

CELEBRATING 50 YEARS



US

UNIVERSITY
OF SUSSEX

THINKING ABOUT
THE FUTURE
A Critique of
THE LIMITS TO GROWTH

Celebrating
50 years of shaping
science, technology,
innovation policy,
research and
teaching



FOREWORD



Foreword

PROFESSOR JOHAN SCHOT
DIRECTOR OF SPRU

Over 50 years, the Science Policy Research Unit (SPRU) at the University of Sussex has developed a reputation as a leading academic centre at the forefront of thinking on science, technology and innovation. SPRU has been – and continues to be – home to many eminent scholars; the anniversary is testimony to the quality of our staff both academic and administrative and of our collaborators and partners. This commemorative book is intended as a snapshot of the rich history of SPRU, its research, teaching, impact and, importantly, people. I am grateful to the many SPRU alumni who have taken the time to submit their personal ‘SPRU Story’, which combine here to give a sense of the real essence of SPRU throughout the decades and demonstrate that the SPRU values are more than words.

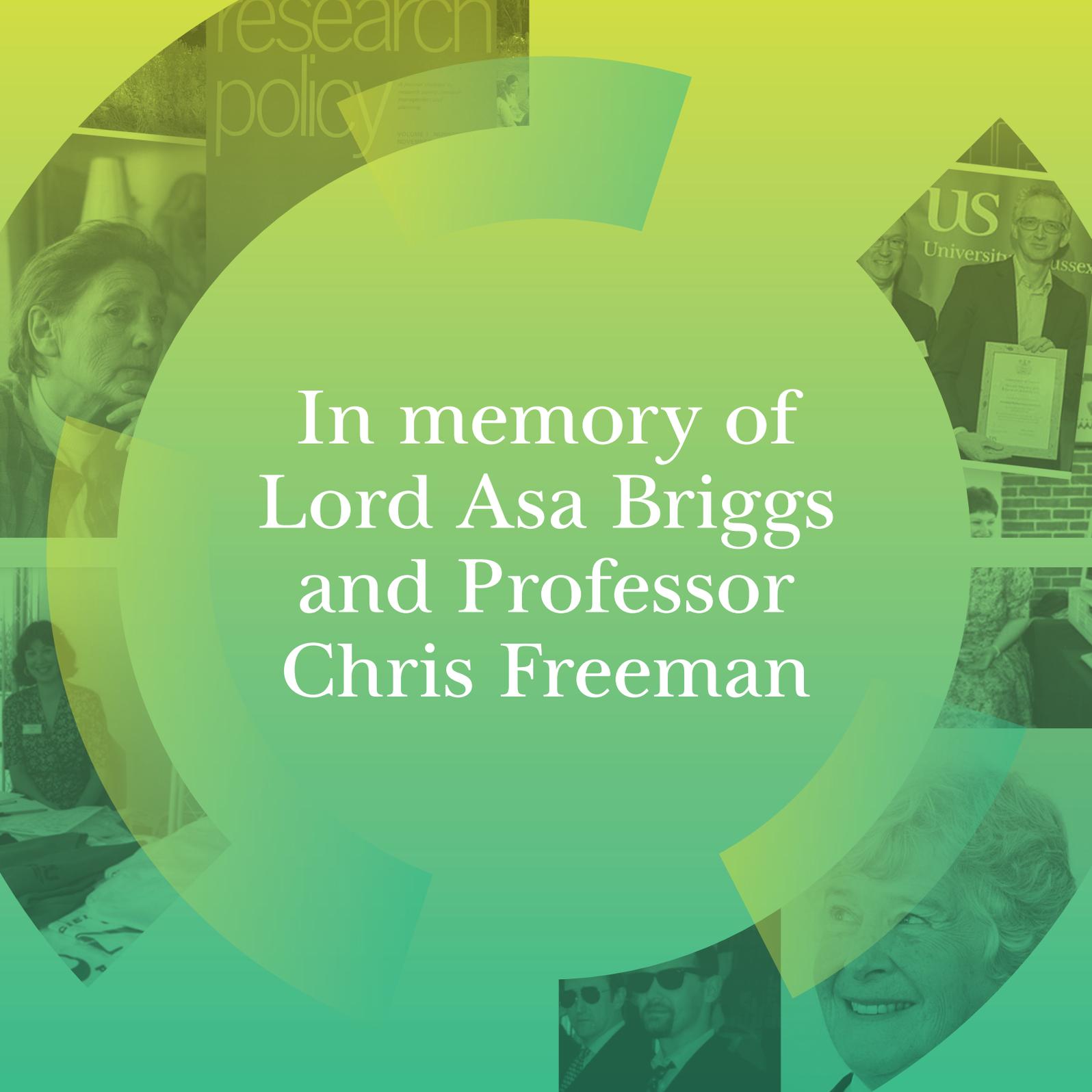
Since the 1980s, SPRU has run its own Masters courses, offering the first and most comprehensive introduction to Science and Technology Policy with our so-named MSc, and a doctoral research programme, teaching over 1000 students at Masters level alongside supervising over 350 PhD theses. Today, our alumni can be found on every continent. We have launched a new scholarship programme to enable high potential students – future leaders – to study a Masters at SPRU. These scholarships are funded by alumni and friends who share SPRU’s vision of science, technology and innovation policy for transformative change. We look forward to welcoming the first cohort of 50th Anniversary Scholarship MSc students in September 2016 with further scholarship students in subsequent years.

At the same time that we celebrate this significant milestone for our organisation, we see that the world is facing an increasing number of crises and persistent problems. The modern way of provisioning our basic needs is not sustainable in the long run, and is already causing climate change, profound societal turmoil, tensions and conflict on an unprecedented scale. It is clear that we cannot globalise our current ways of providing food, energy, mobility, healthcare and water.

Looking ahead to the next 50 years, I believe that science, technology and innovation are vital to the future of our economy, environment and societal prosperity. Of course, innovation is not always positive; some forms of innovation have played a role in creating the problems we need to deal with today. Representing the need for a new approach to innovation policy, the theme for SPRU’s 50th Anniversary Conference is ‘Transforming Innovation’.

SPRU has embarked on an ambitious new strategy focused on long-term transformative change and innovation across different sectors, societies and structures. The work is focused on two primary aspects: the potential for innovation to radically reconfigure the entire economy and society, and the associated need to transform processes of innovation governance.

It is my pleasure to be able to announce at this time the establishment of the new Transformative Innovation Policy Consortium.



In memory of
Lord Asa Briggs
and Professor
Chris Freeman

IN MEMORY OF LORD ASA BRIGGS AND PROFESSOR CHRIS FREEMAN



LORD ASA BRIGGS

In 1966, then Pro Vice-Chancellor at the University of Sussex, Asa Briggs persuaded Professor Chris Freeman to come to Sussex as Founding Director of SPRU.

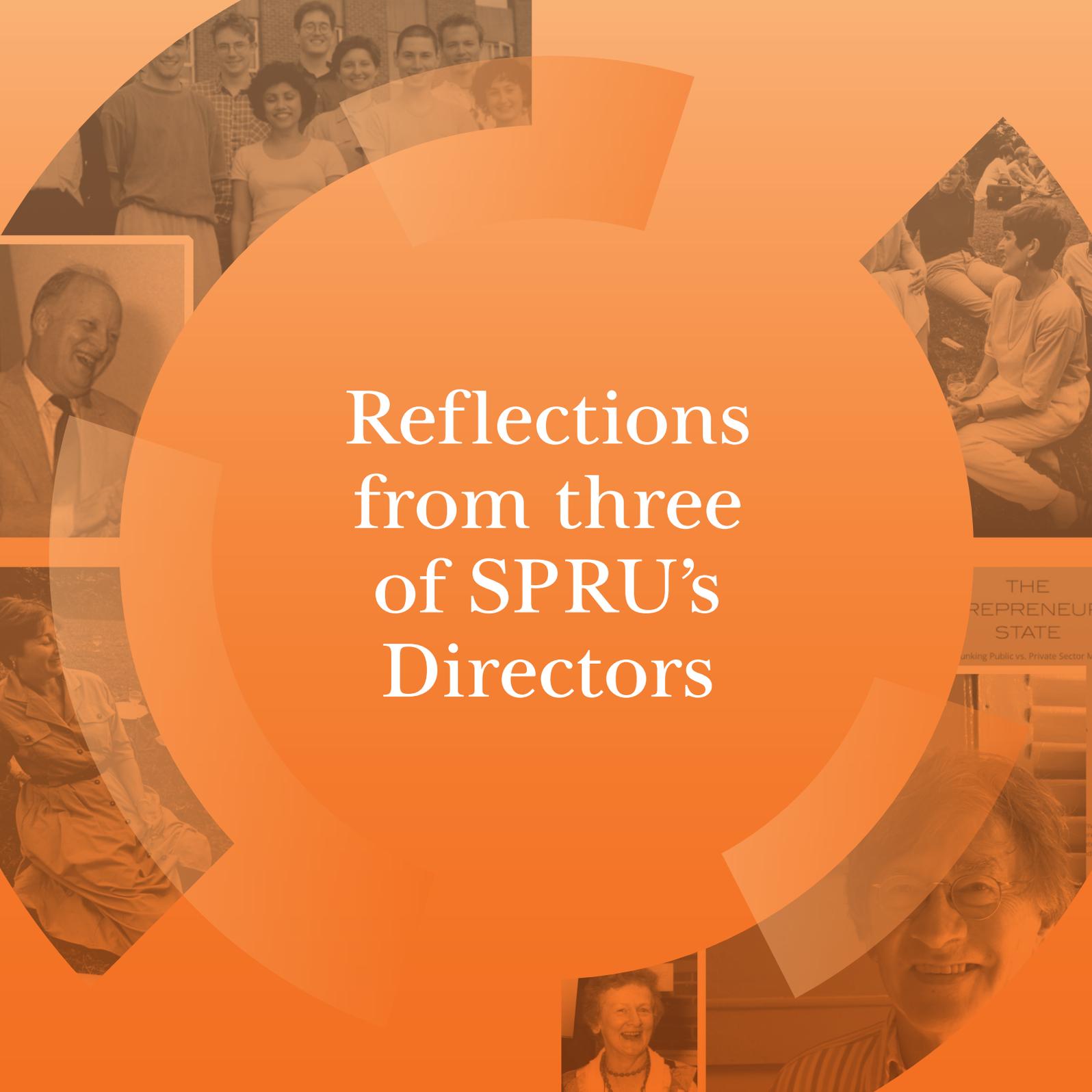
Established as one of the world's first interdisciplinary research centres in the field of science, technology and innovation policy, Asa Briggs' innovative, interdisciplinary approach to teaching and research has been a key feature of SPRU's work ever since. Prior to his death in March 2016, and ahead of a launch event to mark the beginning of SPRU's 50th Anniversary celebrations, Lord Briggs remarked to Professor Roy MacLeod that: "establishing SPRU, with others at the University of Sussex, was one of the achievements he was proudest of in his whole academic and public-service life". We are thankful for his vision and for creating the internal appetite at the University of Sussex that allowed SPRU to form.



PROFESSOR CHRIS FREEMAN

Professor Chris Freeman (September 11, 1921 – August 16, 2010), an economist, was one of the most eminent researchers in innovation studies, and prominent among modern Kondratiev wave and business cycle theorists.

Alongside his role as Director of SPRU, Chris was RM Phillips Professor of Science Policy and later Professor Emeritus at University of Sussex. His fields of specialisation were the economics of innovation and technical change, science and technology indicators and definitions of R&D (leading to the 1963 Frascati Manual), the diffusion of technologies, structural change in the world economy, and the 'catch-up' efforts of developing countries. His influence on generations of researchers was wide and profound and is expressed throughout the many personal SPRU Stories that appear later in this book. Programmes that have their origins in his work can be traced at leading public policy institutions across the world. Together with colleagues at SPRU and internationally, Chris founded and edited the journal *Research Policy* which became the leading journal in the field and is today edited by Ben Martin (another former SPRU Director), Ed Steinmueller and Paul Nightingale.



Reflections from three of SPRU's Directors

THE
REPRENEUR
STATE

Ranking Public vs. Private Sector M

REFLECTIONS FROM THREE OF SPRU'S DIRECTORS



GEOFF OLDHAM
ACTING DIRECTOR 1980–1982, DIRECTOR 1982–1992

It was on my first morning as Director of SPRU that I received a phone call requesting that I see the Vice Chancellor immediately. I went over to his office and was shown a letter the Vice Chancellor had received from the Vice Chancellor of Manchester University. In it the Manchester VC threatened to sue Sussex University for defamation of scientific character. The person defamed was no less than Sir Bernard Lovell, the father of Radio Astronomy. The persons accused of causing the defamation were two relatively new SPRU Research Fellows: Ben Martin and John Irvine. “Just sort this out Geoff” was the Sussex VCs demand, “I don’t want there to be any legal action if at all possible.”

The SPRU project that had provoked the Manchester VC to write such a letter was a comparative study of a number of European big science projects. In particular there was a comparison of the scientific outputs from four major radio telescopes. The scientific outputs were measures of scientific publications and citations of these publications. Manchester and Cambridge Universities were the two UK radio telescopes included in the study.

The results showed that whereas the Cambridge radio telescope had performed well, Manchester’s Jodrell Bank telescope had not. In fact, Irvine and Martin in their first draft report had likened the performance of Jodrell Bank to that of a 4th Division football team. I think this is what had riled Manchester more than the actual results of the SPRU analysis.

It was a fairly standard SPRU practice to send first drafts of reports to institutions mentioned so that the leaders could correct any errors

and provide us with latest statistics. This is why the radio astronomy results had been sent to Sir Bernard Lovell.

After long conversations with Ben and John and a careful analysis of their methodology and results I contacted Sir Bernard and went to Manchester to meet him. It was a constructive meeting and led to John himself going to meet Sir Bernard and for the latter agreeing to provide SPRU with the latest statistics on publications.

These changes did not make any fundamental changes to the SPRU results, but they did provide SPRU with an opportunity to remove reference to 4th Division football!

One fact came out of our discussions with Sir Bernard Lovell that made me realize that we needed to recognize other dimensions, not just the statistics. It turned out that Cambridge and Manchester had both previously applied for major new funds for improvements to their telescopes from the research funding agencies, at the same time. When Sir Bernard had realised this he withdrew the Manchester proposal with the intention of re-submitting the following year. However the following year coincided with a cut in big science funding in the UK and Manchester did not receive the funds for new equipment. This was one of the reasons why Cambridge’s results were better than the Manchester results.

The Sussex VC considered the results satisfactory. There was no legal follow up. John and Ben’s bibliometric studies received wide acclaim and SPRU became known for its excellence in science policy research – not only in technology policy research. Not bad for the first day in office!

REFLECTIONS FROM THREE OF SPRU'S DIRECTORS



BEN MARTIN
1997–2004

As the first external Director, Michael Gibbons (1993-96) had shaken SPRU up, setting it on a new trajectory. My task was one of consolidation and further development. Before assuming office, I visited similar organisations in Europe and the US to study how they were run. This provided an invaluable repertoire of ideas.

RESEARCH

The first task was to find new funding when ESRC support for the STEEP Centre ended in 1997. Successful initiatives included the COPS Centre (on complex product systems), work by PICT/INK on ICTs, the Energy Group project on Chernobyl, work on emerging areas such as climate change and biotechnology, and innovation in the built environment. A key priority was 'to put in place the next generation of SPRU researchers', replacing those who had retired or moved on. Those coming to prominence during this time included Hobday, Stirling, Tidd, Berkhout, Gann, Geuna, Watson, Nightingale and Molas. Initiatives to aid these developments included off-the-record meetings with newly appointed officials (e.g. the Government Chief Scientific Advisor) to glean intelligence about emerging issues. Another initiative involved tacit knowledge workshops to share experience about what made for successful research and impact.

TEACHING

The mid-to-late 1990s witnessed a vintage crop of DPhils, many of whom are now leaders in the field. Besides pioneering new lines of research, they also came up with the idea of the SPRU DPhil Day and the Jahoda Lecture. SPRU's Masters programmes were successfully renewed while the early 2000s saw a major expansion of SPRU undergraduate teaching, going from the Management Minor to a Major (half degree), and subsequently a full Business and Management

degree. This involved almost doubling the number of SPRU teaching posts from 8 to 15.

THE FREEMAN CENTRE

Plan for this began in 1998 on a napkin as Mike Hobday and I breakfasted in Tokyo. It developed into a 250-page proposal to the Joint Infrastructure Fund (JIF) involving considerable input from across SPRU and CENTRIM (our partners from Brighton University) and £120k in fees for architects. The success rate for JIF proposals was only 2%, so we spent £120k to buy a lottery ticket! However, we were successful, eventually moving in during 2003. This launched a new phase in SPRU's development, not least a very fruitful collaboration with CENTRIM.

SPRU'S SHARED VALUES

Throughout my time, I attempted to reinforce the spirit of SPRU. I took every opportunity to remind colleagues of the shared values that bind SPRU together and ensure it is greater than the sum of its parts. Those values include a desire to make the world a better place; being problem-centred (rather than theory driven); interdisciplinarity; integration of research and teaching; speaking truth to power; an egalitarian ethos; autonomy of researchers; and a collegial 'all for one' approach.

ACKNOWLEDGEMENTS

None of the above would have been possible without the help of colleagues, especially Jackie Fuller, Robin Mansell, Nick von Tunzelmann, Martin Bell, Mike Hobday and Sue Large. I was also greatly helped by SPRU's Advisory Panel (especially Richard Nelson, Franco Malerba, Frieder Meyer Kraemer, Suzanne Warner and Helen Wallace), who provided invaluable advice at critical times.

REFLECTIONS FROM THREE OF SPRU'S DIRECTORS



PROFESSOR GORDON MACKERRON
2008–2013

I always enjoyed being part of SPRU and that was why I – foolishly, as it seemed to some close to me – threw my hat into the ring when a new Director was to be appointed in 2008.

Looking back, what strikes me? The first thing is the continuity of the ethos of SPRU. Colleagues were invariably collegial, commitments to making a positive difference to the world remained as strong as ever, and the spirit of egalitarianism was undimmed. Not everything was rosy however. Progress towards genuine equality between male and female staff was limited – if there was any advance at all. Having a spirit of egalitarianism does not translate into practice, so this is a major ongoing issue. And of course external forces were unfavourable, so much of my time was taken with trying to find ways forward in the face of these external pressures, though we were in the end, and to the great regret of all of SPRU, forced to leave the Freeman Centre.

Yet there were other things that went well. We revived SPRU's then-reduced engagement with developing country issues, partly via IDS and STEPS, and partly through internal work. This was a return to some of the earlier SPRU commitments.

I also tried hard, having myself had over 30 separate research contracts with SPRU in the past, to improve conditions for Research Fellows and to counteract any divide between 'teaching' and 'research' staff. Whatever the formal or contractual position, we need to be sure that all academics at SPRU are part of a single community. In teaching, the scope of SPRU's Masters teaching was extended into new areas, including sustainability.

On interdisciplinarity, it was always a pleasure to tell anyone who wanted to hear that I had no idea what was the first discipline of most SPRU staff – and then seeing their puzzlement. I was also aware, that coming from the 'energy tribe' within SPRU, it was important to not be seen as its representative on high. I guess others will judge whether I succeeded in this.

Finally there is the commitment to being focussed on big, real world problems and being unafraid, where necessary, to 'speak truth to power'. These commitments, I believe, did not waver over these five years, and they have both been characteristic of SPRU in all the time since 1974 that I have been happy – and proud – to be part of it.

A collage of blue-tinted photographs and documents. In the top left, a document reads 'ALPHABETARY' and '25 MAR 1969'. Below it is a smiling woman. To the right is a man's face. In the top right, a group of three people is shown. In the bottom left, a man with glasses is visible. In the bottom right, a man in a suit and glasses is smiling, and below him, a woman is partially visible. A large white circle is centered on the page, containing the text 'SPRU stories - a snapshot of the histories told'.

SPRU stories
– a snapshot of
the histories told

Highlights from the SPRU History Project

In the current tenure, it is no coincidence that a qualitative and quantitative historical assessment of the Science Policy Research Unit (SPRU) and its half century has been gathered and produced.

“We commissioned the SPRU History Project to record the voices of the institution’s rich trajectory. SPRU has maintained a significant reputation, nationally and internationally for 50 years. This is quite an accomplishment.”

As an institution and as a people, by extracting and documenting the histories entwined into SPRU’s past, and by understanding those that make up its present, SPRU can be widely discerned and represented. As the Unit enters its next phase of research focus, concentrating on urgent issues connected to our transitioning world, it is pertinent to examine and make sense of the preceding paradigms and the people that constructed and shaped the path. The SPRU History Project is a spring board

into the internationally renowned research unit’s next age and, therefore, that of the globe’s. The very process of commissioning and conducting the project has helped provide enrichment and amelioration for the genealogy of staff and students - the SPRU ‘family’ – following the previous, frequently outstanding, occasionally tumultuous, 50 years.

As Professor Schot, Director of SPRU and Professor of History of Technology and Sustainability Transitions, enlightens: “We commissioned the SPRU History Project to record the voices of the institution’s rich trajectory. SPRU has maintained a significant reputation, nationally and internationally for 50 years. This is quite an accomplishment. We felt it important to record the multiple narratives associated with this achievement. With the anniversary conference approaching the SPRU History Project formed part of a contemplative, reflective period. Ultimately the report has reasserted the position and value of SPRU as a connected, vibrant academic unit. Now anchored in the new School of Business, Management and Economics, we are entering an exciting period of research and prosperity built on those strong foundations and history.”

This summary– part of SPRU’s gilded half-century reflections and celebrations – gives the headlines, the snippets, the fundamental facts, key themes and milestones laid out in the full study. In this commemorative snapshot, our headline SPRU narrative

is taken, principally, from the qualitative report which centred around 25 oral history accounts from individuals closely related to the Unit across this timeframe. Further, as part of the activity, this project allowed critical SPRU archive to be recorded and stored into a new Keith Pavitt Library – a crucial stepping stone and source for future research and policy prosperity.

THE SPRU HISTORY PROJECT COMPRISES OF:

A Report on its Qualitative Angle,
Angela Campos (2016)

A Bibliometric Perspective on SPRU Research Activity, Part I: The PHD Data
Frederique Lang & Jane Pujols (2016)

A Bibliometric Perspective on SPRU Research Activity, Part II: The Publications Data
Frederique Lang, Jane Pujols & Nora Blascok (2016)

For further reading, the full qualitative and quantitative research reports are published on the SPRU website and on our Facebook page – ‘Like’ our page to keep up with all future SPRU developments.

www.sussex.ac.uk/spru/about/history

www.facebook.com/SPRU-Science-Policy-Research-Unit

The creation of SPRU's values

The University of Sussex's 2016 graduate brochure encapsulates perhaps why SPRU placed its roots at this University:

“Sussex is different. Since our foundation... we've valued – and encouraged – a pioneering spirit. We've pushed for change, and demanded more, creating a better future for individuals and communities all over the world.”

This transformative and radical attitude to betterment and problem-solving were shared by those who originally established SPRU and then its proceeding, world-class reputation and subsequent legacy. Key founding minds include those of Christopher Freeman, Geoff Oldham, Roy Macleod, Marie Jahoda, Keith Pavitt and supporting staff such as Jackie Fuller, the unit's first Administrator.

Interestingly, it was Stephen Toulmin, an influential scholar in the fields of history and philosophy of science, who sowed the very first seeds by beginning unyielding negotiations which, although initially fruitless, did help create the environment and appetite which allowed SPRU to form.

The nucleus of what makes SPRU, SPRU is clearly little changed over 50 years. It was created to be issue rather than discipline oriented. To both understand and solve as the beginning and end point of research. Alongside academic endeavour and rigour, research application in society was SPRU's chief function from its formation. Within the sector, at the conception, the notion of academia twinned with policy engagement led to a perceived unusualness. This collaboration being viewed as an unlikely and, possibly, uncomfortable marriage. Before the concept of impact became a principal driving force in higher education discourse and measurement, SPRU had this at its heart. The Unit has continued to inform the wider impact agenda through concepts, tools and a knowledge-base centered on the art and science of impact.

Further, another marked characteristic demonstrated by many of the participants in the History Project was the intense affection felt for the Unit and the supportive, enthusiastic manner of the relationship the SPRU 'family' experience towards 'their' institution. This theme was repeated throughout the oral accounts showing how compelled and motivated by SPRU, as an entity, the staff and students, both past and present, are. The visceral nature of the connection between institution and its 'diaspora' emerged as a distinguishing feature. SPRU alumni and staff often feel a strong and continuing connection to the Unit. Going forward, the leadership team can harness this commitment to continue to create an optimum working environment; establish productive, convivial networks; and to continue to provide world-class research outcomes. Having been integral to SPRU, people often reported still feeling proud, passionate and embedded in its legacy – their story is SPRU's and SPRU's is theirs.

It is clear that the Unit's distinct and unique excellence is the consistency and strength of its values created and shared from inception.

SPRU's values



ACADEMIC EXCELLENCE

This is achieved by forging fresh interdisciplinary agendas that combine excellence in fundamental academic work with rigorous empirical analysis. By pushing the frontiers of collaborative knowledge with a plurality of approaches and methodologies, the Unit spans the great divides between quantitative and qualitative; positivist and constructivist; instrumental and critical; natural and social sciences. Freeman (1986) stated: 'We have always agreed that policy research for science and technology necessarily required such cooperation on a continuing basis.' This remains a central conviction and approach today.



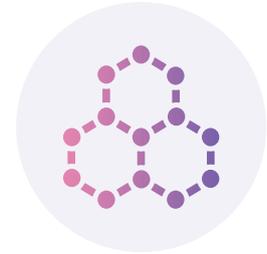
ENGAGEMENT

Strong partnerships with other institutes; universities; policy makers; government departments; advisory and select committees; corporations and industry; trade unions; charities; and development organisations are created to address real world problems. An avoidance of building knowledge that is simply a *tour d'ivoire* holds true to the present day. SPRU's extensive global alumni among senior policy makers means engagement stretches through each phase of research from framing to conducting to disseminating. Engagement and impact has always been a strength and differentiating, central value.



SOLIDARITY

From conception, the Unit has nurtured international interconnectivity, team work and collaboration within and beyond national and international spheres across a wide geographical scope in the global North and South, recognising from fruition that SPRU's approach to science, technology and society is of worldwide relevance.



RESEARCH-LED TEACHING

Along with the three founding values that have endured, a further fundamental has developed over SPRU's history, namely that of research-led teaching. With the largest academic body in the world for the study of science, technology and innovation, teaching is central to the Unit. Students are viewed as intrinsic participants and feature as an integral part of developing research agendas, working closely with academics to learn and contribute directly. This sets up a reciprocal dynamic that often continues once graduates embark on their own successful careers in related domains.

SPRU STORIES

COUNTRIES STUDIED IN PHD WORK BETWEEN 1971 AND 2014



Research trends over five decades

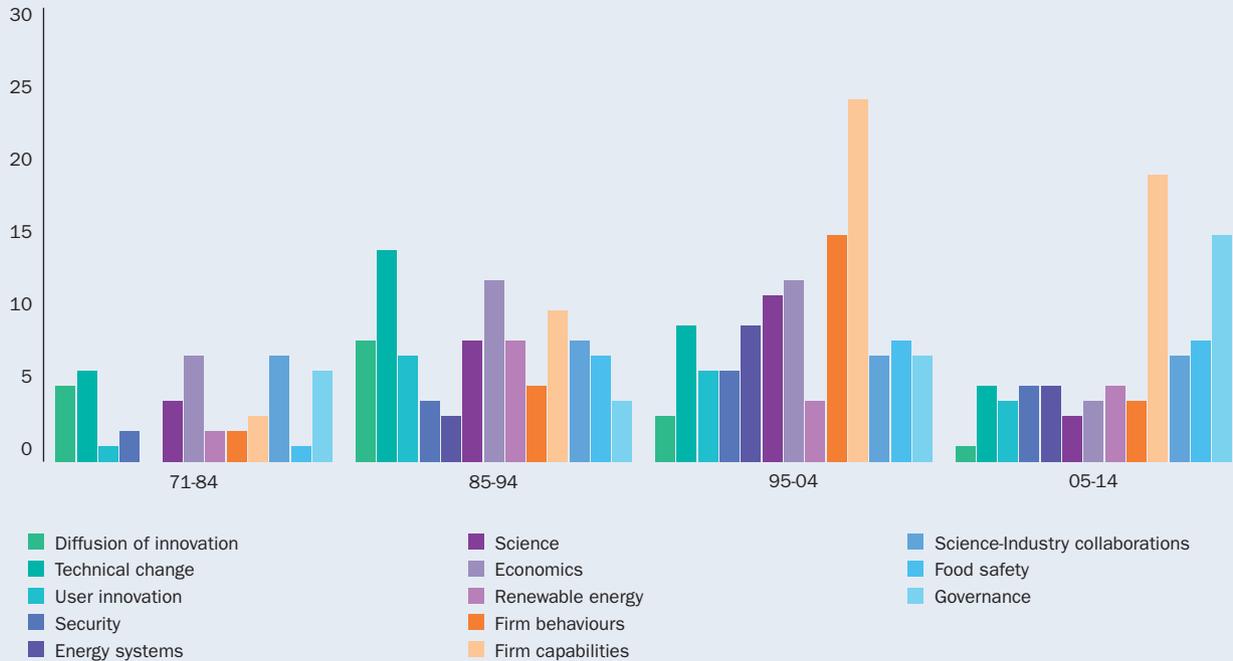
RESEARCH THEMES & FUNDING

As the world has evolved through the decades, confronting fresh and familiar issues, so too has SPRU. It has been a dexterous, problem-driven Unit responding and changing in line with the accompanying

geo-political and socio-technical global landscape to grasp and shape emerging research questions and their conclusions. In response to these changing needs, SPRU's history encompassed establishing dynamic funding patterns which resulted in first-rate work through a combination (and prevalence) of 'soft-funding'. This proactive adaptability

has allowed significant, important grants to be successfully secured demonstrating the Unit's ability to respond to changing research need. This has kept the Unit current, viable and responsive.

EVOLUTION OF TOPICS OVER 4 PERIODS FROM 1971 TO 2014



Topic trends

TOPIC FOCUS

On topic trends, the History Project's quantitative study concludes:

“Overall, there have been a wide variety of topics approached within SPRU since its inception...The first topic of interest to stand out is technical change, especially employment issues, which were of particular interest from 1975 and in the 1980s. From 1985 to the early 2000s, work on information and communication technologies was very

popular. At the same time, firm level analysis slowly expanded, and this growth continues into the last period. Energy issues also started to emerge as a dominant topic in 1985, even though there was work on this issue since SPRU's inception. The work on energy has evolved in the last two decades towards work on renewable development and sustainability. Also in the last two decades the work on policy and governance have become more dominant, including work on issues such as risk, uncertainty and precaution in policy. In the last

decade policy work has also been associated with the concepts of transitions and pathways. The notion of participatory innovation has also emerged with, for instance, new work on grassroots innovation. Also all the way through its life SPRU has produced a constant amount of work on biological and chemical warfare and security issues.”

For details and analysis see the full report *A Bibliometric Perspective on SPRU Research Activity, Part II: The Publications Data* on the SPRU website.

CURRENT RESEARCH GROUPS AT SPRU



HARVARD SUSSEX PROGRAM

Over 25 years of research, communication and training on policy towards chemical and biological weapons

www.sussex.ac.uk/Units/spru/hsp/



SUSSEX ENERGY GROUP

SEG is one of the largest independent policy research groups in the world

www.sussex.ac.uk/sussexenergygroup/



CENTRE ON INNOVATION AND ENERGY DEMAND

Led by SEG and partnered with University of Oxford and Manchester, research focuses on End Use Energy Demand.

www.cied.ac.uk



STEPS CENTRE

Co-hosted with Institute of Development Studies work centres on innovative, sustainable approaches that support marginalised and excluded peoples.

www.steps-centre.org

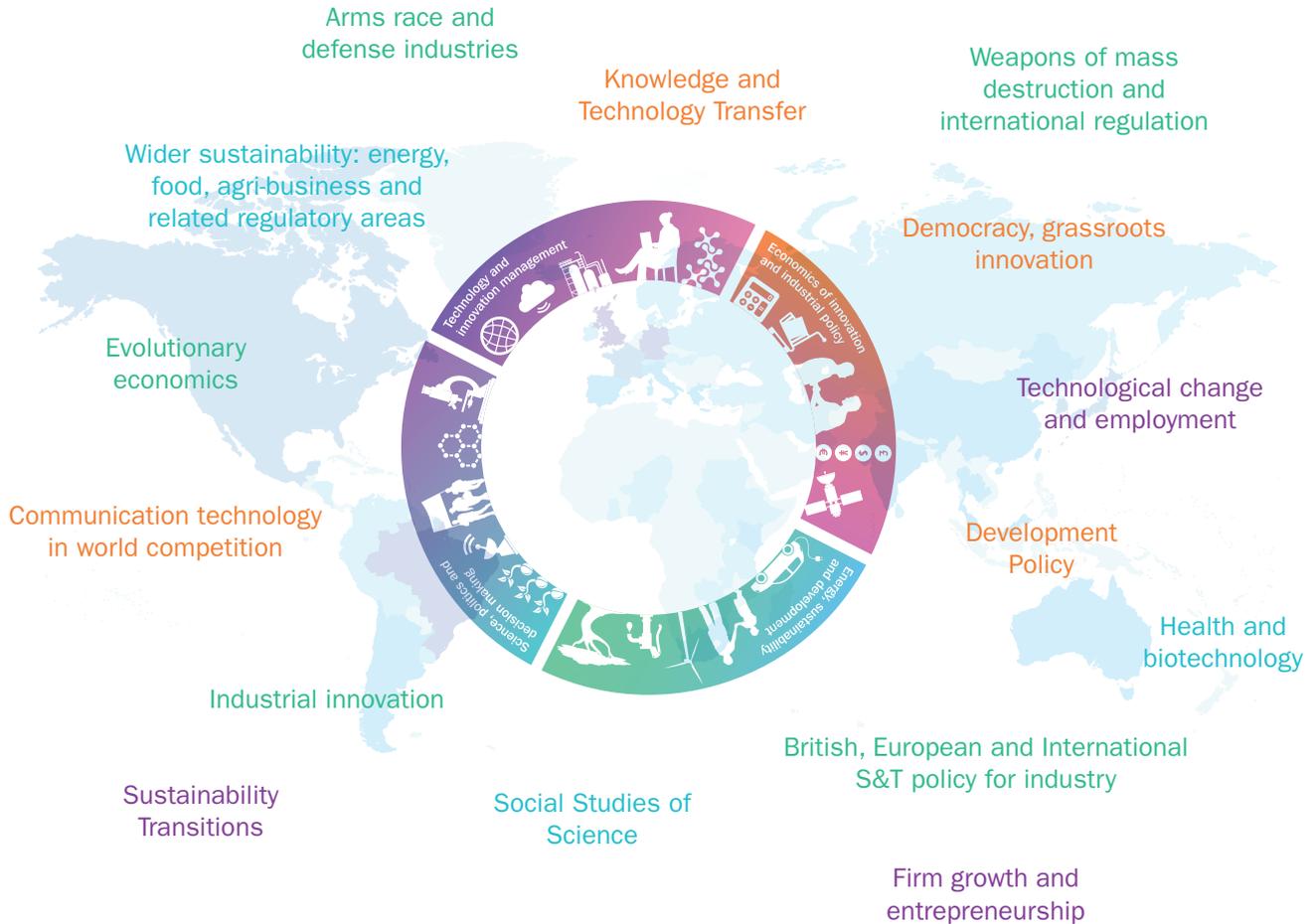


THE NEXUS NETWORK

Inter-university collaboration with University of Cambridge and East Anglia on research into the linked areas of food, energy, water and the environment.

www.thenexusnetwork.org/

Evolving research topics



SPRU STORIES

Towards a 100 years

As history shows, there is no single story that can illuminate an organisation's history. However, the SPRU History Project has helped preserve a cascade of voices and narratives to give a qualitative and quantitative institutional 'biography' of these first five decades. As SPRU embarks on its next half century, it 'stands on the shoulders of giants'.

Rooted now in the School of Business Management and Economics at the University of Sussex, SPRU will look to respond again to changing and challenging times – to a world in deep transition facing a multitude of simultaneously fragmented

and connected, complex issues. The DNA of the institution has evolved, informed and reflected the time in which it is rooted. Originally, focus was based on the linear model of invention and diffusion, typical of a Research & Development (R&D) template. It then shifted to a more complex spotlight on the importance and relevance of national systems for learning and producing. Now the essence of SPRU's DNA is evolving into its third age with a focus on fresh innovation theories, projects and policy orientated towards transformative change. The evidence suggests SPRU will continue to sustain its impact, commitment and position in this new era.

Maintaining its influential and unique contribution on two key fronts – the development and transmission of knowledge and skills in teaching and learning; the influencing of thinking and decision-making on policy-shapers in government, managers and powerholders in industry, the academic and wider media and, ultimately, the public. Offering a vital, sustainable and necessary contribution to interdisciplinary debate and wider society through world-class empirical, theoretical and methodological research and engagement to address our troubled, transitioning world.

SPRU'S STRATEGIC DIRECTION IN 2016



Build new research platform and host of initiatives related to the Transforming Innovation Agenda



Build further the international alumni network to enhance the 'SPRU family'



Develop a SPRU professional training programme



Deliver the 50th Anniversary scholarship programme



Develop new consortiums and global funding opportunities



Expand the graduate programmes and strengthen further the student body

FIFTY MILESTONES

1966-1976

1966

Foundation of the 'Unit for the Study of Science Policy.'

1968

Beginning of Project SAPHO studying successful and unsuccessful technological innovation.

1970

Sussex Manifesto jointly published with IDS.

1971

Research Policy founded. STAFF (Social and Technological Alternatives for the Future) programme begins. Project PAREX (Paris-Sussex) starts, initially between British and French scholars in the social studies of science, then extending to other European participants.

1972

SPRU at UN Conference on Human Environment in Stockholm. Move to Mantell Building.



1973

Thinking About the Future: A Critique of "The Limits to Growth" published (Cole et al).

1974

The Economics of Industrial Innovation (Freeman) published.

1975

Brian (later Lord) Flowers chairs a ten-year review of SPRU.

1976

Military Technology & Arms Limitation Programme begins.

1976-1986

1976

The Science and Technology Policy Programme initiated in co-operation with the International Development Research Centre in Canada (IDRC). Focus on developing countries. Geoff Oldham as Associate Director.

1978

World Futures, the Great Debate (Freeman & Jahoda) published.

1979

TEMPO (Technology and Employment) programme begins.

1982

Unemployment and Technological Innovation: A Study of Long Waves and Economic Development (Freeman, Soete & Clark) published. SPRU formally becomes a Teaching Unit, with own MSc (STP) and doctoral programme.

Geoff Oldham becomes Director.

1983

SPRU becomes a Designated Research Centre of the ESRC (Economic and Social Research Council). The Unit strengthens work on European science, technology and industry policy following absorption of the Sussex European Research Centre. *Social Innovation and the Division of Labour* (Gershuny) is published, reflecting SPRU's expertise on social division of labour and changing patterns of time-use.

1984

Foresight in Science: Picking the Winners (Martin, Irvine) published. Keith Pavitt becomes SPRU Deputy Director.

1985

Programme on Information and Communication Technologies (PICT) launched.



1986

University Grants Committee awards SPRU a rating of 'outstanding by international standards.' The Biotechnology Directorate of the Science and Engineering Research Council appoints Margaret Sharp to monitor performance of the Protein Engineering Club.

1986-

19

Japan: A New National System published, as well as *Addition of National Systems of Innovation* published (Millstone). De reputation for food

New MSc programme in the

Chemical Weapons Convention by SPRU's Julian Perry Robinson Meselson

19

The Harvard-Sussex Programme biological weapon

19

SPRU twenty-fif

Technology and the Future of Walker and *The Machine Th & Womack*

19

Centre for Science, Technology Policy (STEEP)



19

Michael Gibbons becomes SPRU in the Chemical

19

New Complex Product System (CoPS, 1996-2006) launched (Centre for Research in I

The relationship between public and economic performance K. Pavitt et al prepar

FIFTY MILESTONES

1996-1996

1988
 Freeman Centre for Innovation (Freeman) publishes *Managing Innovation: A Guide For Everyone*. Development of concept of Innovation Management and SPRU's growing reputation for safety research.

1989
 Freeman Centre for Innovation Management of Technology. *Innovation Bulletin*, edited jointly by Freeman, Robinson and Prof Matthew B. Dickson of Harvard.

1990
 Freeman Centre for Innovation Management formally begins.

1991
 Freeman Centre's 10th anniversary. *Managing Innovation: Integrating Technological, Market and Organizational Change* (Tidd, Bessant & Pavitt) published.

1992
 Freeman Centre for Innovation Management formally established.

1993
 Freeman Centre for Innovation Management. Prominent role of Freeman Centre in Weapons Convention.

1996
 Freeman Centre for Innovation Management. Freeman Centre for Innovation Management formally established, jointly with CENTRIM (Centre for Innovation Management). Freeman Centre for Innovation Management formally begins. Publicly-funded basic research programme published (report by Freeman Centre for Innovation Management for HM Treasury).



1996-2006



1997
 Ben Martin becomes Director. Inaugural annual Marie Jahoda Lecture, delivered by Sir Robert May and organised by SPRU DPhil students.

1998
 Centre for Information, Networks and Knowledge (INK) established, renamed from CICT, which was established in 1988. *Managing Innovation: Integrating Technological, Market and Organizational Change* (Tidd, Bessant & Pavitt) published.

1999
 Funding application for new purpose-built building is successful. Plans for Freeman Centre begin with CENTRIM (University of Brighton).

2001
 SPRU develops new programme of undergraduate teaching in Business and Management, with strong science and technology component.

2003
 Freeman Centre completed, housing SPRU and CENTRIM until 2012.

2004-2010
 Development of Hidden Innovation work/Brighton Fuse Project.

2006
 SPRU's fortieth anniversary.



STEPS Centre (Social, Technological and Environmental Pathways to Sustainability) is launched, jointly with IDS.

2006-2016

2008
 Gordon MacKerron becomes Director.

2009
 New School of BMEc (Business, Management and Economics) is launched, integrating SPRU.

2008-2010
 STEPS Project 'Innovation, Sustainability, Development: A New Manifesto' begins.

2012/13
 3 new MSc courses established – currently known as Sustainable Development, Energy Policy, Project Management.

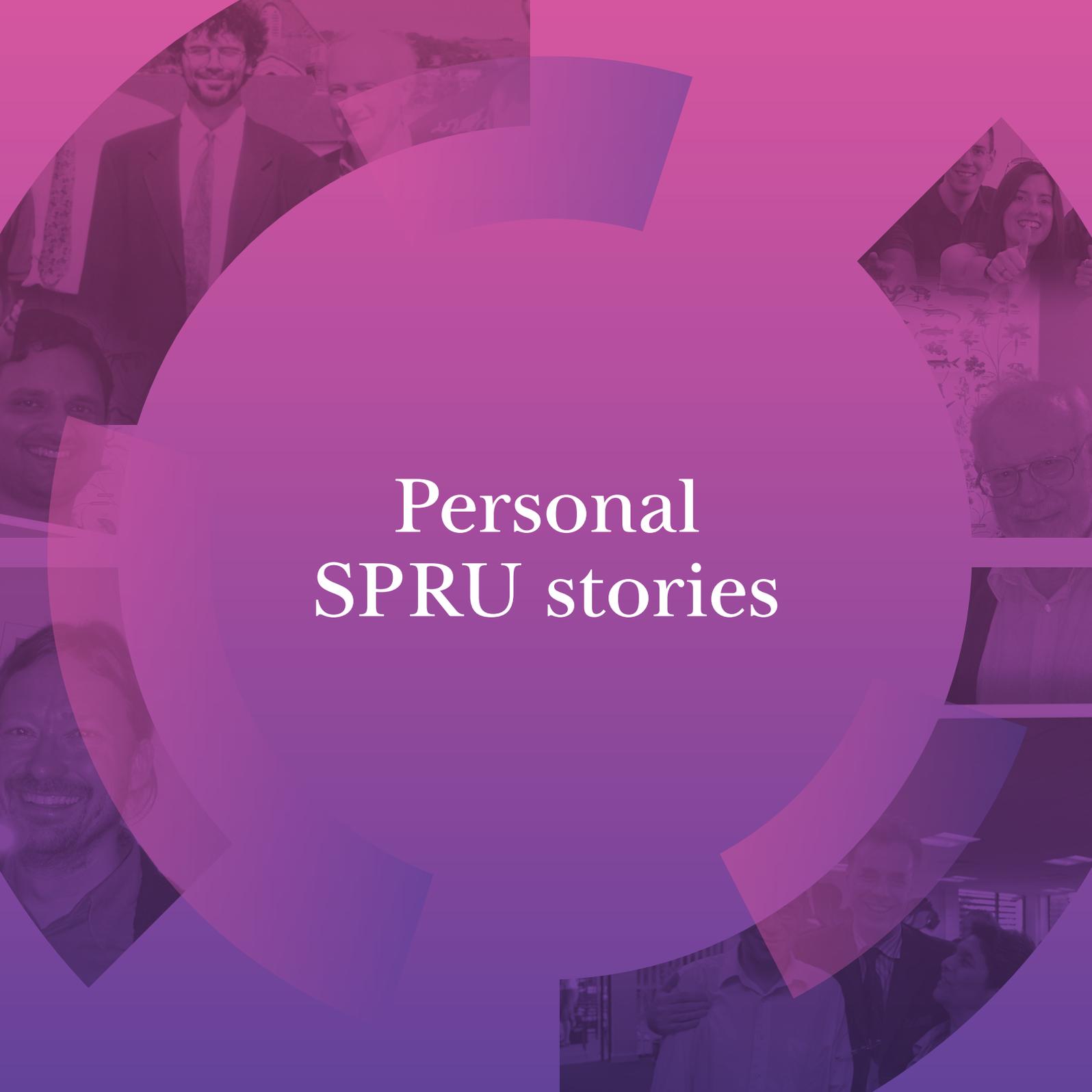
2013
 Centre on Innovation and Energy Demand created, a collaboration between researchers from SPRU, University of Oxford, and University of Manchester. *The Entrepreneurial State. Debunking Public vs. Private Sector Myths* (Mazuccato) published.

2014
 Johan Schot becomes Director. Launch of new SPRU Strategy: 'Transforming Innovation'.

2015
 'The Nexus Network' is launched, in partnership with the University of East Anglia and the Cambridge Institute for Sustainability Leadership. SPRU wins Sussex Award for Sustained Impact.

2016
 SPRU 50th Anniversary Conference 'Transforming Innovation' Launch of 'Transformative Innovation Policy Consortium'.





Personal SPRU stories

PERSONAL SPRU STORIES

Connecting with SPRU alumni is an important part of our 50th anniversary year and we are grateful to those who have taken time to contribute their personal ‘SPRU Stories’ that together capture the essence of SPRU. They demonstrate the impact of the research unit not only on research, policy and teaching but also on the careers and personal lives of the people who have worked and studied here over the past 50 years.

The first story of this inspiring collection was sent via post by Pauline Marstrand who, in 1969, was appointed SPRU Research Fellow to work on the project “Human Life and Safety in Relation to Technical Change” led by Craig Sinclair. Her formal association with SPRU lasted until August 1981.

Forty-six years later, Pauline highlights the vivid impressions left on a mature female researcher embarking single-handedly on her first international conference, namely the ‘Seminar on Pollution of War by Oil,’ sponsored by the Institute of Water Pollution Control and Institute of Petroleum, with the assistance of the European Office of the World Health Organization, an event which took place between 3-8 May 1970, in Aviemore, Scotland. Apart from excellent research, during her time at SPRU Pauline also expanded her perspectives on academic conviviality. She recounts:

‘I went to several conferences and found all of them very interesting sociological experiences, but none of them as surprising, nor so well organised as that first one in 1970. What a pity Craig Sinclair is no more, so I can thank him for sending me. He had given me a choice between two conferences, one in Southampton and one in Aviemore, Scotland. When he heard that I had never been to Scotland, he said “you’ll go to Aviemore”, so I did, on the night train.

There were about 500 delegates, all of them, except an American who was giving a paper, myself and a very young biologist called Sally Barlow who shared my cabin on the train, were men. There were a few wives and a few whom at subsequent conferences I learned were described as “accompanists.” [...] There were many very interesting papers, mostly excellently presented and, of course, The Dinner.

As I didn’t know anyone I went late to the gathering point – the bar, of course – and six unaccompanied men each offered me a drink. I accepted one [...]. Then the tables and chairs were pushed to the walls or removed, and a band appears. The MC announced dancing. At our table six men stood up, but only one stayed on his feet! I danced with him the whole evening. [...] It remains the only time when I have actually danced holes in my shoes! [...]What an introduction to the “conference experience!”



PAULINE MARSTRAND
1969-1981

PERSONAL SPRU STORIES



STUART BLUME 1966–1968

One episode which has remained vividly in my memory took place before there was a

SPRU. In spring 1966, I was studying for a DPhil in chemistry, though with little enthusiasm.

Having long been interested in the history and philosophy of science I'd recently come across two books on the politics of science by Don K. Price, at the time Dean of the Harvard School of Public Administration. I knew instantly that this was the field I wanted to work in. I wrote to Price, telling of my enthusiasm for his work and inquiring about the possibilities of coming to join him. He put me in touch with the philosopher Stephen Toulmin, who was working at Harvard but had a house in Sussex. Despite a promising afternoon spent talking with Toulmin, who visited me in Oxford, it all came to nought.

Not long afterwards I read in a newspaper that a unit to study science policy was to be established at the University of Sussex. It would be directed by Christopher Freeman, then at the National Institute for Economic and Social Research. Excitedly I wrote to Chris and was invited to go and talk to him in what I recall was a tiny office high up in the Institute's Westminster headquarters. On the strength of no more than my enthusiasm, and a little reading (I had

discovered the journal *Minerva* too), Chris invited me to come and work as a Research Fellow in what was about to become the Unit for the Study of Science Policy (not yet SPRU!). Off I went for my first job, initially working with Roy MacLeod, and with a chemistry thesis to write in the evenings. I stayed for 2 years. Chris' intuition, along with the informality of the time, enabled me to pursue the career I wanted.

“I read in a newspaper that a unit to study science policy was to be established at the University of Sussex.”

STUART BLUME 1966–1968



Keith Pavitt Library opening



DR GO YOSHIZAWA 2002–2008

It was a turbulent period in the history of SPRU

during my MSc and PhD. The founding fathers had just left us and their names were inscribed on a new building.

International cohabitation with two classmates in a cosy house in Peacehaven greatly helped my research proposal with their laughter, dance and music in the first year of our doctoral course. This formed our unwavering friendship and provided encouragement through some of the more interesting times we have shared to date.

Really fortunate was to have found a fantastic and creative supervisor, not merely for a thesis, but even more importantly, for ways of critical thinking, trans-disciplinary work and family life. This institution thus gives me new brothers and sisters who have surely become an irreplaceable linchpin of the story of my life. No matter who are working where, I believe SPRU will always be as it used to be.

PERSONAL SPRU STORIES



**ALFONSO
AVILA-MERINO**
1998–2003

**I successfully completed
my PhD degree at SPRU.
Completing such a long**

**project has brought many positive
developments to every aspect of my life –
not only academically but also in every day
of my life.**

I am originally from Mexico City but I remained in Europe, mostly England. My wife (Norwegian and whom I met at SPRU), children and I live in England. Some of my children were born in the fantastic City of Brighton and Hove and the others in lovely Norwich. The knowledge and experiences learned at SPRU, and the opportunity to work with all the valuable people I met there has provided me with a different way of seeing and examining the complex world we are living in. To choose SPRU is a bold and unique choice compared to the other options I considered at that time without the use of the internet – I had also applied to MIT and Humboldt.

Through the following years (almost 20 in Europe), I have realised that my choice was correct as it has made me, my family and the people I work with happier and better. SPRU's contribution to my life has given me the chance to work in several countries in Western Europe, including government, private sector or multilateral organisations like United Nations. I would never have imagined how a place of study can change the life of an

individual. In my case, the impact has been enormous and extremely positive. Not only SPRU has provided me with an unforgettable experience but also, a sense of responsibility to use this knowledge, experience and practice in the best possible way to serve our world, and to be humane to the people we work and interact with every day.

**“I would never have
imagined how a place
of study can change the
life of an individual.”**

ALFONSO AVILA-MERINO 1998–2003



**GENEVIEVE
DEAN**
1969–1975

**I arrived in Sussex in
1969 with a brand-
new Master of Arts**

**degree from Columbia University, a
Certificate awarded by Columbia's East
Asian Institute, and no idea of what to do
with these credentials.**

Geoff Oldham was then energetically recruiting staff for the research program at a very young SPRU on science policy in developing countries. Because of his own experience as a scientist observing China, initially from Hong Kong and eventually at first-hand, he wanted to include a small project on Chinese science policy – but also, I suspect, because he couldn't resist the challenge to make sense of what was happening to science and technology in an isolated, chaotic society, as China was during the Cultural Revolution from 1965 to 1975. I was the first innocent to try to do this, later joined by Susan Rifkin and Jon Sigurdson.

With hindsight, this was a quixotic undertaking, and if it accomplished anything, it was to debunk the notion (which for a while had currency in some circles) that the Chinese had found a uniquely better way to overcome obstacles to technological change faced by other developing countries. But the work I had done at SPRU provided me with useful insights into how those obstacles were still affecting science and technology when China began looking for another model of development in the 1970s and '80s: firstly at Stanford University when Chinese and American scientists exchanged their first visits; then as the resident representative in Beijing of a U.S. engineering company; and later as commercial officer at the newly-opened American consulate in Shanghai. None of that experience, however, prepared me for the science and technology scene in 21st-century China. I have much respect for Geoff Oldham who has continued to grow SPRU's China research program to respond to today's very different challenges!

PERSONAL SPRU STORIES



ANDREW SAYER
1974–1975

My first job was at SPRU, working on a project on World Shipping in 1974-5 after completing my DPhil.

This was the time when a large team in the Unit were working on a response to the Forrester/Meadows Limits to Growth simulation models, a project that resulted in the book *Thinking about the Future*. This posed big questions, generated heated arguments, but also a sense of common purpose and intellectual adventurousness. It was a great introduction to research.

What was most striking about that time was the vibrant research culture. Partly, this owed much to Sussex University's determination to 'redraw the map of learning'; with no departments and many interdisciplinary courses and research fora, it was a stimulating place to be. In Chris Freeman, SPRU had a wonderful role model - immensely knowledgeable, independent

in his views, articulate, open, supportive, friendly and humble, leading by example.

Crucial to the research culture were the daily coffee and tea breaks. We'd take turns to brew up and both researchers and administrative staff would squeeze into the seats, share news, stories and banter. And of course it was in the middle of this agenda-free time that ideas were bounced around, and references and reading recommendations were exchanged – all before anyone heard of 'networking'. I particularly remember trying out ideas on Keith Pavitt, and while he always replied in robust fashion, he clearly welcomed the exchanges, as did others. SPRU research had already shown the importance of communication to innovation in industry, and in its own practice it demonstrated the value of a good social environment for supporting research. In those pre-RAE/REF days, no-one seemed to bother to count their publications or worry about 'impact', but it was a highly productive time.

Thank you, SPRU.

“This posed big questions, generated heated arguments, but also a sense of common purpose and intellectual adventurousness. It was a great introduction to research.”

ANDREW SAYER 1974–1975



TONY GOLDING
1967–1971

Chris Freeman supervised my doctoral thesis on the semiconductor industry

in the late 1960s. Little did I realise that the industry I was studying would change the world in the way that it has.

My time at SPRU has given me an abiding interest in technology and innovation that has certainly influenced my career. Chris was always hugely supportive. He seemed to have the most amazing contacts. Somehow he got me a two and half month scholarship to a research centre in Seattle in the autumn of 1969 where I could enjoy peace and quiet to write up my thesis. On top of this, he got the US Air Force to pay for my fare. The Vietnam war was then at its height, so this was even more remarkable. As I flew across the Atlantic, I thought to myself “Better me than a bomb in Vietnam”.

PERSONAL SPRU STORIES



**PETER
AUGSDÖRFER**
1991–1995

Studying at SPRU
has definitely
helped shape
my career in

several ways. I want to share with you
the non-obvious one.

It was back in 1992 in the Mantell building when everyone was meeting in a cosy corner for tea, digestives and a good gossip. At the time, there was a distinct shortage of tea ladies! Therefore, I took the opportunity to offer my services despite my illiteracy in these details being a German. After a short apprenticeship, I got the hang of it and enjoyed the tea ritual. This skill amongst others of course helped me later to keep my wife happy, who like most Brits is a keen tea drinker. She has been a tremendous support during my life, and without her support, I would have found it harder to be successful in both pursuing my professional career and having a happy family. Therefore my sincere thanks to the tea ladies who taught me this skill. SPRU is not only an outstanding academic institution but if you seize the opportunity, it also reaches out to teach valuable life enriching skills.

SAM COLE
1971–1981

When I joined SPRU/STAFF (Social and Technological Alternatives for the Future) in 1971, the other computer-literate guy was Ray Curnow, a charismatic fellow with multiple and distracted interests.

We were set the task – by Chris Freeman and Marie Jahoda – of testing the Club of Rome “Limits to Growth” System Dynamics computer model that predicted an end to the world as we knew it through over-population, pollution, or resource depletion by about now (2020). At that time, the only computer in the UK big enough to run the model – an IBM (or, more patriotically, ICL) megalith the size of your average council house – was in the Harwell Atomic Energy Labs, so we dutifully drove to Didcot each week in my decrepit

old Renault 4 to conduct the said tests. (I had left physics so that I would never ever invent anything atomic, and then left urban planning to join SPRU after reading the Limits to Growth prognosis on the front page of the Guardian. This had made it seem pretty pointless to build more cities).

On our first trip to Harwell, it took about 2 days to set up the model – typing and retyping punch cards (an improvement on the earlier paper tape). No sooner had the cards entered the reader than the whole system crashed. Two days later, the cause turned out to be ‘pollution’ – some kind of algae – in the computer’s cooling system. Ray took this to be generally substantive proof of the ‘Limits’ concept, but changed his mind after suggesting we run the model backwards and revealing thereby that the world had already collapsed. Those were the good old days!



Sam Cole

“SPRU is not only an outstanding academic institution but if you seize the opportunity, it also reaches out to teach valuable life enriching skills.”

PETER AUGSDÖRFER 1991–1995

PERSONAL SPRU STORIES



**JACQUELINE
SENKER**
1982–2007

In 1982, as a mature student, I was very fortunate to be

accepted to take a SPRU MSc in Science, Technology and Industrialisation.

On completion, I heard on the grapevine that SPRU had only three candidates for the 4 doctoral research grants they had been given by the ESRC. I applied and luckily succeeded, because, if SPRU failed to find a fourth candidate, they would only receive 3 grants the following year. I then spent three very happy years undertaking research on the contribution to innovation by the service sector, in particular by food retailers.

At that time innovation studies had focused only on manufacturing. Keith Pavitt, my supervisor, guided me with a very light touch, but many other members of SPRU faculty, and fellow students, gave me lots of help and encouragement. I completed the DPhil in three years, driven by my goal to achieve that qualification before my 50th birthday.

“I then spent three very happy years undertaking research on the contribution to innovation by the service sector, in particular by food retailers.”

JACQUELINE SENKER 1982–2007

More luck came my way. Margaret Sharp was looking for a research assistant to work on a project to evaluate the achievements of the Biotechnology Directorate of the Science and Engineering Research Council. I was recruited – my knowledge of food innovation (as a social scientist) indicated that I would be able to cope with understanding the complexities of biotechnology.

Part of the research involved interviewing the leading biotechnology scientists in the UK, both those in industry and academia. They were gracious enough to provide me with a good understanding of the field and so it was that I was an early entrant into the field of studying the impacts and progress of biotechnology. This led to almost 20 years of research in SPRU on aspects of biotechnology, on university/industry links – an important aspect of the development of biotechnology – and on the changing organisation and structure of public sector research in 12 European countries. I acknowledge the great benefit my work received from collaboration with many researchers that I met during my time at SPRU or at worldwide conferences.



Graduation, 2004



**MARK
DODGSON**
1985–1993

I organised a cricket match: SPRU vs PREST

from Manchester. We had a superstar (Tim Brady), players past their best who talked a good game (Chris Freeman and Nick von Tunzelmann), and the rest of us who were pretty average.

Keith Pavitt proffered advice from the boundary that any game not played in France was a waste of time. Trying to get everyone in the right field placements was a nightmare. Self organisation came into play once. Jane from the library came out to bat for Manchester in very short shorts. All of a sudden we had eight slip fielders.

PERSONAL SPRU STORIES



BILL HAYWOOD
1979–1984

I have nothing but fond memories of SPRU and the way in which it helped radically change my life.

In 1974 at the age of 36 I returned to full time education at Ruskin College – having left school twenty one years earlier without formal qualifications. This renewed educational process culminated ten years later with a DPhil at SPRU at the age of 46.

It may be that I was one of the first students to achieve a doctorate with SPRU since previously the MSc and DPhil had been awarded through HSSS, their associate in the Mantell Building. In fact my MSc was awarded via HSSS.

In the early stages of my MSc, following a BA in Economics at Sussex, I encountered Chris Freeman for the first time, since he taught on that course. I found the man inspirational, and he grew in me the love of conducting research. When I requested that he might supervise the doctorate I had registered on it was a measure of the man that he thanked me for asking him. Combining work as a Research Fellow at Brighton Polytechnic, which then became Brighton University, I laboured on the degree under Chris's guidance, which was never lacking.



First SPRU / IDS study seminar on science, technology and development, 1971

Following on from SPRU I worked for both Sussex and Brighton Universities as a Senior Research Fellow, and for Manchester Business School for five years. I also worked for two years on secondment to the International Institute for Applied Sciences Analysis in Laxenburg and with UNIDO in Vienna.

After SPRU I travelled the world and saw places and people I could never have envisaged before starting my educational journey with Ruskin and Sussex University, and particularly SPRU and Chris. I will be eternally grateful for the opportunities they provided for me.

“After SPRU I travelled the world and saw places and people I could never have envisaged before.”

BILL HAYWOOD 1979–1984

PERSONAL SPRU STORIES



CALESTOUS JUMA

I was admitted to SPRU to pursue an MSc without the benefit of

undergraduate training. In three and a half years I returned to Kenya with an MSc and a DPhil.

Nairobi was abuzz with rumour that I had failed my PhD as I could only show my MSc certificate. Unable to find a PhD level job I decided to establish the African Centre for Technology Studies (ACTS).

SPRU had prepared me well for the task of founding Africa's first independent think tank on science, technology and innovation. I sought out talented young people, irrespective of their credentials, and extended to them the same level of unconditional support that I received at SPRU. As pioneer in science and technology policy studies, I looked to SPRU as a role model. I worked closely with academics and students in local universities.

SPRU taught me the importance of balancing analytical rigour with practicality. One of my DPhil advisors, Professor Norman Clark, initiated us into the doctoral culture with a lecture entitled, 'What is a PhD?'. It emphasized intellectual depth and the mechanics of writing a thesis. Both were indispensable.

On seeking thesis topic advice from Professor Raphael Kaplinsky, he asked me, 'Why do you want to do a PhD?' 'To sharpen my research skills and make an original contribution to knowledge', was my rehearsed answer. 'Wrong. The purpose of doing a PhD is to finish it', he said. The meeting ended. Originality was a given but students finishing on time was always in doubt.

SPRU faculty support did not stop at graduation. Norman Clark and Dr. Andrew Barnett were more than supervisors for me. They taught me important life skills. Andrew inculcated in me the discipline of maintaining accurate citations, the Achilles Heel of dissertations. This came in handy when I launched a publishing arm of ACTS.

My biggest regret, however, was that during my years creating a 'SPRU in Africa', I did not interact much with Sussex. On one of my occasional visits to Falmer a storm had torn down some of the landmark trees on campus. I had a visceral reaction to the sight. It felt like I had violently been separated from Sussex. SPRU alumni may have dispersed far afield but their experience in diverse environments around the world should be collected to seed a new SPRU adapted to the 21st century. This would be the most enduring outgrowth of SPRU's 50th anniversary.



SIMONA IAMMARINO 2003–2009

It was summer 2007, we were at Pari's house for a BBQ.

My son Leonardo was then 9 months old. Chris hardly looked at anybody else for the whole day, I never saw such tender attention for a baby in any man, before or after: a tribute to life, and another thing to learn from Chris.



Chris Freeman and baby Leonardo

PERSONAL SPRU STORIES



**MATTHEW
GAMSER**
1979–1987

I am currently an “intrapreneur”, running a new institution for the G20 countries from

within the International Finance Corporation (IFC), which was asked by the G20 to serve as incubator for this initiative.

The SME Finance Forum is all about fostering innovation – helping to close the SME finance gap (more than \$2 trillion globally) through knowledge exchange, good practice promotion, and networking among financial institutions, financial technology companies (fintechs), and development banks. This may seem a far cry from my SPRU work on the management of technological change in renewable energy – but to me, there’s a lot of continuity with understanding what innovation is, what helps it flourish, and what sets it back. Though for the past 25 years of my 35 year working life (10 with the IFC/World Bank Group, the rest in the private sector in management consulting and international NGO work) I’ve focused on private sector development and finance, it’s been interesting to note how technology, innovation and energy has kept an important place at the table. In SME finance today technology, in particular the conversion from cash to digital transactions, holds the key to making, acquiring and serving this market to be viable for more financial institutions, in more countries. One of the greatest pleasures

in my current job is the extensive amount of time I get to spend with the fintech world, particularly those who run the Venture Capital and accelerator programs supporting this growing industry – indicating for the first time in ages that noting that I have a doctorate in innovation management [sic] is a relevant thing to slip into conversations!

It’s interesting, too, that energy technology matters have stayed a part of my work, even when my focus turned to finance. As a development banker, I’ve seen that we can sometimes leverage progress in energy innovation farther working through local financial institutions than in focusing solely on our own direct investments. Looking forward, without further innovations in energy technology, it’s hard to see how the Internet/data centre backbone for the transformation of doing SME finance (and much other 21st century) business can grow enough to make a real difference to the vast majority

of entrepreneurs, particularly in emerging markets.

Having spent the early period of my career surrounded by engineers, and much of the latter part by MBAs, I’ve felt very fortunate that I was able to spend several years in the cross-disciplinary SPRU environment. It enabled me to take a different perspective on things, which has often paid dividends in breaking out of models reaching their limits to growth, and pioneering new opportunities. SPRU also let me work at the same time with people focused on high tech industries in the richest countries, and others on the problems of the poorest people in the least industrialized places. The tea area in the old Mantell Building was one of the greatest places ever for fostering lateral thinking, as a result!

Thanks SPRU – and congratulations on this incredible 50 year milestone!!

“I’ve felt very fortunate that I was able to spend several years in the cross-disciplinary SPRU environment. It enabled me to take a different perspective on things, which has often paid dividends in breaking out of models reaching their limits to growth, and pioneering new opportunities.”

MATTHEW GAMSER 1979–1987

PERSONAL SPRU STORIES



ROSEMARY FRIEDEL

SPRU, when I joined, was an exciting place to work. The building itself, with its innovative

design, was unlike anywhere I had worked before.

For me, I greatly enjoyed interacting with all the students, who came from so many different countries. Our office downstairs was like a hub for them, where we dealt with all their queries and problems! Late submissions! There was always a buzz of activity in the Freeman centre, with so many activities going on, and I have happy memories of the friends I made there.

“Ken Guy and I set up Technopolis at the end of the decade. We’re now 120+ people, the biggest research and innovation policy consultancy in the world. We still proudly announce ourselves as a SPRU spin-off.”

ERIK ARNOLD 1978–1985



ERIK ARNOLD 1978–1985

It’s odd to be a literature graduate in an institution made up of social and natural scientists and engineers.

Chris Freeman must have thought I was odd too, because he fiercely protected me as a PhD student, arguing that SPRU needed a little diversity, until Ed Sciberras (my supervisor) had the good grace to leave SPRU just as my grant ran out ... and there I was, the most junior Fellow in the Skills Group.

There I was, indeed, in the deep end trying to figure out the skill and employment implications of that new-fangled Computer-Aided Design technology in the engineering industry.

Thirty-six interviews, most with factory visits, across the country. (And a whole year to do the study - blissful luxury!) When the chief designer at Rolls Royce sits you down and tells you he’s going to explain how to design a jet engine you know you’re in a good place. What an education! Then Peter Senker kicked my backside till I finished my PhD in my copious free time and I drifted into the Alvey evaluation – the biggest and best school for R&D evaluators there ever was.

Ken Guy and I set up Technopolis at the end of the decade. We’re now 120+ people, the biggest research and innovation policy consultancy in the world. We still proudly announce ourselves as a SPRU spin-off. You can out-grow SPRU but you never grow out of it.



Chris Freeman and colleagues

PERSONAL SPRU STORIES



**KUMIKO
MIYAZAKI**
1989–1993

I obtained a PhD at SPRU in 1993. I am most grateful to Keith Pavitt and Roy Rothwell

for their excellent supervision and many others for their kind support and attention.

I was able to learn a lot through thought provoking discussions with many faculty members such as Nick, Ben, Mike Hobday and other students. I also appreciated the warm attention by Chris and Carlota. SPRU has offered a great environment for me to study. I once organized a round table discussion with Professor Harry Kroto to discuss science policy. There were many exciting memorable occasions, including SPRU's 25th anniversary conference. After I completed my studies, I am grateful to SPRU for letting me stay on to publish my work as a book 'Building competences in the firm', through Macmillan.

I have been a faculty member at Tokyo Institute of Technology since 1995, a Professor in the department of Innovation Science. I led a collaborative project on complex systems with SPRU and Ecole de Mines. I am also a visiting Professor at the Open University in Japan, in charge of a series of lectures on MOT which will be offered on radio. I have also been advising the Japanese government in many areas, such as the Space Programme, the Aircraft

industry, and Monju, the fast breed reactor. I have become the Vice Chairperson of the Japan Society for Research Policy and Innovation Management and will be appointed Chair later this year. All of these would not have been possible without my

SPRU training, so I am really grateful. I hope SPRU will continue to make significant impact around the world.

My sincere congratulations.



**DR EBRAHIM
SOUZANCHI
KASHANI**
AUG–DEC
2005 AND
2008–2011

When I first came to SPRU at 2005, that was a first time I had seen a real research culture; and a true type of Humboldtian centre.

Meeting with top scholars in SPRU was amazing. The first thing I learnt was the right way of thinking about problems vis-a-vis technological progress and innovation. I then learnt how to define problems and how they interact with each other in order to propose a solution for those problems. Over time scholars welcomed my variety of questions, particularly Ed, Ben, Andy, Nick, Paul, Mike, etc. My work evolved to recognise the life style of those fascinating people.

My time in SPRU was all learning, learning and learning; this was the heritage of Chris Freeman.

I remember at the beginning how Nick asked me to think about my research problem, while I could not make sense of his words. When I started to define a problem with my supervisor, Erik Millstone, I gradually found that my style of thinking had been faulty. He taught me how to deal with problems and how to think about them and reformulate them within an academic format. The fascinating point was his tolerance of my bad English writing. Erik had been reading all my words, constantly suggesting better words or concepts. The result was a very easy viva, the session was finished in just an hour with only minor corrections!!!

This is to say, I have not just learnt innovation and technology studies; I learnt a new way of thinking, a new form of seeing the word, a better way of conceptualizing the problems and in summary, a new way of life.

Thanks SPRU, and thanks folks and friends...

I hope we could distribute this Freeman style all around the world...

PERSONAL SPRU STORIES



**VALERIA
ARZA**
2001–2006

SPRU was for me the place that connected many of my worlds.

The time there was as intellectually challenging as it was fun and warm. I wonder how so many memories could fit in just five years. People I met there were and continue to be a source of inspiration for so many of us across many generations to conduct research in the area of science, technology and development. I was so lucky to work with and learn from Martin Bell, Nick von Tunzelmann and Ed Steinmueller, to name just a few. But friendship is what makes my SPRU time so special. I met amazing people in SPRU and I am so proud that many of them continue to be close friends of mine today, despite time and distance.

“I wonder how so many memories could fit in just five years.”

VALERIA ARZA 2001–2006



TAO WANG
2006–2009

My work in SPRU was my first job after having my PhD in University of York.

I am so fortunate to have worked with brilliant colleagues in the Sussex Energy Group and SPRU in the very early stage of my career. The team was so passionate and dynamic in its research topics, yet very caring and full of joy to work with. I spent three years in SPRU, which seems so short and passed by without a blink, but together we were so productive and gained a lot of respect. I feel very privileged to be part of the team. As part of SPRU, the Sussex Energy Group also participated in many discussions in SPRU about technology, innovation and science policies. I still remember the seminars I attended in the Freeman Centre's bright classroom, and all the time spent in this little charming library. My time in SPRU and what I learned from my colleagues during that time laid the very foundation of my career, and also shaped my understanding of policy research. I always feel very grateful about my time in SPRU.



Men in black, Tokyo underground

ALEX COAD
2010–2015

Before arriving at SPRU, I was already aware of the vibrant social life among the PhD students and post-docs, and when I started it really helped me settle in at SPRU.

There was a pub night on Tuesdays, another one on Fridays (starting at IDS), as well as volleyball in the summer. Lots of fun with wonderful people.

Thanks everyone for the good times!

PERSONAL SPRU STORIES

ANDREAS CREDE 1993–1997

In the autumn of 1993, I left my job as an investment banker in the City to start a full-time DPhil under the supervision of Professor Robin Mansell. Most of my work colleagues, friends, acquaintances and dare I say also my wife thought I had gone slightly mad.

However, it proved to be one of the best decisions I ever made. I was able to complete my thesis within three years and graduated in June 1997. After a year doing research, I was offered a position at McKinsey where I stayed for two and a half years. Subsequently, I set up my own small consulting company which has been successfully trading for over fifteen years, except for an interval in between when

I was working in Muscat, Richmond and Luxembourg for a global services company.

I will remember my days at SPRU with a considerable fondness, not least since it coincided with the birth of my daughter, Naomi, who will shortly move to Amsterdam to begin a Masters in Fine Art at the Sandberg Institute, and I think she has also been able to acquire a similar love for learning. SPRU opened up a wide range of new challenges which I would not have encountered had I remained in banking. In particular, my teaching at Cass Business School and University College London would not have been a topic for discussion if I had not radically changed my life trajectory. All told, I am very grateful for everything that SPRU has made possible. I wish it continuing and even greater success in the next 50 years!

“I left my job as an investment banker in the City to start a full-time DPhil under the supervision of Professor Robin Mansell. Most of my work colleagues, friends, acquaintances and dare I say also my wife thought I had gone slightly mad – it proved to be one of the best decisions I ever made.”

ANDREAS CREDE 1993–1997

PAULA GIURI 1998–1999

I visited SPRU for almost two years in 1998 and 1999, during my third and fourth year of PhD (at Sant’Anna School of Advanced Studies), within the Training and Guided Study Program (TAGS) and supported by a Marie Curie grant.

I had visited SPRU the first time to present my PhD proposal the year before, and I was impressed by the intense and lively

participation of the entire faculty to this event for PhD students. During the two days that I spent in SPRU I had the opportunity to meet Keith Pavitt and Mike Hobday, who suggested that I apply for the Marie Curie grant, and in a few days, with unexpected friendship and collaboration, everything was ready to send the application.

The period in SPRU was very important for my PhD and my career. I was always impressed by the pleasant and open environment, and by the possibility to talk about my thesis

and papers with many people at SPRU very frequently, and mostly with my supervisors Keith Pavitt, Ed Steinmueller, and Nick von Tunzelmann. They were always ready, each one with his own peculiar style of supervision and competence, to guide me and stimulate new thinking and directions for my research. Not only the PhD thesis and work produced in SPRU, but also the experience of friendly relationships with faculty and students, have been keystones for my later work life in the academia.

PERSONAL SPRU STORIES

“The Freeman Centre offered a wonderful environment for the newly named Keith Pavitt Library. We believed that this was an opportunity to welcome more visitors and to use the space for research and communication activities.”

MAUREEN WINDER



**MAUREEN
WINDER**
1988–2009

When I applied to be a Library Assistant in the SPRU Library, I never dreamed this

job would become the centre of my working life for 20 years. During those years, I found I was to be part of so many exciting developments – the introduction of library computer systems, using the internet, email and mobile communications.

I was helping to make research available to national and international policy organisations, working with and sometimes meeting people from all over the world. Chris Freeman and Geoff Oldham often came in. All this changed my life, I was surrounded by knowledge and I consumed all I could. I was able to complete an MSc.

Administrative staff were expected and trusted to take responsibility, they were an integral part of every team, and encouraged to develop their roles and to learn as much as possible about SPRU's research. We sometimes worked extra hours, but our personal lives and experiences were respected, our children could visit in holiday times, and there was support when we really needed it.

The Library was fitted into a tiny set of

small office spaces in the Mantell Building. The windows by my desk looked out through trees over the campus, and there was wildlife all around us - birds, foxes, squirrels, badgers. The Library shelves were almost full, and we were continually moving things around to create more space. My desk was completely covered with piles of papers and books to be catalogued, but I usually knew where things were! We had outgrown the space, and it was time to move.

The Freeman Centre offered a wonderful environment for the newly named Keith Pavitt Library. We believed that this was an opportunity to welcome more visitors and to use the space for research and communication activities. SPRU's 40th Anniversary Conference brought colleagues and friends to the Library, we planned and produced the conference materials, and it felt like a new beginning, but some difficult changes followed.

Now, although space in the Jubilee Building is very limited, the heart of the SPRU Library survives. Irreplaceable reports and papers have been preserved, and the database is intact. There are plans to develop this electronic resource, to make our unique history available to colleagues worldwide, and to begin to add new material again. I am thrilled to be able to play a part in this next chapter for the Keith Pavitt Library.

PERSONAL SPRU STORIES



**CECILIA
IBARRA**
1994–1996
AND 2008–
2013

It was Tom Whiston who opened the SPRU door for me in 1994, two weeks before term started. I had travelled all night from Leeds, where my husband studied. While celebrating Chilean Independence Day, I told a Mexican Professor my thoughts after three years work experience as an engineer in post-dictatorship Chile.

He replied: 'What you want is called Technology and Innovation Management and the best place in the world to study it is SPRU'. Off I went, down south with my Yorkshire learnt English. Tom's interview was long; it was unusual to admit a part-time student, besides such short notice!

Having to fund my fees and expenses I sold candy floss at the Pier and cleaned nineteen toilets a day. Pari Patel asked me

if I could use Windows and offered me a job – I confess now my lie. I learnt as much from my classes as from my job with Pari. Next to the office I shared with Jane Calvert and Pam Shaw, Mantell's foyer buzzed with conversation at exactly 11am and 4pm, coffee and tea time.

Back in Chile I applied all my TIM lessons as a professional, policy advisor and part time lecturer, and kept on a conversation with Nick von Tunzelmann, which influenced my decision to begin my doctorate. I wanted to understand poor Chilean policy results.

We were four going to Sussex in 2008: me, same husband and two little Chileans. The first person I met was my friend Pari, who asked if I needed a job, and I covered for Vandana's maternity leave. I had co-supervision between Education and SPRU, my main supervisor was dear Nick. We are happy back in Chile. I am a postdoc at Universidad de Chile working on technological transitions, a policy concern being Chile highly vulnerable to climate change.



**SHELAINE
SIEPEL**

Without the studentship I received to study for an MSc at SPRU, I would not have been able to return to study

and my life would be quite different to how it is today.

Before I came to SPRU, I was working in a sustainable development policy job in London but I felt I lacked the in-depth knowledge of energy and environment policy to be able to take my career to the next level.

I had done some research on courses and thought an MSc was out of reach for financial reasons but came across a studentship at SPRU that I was eligible for and decided to apply. I thought my chances of success were very slim but decided that if I got the studentship, I would quit my job and move to Brighton, never really thinking it would happen.

Well, as it turned out I did win the studentship, and at an age when most of my friends were settling down, I headed to Brighton and back to study for a Masters in Science and Technology for Sustainability. For many reasons, doing the MSc was one of the best things I have ever done and having never left Brighton, I am now a Director of the Sustainable Business Partnership, a Community Interest Company and I am putting at least some of what I learned at SPRU to good use.

“Without the studentship I received to study for an MSc at SPRU, I would not have been able to return to study and my life would be quite different to how it is today.”

SHELAINE SIEPEL



SPRU 50th anniversary scholarship programme and fundraising

To celebrate fifty years of shaping science, technology and innovation research, teaching and policy, SPRU has launched a new scholarship programme to enable the very best students from around the world to study any of the five MSc courses at SPRU, University of Sussex.

The world is in transition and needs new innovation policy for transformative change. Given our rich history, SPRU is well placed to support this challenge through teaching the next generation of science, technology and innovation policy leaders as well as developing new research programmes. SPRU has developed a scholarship fund to help students with the most potential and ambition to take a step towards being a future leader in their chosen field.

Over the course of SPRU's 50-year history many alumni have shaped and are continuing to shape research and policy around the world, based on their initial training at SPRU. The SPRU 50th Anniversary Scholarships are funded

by SPRU alumni and friends who share our vision for innovation policy for transformative change.

In recognition of the generosity of our benefactors who have fully funded scholarships, these are named. We are grateful to the following donors who have provided full scholarships for 2016/17 study:

Baroness Margaret Sharp
SPRU 50th Anniversary Scholarship

**Professors Robin Mansell
and Ed Steinmueller**
for the Mansell-Steinmueller SPRU
50th Anniversary Scholarship

The Consortium funders of the
Richard Nelson SPRU 50th Anniversary
Scholarship

**The School of Business Management
and Economics** for the Geoffrey
Oldham SPRU 50th Anniversary
Scholarship

We are also grateful to those alumni who have made individual donations through the website towards the scholarship fund.

Thanks to these generous donations SPRU has awarded five £10,000 scholarships for 2016/17 study. We would like to be able to offer this opportunity to many more high potential students from around the world. There are many ways to donate - full named £10,000 scholarship, form a consortium to raise the funds for a named scholarship dedicated to an individual or group or a smaller donation into the scholarship fund. To discuss further please contact Edward Romain (E.A.Romain@sussex.ac.uk).

Please visit
[www.sussex.ac.uk/
spru/about/50years](http://www.sussex.ac.uk/spru/about/50years)



The SPRU story
continues...



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