Housing LIN
Connecting people, ideas and resources

4. Building better and smarter communities: utilising technology and innovative solutions

#HLINconf19

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Member of the SNC-Lavalin Group

Housing LIN
Modern Methods Of Construction

Terry Stocks, UK Head of Public Sector, Faithful+Gould

Agenda

Ageing Demographic

Increased need for housing stock

Budget Challenges

Need to attract Investment
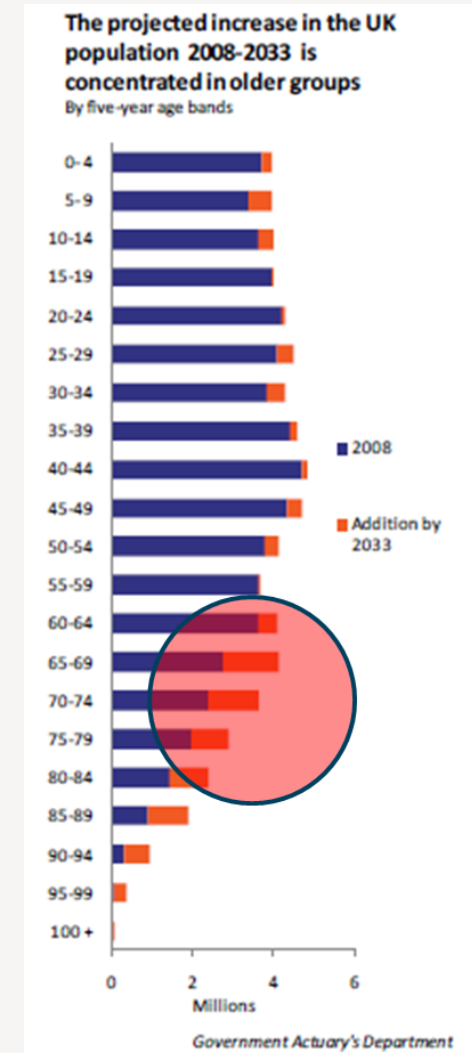
Leverage new Modern Methods of Construction (MMC) proposals
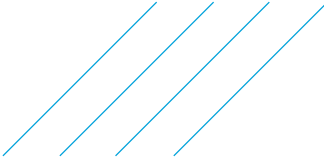
Ageing Demographic

Changing Demographics

- 10 million people (2008) in the UK over 65 years old

- 19 million by 2050

- Currently three million people aged over 80 years

- 6 million by 2030 and 8 eight million by 2050

The projected increase in the UK population 2008-2033 is concentrated in older groups
By five-year age bands

2008

Addition by 2033

Government Actuary's Department

NHS Costs Increases

Average health spending per person in the UK in 2013/14 was highest for people aged 85 and over. £7,274 for women, and £7,917 for men
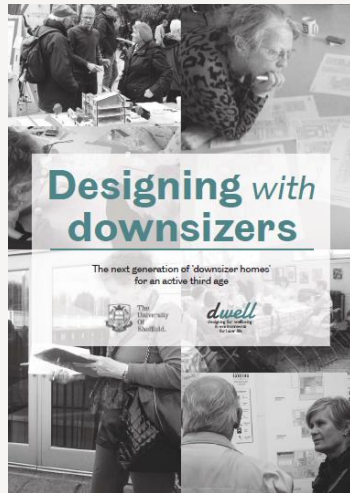
Men Women
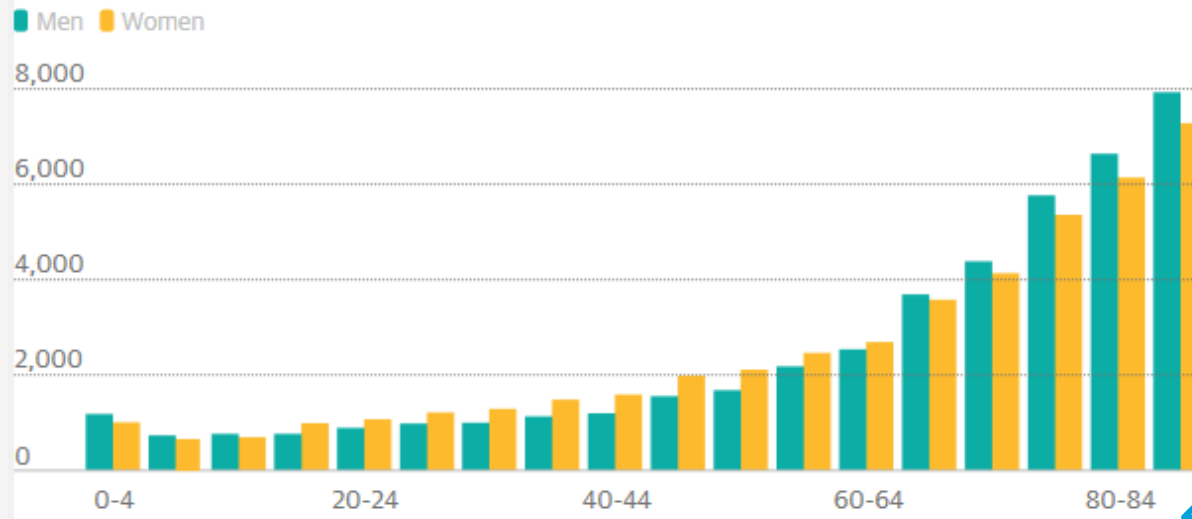
Source: Estimates from the Nuffield Trust

- **2010 spend on 80+ Year olds c£2bn**
- **2030 spend on 80+ Year olds c£4bn!!**

https://www.theguardian.com/society/2016/feb/01/ageing-britain-two-fifths-nhs-budget-spent-over-65s
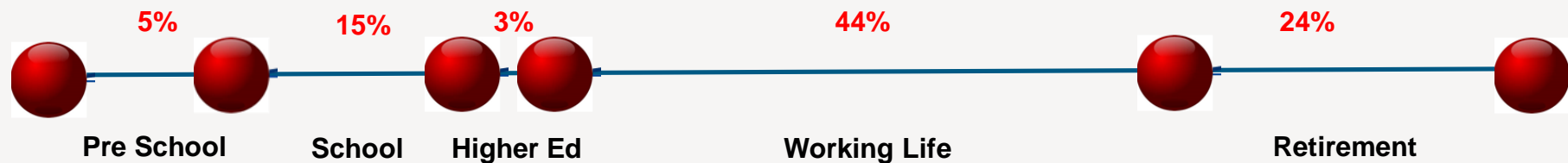
What Is The Impact Of Change?

"A home that continues to allow people to pursue the pleasures of life today, while feeling secure that their home can adapt to their future needs."

In other words: peace of mind and security in a well-designed home in a place and community that suits their taste and lifestyle.

Jeremy Porteus
Director, Housing LIN
October 2016

	5%		15%		3%		44%		24%	
Pre School		School		Higher Ed			Working Life		Retirement	

Lifeline

What Is The Impact Of Change?

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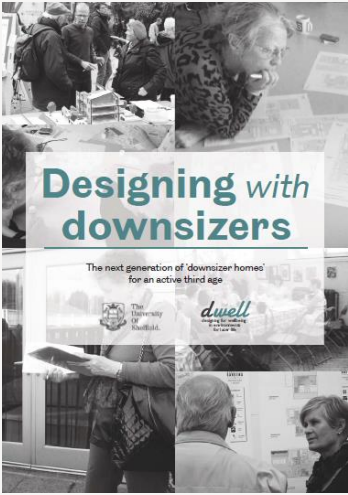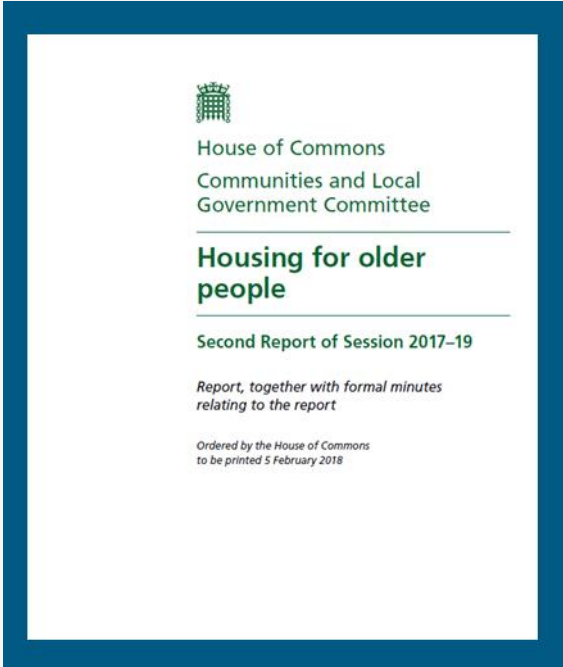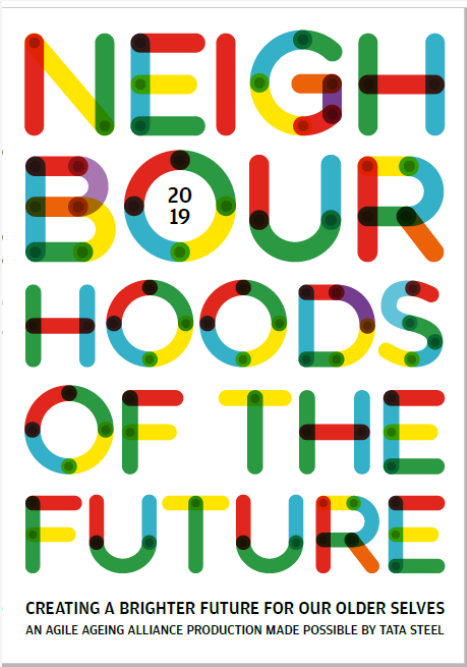
Jeremy Porteus
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Pre School	School	Higher Ed	Working Life	Retirement

Increasing Need For Suitable Housing Stock and Communities

Growing Evidence Of Need

Environments / Communities

Urgent Need For 'Age Friendly' Housing

Technology Supporting 'Aided' Living

Collaborative Approaches

What this report explores

Neighbourhoods of the Future examines the so-called housing 'crisis' facing the next generation of older adults. It suggests that although there is most definitely an urgent need for more 'age-friendly' housing and built environments, innovative new product and service solutions enabled by evolving technologies such as the Internet of Things and 5G provide a golden opportunity to rethink the outlook for ageing populations, particularly if various sectors, organisations and stakeholders adopt new collaborative business models and work towards a common and mutually beneficial reference framework for age-friendly housing.

This report is based on the outcomes of a 12-month pan-European roadshow in which we have listened to the needs, achievements and plans of the public sector, together with hundreds of inspirational businesses, NGOs and institutions. It is also informed by interviews with some of the leading commercial and academic players, an extensive literature review and our own experimental research comparing the needs of current older adults with those of the next generation.

This next generation, often called the baby boomers, is not only the largest generation of older adults the UK has ever seen, but also the most educated, financially secure, technologically aware and experienced. It is a generation accustomed to the service economy, not just as customers, but also as suppliers. Many will still be working in the service industry, possibly from home, being semi-retired, and many will also be running their own small businesses from the comfort of their own homes.

Budget Pressures

House of Commons
Communities and Local
Government Committee

**Housing for older
people**

Second Report of Session 2017–19

Report, together with formal minutes
relating to the report

Ordered by the House of Commons
to be printed 5 February 2018

- 75% of 'Death By Falls' happened in the home

- Falls in the home represent c25% of Ambulance Call Outs to the elderly.

- The cost of Poor Housing to NHS c£700m p/a

- Falls often the onset of Severe Decline in the Elderly

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Need To Attract Investment

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Issues

- Important and Growing Sector

- Attractive Sector To Corporate Lenders

- Current Organisation Of Sector Does Not Support Corporate Lending Business Case

Opportunities

- Current and Growing Market

- Emerging New Methods Of Construction (Digital Construction – Standard Platforms & Components

Modern Methods Of Construction

Modern Methods Of Construction

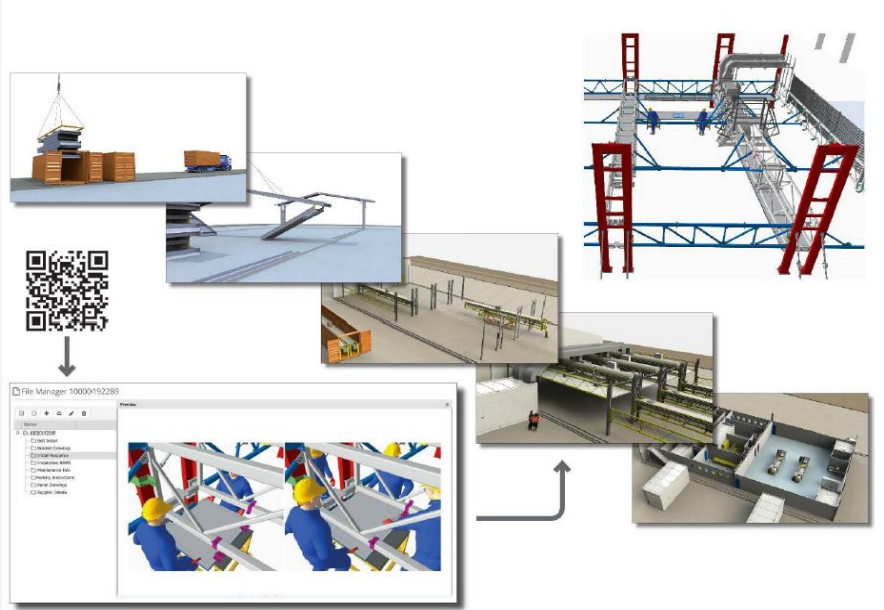**UK Central Government Focus on Efficiency Improvement and Maximising Outcomes**

'Presumption In Favour Of Off Site'

MMC Is:
- **Volumetric Units**
- **Pre Cast Panels**
- **Components and Assemblies**
- **Platforms**

Standard Components And Structural Platforms

Concept To Reality

Procurement update: Offsite

Building

Procurement update: Offsite
24.08.18

'The big specialist modular firms currently deliver about 7,000 units of various kinds every year – equivalent to around 3,000 homes. Changes to shift patterns in existing factories could potentially double output.

Accordingly, about 40 extra factories, each producing 1,500 modules a year, will be needed to provide just 10% of total housing production targeted by the early 2020s. This will require investment of about £500m, excluding land.

The long-term solution relies on the pooling of demand – initially by the public sector – as well as on the adoption of "platform-based" approaches to component-based construction, which will be serviced by a much deeper pool of component manufacturers.'
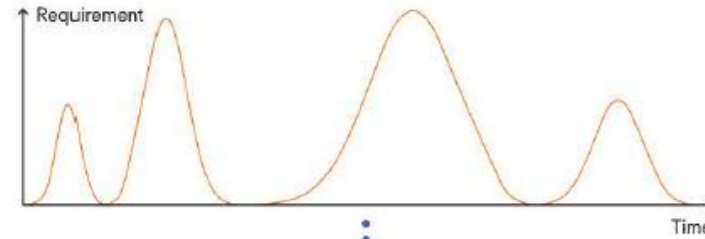
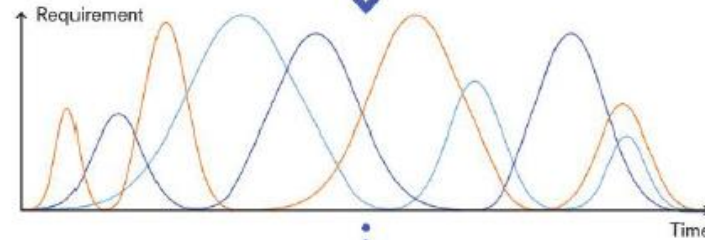Simon Rawlinson, Head of Strategic Research and Insight at Arcadis

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Factory + Workforce Sharing
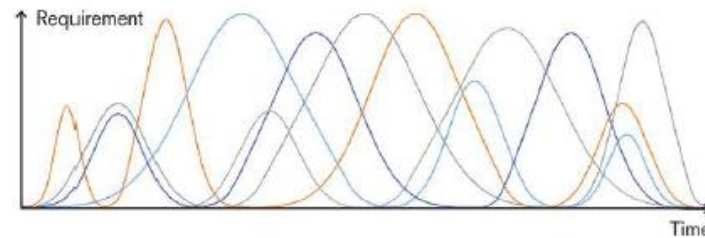
The Challenge

- Can the sector work together to create standard platforms?

- Can developers / clients work together to create an 'MMC' market place?

- Creating bigger market opportunities could attract larger corporate lending.

- The prize of achieving a standard platform is significantly lower cost buildings *~(C30% has been estimated in trials)*

"
If clients / developers want to investigate standard sector platforms for housing contact us. We can provide technical support with you, the sector experts providing the case study and data.
"

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Thank you

www.fgould.com

Terry Stocks
Director – Head of Public Sector

SNC·LAVALIN

FAITHFUL GOULD
Member of the SNC-Lavalin Group

# Cura - Pre-Designed Healthcare Hub

WHY PRE-DESIGN FOR HEALTHCARE?

WHY?

Government Policy / NHS Need

- Govt construction targets – 33% lower costs/ 50% faster delivery

- NHS 5 Year Forward View/ NHS Long Term Plan

- 400+ hubs required in England

- STPs planning integrated health and social care

HM Government

Industrial Strategy: government and industry in partnership

Construction 2025

July 2013
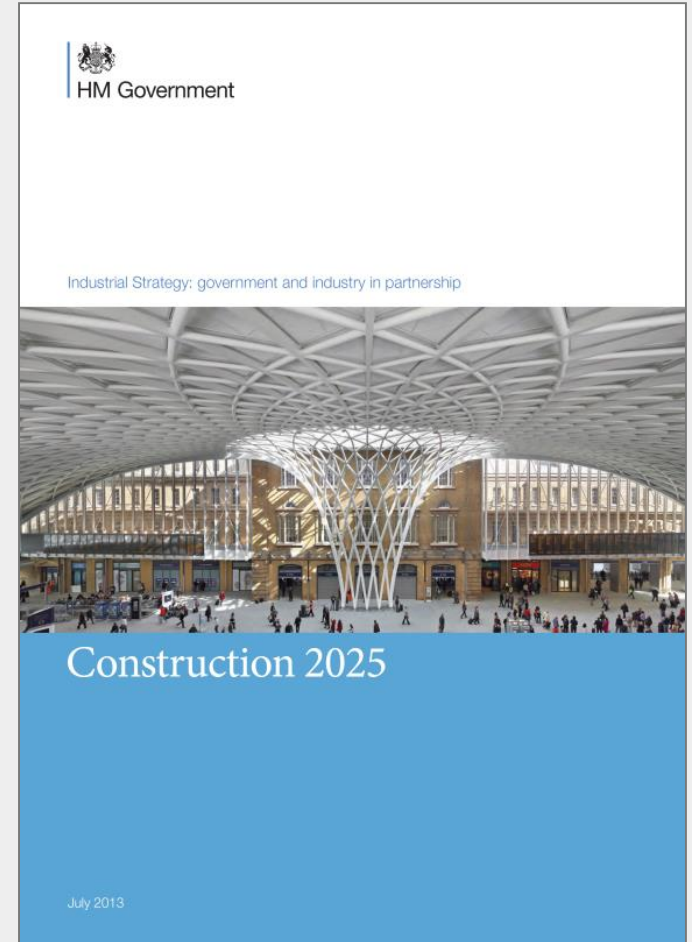
PRE-DESIGNED FACILITIES

Sunesis – our range of pre-designed products for the education sector

45 Sunesis schools built since 2010

Over 18,000 new school places and counting...

Sunesis school Primrose Lane Primary shortlisted in the "Education Project of the Year" category for the Michelmores Property Awards 2018

HEALTHCARE HUBS

Akerman Road Community Centre

Sir Ludwig Guttman Health and Wellbeing Centre (ex Olympic Polyclinic)

On Site at:
Dulwich Health Centre

Completed schemes at:
Brooklands Health Centre, Milton Keynes
Blaydon Health Centre
Houghton le Spring Health Centre
Sunshine House Child Development Centre
St Johns Therapy Centre
Green Wrythe Lane Therapy Centre
Eltham Health Centre
Grand Union Village Health Centre
Heart of Hounslow Centre for Health
Jubilee Gardens Health Centre
Waldron Primary Care Centre
Whitton Health and Social Care Centre
Baldry Gardens Health Centre
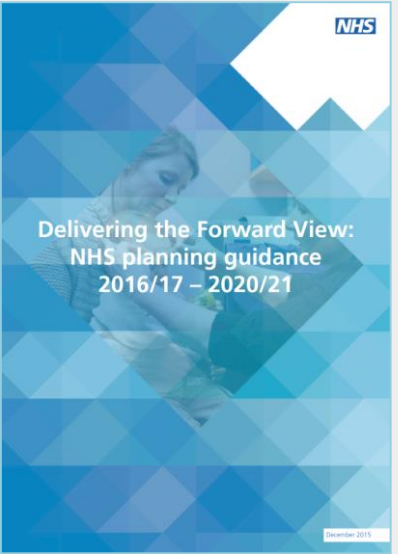Bridge House Centre for Health
Cloister Road GP Surgery
Gracefield Gardens Primary Care Centre
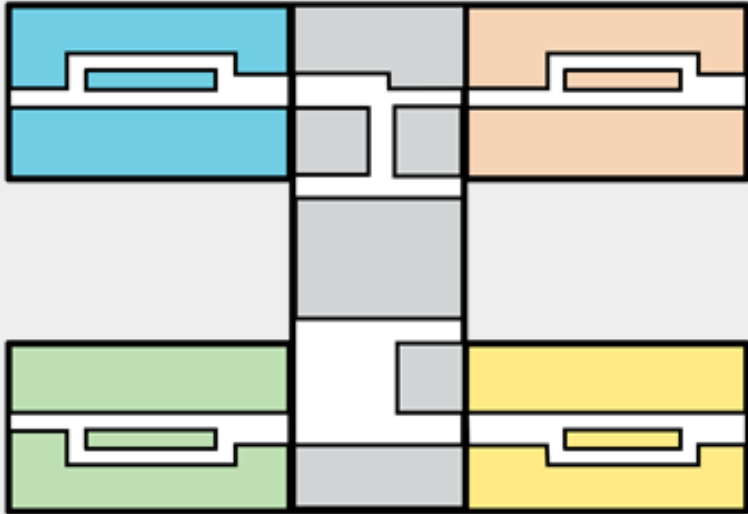Surbiton Polyclinic

FROM EDUCATION TO HEALTH

WHAT SERVICES COULD GO INTO A HUB?

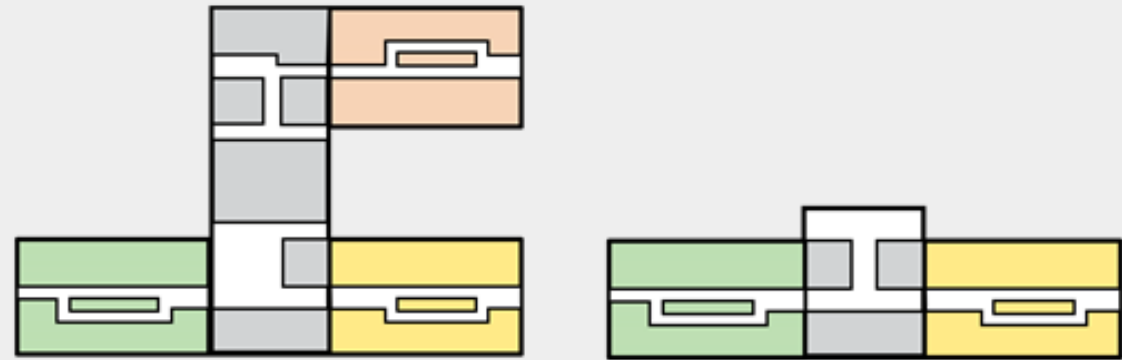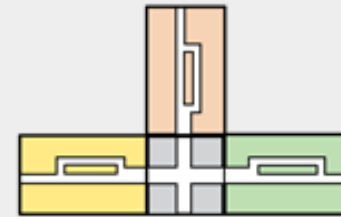Delivering the Forward View:
NHS planning guidance
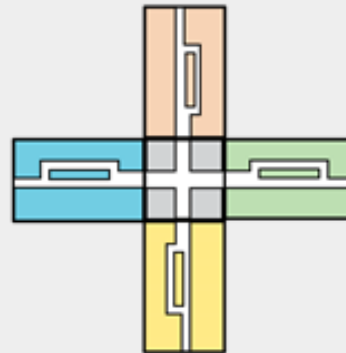2016/17 – 2020/21

ADAPTABLE, FOR LOCAL SOLUTIONS
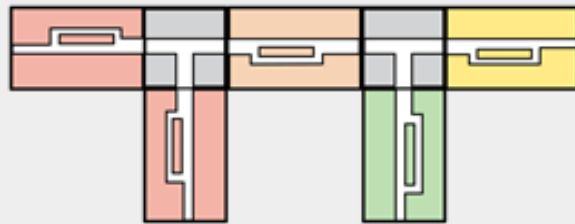

Base Model – 3,500m2

Secondary Models - 2,000m2

Other options

STANDARDISING FOR FLEXIBILITY
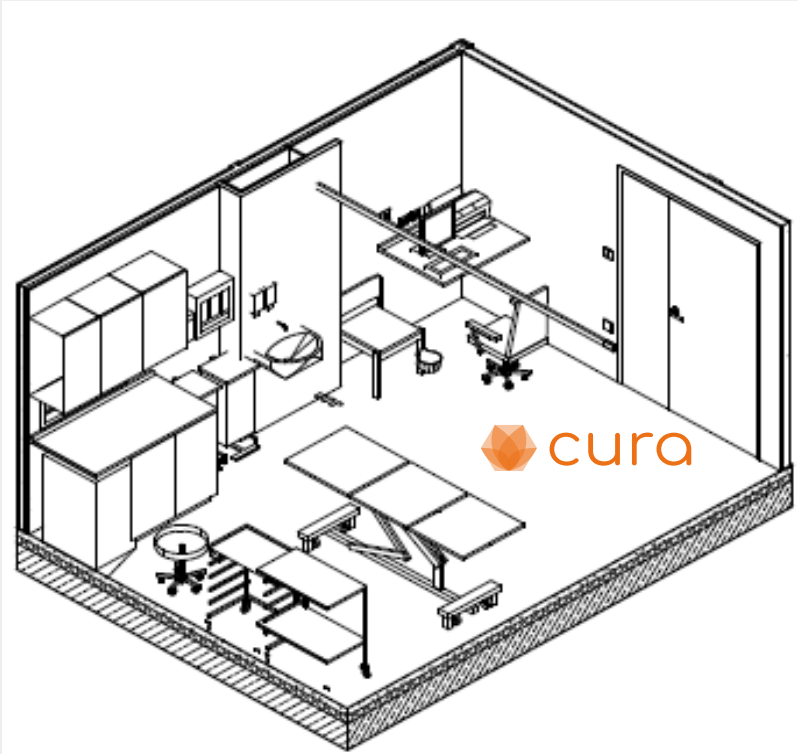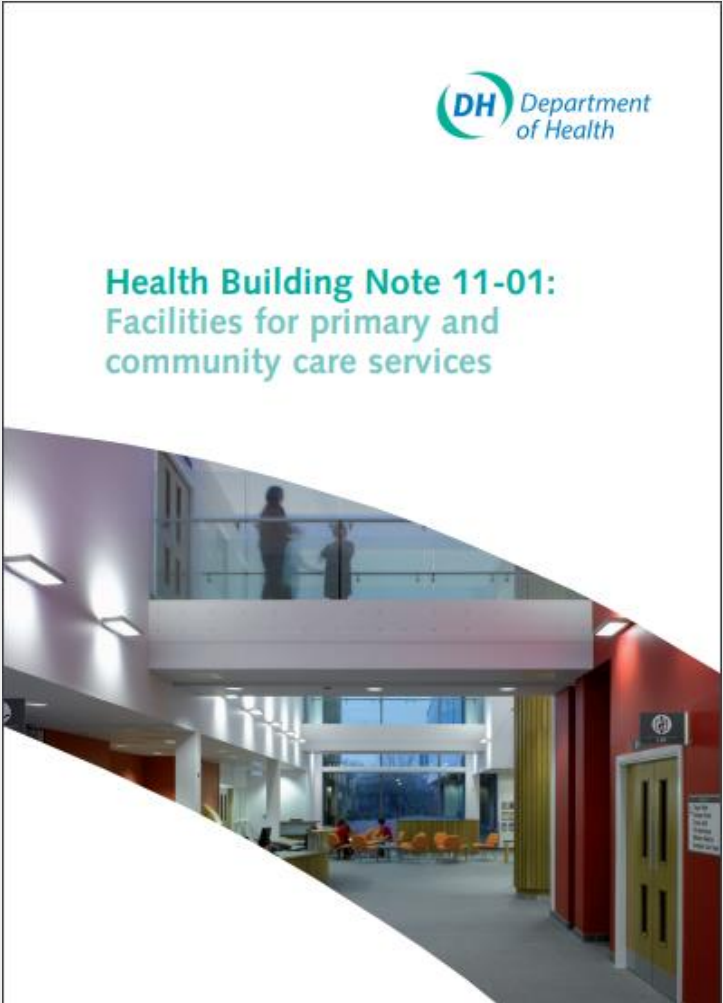
FLEXIBLE DESIGN

- ✓ **Easy way-finding**
- ✓ **No department is a corridor**
- ✓ **Modules can operate independently or can be joined**
- ✓ **Natural light to all rooms**
- ✓ **Central communication module**

RECONFIGURE, WITH MINIMAL DISRUPTION

Diagnostic Department

Out Patient Department

Dental Department & Building Support

Entrance Area

Pharmacy & Building Support

BENEFITS

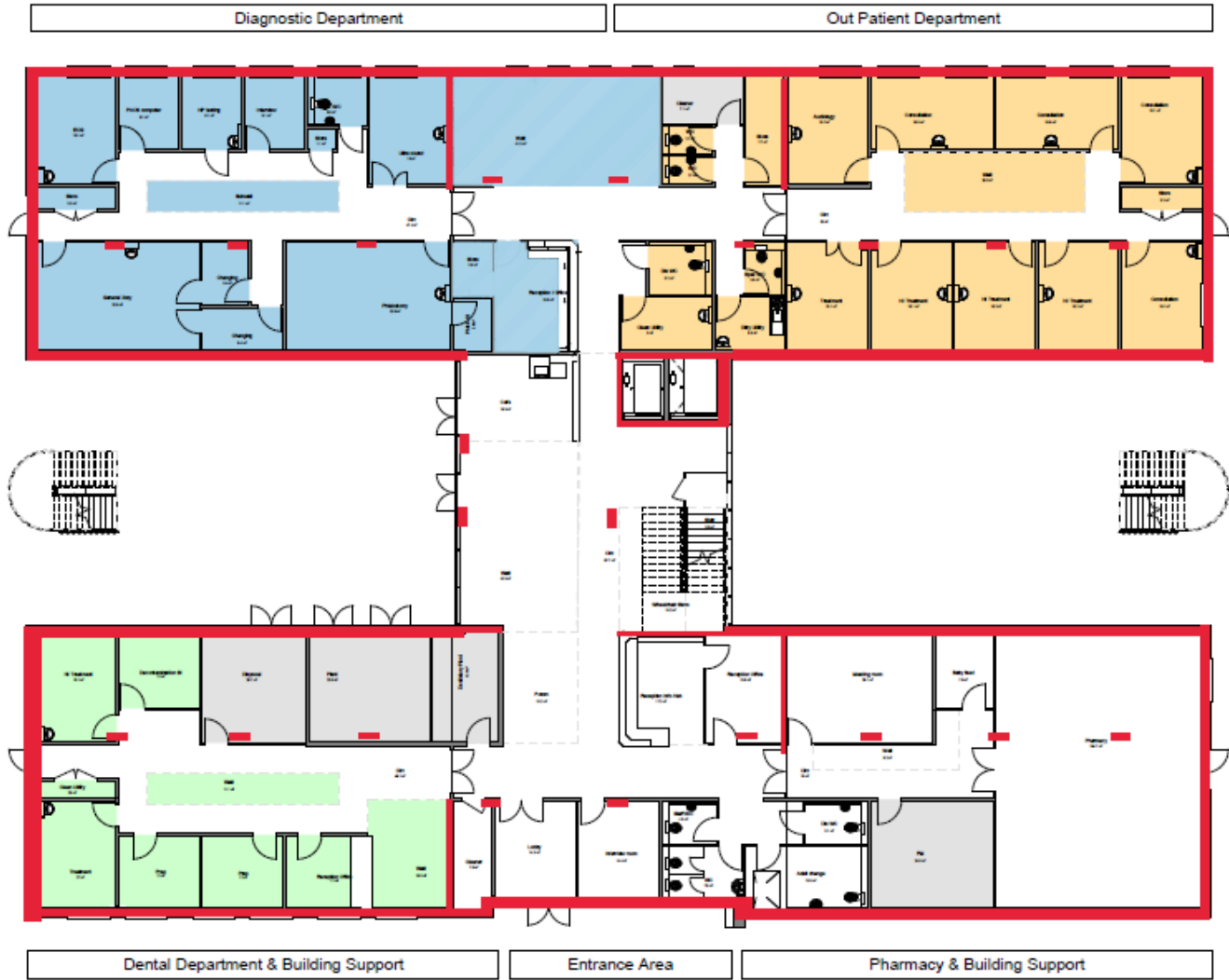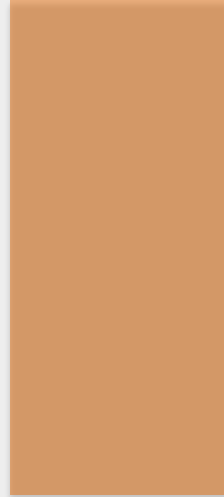| Benefit	Cura	Bespoke design
Integrated in the community	Y	Y
Improved Quality	Y+ Precision made in factory conditions	Y
Flexibility	Y+ Standard sized rooms and modules	Y Constrained by bespoke requirements
Cost certainty from day one	Y+ 100% Sunesis schools finished on cost	N
Programme certainty from day one	Y+ 100% Sunesis schools finished on programme	N
Speed of delivery	Y 50% faster	N but potential for off-site production

WILLMOTT DIXON SINCE 1852 | Building on BETTER

cura

BENEFITS

Benefit	Cura	Bespoke design
Improved patient experience and maximum occupancy	Y+	Y
Stakeholder Influence	Y	Y+
Wellbeing benefits from past PPEs Natural light Good access and way finding Positive impact at the entrance Privacy and dignity	Y - guaranteed	To be determined

Questions

CURA.CO.UK

CURA@WILLMOTTDIXON.CO.UK

Stephanie Brada
Healthcare Planner

Understanding the challenge

Increasing demand: *Ageing population, increased multi-morbidity, lack of social connectedness*
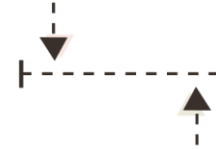
Huge variation in cost and quality

Money is tight, both in terms of the state and the individual

Greater *expectations, culturally and in terms of society*

Variable experience and outcome for the consumer with the need to bend to our services

Push for improvement and innovation but seduction of magic bullet persists

What makes a community and how do you build one

Technology and innovation doesn't mean the same to all of us

The problem with forecasting….

Often the future doesn't turn out how we think

But that doesn't mean it's all wrong
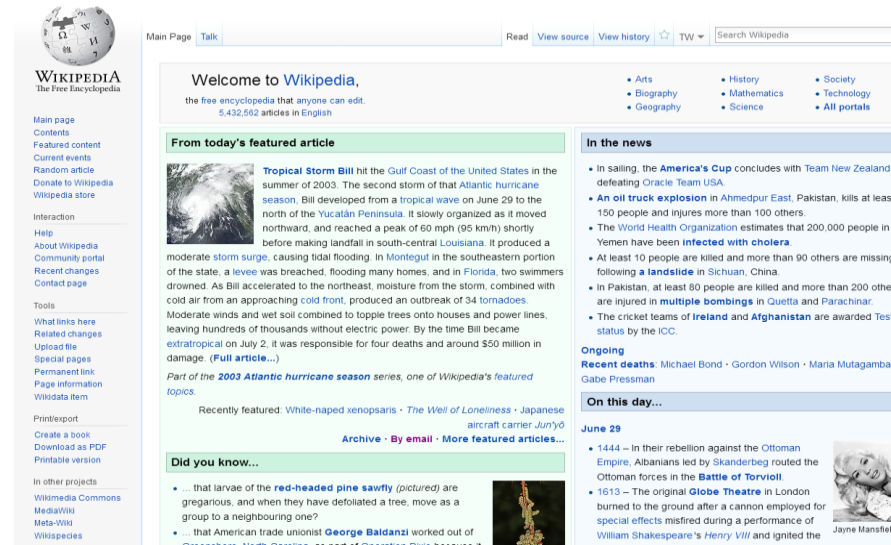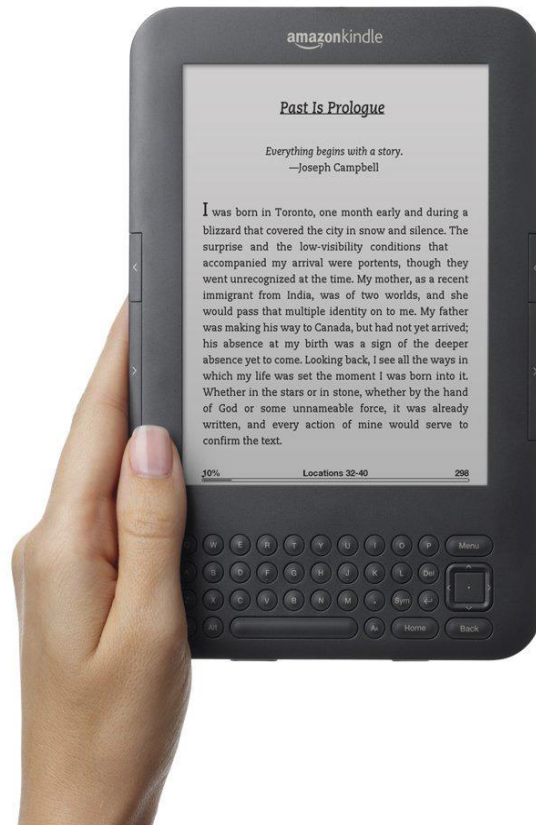
3 far fetched stories from our future

William is 110
He used to work in healthcare, before most of the job went to machines.

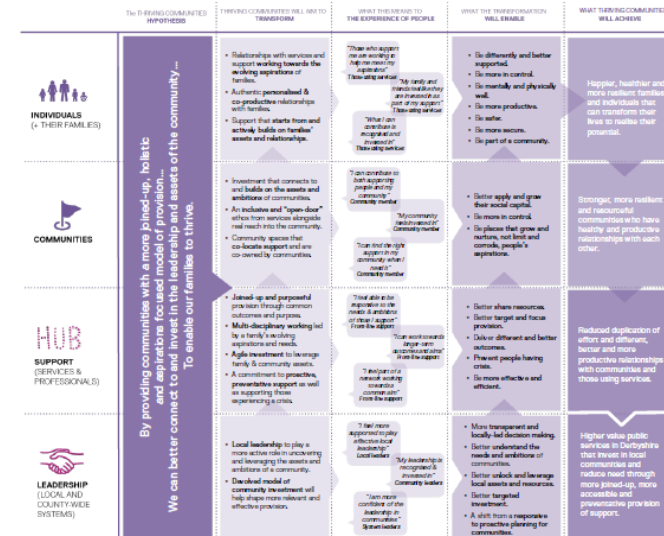He jokes that he's like "Trigger's broom", he's one of the original Cymans and if it wasn't for the NLS (the National Loneliness Service) he doesn't know how he'd cope.

He does wonder if he should have chosen all the extra years back when he had the choice

Bathna, is just turning 30. She's one of the many companions employed by the NLS. She doesn't worry about her health since they fitted her with the Nano skin.

She loves spending time with William her be-friend. She doesn't always understand his cultural references but is fascinated that he used to have to go and have humans undertake his health interventions

Tabby never saw her career change coming, her dad William had been involved in healthcare and Tabby was never interested. She'd trained as an engineer.

The third industrial revolution meant there wasn't a job for human engineers anymore. The growth in robots wanting retro and artisanal upgrades had taken her by surprise and he'd become a DM, a Doctor of Machines. With another 30 years to her 100th when she could retire she needed the work

But none of these stories are that far fetched

- Care is a people business and when we cure physical ailments we still have the human elements that need human interaction
- AI and Nano technology already exists
- We keep people alive for prolonged periods without necessarily adding life
- Loneliness is a significant issue for all ages
- Prosthetics, implants and replacements are all part of routine care
- We use robots, albeit somewhat basic robots already in care and health
- Life expectancy, pension ages, job security, urban decay, renewal and mechanisation have all happened in the last 50 years

So what does look interesting and exciting on the very near horizon?

Place or footprint based

- People want:

  - a place to live,

  - something to do

  - someone to love

- We give them a building, a series of interactions, secure enclaves

- Imagine if we moved away from this to places and built our support around giving them the things they really want and reconnected where you live with where you work

Bring your own kit

- We have to move beyond the need to use our kit and forcing people to abandon technology
- Everyday we use technology to make our lives easier
- This works fine until we need to operate outside of boundaries
- Truly putting the individual in charge
- The rise of the smart home

But...

- Who chooses what
- Providers want to be more than a dumb pipe
- Data and privacy

New ways of work

- Live work spaces that are increasingly thinking bigger
- Retirement is changing, and fast
- Pension reform
- New forms of financial products
- The rise of the robots
- Universal income
- Needing to think much more carefully about the way we describe populations

So what would be needed

- A lot of conversations…with those who live in our communities
- A significant shift in the power from the state to the individual and from the tech companies to the individual
- Finding a way to avoid the commodification of people's lives
- Better and more effective ways of paying for and supporting housing development
- Rethinking what it means to work
- Starting with the problem not the solution
- Connectors- none of this just happens

Building better and smarter communities: Utilising technology and innovative solutions

Housing LIN Conference

Mark Golledge, LGA

Outline

- Introducing the Local Government Association

- Health, housing and social care – context

- Role of technology in building communities

- Examples of how technology is helping to build communities

1. Introducing the Local Government Association

About the LGA…

- Member representative body for English Councils

- Politically-led, cross party

- National voice for the sector

- Improvement support for the sector

- Work closely with partners e.g. Association of Directors of Adult Social Services

About our care & health programme…

Improvement offer to local areas in collaboration with ADASS including:

- Integration and Better Care Fund

- Commissioning and Market Shaping

- Health and Wellbeing systems

- Public health and prevention

- Supporting Digital Innovation
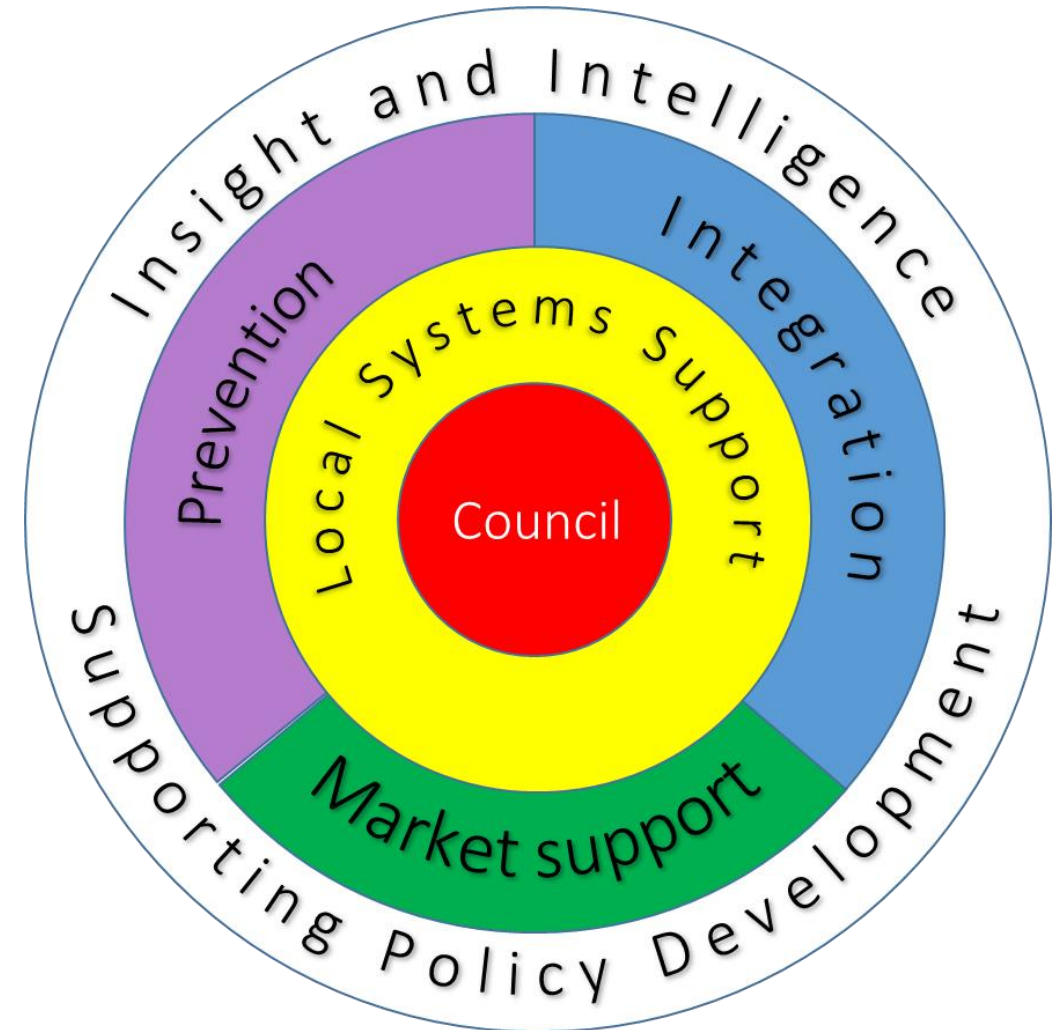
About our digital programme...

OUR PRIORITY AREA

1. Quality & efficiency across care providers

2. Information sharing across health and social care

3. Independence & wellbeing through care technology

4. Encouraging digital innovation across social care

WHAT THIS MEANS

Supporting local areas with use of digital technologies across care provider sector

Supporting local areas with effective data sharing across the local system

Supporting local areas with the use of technology within a home environment

Supporting areas through grant funding for digital innovation *(Social Care Digital Innovation Programme)*

2. Health, Housing and Social Care – The Context

Current challenges…

- Councils face an overall funding gap of £3 billion in 2019/20, which the LGA estimates will rise to £8 billion by 2024/25

- Social care faces an existing funding gap of £3.6 billion by 2025

- This is alongside increasing demand (last year there were 5,100 <u>new</u> requests for support a day)

- Public health grant funding has reduced by over £700 million in real terms between 2015/16 and 2019/20

Local authorities reporting provider failure in 2017 and 2018

£ million

Home care: 2017 = 48, 2018 = 48

Residential/nursing care: 2017 = 54, 2018 = 58

Closed or ceased trading within the last 6 months

2017   2018
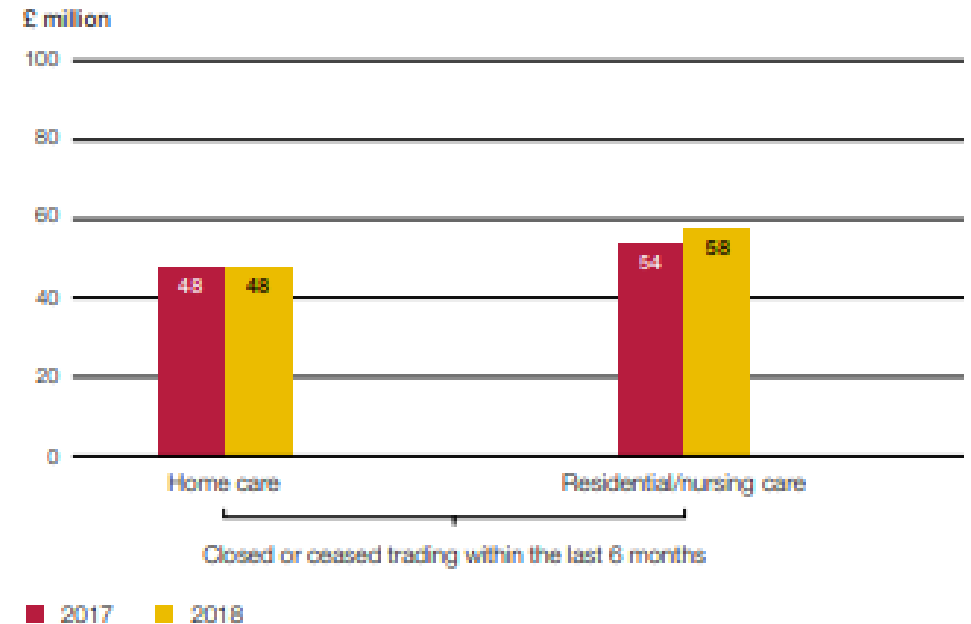
LGA Social Care Green Paper

- Our Social Care Green Paper sets out our vision for supporting and improving people's wellbeing

- Important interplay of services and their contribution towards health and wellbeing

- Needs effective partnership working – not just NHS but housing, voluntary and community sector as two examples

- Recognises the importance of housing which is adaptable to meet changing needs of individuals

3. Role of Technology in Building Communities

Technology and Housing

"Technology enabled housing and care can also play a role in maintaining independence and promoting wellbeing. Much of the emphasis on older people's housing is on the future supply, however consideration is also needed on developing more innovative technology enabled solutions and use of digitally enhanced construction techniques"

Housing and our Ageing Population
LGA, 2017

A shift from old…

- 158 telecare monitoring centres in England

- Currently providing on-demand telecare response for individuals in homes – 1.33 million alarm connections

- Still in many cases traditional 'analogue' based technology i.e. telecare alarms

- Often a complex arrangement of commissioning and delivery – particularly in some two-tier areas

To new…

- Growth of consumer based technology in our everyday lives – "smart living"

- Shift towards digital and away from analogue technologies:

- 4 pillars – sensor based, peer-to-peer comms, status sharing & content distribution (incl. records)

- Prompted by telephony switchover by 2025

- Technology supporting smarter and more accessible, adaptable homes.

WHAT ARE THE POSSIBILITIES?

Moving from analogue to digital TEC could be about more than a simple replacement. Is this an opportunity for a fundamental redesign of TEC?

Emerging digital technology is already impacting health and care:

Big data analytics have cut A&E waiting times by **30 min** in some hospitals

Research shows that **artificial intelligence** is as good as human experts at recognising skin cancers

100s of UK councils use GPS tracking systems to monitor people with dementia
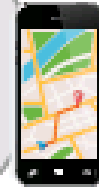
PEOPLE ARE MORE TECH SAVVY

The average UK home has 8.3 web connected devices. By 2020 this will rise to 29

20-30 billion devices will be connected to the 'internet of things' globally by 2020

10.7% of UK patients ordered repeat prescriptions online in the last 6 months

3 million wrist-worn health and fitness wearable devices were sold in the UK in 2015

But technology to support outcomes…

Shifting the TEC conversation

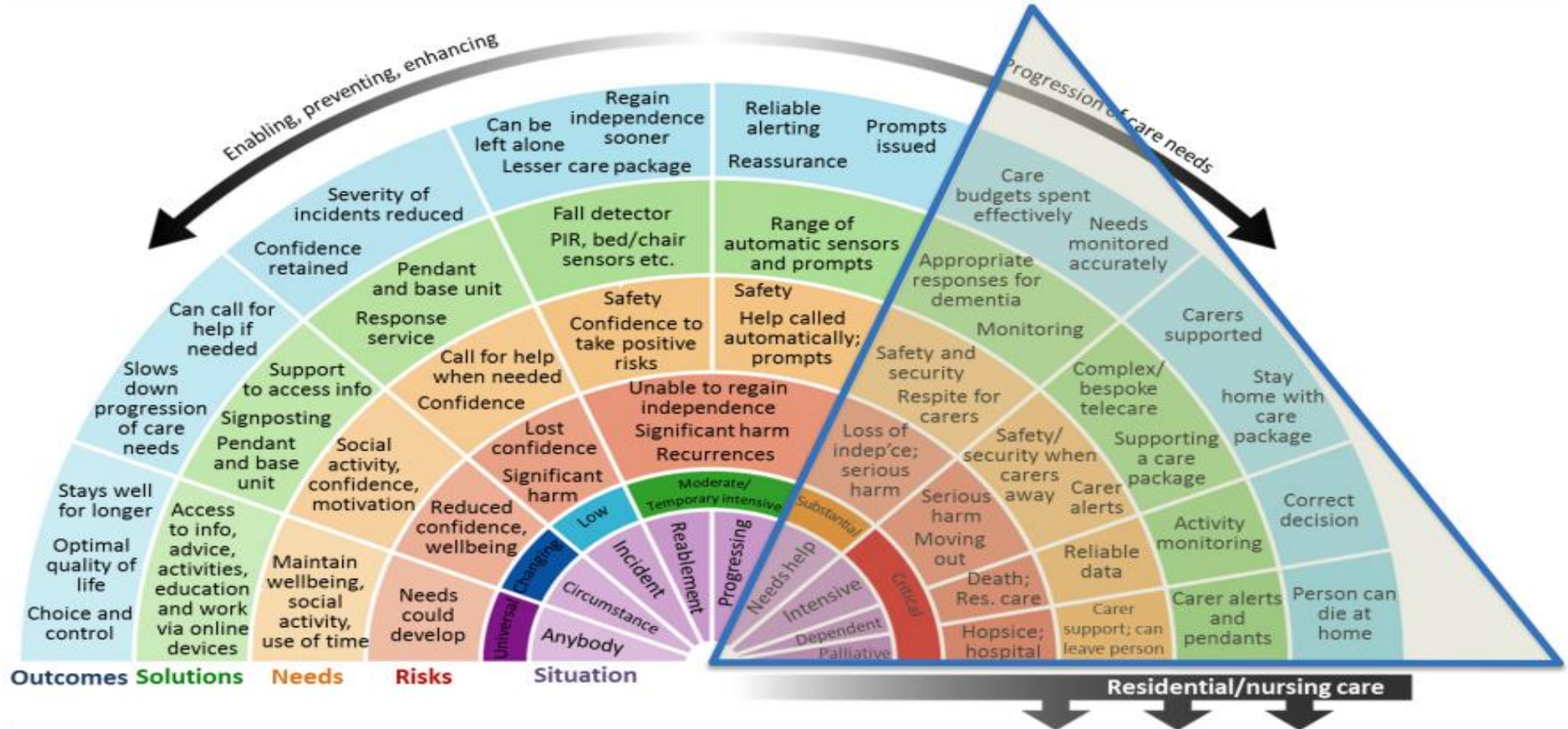# What we are seeing across the sector

- Shift towards growing self-funder market for technology *e.g. Hampshire and Stockport*

- Creating space for people to test and try new technologies in home environments *e.g. Wigan, York*

- Identifying opportunities for collaborative working with Districts and Housing Providers, particularly in two-tier areas e.g. *Essex*

- A stronger focus on the impact of technology in delivering outcomes first e.g. *Lancashire, Wolverhampton*

- An upgrading to housing to accommodate shift to digital

4. How technology is helping to build communities

Social Care Digital Innovation Programme – Discovery Phase

Stockport Council

Stockport…

- Discovery programme to understand effectiveness of care technology offer

- Identified 1% of adult funding supporting 38% of people receiving care and support

- Two key issues: speed of installation and high number of false alarms from technology

- Stockport introducing TEL (Technology Enabled Living) Pathway

- Alongside new forms of digital communications

Advanced combined care
- Small % of population
- Higher cost per person
- Most automated/ ambient monitoring

Automated monitoring

Self Monitoring

Advice and guidance
- Large % of population
- Lower cost per person
- Most manual/wearable monitoring

Monitor multiple data sources
Chance to test something else?
A device which provide an "I'm ok" 'heartbeat'

Phase 1: November- March

More accurate/ smarter kit
Ensure frequent incidents are better identified.

Interim/easy Installation
Avoid escalation during waiting period. Clients Can trial kit/service risk free.

Demo shop/marketing/ Prevention and early help. Enable smoother transition from self monitoring to next steps of care.

Refine (re)assessment Process
More digital, interactive and holistic assessment tools. Delay people moving upwards, and identify when people could step down.

Social Care Digital Innovation Programme – Discovery Phase

Sunderland City Council

Sunderland…

- Discovery that focused on understanding the types of technology based on four key areas (see right)

- Working with supplier to develop technology "hub/platform" which is truly device agnostic i.e. plug and play approach

- Working with Digital Catapult to provide technology insight

- Using sensor based technologies from multiple devices (not tied to one individual supplier)

1. Medication management

2. Monitoring Mood

3. Nutrition and Hydration

4. Moving around the home

Wellbeing profile sensors

Typical locations:
Living room
Bedroom
Fridge
Hall
Front door
Medication box
Kettle
Microwave

cascade connected Care

BEDROOM

LIVING

DINING

BATHROOM

KITCHEN

Strategically placed unobtrusive sensors

Local Government Association

Contact:

Mark Golledge

mark.golledge@local.gov.uk