



Project Title:	Innovative systems analysis for a zero-carbon industry
Lead Supervisor and co-supervisors:	Dr Rick Lupton
Project Summary	
<p>Applications are invited for a 3.5-year PhD studentship, in the development and application of modelling and visualisation to support an urgent transition to a zero-carbon industry and society.</p> <p>In this transition, we need to make rapid and large-scale changes to the way we use materials. Key bulk materials, such as steel, aluminium, cement, paper and plastic, are carbon intensive and account for half of industrial emissions — and while, historically, they have been relatively cheap and so used inefficiently, this will have to change dramatically for a zero-carbon world to be possible. However, we lack key information about how materials are currently being used, and where changes will have a large impact, across the scope of the national and global economy.</p> <p>At Bath, as part of a large, interdisciplinary research programme UK FIRES, we are developing new tools to collect the limited data available, integrate it into a coherent systems view, and communicate the results to inform industrial strategy and decisions. In this project you will explore, develop and apply modelling and analysis tools to contribute to one or more aspects of this challenge: for example, this could focus on modelling the accumulation of stocks of materials providing services to society; integrating uncertain data with Bayesian computational models; exploiting and validating "unconventional" information sources to infer how materials are used; or developing and evaluating approaches to data visualisation and communication.</p> <p>The student undertaking this project will receive training in systems analysis and other relevant techniques. Through the UK FIRES (https://ukfires.org/) programme, the student will benefit from the opportunity to work with colleagues from the universities of Bath, Cambridge, Oxford, Nottingham, Strathclyde, and Imperial College, and with industrial partners from across the materials supply chains, creating a real opportunity for the research to have direct impact. This will include opportunities to present their work at group meetings, departmental seminars, industrial workshops and suitable national/international conferences. Bath is a beautiful place, a World Heritage Site and has good links by train to London and elsewhere.</p>	
Sustainability issues addressed	
Innovative systems analysis for a zero-carbon industry	