SPRU History Project

A Report on its qualitative angle

Ângela Campos

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UNIVERSITY OF SUSSEX

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1. Introduction: the qualitative angle of the SPRU History Project - more than just an oral history of SPRU.

In view of SPRU's fiftieth anniversary in 2016, the SPRU History Project was initiated in 2014 with the main goal of investigating, from both a quantitative and qualitative perspective, five decades of the Unit's richly diverse research, teaching and general development.

This report focuses on the qualitative angle of the SPRU History Project, which consisted mainly of the professional collection of 25 oral history audio interviews with a sample of 24 relevant SPRU individuals, comprising a 51-hour total recording time. The archival deposit of these interviews, which will constitute a curated original SPRU oral history collection at *The Keep* archive, is underway.

Another major feature was the redevelopment of SPRU's Keith Pavitt Library, which by mid-2015 was physically reinstated in room 369 of the Jubilee Building. The library has a selective expanding collection focusing on SPRU research, archival documentation and digital possibilities. The underlying framework for this initiative includes a preliminary sustainability plan and access policy, and strategies to implement an updated SPRU library catalogue.

In the course of researching this angle of the SPRU History Project, and with the crucial help of Project participants, it has been possible to gather and preserve important SPRU historical documentation and wider archival data. This is currently available in the redeveloped Keith Pavitt Library and, in some instances, electronically, making it internally and externally accessible.

Overall, the SPRU History Project both improved and informed the development of renewed links with the SPRU alumni network and wider community. This was through the activities mentioned above as well as through other specific alumni-engagement plans, such as the new *Alumni - Share your SPRU story* on-line communication tool.

In this context, the present report combines a synthetic assessment of the oral history work conducted to date with a summarised analytical historical account of SPRU. It also includes a final reflection on current and ongoing achievements associated with the Project.

Following this Introduction, Section Two presents a concise overview of the oral history field in the UK and its relevance for an academic research unit like SPRU celebrating its fifth decade. Section Three outlines the main themes emerging from the oral history interviews, focusing on perceptions of SPRU's collegiality, the development of the Unit itself, institutional challenges, the relevance of looking at SPRU's history now, and expectations for the future. Sections Four to Six offer a summary of SPRU's developments and impact, encompassing a SPRU timeline, and surveying directorship periods, research directions, and landmark projects. Section Seven assesses the achievements of the SPRU History Project, briefly touching on the potential for continuing to develop the Project further. Section Eight references all sources cited and consulted for this report, whilst Section Nine concludes by listing other important supporting information.

2.   What is oral history and why is it important for SPRU?

Oral history consists of recording people's memories, experiences and opinions, thus enriching our understanding of the past with valuable insights, perspectives and unique biographical trajectories. Unlike in the USA, generally speaking in the UK there is not an established tradition of effectively managing organisational memory and institutional identity. The underdevelopment of business, corporate and to some extent institutional oral history in the UK illustrates how documenting historical change in such environments has typically not been a priority for many oral historians. In the UK, oral history has strongly focused on the marginalised, hidden and voiceless, and it is often perceived that incursions into the corporate/institutional domains are undesirable validations of the privileged elites and their experiences.

However, recent developments in the field are to be highlighted. More on a par with the international trend, oral history in the UK, as emphasised by Perks (2010a and 2010b), is embracing its power to document the corporate, business and institutional world, venturing more and more into the arenas of management, institutional and organisational history, entrepreneurship, and competitiveness.

As SPRU reaches its fiftieth anniversary with a new Directorate in place, the occasion is ripe to benefit from the advantages of a professionally gathered oral history collection. Within the

framework of the wider SPRU History Project, an oral history of SPRU constitutes an inarguably valuable contribution towards a fuller understanding – both internal and external – of SPRU's history and culture. In this context, oral history becomes the ideal tool for capturing organisational memory and the oral, intangible knowledge contained in individuals who are or were part of the Unit. As Kransdorff (1998) argued, 'organisational memory' (as opposed to 'corporate amnesia') constitutes a crucial institution-specific knowledge accrued from experience, and an intellectual asset that is unique to every organisation and the most important constituent of its durability. This becomes particularly vital for SPRU as five decades of both remarkable achievements and challenging disruptions produce ample opportunities to delve into significant narratives.

Although specific connections between the SPRU oral history collection and other aspects of SPRU strategy are going to be approached in more detail later in this report, certain aspects should now be stressed. A diverse pool of individuals significant to SPRU (past and present) comprises an immensely rich and valuable repository of knowledge, providing beneficial hindsight. Critically assessing their narratives paves the way for the Unit to retain its experiential advantage, reinforce its intellectual and human legacy and engage with institutional historical change through inspiring and improved platforms of awareness. All these factors are fundamental contributors to the renewed success of present and future SPRU endeavours.

If for some oral testimonies are hopelessly subjective, for any sceptical voices that may remain on the value of oral testimony towards achieving the goals above, one of the basic tenets of a professional oral history practice can be emphasised: the exploration of memory both as object and source of enquiry. Its intrinsic subjectivity, which some find uncomfortable, constitutes oral history's greatest strength. Moreover, every single historical source is subjective in itself, as it has resulted from a selective process undertaken by someone at some point. Beyond mere factual accuracy that may be attained via traditional archival sources, a focus on individual meanings, changing perceptions and understandings of past experience highlights oral history's greatest asset and potential.

Specifically in the corporate/institutional context, in a recent article Loehr (2014) argued for the power of narrative explorations and storytelling approaches. These connect participants

with the institutional values at hand both intellectually and emotionally, stimulating subjective enquiry. She maintains that, adequately employed, such experiences become drivers of transformation and very effective leadership tools.

In SPRU's case, these particular benefits are evidently emphasised by the archival dispersion which has characterised institutional change and successive moves. These moves, first from the Mantell Building in 2002-2003, and then from the Freeman Centre in 2012-2013 into the Unit's current home in the Jubilee Building, meant that much crucial documentation was dispersed or destroyed. If often the 'incomplete' character of documentary sources requires assistance from personal recollections, the crippling archival losses faced by the Unit – and most significantly the loss of SPRU's Library – emphasise this factor greatly.

Such archival shortcomings contribute to a weaker, fragmented historical identity, whilst simultaneously emphasising the importance of oral history and other complementary life history sources in composing a fuller and richer historical portrait of SPRU. They also necessarily challenge even further a common assertion in more traditional institutional history-making that interview data are strictly supplementary to archival sources. Given the circumstances, at SPRU a different type of dynamics can be productively pursued. Furthermore, apart from filling the documental void, an oral history of SPRU is significantly equipped to document a recent past increasingly bereft of traditional paper-based archival records. This aspect has become more prominent over the last fifteen years, particularly via the widespread adoption of electronic storage formats and 'intangible' data.

Another unique contribution found in an oral history of SPRU is the recording of voices or processes that throughout the five decades of SPRU have been less heard or emphasised, beyond prominent SPRU scholars. For example, these include female members of staff who have operated in a predominantly male SPRU environment, administrative staff, critical friends, and wider networks. In this way, oral history brings 'more history' (voices until then mostly unheard), but also 'a different kind of history'. Oral history is different because each personal testimony contributes towards a composite portrait of multiple and contrasting viewpoints. These, when analysed reflectively and critically, rather than being 'supplements' or 'additions' to other sources become the main drivers for a richer, more inclusive and democratic practice of institutional history.

This position counteracts the assertion that very often institutional testimonials are provided by highly self-conscious, articulate individuals with well-rehearsed narratives geared towards an immediate purpose, the latter frequently being an uncomplicated public relations exercise. In such cases, critical omissions or embellishments distance this practice from rigorous investigation. In this instance, as an external researcher with advantages of perspective, the author was in a position to challenge established notions about SPRU – and was prompted by respondents to do so. With the goal of pursuing a full history of SPRU, the uniqueness and value of the SPRU oral history collection are manifestly evident.

3. Major themes emerging from the interviews

The process of organising the collection of oral history testimonials began in early September 2014 with a successful Ethical Review Application and the creation of the Project's protocols (Project Presentation Letter, Biographical Information Sheet, Interview Guidelines, Interview Consent Form, etc.) and all attending interview logistics. Out of a wider list of more than 50 individuals provided in advance, approximately 25 were selected for interview at this initial phase. Between early October 2014 and mid-February 2015, 25 oral history interviews were conducted with 24 respondents (see Section 9, Appendices, for full details).

Carrying out the collection of an oral history of SPRU highlights the importance of incorporating an inclusive and dynamic historical perspective into the Unit's strategy and outlook. The personal narratives of relevant SPRU individuals illuminate not only historical context, individual agency and intellectual landmarks, but also critically reveal essential characteristic features of SPRU's identity, which can be advantageously pursued.

Participants and interested parties were clear from the onset that any oral history of SPRU should encompass multiple voices, from a variety of standpoints, an emphasis contained in the concept of *inclusive narratives*. These are the narratives of SPRU academics past and present, members of the several SPRU groups emerging over the years (e.g. on energy, innovation, technology and skills, etc.), research students, institutional partners, clients, advisors, wider SPRU friends (all both UK-based and international), administrative and support staff, as well as perspectives from the University of Sussex (via central administration and other units and departments).

Such inclusiveness of sources helps guard against a more commemorative, laudatory and 'wholly safe' public, institutional history, often evading wider critical dimensions. In this sense, interviewees were encouraged to embrace a full history of SPRU, one which encompassed disillusionment, failure, and, at times, uncomfortable facts. In these elements, valuable SPRU lessons are contained. In this regard, issues of openness and confidentiality were sensitively addressed via restrictions placed through the interview consent forms.

As much as possible, given logistical constraints related to time, geography and budget, this variety of voices was observed in the selected sample. However, a UK-focused, 'insider' SPRU perspective, focusing on the initial period of SPRU (roughly 1966-1986) prevailed, generating a particular bias in that direction. Nonetheless, broadly considered, this approach coincides with recommended oral history practice, since older interviewees are typically prioritised.

This section now briefly addresses some recurring themes in the interviews.

3.1 People

A recurrently emerging theme was the idea that what makes SPRU distinctive are the remarkable individuals who have been (or still are) its members. In this respect, oral historian Perks (2010b) emphasises that:

> 'Organisations are made up of people, each with their own personal biographies; but each organisation also has its own "biography", shaped both by its own people's biographies and by the versions of itself that it creates for different purposes at different times. Oral history is uniquely well-placed to explore these complex relationships between the personal, the public and the corporate.' (p.49)

Interestingly, a significant number of Project participants stress that people are what makes SPRU what it is. The Unit is defined as a close-knit 'family', where collegiality, solidarity and strong and multi-layered professional and human relationships develop outstandingly to form a mostly pleasant and rewarding work environment. Like in any 'family', there are personal tensions to account for, and several interviewees highlighted aspects of conflict of viewpoints and clashing personalities. It should be emphasised that this 'SPRU family' is not confined to the Sussex University campus, or even to the UK, since SPRU has established itself as an international research hub on science, policy and technological change.

Often respondents stated they were indebted to SPRU on a professional and human level, some describing their association with the Unit as life-changing, in that it provided (or continues to provide) great opportunities to discover and develop innovative research arenas in a mostly pleasurable context. It was often emphasised how innovative research standpoints informally emerged from close socialisation with other SPRU members and friends. Indeed, in pursuing the history of an academic Unit like SPRU, oral history becomes instrumental in uncovering the intricate interplay between work relations and personal social interactions. In this sense, any history of SPRU should not overlook the significance of personal inclinations, relationships and networks established within the Unit.

The oral history approach also allows for a fascinating exploration of how work narratives anchor themselves within an individual's autobiography, wider influences and background. In that sense, very often the construction of the interviewees' retrospective narratives hinted at how early experiences shaped later employment choices. It is vital for a richer history of SPRU to cultivate this understanding of how past personal directions and activities in members' lives often significantly interact and develop in parallel with their professional side.

In this regard, interviewees who had left and who could establish comparisons, overwhelmingly presented SPRU as a distinctively desirable environment to work. Many who have left SPRU retain countless pleasurable memories of the Unit and affirm its great convivial atmosphere as clearly distinctive. This collegial spirit is still identified as a strong feature of SPRU, explained by some as emerging surely also out of interest and opportunism (a survival strategy for the Unit), but undoubtedly also out of a genuine convivial synergy uniting members.

The genesis of these characteristics was frequently attributed to the 'founding fathers and mothers' of SPRU. The individuals who were singled out most frequently in this regard were Christopher Freeman and Marie Jahoda. They were described not only as impeccable, brilliant scholars, but as generous human beings able to instil in SPRU a culture of openness, dialogue, supportive debate, and democratic practice. Egalitarian standpoints and the belief in transforming the world into a better place were often cited as guiding principles of these fundamental figures. Many other individuals were emphasised (most notably Jackie Fuller,

Geoff Oldham and Keith Pavitt), and the mode of their diverse contribution towards the Unit addressed.

A certain fragmentation was noted in the face of the difficulties of recent years. The sociability angle has been perceived as currently weakened (in relation to a stronger period when SPRU was located at the Mantell Building, and even afterwards in the Freeman Centre). Some asserted the importance of recovering and reinforcing this sense of 'family' amongst SPRU staff, and also amongst previous members (through alumni networks and wider SPRU friends).

3.2 The Unit

Interviewees were overwhelmingly proud of having had – or having – a connection with the Unit. SPRU is mostly depicted as a pioneering, forward-thinking, multi-and interdisciplinary research Unit with strong, meaningful international connections and a worldwide track record of half a century of influential, top-level research. Combined with long-standing credentials in doctoral research, SPRU's teaching angle (formally established in 1982-1983 but present virtually since the beginning) was also presented as vital in shaping generations of researchers internationally, thus widely disseminating the Unit's approaches and research agenda.

Although staff were characterised as mostly left-leaning, SPRU was almost invariably described by interviewees as a politically neutral research unit, intent on a precise and rigorous approach, and able to efficiently connect with industry, policy makers and stakeholders. To the credit of the competence, quality, talent and *esprit de corps* of its staff, many highlight how SPRU has been for decades skilfully and mostly successfully navigating the difficulties of having to rely predominantly on 'soft funding'.

Beyond internal dynamics, SPRU reflected the domestic and international developments of the last five decades – from paradigm shifts in science policy, to political change, changes in funding allocation and technological innovation. In the UK, this manifested in successive governments with different viewpoints on science policy and related fields; also, in recent years, profound structural changes in the Higher Education sector occurred. Internationally, just to quote some broad examples, one could consider the dynamics stemming from the Cold War, and subsequent dissolution of the Soviet Union, as well as the emergence and

development of the European Union. Respondents expressed an awareness of how all these broad themes connect in different ways with work developed at SPRU.

SPRU's 'legacy' of influential past projects – too many to list here, but mostly chronologically located by the interviewees between the 1970s and mid-1980s – features prominently in the accounts.[1] This phase is perceived as a time when SPRU was clearly at the forefront of research in its field. The notion that such remarkable successes have been less common in recent years – to a great extent due to the many challenging circumstances that SPRU had to face – was frequently repeated. The assumption was that this 'past glory' should serve more as a dynamic source of inspiration than distinguished institutional 'pedigree'. Advice was often expressed towards expanding and diversifying research arenas, connecting with current research priorities and rediscovering some SPRU research themes which, as the years went by, were dropped or overlooked. This viewpoint which is more focused on earlier achievements appears to emerge from the fact that the interviewing sample is predominantly made up of SPRU people who were involved with the Unit up to the 1990s. This illustrates how perceptions of success over time reflect the sample's characteristics, suggesting that a more chronologically balanced sample would perhaps choose to highlight recent developments and successes more prominently and positively.

In a shifting landscape which now includes further competitors, SPRU is encouraged not just to keep up with the pace, but to affirm itself as daring and leading. For some, in order to catapult SPRU back into a place of prominence, and allow current staff to fulfil their maximum potential, wider connections on all levels (academic, industry, policy making) should be fostered by the Unit. This should be whilst maintaining close attention to the evolving Higher Education sector within which framework the Unit necessarily operates.

3.3 Challenges of the relationship with the University of Sussex

The relationship between SPRU and the University of Sussex was one of the most sensitive topics approached during the interviews, and one which continues to raise strong emotions and viewpoints. It was mostly maintained that SPRU's emergence at the University of Sussex was no coincidence and that it was mutually beneficial. The innovative, flexible,

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[1] Please refer to section 6.3 'A selection of landmarks'.

interdisciplinary environment present since 1966 at the genesis of SPRU could hardly be fostered in a similar fashion in older, more established Universities. Part of a new wave of 'new Universities', Sussex truly had the space and willingness to explore the 'new maps of learning' espoused by Asa Briggs.

From the onset, SPRU was presented as an independent, or rather 'semi-detached', research unit housed at the University of Sussex, a situation which historically entailed advantages, but which, with the passage of time – and particularly from the restructuring of the early 1980s onwards – placed SPRU in a less autonomous position. This was despite the consistent presence of internal supporters and alliances, for example with the Institute of Development Studies (IDS), but also in the past with the Economics strand of the former School of European Studies.

Most interviewees focused their accounts on a more recent period – namely the last twelve years – examining how tensions with the University of Sussex mounted to severe levels, which culminated in SPRU actively attempting to leave the institution in late 2012. The circumstances of this episode are often carefully considered and examined in the narratives which allude to it, and, particularly for those who were involved in such dynamics, a pervasive sense of unresolved, disturbing trauma clearly emerges.

The majority of interviewees expressed their discontent and hurt at how senior management at the University of Sussex forcefully effected structural changes in SPRU, particularly regarding the loss of institutional autonomy and change of buildings. Most believe this change occurred by mistreating and alienating excellent resources (human, research, teaching and documental). This aspect emerged so powerfully in so many interviews that it should not be dismissed or underplayed by an historical assessment of SPRU, and particularly from a senior management perspective.

It should be added that some of these accounts admitted that structural change was necessary, particularly given the evolving context of the Higher Education sector – increasingly oriented towards normalised, significantly more bureaucratised, business-oriented procedures. However, there was a unanimous viewpoint that this change was

administered by the University of Sussex in a needlessly univocal, ruthless and tactless manner.

Respondents emphasised how these critical challenges on the one hand united SPRU in a common front against the University's actions, whilst on the other hand also contributed to a certain dispersion. There was an awareness that, having occupied such a prominent place in SPRU's recent existence, these struggles took their toll in generating disappointment and hurt that has been to a great extent detrimental to people's optimal professional performance and personal interactions, contributing in some instances to alienating and disconnecting SPRU members. As stressed on several occasions by some respondents, this is something which needs to be addressed in timely, effective and sensitive ways.

Despite acknowledging at length these very challenging recent times, participants' narratives were generally optimistic and expectant of the future, identifying the current moment as one of building, healing and growth. The new directorate, encompassing its senior management team and key appointments, was highlighted as crucial in improving the relationship with the University of Sussex and raising SPRU's profile in general.

3.4 Doing the history of SPRU

Despite acknowledging its importance, some interviewees reflected on the difficulties associated with doing a history of SPRU ahead of its fiftieth anniversary in 2016. Above all, the breadth and honesty that such an assessment should entail were emphasised. Respondents stressed that tensions, conflict and disagreement should be included in a reflective exercise avoidant of institutional glorification and public profile-raising.

It was particularly emphasised how it would be beneficial for current staff with a more recent connection with SPRU to be educated in the Unit's rich history. The benefits of engaging with institutional history in such a way have been highlighted by wider research in the field (please see Section 8 'References and Bibliography' for relevant literature).

Participants highlighted how the importance of not forgetting this richly diverse past resides also in recovering a significant bank of relevant past SPRU research which remains inaccessible and, thus, not always connected with current research. This is mainly due to dispersion, destruction or for the fact that they are not digitised.

The proposed history of SPRU was ideally defined as a rigorous assessment of SPRU's research field – theoretical, empirical and beyond – informed by an expansive contextualising historical background, able to encompass SPRU's many evolving facets. In addition, this exercise would necessarily place SPRU individuals (from the most prominent to those remaining anonymous) at the forefront of the Unit, chronicling how, beyond outputs, they played a role in making SPRU significant and, to some extent truly unique.

3.5 Now and the future

In 2014-2015, with its fiftieth anniversary fast approaching and the History Project underway, SPRU had an opportunity for deeper reflection, which was embraced by respondents during the interviews. For some, there clearly is a SPRU legacy to cherish and take into account as SPRU continues towards the future. SPRU's development is often organised by phases, normally associated with different directorate periods and major projects. Most identified the current moment as a period of positive resurgence. This was contrasted by some to a previous period of unease and strained relationships with the University of Sussex, normally described as having occurred since the mid-2000s.

These historical reflections did not emerge uncritically, and participants outlined the internal challenges faced by different directorate periods and the relevance of distinct management and leadership styles. They pointed to significant achievements made despite difficulties, and consistently stressed the tense relationship with the University of Sussex. Placing recent developments in the wider context of the evolving UK Higher Education sector (particularly as far as the circumstances of SPRU's insertion into the School of Business, Management and Economics are concerned), interviewees reviewed many developments as not ideal. These considerations often informed a critical assessment of the present, evidencing current challenges. Some expressed their scepticism in relation to the full applicability of the current 'ambitious' SPRU strategy. Other commonly expressed concerns focused on the power dynamics between the teaching faculty and research faculty, an over-bureaucratisation of institutional processes and structures, sources of funding and research directions. Concerns were also raised in relation to institutional stability and career growth, in the context of an increasingly market-driven and challenging Higher Education sector where other competitors may offer more appealing packages; as well as to a persisting gender imbalance present at

SPRU. These issues were presented as enduring, and not specific to the current period, only perhaps emphasised by circumstances.

In their critical assessments, interviewees reflected upon their level of connection, chronologically and professionally, with SPRU. In general, when the individual was closer to the Unit a more hopeful and less critical narrative emerged. Those contributing from an outsider's perspective were markedly more critical and evaluating, often embracing a wider comparative viewpoint.

In reflecting about the future of SPRU, some interviewees stressed that guaranteeing its survival should not be a guiding factor. SPRU's existence is justified just as long as the power of its ideas and impact are expressed in outstanding research and productive synergies established between interested parties. When considering the future, most agreed that while the task ahead is not without difficulties, the internal landscape now appears more settled. With an improved relationship with the University of Sussex and a new dynamic directorate, SPRU is in a better position to consolidate and pursue new avenues of research and focus on capturing new, emerging talent and ideas.

3.6 Conclusions

The inclusive oral history approach adopted by this strand of the SPRU History Project – inclusive in breadth, focus and methodology – as well as offering insight into SPRU's past, potently illuminates its future. Therefore, the importance of such oral history narratives – rich in their subjective meanings and insights – is manifestly emphasised as instrumental in planning the future through a reflection on the past. Undoubtedly, any successful strategy needs to include and inspire people.

Beyond mere factual timelines, abstract structures and delivery of outcomes, and as stressed by several respondents, SPRU is, indeed, the people who constitute the Unit: their views, their stories and memories, their impressions, their individual paths and diverse backgrounds, their goals, interests, achievements, lessons learnt and personal interactions. SPRU is made up of all these individuals. This dynamic composite portrait enables the past to be utilised in an inspiring and fruitful manner. In this sense, duly incorporated in ongoing reflections, an oral history of SPRU can be a powerful contribution to the wider history of SPRU and its field.

Moving forward, the acknowledging and valuing of these individuals (past and present) in a multi-layered manner, on a professional and personal level, appears to be very relevant for the institutional health of SPRU. The SPRU History Project provides a much needed arena for helpful reflection on how to relate to a successful yet challenging past and how to manage the Unit in the future. It is also useful for any current SPRU staff members who are not fully aware of the circumstances surrounding the Unit's origins and development.

This report argues that the oral history approach may prove to be a catalytic tool in understanding and navigating SPRU's present dynamism and challenges. Such an open, dialogic approach naturally promotes the channelling of any difficulties and inevitable tensions, as well as outstanding ability and strategic vision, into positive, constructive outcomes.

In this process, the notion of a 'SPRU family' that needs to move forward by focusing on what really unites its members rather than what divides (or divided) them, gains traction. Particularly when many of the difficulties affecting the Unit are generic and also experienced by similar research units in the UK and elsewhere, what is really unique about SPRU is the sum of its individual members and its distinctive, forward-thinking strategy. Beyond past and present hurdles, circumstances appear to be in place to inspire this 'SPRU family' to come together even more strongly and excel on all levels.

The respondents' stories evolved mainly alongside the themes approached above. Over fifty hours of recordings provide us with the raw life story data from which to extract fundamental future analysis.

The following **Sections Four, Five and Six** result from a selective, non-exhaustive analysis of the sources listed in full in the references and bibliography (Section Eight). These encompass primary sources (such as interviews, interview transcripts, original documents, reports, newsletters, etc.) and secondary sources (such as published articles, book chapters, monographs, etc.). In the compilation of this summary of the last five decades of SPRU's history, there was an awareness of the biases contained in internal sources, and the emphases naturally generated by the oral history sample. The lack of wider systematised SPRU sources – due to loss or inaccessibility – is also a factor to consider for this and any subsequent

research. There was an attempt to counteract these constraints through encouraging participation and feedback from SPRU members, past and present, as well as seeking external sources of information. The former factor was particularly fruitful through the feedback received on the occasion of the special SPRU History Project Seminar, on 11 March 2015.

4. Selected SPRU Timeline

1961-1965: Stephen Toulmin (History and Philosophy of Science) negotiates closely – albeit unsuccessfully – with the University of Sussex for the creation of a potential Research Unit.

1963: Ground-breaking conference is held at the University of Sussex on the desirability of research problems of scientific development and policy, attended by scholars, policy makers, funding bodies and other key parties.

1966: Unit for the Study of Science Policy formally emerges (name is changed to Science Policy Research Unit during first year), with three permanent posts: Christopher Freeman (Director), Geoff Oldham (Deputy Director) and Jackie Fuller (Administrator). Roy MacLeod is its first Research Fellow and Kay Andrews its first Research Assistant. It is located in Essex House, then Lancaster House (with IDS).

1968 - 1971: Project SAPPHO, a ground-breaking study on industrial innovation, is launched.

1970: SPRU is housed at the Nuffield Building.

1970: *Sussex Manifesto*, focusing on innovation in developing countries, is jointly published with IDS.

1970: Roy MacLeod is appointed to the readership of History and Philosophy of Science; History and Social Studies of Science Subject Group (HSSS) is inaugurated at the University of Sussex.

1970 – 1982: SPRU groups are formed and developed around big projects.

1971: *Research Policy* journal is founded (C. Freeman ed., with H. Krauch and R. Coenen, Germany).

1971: SPRU's influence in the domain of security work begins, particularly surrounding the international negotiation of, and later the implementation of the 1972 Biological Weapons Convention.

1971-1979: STAFF (Social and Technological Alternatives for the Future) programme begins, through which Marie Jahoda and Keith Pavitt join SPRU.

1972: Nuffield building is renamed Mantell Building.

1972: SPRU is influential at UN Conference on Human Environment in Stockholm.

1973: Influential book *Thinking About the Future: A Critique of "The Limits to Growth"* (Cole et al, 1973) is published. SPRU's international recognition gains momentum

1974: The first edition of Chris Freeman's classic text, *The Economics of Industrial Innovation* is published (second edition 1982; reprinted 1989 and 1991).

1975: Brian (later Lord) Flowers chairs a ten-year external review of SPRU's work. Review recommends continuation of Unit with greater long-term University funding

1976: Science and Technology Policy Programme is initiated in co-operation with the International Development Research Centre in Canada (IDRC), of which Geoff Oldham was Associate Director

1976-1993: MTAL (Military Technology & Arms Limitation) programme begins, including research and later teaching activity with ADIU (the Armament & Disarmament Information Unit, 1978-89), and HSP (the still-running Harvard Sussex Programme on Chemical & Biological Weapons, formalised in 1988), as offshoots

1978: *World Futures, the Great Debate* (Freeman & Jahoda, 1978) is published.

1979-1985: TEMPO (Technology and Employment) programme begins.

1982: *Unemployment and Technological Innovation: A Study of Long Waves and Economic Development* (Freeman, Soete & Clark, 1982) is published.

1982: The 'Gang of Twenty-Four' initiate a petition asking Freeman to step down as Director, ending Freeman's directorate. Oldham becomes Director, with Freeman as Deputy Director. Internal cohesion is challenged. Increasing power of groups.

1982: *The Baroque Arsenal* (Kaldor, 1982) **i**s published.

1982: SPRU formally becomes a Teaching Unit, with its own MSc and doctoral programme.

1983: SPRU incorporates Sussex European Research Centre, Operations Research, Centre for International Organisations, and History and Social Studies of Science.

1984: SPRU Centre for Science, Technology and Energy Policy in British Economic Development is founded.

1984: *Foresight in Science: Picking the Winners* (Irvine & Martin, 1984) is published.

1984: Pavitt's influential publication 'Sectoral patterns of technical change: Towards a taxonomy and a theory' in *Research Policy* 13:6 is published (6,780 Google Scholar citations and counting by late March 2016).

1984-1985: Keith Pavitt becomes SPRU Deputy Director. Freeman's period as Deputy Director ends.

1985: SPRU Programme on Information and Communication Technologies (PICT) is launched, encompassing later the Centre for Information and Communication Technologies (CICT), in 1988.

Mid-1980s-early to mid-1990s: Despite successful funding bids and other significant outputs, including establishment of STEEP (Centre for Science, Technology, Energy and Environment Policy) and CoPS (Complex Product Systems Innovation Centre Programme), there are concerns of perceived loss of influence of SPRU.

1986: Chris Freeman formally retires. *Technology and the Human Prospect. Essays in Honour of Christopher Freeman* is published (MacLeod, 1986).

1987: *Technical Change and Full Employment* (Freeman & Soete, 1987) is published.

1988: *Chemical Weapons Convention Bulletin* is launched, edited jointly by Julian Perry Robinson and Professor Matthew Meselson of Harvard University.

1990: The Harvard Sussex Programme on Chemical Weapon Disarmament formally begins, leading inter-university collaboration with Harvard University on public policy about chemical and biological weapons.

1991: SPRU's twenty-fifth anniversary celebrations and events take place. *Technology and the Future of Europe*: *global competition and the environment in the 1990s* (Freeman, Sharp & Walker, 1991) is published.

1992: Centre for Science, Technology, Energy and Environment Policy (STEEP) is established.

1992: SPRU is awarded top rating of '5' in the Research Assessment Exercise (RAE) carried out by the Higher Education Funding Council for England (Science, Policy Research Unit, 1992-1993: p2).

1992-1993: Geoff Oldham's Directorate ends.

1993: Michael Gibbons becomes Director.

1993: SPRU has a prominent role in the Chemical Weapons Convention.

1994: There are changes in SPRU's internal structure, including the ending of groups. There is an internal research review.

1996: New Complex Product Systems Innovation Centre (CoPS, 1996-2006) is launched, jointly with CENTRIM (Centre for Research in Innovation Management).

1996: Michael Gibbons leaves.

1996: *The relationship between publicly funded basic research and economic performance* is published (report by K. Pavitt et al prepared for HM Treasury).

1997: Ben Martin becomes Director.

1997: The updated third edition of *The Economics of Industrial Innovation* (Freeman & Soete, 1997) is published.

1997: Inaugural annual Marie Jahoda Lecture takes place, delivered by Sir Robert May and organised by SPRU DPhil students.

1997: Centre for Information, Networks and Knowledge (INK) is established, renamed from CICT, which was established in 1988.

1997: *Managing Innovation: Integrating Technological, Market and Organizational Change* (Tidd, Bessant & Pavitt, 1997) is published.

1997 - 1998: Name is changed to Science and Technology Policy Research Unit.

1998-1999: Funding application for new purpose-built building is successful. Plans for Freeman Centre begin with CENTRIM (University of Brighton).

2000: Last issue of *SPRU's News* is published (started in 1970).

1999-2000: SPRU is awarded '5' in the RAE.

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

2002-2003: Freeman Centre is completed, housing SPRU and CENTRIM.

2004: Ben Martin's directorate ends.

Mid-2000s: Innovative research agendas emerge in the environmental, security, sustainability and energy domains.

2004-2006: Michael Gibbons acts as SPRU Director on a consulting basis.

2006: CoPS Centre ends (1996-2006).

2006: SPRU has its fortieth anniversary. Conference and other activities take place.

2006: STEPS Centre (Social, Technological and Environmental Pathways to Sustainability) is launched, jointly with IDS.

2006-2008: Mick Johnson becomes Director. There are internal difficulties, tension with the University of Sussex, and a loss of influence.

2008: In the RAE (2008), SPRU is ranked 14th out of 59 in the 'Politics and International Studies' unit of assessment, with 20% of the Unit's outputs being classified as 4* and 30% as 3*[2].

2008-2013: Gordon MacKerron is Director. Tension with the University of Sussex intensifies.

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

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

2010: New *Sussex Manifesto* (STEPS Centre, 2010) is published, jointly with IDS.

2012: University of Sussex management remove SPRU and CENTRIM from Freeman Centre amidst controversy. This is the peak of tensions with the University. Plans to rename the Freeman Centre are eventually dropped.

2012-2013: SPRU is housed in the Jubilee Building, and the SPRU Library is discontinued. The Harvard Sussex Programme collection is subsequently hosted in the Pavilion Room of the Hastings Building (in 2015).

2013: The Centre on Innovation and Energy Demand is created, a collaboration between researchers from the Sussex Energy Group (SEG) at SPRU, the Transport Studies Unit (TSU) at the University of Oxford, and the Sustainable Consumption Institute (SCI) at the University of Manchester.

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[2] 4* equates to Quality that is world-leading in terms of originality, significance and rigour. 3* represents Quality that is internationally excellent in terms of originality, significance and rigour but which nonetheless falls short of the highest standards of excellence.

2013: *The Entrepreneurial State. Debunking Public vs. Private Sector Myths* (Mazuccato, 2013) is published.

2014: In the REF2014 (Research Excellence Framework) SPRU is ranked 36th out of 101 in the 'Business and Management Studies' unit of assessment, with 20% of the Unit's outputs being classified as 4* and 50% as 3* (University of Sussex, 2014).

2014: Johan Schot becomes Director. Innovative strategy is adopted, and internal change occurs. The name reverts to the original Science Policy Research Unit.

2014: 'The Nexus Network' is launched, in partnership with the University of East Anglia and the Cambridge Institute for Sustainability Leadership.

2016: SPRU celebrates its fiftieth anniversary.

Note: For further contextualisation, please refer to Section Five.

5. List of SPRU Directors (1966 – present) and main themes of each directorship

1) Chris Freeman (1966 - March 1982) – the founder and pioneer, a multidisciplinary team-builder who provides intellectual leadership and establishes SPRU's innovative pathway and international recognition.

2) Geoff Oldham (1982 - 1992/3) – fosters institutional consolidation, increased international links, and expansion of staff numbers and activities, particularly teaching.

3) Michael Gibbons (1993 - 1996) – oversees internal executive and administrative reform, a reconfiguration of SPRU groups, and an advantageous relationship with the University.

4) Keith Pavitt (Acting Director, October 1996 - January 1997) – brief transitional phase.

5) Ben Martin (1997 - 2004) – increases faculty numbers, successfully bids for new Freeman Centre with CENTRIM, diversifies research strands.

6) Michael Gibbons (2004 – 2006) – attempts implementation of new strategy, there is disconnection with the University.

7) Mick Johnson (also Dean of Social Sciences and Cultural Studies, 2006 – 2008) – heads SPRU during a phase of difficult internal communication and mounting tension with the University.

8) Gordon MacKerron (2008 – 2013) – steers period of crucial hires, securing of important funding, and the peak of tension with the University. SPRU considers leaving Sussex, establishing negotiations with a part of the University of London.

9) Johan Schot (January 2014 - present) – leads transition from challenging recent past, institutional rebuilding, innovative strategy, energising future plans, and celebrating half a century of SPRU.

6. A summary of major SPRU developments, projects and impact

Please note that the previous Sections Three to Five of this report complement this summary.

Oldham (2014) described SPRU in 1990 as:

> 'A research group at the University of Sussex that aims to understand how society can maximise the benefits from science and technology and minimise their harmful effects.'[3]

6.1 SPRU's development

The context in which SPRU emerged connects with growing concerns in the 1950s and 1960s about the fast rise of scientific activity expenditure, both in the military and civil arenas. Such an environment led to an increasing interest in research and development (R&D), technical change, statistics and measurement of scientific and technical activities. It particularly highlighted the crucial importance of technical change in understanding economic behaviour. These factors resulted in an acknowledgement of the need for systematic research at University-level, analysing the science technology system.[4]

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[3] This is what G. Oldham responded to the Queen when she enquired about what SPRU was during his 1990 CBE award ceremony. See Oldham (2014).

[4] These developments occurred in line with the earlier thinking of J. Bernal, as expressed in his seminal work *The Social Function of Science*, published in 1939, in which he particularly recommended Universities to pursue interdisciplinary knowledge through reforming their teaching and research models. See Bernal (1939: pp. 249-252).

The University of Sussex (established in 1961), the first of a wave of new universities to appear in the UK in the 1960s, seemed to provide ideal conditions for hosting a research unit of this type. That was the conviction of Stephen Toulmin, an influential scholar in the fields of history and philosophy of science, who since the early 1960s had been approaching several universities for that purpose. Toulmin clearly favoured Sussex for developing his project, because of 'how much the Sussex doctrine appeals[ed] to me [him]'. However, despite several years of discussions with the University between 1961 and 1964, the plan to set up a research unit in the field of science policy studies at Sussex led by Toulmin did not materialise, as he found the conditions offered insufficient. Nevertheless, Asa Briggs, at the time Pro-Vice Chancellor and an enthusiastic supporter of the then new Arts-Science Scheme (aimed at promoting interdisciplinarity), continued to pursue the idea of the establishment of such a research unit, but on a smaller scale.

In January 1966, the Unit for the Study of Science Policy (quickly renamed SPRU) was formally launched, with three permanent posts offered by the University. These posts were occupied by Christopher Freeman (Director), Geoff Oldham (Deputy Director) and Jackie Fuller (Administrator), whose backgrounds were vital for the successful start of the Unit. Freeman was already known for his industry and R&D studies at the National Institute for Economic and Social Research (NIESR), as well as his work for the OECD on the definitions of R&D which notably resulted in 1963 in the Frascati Manual. The latter became the agreed methodology for collecting science and technology statistics, and led to the development of the OECD's science and technology indicators. Coming also from the OECD, Oldham's interest in China and the developing world were similarly a strong asset. Fuller worked with Freeman in NIESR and was expected to assume mostly the administrative side of the Unit. Alongside these three permanent appointments, SPRU started with Roy MacLeod, its first Research Fellow and Kay Andrews, its first Research Assistant.

Both Freeman and Oldham brought to the new Unit vital international connections, particularly through the OECD networks, which, in the mid-1960s, were probably one of the most important arenas worldwide where science and technology policy research were being carried out. The Unit also benefited from the keen support of Asa Briggs and good relations with him and other early Vice-Chancellors, as well as with Chairmen of research councils and

government chief scientists, an aspect which contributed greatly to SPRU becoming well respected and recognised in the UK and internationally.

The core principles of the Unit were:

- **Interdisciplinarity**: since policy-making does not respect the typical academic disciplinary boundaries, the collaboration of engineers, and natural and social scientists in the study of technical change and the scientific community and institutions would be vital. As Freeman (1986) emphasised, 'we have always been agreed that policy research for science and technology necessarily required such cooperation on a continuing basis' (p.193).
- **Policy engagement**: apart from pursuing an academic research programme (expected mainly to be based on empirical studies), the Unit sought an active involvement with government and industry in the formulation of policies for science and technology – with its famous notion of wanting not just to understand the world, but to help change it for the better. This commitment at the inception of SPRU contributed to the Unit's perceived unusualness, and was not always universally accepted by academia, as policy engagement and academic research may not always sit comfortably together.
- **International approach**: a major point was the approach to science and technology as global phenomena of wide geographical scope to be studied not just in the UK and Europe, but also internationally in developing countries, particularly China.
- **Teaching**: the Unit would be primarily a research institution, but it would also be contributing with SPRU teaching, delivered through existing Schools of study in the University.

Being 'problem-oriented rather than discipline-oriented' (MacLeod, 1986: p. xv), SPRU quickly attracted researchers of different disciplines, and wider multidisciplinary teams were built alongside major research programmes. Influential individuals like Keith Pavitt, Marie Jahoda, Roy Rothwell, Ray Curnow and many others joined the Unit at its early stages. Its innovative research and teaching soon attracted international prominence. SPRU quickly established a close relationship with IDS, particularly through development studies, and through

collaborations, as well as good internal relations with other University departments.[5] Internationally, special links were forged, particularly with the International Development Research Centre (IDRC) in Canada, through Oldham, the OECD, and the UN, just to name a few. SPRU acquired the reputation of being a leading centre where diversity, interdisciplinarity, an international outlook, and non-ideological, uncompromising yet intellectually innovative rigour were nurtured in an atmosphere of cooperation and cross-fertilisation.

This initial phase of SPRU was characterised by independence and a steady influx of external funding. In this regard, in a 1999 interview, Freeman stressed how (despite the endemic uncertainty of core funding and issues of continuity), SPRU always managed to have around 75% of total research activity funded by extra-mural organisations (Geuna, 1999: p.13). A permanent feature of concern, however, has been the uncertainty of short term contracts, affecting the majority of SPRU researchers not in permanent posts, and the different terms and conditions for them compared to SPRU permanent faculty members. Geoff Oldham emphasised that the Unit grew with few permanent posts, typically with a significant percentage of researchers contracted for the duration of certain programmes or projects. This meant that there were very specific problems related to managing a research group which was largely staffed by contract researchers. This was rather different to the management of Schools within the University of Sussex (Oldham, 2015).

By the mid to late 1970s, SPRU was employing around thirty researchers, and annually attracting approximately twenty students from more than ten different countries, as well as around fifteen high-level international visiting scholars per year. The fact that, in its first ten years, fifty-six out of sixty-four Visiting Research Fellows came from overseas attests to the increasing international recognition of the Unit (Freeman, 1975: p18).

From the late 1970s into the early 1980s, the University provided several additional posts in response to the *Ten Year Review* (i.e. the recommendations emerging from the 1975-1976

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[5] For instance, regarding IDS, its Director was a member of the SPRU Committee. Geoff Oldham, as Director of SPRU, was part of the IDS Academic Board, and then had a place on the IDS Governing Board until the end of his directorship in 1992. This proximity had been developed right from the beginning, with the joint SPRU/IDS Study Seminars on Science, Technology and Development of the early 1970s, and the preparation of the *Sussex Manifesto* in 1970. The same applies to joint fellowships such as that of Charles Cooper, and research projects such as the Science and Technology Policy Instruments Project in 1970. (Oldham, 2016).

independent review panel chaired by Sir Brian Flowers) and pressure from Michael Posner, Chairman of the Social Science Research Council, to expand SPRU's endowment. Additionally, SPRU absorbed some individuals from several University research groups which were being closed down, such as the History and Social Studies of Science Group and Operations Research. In 1982, SPRU officially began its own teaching programme, offering both doctoral and master's degrees.

By the end of the 1970s and into the early 1980s, SPRU had formed several distinct groups, each with a group leader, usually a leading researcher in the field. Each group was fairly autonomous, being responsible for defining its work programmes, disseminating results, and securing renewed funding. Some examples of SPRU groups were the Energy Group, Technology and Social Change Group, Developing Countries Group, Military Technology and Arms Limitation Group, and Innovation and Skills Group. By the late 1980s, the groups had become too atomised and focused on their own individual agendas, causing a general lack of dynamism – a problem for the SPRU directorate. One of the ways encountered to give greater cohesion to the Unit was the establishment of a SPRU Advisory Panel in 1985, encompassing prominent individuals from academia, industry and government.[6]

Curiously, a 1982 *Le Monde* snapshot offered a rather ambiguous and somewhat gloomy portrait of SPRU. The French newspaper article pointed out that the Unit had higher recognition overseas than in the UK, emphasising a dubious scenario: a perceived distance between SPRU's research and the 'common citizen', which restricted impact; and SPRU researchers as being simultaneously democratic and elitist, alternative but financed by official sources. The article concluded that SPRU were more critics than initiators, and hinted at the Unit's imperilled survival, with Chris Freeman's retirement looming, several important funding streams ending, and a seemingly unsympathetic Conservative government in power (Battle, 1982).

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[6] In 1986, the SPRU Advisory Panel consisted of thirteen individuals (SPRU Annual Report, 1985-1986: p.3). In 1997, this Panel was defined as an 'Advisory Panel [that] advises the Director and the University about the overall content and balance of SPRU's work.' The Panel was divided in two groups, comprising in 1997 twenty-four people: twenty-one 'external members', and three 'University of Sussex members', including the University's Vice-Chancellor Gordon Conway (SPRU Annual Report, 1997: p.52). In 2001, SPRU's Advisory Panel had thirteen external members and retained three internal ones (SPRU Annual Report, 2000-2001: p.29).

Nonetheless, SPRU not only survived, but continued to expand. At the end of Freeman's directorship in 1982, SPRU had around forty-five academic staff and nearly forty DPhil students, from around twenty countries. By the end of 1985, with Oldham established as Director, there were seven and a half tenured posts in place. The Unit's budget during 1983-1984 had been £1.15 million, with only 13% of that sum originating from University funding (Freeman, 1986: p.194). By 1985, its total staff and student numbers had reached one hundred (MacLeod, 1986). In 1986, Freeman, drawing upon SPRU's two decades, and despite the varied acknowledged difficulties, concluded that there were advantages in locating policy research at Universities – mainly due to their teaching programmes, academic rigour, and critical independence. In that sense, Sussex had proved to be a favourable place for science policy studies, and SPRU's 'survival and growth' there demonstrated its relevance (Freeman, 1986: p.201).

However, by the late 1980s there were some concerns over the overall intellectual quality and dynamism of SPRU's work, for example expressed by Walker (1988). If for a long time SPRU had been distinctly perceived as frontier leading, a pioneering Unit setting agendas through the vibrancy of its innovative research – particularly in the economics of innovation, energy and development fields – the late 1980s and early 1990s for some marked the beginning of a different phase. A shift appears to have taken place, when SPRU, rather than mostly shaping research initiatives, began opportunistically responding to available funding. As usual, leading individuals were developing new, influential insights and successful research agendas and programmes, but the majority of outputs appears to have become more disparate and less collectively-based.

Externally, SPRU also had to adapt to a changing world. For instance, the energy scarcity of the 1970s gave way to a glut period in the 1980s, affecting SPRU's energy research. However, and as remarked by Gordon MacKerron (2015 and 2016), despite low oil prices from the early 1980s until 2000, external interest in funding energy research at SPRU was galvanised by the involvement of major energy industries emerging from Thatcherite privatisations of the mid-1980s.[7] Similarly, the end of the Cold War military confrontations by the late 1980s robbed

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[7] In October 1979 SPRU received a five-year Social Science Research Council award to set up a large Designated Research Centre in energy research. This award was renewed twice until 1994, giving continuity to large-scale

SPRU's research on armament and disarmament of some of its purpose. New concerns over unemployment, new technologies and European integration acquired increasing urgency.

Politically, the environment emerging from Thatcher's Conservative, neoliberal government (1979 – 1990) was sceptical about the value of academic social science research. The Social Science Council was renamed Economic and Social Research Council. As a Designated Research Centre benefiting from ESRC funding, SPRU – despite being committed since its inception to this objective – had to demonstrate more strongly and clearly the impact on policy of the work originating from its research grants. This increased SPRU's communications profile and policy-making connections, notably through participation of members in advisory committees, media, governmental select committees, trade unions and similar (Oldham, 2014).

To a great extent, the rate of success with which SPRU responded to the changing times can be assessed by tangible results. In the 1992 Research Assessment Exercise carried out by the Higher Education Funding Council for England (HEFCE), SPRU was awarded the top rating of '5'. Four years later, in 1996, SPRU was also awarded a '5' – by then not the top rating as this had been revised to a 5*. SPRU's turnover in 1994-1995 was approximately £3 million (Science Policy Research Unit, 1995: p.7). In 1992-1993, by the end of Oldham's directorship, SPRU had forty-seven members of staff, and around eighty-eight DPhil students originating from approximately twenty-five different countries.

The consistently high ratings in successive national Research Assessment Exercises considerably enhanced SPRU's standing within the University. By the mid-1990s, SPRU had definitely established itself as a respectable part of the University community. In fact, many individuals abroad knew of the University mainly through SPRU's reputation.

The mid-1990s were also a phase of deep internal change for SPRU. To the disappointment of many SPRU members, Michael Gibbons (who began his directorship in 1993) abolished the traditional SPRU group structure, and introduced new executive and administrative frameworks. These measures were meant to address the problems of the excessive autonomy

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Research Council-funded energy research over this whole period. See also Science Policy Research unit (1980: p. 26) for the full list of 'fuel club' sponsors.

that SPRU groups were perceived to have acquired (for some, having become a significant barrier to interaction and creative research, especially for younger staff members), as well as to improve the efficiency of the Unit's management. Likely also because Gibbons left in mid-1996, such measures do not seem to have produced the desired results.

Therefore, when Ben Martin became Director in early 1997, a challenging task lay ahead: to strike a careful balance between sustaining continuity and embracing a crucial need to evolve. In less than two years, Martin appointed fifteen new young researchers and began plans for a new home for SPRU. A successful bid was secured in 2000-2001 to construct a new building to jointly house SPRU and CENTRIM (Centre for Research in Innovation Management, University of Brighton). The building's architecture was conceived to provide an ideal platform for both SPRU and CENTRIM to apply their empirical and theoretical priorities. It provided a fundamental solution for some of SPRU's main challenges – for example those related to the need to continually attract resources and engage with original thinkers – by enabling enhanced spaces and channels for networking, communication and knowledge-sharing. It was emphasised at the time in the SPRU Annual Report that:

> 'the new facility will be perhaps the largest and most advanced research centre on government policies and business strategies for science, technology and innovation anywhere in the world. It will be called the Freeman Centre after Professor Chris Freeman (co-founder of SPRU) in recognition of his outstanding contributions to the creation of the field of science, technology and innovation studies (Science Policy Research Unit, 2001: p.2).'

Beyond moving into a new building, from the mid-2000s onwards, SPRU enjoyed a re-energising phase. Despite the many weighty competitors operating now in the science policy research arena, in the past sixteen years SPRU has been pursuing new, frontier-pushing directions, most notably in the environmental, sustainability, and energy domains. Undoubtedly, SPRU's endeavours were negatively impacted by several periods of instability and difficulties with central management, starting after Martin's directorship ended in 2004. At that point, Gibbons returned temporarily to lead SPRU (from 2004 to 2006), followed by Mike Johnson, a director designated by the University (from 2006 to 2008). Gordon MacKerron, a long-standing SPRU member, assumed the Unit's directorship between 2008

and 2013. For many, this constitutes the single most difficult period in SPRU history. During this phase, SPRU's identity and the relative autonomy it had enjoyed for decades at Sussex suffered a traumatic blow. This was when the Vice-Chancellor and his team began the process of forcibly integrating SPRU into the newly-created School of Business, Management and Economics, and ultimately unilaterally moved SPRU from the purpose-built Freeman Centre (2003-2012) into the Jubilee Building, where it currently resides.[8] This episode meant that after nearly five decades at Sussex, and despite being very much an essential part of the University's ethos, SPRU seriously considered the idea of settling elsewhere. In addition, it should be noted that during this process a major and unique SPRU asset was lost: the world-renowned SPRU Library was dismantled and much of its contents disposed of. This meant that SPRU lost access to many of its vital specialist resources and research outputs, with serious consequences, detrimental to SPRU's internal and external teaching and research activities and networks, and certainly acutely damaging for the Unit's morale.[9]

A characteristic management culture has increasingly dominated the political economy of the Higher Education sector in Britain in the twenty-first century, and some consider this has manifested in an excessive bureaucratisation and commodification of the sector. In addition, an interdisciplinary policy-engaged Unit like SPRU did not fit neatly into the discipline-dominated structures present at the University of Sussex. Notwithstanding the severity of clashes with the University, MacKerron successfully navigated SPRU's settling into the new School and building. As the crisis subsided, for many it became evident that SPRU's collegiality had passed the test and guaranteed the Unit's continuation. Despite the internal difficulties, SPRU's intellectually leading strands continued to take root and MacKerron secured key SPRU hires and important funding.

Led since 2014 by director Johan Schot, SPRU is now not only taking stock of five decades of excellence in research, but also embarking on a forward-thinking, innovative strategy. As a distinctive interdisciplinary Unit, benefitting from decades of unique expertise, international

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[8] This is with the exception of the Pavilion Room of the Hastings Building, where the vast archive of the Harvard Sussex Programme is currently hosted.
[9] The importance of the SPRU Library is attested as early as 1975, when it is written about in the following terms: 'The most important facility is of course the library. The Unit has attached a high priority to building up a first-rate specialist library and, through the excellent work of its librarians, has largely succeeded in doing so' (Science Policy Research Unit, 1975: pp. 41-42).

recognition and research breadth, through its current faculty and professional services staff of around 80 members and one hundred and fifty postgraduate students, SPRU continues to engage in plural, policy-relevant debates and high-quality research-led teaching.[10]

6.2 SPRU's main research directions

In the last five decades, SPRU's main research directions could be succinctly summarised as follows (in no particular order)[11]:

- British and European policy for science and technology, particularly in industry
- Problems of policy for science and technology in developing countries, including China
- Social Studies of Science, including Studies in the Social History of Science[12]
- Success and failure in industrial innovation
- Evolutionary economics
- Economics of innovation
- Technical change and under-development (in a developing country context)
- Energy policy, technology and the environment
- Measurement of scientific and technical activities
- Technological change, employment and economic growth
- Technical innovation and international trade performance
- Information and communication technology in world competition (and society)
- Environmental regulation and technical change
- Firm and industry innovation in new technologies
- Weapons of mass destruction and their international regulation
- Arms race and defence industries

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[10] In terms of faculty, SPRU is made up of teaching, teaching and research, and research faculty. SPRU's total faculty numbers in early April 2016 were 61. There were 36 permanent faculty (of all kinds) and 25 fixed-term research faculty. In addition, there were 6 permanent professional services staff, 7 fixed-term research-grant-funded professional services staff, and 6 research assistants (Clarke, 2016).

[11] This selection of research directions was arrived at through analysis of SPRU Annual Reports (1967-2001), relevant documents in Chris Freeman's collection at *The Keep*, and material from Oldham (2014) and Walker (2014-2015), as well as information shared through the oral history interviews conducted for the History Project. Please note this list is merely indicative and should be read in conjunction with analysis by Lang & Pujols (2015: p.2, pp.18-21) and Lang, Blascsok & Pujols (2015: p. 4, pp. 23-34). See bibliography for full references.

[12] In this regard, the journal *Science Studies* (now *Social Studies of Science*) should be noted. This publication was co-founded in 1971 by Roy MacLeod at SPRU.

- National systems of innovation

- Arms control as technology governance

- Health and biotechnology

- Science and technology policies in the European Union

- Science-industry collaboration and Knowledge and Technology Transfer

- Globalising world, markets, governance and sustainability

- Technology and innovation management

- Risk, futurity and sustainability

- Governance and public policy

- Sustainable development and transitions

- Firm growth and entrepreneurship

- Wider sustainability: energy, food, agri-business and related regulatory areas

- Knowledge-based societies, innovation systems and innovation democracy, grassroots innovation

6.3 A selection of landmarks

When charting SPRU's continuing influence, it should be stressed that, as highlighted by Julian Perry Robinson, academic publication outputs have never been the Unit's main objective, an aspect which has been particularly relevant during its first three decades at least. SPRU was founded with a major focus on policy research, geared towards improving understanding and suggesting solutions to practical problems faced by policy-makers in the UK and elsewhere. Consequently, SPRU developed highly effective and innovative research methods and approaches, in which teaching and academic publication had only minor roles. These methods are therefore hard to quantify and assess under typical academic output categories. This aspect further emphasises the importance of a qualitative study of the Unit's history, as well as espousing a broader view of what constitutes SPRU's success throughout the years (Robinson, 2016). Nevertheless, it is still helpful to undertake a survey of SPRU's mainly academic attainments since its beginning. Given the depth and breadth of SPRU's achievements in the last five decades, what follows is simply a selection of some landmarks of SPRU's research.

Project SAPPHO (1968 – 1971, funded by the Science Research Council, and involving C. Freeman, R. Curnow, R. Rothwell and many others). This consisted of a quantitative description of circumstances around scientific and technological discovery and invention. The project involved extensive data gathering from industrial and government laboratories and some novel techniques of statistical analysis, and was designed with computer analysis in mind. This approach enabled the development of a more refined understanding of the nature, scale and location of technological activity; its measurement, relations between invention and innovation, between product and process innovation, sectoral contrasts, the roles of government and of large and small firms, and the causes of success and failure in the management of industrial innovation. Theoretically ground-breaking, particularly for giving equal weight to successful and unsuccessful instances, this is 'a study that is still influential in industry today.' (The Telegraph, 2010). Crucially, the Unit established that responsiveness to the needs of users was one of the main features distinguishing success from failure.

Another decisive SPRU moment was its contribution to a worldwide debate on the future initiated around the MIT computer models and the Club of Rome. When the latter published their famous book *The Limits to Growth* (Meadows et al, 1972), arguing that the world would inevitably run out of resources by around 2030, SPRU produced a vigorously influential critique, showing that the book's authors had failed to give enough attention to technology and innovation. The response appeared mainly in the form of the book *Thinking about the Future: A Critique of the Limits to Growth* (Cole et al, 1973).

The highly influential research informing this response was conducted through **Project STAFF** (**Social and Technological Alternatives for the Future**, 1971-1979, funded by Research Councils and Leverhulme). This programme included significant contributions to forecasting techniques, through SPRU's advanced experience of computer simulation modelling, and the introduction of methodological innovations combining quantitative and qualitative approaches. It sought to surpass some implicit determinist biases in technological forecasting work, linking it with social forecasting. Marie Jahoda, involved with SPRU since 1971, played a major role in shaping the STAFF programme. The same applies to other influential individuals, such as Keith Pavitt, Sam Cole, Ray Curnow, Ian Miles, Tom Whiston and others. Further relevant SPRU books on forecasting to be mentioned are *The Art of Anticipation* (Encel, Marstand & Page, 1975), *The Poverty of Prediction* (Miles, 1975), and *World Futures:*

The Great Debate (Freeman & Jahoda, 1978). By 1979, STAFF's emphasis was on technical change and employment prospects, a direction which continued to be pursued through further funding.

It is also necessary to mention the very significant SPRU work on economic progress and **technology transfer to developing countries**, through which the dissemination of the Unit's innovative theories and methodologies took place, often accompanied by their translation into policies internationally – notably in China, Korea, India and several Latin American countries.[13] This occurred particularly through **the Science and Technology in the Third World Programme** in place since SPRU's early years (funded by the Ford Foundation), as well as the **Developing Countries Programme**. Amongst others, Charles Cooper, Martin Bell, and Geoff Oldham were influential individuals in this regard.

A good example of SPRU's early international expansion was in 1971, when the Unit formalised its relationship with the IDRC (International Development Research Centre) in Canada. This occurred through Geoff Oldham being appointed Associate Director of Science Policy of the IDRC, and as such being responsible for the Centre's science policy programme.[14]

Interestingly, assessing the first ten years of SPRU in 1975, Freeman (1975) asserted that:

> 'Undoubtedly, the greatest direct influence of the Unit on national and international policies has been in relation to developing countries. The Unit's empirical research has made a major original contribution to knowledge in this field, which has not only

[13] There were several strands that led to extensive connections between SPRU and Latin America shortly after SPRU's establishment. For instance, from 1970 onwards, the Science and Technology Instruments Project (STPI), funded by the OAS (Organization of American States) and the IDRC (International Development Research Centre), involved SPRU, other partners and ten developing countries, and led to the creation of several S&T policy research activities and institutions in Latin America. Many of the links established at the time remain active today. Other relevant initiatives starting in the late 1960s included the Cuban government and the assessment of a UN grant to the University of Havana; and the programme of Study Seminars (held jointly with IDS) on the topic of science technology and development. In these seminars the presence of Latin American participants was particularly strong, with several of them ultimately setting up science and technology policy research programmes within their own countries. (Oldham, 2016).

[14] At the time, Oldham entered an arrangement with IDRC and the University of Sussex that three quarters of his salary would be paid by IDRC and one quarter by the University of Sussex. Oldham would be based in Sussex but would make several trips to Canada each year. This arrangement did not impact the continuity of the Developing Countries Programme led by Oldham since its sponsor, the Ford Foundation, agreed to extend their grant for a further two years for the 1972-1974 period (Science Policy Research Unit, 1971: pp. 12-13).

influenced the whole climate of discussion of those issues, but has had a direct and perceptible influence on institutions.' (p.25)

Freeman emphasised the Unit's privileged access to China – unique at the time for Western research – and how the assimilation of Chinese experience in the field could generate alternative development policies for science and technology. This work on transfer of technology to developing countries emphasised the crucial importance for the development process of systematically building up indigenous technological competence and skills as part of the process of importing and assimilating foreign technology. A visible SPRU influence on technology policies in many developing countries became a natural corollary of such notions. A significant milestone in the field was the joint SPRU/IDS 1970 report on science technology and development which became known as 'The Sussex Manifesto' (Singer et al, 1970). Forty years later, 'A New Manifesto', also jointly produced by SPRU/IDS, was published (STEPS Centre, 2010).

As remarked by G. Oldham (2016), the legacy and evolution of SPRU research emerging from the Developing Country Programme reflects a drastically changing international context, an aspect calling for a reflection on the shifting importance and variable prominence of this research strand on SPRU's agenda with the passage of time.

In another arena, and drawing to a great extent upon Freeman's original articulations of the work of Marx, Bernal, and Schumpeter, SPRU research significantly contributed to a more refined analysis of the effects of technological change on economic growth and competitiveness at firm, sector, country and global levels. Intellectually, these developments materialised also in a robust **critique of neoclassical economics** and establishment of the evolutionary theory of economic development, alongside Chris Freeman's adaptation of Kondratiev Cycles. Such developments were achieved in conjunction with various individuals, who were either SPRU members or part of the Unit's networks, including Luc Soete, Giovanni Dosi, Carlota Perez, Dick Nelson, and others.

SPRU provided the perfect environment for these advancements: from micro, sectorial studies in the 1970s focusing on competitiveness, to an increasing shift to macro-environments since the early 1980s, inspired by the rise in unemployment and the established

link with new technologies. These shifts served to develop awareness in both industry and government of the crucial significance of technological competition in international trade performance and productivity improvement, placing SPRU in the 1980s at its height as an alternative place for exploring macroeconomics. This was in addition to earlier evidence of the importance of industrial innovation contained in Freeman's seminal *Economics of Industrial Innovation* (1974), which is still a fundamental textbook in the field, and is just one example from Freeman's vast body of pioneering work, encompassing fields of forecasting, technology and employment, systems of innovation, and the 'economics of hope'. Unanimously, Freeman's work is considered the intellectual beacon of SPRU and crucial to its long-lasting success.

Another aspect worth highlighting is SPRU's research on **energy and nuclear power**, comprising studies of local and global energy supply and demand, sector by sector, and the early establishment of databases (for instance on industrial boilers and nuclear reactor performance). Such research was linked with several programmes, notably the Energy Technologies and the Future programme (sponsored by the Energy Industries and Research Councils, at times with links to the House of Commons Select Committee on Energy). Especially important from the mid-1970s to the early 1990s was the role of the 'Energy Club'.[15] From the beginning, SPRU produced influential research on future demands for energy. In the 1970s, there was a tendency to extrapolate the high growth of energy consumption as the nuclear power industry sought to benefit from the first oil crisis of 1973. SPRU's work in the field (notably by Surrey and Chesshire) emphasised the underlying pattern of structural and technical change in the use of energy, providing more accurate energy

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[15] In addition to the impressive track record of successful ESRC and three consecutive Designated Research Centre grants (1979 – 1994) for SPRU energy research, it is worth mentioning the complementary funding mechanism informally designated as 'Energy Club' that ran from the mid-1970s until the early 1990s. This 'Club' consisted of energy firms and Government paying equal shares annually to subscribe to the research programme as a whole. At its peak, there were 12 members, with an average of around 9, raising approximately £100,000 annually, a figure which would correspond nowadays to around £300,000. Advantageously, this amount would not be tied to specific projects or individuals. For instance, the members of the 'Energy Club' in 1986-1987 were the Department of Energy, the British Gas Corporation, British Petroleum, Britoil, British Coal, the Central Electricity Generating Board, Esso, Shell and the UK Atomic Energy Authority. This funding arrangement enabled the Energy Group to become a convenor between businesses, policy and academia, an aspect particularly consolidated through the fact that members of the Group were almost continuously Special Advisors to Parliamentary Select Committees. During this period, the group's work on nuclear power was particularly distinctive and offered a well-informed critique of policy (Science Policy Research Unit, 1986-1987: p. 18), (MacKerron, 2015) and (MacKerron, 2016).

forecasts and contributing to the prevention of ineffective investments. The conditions emerging since 1976 configured an energy crisis which SPRU had foreseen and studied. As such research expanded, an Environment Programme emerged from the SPRU Energy Group in 1990.

A large ESRC grant in 2005 for the Sussex Energy Group (SEG) enabled SPRU to revive its energy research, developing a renewed concern for **transitions to a sustainable energy economy** and, thus, expanding and reaffirming the Unit's **sustainability research**. For instance, in the last decade SPRU's focus on sustainability in developing countries has visibly improved, with the Sussex Energy Group exploring questions of energy sustainability, technology transfer and sustainable innovation in China, India and Africa. In particular, the launch in 2006 – jointly with IDS – of the ESRC-funded STEPS Centre allowed for this expansion into new, international sustainability research arenas. Some of these developments included, for example, the cross-cutting 2008-2010 project convened by Adrian Ely which resulted in 'A New [Sussex] Manifesto' (STEPS Centre, 2010). From 2011 onwards, following the second STEPS phase, SPRU's research agenda in the field continued to pursue wider pathways concerned with innovation and sustainable development (Ely, 2011). Among others, John Surrey, John Chesshire, Norman Clark, Steve Thomas, Gordon Mackerron, Jim Skea, and William Walker should be mentioned in this domain.

Since the early 1970s, SPRU acquired a world-leading reputation through its studies of the **arms race and defence industries**, with the establishment of a unique database on chemical and biological weapons. This resulted in influential research outcomes in the fields of defence economics, weapons of mass destruction and biological chemical disarmament, and crucial inputs into public policy in these sectors. These evolved through the SPRU Military Technology and Arms Limitation Group, including through the Harvard Sussex Programme on Chemical and Biological Weapons Armament and Arms Limitation. This long cooperation with the University-based research group contributed towards SPRU's involvement at the highest international level of treaty drafting. Influential individuals to mention in this arms race and defence industries domain are Julian Perry Robinson, Mary Kaldor and William Walker, amongst others. This field encompasses Walker's and Berkhout's research on nuclear weapon materials and their production, trade and politics developed from the late 1980s into the early 1990s. In conjunction with the Stockholm International Peace Research Institute (SIPRI), this

work has produced publications which have become seminal for international nuclear relations regulations ever since, such as Albright, Berkhout & Walker (1997). Having crucially been developed when there was an international atmosphere open to scrutiny in the field, this particular line of research ended at SPRU in the late 1990s when circumstances changed (Walker, 2014-2015).

The research on **foresight in science and technology** and its impact on UK science policy should also be mentioned. Developed most notably in the 1980s by Ben Martin and John Irvine through their concept of scientometrics, such studies gave origin, more famously, to a highly influential and widely internationally recognised book entitled *Foresight in Science. Picking the Winners* (Irvine and Martin, 1984). Martin and Irvine worked on bibliometrics, research evaluation techniques, and foresight. Their work created much interest among policy makers, academics and industry. As emphasised by Turney (1991), this put SPRU on the map as a leading centre in the field of bibliometrics devised to compare large scientific facilities.

Another relevant example is the research on **emerging information technologies**, particularly the socio-economic implications of digital technologies. Through **the Programme on Information and Communications Technology** (PICT, funded by the ESRC since 1985, and with core funding until 1995) and the Centre for Information and Communication Technologies (CICT), several important projects emerged. These focused on increasing the understanding of how the diffusion of clusters of radical innovations associated with Information and Communication Technologies (ICT) is crucial for analysis of economic and structural change and competitive survival in industrialised societies. They also incorporated research on changes in social relations and ways of life. In this field, SPRU contributed towards policies around the development, diffusion and application of ICT. In 1997, the Centre for Information and Communication Technologies (CICT) was renamed Information, Networks and Knowledge Centre (INK), and focused on researching how new social and technological tools to build 'knowledge-based' societies were being designed and implemented. Just to cite three examples, Ian Miles, Robin Mansell and Ed Steinmueller are important figures to mention in this domain.

Another relevant area of study which over time has lost influence at SPRU involves the relationship between technological change and employment opportunities. The **TEMPO project (Technical Change and Employment Opportunities in the UK Economy**, 1979-1985) began under the auspices of the STAFF programme and focused on technical change and employment opportunities. It studied institutional aspects and long waves and the importance of the overall social institutional environment in bringing about an appropriate match between the new technological 'style' and the economic environment. For this purpose, the Technology and Social Change Group examined the effects of technological change on levels of employment and unemployment in industrialised countries, especially in the UK; the economic and social characteristics and consequences of unemployment in industrialised countries in the 1970s, and likely developments in the 1980s. SPRU innovatively highlighted the implications of economic development and technical change for the nature of work. The Unit crucially assessed the contribution of formal employment to individual well-being, and the social and psychological impact of unemployment and other 'alternatives' to formal, paid work. This assessment included a gender dimension that SPRU was one of the first research units to incorporate. Of the ten books which resulted from the TEMPO programme, the following two can be highlighted: *Unemployment and Technical Innovation: a Study of Long Waves in Economic Development* (Freeman, Clark & Soete, 1982) and *Employment and Unemployment: a Social-psychological Analysis* (Jahoda, 1982).

The previous selection of SPRU's work is necessarily incomplete. Many other research strands deserved further attention, for example, the focus on the history of scientific institutions and science policy in the first decade of the Unit by R. MacLeod, K. Andrews and others. Other relevant examples include the pioneering environmental research by P. Marstrand and others in the 1970s, and, Jay Gershuny's path-breaking use of time-use surveys to illuminate relations between the formal and informal economies (including households) and changes occurring within them in the early 1980s. Also in the 1980s and beyond, Margaret Sharp contributed towards the early development of biotechnology and towards the study of European science and technology. Other examples since the 1980s include Erik Millstone's influential research on food safety policy, and Keith Pavitt's and Pari Patel's ground-breaking use of patent data to shed light on the performance of firms and sectors, capturing a

systematic catalogue of features of innovative projects and products in a unique innovations database.

Dan Jones and Jim Womack wrote on fundamental changes occurring in the organisation of production, coining the phrase 'lean production' in the process (notably in *The Machine that Changed the World*, Jones and Womack, 1991). Jim Skea's work on energy and the environment is worth noting, as is the importance of the Complex Product Systems (CoPS) programme, co-directed by Howard Rush and Mike Hobday, and the STEPS Centre's research on complex, interacting dynamics in social, technological and environmental systems. Other examples include the Brighton Fuse project, analysing the local digital creative industries cluster (since 2013), and the developing plans for the New Sussex Sustainability Centre initiative (with IDS), as well as various projects occurring through the Innovation and Energy Demand Centre, the Harvard Sussex Program, and the Nexus Network. Many other potential examples can be found in SPRU's major current research areas, namely sustainable development, development, transitions, economics of innovation, energy policy, technology and innovation management, and science and technology policy. These are framed by the Unit's ambitious new strategy 'Transforming Innovation', which seeks to move innovation policy from a focus on competition to one supporting transformative change.[16]

Relevant past and current individual researchers and their particular contributions can be identified through Annual Reports and other sources. Particularly useful are the internally produced SPRU staff lists detailing periods of connection with SPRU and other information. Significantly, in 2011 *Research Fortnight* hailed SPRU's return to its 'halcyon years', particularly through a newer generation of researchers, highlighting the work of Mariana Mazzucato, Paul Nightingale, Andy Stirling, and James Wilsdon (Hood, 2011: pp.1-6).

It would be particularly useful to 'follow the funding' and analyse what outcomes resulted from a variety of sources embraced during the decades. SPRU's largest single funding source appears to have always been the UK Research Councils, with significant contributions from foundations and governments, and some support from industry and NGOs. Some of these

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[16] In this section, specific individual names were mentioned when in relation to broad research areas established at SPRU, or when connected to projects which are already closed. These are not exhaustive, and the author of this report chose not to specify any individuals in relation to ongoing projects.

institutions were international, such as the International Development Research Centre (IDRC), the OECD, and even UNESCO. The main recent difference has been the growth of European Commission funding and the relative decline of the importance of other inter-governmental sources such as the UN system.

Regarding funding patterns, initially SPRU appeared to operate on commissioned and negotiated research. After two decades, it was clear that the Unit started to become more reliant on teaching and grant income. On an organic level, SPRU appears to have developed from a structure focusing mainly on large externally-funded projects, to the more complex and multifaceted organisational and financial set-up that is still in existence today. This combines centres and groups organised around identified research areas, with funding originating from a diversity of sources.[17]

Furthermore, the fact that previous highlights are mostly focused on an earlier SPRU period of large projects – during which the Unit was building up its reputation capital – should not overshadow the fact that SPRU actually had a longer influential period, from the 1970s through to the early 1990s. Although science policy was not particularly favoured under Thatcherism (1979 – 1990), this was a period of intense productivity in SPRU. Alongside other examples already mentioned, we can highlight, for instance, how Roy Rothwell and Mark Dodgson's work on innovation management in the mid-1980s initiated a whole new era of business studies pioneered by SPRU. Similarly, the Energy Group's work on sustainability developed a life cycle analysis that was influential in setting the climate change agenda. The important work being done on bibliometrics (by Irvine and Martin and later Hicks and Katz) was also developed during the early to mid-1990s; the same applies to research conducted on technological trajectories and systems of innovation by Freeman, Soete, Dosi, Pavitt, Von Tunzelmann and others. Such contributions paved the way to the work that Keith, Salter and Nightingale did on the value of basic research using the concept of absorptive capacity, which had a decisive effect on Treasury thinking on innovation in the late 1990s (Sharp, 2016).

In addition, this selective analysis of SPRU's developments could not end without mentioning the continuing importance of SPRU's highly successful research-led **teaching**. From its

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[17] See the full collection of SPRU Annual Reports (1967-2001) to obtain specific details about the evolution of funding patterns and sources.

inception, and alongside its research activities, SPRU contributed to University teaching – this synergy from the beginning being perceived by SPRU members as an essential part of the Unit, with many of SPRU's core team teaching from the early days and beyond, and leaving a mark on their students.

This collaboration between SPRU and the University was initially organised through the Arts/Science Scheme, which promoted interdisciplinarity. The Unit's contribution to graduate and undergraduate teaching was particularly strengthened by the appointment of SPRU's first Research Fellow, Roy MacLeod, to a Readership in the History and Social Studies of Science (HSSS) in 1970. For around a decade, this Subject Group allowed many students to innovatively engage with subjects in history, philosophy and sociology of science, as well as in science and technology policy, placing SPRU in a pioneering position in this regard.

Significantly, from the early 1970s, at a time when there was a surge in interest both in the place of science in education and in ways of promoting interdisciplinary collaboration in scientific activities, SPRU became involved in the Science in a Social Context collaborative project (SISCON). This was a cooperative operation between several universities and polytechnics, producing course materials illuminating the inter-relationships between science and society. One of the first titles of the collection – namely *Science, Technology, and the Modern Industrial State* – was published by SPRU members Pavitt and Worboys (1977). The purpose of this project was, as highlighted by Ashby (1997), to 'make better scientists, capable of influencing decision-making over political issues where science is one of the inputs' (p.208).

From the mid- to the late 1970s, the teaching role of SPRU intensified, with the Unit assuming management responsibility for several postgraduate degree programmes. SPRU had by then developed its own master's and doctoral programmes, expressed in a large array of undergraduate and postgraduate course teaching. For instance, during 1977 the main feature had been a substantial reinforcement of the teaching component of the work on science, technology and development. In particular, by the late 1970s SPRU was responsible for eight substantial postgraduate courses in master's programmes across the University (MacLeod, 1986 and Bell, undated). A major programme of specialised short courses for researchers and policy-makers from developing countries (TAGS – Teaching and Guided Study) was then added to the various forms of teaching for graduate and undergraduate students at the

University carried out in this area. It should also be noted that around this time a successful collaboration with the IDS Study Seminars was in place, with two seminars being jointly organised by the IDS and SPRU. The training that these provided on science and technology issues led to the development of science and technology research groups in many parts of the developing world.

By the end of Chris Freeman's Directorship in 1982, SPRU's position at the University had been considerably reinforced. Following the University's restructuring decision to merge HSSS and Operations Research (OR) into SPRU, since 1982 SPRU formally became a teaching Unit – although it remained primarily a research institution. A reorganisation and expansion of the Unit's postgraduate teaching activities occurred, and SPRU became entirely responsible for its own MSc programme in science and technology policy studies. By then, work originating from its doctoral programme in particular was ranked as first-rate, and DPhil student numbers had nearly doubled, from twenty-one in 1974 to thirty-eight in 1982 (Bell, undated and Freeman, 1986: p.203).

However, the main development had been the start, in 1988, of the new MSc programme in the Management of Technology, in 1990/91 renamed MSc in Technology and Innovation Management (TIM). By 1994-1995, SPRU offered a large graduate programme. Around this time, postgraduate activities had expanded, with the appearance of an increasing number of optional courses. During this period, SPRU's teaching portfolio encompassed two main MSc programmes (each accommodating approximately twenty students), and an MPhil/DPhil programme for about ninety research students. This reflected the growing international demand for SPRU's MPhil/DPhil programme, as two-thirds of graduate students came from overseas, drawn from around thirty-five countries.

In 2001, the University asked SPRU to further expand its teaching commitments and develop a new programme of undergraduate teaching in business and management, with a science and technology flavour (from a previous quarter degree to a half degree in management). This involved a doubling of the SPRU teaching contribution, and over the following two-year period (2002-2004) the number of teaching posts in SPRU grew from 8 to 15 in order to meet this goal. Subsequently, in 2005, SPRU was asked to expand its teaching role even further to a full degree in Business and Management, which meant a renewed doubling in the teaching

effort involved. This single Honours degree had three pathways, namely The Global Economy, Development Studies, and Contemporary European Studies. In 2005, the new programme started with 27 students and rapidly grew over the next four years. In 2006, it had 41 students, in 2007, 110 students and in 2008, 140 students.

In 2008-2009, after SPRU had run this full degree in Business and Management for three years, responsibility for its operation was transferred to the newly established Business and Management group in the recently formed School of Business, Management and Economics, into which the whole of SPRU was integrated (Martin, 2015 and Snow, 2016).

In 2011, the average annual number of postgraduate students was 140. Currently, SPRU offers five MSc courses, namely Energy Policy for Sustainability, Innovation for Sustainable International Development, Technology and Innovation Management, Managing Innovation and Projects, and Science and Technology Policy. The latter is the world's longest-established and most comprehensive introduction to this important field.

Taking stock of five decades of SPRU teaching, the Unit's originality and commitment in this regard appears to have played a decisive role in SPRU's success and continuity at Sussex and elsewhere. This highlights the advantages of locating policy research at Universities, where postgraduate research and teaching courses may intertwine almost seamlessly alongside a wide range of disciplines and activities, developed with high academic standards within an environment of critical independence.

From its beginning, the Unit integrated successfully into the University's teaching, refining its trademark style of SPRU teaching: original in its broad international and interdisciplinary scope, attentive to constant research developments, and combining pragmatic and theoretical elements. As stressed by Roy MacLeod (2015-2016), the importance of SPRU teaching resides in the fact that the Unit managed to develop a truly unique set of SPRU products which became influential and inspiring for so many throughout the years. Reflecting this dynamism, by the end of 2014, a total of 350 PhD theses had been successfully completed at SPRU (Lang & Pujols, 2015).[18] By that time, well over 1,000 students had obtained master's

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[18] Please note that these numbers relate to PhDs which were both supervised by SPRU staff and awarded by the University of Sussex.

degrees from the Unit. Many of those doctoral and master's students have progressed to remarkably successful careers – in the UK and across the world – in academia, government, and other sectors. Gordon MacKerron (2015 and 2016), like others, stressed the importance of SPRU's well-established postgraduate programme having fed into creative, original thinking which, in its turn, resulted internally in successful SPRU careers. For instance, several current SPRU professors have started their postgraduate studies at SPRU.

The argument can be made that SPRU's main contribution is not any particular research, but these thousand-plus students who have moved into senior positions all round the world, taking with them the knowledge, skills and contacts established at SPRU. This is alongside, of course, those who continue(d) to develop their valuable contributions based at the Unit, and the flow of new staff that SPRU constantly attracts.[19]

6.4 Summary of SPRU's impact

It is out of the scope of this concise section to pinpoint particular instances of impact, emerging from specific projects or individuals. These can be expanded upon elsewhere. For example, the Unit's accumulated expertise and influence is reflected through SPRU individuals frequently acting as specialist advisors to Select Committees, being members of the Science Advisory Councils of government departments, chairing committees, offering inputs to consultations and drafting legislation.

Broadly speaking, SPRU's impact was aptly summarised by a 2011 *Research Fortnight* article, which describes SPRU at the forefront 'of thinking and policy advice in science and technology studies, innovation research and technological change since its inception.' The author defines the Unit as a 'finishing school for the policy elite of Europe and the developing world', highlighting that 'SPRU alumni have gone on to set up policy research centres and think tanks all over the world and many work in senior positions in government.' (Hood, 2011: pp.1-6). The Visiting Fellow Scheme certainly brought in people from many different countries and backgrounds with innovative ideas. Similarly, the SPRU doctoral programme remains highly successful and has led to the existence of many SPRU ambassadors around the world.

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[19] See 'Figure 2: SPRU Research staff turnover between 1967 and 2013' in Lang & Pujols, (2015: p. 6).

Consequently, SPRU has built up trusted relationships with policy researchers and policy makers throughout the globe.

Therefore, as echoed by other sources, the *Research Fortnight* article emphasises a 'legacy among their [SPRU's] alumni', through which policy in other countries is influenced. This is more acknowledged abroad than in the UK because the 'domestic' elites are less likely to study at Sussex, and because for an institution to impact policy it needs to get noticed by policymakers through challenging 'those in authority' – something hard to do through contract research and weaker networks. In addition, the UK is characterised by a pluralism of agencies, without a tradition of centralised responsibility for main lines of policy for science and technology.

In this sense, a major focus of SPRU's impact is the fact that the Unit embodies an international networking platform for researchers working in the field. Participants in the SPRU History Project often emphasised this aspect in their interviews. For instance, William Walker talked about an 'international collectivity', and Roy MacLeod stressed a 'SPRU diaspora' as providing the 'magic ingredient' which ensured the continuing success and renown of the Unit. For Erik Millstone, impact is to be found not just through publications and project outcomes, but in the wider circles of influence of SPRU's international networks.

A testament to this spirit is Dick Nelson's 2006 communication given at SPRU's fortieth anniversary conference. As a long-term member of SPRU's wider international network, Nelson emphasised SPRU's interdisciplinary empirical and theoretical leading role in a threefold manner: through the Unit's contribution to the rise of studies of technological innovation as a field of scholarship and teaching; through the development of a broad consensus among scholars of innovation that technological advance needed to be understood as an evolutionary process; and through the development of the innovation systems conception (Nelson, 2006).

Throughout the years, however, the Unit has not been without critics. For instance, SPRU's work has been consistently criticised by mainstream economists as not being sufficiently rigorous in its analysis. It was only after Gordon Brown introduced a new economic approach into the mainstream from the mid-1990s – rooted in ideas which stressed the importance of

macro-economics, post neo-classical endogenous growth theory and the symbiotic relationships between growth and investment, and people and infrastructure – that the work of SPRU became acceptable to the Treasury (Sharp, 2016).[20]

Nevertheless, an illuminating way of assessing SPRU's impact can also be found in a refreshing 2004 article surveying research on economics of innovation and technological change: when a methodology was employed which considered the number of times an institution was mentioned, SPRU took a clear lead (Verspagen & Walker, 2004). Similarly, a 2012 study ranked the Unit second only to Harvard in terms of its impact on research in innovation studies (Fagerberg, Fosaas & Sapprasert, 2012). SPRU is also home to the main journal in its field, *Research Policy*, which was recently ranked the third most impactful social science journal in the world by Google (in 2013).

Internally, at the June 2015 University of Sussex 'Impact Day', apart from significant individual SPRU awards, SPRU as a whole received a special award for sustained impact, recognising the Unit's long-standing commitment to research impact, and particularly its pioneering role in setting the 'impact agenda' in motion (University of Sussex, 2015).

In conclusion, an assessment of the combined analysed sources points to SPRU's variable but overall continuing success and influential contributions evolving on three fronts. These are the development and transmission of knowledge and skills to students; the influencing of the thinking and decisions of policy-makers in government, managers in industry, and others, including the general public; and vital contributions to the social sciences – empirical, theoretical and methodological.

7. Conclusions: the SPRU History Project and beyond

This report aimed at presenting an informative analysis of the work undertaken between September 2014 and September 2016 as part of the qualitative side of the SPRU History Project, with a particular emphasis on the author's area of expertise – oral history. The methodology, sources and approach were highlighted throughout the report whenever relevant.

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[20] See also Crafts (1996; pp. 30-47).

Whilst seeking to trace the history of SPRU, the findings contained in this report are not exhaustive. The report identifies key information and themes which naturally connect with various angles of the Unit's strategy, and are able to steer further research into subsequent and varied History Project outcomes. Nonetheless, for a fuller overview of the last five decades, this report is to be read in conjunction with the accompanying quantitative findings outlined in the reports by Lang & Pujols (2015) and Lang, Blascsok & Pujols (2015). These include data related to publications, citations, staff numbers, dates of projects, and sources of funding.

Obviously, the findings were shaped by the focus on certain sources. Although not analysed and documented in full yet, the oral history interviews conducted emphasised the contextual views of the sample and, consequently, a chronological period roughly up to the year 2000. Similarly, SPRU Annual Reports and *SPRU's News* end in 2000-2001 in their traditional format. Internal sources after that period are more dispersed and are yet to be fully amassed.

Overall, all the sources employed were mainly internal and focused on tangible outcomes (reports, publications, projects, etc.). It would be advantageous, as suggested by several Project participants, to capture instances of dissent and less successful collaborations with SPRU.

It would also be important to develop a gendered history of SPRU, specifically focusing not only on the development of relevant gender-sensitive research topics, but also on the influential role of gendered research in relation to SPRU's administrative staff. Overwhelmingly female, SPRU administrative staff are one area of mostly untapped institutional memorial legacy and knowledge. This was a group typically involved in wider debates around gender issues in the 1980s and beyond, particularly with respect to the way technology impinged on employment. For example, one member of the administrative staff, Charlotte Huggett, undertook a published study of SPRU's experience in this area, namely *Participation in practice: a case study of the introduction of new technology* (Huggett, 1988).

Alongside this, a gender studies lens applied to SPRU research developed by SPRU female members of staff and/or on women's issues would also be particularly valuable. Some of the influential individuals to consider could include Marie Jahoda (especially her work on the

social and psychological consequences of unemployment); Robin Mansell (management of information and communication technologies); Margaret Sharp (European technological collaboration, and government-industry relations in biotechnology in several European countries); and Sally Wyatt (technical change and women's employment in Britain and other advanced industrial societies).

Therefore, and to counteract such biases, this report and subsequent history work to be undertaken would greatly benefit from a wider chronological scope and greater variety of sources and foci, both internal and external, able to provide insightful, and likely as yet unrecorded data. This coincides with the feedback received on the occasion of SPRU's History Project Seminar in March 2015 (Anon, 2015).

Having noted these issues and possibilities, it is also relevant to summarise what has been achieved between September 2014 and September 2016 as part of the qualitative angle of the SPRU History Project. Most importantly, an original SPRU oral history collection was professionally generated and processed. This valuable resource for the study of the origins and development of SPRU and, more widely, of science policy research in the UK and elsewhere, is being prepared for archival deposit in *The Keep*, Special Collections. By being archived at *The Keep*, the SPRU collection will be suitably preserved and curated, and made available for future research. To avoid repetition, please refer to Section 2 and Appendices for full details.

Another core element of the SPRU History Project has been the redevelopment of the Keith Pavitt Library. As it was unfeasible to revert to its previous mode of operation, this Project provided, via maximising available space and resources, the necessary impetus for SPRU to move forward and promote full and renewed access to fifty years of the Unit's original research and documentation through a new library concept. For that purpose, the existing physical contents of the original SPRU Library collection have been selectively organised. A flexible library space is now in operation in room 369 of the Jubilee Building, containing most SPRU doctoral theses and MSc dissertations organised chronologically, the entire collection of SPRU Annual Reports (1967-2001), *SPRU's News* (1970 – 2000), relevant classic SPRU books and publications, and all documental acquisitions of the Project so far. Having been analysed as part of the History Project, an updated database of SPRU publications and other research

outputs published in the last decade is now available for reference. A printer-scanner-photocopier is available in the room to library users.

Plans are in place to continue working towards improving the purpose and functionality of the redeveloped Keith Pavitt Library, focusing on making accessible past and current SPRU research and wider resources, particularly through digital possibilities. In this regard, important SPRU documentation – such as the full collection of SPRU Annual Reports and the majority of original documents and pictures provided by Project participants, for instance – have already been digitised and can be found internally on the University of Sussex internal hard drive under 'SPRU History Project'. More items will be added as they become available.

In pursuing this work, the efforts of Maureen Winder, former SPRU librarian, have been invaluable. Maureen's voluntary assistance has been crucial for the implementation of these redevelopment plans and associated activities, particularly through assisting with reinstating and adapting the previous library catalogue and with selecting relevant SPRU original publications, which until recently were stored in room 267 of the Jubilee Building alongside other SPRU historical data.

Through this selection process, a significant SPRU photographic collection dating from the 1980s onwards has been recovered, as well as the full physical archive pertaining to the former SPRU Alumni Association (c. 1993 – 2001), both now safely stored in the Keith Pavitt Library. The latter source has been processed with great benefits for SPRU Alumni communication and planning.

Overall, in the course of the SPRU History Project, an extensive range of SPRU-relevant historical materials have been gathered (including, in addition to interviewees' contributions, further books, pictures and audio recordings). The most significant of these sources were consulted for this report and appear listed in the references or bibliography (please refer to Appendix 9.4 for further information). Further prospective SPRU-relevant sources were also pursued through contacts made with the University of Southern California Libraries, Special

Research Collections, and the Library of the Imperial College London, Special Collections, amongst other institutions.[21]

Particularly remarkable is the fact that the SPRU History Project has been actively linking and sharing resources with UK-based and international scholars researching interconnected topics. Just to give some examples, the Project supported and/or established connections with researchers from The Paul Bairoch Institute of Economic History (University of Geneva), The Centre Alexandre-Koyré, and the School for Advanced Studies in Social Sciences – The National Center for Scientific Research (EHESS-CNRS), in France; and also from King's College, The Science Museum, and the Energy Institute and Department of Science and Technology Studies of University College London (UCL).

Furthermore, as a way of reinforcing general awareness of SPRU's presence at the University of Sussex and beyond, an exhibition-quality cabinet focusing on SPRU's history was placed on the third floor of the Jubilee Building, thus creating a "SPRU corner", internally presented on 26 June 2015. The diversity of contents on display there invite the viewer to reflect on the breadth and scope of five decades of SPRU's rich history. These contents include influential publications, original correspondence and documentation, a photographic presentation and a collection of emblematic SPRU objects.

Also emerging from the SPRU History Project, and in conjunction with Strategy and Communications, a new SPRU website feature has been devised and has been accessible at http://www.sussex.ac.uk/spru/about/50years/alumnistories since May 2016. It encourages SPRU alumni to share their personal stories about studying and/or working at the Unit and reflect on ways in which this experience has helped to shape their life and career.

Significantly, the Project offered dynamic moments for internal and external engagement, becoming an invaluable forum for relevant discussions to emerge. A case in point was the heavily attended SPRU History Project Seminar (11 March 2015) which gathered SPRU members past and present and resulted in fruitful dialogues, many of which are still ongoing.

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[21] For instance, at the University of Southern California Libraries, Special Research Collections, (https://libraries.usc.edu/locations/special-collections), a 'Sussex Notebook' authored by Stephen E. Toulmin has been located (SPECOL, Volume/Box 47, Folder 10).

It is worth noting that over 50 per cent of SPRU History Project interviewees attended on this occasion and that around 50 per cent of attendees provided relevant feedback.

Overall, the SPRU History Project promoted a continuing, meaningful dialogue with Project participants and the wider SPRU community. This manifested, for example, through the feedback to both qualitative and quantitative angles of the Project received from (and discussed with) a reasonable number of participants and other interested parties.

Internally, future work stemming from the SPRU History Project is being planned, which can build upon the achievements described above.

Drawing upon the points made earlier in this report (particularly in Sections one and two), it is now worth reiterating how the oral history angle and other aspects of the SPRU History Project vitally feed into strands of SPRU's current strategy and may continue to provide valuable contributions to other ongoing and future key endeavours. This process is enabled through the incorporation of inclusive and dynamic historical perspectives.

Raising awareness of SPRU's rich history whilst implementing an operational framework for an accessible SPRU History collection reinforces a SPRU-distinctive culture whose pursuit is clearly beneficial for the Unit. The SPRU History Project, through generating, gathering and accessing important historical materials, original and otherwise, has become a fundamental tool to encourage fruitful dialogue internally and more widely. Through its oral history angle and more, the Project has been well placed to re-energise vital communications channels and pave the way for new avenues for communication to emerge. This has been clearly manifested, for instance, through the SPRU Alumni project, the improvement of SPRU's website, the continuing redevelopment and expansion of the Keith Pavitt Library, and the planning and aftermath of the 2016 fiftieth anniversary commemorations and related outputs.

Internally, the Project has been instrumental in infusing SPRU with a renewed *esprit de corps* and historical self-awareness. Externally, it has been improving wider perceptions about the Unit through rekindling fundamental networks and building new ones. Overall, it encompasses a robust platform for SPRU to share and receive insights for future collaborations, research directions, institutional vision and strategy.

Most importantly, more than seeking a narrative about its past, in this fiftieth anniversary year the SPRU History Project provides a privileged platform to gauge the Unit's current 'vital statistics' (identity, culture, reputation, direction, and so on) – or, to quote Johan Schot (2016) on the launch of the fiftieth anniversary year, to 'build up SPRU's DNA' – and explore future avenues for expansion.

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9. Appendices

9.1 Oral history details

LIST OF ORAL HISTORY INTERVIEWS CONDUCTED FOR THE SPRU HISTORY PROJECT				
FILE NO.	NAME	DATE	LOCATION	LENGTH
1	Roy MacLeod	16 October 2014	SPRU, Falmer	00:58:40
2	Kay Andrews	31 October 2014	Lewes	00:58:50
3	Martin Bell	13 November 2014	SPRU, Falmer	02:08:45
4	Ben Martin	9 October 2014, 5 December 2015	SPRU, Falmer	04:48:56
5	William Walker	10 November 2014	Edinburgh	03:15:24
6	Carlota Perez	16 January 2015	Lewes	01:57:21
7	Gordon MacKerron	24 October 2014	Brighton	01:52:02
8	Howard Rush	28 October 2014	SPRU, Falmer	01:45:34
9	Michael Gibbons	30 October 2014	London	02:15:26

10	Margaret Sharp	1 December 2014	Guildford	02:42:09
11	Asa Briggs	No response	-	-
12	Jonathan Gershuny	6 February 2015	Oxford	02:02:09
13	Charlotte Huggett	Agreed, but unavailable	-	-
14	Raphael Kaplinsky	22 October 2014	SPRU, Falmer	01:08:18
15	Robin Mansell	18 November 2014	London	01:57:19
16	Pauline Marstrand	21 November 2014	Wivenhoe	02:59:15
17	Ian Miles	28 November 2014	Manchester	03:35:15
18	Erik Millstone	11 December 2014, 30 January 2015	SPRU, Falmer	03:12:55
19	Julian Perry Robinson	26 November 2014	University of Sussex, Falmer	01:08:32
20	Andy Stirling	2 December 2014	SPRU, Falmer	01:54:39
21	Luc Soete	9 December 2014	Maastricht, The Netherlands	01:35:36

22	Maureen Winder	25 November 2014	SPRU, Falmer	01:59:36
23	Jackie Fuller	11 February 2015	University of Sussex, Falmer	02:08:43
24	William and Gillian Page	27 January 2015	Guildford	02:55:30
25	Geoffrey Oldham	13 February 2015	Seaford	01:42:15
25 interview conducted, 24 interviewees **Total recording time: 51h:03m:09s**				

9.2 Further logistical considerations

As per the table above, each interviewee is identified by a file number from 1 to 25, with the 25 files and its contents contained in three physical archive folders, and in a digital format in the relevant SPRU History Project file. This is currently accessible only to the researcher. The overwhelming majority of individual files contain at least a completed biographical information sheet and a full CV. Any relevant documental loans or donations are also recorded. All interview copyrights were cleared via a consent form signed by both interviewee and interviewer. Some restrictions apply and are being processed accordingly. A separate document detailing all restrictions individually is in preparation. Between late February and early March 2015, all interviewees received a letter thanking them for their participation, a copy of the audio recording of their interview (on CD and memory stick) and signed consent form, and any materials on loan were returned. The interview audio files are stored in the researcher's hard drive on the University of Sussex server, as well as on a SPRU History Project external drive (locked in Jubilee Building, Room 369), an external drive in the possession of Johan Schot, and the researcher's personal external drive. These procedures reflect what was detailed in the successful Ethical Review Application submitted to the University in September 2014.

9.3 SPRU History Project protocols

The SPRU History Project protocols consist of the following materials: Project Presentation Letter, Biographical Information Sheet, Interview Guideline, Interview Consent Form, and further supporting documentation. These protocols were internally approved at the University of Sussex prior to the beginning of the Project's fieldwork via Ethical Review Application ER/ADCF20/1 (approved on 1 October 2014), and were subsequently shared with Project participants.

9.4 Overview of materials gathered

A more comprehensive list of materials collected, analysed, donated, and digitised so far in the course of the SPRU History Project is in preparation. It will encompass all sources gathered, including articles, pictures, videos and audio files. The same applies to books acquired for the SPRU collection (ongoing purchases and donations).

The efforts to organise and acquire further SPRU-related materials were rather successful. These not only gathered results of previous work (by M. Stua and others), but further sources were acquired, some uncovered in Room 267 of the Jubilee Building. This approach is fundamental for the creation of a core archive of SPRU history sources benefitting from enhanced accessibility. The most relevant documents are in the references and bibliography of this report.

Apart from important international SPRU books and articles spanning the last fifty years, harder-to-find sources were also compiled, such as videos of the 40th anniversary conference (2006) and Keith Pavitt conference (2003), as well as at least five 2010-2011 interviews with key members of SPRU. These, alongside pictures, reports and other original documents, like the original draft of the 1975 *Ten Year Review* written by Chris Freeman. All physical items processed so far are stored in the Keith Pavitt Library (Jubilee Building, Room 369), with the exception of items on display in the "SPRU corner" cabinet. Items in digital format are stored on the researcher's desktop hard drive, SPRU external drive and the researcher's personal external drive.