Further details: CASE studentship, closing date 12th February 2018

Transitions in the technologies and practices of office work: Manchester's administrative industries (1960-2017)

Introduction

In 2013, the service sector accounted for 79% of UK GDP, an increase from 46% in 1948 (ONS). This sector – including what are here referred to as 'administrative industries' or 'office work' – represents a key component of the UK's economy. In Manchester, employment in the service sector doubled between 1961 and 2011, contributing to the claim that it is the first big industrial city to have successfully reinvented itself after the decline of manufacturing (Kidd and Wyke 2016). This PhD investigates the relation between innovations in office technology - from filing cabinets and fax machines through to hard drives and email (Royal Society, 2009) – and changing competencies and experiences of office work.

It makes use of the Museum of Science and Industry's (MSI) collection of office-related objects, and of secondary sources together with interviews and focus groups to address the following high-level research questions.

- How have innovations in office technology affected the nature and location of office work and vice versa?
- How have the skills, competencies and experiences of office work changed (and stayed the same) from one generation to the next?
- How might the Museum of Science and Industry represent and conceptualise transformations in the technologies *and* practices of office life?

In tackling these questions, and in showing what past innovations in office work might reveal about the future, the PhD student will bring together concepts and approaches from science and technology studies, material culture and the sociology of everyday practice, also developing a novel integration of methods of material culture/object analysis, interviews, focus groups and archival research.

Classic works in science and technology studies (STS) – for example, on the path-dependence of the typewriter (David 1985), the details of photocopier repair (Suchman 2007), and the organisation of business software (Pollock and Williams 2016) - provide insight into human-machine interfaces, and the relation between specific 'devices', users and institutions. New work is required to explain how digital and non-digital office technologies combine in shaping and transforming the competencies, practices and experiences of administrative work from the 1960s onwards (Hui et al. 2018). Rather than focusing on individual technologies and their 'users' the aim is to provide a more systemic account of 'the office' as a shifting nexus of practices and material arrangements.

The research design builds on these ideas, treating 'the office' as an innovation junction: that is as a site in which multiple technologies and practices intersect (De Wit et al. 2002), and in which 'new' and established techniques, procedures and skills combine (Yli-Kauhaluoma, Pantzar, and Toyoki 2013).

Research design

The project has been co-designed with staff from the MSI and will be developed with the appointed student. The empirical work is methodologically innovative and manageable and will enable the student to address the research questions outlined above. In outline it involves four related steps each to be refined by the student as the project develops.

1. Charting the growth and transformation of Manchester's 'administrative industries'

Alongside a review of relevant theoretical literature, the first task is to document the rise of office work whether associated with new forms of business service or in support of more traditional industries in and around Manchester from the 1960s to the present. The student will have access to archive material from MSI (business histories) that can be combined with other secondary sources (trade directories, city planning strategies, data on the labour force) to provide a 'birds eye' view of trends in the significance of office work for the regional economy, and for patterns of employment and land use in the city.

2. Analysing innovations in office technology and practice

The next step is to discover when and how changes in office work relate to innovations in office technologies.

The MSI has an extensive collection of objects associated with core office practices: namely, calculating, copying, communicating and storing. Examples include punched card machines, arithmometers, comptometers, calculators, typewriters, duplicators, dictating machines, teleprinters, telepoint and telephones (table, intercom, mobile), answering machines, facsimile machines, paper punches and perforators and filing cabinets along with various generations of word- and data-processors, computers and accessories. Other relevant sources include materials produced by firms making office technology such as Fowler and Co (calculators). The student will review this collection and develop methods of categorising sets of objects that underpin or support transformations in their choice of one or more of the four core administrative practices.

This exercise will inform the specification of three periods of about 5 years duration (e.g. 1960-65; 1985-90 and 2010-2015) characterised by significant changes in office technologies. The student will conduct oral history interviews (20 in total) and two focus groups to investigate the shifting relation between office technologies and procedures and the social and spatial organisation of office work. The oral history interviews will provide insight into office life over the last six decades, and from different perspectives (from office managers to clerical staff), and will pay special attention to the periods of transition, including the so called 'digital revolution'. The focus groups will be organised with MSI and will concentrate on contemporary experiences of office work and office technologies.

These methods will reveal the acquisition and loss of skills across generations of office workers, and the relation between these processes and the organisation and coordination of office work.

3. Analysis and integration

These research materials – the oral histories, focus groups, object analyses, data on office employment – will be interrogated and combined in different ways. Some lines of enquiry will follow the introduction and transformation of specific technologies and practices over time. As well as 'zooming in' on critical moments it will be important to follow developments in office work over the longer term. Together, these approaches will allow the student to tackle the research questions around which the project revolves, and to advance social theoretical understanding of how *conjunctions* of technologies and practices develop together.

4. Impact and dissemination - conceptualising and representing Manchester's administrative industries

The research is in part designed to reveal and articulate the significance of 'office work' within and as part of Manchester's more familiar industrial heritage. The challenge is to inform the ways in which MSI represents the complex intersection of technologies and practices. Insights from the research will feed into a workshop, the aim of which is to help MSI identify and consider objects and archives from their collections and new acquisitions through which to represent Manchester as a dynamic centre of administrative work in their exhibitions, public programmes, and online resources.

As well as producing the PhD, the student will be encouraged to submit work to peer reviewed journals such as the Journal of Material Culture; Science, Technology and Human Values; Science Museum Group Journal http://journal.sciencemuseum.ac.uk/. There will be other opportunities for dissemination in MSI's public programmes, notably Manchester Science Festival (annually in October), and MakeFest (annually in August). A final dissemination event, at the MSI, will consider the implications of the project's approach for all science and technology museums. We expect the student to produce and publish insights from the research aimed at a wider audience, for instance via articles in *The Conversation.*

Timetable and plan of work

	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S
Induction, literature reviews																																				
Part 1: Manchester's administrative industries																																				
Ethical approval								x																												
Part 2a: Object analysis																																				
Part 2b: Focus groups at MSI																																				
Part 2c: Interviewing																																				
Part 3: Impact and dissemination																																				
Time at MSI																																				
Focusing on writing																																				
Supervision with case partner	x		x		x		x		x		x		x		x		x		x		x		x		x		x		x		x		x		x	
Annual Panel									x												x													x		
Confirmation Panel															x																					
Intellectual party/summer conference									x												x													x		
Other conferences								x															x								x					
Dissemination event																																		x		

The project will help train a future social scientist and equip him or her with the skills and expertise required to make a real contribution to knowledge. The research will generate new ideas and concepts at the intersection of science and technology studies, sociology, material culture and

business and will develop novel methods for linking the detailed analysis of objects with first hand experiences of their integration in administrative practices that are, in turn important for local employment and the Manchester economy.

The studentship provides experience of work outside the academic environment. As a member of MSI's Curatorial & Archives team for the duration of the project, the student will have the opportunity to work alongside curators, archivists, conservators, and registrars, and gain first-hand experience of collections management, exhibitions and events.

References

David, P. 1985. "Clio and the Economics of QWERTY." *The American Economic Review* 75 (2):332-337. doi: 10.2307/1805621.

De Wit, O., J. Van den Ende, J. Schot, and E. Van Oost. 2002. "Innovation junctions - Office technologies in the Netherlands, 1880-1980." *Technology and Culture* 43 (1):50-72.

Hui, A., T. Schatzki, and E. Shove. 2017. *The Nexus of Practices: Connections, Constellations, Practitioners*: Taylor & Francis Group.

Kidd, A., and T. Wyke. 2016. *Manchester: Making the modern city*: Liverpool University Press

Office for National Statistics: http://visual.ons.gov.uk/five-facts-about-the-uk-service-sector/

Pollock, N., and R. Williams. 2016. *How Industry Analysts Shape the Digital Future*: Oxford University Press.

Royal Society (2009) Hidden wealth: the contribution of science to service sector innovation,

https://royalsociety.org/~/media/Royal_Society_Content/policy/publications/2009/7863.pdf

Shove, E., M. Pantzar, and M. Watson. 2012. *The Dynamics of Social Practice: Everyday life and how it changes*. London: Sage.

Suchman, L. 2007. *Human-machine reconfigurations : plans and situated actions*. Cambridge.New York: Cambridge University Press.

Yli-Kauhaluoma, S., M. Pantzar, and S. Toyoki. 2013. "Mundane Materials at Work: Paper in Practice " In *Sustainable practices: social theory and climate change*, edited by E. Shove and N. Spurling. London: Routledge.

The role of the CASE partner

Alice Cliff will meet with the student and academic supervisors at least every two months usually in person but sometimes via skype.

MSI will provide office space and a workstation within the Curatorial & Archives team offices, and access to data and resources of the team, such as a Museum email address, security pass, and invitations to staff meetings. The student will be one of four doctoral students currently attached to the team at MSI, and will be encouraged to attend the Science Museum Group research seminars.

MSI will provide a full induction programme for the student which will include:

- Health & Safety training
- Tour of the site, and briefing about the organisational structure of the Museum and Group, and relevant business plans
- Induction to Library and Archives
- Induction to Object Stores
- Training in object handling and hazards in collections
- Training in use of the object database

Work to be undertaken by the student at MSI will include:

- Review of relevant object collections (Computing, Printing, Telecommunications)
- Object analysis
- Archival research (business records, photographs and ephemera)
- Focus groups and interviews

See the timetable in the project description for details of when these parts of the work will be done at MSI.

As a member of MSI's Curatorial & Archives team for the duration of the project, the student will have the opportunity to work alongside curators, archivists, conservators, and registrars, and gain first-hand experience of collections management, exhibitions and events.

The research itself will provide new knowledge and insight into the role of office technologies in Manchester's 'administrative industries'; it will work with and help develop a distinctive method of conceptualising relations between objects, practices and the local economy and it will deepen links between MSI and Lancaster University. More broadly, the project will extend and work with ideas and theories that are of potential significance to other aspects of MSI and SMG's work.

Supervisors

Elizabeth Shove

Elizabeth Shove is Professor of Sociology and PI of the DEMAND (Dynamics of Energy, Mobility and Demand), a £7.1 million RCUK funded research centre (2013-2018) which focuses on fundamental questions about how energy is used in society, and how patterns of consumption and demand evolve. Elizabeth's research deals with themes of everyday consumption and material culture, and she is a leading figure in the field of 'social practice theory' (see, The Dynamics of Social Practice: Everyday life and how it changes, with Mika Pantzar and Matt Watson (Sage 2012). More recent work has focused on the relation between infrastructures and practice. Within the DEMAND Centre, Elizabeth is directly involved in 7 projects, one of which considers the future of office work (with Noel Cass), and the impact of more mobile technologies and digital infrastructures on office property and the character of office work. Elizabeth has a long standing interest in how ordinary technologies configure everyday practices at home and at work, and how even humble devices such as the fridge freezer link consumers to much more extensive systems of organisation and provision. Though

broadly located within the field of material culture/science and technology studies, this research has been influential in moving beyond discussions of the 'user' and in providing a means of conceptualising relations between co- and pre-existing material arrangements, and the complexes of social practice that such configurations variously transform and sustain.

Elizabeth has previously set up and supervised 9 CASE studentships, and three sponsored studentships (co-funded by industry and the university). Elizabeth's publications include 11 books, one co-edited with Nicola Spurling, 50 journal articles and more than 40 book chapters, the most relevant of which are detailed below.

Hui, A. Shove, E. and Schatzki, T. (Eds) (2016) The Nexus of Practices: Connections, constellations, practitioners, London: Routledge.

Shove, E. (2016) 'Matters of Practice' in Hui, A., Schatzki, T. and Shove, E. (Eds) The Nexus of Practices: Connections, constellations, practitioners, London: Routledge.

Shove, E. (2016) 'Infrastructures and practices: networks beyond the city', in Coutard, O. and Rutherford, J. (Eds), Beyond the Networked city: infrastructure reconfigurations and urban change in the North and South London: Routledge. P242-258.

Shove, E., Watson, M. and Spurling, N. (2015) 'Conceptualising connections: Energy demand, infrastructures and social practices' European Journal of Social Theory, 18(3) 274-287.

Rinkinen, J., Jalas, M. and Shove, E. (2015) 'Object Relations in Accounts of Everyday Life' Sociology 49(5): 870-885.

Shove, E., Pantzar, M. and Watson, M. (2012), The Dynamics of Social Practice: Everyday life and how it changes, London: Sage.

Shove, E., Watson, M., Hand, M. and Ingram, J. (2007) The Design of Everyday Life, Oxford: Berg.

Nicola Spurling

Dr Spurling's research focuses on how social practices are shaped by and shaping of policy, institutions, professions and individual biographies. She has explored these interests by focusing on how working lives, everyday lives and mobility have changed in post war Britain (1950s onwards). This has included a study of the changing work practices and careers of academics between 1960 and 2000, and a study of changing homes and daily lives in Stevenage New Town, for which she closely collaborated with the Hertfordshire County Council Archive and Stevenage Museum. She is experienced in archive, oral history and biographical research methods, and in studying everyday practices in the past and present. Her work has made substantial contributions to the field of theories of practice and sustainability interventions on issues of work and time, infrastructure, transportation, planning and energy demand in everyday life. Her current work focuses on theories and methods of Everyday Futures, which builds on previous research to develop contributions to the futures field. She recently founded the Everyday Futures research network http://wp.lancs.ac.uk/everydayfutures/, an international, interdisciplinary, cross-sector network of over 100 people.

Prior to January 2016 Nicola was affiliated to the DEMAND Centre (Dynamics of Energy, Mobility and Demand) and the Sustainable Practices Research Group. She was the lead author on the report for policymakers "Interventions in practice: re-framing policy approaches to consumer behaviour" and has worked with a range of non-academic stakeholders including Transport for London, IBI Group (Landscape Architects), the Scottish Government and the Stevenage Museum.

Spurling, N. (2017 - forthcoming) Making Space for the Car at Home: Planning, priorities, practices, in Shove, E. and Trentmann, F. Infrastructures in Practice: the evolution of demand in networked societies.

Spurling, N. (2015) Differential Experiences of Time in Academic Work: how qualities of time are made in practice, Time and Society 24 (3): 367-389.

Spurling, N. and McMeekin, A. (2015) 'Interventions in Practices', in Yolande Strengers and Cecily Maller (eds) Social Practices, Interventions and Sustainability: Beyond Behaviour Change, Routledge.

Shove, E., Watson, M. and Spurling, N. (2015) 'Conceptualising Connections: Energy Demand, Infrastructure and Social Practices', European Journal of Social Theory 18(3) 274-287.

Alice Cliff

Dr Alice Cliff is Curator of Science and Technology at the Museum of Science and Industry, Manchester. She has worked in museums since 1997, and holds a PhD in the History of Science, Technology and Medicine from the University of Manchester. Her PhD research focused on how the specialty of intensive care was shaped by the people, place, practices and technology of critical illness, making extensive use of objects, archives and oral history research methods. Her work made a contribution to the fields of material culture in research and the history of specialisation and expertise.

Alice has been a visiting scholar at the University of Sydney's Centre for Values, Ethics and the Law in Medicine, and her work on the notions of expertise was substantially advanced by interaction with social researchers. She has also used quantitative research methods in an earlier study of the prevalence of ague (malaria) in the fens of East Anglia during the 19th century.

Alice regularly undertakes research for exhibitions and public programmes at MSI. Shortly after the 'Brains: Mind as Matter' exhibition in 2014, she wrote about a set of miniature phrenological specimens to demonstrate the importance of material culture to the practice of phrenology in the 19th century. Her current research centres around a group of objects selected for an exhibition about electricity, and in particular on the ways in which the objects shape, and are shaped by, everyday practices of consumption.

Cliff, A. (2014) 'Coming home – Bally's miniature phrenological specimens', *Science Museum Group Journal*, Issue 1, http://dx.doi.org/10.15180/140102.