

A background image showing silhouettes of a diverse group of people in business attire, some holding documents or devices, standing in front of a blurred city skyline. The scene is backlit, creating a bright, hazy atmosphere.

We need to talk about Automation

Robert Klaschka

Principal Consultant at EvrBilt

EvrBilt

A digital consultancy with a focus primary on improving process and automation.

Working with clients, designers main contractors and subcontractors.

Helping educate the industry to enable greater integration of surveying and survey knowledge into digital teams and improving the quality of as-built information

- Engagement Team Member of Survey4BIM
- Race Director at Little Britain Challenge Cup



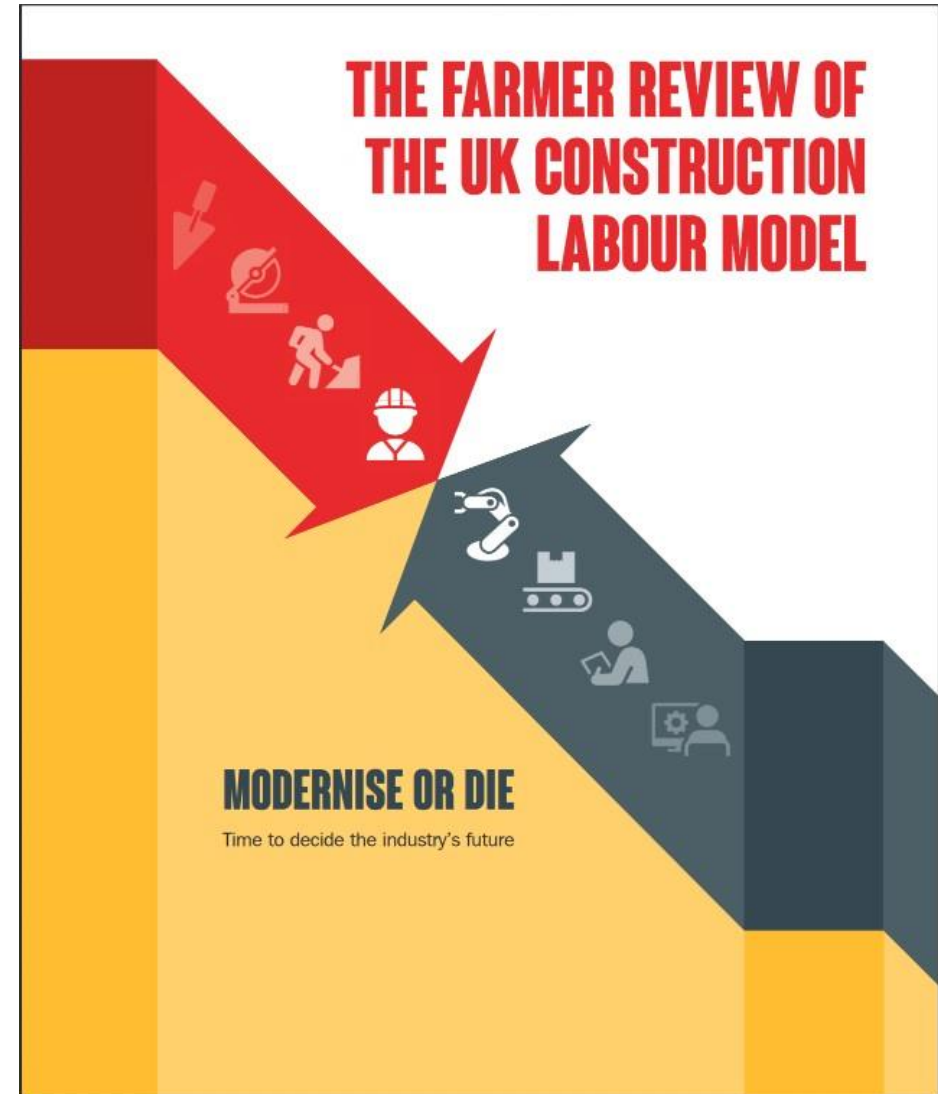
Automation is good, right?



The Farmer Review

This wide ranging discussion of the changing demographics of the industry focusses on the trends in the construction work force

It proposes that we need a wholesale re-skilling, a new approach to what we learn and automation that supports the future workforce



The Hackett Review

Following the Grenfell Tower fire disaster this review considers how badly joined up design, construction, adaption and maintenance of the built environment is

Grenfell represents a systematic failure of the way we build

Building a Safer Future

Independent Review of Building Regulations and Fire Safety:
Final Report

May 2018

Dame Judith Hackitt DBE FREng

Cm 9607

The tension between Farmer and Hackett

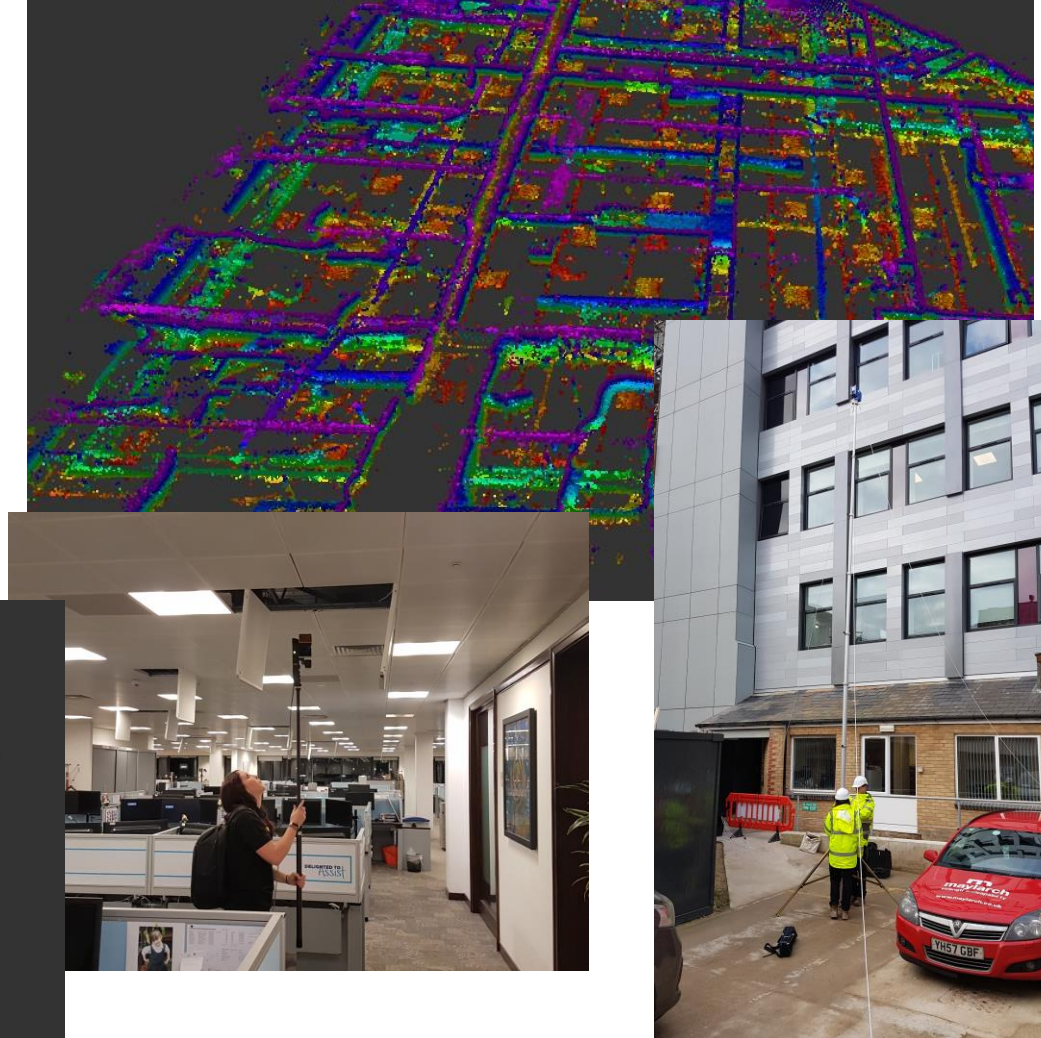
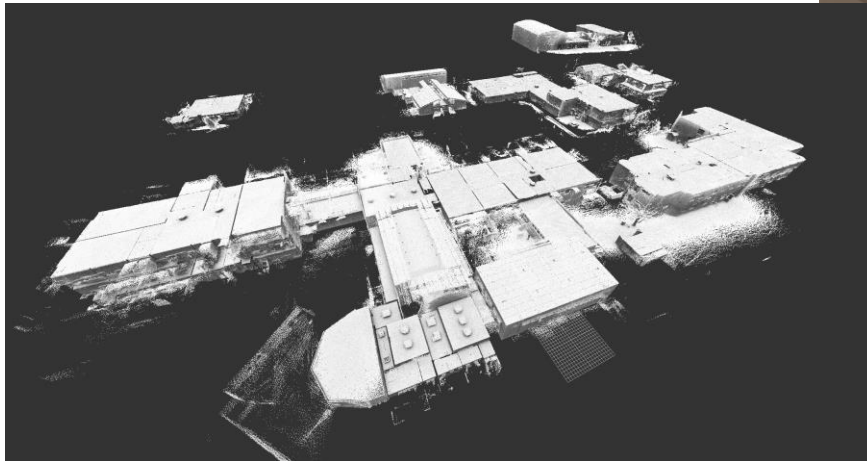
A white lightning bolt strikes a dark background, symbolizing tension or conflict. The lightning bolt is jagged and bright, with a long, thin tail extending from the main point of impact towards the bottom left corner of the image.

Farmer describes ...
a shrinking workforce
an increasing workload
a drive to increase productivity

... and Hackett demands
more record keeping
more review
more scrutiny

Measured survey automations

- Reality capture
- Complete capture
- Speed
- millions of points
- Democratisation of data



Measured survey automations

Pros

- Massive data capture
- Increasingly powerful hardware and software

Cons

- Lone working
- Equipment theft
- Boredom and loneliness
- Mental health issues

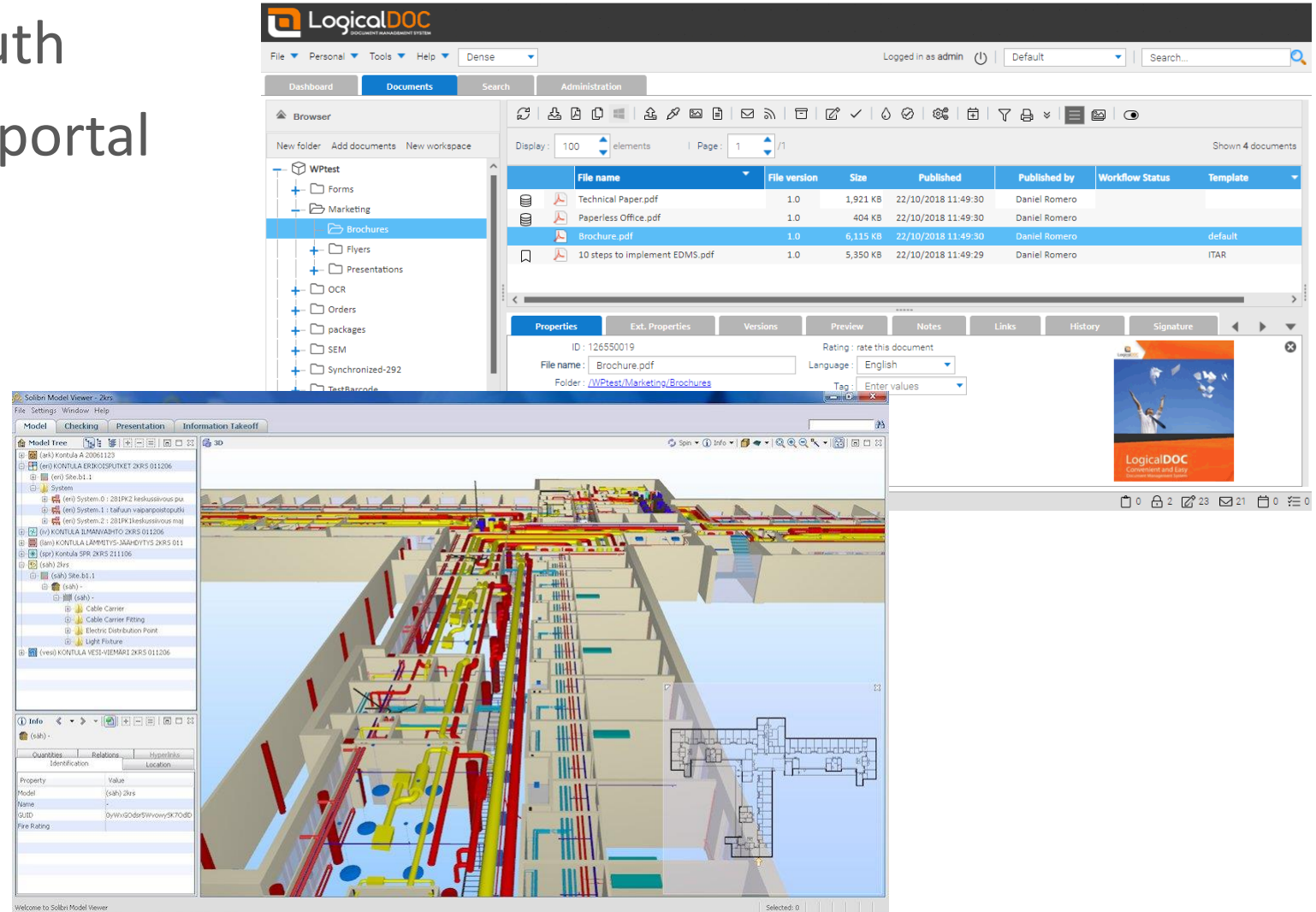
The unfinished automation

Basic failure #1

Technology that performs a task very efficiently but creates new, often lower skilled, or tedious tasks around itself to facilitate its functioning

The extranet revolution

- Single source of truth
- Document control portal
- Access control



The extranet revolution

Pros

- Project data in one location
- Enforcement of some standards and conventions
- Transparent security

Cons

- Data dump
- Poor finding tools
- Lack of machine readability

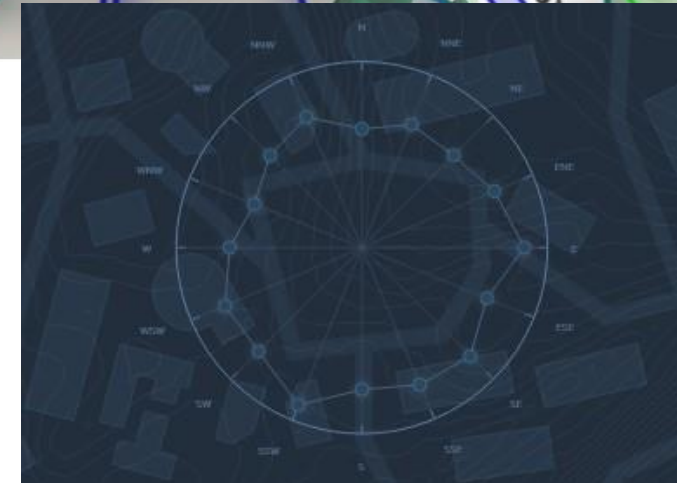
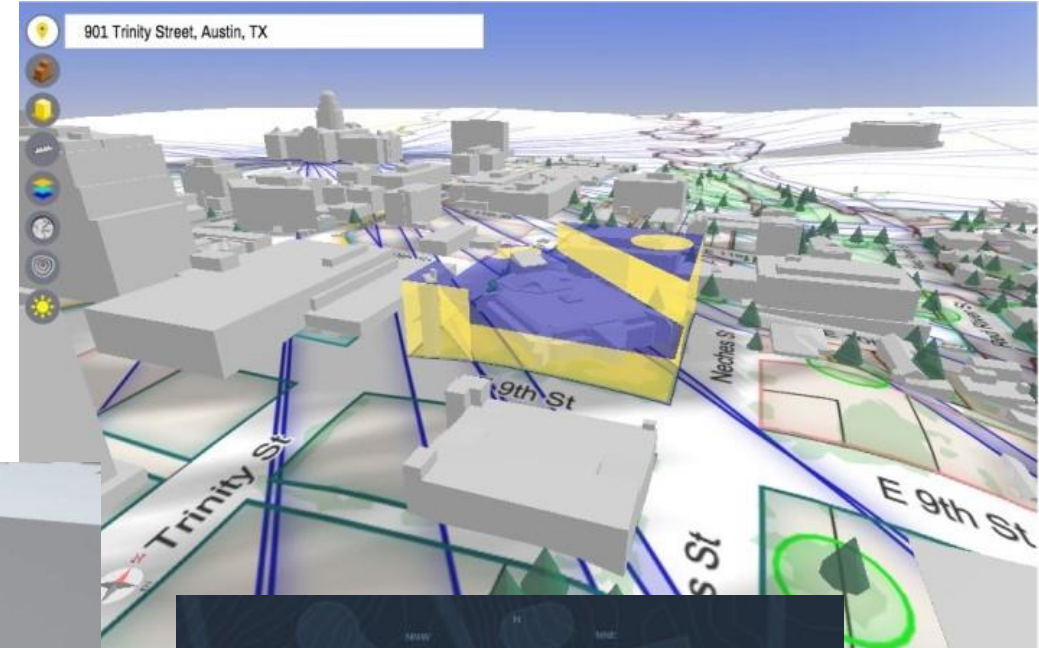
The data deluge

Basic Failure #2

Often technology appears to facilitate access to huge amounts information but then fails to provide the tools to make the information tangible or understandable

Automated design

- Optimisation
- Iteration
- Big Data
- AI and Machine Learning



Automated design

Pros

- Iterates many options
- Considers multiple factors
- Rapid turn around
- Slider based prioritisation

Cons

- Opaque process
- No explanation of result
- Limited scope

The algorithm is the thing

Basic Failure #3

At the heart of most automations is a great idea that can change the way we work, but tech developers are often so focused on the core innovation that they fail to consider the interface with its users

Are we a cottage industry of automation?

- A **bad attitude** towards other **peoples skills** and the **value** they offer
- We're **bad at standards**
- We think of the **big idea** instead of **whole work flows**
- We **work alone**, and claim **IP for basics**
- We **repeat** others work and tell ourselves we're innovating

Support not replacement



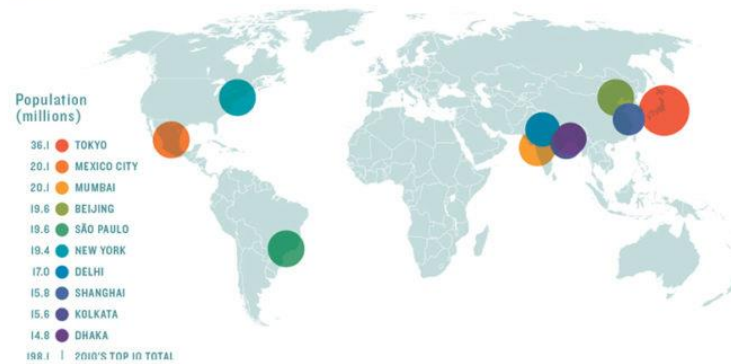
“When the brain finds a task it needs to solve, it rewires its own circuitry until it can accomplish the task with maximum efficiency.

The task becomes burned into the machinery.”

David Eagleman, Incognito

Automation will not take your job

THE WORLD'S LARGEST CITIES
2010



THE WORLD'S LARGEST CITIES
2100



“The amount we need to build over the next 30 years while the aging workforce dwindles away means that we can’t possibly keep up with the need without embracing an appropriate level of automation in terms of design and construction.”

Jaimie Johnston, Bryden Wood

Except it might!

2022 Skills Outlook

Growing

- 1 Analytical thinking and innovation
- 2 Active learning and learning strategies
- 3 Creativity, originality and initiative
- 4 Technology design and programming
- 5 Critical thinking and analysis
- 6 Complex problem-solving
- 7 Leadership and social influence
- 8 Emotional intelligence
- 9 Reasoning, problem-solving and ideation
- 10 Systems analysis and evaluation

Source: Future of Jobs Report 2018, World Economic Forum

WORLD
ECONOMIC
FORUM

COMMITTED TO
IMPROVING THE STATE
OF THE WORLD

Declining

- 1 Manual dexterity, endurance and precision
- 2 Memory, verbal, auditory and spatial abilities
- 3 Management of financial, material resources
- 4 Technology installation and maintenance
- 5 Reading, writing, math and active listening
- 6 Management of personnel
- 7 Quality control and safety awareness
- 8 Coordination and time management
- 9 Visual, auditory and speech abilities
- 10 Technology use, monitoring and control

Setting an agenda for automation

What should we be looking at when we seek to automate

- Consider what to do first, our industry as so many basic problems
- Changing skills, are we teaching built environment graduates the skills they will actually need in their working lives?
- Which human skills are valuable?
- Is an automation supporting or replacing a role that involves the new skills we believe the industry needs?

Last word...

**The biggest mistake you
could make is to think this
won't affect you**

Ask yourself:

- What do I need to **change**?
- What **new skills** do **my staff** and I, and my **business** need?
- What **opportunities** does automation hold?

Any Questions?