

Bridging the gap

Structures for efficiently supporting research
software roles and careers at academic institutions

Jeremy Cohen

Advanced Research Fellow, Department of Computing

Director of Research Software Engineering Strategy

Imperial College London

Overview

- **RSE roles – the challenge**
 - The development of RSE roles
 - The RSE “continuum”
 - The gap – where do (or don’t!) RSE roles fit?
- **Supporting RSE careers**
 - RSE profiles – what do we have at present?
 - Environment and opportunities
 - The importance of community
- **Long-term aims / requirements**
 - Improving awareness and recognition
 - Better data!
 - Making the case for flexible structures for RSE roles



Development of RSE Roles

- **A new career**

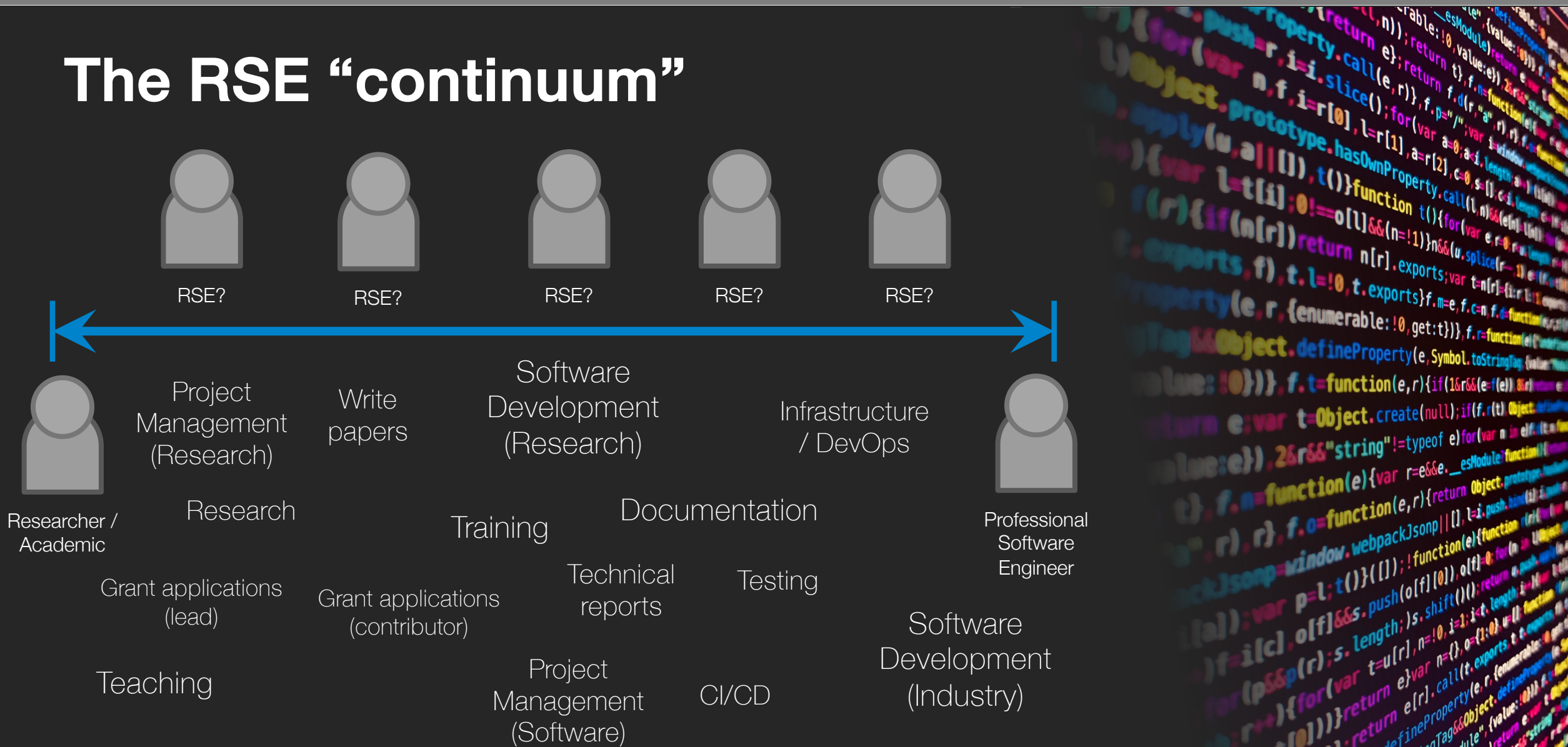
- RSEs have been around for decades in some domains
 - Lack of recognition
 - Perhaps seen by some as postdocs who weren't progressing?!
- Rapid emergence of “RSE” role – pros (many) and cons

- **Creating RSE roles**

- Creation of RSE roles has necessitated pragmatic solutions to work within traditional university structures
- Different priorities – e.g. permanent posts; progression...
- Already demonstrated demand and value

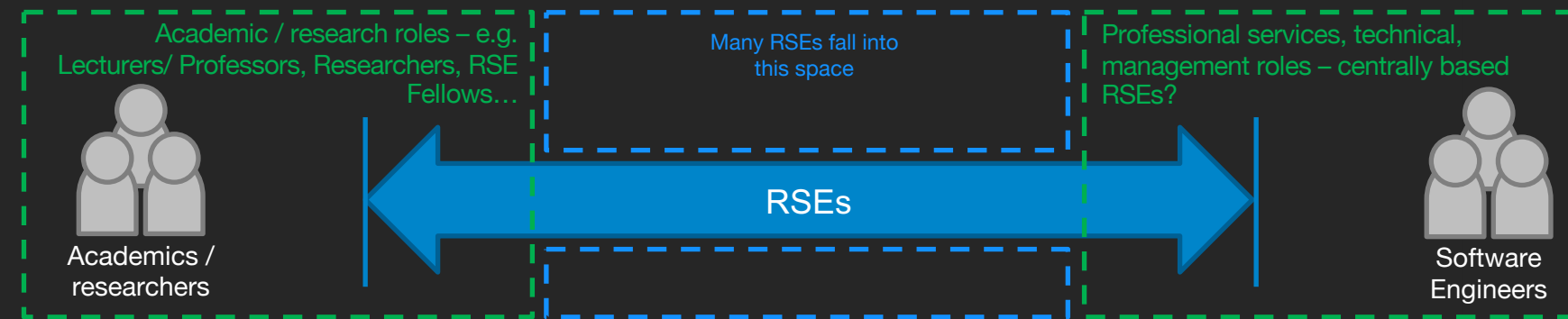


The RSE “continuum”



The Gap – Where do (or don't) RSE roles fit within research institutions?

- Research institutions often group roles into research-focused, service-focused and perhaps teaching-focused groups.
- Technical roles, such as RSEs don't have an obvious home – they may be research or service roles.



Supporting RSE Careers: Where are we at present?

- **The individual RSE in a research team**
 - The kind of role that started the whole RSE discussion!
 - Likely to be classed as a researcher
 - Probably supported by short term project-based funding
 - Progression? Sustainability? Professional development? ...
- **RSE team in a research department**
 - May be classed as researchers or technical/professional roles
 - May be project or departmentally funded
 - Likely to achieve visibility within department; Demonstrates demand
 - More options for sustainability / professional development?
 - Progression? Long-term support? Inter/intra-department remit?

Supporting RSE Careers: Where are we at present?

- **RSE team at an institutional level (e.g. within central IT)**
 - Likely to be classed as service/technical roles
 - Institutional buy-in (= greater support, sustainability, ...?)
 - Greater scope for permanent roles – more sustainable roles – staff retention, wellbeing...
 - Working practices may be more aligned with service/technical roles (Flexibility? Metrics? Compatibility with research activities?)
- **Other options**
 - Many different approaches have been tried to create / support RSE roles – are you familiar with other general models?

* Note that there is no suggestion that any of the options highlighted here are right or wrong – however, we need a much stronger understanding of what works effectively in different scenarios to enable the community / institutional management to make better informed choices.

Supporting RSE Careers: Environment and opportunities

- The four pillars of RSE – comprehensive support for RSEs

Software Development

Community

Training / Skills

Policy / Strategy

J. Cohen, D. S. Katz, M. Barker, N. Chue Hong, R. Haines and C. Jay, "The Four Pillars of Research Software Engineering," in IEEE Software, vol. 38, no. 1, pp. 97-105, Jan.-Feb. 2021, doi: [10.1109/MS.2020.2973362](https://doi.org/10.1109/MS.2020.2973362).
(preprint)

Supporting RSE Careers: The importance of community

- **Providing a space to:**
 - Share ideas
 - Exchange knowledge
 - Feel part of a valued and respected professional group
- **Effectively support a cross-cutting discipline**
 - Research is often siloed
 - RSE work involves transferable skills and processes – applicable across many domains
 - RSE communities help to break down the barriers between research domains – sharing knowledge and skills



Supporting RSE Careers: The importance of community

- **Examples exist at all levels**
 - International / National / Regional / Local
- **Communities at different levels offer different benefits**
 - High-level coordination of activities, funders, institutions, etc – disseminating information and opportunities (international/national)
 - Improve engagement, sharing of skills, knowledge and opportunities between local organisations – more interactive – in-person events/activities, etc. (regional)
 - Bring together individuals across an institution – build collaborations, grow local RSE advocacy and awareness, etc. (local)

RSE Careers: Aims / requirements

- **Improve awareness and recognition of the RSE role**
 - We've come a (very) long way but there's more to do!
 - Many people still unaware of RSE, even at institutions with active RSE offerings
 - Grow awareness at all levels – from senior institutional management to research students
 - Communities, funding success, testimonials, advocacy and involvement with institutional committees all valuable
- **Find the right career structure**
 - Institutions need to find structures that offer the best support for RSEs – as demand and awareness grow, the case for this is getting stronger – implement new career tracks / job groups?

RSE Careers: Aims / requirements

- **We need more and better data!**
 - Where are RSE roles hosted? How many RSEs are there?
 - What different funding models are used to support RSEs? Pros/cons?
 - What career challenges do existing RSEs face?
 - What career challenges do researchers writing software face?
 - Can we gather/predict realistic institution-level data about demand for RSE work?
 - Build relationships with key stakeholders – HR, IT, Research Services, ... - work with these groups to capture/analyse data
 - An institutional RSE survey?
 - Help institutions understand/quantify the contribution RSE makes to research outputs



RSE Careers: Making the case

- **The case is clear (to RSEs!)**
 - Vital contribution to vast array of outputs across almost all domains
 - Help to enhance sustainability, reproducibility, maintainability of research outputs
 - Different to researchers, different to technicians
- **Build links with other emerging groups**
 - Research Technical Professionals (RTPs) (RIEs / RDEs / *RxE*)
 - Data stewards / Research Data Management community
- **Expand our advocacy**
- **Change role structures**
- **Change the culture around software in research**



Thank you

Questions?

jeremy.cohen@imperial.ac.uk

