# Biannual Research Report 2010/11

# Technology and Information Management Group

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## Royal Holloway
### University of London

**Technology and Information Management Group**

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*The information listed in this brochure is correct at the time of publication but is subject to change as part of the School's policy of continuous improvement and development. Please check our website for more information on our programmes.*

# BIANNUAL RESEARCH REPORT 2010/11

## Contents

# Convenor's Welcome

Welcome to our biannual research report which is intended to provide a summary of research and related activities of the Technology and Innovation Management (TIM) group in the School of Management, Royal Holloway, University of London.

In 2010/11 the group performed outstandingly in many aspects of research showing our multidisciplinary strengths and commitment to high quality work.

As measurable outcomes, we generated over thirty peer reviewed articles in international journals, and a similar number of contributions to international conferences. As such our role in the RAE return of the School of Management, published during the year, was highly significant in the School gaining its high place in the rankings. We are also already well placed for the REF in 2013.

In other research activities, our engagement with the wider community is shown by the number of conference organising and editorial roles we undertook. In addition we operated our own series of research seminars aimed at disseminating our work to colleagues as well as linking to our own research networks. We also had a number of overseas visitors who added to the strong research culture in the group and are always keen to welcome new contributors.

During the period we welcomed three new members of staff, Dr Adrian Coronado, Dr Amany Elbanna and Dr Yingqin Zheng strengthening our international status and links around the world.

I hope you find the information you are looking for, if not then please do contact us.

**Dr Alan Pilkington**
**Group Convenor**
**October 2011**

# The Technology and Information Management Group

The Technology and Information (TIM) Group was established in 2006 when the School of Management introduced research related subject groups to manage the increasing complexity of teaching activity within the rapidly expanding school.

The TIM Group provides a focus for teaching and research in the two broad but interlinked areas, concerned with the management of:
- Technology; including operations management and innovation, and
- Information; including information and communication technologies, information systems, e-business and knowledge management.

The common thread binding these two areas together is the use of technology (in its broadest sense) to improve organisational performance. The group's research is concerned with the impact of technology at an individual, organisational and societal level. Current research activity covers areas as diverse as communication in virtual workplaces, fuel cell technology and the use of ICTs in SMEs.

The group's research is usually applied in nature and links with industry and commerce are strong. The group has a healthy track record of income generation from funding bodies as diverse as the EU, the Leverhulme Trust, the Higher Education Innovation Fund, and Chartered Institute of Management Accountants as well as directly from industry.

Group members frequently collaborate with industrial and commercial research partners, as well as with academic colleagues at other institutions (both in the UK and further afield) and in other departments within Royal Holloway. Group members are also active within the academic research community, making regular contributions at conferences and in the pages of the leading academic journals in their fields.

The group is relatively small in the School. In terms of student numbers, it contributes a large amount of teaching to the School as well as running a joint MSc in Business Information Systems with the Department of Computer Science. It provides an excellent academic environment for the pursuit of scholarship at both undergraduate and postgraduate levels and in the field of research.

The TIM Group aims to provide its graduates with an educational foundation that will stand the test of time, plus familiarity with the latest knowledge and techniques to serve as a springboard for career development – qualities reflected in an exceptionally low unemployment rate. Underpinning its teaching programs are the research activities which have earned the School a place among the top ten of UK Business Schools.

# School of Management and the RAE 2008

The TIM Group were part of the RAE (Research Assessment Exercise) 2008 submission of the School of Management. The following is a commentary on the School results:

The Royal Holloway School of Management is in the top 20 for UK Business Schools, ranked 5th in London, and for regional universities we are second after Oxford University for University Business and Management departments in the South East of England.

The School of Management has seen excellent improvement on its RAE return from the exercise in 2001. The research profile is on a 5-point scale, where 4* world ranking; 3* internationally excellent; 2* internationally recognised; 1* nationally recognised; 0 – unclassified. The School research profile was:

* 4* – 15%

* 3* – 40%

* 2* – 40%

* 1* – 5%

* 0* – 0%

This means that 95% of the research is international; 55% in the top 2 categories.

According to the THES the School of Management has a weighted Grade Point Average of 2.65 which places the School joint 19th (out of 90) in the Business and Management UOA, above the national profile of 2.55. The School is in the upper quartile of all Business and Management submissions.

The Royal Holloway School of Management is ranked 5th out of the 15 London-based Business and Management submissions, and for regional universities, we are number 2nd after Oxford University for University Business and Management departments in the South of England.

In 2001 the RAE applied a single grade, and the School obtained 4, along with 20 other departments also ranked 4. With a GPA ranking, we can now see how the 4-ranked departments performed in 2008. Twelve of the Business and Management U that scored 4 in the 2001 RAE that have a lower GPA in 2008 than the Royal Holloway School of Management, and only 5 Business and Management departments that scored 4 in the 2001 RAE that have a higher 2008 GPA this time round. Moreover 2 departments that scored 5 in the 2001 RAE now have a lower 2008 GPA than the Royal Holloway School of Management. On this basis, the School of Management is on a strong upward trajectory.

# Staff Members & Research Interests

The names of current staff members (as at October 2011) are as follows:

**Dr José-Rodrigo Córdoba-Pachón**, Bsc Computer Science and Systems Engineering (Universidad de Los Andes, Colombia), MA and PhD in Management (Hull), Postgraduate Certificate in Higher Education Learning, Teaching and Assessment (Hull) – Senior Lecturer in Technology and Information Management; Director of MSc Business Information Systems Director (Management)

*Research interests:* Systemic thinking; information technology evaluation; electronic government; sustainability education; corporate social responsibility; complex project management.

**Dr Adrian E Coronado Mondragon**, BSc (ITESM-CEM, Mexico), MSc (Birmingham) and PhD (Brunel), Postgraduate Certificate in Higher Education (Hull), FHEA –Lecturer in Technology and Operations Management, Distance Learning MBA Deputy Director

*Research interests: S*upply chain performance, modularization and mass customization, schedule and information visibility in the supply chain, reverse logistics, multimodal logistics and Intelligent Transport Systems (ITS)

**Dr Amany Elbanna**, BSc, MBA, MSc, PhD (LSE) FHEA – Senior Lecturer in Information Systems

*Research interests: Information Systems development and management including IS project management, Enterprise Resource Planning, and Agile software development. The relationship between information systems development and business innovation and value realisation.*

**Dr Simon Foley**, BA, PhD (Leeds), FRSA – Lecturer in Business Information Systems; Director of Graduate Studies

*Research interests:* Information Communications Management - how practitioners and users of new media and communication technologies are fashioning new ways of working in national, European and global environments.

**Ms Catherine Harbor**, MusB, MusM – Teaching Associate; Director of Undergraduate Studies (from January 2010)

*Research interests:* The development of the commercial concert in London 1660-1750; databases and database technology in business; computer-mediated communication in teaching and learning.

**Dr G. Harindranath**, BA (Madras), MA (Jawaharlal Nehru), PhD (LSE) – Senior Lecturer in Management Information Systems.

*Research interests:* Information systems adoption, use, and management - especially in SMEs, ICT in transition and developing economies, and ICT - for-development.

**Dr Ashok Jashapara**, BSc Eng, MBA (City), DBA (Henley), FRSE, PhD – Senior Lecturer in Knowledge Management

*Research interests:* Knowledge sharing including practices of communication, social practices and technical interventions, Impact of information and knowledge inequities/poverty between industrialised and developing nations, Interdisciplinary approaches to team performance.

**Dr Alan Pilkington**, C.Eng, BEng, PhD (Aston), SMIEEE, MIET – Senior Lecturer in Production and Operations Management; Director of Academic Resources

*Research interests:* Operations and technology management investigation including bibliometric techniques, the alignment of strategy, organisations and technology, adoption of emerging/disruptive technology including fuel cell and nanotechnology.

**Dr Yingqin Zheng**, BA, MSc (LSE), PhD (Cantab.) – Lecturer in Information Systems Management

*Research interests:* Social and organisational implications of ICT in developed and developing countries; ICT for Development; Sen's capability approach and its operationalisation; new media and social changes in China; software service outsourcing in China and global contexts; collaborative innovation and knowledge processes across time and space.

# Other Group Members

**Dr David Barnes**, BSc, MBA, PhD (Staffordshire) – Senior Lecturer in Operations and Strategic Management; former Subject Group Convenor. (From 1st April 2010 at University of Westminster Business School).

**Prof. Dr. Edward Bernroider**, CISA, CISM – former Senior Lecturer in Information Management; (From 1st January 2011 at Institute for Information Management and Control Vienna University of Economics and Business).

**Professor Duska Rosenberg**, BA (Zagreb), MA (Reading), PhD (Brunel) – Retired as Professor in Information and Communications Management 2011.

# Visitors to the Department

The Department had a number of national and international visitors during 2010/11,

Ricardo Barros, Universidad de los Andes in Colombia
Cecilia Loureiro-Koechlin, University of Brunel
Chong Wu, Xiamen University, China
Dr Sherif Kamel, American University in Cairo
Prof Maung K Sein, University of Agder, Norway
Dr Rajiv Kohli, College of William and Mary, USA
Dr Margi Levy, Warwick University
Dr Riccardo Spinelli, University of Genoa

# Publications

The following is a record of recent publications:

Barnes, D., Clear, F., Dyerson, R., Harindranath, G., Harris, L., & Ray, A. (2013). Web 2.0 and micro-businesses: An exploratory investigation. *Journal of Small Business and Enterprise Development*.

Bernroider, E. W. N. and Koch, S. (2009), 'Aligning ICT and legal frameworks in Austria's e-bureaucracy: from mainframe to the internet', in Contini, F. and Lanzara, G. F. (ed.), *ICT and innovation in the public sector - European studies in the making of e-government* Basingstoke: Palgrave macmillan, pp. 147-173.

Bernroider, E. W., Obwegeser, N., & Stix, V. (2010). Introducing Complex Decision Models to the Decision Maker with Computer Software - The Profile Distance Method (PDM). *Journal of Systemics, Cybernetics and Informatics,* 8(3), 24-28.

Cegarra, J. Córdoba, J. R. and Wandosell, G (2009). Creating environmental knowledge through 'green' communities in the Spanish pharmaceutical industry. *Service Industries Journal*, 29(10).

Chanintrakul P., Coronado Mondragon A.E., Lalwani C.S. and Wong C.Y., 2009. Reverse Logistics Network Design: A State-of-the- art Literature Review, *International Journal of Business Performance and Supply Chain Modelling* (IJBPSM), Vol. 1, 1, pp. 61-81.

Córdoba, J.R (2009) *Systems Practice in the Information Society*. London: Routledge.

Córdoba, J.R and Brooke, C (2009). Enamouring, provoking and imagining: three lenses of critical information systems research? In *Critical Management Perspectives on Information Systems,* edited by C. Brooke, Elsevier, pp.233-247.

Córdoba, J.R. and Ochoa-Arias, A., (Editors) (2009). *Systems thinking and e-participation: ICT in the governance of society.* Hershey (PA, the US): Idea Global.

Cordoba, J.R., "Critical reflection in planning information systems: A contribution from critical systems thinking," *Information Systems Journal*, vol. 19, pp. 123-147, 2009.

Córdoba-Pachón, J. (2011). Abstracting and Engaging: Two Modes of Systems-Thinking Education. *INFORMS Transactions on Education*, 12(1), 43-54.

Coronado Mondragon A.E., Coronado Mondragon E.S., Coronado Mondragon C.E. and Mung'au F. (2012). Estimating the performance of intelligent transport systems wireless services for multimodal logistics applications. *Expert Systems with Applications, An International Journal*.

Coronado Mondragon, A. E., & Coronado Mondragon, C. E. (2011). Managing technological innovations affecting product complexity, modularity and supply chain structure. In *Mass Customization – Engineering and Managing Global Operations* (1 ed.) (pp. 87-104). New York: Springer.

Coronado Mondragon, A. E., Lalwani, C., & Coronado Mondragon, C. E. (2011). Measures for auditing performance and integration in closed-loop supply chains. *Supply Chain Management: An International Journal,* 16(1), 43-56.

Coronado Mondragon, A. E., Lalwani, C.S., Coronado Mondragon, E. S., & Coronado Mondragon, C. E. (2009). Facilitating Multimodal Logistics and Enabling Information Systems Connectivity through Wireless Vehicular Networks. *International Journal of Production Economics,* 122(1), 229-240.

Coronado Mondragon, C. E., Coronado Mondragon, A. E., Miller, R., & Coronado Mondragon, E. S. (2009). Managing technology for highly complex critical modular systems: The case of automotive Brake-by-Wire and Steer-By-Wire systems. *International Journal of Production Economics*, 118(2), 473-485.

Crilly, T., Jashapara, A, Ferlie, E, (2009), Research Utilisation & Knowledge Mobilisation, London: National Coordinating Centre for NHS Service Delivery and Organisation R&D (NCCSDO).

Du, R., S. Ai, P. Abbott and Y. Zheng (2011), "Contextual Factors, Knowledge Processes and Performance in Global Sourcing of IT Services: An Investigation in China". *Journal of Global Information Management,* 19(2): 1-26

Dyerson, R., Harindranath, G., and Barnes D. 2009, "National survey of SME's use of IT in four sectors", *Electronic Journal of Information Systems Evaluation,* 12 (1), 39-50.

Elbanna, A. (2010) "Rethinking IS project boundaries in practice: A multiple-projects perspective," *Journal of Strategic Information Systems* (19:1), p. 39-51.

Elbanna, A.R. (2010) "From intention to use to actual rejection: the journey of an e-procurement system," *Journal of Enterprise Information Management* (23:1), p. 81-99.

Elbanna, AR (2009) Actor Network Theory in ICT Research: A wider lens of enquiry. *International Journal of Actor-Network Theory and Technological Innovation*, vol 1, no.3, p.1-14

Elbanna, A.R. (2011) Applying Actor Network Theory and Managing Controversy, In Information Systems Theory: Explaining and Predicting Our Digital Economy,(Eds.Dwivedi, Y. K. and Wade,M., Springer, Forthcoming.

Elbanna, A.R. (2011) The theoretical and Analytical inclusion of Actor Network Theory and its implication on ICT Research, In *Actor-Network Theory and Technology*

*Innovation: Advancements and New Concepts* (edited by Arthur Tatnall), IGI Global.

Elbanna, A. R. (2010) Rigid Technology and Improvised Implementation: The case of ERP systems, In *Bricolage, Care and Information Systems : Claudio Ciborra's Legacy in Information Systems Research* (Eds, Avgerou, C., Lanzara, G. F. and Willcocks, L. P.) Palgrave Macmillan, Chapter 15, pp. 547-574.

Elbanna, A. R. (2009) Actor Network Theory and IS research, In *Handbook of Research on Contemporary Theoretical Models in Information Systems* (Eds, Dwivedi, Y. K., Lal, B., Williams, M. D., Schneberger, S. L. and Wade, M.) IGI Global, Chapter 11, pp. 403-419.

Hinton, M. and Barnes D. (2009) "Discovering Effective Performance Measurement for E-Business", *International Journal of Productivity and Performance Management*, 58 (4) 329-345

Jashapara, A. (2009). Looking at the light rather than the lampshade: Hindus and Quakers. *The Friends Quarterly*, 1, 39-46..

Jashapara, A. (2010). *Knowledge Management: An Integrated Approach* (2nd ed.) Harlow, Essex: Pearson Education.

Jashapara, A., and Tai, Wei-Chun, (2011), E-learning systems: Understanding the mediating roles of self-efficacy and anxiety on perceptions of ease of use, *Information Systems Management*, Vol. 28, pp. 71-83.

Jashapara, A., (2010), *Critical care paramedics: delivering enhanced pre-hospital trauma and resuscitation care – a cost effective approach*, London: The NHS Confederation.

Lacity, Mary C., Leslie P. Willcocks, and Yingqin Zheng (Eds.), *China's Emerging Outsourcing Capabilities: The Services Challenge*, Palgrave Macmillan 2010

Lindgreen, A., Córdoba-Pachón, J., Maon, F., & Mendoza, J. (2010). Corporate social responsibility in Colombia: Making sense of social strategies. *Journal of Business Ethics*, 91(2), 229-242.

Lindgren, A., & Córdoba-Pachón, J. (2010). Corporate Social Responsibility (CSR) in Latin America - Special Issue. *Journal of Business Ethics,* 91(2).

Luo, X., Wu, C., Rosenberg, D. and Barnes, D. (2009) "Supplier selection in agile supply chains: An information-processing model and an illustration", *Journal of Purchasing and Supply Management*, 15(4), 249–262

Pilkington, A., Paton, S., Clegg, B., & Hsuan, J. (2011). *Operations Management* McGraw Hill, pp. 518.

Pilkington A., and J. Meredith, "The evolution of the intellectual structure of operations management-1980-2006: A citation/co-citation analysis," *Journal of Operations Management*, vol. 27, pp. 185-202, 2009.

Pilkington A., L. L. Lee, C. K. Chan, and S. Ramakrishna, "Defining key inventors: A comparison of fuel cell and nanotechnology industries," *Technological Forecasting and Social Change*, vol. 76, pp. 118-127, 2009.

Pilkington, A., & Smith, D. (2009). *Advanced Project Management* (2nd ed.) Chartered Institute of Purchasing and Supply.

Pilkington, A., (2008) "Engineering Management or Management of Technology? A Bibliometric Study of IEEE TEM," *International Journal of Management Science and Engineering Management,* Vol. 3 No. 1, pp. 63-70.

Preuss, L. and Córdoba, J.R (2009) A knowledge management perspective of corporate social responsibility. *Corporate Governance: the International Journal of Business in Society*, 9(4) pp.517-527.

Preuss, L., & Córdoba-Pachon, J. (2009). A knowledge management perspective of corporate social responsibility. *Corporate Governance: The International Journal of Business in Society,* 9(4), 517-527.

Wu, C., Barnes, D. (2012) "A dynamic feedback model for partner selection in agile supply chains", *International Journal of Operations & Production Management*, 32(1), in press.

Wu, C. and Barnes, D. (2010) "Formulating partner selection criteria for agile supply chains: a Dempster-Shafer belief acceptability optimisation approach", International Journal of Production Economics, 125 (2), 284-293

Wu, C., Barnes, D., Rosenberg, D. and Luo, X. (2009) "An analytic network process-mixed integer multi-objective programming model for partner selection in agile supply chains", *Production Planning & Control*, 20(3), 254-275

Wu, C. And Barnes, D. (2009) "A model for continuous improvement in supplier selection in agile supply chains", *Knowledge and Process Management*, Vol.16 No.3 pp.85-110

Zheng, Y and B. Stahl (2011) "Technology, Capabilities and Critical Perspectives: What can critical theory contribute to Sen's capability approach?", *Ethics and Information Technology* , Special Issue on ICT and the Capability Approach, 13 (2), pp.69-80.

Zheng, Y, (2009) "Different spaces for e-development? What we can learn from the Capability Approach", *Journal of Information Technology for Development*, 15(2), p. 66-82.

Zheng, Y, W, Venters and T. Cornford (2011) "Agility, Paradox and Organizational Improvisation: the Development of a particle physics Grid", *Information Systems Journal,* 21 (4), pp. 303-333

# Teaching: Undergraduate & Postgraduate

The TIM group offers the following modules on undergraduate and postgraduate taught programmes. TIM Group members also teach on a number of interdisciplinary subjects and subjects offered by other departments.

| | |
|---|---|
| BI561 | People and Technology (MSc BIS) |
| BI564 | MSc BIS Dissertations |
| BI565 | Technology Management (MSc BIS Elective) |
| BI566 | Information Systems Theory & Practice (MSc BIS) |
| BI567 | Knowledge Management (MSc BIS) |
| BI569 | Networked organisations (MSc BIS Elective) |
| MN202 | Management Information Systems (Undergraduate) |
| MN203 | Production & Operations Management (Undergraduate) |
| MN331 | UG Dissertations |
| MN332 | Project Management (Undergraduate) |
| MN342 | Strategies for the Info Age (Undergraduate) |
| MN355 | e-commerce (Undergraduate) |
| MN5121 | International Operations & Information Systems (MSc Int Mgt) |
| MN5122 | International Operations Management (MBA) |
| MN5123 | Information Systems (MBA) |
| MN525 | MBA/MSc International Management Dissertation |
| MN567 | Knowledge Management (MBA & MSc IM Elective) |
| MN601 | PhD methods |

# Community Interaction & Service

Dr Alan Pilkington is Chair of IEEE Technology Management Council, UKRI Chapter (http://ewh.ieee.org/r8/ukri/em_pc/)

Dr Amany Elbanna is Chair of the Association of Information Systems Special Interest Group on Enterprise Systems (AIS SIG ENTSYS) from August 2008-August 2011.

Dr Edward Bernroider is Academic Advocate for the Information Systems Audit and Control Association (ISACA, USA).

Dr Edward Bernroider serves as Scientific Appointee for Integration3000(.at) – Association for Promoting Interdisciplinary Research, Vienna, Austria.

Dr G. Harindranath is a Founding Executive Committee Member of the new AIS Affiliate conference, the International Conference on Information Resources Management (Conf-IRM).

# Journal Editorial Board Representations

AIS Transactions on Enterprise Systems

Information & Management (I&M)

Information and Management

Information Technology and People Journal

International Journal of Innovation and Technology Management (IJITM)

International Journal of Knowledge and Learning

International Journal of Knowledge Management (IJKM)

International Journal of Organizational Design and Engineering

International Technology Management Review (ITMR)

Journal of Enterprise Information Management

Journal of Global Information Management (JGIM)

Journal of information technology and the systems approach (IJITSA)

Knowledge Management Research & Practice

The Open Information Systems Journal (TOISJ)

VINE: The Journal of Information and Knowledge Management Systems

# Conference Organisation

The TIM Group hosted:

OR52- Operational Research Society Annual Conference, September 2010.

TIM Group members were involved in organising the following conferences:

Conf-IRM 2012 - International Conference on Information Resources Management, Vienna.

Conf-IRM 2009 - International Conference on Information Resources Management, UAE

ECIS 2009 - European Conference on Information Systems, Verona, Italy

ICMIT 10 – IEEE 5th International Conference on Management of Innovation and Technology, Singapore.

International Conference of Information Systems (ICIS), 2011

IEEM 11 - IEEE International Conference on Industrial Engineering and Engineering Management, Singapore.

IEEM 09 - IEEE International Conference on Industrial Engineering and Engineering Management, Hong Kong.

IFIP 8.6, 2011.

IFIP WG 9.4 International Conference on the Social Implications of Computers in Developing Countries, Kathmandu

OR52- Operational Research Society Annual Conference, London.

PICMET09 - Portland International Conference on Management of Engineering and Technology

# Consultancy

TIM Group members have recently worked with the following organisations:

British Airways

Chartered Institute of Purchasing and Supply

Corus (UK)

Hult International Business School

IEEE

Integration 3000 (Austria)

JP Morgan Fleming (UK)

Mobilkom Austria Group

Oesterreichische Post AG (Austria)

tecnet capital Technologiemanagement GmbH (Austria)

YKK (Japan)