions gave me more ideas and thoughts around how to improve certain aspects of my role and the department, over and above the actual programme content."

Patrick Wynne Director,
Procurement and Partnerships,
The Telegraph

For more information about our supply chain management open executive programmes, please visit www.cranfield.ac.uk/som/scmopenexecprogrammes

Customised executive programmes

With more than 30 years of experience in supply chain executive education, our Centre delivers practical executive education that helps managers progress and businesses flourish, all of which is based on a long-term and personal relationship.

Many of our programmes offer value based training as a proven method to unlock value in your supply chains, by transcending the formal training period to include pre- and post-course interventions, ranging from online learning, to work-based projects, designed to enrich and embed learning and development.

Our programmes inspire individuals to improve businesses. They are practical, challenging and motivating. Managers return to their organisations better equipped to use their personal capabilities to add value to their business.

Strategy development

Senior executives seeking to maximise business performance and develop practical business solutions can benefit from our structured executive workshops.

Senior management development

Senior managers who may have gained significant expertise, but within a single operational function, can benefit from supply chain executive education to realise their business leadership potential and develop their skills and knowledge.

Strategic alignment and change management

Organisations which lack the breadth and depth of managerial capability to align and integrate their supply chains and bring about change in a way that leads to superior performance.

Career development

High potential, early career professionals who have been recognised by their organisations to have managerial potential, and who want to move their career forward rapidly.

Supply chain capability development

Organisations seeking to develop an internal competency around supply chain management and build the next generation of supply chain leaders.

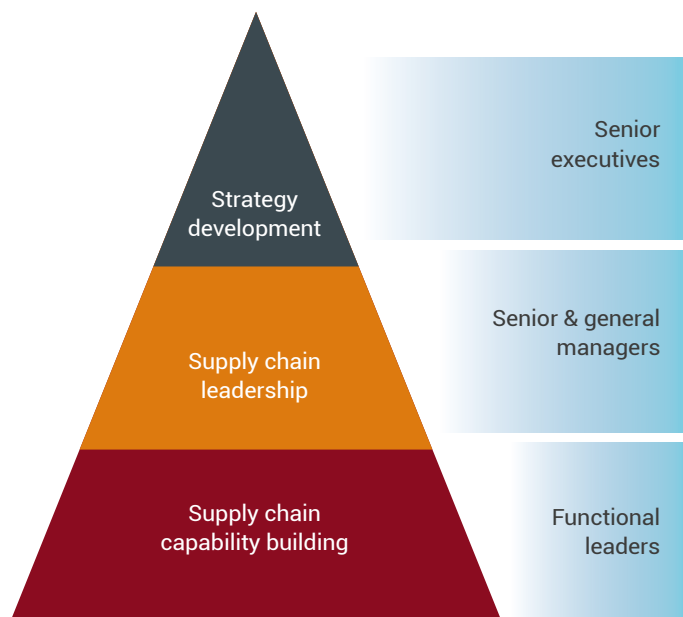
Working in innovative ways, we offer :

- One of the largest faculty teaching and learning centres in Europe
- World-class expertise in learning design and programme direction
- Thought leaders in logistics, supply chain management and procurement
- Real life solutions underpinned by industrial research.

Current clients include: Arla Foods, Coca Cola HBC, Efficio Consulting, Kuehne + Nagel, Marks and Spencer, Saint-Gobain Building Distribution, Sonepar and Network Rail.

Levels of engagement

We work at all levels across the supply chain organisation. Some examples of the ways we can support supply chain development are detailed below:



Our approach

Our programmes are designed around your specific needs. Our starting point is to understand the impact you are seeking to achieve. What is happening in your organisation? How will this learning programme contribute to the achievement of your strategy? What do your people need to be able to do differently?

We partner you with an Executive Development Director (EDD) from our supply chain team.

The EDD works closely with you, from discovery and design, through delivery, to evaluation, on learning programmes that are uniquely created to meet your objectives.

The EDD ensures that together we meet the impact expectations of your stakeholders, including senior sponsors, the managers and participants.

For more information about our customised executive programmes, please visit www.cranfield.ac.uk/som/cep

Agile Supply Chain Research Club

Our Agile Supply Chain Research Club (ASCRC), founded in 1998, seeks to address the key 21st century logistics and supply chain challenges through a combination of cutting edge research and, through the support of its members, customised insights into the complexity of today's supply chain environments. The primary focus of the Club is the creation of new knowledge, leading to outputs of value to our industrial partners and our teaching.

Our aim

The aim of our ASCRC is to improve supply chain management by creating a collaborative forum where member companies and Cranfield School of Management faculty can share knowledge and experience on promising supply chain practices, and benefit from the knowledge generated by Cranfield University's research.

Who is it for?

Supply chain and logistics directors and senior supply chain professionals.

Principles that guide our work

- We publish our research in leading logistics and supply chain journals to document our work and publicise it to the broader logistics and supply chain community.
- Our research must lead to outputs that are usable by industry and teachable in the classroom.

Key membership benefits

- Join an interactive forum for addressing challenges within the field to help you improve the practice of supply chain management within your organisation.
- Participate in research projects with leading companies such as Proctor and Gamble.
- Attend our themed quarterly Club meetings with guest speakers.
- Enjoy corporate discounts of between 10- 25% on the Executive DBA, Executive Masters programmes and open specialist executive programmes.

"Over the 10 years I've had the pleasure of directing this club I've seen it grow from a handful of companies to eighteen. When asked 'what is the core strength of this club, aside from Cranfield's strong research base?' I always reply 'the cross sector and diverse nature of its members. This provides the potential for companies to gain innovative ideas on how supply chain challenges can be addressed.

We've covered many topics over the years, as voted by our members. From soft issues, such as supply chain management in the Boardroom, and how to use social networking to improve supply chain performance, to more technical aspects, such as the use of big data in supply chains and the impact of industry 4.0. Over the last couple of years, in response to keen demand, we have also covered the challenge of Brexit and its impact on supply chains."

Dr Heather Skipworth,
Senior Lecturer, Logistics,
Procurement and Supply Chain Management

"The Agile Supply Chain Research Club is a great way for our group to stay connected to both academic research and industry trends. It's a really great open platform to understand in depth, key challenges to the modern supply chain and to share solutions and experiences of how different sectors of industry have managed these challenges. Bringing the research and the practitioners together is what really gives value to our organisation."

Mads Sogaard,
Group Supply Chain Logistics Improvement Manager,
Belron® International Ltd

Members include:

Consultancy/research projects

How e-commerce is transforming the world of business to business (B2B)

This project was funded by DHL Express (the world's leading international express service provider) and it investigated the current trends and significant potential of the international e-commerce landscape for B2B companies. Our work provides a practical guide to specific digital features and strategies used by businesses that are developing a cross-border e-commerce offering, and presents a framework for companies to better understand and benchmark their own level of e-commerce development. It also highlights specific practical recommendations which can be taken up by companies to capitalise on the B2B e-commerce opportunity, and it paves the way for future developments in the B2B sector.

SAFE-Q: Safeguarding food and environment in Qatar

The SAFE-Q research project, successfully completed in 2018, aimed to reduce waste in the food supply chain in Qatar, a food-export dependent country. Researchers surveyed consumers and found that contextual factors, such as social relationships, planning and time of year (Ramadan) affected food waste behaviour significantly. In addition to this finding, portion size and open buffets were identified as common causes of food waste. The research concluded with policy suggestions to link food purchases with consumption and the impact of waste on the environment, raising awareness around energy, water and cost implications of food waste.

U-TURN: Rethinking Urban transportation through advanced tools and supply chain collaboration

The U-TURN research project, successfully completed in 2018, focused on the last mile delivery of online food retailers selling groceries to consumers. The last mile of grocery deliveries is the costliest part of the journey, as the logistics assets are underutilised due to sparse demand. Having introduced the concept of micro-hubs with a three mile service radius and shared logistics assets, the Cranfield team identified distance reductions up to 17% and route reductions up to 40%. These metrics could be considered as comparable to reduction in carbon emissions and fleet size respectively.

Public Health supply chain transformation in Kaduna, Nigeria: A pilot implementation study

Nigeria's health sector is characterised by uncoordinated parallel and vertical supply chains leading to gaps in medicines supply, and costly duplicated efforts. This project involved assessing the current state of the public health supply chain of 28 Health Care Centres in Nigeria's northern state of Kaduna, in order to provide recommendations about how to make improvements for roll-out across a further 255 facilities across the state. A series of recommendations were made regarding technical aspects, the need for sustainable financing for outsourced activities, and the need to maintain the motivation of staff through improvements of system usability, incentive mechanisms and integration into decision making processes.

Our expertise

Professor Michael Bourlakis

Director of Research for Cranfield School

Supply chain management
Retail supply chains, Food supply chains, Sustainable supply chains, Digital supply chains.

- Retail supply chains,
- Food supply chains,
- Sustainable supply chains,
- Digital supply chains.

Dr Abhijeet Ghadge

Supply chain management
Supply chain risk and resilience, Supply chain data analytics, Sustainability/circular economy, Industry 4.0 applications in supply chains.

- Supply chain risk and resilience,
- Supply chain data analytics,
- Sustainability/circular economy,
- Industry 4.0 applications in supply chains.

Professor Emel Aktas

Supply chain management
Logistics and transportation, Supply chain decisions, Mathematical modelling, Optimisation.

- Logistics and transportation,
- Supply chain decisions,
- Mathematical modelling,
- Optimisation.

Dr Denyse Julien

Supply chain management
Circular supply chains, Food supply chains, Supply chain resilience, Business model innovation.

- Circular supply chains,
- Food supply chains,
- Supply chain resilience,
- Business model innovation.

Dr Imran Ali

Supply chain management
Supply chain configuration design, Social media data analytics for supply chain, Supply chain 4.0 (IoT, Blockchain, Cloud), Technological process mapping.

- Supply chain configuration design,
- Social media data analytics for supply chain,
- Supply chain 4.0 (IoT, Blockchain, Cloud),
- Technological process mapping.

Dr Hamid Mordlou

Supply chain management
Supply chain management, Operations management, Lean and six sigma.

- Supply chain management,
- Operations management,
- Lean and six sigma.

Michael Bernon

Supply chain management
Reverse logistics, Supply chain strategy, Sustainable supply chains, Supply chain re-design.

- Reverse logistics,
- Supply chain strategy,
- Sustainable supply chains,
- Supply chain re-design.

Professor Melvyn Peters

Supply chain management
Logistics outsourcing, International sourcing, Freight transportation.

- Logistics outsourcing,
- International sourcing,
- Freight transportation.

Dr Farooq Habib

Supply chain management
Procurement, Negotiation and contract management, Risk management, Lean six sigma.

- Procurement,
- Negotiation and contract management,
- Risk management,
- Lean six sigma.

Dr Hendrik Reefke

Supply chain management
Operations management, Supply chain management, Sustainable supply chain management, Warehouse design and management.

- Operations management,
- Supply chain management,
- Sustainable supply chain management,
- Warehouse design and management.

Contacts

Dr Soroosh Saghiri

- i b y y
- Supply chain planning and management,
 - Operations and supply chain strategies,
 - Procurement strategic management,
 - Omni-channel retail.

Dr Heather Skipworth

- i b y y
i h y
- Supply chain strategy,
 - Sales and operations planning,
 - Supply chain risk and resilience,
 - Supply chain partnerships.

Dr Anurag Tewari

- b y b y i
c
- Operations research,
 - Supply chain risk and disruption,
 - Supply chains as complex networks,
 - Data analytics.

Dr Nicky Yates

- b y b y i
c y f y
- Supply chain management,
 - Operations management,
 - Lean and six sigma.

Professor Richard Wilding OBE

- f i i
- Implementation and design of supply chain strategy,
 - Creation of collaborative business environments,
 - Reducing supply chain vulnerability and risk,
 - Techniques for aligning supply chains.

Full-time Masters programmes

Dr Denyse Julien, Course Director
T: +44 (0)1234 750111 ext 2845
E: d.m.julien@cranfield.ac.uk
cranfield.ac.uk/som/masters

Executive Masters programme

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cranfield.ac.uk/som/masters

Masters theses projects (company based research)

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Open executive programmes

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Customised company programmes

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Agile Supply Chain Research Club

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cranfield.ac.uk/som/asc

Consultancy/research projects

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Location

Cranfield School of Management is located about halfway between London and Birmingham, and on the outskirts of Milton Keynes. Junctions 13 and 14 of the M1 are five minutes away and Milton Keynes railway station is 20 minutes by taxi. London Luton, Stansted and Heathrow airports are 30, 90 and 90 minutes respectively by car, offering superb connections. For full details about how to find us, please visit www.cranfield.ac.uk/som/visit.



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