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Construction challenge 2025

Lower costs

33%

reduction in the initial cost of construction and the whole life cost of built assets

Faster delivery

50%

reduction in the overall time, from inception to completion, for newbuild and refurbished assets

Lower emissions

50%

reduction in greenhouse gas emissions in the built environment

Improvement in exports

50%

reduction in the trade gap between total exports and total imports for construction products and materials

What is 'engineering'?

If I can't count I can't engineer

If I can't manage I can't engineer

But neither counting nor management make me an engineer

What is 'engineering'?

The most advanced chapters of theory of structures . . . can only be used to check the stability of a structure. They can be used only to analyze numerically a structure already designed, not only in its general outline, but in all its dimensional relations. The formative stage of a design, during which its main characteristics are defined and its qualities and faults are determined once and for all (just as the characteristics of an organism are clearly defined in the embryo), cannot make use of structural theory and must resort to intuition and schematic simplifications. [Nervi 1956:17]

The foundation of engineering is knowledge of materials, not, as engineers are so often apt to preach, a knowledge of mathematics; . . . knowledge of what [materials] are made of, how they are made, how they are shaped, how you fit them together, how they stand up to stress, how they break, how they catch fire, how they react to all the various agencies of ruin which are perpetually nibbling at them, how in due course they fall down. [Harris 1961:130]

What is 'engineering'?



Research questions

1. **What is 'engineering', 'to engineer'?**
2. **Nature, nurture (how to identify our 'naturals', & deliver the nurture)?**
3. **How should we set ourselves up to manage engineering?**
4. **How can we bring non-engineers along with us?**
5. **How do we create a learning culture?**