THE OPERATIONS AND INFORMATION MANAGEMENT (OIM) GROUP

The Operations and Information Management (OIM) Group at Aston Business School comprises three sub-disciplines:

- Technology and Operations Management;
- Management Science; and
- Knowledge and Information Systems Management.

Its full-time permanent academic staff comprises 5 Professors and 15 Senior Lecturers, Readers, Lecturers and Teaching Fellows, 6 Honorary Visiting Fellows and two administrators. The Group also employs varying numbers of researchers on funded projects. There are approximately 40 doctoral students associated with the Group, researching within the various areas covered by the academic staff. The Group regularly welcomes visiting senior academics from various parts of the world, including recently from Australia, Austria, Belgium, China, the Netherlands, the USA, Turkey, Greece, Thailand, and Canada.

The OIM Group members currently are:

**Professors:**
Tim Baines (Operations Strategy)
John Edwards (Operational Research and Systems- currently Dean of Aston Business School,)
Helen Higson (Higher Education Learning & Management - Senior Pro-Vice Chancellor)
Emmanuel Thanassoulis (Management Sciences- Currently Head of the Operations and Information Management Group).
Prasanta Dey (Supply Chain Management)

**Senior Lecturers and Readers:**
Ben Clegg
Ali Emrouznejad
William Ho
Roya Gholami

**Lecturers:**
Pavel Albores-Barajas
Leonidas Anastasakis
Chris Brewster
Ozren Despic
Andrew Greasley
Matthew Hall
Breno Nunes
Victoria Uren

**Senior Teaching Fellow:**
Gary Simpson (currently Associate Dean, Learning and Teaching)

**Teaching Fellows:**
Paul Bocij
Research in Operations and Information Management

Members of the OIM Group are engaged in a variety of theoretical and applied research issues. Pages by Group member can be found at http://www1.aston.ac.uk/aston-business-school/staff/academic/#OIM

Core competences within the OIM sub-group specialising in Technology and Operations Management (TOM) include:

- Supply Chain Management and Collaborative Business
- International Technology Transfer & Quality Management
- Simulation and Operations Management (OM) Research Methodology
- Manufacturing Systems Design & Management
- Information Technology Applications in Business
- Project management
- Operations strategy formulation and deployment
- Servitization and Product-Service Systems

Where possible the TOM sub-group undertakes research involving collaboration with industry in order to ensure that projects realistically represent the issues faced by companies in managing technology and operations. The research thrusts of the group are constantly evolving and are dependent both on the interests of group members and the issues facing companies with which they are collaborating. Research in service industries is one of the areas that the research group plans to develop in the next five years.

The TOM sub-group is the home of The Aston Centre for Research into Safety and Security (Aston CRISIS Centre). The Centre conducts social science research that has significant and widespread impact on the preparedness of society to respond to important safety and security-related issues (www.AstonCRISIS.com). We work across five levels of analysis (individual, organizational, city, national, and
international) with a multidisciplinary team (operational research, information management, simulation, statistics and geographical information systems, psychology, marketing, operations & risk management) and affiliated emergency managers bringing domain expertise. Our activities (and funders) include: researching how governments/organisations do/should prepare for (avoiding) catastrophic incidents (EU; Department of Transport, UK); local strategic planning and major incident training sessions (Fire Service College, Dstl, and the United Arab Emirates). Our research has informed the highest levels of policy on emergency response, written new law and has supported governments worldwide in their modelling capacities and planning.

Additional funding for research in Technology and Operations Management has come from a variety of sources including EPSRC, ESRC, British Council, Teaching Company Directorate, the European Union, etc. Examples of other projects undertaken within the sub-discipline are:

**Operations strategy formulation and deployment:** This is an extensive longitudinal research programme to establish leading processes for operations strategy formulation and deployment. Collaborations include, or have included, Rolls-Royce, Instem Electronics, Marshall Amplification, GE Amersham, and Brompton Bicycles.

**Servitization and Product-Service Systems:** This programme seeks to establish the strategic principles of successful operations for delivering product-centric services. Of particular interest is the transformation from traditional production to product-centric service operations (the servitization process). The principal industrial collaborators with this project are MAN, Xerox, Caterpillar, Alstom and Smiths.

**Bioenergy**
This project aims to design, develop, and implement a novel multi-criteria analysis framework to involve an extended peer community with different perspectives in bioenergy project development to meet the UK Government targets for renewable generation by 2020. The framework comprises demand analysis, technical analysis, environmental impact assessment, social impact assessment, financial analysis, and risk analysis. The principal collaborators with this project are Express Power Ltd (UK) and Enco Energy Ltd. (UK)

Other projects in brief include:

“Engaging Research for Business Transformation” (ESRC Capacity Building Cluster)
“Audit of a Quality Management System” (DTI Manufacturing Advisory Service (West Midlands) and Brintons Carpets)
“Trends in Modern Operations Management” Seminar series, (ESRC)
“Solving Wicked Problems in the Large Public Organisations” (ESRC/TSB KTP)
“Supporting our Security Officers” (DSTL/DIT TRANSEC)
“Investigating the impact of creative industry supply chains on innovation: A controlled experiment using vouchers” (ESRC/NESTA)
“Global manufacturing and technology valuation” (EPSRC)
“Adaptable manufacturing” (Royal Academy of Engineering)
“AMT justification” (KPMG)
“Management in the Republic of Moldova” (British Council)
“Technology transfer of a new ceramics/plastic compound material” (EPSRC IMI project)
“China and the European Union: Study on medium to long term impact of technology transfer to China” (EC DG1)
“Development of an automated inventory replenishment system” (KTP)
“Investments in AMT” (Canadian High Commission)
“Meeting Technology Needs of Enterprises for National Competitiveness” (United Nations Industrial Development Organisation)
“Audit and Re-engineering of Design, Manufacturing and Support Processes” (KTP)
“Development of electronic business planning framework (Centre for Enterprise)

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### Research in the Management Sciences

The research in the Management Science sub-group concentrates around the subject of Performance Management. This sub-group is the home of the Centre for Performance Measurement and Management (CEPMMA). The overarching theme of the research centre is on econometric and Data Envelopment Analysis (DEA) based methods for assessing and managing performance.

Specific methodological contributions to the field include:
- the development of methods to handle negative data in DEA;
- the development of methods for assessing productivity change over time (transitive indices and negative data);
- decomposing profit change over time
- the development of propensity score methods for isolating selection bias in assessing the impact of economic policies.

Some of the projects carried out by the Management Science sub-group include:

i. **Economic and Social Research Council - Project Title:** Developing Panel Based Methods for Assessing Relative Performance in the English and Welsh Water and Sewerage Industry (Collaborative Case award with the Office of Water Services (OFWAT), economic regulator of water and sewerage companies in England and Wales)

ii. **Higher Education Funding Council for England -** The assessment of productivity change over time in central administrative services in UK Higher Education Institutions.

iii. **The Department for Education and Skills** Costs of Higher Education in England (collaborative with Lancaster University)

iv. **Higher Education Funding Council for England** Dissemination of research findings on UK university central administrative services

v. **The Department for Education and Skills** Assessing school effectiveness using Data Envelopment Analysis;

vi. **A Midlands Primary Care Trust:** The scope for efficiency savings at GP Practices
vii. Various short projects sponsored by a variety of bodies, including Severn Trent Water, DfES, Inland Revenue, Birmingham Coach Company, Exel, OFWAT, and the American Public Power Association etc.

Research in Knowledge Management and Information Systems

The aim of the Knowledge Management and Information Systems sub-discipline is to both develop and disseminate research on the critical issues facing organisations in their broad processes of locating, obtaining, organising and transferring information and expertise within their organisation. We believe this is fundamental to the organisation's adaptation, survival and competence in the face of increasingly rapid and discontinuous change. Essentially, we see knowledge management as being the development and “maintenance” of synergistic combinations of people, organisational processes and technology support. One approach is thus to use the business processes of an organisation as a framework for examining knowledge and its management.

There are several themes of research in the Group.

a) Processes and systems for knowledge creation, transfer, organising, sharing, storage, and use or re-use. This includes the use of decision support or knowledge-based systems. A recent project involved combining simulation with knowledge-based systems to help improve maintenance processes in manufacturing at the Ford Motor Company. We concur with other researchers that the technological aspect is perhaps only 25% of the whole – a result well known to researchers, but apparently not to practitioners. Within this strand there is also research on the evolution of knowledge within the health service and the measurement of effectiveness of knowledge management strategies within four multinationals.

b) Examining the relationship between “top down” knowledge management strategies and initiatives in organisations, and “bottom up” organisational learning and culture change. Organisations concerned in this work have included a distribution company, a heavy engineering firm, and a professional services organisation. There is a particular emphasis on the need for trust between the various parties involved, and also on cross-cultural issues, which can affect everything from attitudes to other people to the use of IT as a channel of communication. Ethical issues may also be involved here, either between client and consultant or between different groups within organisations.

c) Identifying and transferring best practice between organisations and between sectors. We believe that the best way to relate knowledge management to the specific activities of an organisation is through its business realisation processes. A large project is just starting on this topic, looking at identifying best practice, and thus enabling knowledge sharing/transfer along supply chains and also across business sectors (including automotive, construction and banking).
d) **The evaluation of knowledge management.** One recent project here, sponsored by CIMA, examined what managers in organisations think is important in knowledge and knowledge management in their organisation. This is being done by means of facilitated workshops. We are also interested in how any particular knowledge management “intervention” can be evaluated: whether “hard” or “soft” measures are most appropriate; how, or even if, cause and effect relationships can be established; whether these change over time.

e) **Knowledge management and risk management.** Risk management depends on knowledge of risks and how to deal with them, but the techniques and approaches of knowledge management are seldom used in risk management. Two recent projects have considered how to close this gap in (a) managing a hospital (where the “risk register” tended to take on a life of its own, so that managing the risk register became divorced from the process of managing the real risks) and (b) financial services, where mathematical approaches still dominate, even though the recent global financial crisis has highlighted their shortcomings.

f) **Combining supply chain and knowledge management.** The project aims to increase organisational performance by combining the philosophies of supply chain management and knowledge management. Specifically, the project aims to map the informal networks in large organisations such that the real patterns of tacit interactions, location of new knowledge created, flow of knowledge transfer across the organisations' supply chains can be uncovered. This will help enterprises to understand themselves better, and utilise their resources or intellectual capital better.

g) **IT and value added:** “How does IT create and deliver value?” After two decades of IT Business value research, business executives and researchers continue to question the value of IT investments. An extensive body of literature shows that we have long moved past the early debate on Solow's “Productivity Paradox.” IT contribution to value is now widely accepted. Recent research establishes that IT’s value creation occurs under certain conditions and that value manifests itself in many ways. The extant research highlights the need for broadening the scope of the IT value research beyond the established financial and economic frameworks and proposes investigating the co-creation of value and expanding different perceptions of value. Since IT has economic, environmental, and societal impacts, we adapt a triple outcomes perspective where IT value research goes beyond the economic value based frameworks and investigate the environmental and social value of IT too.