# Cōnsilium Aquīs Sulis

## Curriculum Vītae — Dominic Taylor

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| **Qualifications** | Chartered Engineer (CEng), European Engineer (Eur Ing), International Professional Engineer (Int PE (UK))<br>PRINCE 2 Practitioner |
| **Education** | MBA, HEC Paris, France<br>MEng/MA, Cambridge University, UK |
| **Languages** | English: native speaker<br>French, German, Italian, Spanish, Portuguese: intermediate<br>Latin: basic |

## Career History

### April, 2024 to present: Cōnsilium Aquīs Sulis

Dominic is the founding director of Cōnsilium Aquīs Sulis, a company set up to provide independent expertise in the fields of railway engineering, safety risk management, compliance, technical innovation, strategy, benchmarking and feasibility assessment.

### January, 2016 to March, 2024: SYSTRA Scott Lister UK

Dominic built SYSTRA Scott Lister UK's successful railway signalling business from the ground up, delivering specialist consultancy services in European Train Control System (ETCS), Automatic Train Operation (ATO), Automatic Train Protection (ATP), railway Traffic Management systems and colour-light signalling. Under his leadership, the company pioneered the application of Computer Science Formal Verification to mainline railway signalling, conducted cross-industry strategic research, provided technical feasibility studies to diverse clients and supported projects in Australia and Portugal.

### September, 2009 to November, 2015: Invensys Rail (now Siemens Mobility)

Dominic joined Invensys Rail to build the company's trackside ETCS capability, in which capacity he co-authored tenders, represented Invensys Rail at international trade fairs, captured client requirements and prototyped the company's ETCS solution for the UK. On award of the company's first UK ETCS contract, a world first application of ATO over ETCS, he moved to project delivery. There he developed technical specifications, trained staff, contributed to project management activities, provided technical support and latter managed the project's signalling design office, undertook risk assessments and provided evidence to support standards deviations and new product introduction.

### September, 2003 to July, 2009: Network Rail

Dominic joined Network Rail as a graduate trainee and was successively promoted to the roles of assistant design engineer, design engineer and senior design engineer. He led the design team that specified and agreed the scope of the ~£150 million Cardiff Area Signalling Renewals engineering project with industry and government stakeholders and supported the introduction of video surveying technology to signalling projects. He gained agreement of industry and regulator stakeholders for changes to standards to enable the UK's first ETCS project.

# Professional Affiliations

**Member of the Institution of Engineering and Technology (MIET)**

**Member of the Institution of Railway Signal Engineers (MIRSE)**

# Publications

**ORCID Number https://orcid.org/0000-0003-3147-202X**

## Conference papers

Iliasov A., Taylor D., Laibinis L. and Romanovsky A. (2025), Configurable Interlocking Verification, RSSRail 2025, https://link.springer.com/book/10.1007/978-3-032-10762-6

Iliasov A., Taylor D., Laibinis L. and Romanovsky A. (2024), Safety Invariant Engineering for Interlocking Verification, International Conference SafeComp 2024, https://www.safecomp2024.unifi.it/vp-21-sessions-details.html

Taylor D., Lloyd M., Pires A., Iliasov A. and Romanovsky A. (2023), Formal verification of railway signalling: from academia to industry, IRSE Aspect Conference 2023, https://www.irse.org/ASPECT-2023

Iliasov A., Taylor D., Laibinis L. and Romanovsky A. (2023), The SafeCap Trajectory: Industry-Driven Improvement of an Interlocking Verification Tool, RSSRail 2023, https://link.springer.com/chapter/10.1007/978-3-031-43366-5_7

Taylor D., Laibinis L., Romanovsky A. (2022), Formal verification of railway interlocking and its safety case, Safety-Critical Systems Club, SCSC-170, https://scsc.uk/scsc-170

Iliasov A., Taylor D., Laibinis L. and Romanovsky A. (2022), Industrial-Strength Verification of Solid State Interlocking Programs, arXiv (Cornell University), https://arxiv.org/abs/2108.10091

Taylor D., Iliasov A., Romanovsky A and King K. (2019), Driving Efficiency & Resilience to Human Error: SafeCap Automated Verification of Signalling Data, IRSE Aspect Conference 2019, https://www.webinfo.uk/webdocssl/irse-kbase/PDFreader.aspx?RefNo=740881177&document=Driving%20efficiency%20and%20resilience%20to%20human%20error%20%20(ASPECT%202019%20paper).PDF&PDFC=DP&App=Knowledge%20Base

Francks J., Kitchen D. and Taylor D. (2017), Building Information Modelling, opportunities for the control and signalling industry, IRSE Aspect Conference 2017, https://www.webinfo.uk/webdocssl/irse-kbase/PDFreader.aspx?RefNo=27378788&document=Building%20Information%20Modelling%20(BIM)%20%20(ASPECT%202017%20paper).PDF&PDFC=DP&App=Knowledge%20Base

Taylor D. (2012), Maximizing the Return on Investment from ETCS Overlay, IRSE Aspect Conference 2012, https://www.webinfo.uk/webdocssl/irse-kbase/PDFreader.aspx?RefNo=1559669757&document=3.12%20Taylor%20-%20Maximizing%20return%20of%20investment%20from%20ETCS%20overlay.PDF&PDFC=DP&App=Knowledge%20Base

## Papers in academic journals

Iliasov A., Taylor D., Laibinis L. and Romanovsky A. (2022), Practical Verification of Railway Signalling Programs, IEEE Transactions on Dependable and Secure Computing, Digital Object Identifier: 10.1109/TDSC.2022.3141555, https://ieeexplore.ieee.org/document/9676439

## Papers in industry journals

Taylor D. (2025), signalling principles for the analogue railway, IRSE News, Issue 327, https://www.irse.org/Portals/0/NewPortal/DownloadableLinks/Publications%20and%20Resources/IRSE%20News/251111a%20irse%20news%20327%20final.pdf?ver=LE57_5JqfeU4a38iQiyM4g%3d%3d

Taylor D. (2025), so where is it exactly, IRSE News, Issue 319, https://www.irse.org/Portals/0/NewPortal/DownloadableLinks/Publications%20and%20Resources/IRSE%20News/IRSE%20News%20319%20March%2025.pdf?ver=c4BHGSD6cx9NDZbB81k7bQ%3d%3d

Pires A., Taylor D., Iliasov A. (2023), Interlockings– verifiable by design, IRSE News, Issue 304 https://www.irse.org/Portals/0/NewPortal/DownloadableLinks/Publications%20and%20Resources/IRSE%20News/IRSE%20News%20304%20Nov%2023.pdf?ver=Z-3SwM-z0xzQ95IhV0Om3Q%3d%3d

Taylor D., Iliasov A., King K., Jarratt O., Benson S. and Dearman W. (2020), Command Control & Signalling design in the Digital Age, IRSE News, Issue 271, https://www.irse.org/Portals/0/NewPortal/DownloadableLinks/Publications%20and%20Resources/IRSE%20News/IRSE%20News%20271%20Nov%2020.pdf?ver=etmUDtTBNkJ66aZNTtSx9g%3d%3d

Iliasov A., Taylor D. and Romanovsky A. (2018), Automated testing of SSI data, IRSE News, Issue 241, https://www.webinfo.uk/webdocssl/irse-kbase/ref-viewer.aspx?FromTable=YES&RefNo=-89175284&NextPrevious=YES

Taylor D. (2018), SafeCap Automated Verification of Railway Signalling
Rail Engineer, October 2018 edition, https://www.railengineer.co.uk/safecap-automated-verification-of-railway-signalling/

Taylor D. (2006), Thorrowgood Study Tour Report, IRSE News, Issue 121, https://www.irse.org/Portals/0/NewPortal/DownloadableLinks/Publications%20and%20Resources/IRSE%20News/IRSE%20News%20No%20121%20Feb%202007.pdf?ver=FTo5pFoZHUx4lop0YqF72A%3d%3d

## Chapters in books

Taylor D. (2014), Introduction to Signalling With ETCS, Railway Signalling and Control, https://www.irse.org/Store#!prod/50ee2ea5-c3be-e511-80d4-005056a76478/curr/GBP

## Patents

Taylor D. (2012), WO2013153396A1 'Interlocking Systems', World Intellectual Property Organization, https://patents.google.com/patent/WO2013153396A1/en?q=(%22ETCS+Stick%22)&oq=%22ETCS+Stick%22