

# Technology shock and awe in the Assisted Living sector

Presented by Lex Cumber,  
Business Development Director

Housing LIN Conference  
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# Castleoak – creating smart solutions

- We're market specialists for care, assisted & retirement living
- Customers value our advice - we share ideas and expertise
- 92% of current projects are from returning customers
- Our reputation means everything to us







# We are Healthcare sector specialists

- 30 years' working exclusively in the care and retirement living sector
- Reputation & partnering led business
- Award winning

**20** RICS  
**17** Awards  
Shortlisted

Shortlisted, Innovation Award, South East, 2017

building  
better  
healthcare  
awards 2015

Winner, best dementia care home, 2015

HealthInvestor  
Awards 2016  
WINNER

Property developer  
of the year

HealthInvestor  
Awards 2014  
WINNER

Property developer  
of the year

PINDERS

Winner, best new care home for the elderly, 2017 and 2015

HealthInvestor  
Awards 2011  
WINNER  
PROPERTY  
DEVELOPER  
OF THE  
YEAR

# Introduction

- What are the implications of technology for our sector?
- In a way which provokes thought and conversation
- So you can start to think about what this **SHOCK** might mean

A man with brown hair and blue eyes, wearing a blue button-down shirt, is shown from the chest up. He has a confused or thoughtful expression, with his right hand raised to his forehead. The background is a plain, light-colored wall.

So what do we mean  
by technology?

# What's the definition of technology?

- The application of scientific knowledge for practical purposes
- Machinery and equipment developed from the application of scientific knowledge
- The branch knowledge dealing with engineering or applied sciences



So, technology  
is not just about  
electronics





It's also about Modern Methods of Construction



# What are modern methods of construction (MMC)?

- **Modular**

Volumetric components that form a completed part of a building (or whole structure) and involves more than one trade – with finished interior and exterior surfaces

- **Panelised**

Prefabricated components but do not enclose usable space themselves  
Typically form the shell of the building

- **Prefabricated**

Any single assembly fabricated in a factory, used to assist construction speed and quality

# What's the context?

- Today there are 2.3 million construction workers in the UK
- By 2026 the pool of construction labour will shrink by 20%-25%
- Dec 2016: 32.5% of construction labour was 50 years+
- In 2016: 252,000 fewer people worked in construction than in 2008
- 2016 to 2026: 500,000 construction professionals are due to retire



Where's the young blood?





Young blood on site?



# Young people aren't choosing a construction career

- Construction is **NOT** in the top 4 industries that account for 86% of all apprentices
- In 2016-17 24,000 apprentices entered the construction sector  
.....400,000 is the number required
- Carillion had 1,400 of them!
- Since Brexit vote: Immigration by Central and Eastern European nationals has fallen by 81%



What are the benefits?





# Benefits

- Quality control to factory standards
- Significantly reducing dependency on third-party trades
- Better programme certainty
- Reduces risks...health & safety, weather....
- Better use of unskilled labour
- Better working conditions





Britain is very  
traditional





# So no surprise that we lag behind

- 6% of UK construction is factory based
- 9% in Germany
- 13% in Japan
- There is resistance from some to MMC

# But many customers are already 'embracing' MMC





# CastleOak - Project X



9:46 / 11:03



HD

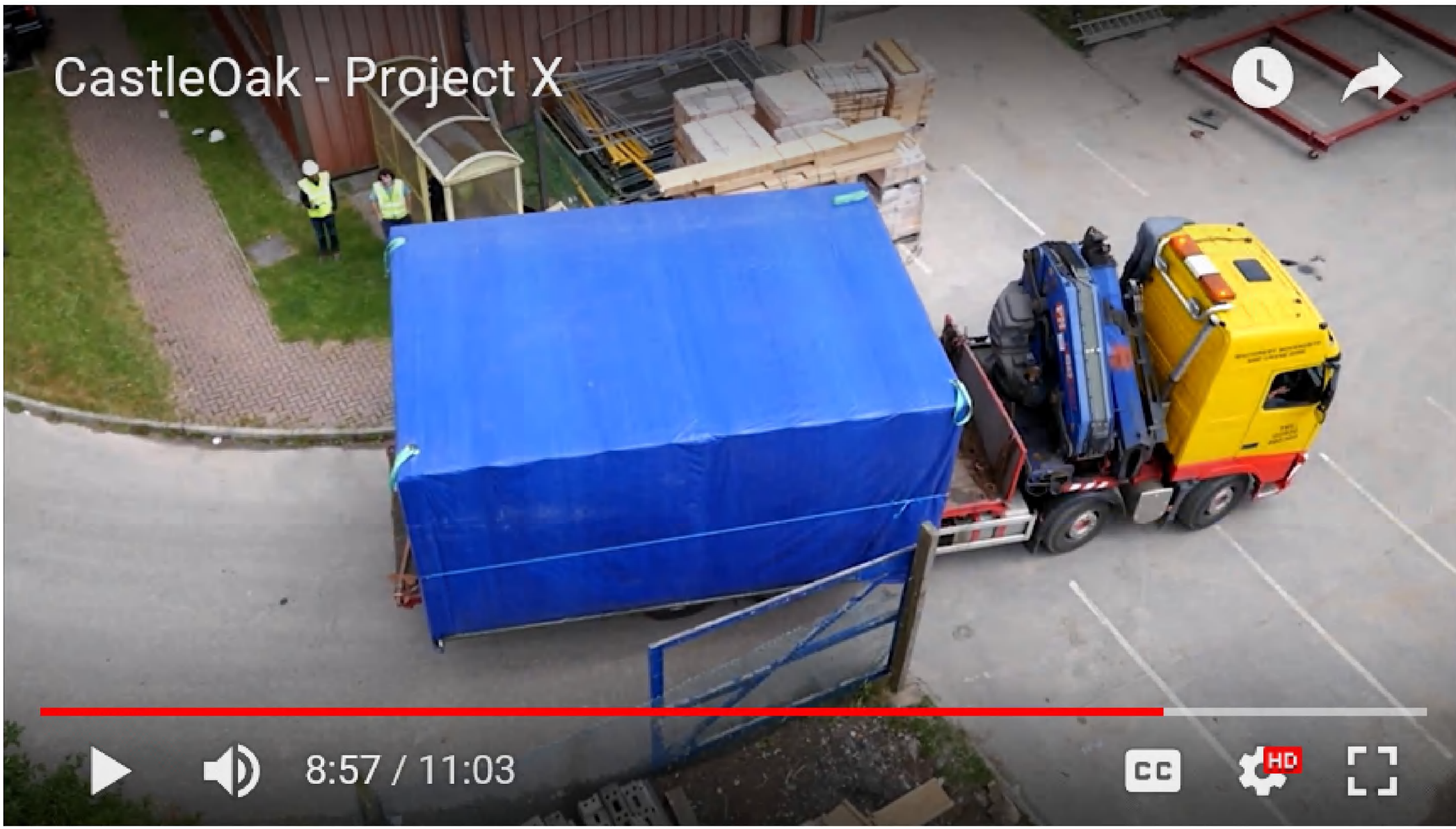


# Innovating with new tech to create smart products





# CastleOak - Project X



8:57 / 11:03



What do you  
think?



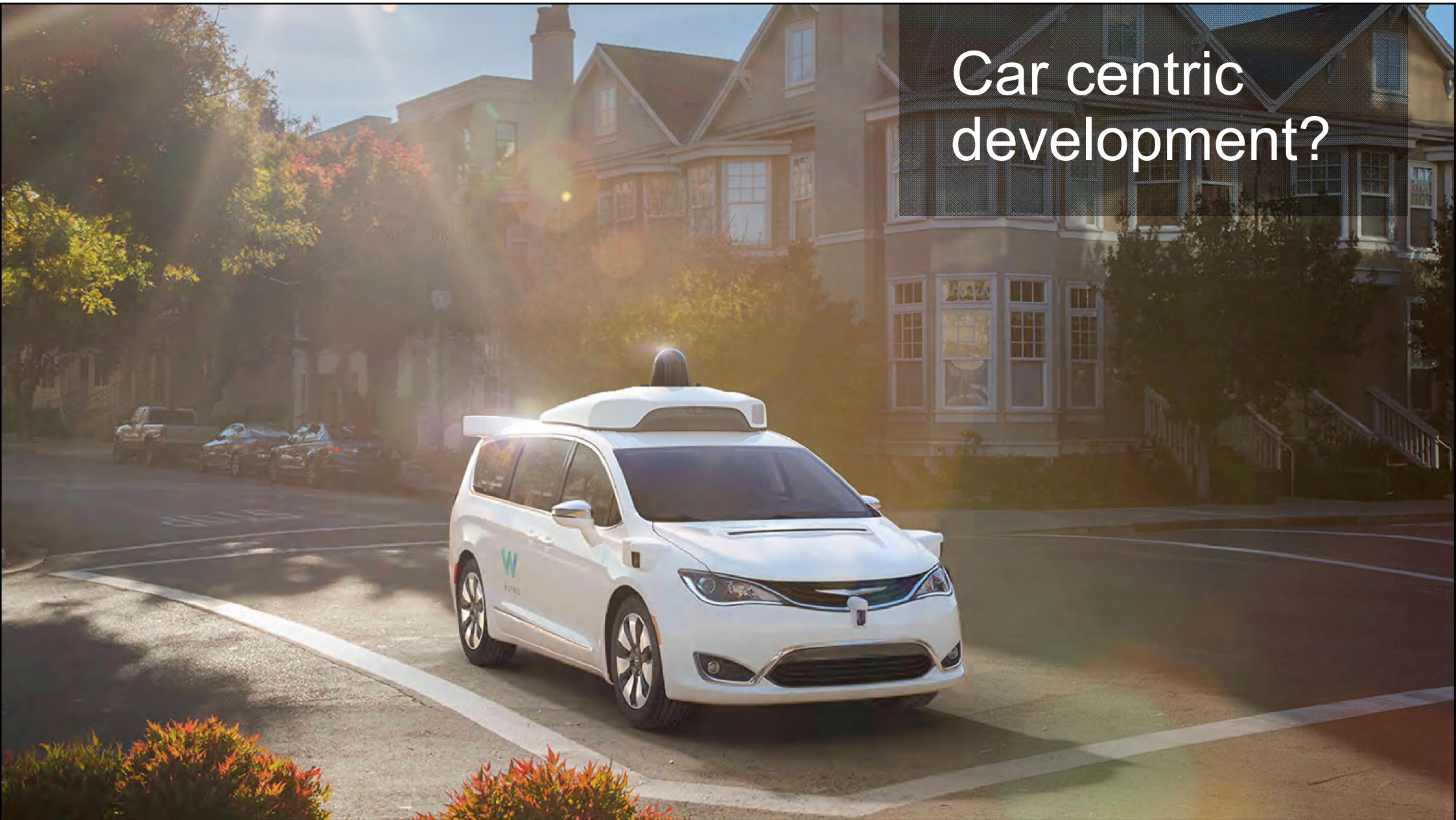


Technology as a  
design driver?





Car centric  
development?





# Outsourced secondary Health Care?

Remote robotic surgery from St Joseph's Hospital in Hamilton, Canada on his patient 400km away

BBC Futures, 2014





# The 'connected' guest experience

- App tailors guests holiday experience
- Interactive bracelets enable
  - Cabin assess
  - Payments on board
  - Wayfinding on the ship, with 5m precision
- Shares accurate whereabouts of guest's children
- Activates geo-located suggestions through Bluetooth beacons
- Intelligent face recognition helps staff take care of guests in a highly personalised way





3<sup>rd</sup> generation monitoring enables more efficient staffing & better care

## Solution: Acoustic Monitoring

Acoustic monitoring keeps continuous watch on residents without interrupting their sleep.

Leaving you free to solve problems instead of looking for them.



# Virtual Reality futures

## News this week

£250,000 investment in +900  
ClassVR devices across 30 schools  
in Scotland

"By investing in immersive technology it will provide our children with experiences & sensations that they may never experience in reality and brings learning to life....that ignites their imagination."

We're the first local authority in the UK to make this commitment to virtual reality....."



The image is a screenshot of a BBC News article. At the top, the BBC logo is visible on the left, and navigation links for 'Sign in', 'News', 'Sport', 'Weather', 'iPlayer', 'TV', and 'Radio' are on the right. Below the navigation is a red banner with the word 'NEWS' in white. Underneath the banner is a horizontal menu with categories: 'Home', 'UK', 'World', 'Business', 'Politics', 'Tech', 'Science', 'Health', and 'Family & Education'. Below this is another menu for regional news: 'Scotland', 'Scotland Politics', 'Scotland Business', 'Edinburgh, Fife & East', and 'Glasgow & West'. The main headline of the article is 'East Renfrewshire gives all its schools VR headsets'. Below the headline, the date '18 March 2018' is shown on the left, and social media sharing icons for Facebook, Twitter, Messenger, Email, and a general 'Share' button are on the right. The main image of the article shows a classroom full of children wearing orange VR headsets. In the foreground, a laptop is open on a desk, and a small robot is visible. The photo is credited to 'MARK F GIBSON' in the bottom right corner. Below the image, a caption reads 'Pupils at an East Renfrewshire school with the new headsets'.



# VR for pain therapy

“Better Than Opioids? Virtual Reality Could Be Your Next Painkiller”

MIT Technology Review, 2016



# VR for physical therapy

- VR tracks movements as interactions in a VR game
- More fun than doing exercises in a gym
- Research found patients unconsciously speed up walking.
- Activity is not associated with pain or anxiety







VR just for fun!



# Mono-generational schemes?



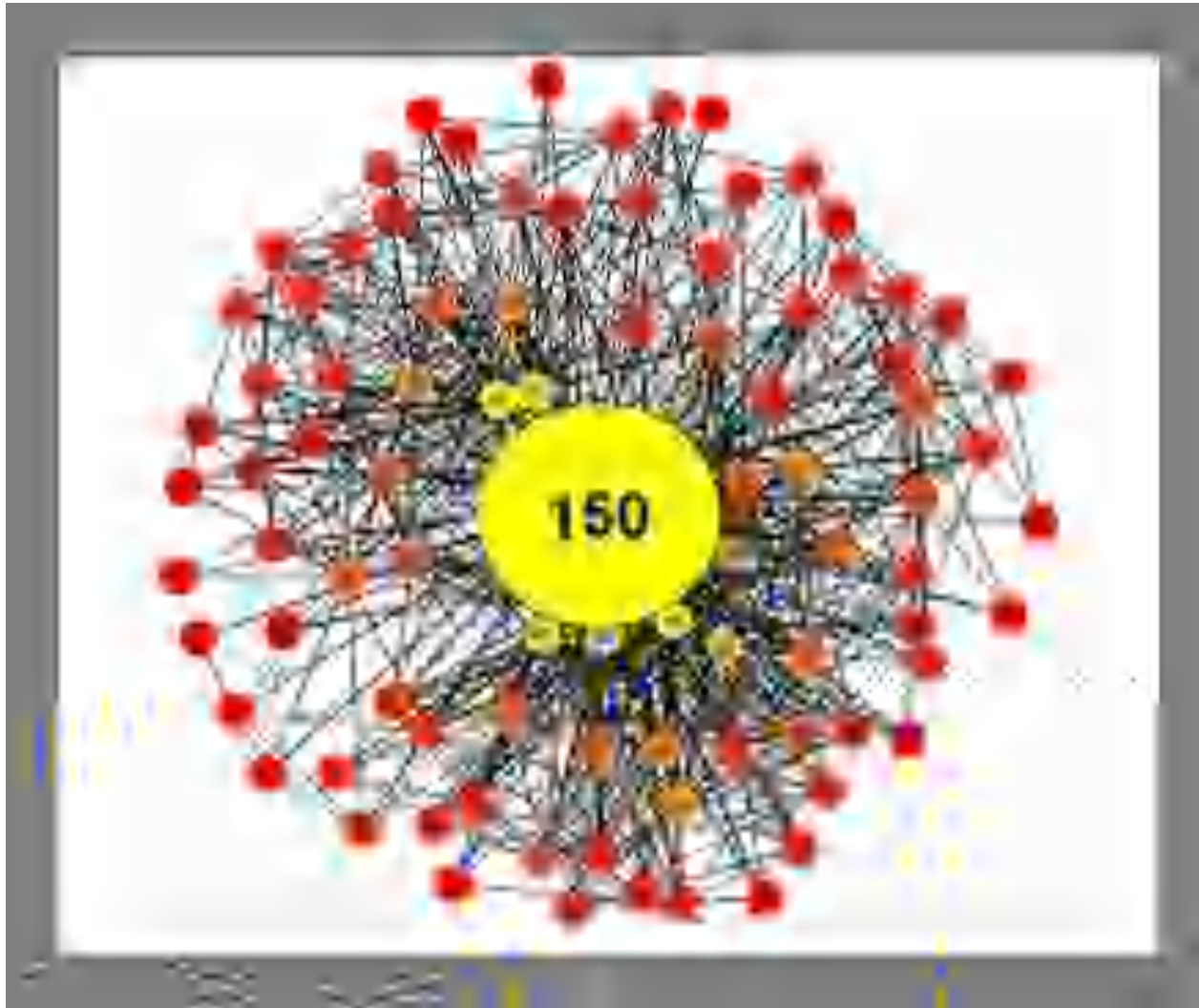




Flexible floor plans make walls moveable - flexible for residents, flexible for operators



# Scale! Dunbar's number, may no longer apply?





# Assistive robotics enable greater independence



Assistive robot encounters in the Bristol Robotics Lab Assisted Living Studio

CONNECTED ASSISTIVE ROBOTICS @ BRISTOL ROBOTICS LABORATORY

**UWE Bristol** University of the West of England

**bri** Bristol Robotics Laboratory

**Connected Assistive Robotics @ Bristol Robotics Laboratory**

ANCHOR ROBOTICS PERSONALISED ASSISTED LIVING STUDIO

**Enabling Independent Living**

**Praminda Caleb-Solly**  
Theme Leader for Assisted Living in the BRL  
Head of Electronics and Computer Systems at Designability

Intelligent robots, integrated with smart home sensors and healthcare databases, can provide the ability to realise autonomous assistive care solutions to support independent living for an ageing population.

**Connected and Secure Assistive Robotics Ecosystems**

Assistive technologies, such as smart home environments, integrated sensors and assistive robotics, are recognised as important tools in helping older people improve their quality of life and live independently. Current research of different

Assistive robots, working in conjunction with smart home sensors, can enable pro-active initiative to prompt and support a person wherever they are in their home, thus offering increased availability, awareness and access, as compared to a static tele-care system. The assistance provided by a robot could include lifting and carrying, support with dressing and rehabilitation, or to monitor health with early detection of problems, using an interactive robot to provide guidance for taking remedial action.

**Assistive Robotics Projects in the BRL**

Researchers at the Bristol Robotics Laboratory (BRL) at the University of the West of England are also leading

Flagship projects in the Bristol Robotics Laboratory include CHRIS<sup>2</sup>, investigating cooperative human-robot interactive systems, MOBISERV, an integrated intelligent home environment for the provision of health, nutrition and well-being services to older adults, (INTRO), an interactive robotics research network for training a new generation of robotic researchers to build intelligent robots that can function in real-world environments,

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<http://chrisspoved.aspx>  
<http://www.mobiserv.info>  
<http://intro.bristol.ac.uk>

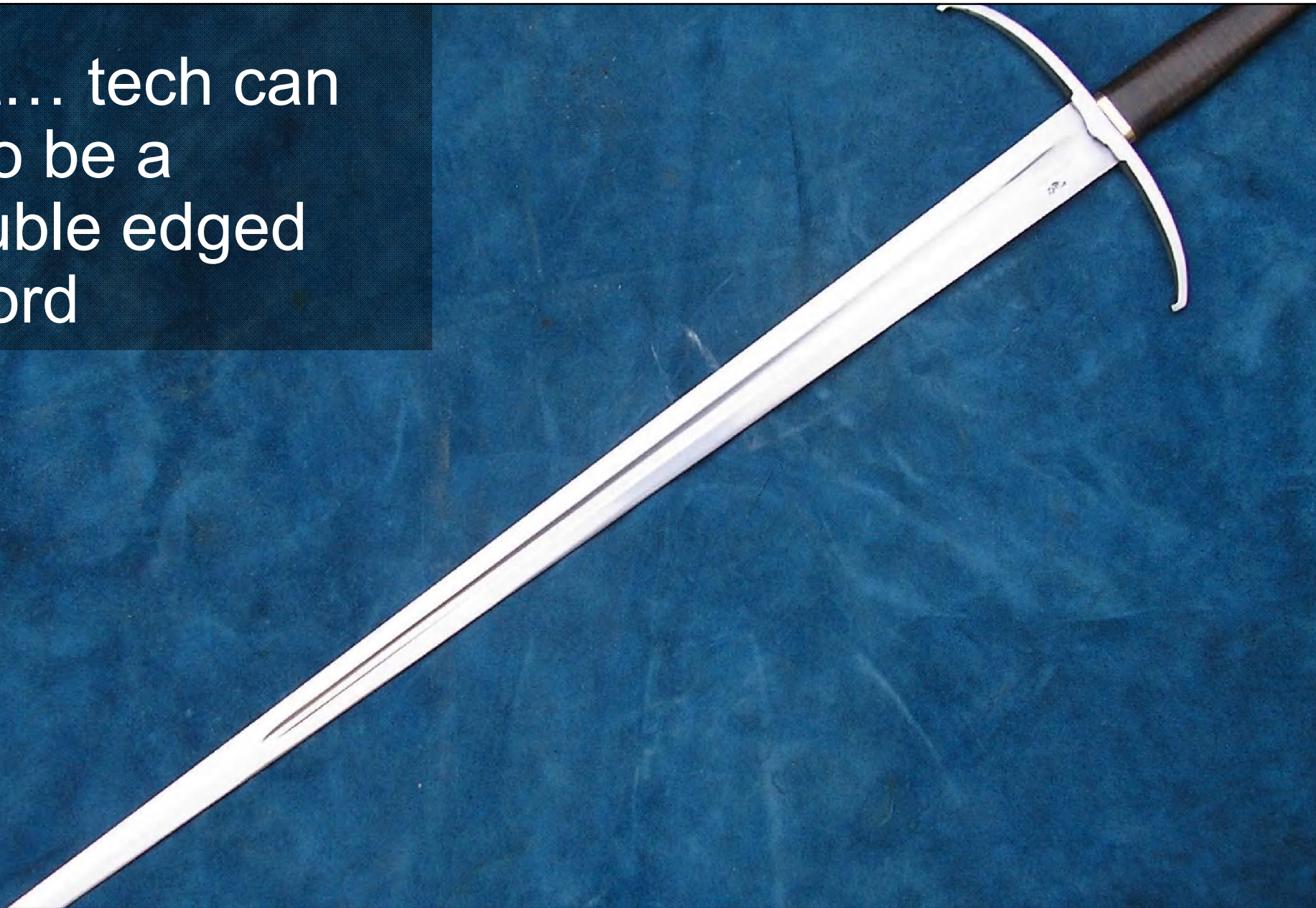
# Tech is helping to disrupt old models of living

- It's decimating the high street
- It's applying science for practical purposes in our sector
- It's creating new entertainment and leisure pursuits
- It's giving the boomers a new toy to play with





But... tech can  
also be a  
double edged  
sword

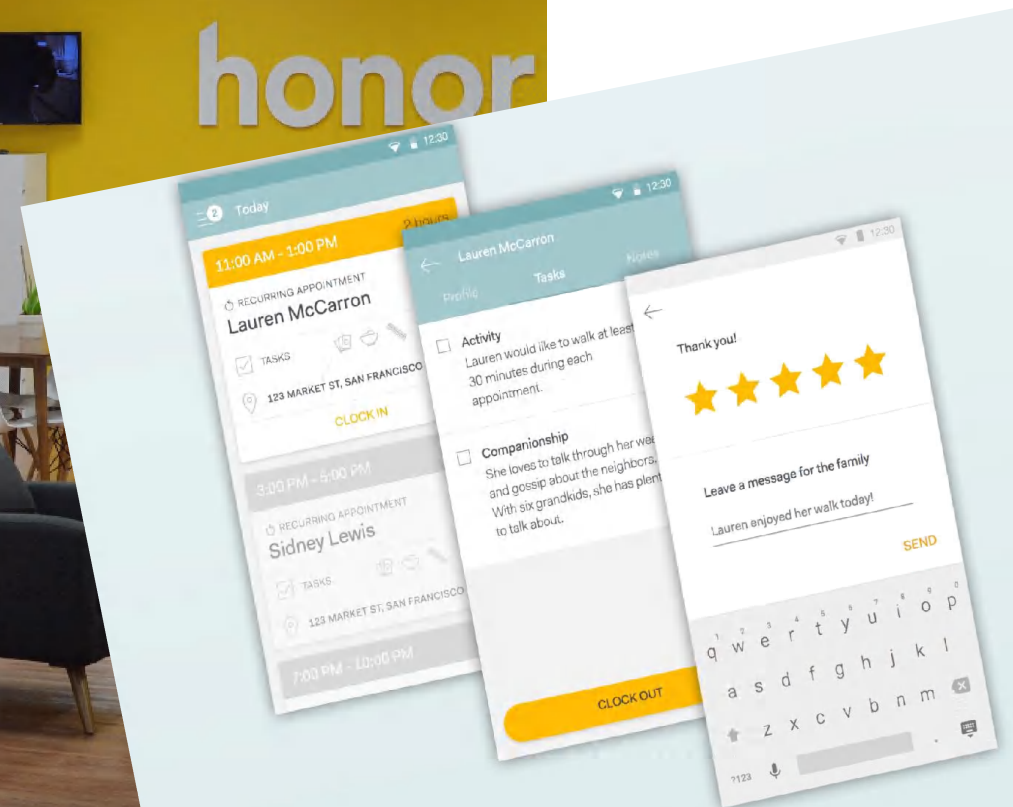




# Tech wants to keep your customers away from AL

- The 'on demand' industry's growth is explosive
- Taxis, groceries, handymen, medical assessment, domiciliary care, all coming to an App near you
- Health tech allows friends and relatives to monitor and communicate constantly
- Assistive technology, robotics etc. focused on enablement and independence

# Start-up Honor is changing domiciliary care in the US





# Tech will keep your customers happier and alive a lot longer

- CR13PR / Cas9 is a cheap and quick gene-editing tool that has the potential to eradicate many major diseases
- 3D printers – cars and houses yes but also tissue, bones, prosthetics
- The 3D printing markets for healthcare is worth \$4.4 billion today
- In 2015 gene editing created designer immune cells that killed Leukaemia

What do you  
think?





So what does this look like from Castleoak's perspective?



The evolution of tech has three core impacts for Castleoak





# 1. Our manufacturing capability

- Greater focus on the strategic expansion of manufacturing
- Identifying a supply chain who can augment our own offer
- Product development
- Finding progressive customers and investors open to this approach
- Learning and collaborating with the sector



## 2. Person centred Technology

- Actively investigating what is out there working today and asking....  
“What’s next?”
- Not just understanding application but extrapolating how it changes models of development
- Asking ourselves and our customers “What does future proof really really mean”?
- Building design resilience into the structures we create



### 3. Understanding that the 4th Revolution requires new thinking

- When all you have is a hammer, every problem is a nail
- Actively asking “Why?” and challenging dogma internally
- Looking far enough ahead to ask profound questions
- Talking to ferociously intelligent people.....like you

Thank you

