



# Case Study: CEng

## Henry Ralphs



### Henry Ralphs BEng (Hons), BCom, CEng IfSE Senior Systems Engineer, Arcadis

Henry Ralphs is passionate about Systems Engineering and Model-Based Systems Engineering (MBSE) because it enables projects to be delivered more efficiently, at lower cost, and to higher quality. It is my way to make a difference for the projects I work on, and as these projects are ultimately government-funded, I ensure taxpayer money is spent efficiently and effectively.

Since starting his career 6 years ago, he has experience working on International megaprojects (defined as >£1B) in both Australia and the UK. This includes the UK's High Speed 2 (HS2) and Australia's Sydney Metro & Perth METRONET projects. On HS2 he helped deploy the MBSE semantic information model for the construction stage. On Sydney Metro and METRONET, he ensured system safety during design through workshop facilitation and detailed hazard analysis (including physical and cyber security), and provided technical assurance, including Verification & Validation (V&V).

Although these skills have principally been developed in the Rail Sector, the "systems thinking" approach is transferable, and he has begun deploying them in both the Energy and Defence sectors. Henry also enjoys sharing what he's learnt and has presented these value-for-money MBSE techniques internationally at conferences including the International Council of Systems Engineers (INCOSE) UK's Annual Systems Engineering Conference in 2023, and at the Semmtech Systems Engineering Conference in Utrecht, Netherlands in 2024.

### Congratulations on gaining your Institute for Systems Engineering Chartered Engineer (CEng) title. What inspired you to become professionally registered?

Formally and externally recognising my experience (including internationally) was the biggest driver. Having the additional accreditation validates my technical competence which is also a way to contribute more meaningfully to the engineering community. For example, when coordinating with busy or senior external stakeholders, professional registration adds credibility and increases the likelihood that systems engineering communications are prioritised and not overlooked.

### How did you find the application process? Was it challenging to document all your work experience and did it take a long time?

I have done both an IEng application and then a CEng, and yes, it takes time, but it is a very self-driven process. During the IEng application, I took the reviews (asking colleagues to review my application) sequentially and my turnaround time between each review was longer. As a result, it took over a year and I found myself going back to different sections to continuously add more experience. For my CEng, I asked for reviews in parallel and prioritised making the changes immediately after any feedback. This saved months of time.

### How easy was it to track down supporters and references in support of your application?

It took some time, but it wasn't challenging. It's useful to know that in addition to including signatures in the application, referees were also required to email IfSE to provide an electronic endorsement of their signature. This was useful to

know because as I was targeting a specific panel assessment date, I could ask my referees to send it well in advance.

### **Tell us about your experience of the assessment process?**

I really enjoyed the interview. The interviewers were great, and asked relevant technical and non-technical questions. There are not many occasions where I've had the opportunity to describe all my Systems Engineering competencies, experiences and lessons learned to two expert engineers (one systems, and one blast) and get feedback. As I did two applications (IEng first, then CEng), I had one interview per stage. For my CEng as I'd already done an IEng interview previously which I thoroughly enjoyed, then in the lead up to my CEng interview I found myself really looking forward to it, and again, really enjoyed it.

### **In what ways has registration benefited your career?**

Two main benefits: firstly, writing out and self-assessing against all the Engineering Council Competencies is a great self-reflection and is useful for providing some self-driven direction for my continued professional development. Secondly, external recognition is useful to add some weight when co-ordinating with stakeholders across organisations – and as a senior systems engineer, successful stakeholder engagement is key for successful outcomes.

### **How does your employer benefit from your professional registration?**

Arcadis, my employer, benefits from increased reputation when putting my C.V. down on tenders, in pursuits and in front of clients for the delivery of projects. Arcadis really encouraged pursuing chartership. Additionally, the self-assessment provides a good reflection moment and allows me to better improve myself, again benefiting my employer, to have a better-rounded and developed systems engineer.

### **Do you participate in any other career-related activities, such as mentoring, volunteering or membership of other engineering groups?**

I've participated and presented to a few Systems Engineering conferences and calls for papers; including the IfSE (formerly INCOSE UK) Annual Systems Engineering Conference in 2023. I also do informal mentoring to junior systems engineers in the UK and in India. Now that I have my CEng, I will endeavour to get even further involved!

### **Is there any advice you would pass on to someone considering professional registration?**

Yes, just get started. If you are pro-active and really drive it, the process is actually quite quick. I also had a few colleagues pursuing CEng chartership with other professional institutes, and I'd note that the review cycles with IfSE were quicker and there was greater availability in the IfSE assessment panels than other professional institutes, often being 2-3 times as quick!

One last comment is that I see a lot of people with extensive experience (e.g. 10+ years in engineering) who aren't chartered and are reluctant to do so because of the perception that it's a lot of effort – to them I'd reiterate that with a bit of pro-activity and a good PRA the process (especially with IfSE) is surprisingly quick, is a great framework for self-reflection, and the interview is actually quite enjoyable.