

# Review

**Mike Fordyce** is impressed by this new book from IStructE Past-President David Blockley, which sets out the value of engineers to society and explores the challenges that lie ahead for them in an uncertain future.

## Creativity, problem solving, and aesthetics in engineering

**Author:** David Blockley  
**Publisher:** Springer  
**Price:** £27.99 (hardback)  
**ISBN:** 978-3-030-38256-8

**THIS BOOK IS A MUST-READ**, not just for structural engineers, but for everyone with an interest in the development of human society, whether technically minded or not. As the author states, ‘we are all engineers’ and this book brings that message to life; and that everyone depends on engineering so much that we tend to take it for granted.

The book sets out to do three things:

- | to show how engineers have made and still strive to make the quality of our lives better
- | to identify and explore some of the unintended consequences of the past and the ‘grand challenges’ ahead
- | to suggest some ‘grounding’ principles that may help us to guide or steer our way through a risky future.

The author, David Blockley, quotes Sir Neil Cossons’ challenge to engineers to ‘*spread the word to the rest of the world, get out of your professional bunkers and meet the people, ignite in them some of the magic of what it is that you do*’.

And as this book demonstrates, engineering is much more than solving problems. Engineers respond to a need to make things; and engineers do turn ‘dreams into reality’.

While discovering the diverse range of disciplines that engineering encompasses, including the historical context of how ‘dreams have been turned into reality’, we learn that first and foremost engineering is fundamentally about people – it is ‘done by people for people to improve the human condition’ – and all too often that is something we forget. The challenge for all of us is to improve the public perception of engineering by spreading that message to a wider audience.

The book is a well-presented slim volume, and its 220 pages are packed with information and examples that take us on a journey, starting with ‘Dreaming’, ‘Making’ and ‘Grounding’ in the early chapters where we re-examine the fundamentals of engineering that take us back to Aristotle and *phronesis*, the notion of ‘practical wisdom’. This leads us to the introduction of Blockley’s five grounding principles of **PUPIL** – we are **Part** of a world of **Unintended** consequences for which we need to be **Prepared** through **Ingenuity** and **Learning**.

The subsequent chapters of ‘Dwelling’, ‘Moving’, ‘Communicating’, ‘Fighting’ and ‘Well-Being’ provide ample scope for examples of how these principles have been applied throughout history. While these examples cover many of the big names, such as Newton and Faraday, the author also includes numerous examples of lesser known engineers, including many women, such as Faye Banks, who rose from humble beginnings to become head of North East operations for the UK’s National Grid and for whom ‘engineering has been a life-changing experience’.

Unfortunately, engineering has not always had the desired result of improving the human condition’. A typical example of the principle of the *unintended* being the development of polythene, which played an important part in WWII as insulating material for radar cables, but is now a major pollutant in our oceans.

As the author points out, there is no waste in nature and everything is used. We can produce enough food

to feed the world’s population; it is a scandal that not everyone has access to clean drinking water; and what is required is social ingenuity at all levels of society.

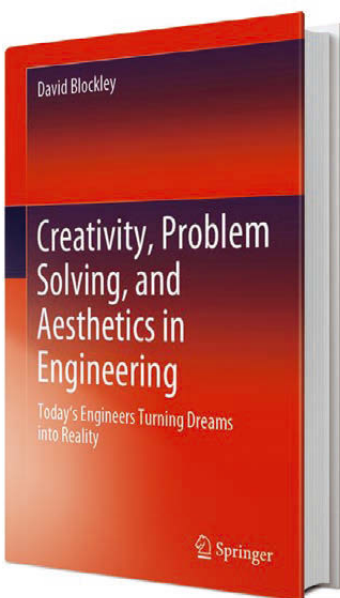
The final chapter, ‘Flourishing’, highlights many of the ‘grand challenges’ that society faces, such as the UN’s Sustainable

Development Goals, and the role that engineers can play in meeting these by applying the principles of **PUPIL**, especially *preparedness, ingenuity and learning*; this requires engineers to be at the heart of public decision making.

To achieve this, Blockley stresses that we need to broaden our education, get out of our silos, communicate and interact effectively with the lay public, and work in cross-disciplinary teams of human behaviouralists, economists, lawyers, communication specialists and more. And, above all, remember that engineering is a people profession.



**ENGINEERS DO  
TURN DREAMS  
INTO REALITY**



**Mike Fordyce**

**BSc, MEng, FIMStructE, FIEAust, CPEng**

Mike Fordyce is a Director of CROSS-AUS Ltd and a Past-President of the Institution of Structural Engineers.