CONSTRUCTION PLATFORMS IN HEALTHCARE

MAY 2022

AKERL☉F

PLATFORM

A term that is widely used but, with consistent features:

- a set of common (low variety) core assets (i.e. components, processes, knowledge, people and relationships);

- a complementary set of peripheral components that exhibit high variety;

- and stable interfaces that act as a bridge between the common core and variable peripherals, permitting innovation in the core and peripherals.

By replicating the common assets multiple times, platform owners and participants are able to realise benefits such as efficiencies and economies of scale.

The use of interchangeable peripheral components affords diversity and distinct offerings, that can facilitate mass customisation.

Adapted from Transforming Construction Network Plus Digest, 2020 (and Robertson and Ulrich - 1998)

CONTENTS

AKERLOF

EXECUTIVE SUMMARY

Despite its reputation for adopting innovation slowly, the construction industry has quickly embraced the concept of 'platforms'. By leveraging commonality of design, components, process or relationships across aggregated portfolios of work, the application of a platform-based approach offers the nirvana of delivering customisable buildings at scale, consistently and predictably better, faster and greener.

The ambition to realise this opportunity has been firmly driven by Government, enshrining platforms within recent policy such as the Construction Playbook and Transforming Infrastructure Performance Roadmap to 2030. The latter outlined a vision of how platform approaches could drive a new market, "generating greater societal outcomes by enabling a disaggregated manufacturing industry that creates stable and inclusive employment where jobs are most needed". With the prospect of the biggest hospital building programme in a generation, adding to its already significant scale (with an average budget of £2.4bn per annum for capital works), the Department of Health and Social Care is expected to embrace and apply platforms to realise its ambitions.

In many respects, the healthcare sector has a heritage of applying platform principles through its way of working: For example:

» The creation of the Health Building Notes (HBNs), over 60 years ago was designed to embed consistency and commonality across a largely decentralised organisation, in a manner that accommodated local practice.
» In modern-day healthcare design, the use of repeatable rooms and standard component libraries has been leveraged to deliver capital and operational efficiencies, alongside improvements in quality.

Despite these shining examples, further opportunities exist. Albeit pointed towards the delivery of clinical services, the Carter Review highlighted a "failure to capture the benefits of scale" and a need for greater collaboration and cooperation across the NHS to drive efficiencies. The strategy to address this challenge, however, recognising the organisational complexities of the NHS, will be both difficult to define and equally hard to implement.

This report has been developed to inform the thought-process behind any emerging strategy and evaluate the extent to which platform principles could be applied to the NHSE/I capital works portfolio. Whilst others have typically gravitated towards analysing the commonality and diversity of technical requirements, we have instead focused our attention upon the rich picture of market actors and their inter-relationships, to determine to what extent the current eco-system may facilitate or challenge a platform-based approach.

Aggregating multiple data sources (not least Freedom of Information returns from individual Trusts) we have developed and mapped the profile of the historical pipeline of capital works projects (valued at over £1m) completed between 2010 – 2020.

This analysis has reaffirmed the fragmentation and diversity of the Trusts themselves, with a broad range of sizes, service provision, local site characteristics and challenges. This is not to suggest however that there are no points of commonality.

Across the estate, capital investment is consistently split between new build and refurbishment, alongside a rapidly-growing backlog maintenance demand, now estimated to be worth £9.2bn.

There is a repetitious volume of lower value work, with circa 140 projects (valued between £1m - £10m) completed per annum. Conforming to the Pareto principle, this activity represents 80% of schemes by number, but only 20% of cost expenditure. The balance and bulk of investment is instead channelled towards larger-scale projects.

With the New Hospitals programme in motion, this profile is likely to become even more polarised. The quantity of schemes valued at more than £100m is projected to almost double this decade relative to the previous, with significant growth in the median size of schemes. The experience of delivering new projects worth at scale is a small and exclusive club, with a minority membership across all industry roles. Across both the professional design and main contracting fraternities the market is split principally into two distinct clusters:

» A long tail of organisations working on single, often low-value projects, typically as part of a broader portfolio of construction work
» A select group of healthcare specialists or market leaders that delivers regularly, often at scale.

The ability of either cluster to be able to scale and meet the future projected demand is an important question mark, offering encouragement to new market entrants. Equally this question around capacity and capability is not exclusive to the supply market, this review also queries the preparedness of the estate's teams themselves.

In 2017, the Naylor report challenged the depth of "skills and capacity in estates strategy and management"; the recent pressures of the pandemic and an impending growth in capital works may only serve to exacerbate this point.

These challenges reflects one dimension of a complex scenario, with systemic adjustments required within NHSE/I and client-side to realise the benefits of platform-based approach.

The Health Infrastructure Plan (HIP) acknowledged that a reformed system underpinning capital was required to make NHS fit for the future. The current system appears geared towards driving greater predictability in construction programmes, whilst the timescales for business case preparation and approvals continue to fluctuate, leaving ambiguity and uncertainty of demand. Modernisation of the planning, prioritisation and approval of works will be a critical step in enabling portfolio opportunities to be identified as a precursor to leveraging the benefits of platforms.

Similarly, the devolved status of the Trusts and independency of projects is a challenge to a platform-based approach. An organisational structure that provides degrees of centralised coordination is likely to be required, however, exactly where to draw the line across a complex network will need careful consideration.

Furthermore, to successfully embed platform principles a step-change in information sharing will be required across the healthcare network. The current lack of continuity of work at a project level represents a system inefficiency and blocker to the communication of lessons learnt and establishment of feedback loops. Whilst frameworks such as CCS and ProCure have enabled knowledge exchange, more can be done to create a state of shared consciousness amongst many independent organisations, rather than a select few. Collegiate forums such as Architects for Health have an instrumental role in providing momentum behind the collective responsibility of developing a culture of cooperative competition that supports continuous improvement across the sector level.

Taking forward these recommendations will be neither straightforward nor offer a quick fix; adopting a platform-based approach attracts a number of paradoxes and challenges. To realise sustainable value, a long-term strategy is therefore required, extending beyond the development of technical solutions and addressing managed change in process, skills and culture.

To achieve this will require commitment, drive and education –guiding and supporting both the supply market and those working client-side, within estates departments and professional advisory roles, to cultivate the conditions that enable transformational change. Their role in shifting the way of working will be as pivotal, if not more so, than the supply market response.

PART I

INTRODUCTION

INTRODUCTION

How we deliver our buildings is regularly cited as inefficient and unproductive; too often focused upon bespoke outputs delivered in project silos. With an established case for change, the government announced its commitment to Modern Methods of Construction (MMC) in 2017 with the presumption in favour of offsite construction. In December 2020, government expanded on this, via the Construction Playbook and by setting out specific proposals relating to "A Platform approach to Design for Manufacture and Assembly (P-DfMA)".

Publication of the IPA's Transforming Infrastructure Performance: Roadmap to 2030 has moved this further forward: outlining the vision and focus within government towards leveraging the use of platforms (standard, repeatable assets with interoperable components) to generate improved societal outcomes from its pipeline, enabling a "disaggregated manufacturing industry that creates stable and inclusive employment where jobs are most needed".

As part of the long-term health infrastructure plan, NHS England and NHS Improvement (NHSE/I) alongside the Department of Health and Social Care have embraced these principles. The New Hospital's Programme (NHP) has expressed its commitment towards a platform led approach, not least through the standardisation of processes and commonality of components and commodities.

"The NHP will embrace a holistic approach to MMC. We will maximise the use of digital design to drive a platform led kit of parts approach to achieve a step-change in productivity, cost-effectiveness, timeliness of delivery and carbon efficiencies"

- New Hospitals Programme

As the NHSE/I and NHP look forward to defining their future route map, we have taken this opportunity to look backwards – to review the historical pipeline of works commissioned by NHS Trusts and completed since 2010. Within this report, we aggregate and analyse historical data to profile the typology of historical work, the key market actors and their relationships, to evaluate the existing potential for adopting a platform-based approach across the NHS capital estate portfolio.

THE DATA

In promoting a platform-based approach, the Construction Innovation Hub's 'Defining the Need' report analysed a forecast £50bn five-year new build pipeline to determine how, as a proof of concept. future demand could be harmonised, digitised and rationalised. This demonstrated the power of an evidence-based approach to understanding the public sector estate, identifying synergies and otherwise untapped programmatic efficiencies.

Whilst the Hub chose to analyse a forward pipeline projection, this report instead reviews historical data to inform and evaluate the extent to which platform principles could be applied to the NHS capital works portfolio.

Informed by NHS Digital data (inc Estates Returns Information Collection) alongside intelligence received directly from Trusts and the supply market, we have mapped the profile of NHS capital works projects over £1m (excluding backlog maintenance) completed since 2010*, capturing:

» Over £20 billion investment
» Over 1,659 projects delivered across:
  » 212 Different Trusts
  » 407 Different Contractors
  » 288 Different Architects
  » 259 Different Structural Engineers
  » 285 Different Mechanical & Electrical Engineers

In aggregating this data we have created a rich picture of the historical pipeline commissioned by NHS Trusts and the profile of the supply market working in delivering public sector healthcare schemes across England.

Against this backdrop, we have overlaid the profile of the planned 40 new hospitals to provide observation, insight and recommendations for consideration.

1,659 SCHEMES

407 CONTRACTORS

288 ARCHITECTS

285 MECHANICAL + ELECTRICAL ENGINEERS

259 STRUCTURAL ENGINEERS

212 TRUSTS

*We recognise our data isn't perfect, so if you do spot something you think isn't quite right then please give us a call – we'd love to talk it through.

PART 2

WHAT ARE PLATFORMS?
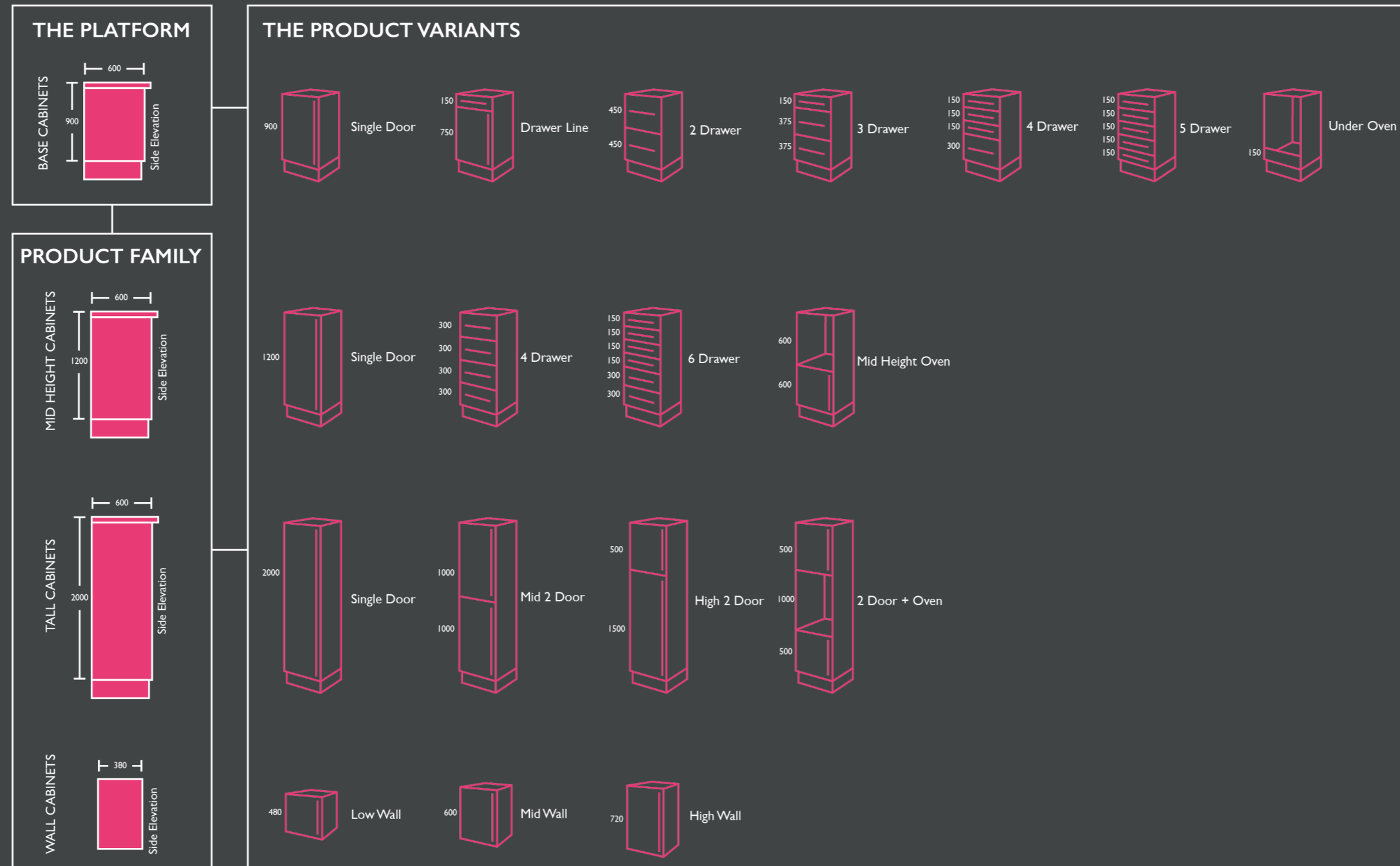
PLATFORMS PRINCIPLES

The word "platform" is used in everyday conversation, often in varying contexts: physical platforms, digital platforms, industry platforms, product platforms….. etc.

Synonymous with themes of standardisation and repeatability, platforms typically feature:

» a set of common (low variety) core assets (typically components, processes, knowledge, people or relationships)

» a complementary set of peripheral components that exhibit high variety;

» and stable interfaces that act as a bridge between the common core asset and variable peripherals, permitting innovation in the core and peripherals.

As a simplistic illustration of the concept, we would encourage you to consider the humble kitchen cabinet unit. The dimensions of cabinet sizes (and for that matter appliances) are generally standard across the country. In standardising a common unit size, manufacturers can produce core, low variety carcasses at scale whilst simultaneously offering a wide selection of configurations, functions and aesthetic features to suit individual choice in kitchens across the country.

Similar principles apply across a range of products and solutions that we all use on a daily basis. And yet our delivery of buildings is predominantly delivered as bespoke, one-offs.

THE PLATFORM

BASE CABINETS — 600 / 900 — Side Elevation

PRODUCT FAMILY

MID HEIGHT CABINETS — 600 / 1200 — Side Elevation

TALL CABINETS — 600 / 2000 — Side Elevation

WALL CABINETS — 380 — Side Elevation

THE PRODUCT VARIANTS

Row 1 — Base cabinets (900):
900 Single Door | Drawer Line (150/750) | 2 Drawer (450/450) | 3 Drawer (150/375/375/375) | 4 Drawer (150/150/150/300) | 5 Drawer (150/150/150/150/150) | Under Oven (150)

Row 2 — Mid Height cabinets (1200):
1200 Single Door | 4 Drawer (300/300/300/300) | 6 Drawer (150/150/150/150/300/300) | Mid Height Oven (600/600)

Row 3 — Tall cabinets (2000):
2000 Single Door | Mid 2 Door (1000/1000) | High 2 Door (500/1500) | 2 Door + Oven (500/1000/500)

Row 4 — Wall cabinets:
480 Low Wall | 600 Mid Wall | 720 High Wall

By applying the principles of common components, processes, knowledge and relationships, platforms have been successfully applied in manufacturing to deliver mass customised products and solutions at a reduced cost, faster and with lower risk. Seeking to offset issues such as low productivity, poor predictability and industry fragmentation, construction has regularly been encouraged to follow suit.

In 2017, Bryden Wood issued a seminal paper that brought this into closer focus; laying challenge as to whether the adoption of a platform-based approach could be applied in construction to stimulate a market capable of delivering high quality, low-carbon assets and unlock:

» Economies of scale and product development efficiencies (economies of scope)

» Whole-life value.

» Enhanced residual asset value and

» Mass customisation, adapted to a client's needs.

This vision articulated the government's strategic aim to leverage benefits across government spending by using standard, repeatable processes, designs and components.

"By increasing scale, platforms can achieve the economies (of scale) and consistency of pipeline that unlock the benefits of manufacturing"

Bryden Wood (2017)

Publications such as the Construction Playbook, "a Platform approach to Design for Manufacture and Assembly (P-DfMA)" and most recently the Transforming Infrastructure Performance: Roadmap to 2030 have reaffirmed a policy towards "procurement of construction projects based on product platforms comprising of standardised and interoperable components and assemblies".

The latter identifies the aspiration "*to generate greater societal outcomes from its pipeline by enabling a disaggregated manufacturing industry that creates stable and inclusive employment where jobs are most needed*".

Transforming Infrastructure Performance: Roadmap to 2030

BENEFITS

A platform-based approach is typically adopted to create a variety of products, on a reduced cost base. By sharing components and processes across a platform, companies can develop distinct products and solutions efficiently, whilst maintaining economies of scale and scope.

By shifting the horizon from individual projects to programmes, platforms offer the potential to leverage the re-use of knowledge, relationships and process to:

» Offset learning curves
» Mitigate repeat work and instead enable focused effort of all parties towards areas that add real value
» Reduce complexity and instead enhanced predictability and certainty of time, cost and quality
» Facilitate feedback loops that support continuous improvement (that truly apply Government Soft Landings) as opposed to repetitious reinvention

In healthcare, where significant user engagement is often absorbed in early design development, the opportunity to realise efficiencies through repeated use of space-planning principles and operation policies is sizeable.

During the pandemic, this was illustrated via BDP's development of the NHS Nightingale Instruction Manual. In establishing standard principles, adaptable to suit site specifics, the manual strategically applied a platform approach to expedite the design and delivery of a national programme, that learned from initial experiences at London's Excel Centre.

Courtesy: BDP https://www.bdp.com/globalassets/projects/nhs-nightingale-hospital/nhs-nightingale-instruction-manual.pdf
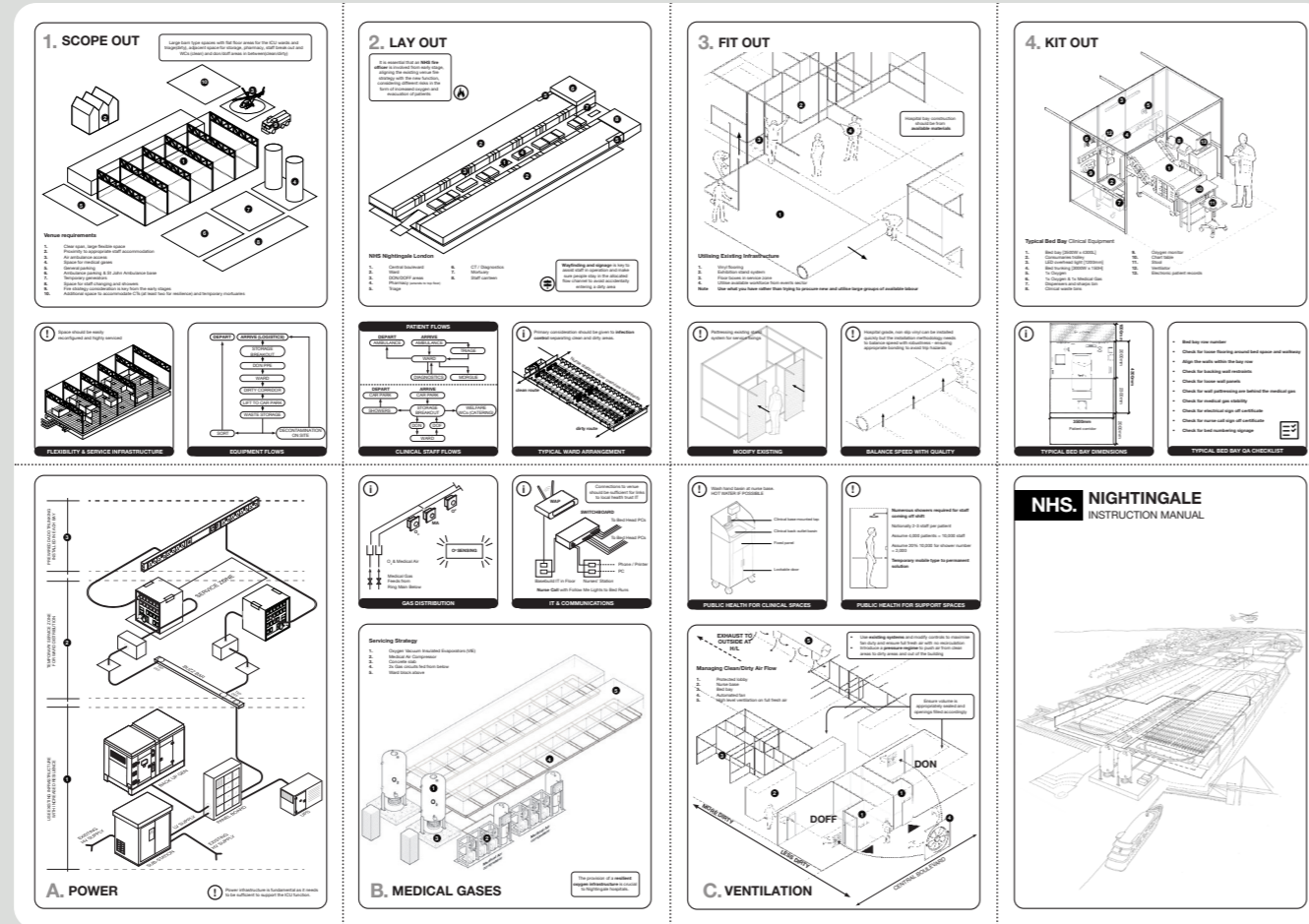
> *"Adopting a more manufacturing-led approach to public works projects and programmes will improve productivity and deliver better value for money"*
>
> ## Construction Playbook

The adoption of platform principles also offers a new paradigm to the construction industry by opening the door to a manufacturing-led approach. This affords the potential for benefits in both produced and natural capital:

Produced:
» Improved productivity, efficiency and predictability
» Reduction of on-site safety risk and labour congestion
» Enhanced quality control, with reduction of defects (due to factory quality assurance and techniques such as construction product quality planning (CPQP))
» Testing and commissioning in cleaner, protected facilities rather than on-site

Natural:
» Reduction in waste
» A greener approach, with a reduction in carbon footprint and impact upon the local environment
» Supports industry capable of transitioning to net zero.

All of the above create opportunities to reduce project costs and deliver enhanced value.

The potential ripple effect is equally appealing at an industry and societal level. The aggregation of demand and harmonisation of requirements for platform solutions unlocks opportunities for a wider, more diverse supply base, cultivating conditions that support the engagement of a disaggregated manufacturing industry.
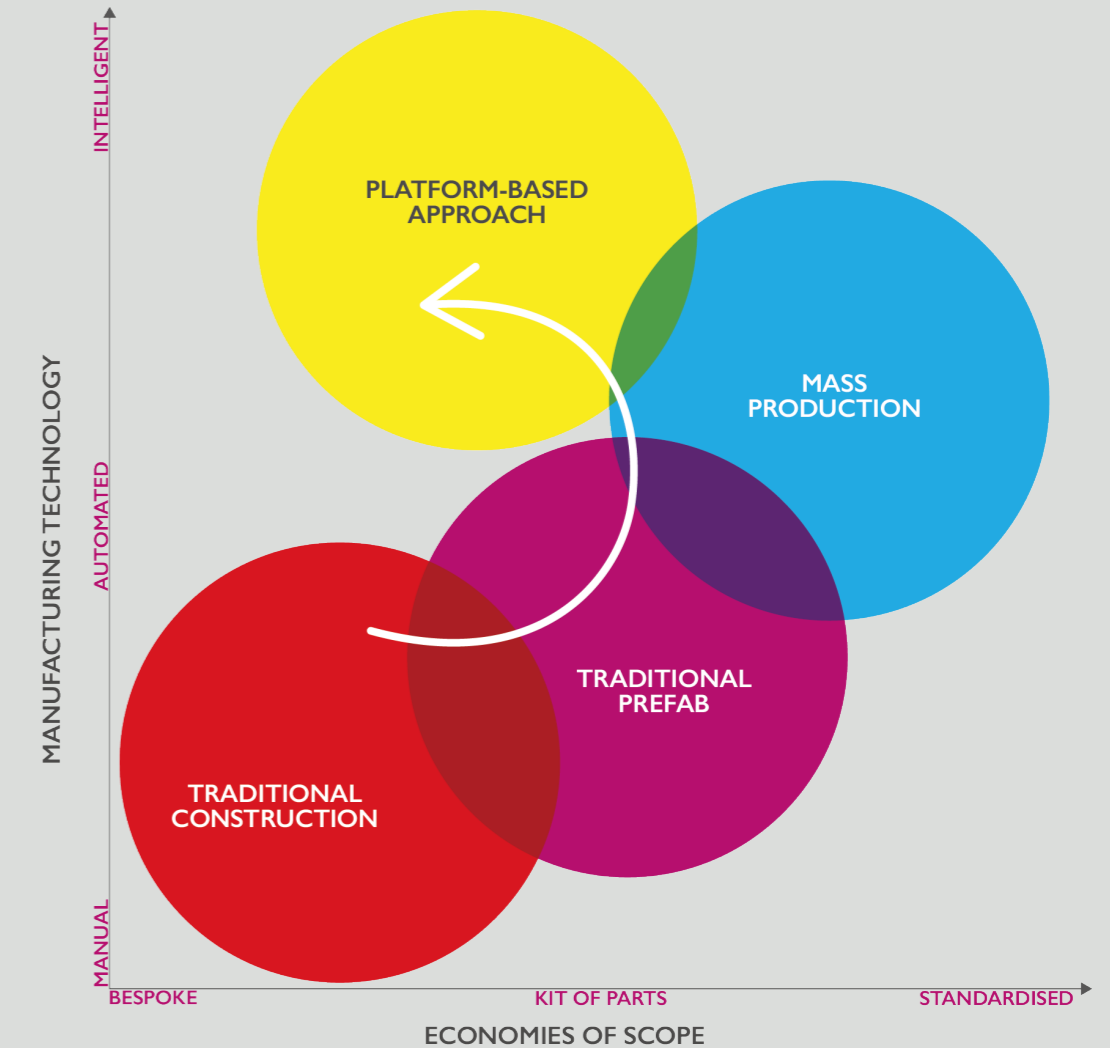
Adapted from a graphic created by Oliver David Kreig at Intelligent City.

BENEFITS OF A PLATFORM APPROACH

ENABLERS

- AGGREGATE & ANALYSE DEMAND
- STRATEGISE
- DEFINE OUTCOMES
- HARMONISE, DIGITISE, RATIONALISE

PRINCIPLES

- COMMON REPEATABLE ASSETS
  - COMMONALITY OF DESIGN
  - COMMONALITY OF PROCESS
  - COMMONALITY OF COMPONENTS
  - COMMONALITY OF RELATIONSHIP
- DELIVERY THROUGH MANUFACTURE AND ASSEMBLY

OUTPUTS

- ECONOMIES OF SCALE
- ECONOMIES OF SCOPE
- RE-USE OF KNOWLEDGE, PROCESS, MATERIALS
- OFFSET LEARNING CURVE

- MANUFACTURED SOLUTIONS
- OFFSITE PRODUCTION
- OFFSET LEARNING CURVE

DIRECT OUTCOMES

- VOLUME DISCOUNT /BULK BUY
- MINIMISE WASTE AND DUPLICATION
- FASTER DELIVERY (OPTIMISED DELIVERY)
- ENHANCED CERTAINTY (EARLIER)
- REDUCTION IN FEES/COST
- OPPORTUNITY TO FOCUS ON UNIQUE VALUE
- REDUCTION IN RISK/CONTINGENCY

- PRODUCTIVITY GAINS
- ENHANCED QA/ ASSURANCE
- SAFER ASSEMBLY
- REDUCED TRAINING REQUIREMENT
- ENHANCED PREDICATIBILITY OF PERFORMANCE
- REDUCTION IN WASTE
- REDUCED COMMUNITY IMPACT
- INCREASED OPERATOR PRODUCTIVITY

WIDER OUTCOMES

- SECTOR MODERNISATION & TRANSFORMATION

- ENABLES DISAGGREGATED MANUFACTURING INDUSTRY
- MITIGATES SKILLS & LABOUR SHORTAGES
- REDUCTION IN EMBODIED & OPERATIONAL EMISSIONS
- DISTRIBUTED EXPENDITURE, SUPPORTS DIVERSIFIED GROWTH
- CREATE STABLE & INCLUSIVE EMPLOYMENT
- SUPPORT TRANSITION TO NET ZERO INDUSTRIES

BETTER ECONOMIC, ENVIRONMENTAL, HEALTH & SOCIAL OUTCOMES

CONTINUOUS IMPROVEMENT - FEEDBACK LOOP

THE CHALLENGES

Whilst most research espouses the benefits of platforms, it is not a silver bullet. It is instead a strategic choice, requiring a clear vision and measured application to ensure it is appropriate to the context in which it is applied.

Key decisions surrounding the business case, the target market and the intended benefits are critical; so too is defining the divide between commonality and distinctiveness, to achieve the sensitive balance between standardisation and the need for distinction and flexibility.

"It's crucial that the government's approach [to platforms] builds in flexibility and facilitates the creativity of designers. The platform must be responsive enough to allow innovation where it can improve outcomes"

Royal Institute of British Architects

The complexities and challenges associated with defining and implementing a platform-based approach are not to be underestimated. Platform strategies require careful consideration of factors such as:

» variety in user needs
» the speed of change in requirements and standards,
» the demand pipeline,
» the market capability and appetite, as well as
» organisational and stakeholder dynamics.

To achieve this ambition within a healthcare sector, described by some as byzantine, will require focus, investment and discipline.

NHS TRUSTS · INDUSTRY

MARKET

NEEDS · CAPABILITIES

DESIGN UNCERTAINTY

ENVIRONMENT · TECHNOLOGY

STANDARDS/ LEGISLATION

REGULATORS
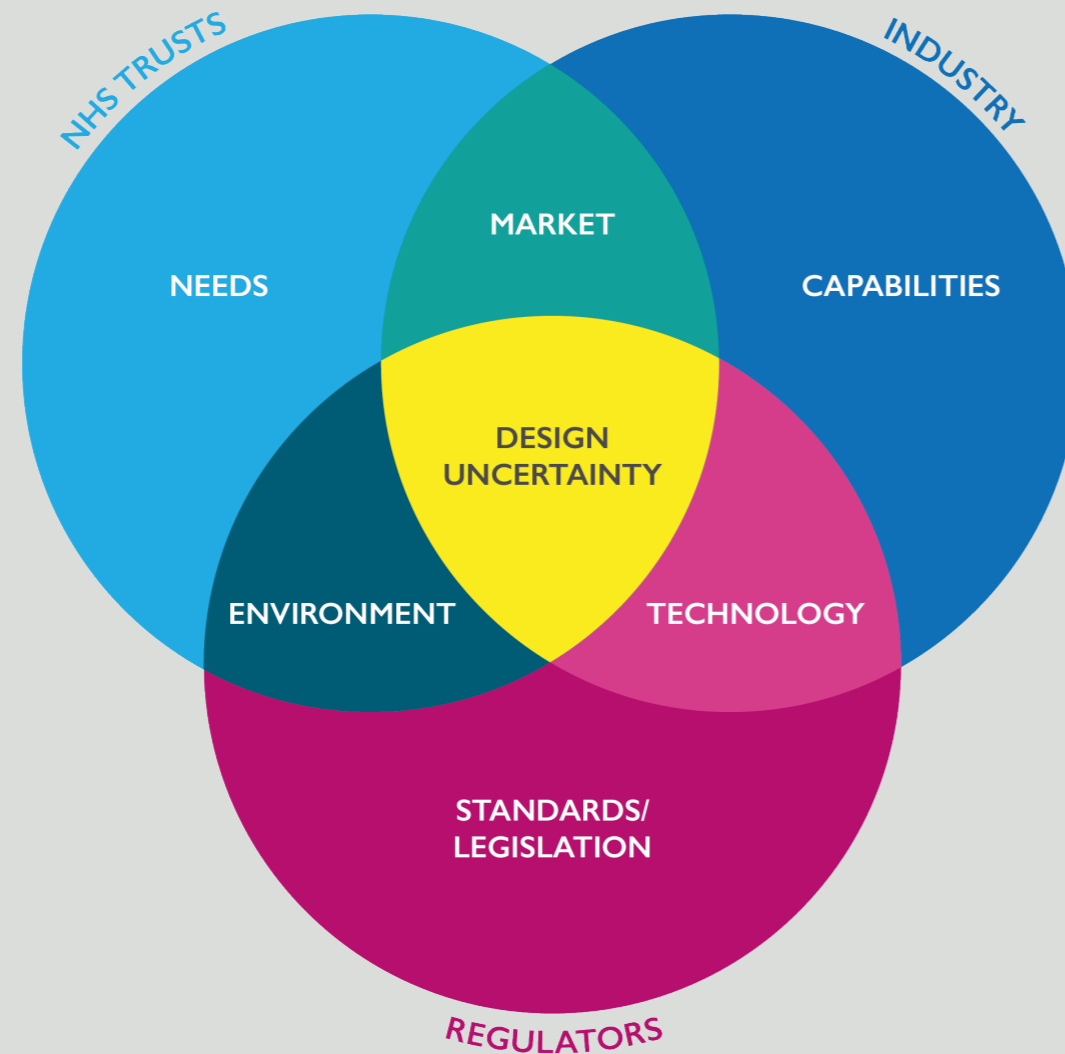
Adapted from Nadadur et al, 2012 'Strategic Product Design for Multiple Global Markets

The TIP Roadmap recognises the scale of this challenge and the transformation required, not only in developing technical solutions but in process, skills and culture.

The creation of an eco-system that enables a platform-based approach will need collaboration between both government and industry across a range of areas, including collective efforts to:

» **Harmonise, digitalise and rationalise requirements** – via updated, digitised and deployed technical guidance such as Health Building Notes (HBNs) and Health Technical Memoranda (HTMs) that support standardisation, where appropriate

» **Aggregate demand** – underpinned by a reformed system of capital allocation that provides the market with clarity and confidence in the future pipeline

» **Embed an operating model** – that maintains central co-ordination, focus and knowledge curation, whilst enabling local innovation.

The New Hospitals Programme, as the largest capital investment in hospitals in a generation, is a unique opportunity for the Department to apply these principles to realise transformational change. Equally, the Health Infrastructure Plan is not just about building new hospitals: **potential exists to apply these principles to other parts of the healthcare estate.**

HARMONISE, DIGITISE, AND RATIONALISE

AGGREGATE DEMAND

EMBED AN OPERATING MODEL
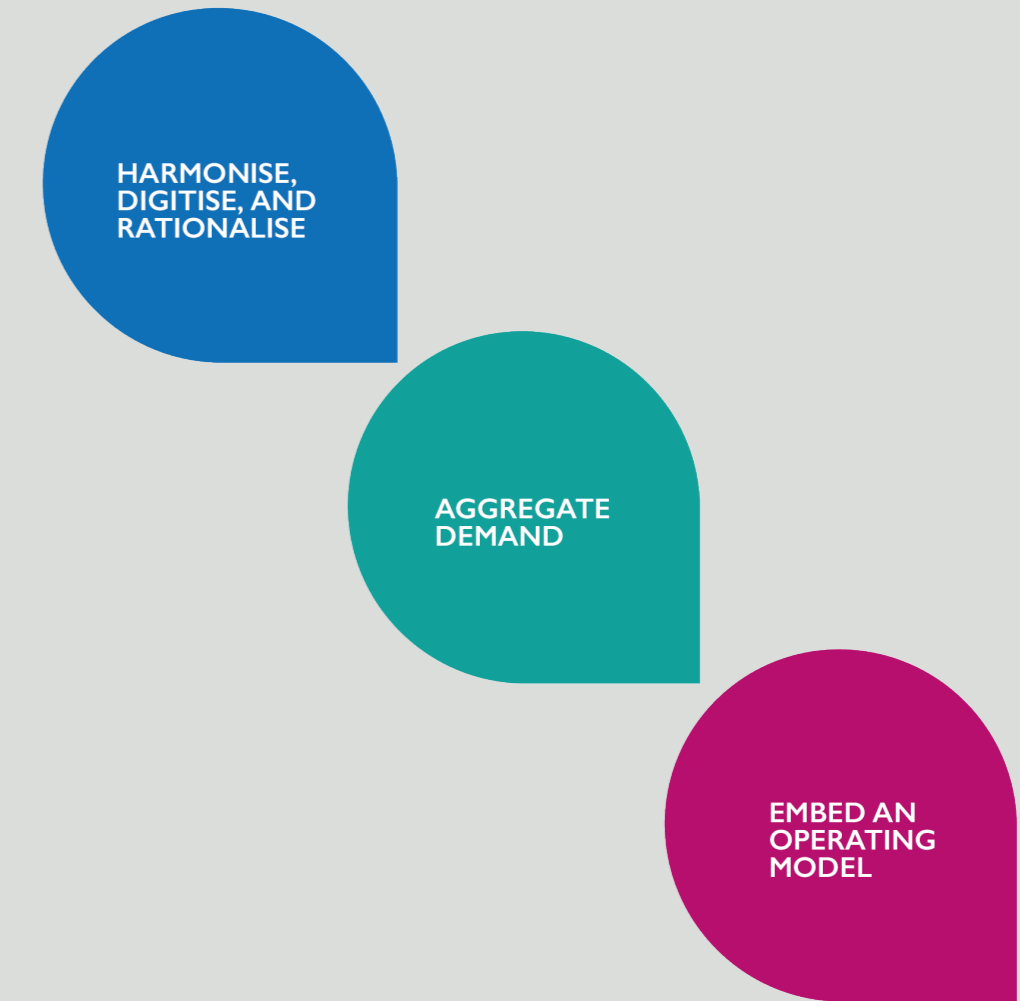
PLATFORMS IN HEALTHCARE

The healthcare sector has a strong history of developing and applying platform principles, balancing the ambitions of realising efficiencies through commonality, whilst catering for individual needs and priorities. The Health Building Notes (HBNs), whilst cognisant of local practice, were created to challenge a largely decentralised basis upon which design had hitherto proceeded.

In a similar vein, the Hospital Plan for England and Wales published 60 years ago, promised "*a systematic and progressive approach intended to promote economies of scale and medical efficiency*", underpinned by "*a presumption in favour of design standardisation*". This catalysed the development of the "Harness Hospital" system several years later, intended to establish "a standard kit of parts from which it would be possible to build an endless range of hospital [designs]'.

This heritage has carried forward into modern-day healthcare design – the Repeatable Room initiative and standard component library developed under the ProCure framework for example, has provided significant value to the Department and NHS, delivering capital cost savings, improved quality of delivery and operational efficiencies. Collaborative research such as UCL's "Challenging space frontiers in Hospitals" or Patricia Tzortzopoulos et al "Automated compliance checking in healthcare building design" illustrate the continuing investment and R&D focused towards developing innovation, manufacturing-based solutions in healthcare design and construction.

BENEFITS OF THE REPEATABLE ROOMS PROGRAMME

EFFICIENCY BENEFITS
- Saves design time and fees
- Framework discount rates
- Discounts for extended ranges
- Cost certainty/more robust cost plan
- Reduced time to site
- Faster Handover
- Focused clinical review time
- Readily available BIM models

QUALITY BENEFITS
- Evidence based and tested
- Visit and test real examples
- Clinical service user engagement
- Extended warranties
- Future flexibility
- Innovation
- Improved clinical outcomes
- Capture feedback and evolve

Timeline

Framework for Standardisation

- **1961** — Building Notes (HBNs)
- **1962** — A Hospital Plan for England & Wales
- **1964** — The Oxford Method
- **1967** — Best Buy standard hospitals / NHS Systems Approach
- **1968** — Standard Hospital Department
- **1969** — Harness Hospital System / Hospital Building Procedure Notes (HBPNs)
- **1974** — Nucleus Hospitals

- **2015** — ProCure Repeatable Rooms

Intelligent Hospitals

- **2022** — Standard Platform Designs / Batched Procurement
- **2030** — Continuous Production

SUPPORTING THE HEALTH INFRASTRUCTURE PLAN

As part of the long-term health infrastructure plan, NHSE/I alongside the Department of Health and Social Care have embraced platform principles to deliver better, faster, greener. The New Hospitals Programme, for example, is being driven by a centralised programmatic approach, with focus and commitment towards rationalisation and standardisation of processes, deployment of Modern Methods of Construction (MMC), and commonality of components and commodities.

"Adopting a common programmatic approach, with greater standardisation and repeatable design, will deliver efficiencies, maximise quality and reduce end-to-end delivery timescales."

New Hospitals Programme

The refresh, development and digitisation of Technical standards and guidance is intended to support this ambition whilst facilitating adapt to lessons learned and continual improvement.

Whilst others gravitate towards the standardisation of technical areas, such as components and process, we have instead chosen to explore the commonality of relationships, the market dynamics and eco-system that may facilitate and challenge this approach in equal measure.

Within this review, we have mapped/identified not only the work profile but also identify the key actors from a Trust and supply side, to identify relationships that may either carry forward or require adaptation.

STATUS QUO

| VERTICAL SUPPLY CHAIN | TRADITIONAL CONTRACTING | BARRIERS TO ENTRY FOR SMALL SUPPLIERS | SILOED PROJECTS | RISK DUMPING | COST ONLY SIGNAL TO THE MARKET |

HOW WE WANT TO DO THINGS DIFFERENTLY WITH NHP

Adapted From NHP Aspirations

| HORIZONTAL SUPPLY CHAIN | BROAD RANGE OF SUPPLIERS | PROGRAMMATIC/ MARKET LED | INCUBATE IDEAS & NEW ITERATIVE APPROACHES | PRODUCTISATION | VALUES BASED PROCUREMENT |

PART 3

THE TRUSTS

THE NHS TRUSTS

Legend:
- ACUTE
- MENTAL HEALTH
- SPECIALIST
- COMMUNITY
- AMBULANCE
- CARE TRUST

Airedale NHS Foundation Trust
Ashford and St Peter's Hospitals NHS Foundation Trust
Barking, Havering & Redbridge University Hospitals NHS Trust
Barnsley Hospital NHS Foundation Trust
Barts Health NHS Trust
Bedfordshire Hospitals NHS Foundation Trust
Blackpool Teaching Hospitals NHS Foundation Trust
Bolton NHS Foundation Trust
Bradford Teaching Hospitals NHS Foundation Trust
Buckinghamshire Healthcare NHS Trust
Calderdale and Huddersfield NHS Foundation Trust
Cambridge University Hospitals NHS Foundation Trust

Chelsea and Westminster Hospital NHS Foundation Trust
Chesterfield Royal Hospital NHS Foundation Trust
Countess of Chester Hospital NHS Foundation Trust
County Durham and Darlington NHS Foundation Trust
Croydon Health Services NHS Trust
Dartford and Gravesham NHS Trust
Doncaster and Bassetlaw Teaching Hospitals NHS Foundation Trust
Dorset County Hospital NHS Foundation Trust
East and North Hertfordshire NHS Trust
East Cheshire NHS Trust
East Kent Hospitals University NHS Foundation Trust
East Lancashire Hospitals NHS Trust
East Suffolk and North Essex NHS Foundation Trust
East Sussex Healthcare NHS Trust
Epsom and St Helier University Hospitals NHS Trust
Essex Partnership University NHS Foundation Trust
Frimley Health NHS Foundation Trust
Gateshead Health NHS Foundation Trust
George Eliot Hospital NHS Trust
Gloucestershire Hospitals NHS Foundation Trust

Great Western Hospitals NHS Foundation Trust
Guy's and St Thomas' NHS Foundation Trust
Hampshire Hospitals NHS Foundation Trust
Harrogate and District NHS Foundation Trust
Homerton University Hospital NHS Foundation Trust
Hull University Teaching Hospitals NHS Trust
Imperial College Healthcare NHS Trust
Isle of Wight NHS Trust
James Paget University Hospitals NHS Foundation Trust
Kettering General Hospital NHS Foundation Trust
King's College Hospital NHS Foundation Trust
Kingston Hospital NHS Foundation Trust
Lancashire Teaching Hospitals NHS Foundation Trust
Leeds Teaching Hospitals NHS Trust
Lewisham and Greenwich NHS Trust
Liverpool University Hospitals NHS Foundation Trust
London North West University Healthcare NHS Trust
Maidstone and Tunbridge Wells NHS Trust
Manchester University NHS Foundation Trust
Medway NHS Foundation Trust

Mid and South Essex NHS Foundation Trust
Mid Cheshire Hospitals NHS Foundation Trust
Mid Yorkshire Hospitals NHS Trust
Milton Keynes University Hospital NHS Foundation Trust
Norfolk and Norwich University Hospitals NHS Foundation Trust
North Bristol NHS Trust
North Cumbria Integrated Care NHS Foundation Trust
North Middlesex University Hospital NHS Trust
North Tees and Hartlepool NHS Foundation Trust
North West Anglia NHS Foundation Trust
Northampton General Hospital NHS Trust
Northern Care Alliance NHS Foundation Trust
Northern Devon Healthcare NHS Trust
Northern Lincolnshire and Goole NHS Foundation Trust
Northumbria Healthcare NHS Foundation Trust
Nottingham University Hospitals NHS Trust
Oxford University Hospitals NHS Foundation Trust
Portsmouth Hospitals University NHS Trust
Royal Berkshire NHS Foundation Trust
Royal Cornwall Hospitals NHS Trust

Royal Devon and Exeter NHS Foundation Trust
Royal Free London NHS Foundation Trust
Royal Surrey NHS Foundation Trust
Royal United Hospitals Bath NHS Foundation Trust
Salisbury NHS Foundation Trust
Sandwell and West Birmingham Hospitals NHS Trust
Sheffield Teaching Hospitals NHS Foundation Trust
Sherwood Forest Hospitals NHS Foundation Trust
Shrewsbury and Telford Hospital NHS Trust
Somerset NHS Foundation Trust
South Tees Hospitals NHS Foundation Trust
South Tyneside and Sunderland NHS Foundation Trust
South Warwickshire NHS Foundation Trust
Southport and Ormskirk Hospital NHS Trust
St George's University Hospitals NHS Foundation Trust
St Helens and Knowsley Teaching Hospitals NHS Trust
Stockport NHS Foundation Trust
Surrey and Sussex Healthcare NHS Trust
Tameside and Glossop Integrated Care NHS Foundation Trust
The Dudley Group NHS Foundation Trust

The Hillingdon Hospitals NHS Foundation Trust
The Newcastle Upon Tyne Hospitals NHS Foundation Trust
The Princess Alexandra Hospital NHS Trust
The Queen Elizabeth Hospital, King's Lynn, NHS Foundation Trust
The Rotherham NHS Foundation Trust
The Royal Wolverhampton NHS Trust
Torbay and South Devon NHS Foundation Trust
United Lincolnshire Hospitals NHS Trust
University College London Hospitals NHS Foundation Trust
University Hospital Southampton NHS Foundation Trust
University Hospitals Birmingham NHS Foundation Trust
University Hospitals Bristol and Weston NHS Foundation Trust
University Hospitals Coventry and Warwickshire NHS Trust
University Hospitals Dorset NHS Foundation Trust
University Hospitals of Derby and Burton NHS Foundation Trust
University Hospitals of Leicester NHS Trust
University Hospitals of Morecambe Bay NHS Foundation Trust
University Hospitals of North Midlands NHS Trust
University Hospitals Plymouth NHS Trust
University Hospitals Sussex NHS Foundation Trust

Walsall Healthcare NHS Trust
Warrington and Halton Teaching Hospitals NHS Foundation Trust
West Hertfordshire Teaching Hospitals NHS Trust
West Suffolk NHS Foundation Trust
Whittington Health NHS Trust
Wirral University Teaching Hospital NHS Foundation Trust
Worcestershire Acute Hospitals NHS Trust
Wrightington, Wigan and Leigh NHS Foundation Trust
Wye Valley NHS Trust
Yeovil District Hospital NHS Foundation Trust
York & Scarborough Teaching Hospitals NHS Foundation Trust
Avon and Wiltshire Mental Health Partnership NHS Trust
Barnet, Enfield and Haringey Mental Health NHS Trust
Berkshire Healthcare NHS Foundation Trust
Birmingham and Solihull Mental Health NHS Foundation Trust
Black Country Healthcare NHS Foundation Trust
Cambridgeshire and Peterborough NHS Foundation Trust
Central and North West London NHS Foundation Trust
Cheshire and Wirral Partnership NHS Foundation Trust
Cornwall Partnership NHS Foundation Trust

Coventry and Warwickshire Partnership NHS Trust
Cumbria, Northumberland, Tyne & Wear NHS Foundation Trust
Derbyshire Community Health Services NHS Foundation Trust
Devon Partnership NHS Trust
Dorset Healthcare University NHS Foundation Trust
East London NHS Foundation Trust
Gloucestershire Health and Care NHS Foundation Trust
Greater Manchester Mental Health NHS Foundation Trust
Hertfordshire Partnership University NHS Foundation Trust
Humber Teaching NHS Foundation Trust
Kent and Medway NHS and Social Care Partnership Trust
Lancashire and South Cumbria NHS Foundation Trust
Leeds and York Partnership NHS Foundation Trust
Leicestershire Partnership NHS Trust
Lincolnshire Partnership NHS Foundation Trust
Mersey Care NHS Foundation Trust
Midlands Partnership NHS Foundation Trust
Norfolk and Suffolk NHS Foundation Trust
North East London NHS Foundation Trust
North Staffordshire Combined Healthcare NHS Trust

Northamptonshire Healthcare NHS Foundation Trust
Nottinghamshire Healthcare NHS Foundation Trust
Oxford Health NHS Foundation Trust
Oxleas NHS Foundation Trust
Pennine Care NHS Foundation Trust
Rotherham Doncaster and South Humber NHS Foundation Trust
South London and Maudsley NHS Foundation Trust
South West London and St George's Mental Health NHS Trust
South West Yorkshire Partnership NHS Foundation Trust
Southern Health NHS Foundation Trust
Surrey and Borders Partnership NHS Foundation Trust
Sussex Partnership NHS Foundation Trust
Tavistock and Portman NHS Foundation Trust
Tees, Esk and Wear Valleys NHS Foundation Trust
West London NHS Trust
Alder Hey Children's NHS Foundation Trust
Birmingham Women's and Children's NHS Foundation Trust
Great Ormond Street Hospital For Children NHS Foundation Trust
Liverpool Heart and Chest Hospital NHS Foundation Trust
Liverpool Women's NHS Foundation Trust

Moorfields Eye Hospital NHS Foundation Trust
Queen Victoria Hospital NHS Foundation Trust
Royal National Orthopaedic Hospital NHS Trust
Royal Papworth Hospital NHS Foundation Trust
Sheffield Children's NHS Foundation Trust
The Christie NHS Foundation Trust
The Clatterbridge Cancer Centre NHS Foundation Trust
The Robert Jones and Agnes Hunt Orthopaedic Hospital NHS Foundation Trust
The Royal Marsden NHS Foundation Trust
The Royal Orthopaedic Hospital NHS Foundation Trust
The Walton Centre NHS Foundation Trust
Birmingham Community Healthcare NHS Foundation Trust
Bridgewater Community Healthcare NHS Foundation Trust
Cambridgeshire Community Services NHS Trust
Central London Community Healthcare NHS Trust
Derbyshire Healthcare NHS Foundation Trust
Herefordshire and Worcestershire Health and Care NHS Trust
Hertfordshire Community NHS Trust
Hounslow & Richmond Community Healthcare NHS Trust
Kent Community Health NHS Trust

Leeds Community Healthcare NHS Trust
Lincolnshire Community Health Services NHS Trust
Norfolk Community Health and Care NHS Trust
Shropshire Community Health NHS Trust
Solent NHS Trust
Sussex Community NHS Foundation Trust
Wirral Community NHS Foundation Trust
East Midlands Ambulance Service NHS Trust
East of England Ambulance Service NHS Trust
London Ambulance Service NHS Trust
North East Ambulance Service NHS Foundation Trust
North West Ambulance Service NHS Trust
South Central Ambulance Service NHS Foundation Trust
South East Coast Ambulance Service NHS Foundation Trust
South Western Ambulance Service NHS Foundation Trust
West Midlands Ambulance Service NHS Foundation Trust
Yorkshire Ambulance Service NHS Trust
Bradford District Care NHS Foundation Trust
Camden and Islington NHS Foundation Trust
Sheffield Health & Social Care NHS Foundation Trust

CAPITAL INVESTMENT PROFILE

With the NHS estate recognised as one of the key enablers to change in the health system, the profile of capital investment has a critical link to the NHS' ability to operate efficiently, manage demand and meet healthcare needs. This point has been brought into sharp focus during the pandemic, with Trusts with an outdated estate finding it more difficult to reconfigure sites to accommodate social distancing and infection, prevention and control.
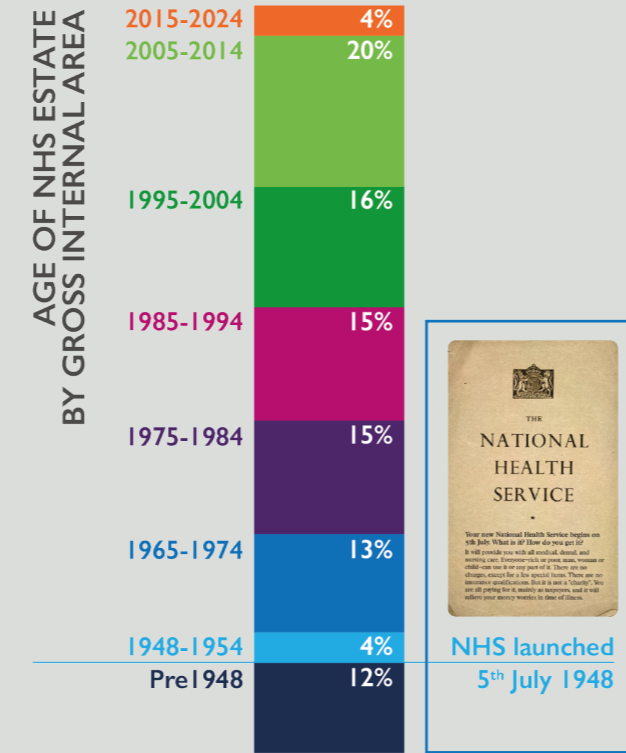
The past decade has seen a decline in capital spending by the Department in real terms, whilst the scale of backlog maintenance has more than doubled in the same period (now reported at more than £9bn with 50% identified as significant or high risk). The Naylor Review, the 2020 National Audit Office report and other research has repetitively flagged the challenge of delivering the NHS Long Term Plan and maintaining high-quality patient care with an ageing estate, within budgetary constraints.

Notwithstanding, during the period between 2015-2020, an average of £2.0bn per annum was invested by Trusts in both new buildings and refurbishment (excluding backlog maintenance). The scale of this investment is expected to grow in the future.

In 2019, the Department released its healthcare infrastructure plan (HIP); a long-term, rolling five-year programme of investment in health infrastructure, with increases to budgets for capital investment. At the epicentre of this, is the new hospital programme (NHP) with a commitment to more than 40 hospital building projects between 2020-2030.

Whilst there is debate as to whether the HIP goes far enough, the point remains that when aggregated, the NHS holds a significant capital investment profile* –large enough to warrant consideration towards a platform-based approach.

* The Department of Health is one of 5 departments that collectively represent circa two-thirds of publicly funded capital spending

AGE OF NHS ESTATE BY GROSS INTERNAL AREA

Period	%
2015-2024	4%
2005-2014	20%
1995-2004	16%
1985-1994	15%
1975-1984	15%
1965-1974	13%
1948-1954	4%
Pre1948	12%

THE
NATIONAL
HEALTH
SERVICE

NHS launched
5th July 1948

Source: ERIC Data.
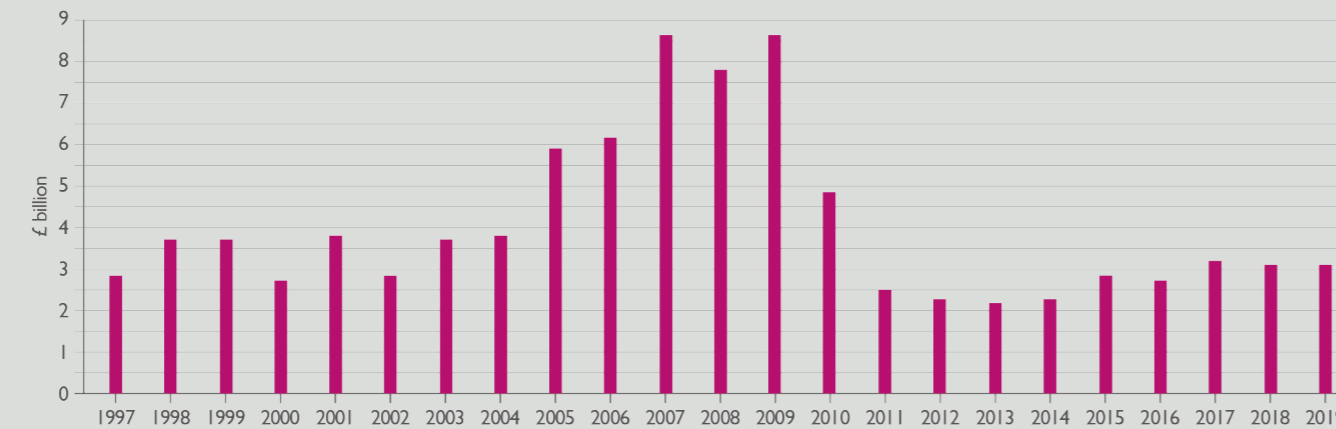
Expenditure on healthcare gross fixed capital formation (Infrastructure) in real terms, 1997-2019, UK
Source: Office for National Statistics - UK Health Accounts. Notes: Figures are presented in real terms, adjusted for inflation using the GDP deflator.

THE SHAPE OF THE NHS TRUSTS

The organisational shape of the NHS regularly evolves.

The Hospital Plan of 1962 recast a patchwork of 2,000 services into around 400 hospitals, serving populations of between 100,000 and 150,000. By 2015 the number of acute foundation Trusts and NHS Trusts had dropped to nearer 150, and their average population had risen to 350,000.

In total there are now 212 NHS Trusts (including those with foundation status), covering a variety of service provisions.

As a trend of mergers has continued through the past decade, so too has the increased range of scale, complexity and service provision. The size of Guy's and St Thomas', as a super-Trust (holding an annual turnover of more than £2 billion) is now almost 35 times bigger than its smallest peer, Tavistock and Portman NHS Foundation Trust. Equally, whilst 16 Trusts act as specialist providers, several organisations have expanded to provide integrated care with acute, mental health and community provision under a single umbrella.

This is further complicated by a multi-tier funding system, created through the use of separate rules around local capital spending limits for NHS Foundations Trusts (FTs - a status held by 68% of all Trusts), NHS Trusts and Trusts in financial distress.

Such diversity, spread across 212 provider Trusts, is a significant consideration in defining opportunities for commonality and the focus of a platform approach. So too is the profile of the capital investment ……
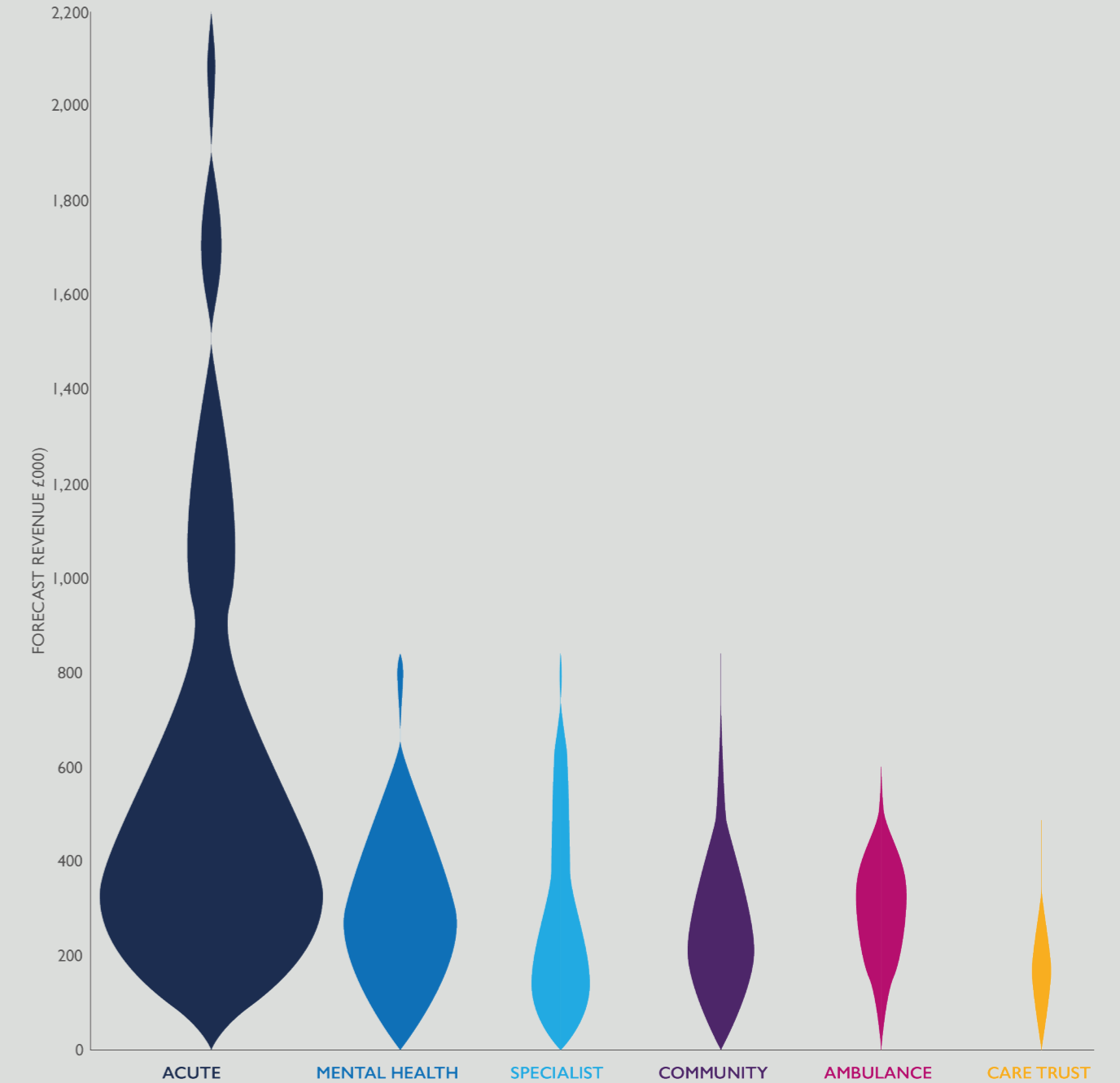
Source: NHS Digital Patient Level Information and Costing System (PLICS) Data Collections, Integrated Trust Specific Summary Report 2020/21

DISAGGREGATED DEMAND

Reviewing the investment profile at the macro level highlights the potential scale that could be leveraged, however, it does not convey the distribution and disaggregation of expenditure across the Trusts.

This visual illustrates the proportionate scale of capital expenditure invested (excluding backlog maintenance) since 2010, highlighting the complexity of the demand side ecosystem.

ACUTE

MENTAL HEALTH

SPECIALIST

COMMUNITY

AMBULANCE

CARE TRUST

£50m = 50mm

1   Airedale NHS Foundation Trust
2   Alder Hey Children's NHS Foundation Trust
3   Ashford and St Peter's Hospitals NHS Foundation Trust
4   Avon and Wiltshire Mental Health Partnership NHS Trust
5   Barking, Havering and Redbridge University Hospitals NHS Trust
6   Barnet, Enfield and Haringey Mental Health NHS Trust
7   Barnsley Hospital NHS Foundation Trust
8   Barts Health NHS Trust
9   Bedfordshire Hospitals NHS Foundation Trust
10 Berkshire Healthcare NHS Foundation Trust
11 Birmingham and Solihull Mental Health NHS Foundation Trust
12 Birmingham Community Healthcare NHS Foundation Trust
13 Birmingham Women's and Children's NHS Foundation Trust
14 Black Country Healthcare NHS Foundation Trust
15 Blackpool Teaching Hospitals NHS Foundation Trust
16 Bradford District Care NHS Foundation Trust
17 Bradford Teaching Hospitals NHS Foundation Trust
18 Bridgewater Community Healthcare NHS Foundation Trust
19 Buckinghamshire Healthcare NHS Trust
20 Calderdale and Huddersfield NHS Foundation Trust
21 Cambridge University Hospitals NHS Foundation Trust
22 Camden and Islington NHS Foundation Trust
23 Central London Community Healthcare NHS Trust
24 Chelsea and Westminster Hospital NHS Foundation Trust
25 Cheshire and Wirral Partnership NHS Foundation Trust
26 Chesterfield Royal Hospital NHS Foundation Trust
27 Cornwall Partnership NHS Foundation Trust
28 Countess of Chester Hospital NHS Foundation Trust
29 County Durham and Darlington NHS Foundation Trust
30 Coventry and Warwickshire Partnership NHS Trust
31 Croydon Health Services NHS Trust
32 Cumbria, Northumberland, Tyne and Wear NHS Foundation Trust
33 Dartford and Gravesham NHS Trust
34 Derbyshire Community Health Services NHS Foundation Trust
35 Derbyshire Healthcare NHS Foundation Trust
36 Devon Partnership NHS Trust
37 Doncaster & Bassetlaw Teaching Hospitals NHS Foundation Trust
38 Dorset County Hospital NHS Foundation Trust
39 Dorset Healthcare University NHS Foundation Trust
40 East and North Hertfordshire NHS Trust
41 East Cheshire NHS Trust
42 East Kent Hospitals University NHS Foundation Trust
43 East Lancashire Hospitals NHS Trust
44 East London NHS Foundation Trust
45 East Midlands Ambulance Service NHS Trust
46 East of England Ambulance Service NHS Trust
47 East Suffolk and North Essex NHS Foundation Trust
48 East Sussex Healthcare NHS Trust
49 Epsom and St Helier University Hospitals NHS Trust
50 Essex Partnership University NHS Foundation Trust
51 Frimley Health NHS Foundation Trust
52 Gateshead Health NHS Foundation Trust
53 George Eliot Hospital NHS Trust
54 Gloucestershire Hospitals NHS Foundation Trust
55 Great Ormond Street Hospital for Children NHS Foundation Trust
56 Great Western Hospitals NHS Foundation Trust
57 Greater Manchester Mental Health NHS Foundation Trust
58 Guy's and St Thomas' NHS Foundation Trust
59 Hampshire Hospitals NHS Foundation Trust
60 Harrogate and District NHS Foundation Trust
61 Herefordshire and Worcestershire Health and Care NHS Trust
62 Hertfordshire Community NHS Foundation Trust
63 Hertfordshire Partnership University NHS Foundation Trust
64 Homerton University Hospital NHS Foundation Trust
65 Hounslow and Richmond Community Healthcare NHS Trust
66 Hull University Teaching Hospitals NHS Trust
67 Humber Teaching NHS Foundation Trust
68 Imperial College Healthcare NHS Trust
69 Isle of Wight NHS Trust
70 James Paget University Hospitals NHS Foundation Trust
71 Kent and Medway NHS and Social Care Partnership Trust
72 Kent Community Health NHS Foundation Trust
73 Kettering General Hospital NHS Foundation Trust
74 King's College Hospital NHS Foundation Trust
75 Kingston Hospital NHS Foundation Trust
76 Lancashire and South Cumbria NHS Foundation Trust
77 Lancashire Teaching Hospitals NHS Foundation Trust
78 Leeds and York Partnership NHS Foundation Trust
79 Leeds Community Healthcare NHS Trust
80 Leeds Teaching Hospitals NHS Trust
81 Leicestershire Partnership NHS Trust
82 Lewisham and Greenwich NHS Trust
83 Lincolnshire Community Health Services NHS Trust
84 Lincolnshire Partnership NHS Foundation Trust
85 Liverpool Heart and Chest Hospital NHS Foundation Trust
86 Liverpool University Hospitals NHS Foundation Trust
87 Liverpool Women's NHS Foundation Trust
88 London Ambulance Service NHS Trust
89 London North West University Healthcare NHS Trust
90 Maidstone and Tunbridge Wells NHS Trust
91 Manchester University NHS Foundation Trust
92 Medway NHS Foundation Trust
93 Mersey Care NHS Foundation Trust
94 Mid and South Essex NHS Foundation Trust
95 Mid Cheshire Hospitals NHS Foundation Trust
96 Mid Yorkshire Hospitals NHS Trust
97 Midlands Partnership NHS Foundation Trust
98 Milton Keynes University Hospital NHS Foundation Trust
99 Norfolk and Suffolk NHS Foundation Trust
100 Norfolk Community Health and Care NHS Trust
101 North Bristol NHS Trust
102 North Cumbria Integrated Care NHS Foundation Trust
103 North East London NHS Foundation Trust
104 North Middlesex University Hospital NHS Trust
105 North Staffordshire Combined Healthcare NHS Trust
106 North Tees and Hartlepool NHS Foundation Trust
107 North West Ambulance Service NHS Trust
108 North West Anglia NHS Foundation Trust
109 Northampton General Hospital NHS Trust
110 Northamptonshire Healthcare NHS Foundation Trust
111 Northern Care Alliance NHS Foundation Trust
112 Northern Devon Healthcare NHS Trust
113 Northern Lincolnshire and Goole NHS Foundation Trust
114 Northumbria Healthcare NHS Foundation Trust
115 Nottingham University Hospitals NHS Trust
116 Nottinghamshire Healthcare NHS Foundation Trust
117 Oxford Health NHS Foundation Trust
118 Oxford University Hospitals NHS Foundation Trust
119 Oxleas NHS Foundation Trust
120 Pennine Care NHS Foundation Trust
121 Portsmouth Hospitals University NHS Trust
122 Queen Victoria Hospital NHS Foundation Trust
123 Rotherham Doncaster and South Humber NHS Foundation Trust
124 Royal Berkshire NHS Foundation Trust
125 Royal Cornwall Hospitals NHS Trust
126 Royal Devon and Exeter NHS Foundation Trust
127 Royal Free London NHS Foundation Trust
128 Royal National Orthopaedic Hospital NHS Trust
129 Royal Papworth Hospital NHS Foundation Trust
130 Royal Surrey NHS Foundation Trust
131 Royal United Hospitals Bath NHS Foundation Trust
132 Salisbury NHS Foundation Trust
133 Sandwell and West Birmingham Hospitals NHS Trust
134 Sheffield Children's NHS Foundation Trust
135 Sheffield Health & Social Care NHS Foundation Trust
136 Sheffield Teaching Hospitals NHS Foundation Trust
137 Sherwood Forest Hospitals NHS Foundation Trust
138 Shrewsbury and Telford Hospital NHS Trust
139 Shropshire Community Health NHS Trust
140 Solent NHS Trust
141 Somerset NHS Foundation Trust
142 South Central Ambulance Service NHS Foundation Trust
143 South East Coast Ambulance Service NHS Foundation Trust
144 South London and Maudsley NHS Foundation Trust
145 South Tees Hospitals NHS Foundation Trust
146 South Tyneside and Sunderland NHS Foundation Trust
147 South Warwickshire NHS Foundation Trust
148 South West London and St George's Mental Health NHS Trust
149 South West Yorkshire Partnership NHS Foundation Trust
150 South Western Ambulance Service NHS Foundation Trust
151 Southern Health NHS Foundation Trust
152 Southport and Ormskirk Hospital NHS Trust
153 St George's University Hospitals NHS Foundation Trust
154 St Helens and Knowsley Teaching Hospitals NHS Trust
155 Stockport NHS Foundation Trust
156 Surrey and Borders Partnership NHS Foundation Trust
157 Sussex Community NHS Foundation Trust
158 Sussex Partnership NHS Foundation Trust
159 Tameside and Glossop Integrated Care NHS Foundation Trust
160 Tavistock and Portman NHS Foundation Trust
161 Tees, Esk and Wear Valleys NHS Foundation Trust
162 The Christie NHS Foundation Trust
163 The Clatterbridge Cancer Centre NHS Foundation Trust
164 The Dudley Group NHS Foundation Trust
165 The Hillingdon Hospitals NHS Foundation Trust
166 The Newcastle Upon Tyne Hospitals NHS Foundation Trust
167 The Princess Alexandra Hospital NHS Trust
168 The Robert Jones & Agnes Hunt Orthopaedic Hospital NHSFT
169 The Rotherham NHS Foundation Trust
170 The Royal Marsden NHS Foundation Trust
171 The Royal Orthopaedic Hospital NHS Foundation Trust
172 The Royal Wolverhampton NHS Trust
173 The Walton Centre NHS Foundation Trust
174 Torbay and South Devon NHS Foundation Trust
175 United Lincolnshire Hospitals NHS Trust
176 University College London Hospitals NHS Foundation Trust
177 University Hospital Southampton NHS Foundation Trust
178 University Hospitals Birmingham NHS Foundation Trust
179 University Hospitals Bristol and Weston NHS Foundation Trust
180 University Hospitals Dorset NHS Foundation Trust
181 University Hospitals of Derby and Burton NHS Foundation Trust
182 University Hospitals of Leicester NHS Trust
183 University Hospitals of Morecambe Bay NHS Foundation Trust
184 University Hospitals of North Midlands NHS Trust
185 University Hospitals Plymouth NHS Trust
186 University Hospitals Sussex NHS Foundation Trust
187 Walsall Healthcare NHS Trust
188 Warrington and Halton Teaching Hospitals NHS Foundation Trust
189 West Hertfordshire Teaching Hospitals NHS Trust
190 West London NHS Trust
191 West Midlands Ambulance Service NHS Foundation Trust
192 West Suffolk NHS Foundation Trust
193 Whittington Health NHS Trust
194 Wirral Community Health & Care NHS Trust
195 Worcestershire Acute Hospitals NHS Trust
196 Wrightington, Wigan and Leigh NHS Foundation Trust
197 Wye Valley NHS Trust
198 York and Scarborough Teaching Hospitals NHS Foundation Trust
199 Yorkshire Ambulance Service NHS Trust

Note: 13 Trusts did not commission work over £1m in value
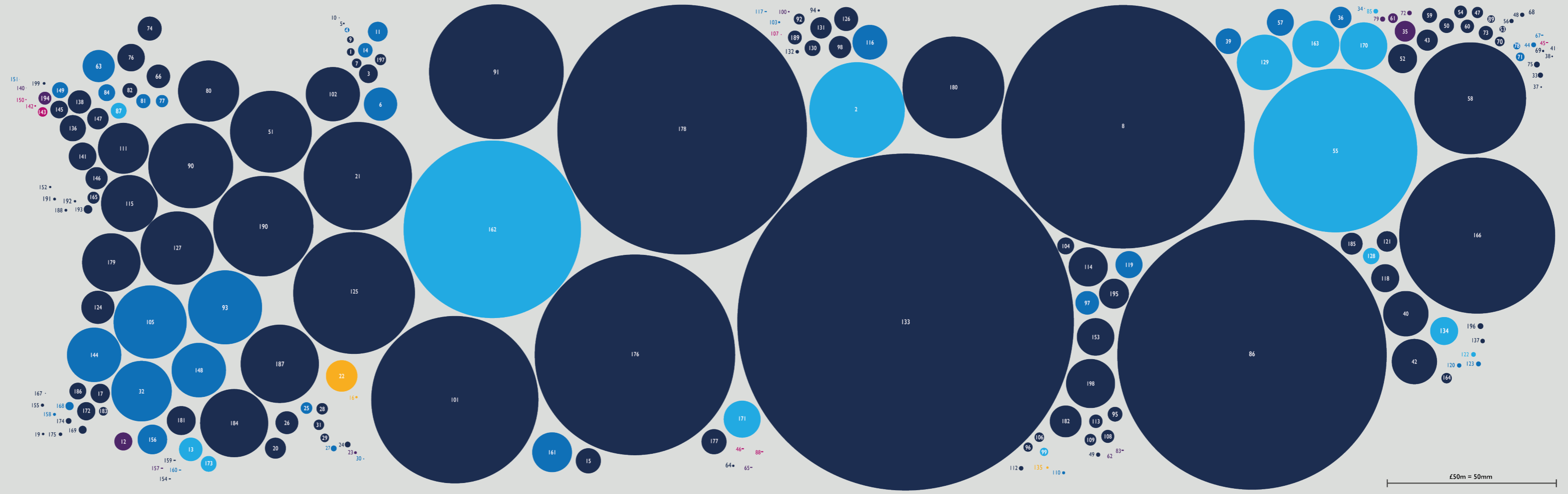
CONSISTENTLY INCONSISTENT

The disaggregation of demand is further complicated by a disjointed and opaque capital allocation system, managed within annual limits.

This position was compounded midway through the last decade, with repeated transfers from the capital budget (intended to finance long-term investments) to the revenue budget in addressing, immediate spending pressures.

A total of £4.3bn of funding was transferred from capital to revenue spending between 2014/15 and 2018/19.

National Audit Office

"Pipelines should look ahead three to five years to be truly effective"

Construction Playbook
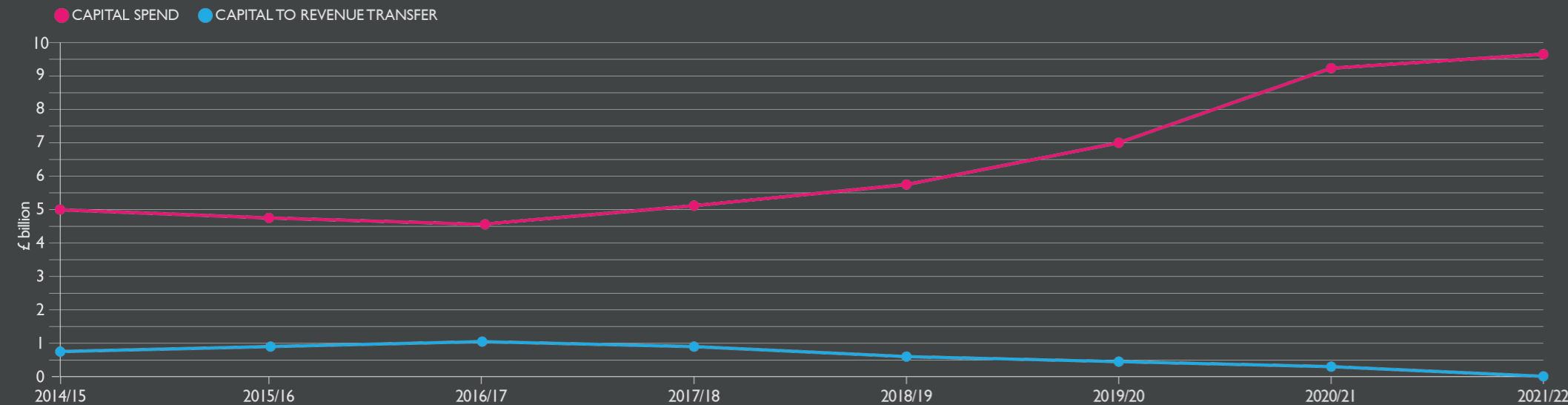
The lack of budget certainty beyond a short-term, annual horizon has frustrated both Trusts and the supply market in equal measure in their attempts to plan and deliver long-term improvements.

A lack of predictability is a key blocker when investing in a platform-based approach. The Construction Playbook reaffirms the importance of pipeline visibility to stimulate market engagement, wider participation from a diverse supply base and investment in technology and capability.

The Health Infrastructure Plan acknowledges that the approach to capital funding allocation has become outdated, overly bureaucratic and not conducive to the effective delivery of projects.

The government has therefore committed to enabling improved certainty by establishing a multi-year horizon, whilst maintaining an ability to provide capital investment to unforeseen issues.

In addition, the Government has also committed to "build capability and capacity in strategic estates planning and management across the system…. enabling local NHS organisations to take a more strategic approach".

Despite this national commitment, the number of Trusts lacking a Board approved Estates Development Strategy, has increased by a factor of 160% since 2014. Such gaps in planning at a local level represent a blocker to the aggregation of pipeline at a macro level.

DEVELOPMENT STRATEGY

- YES
- NO
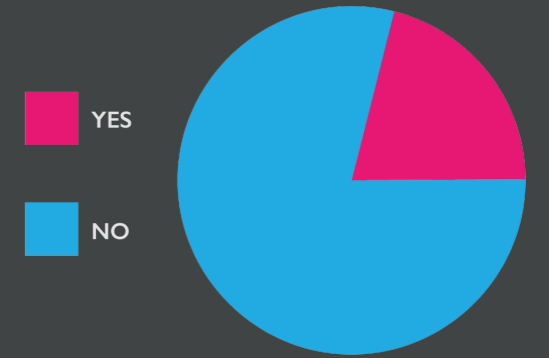
Proportion of Trusts with Estates Development Strategy (2020/21 ERIC data)

- CAPITAL SPEND
- CAPITAL TO REVENUE TRANSFER

£ billion

2014/15 2015/16 2016/17 2017/18 2018/19 2019/20 2020/21 2021/22

NHS   TRUST   CONTRACTOR   SUBCONTRACTOR   MANUFACTURER

NHSE/I - DEMAND   MANUFACTURER - FORECAST

SMALL CHANGES IN THE PIPELINE/DEMAND CAN PRODUCE A WHIP-LIKE EFFECT ALONG THE VALUE CHAIN
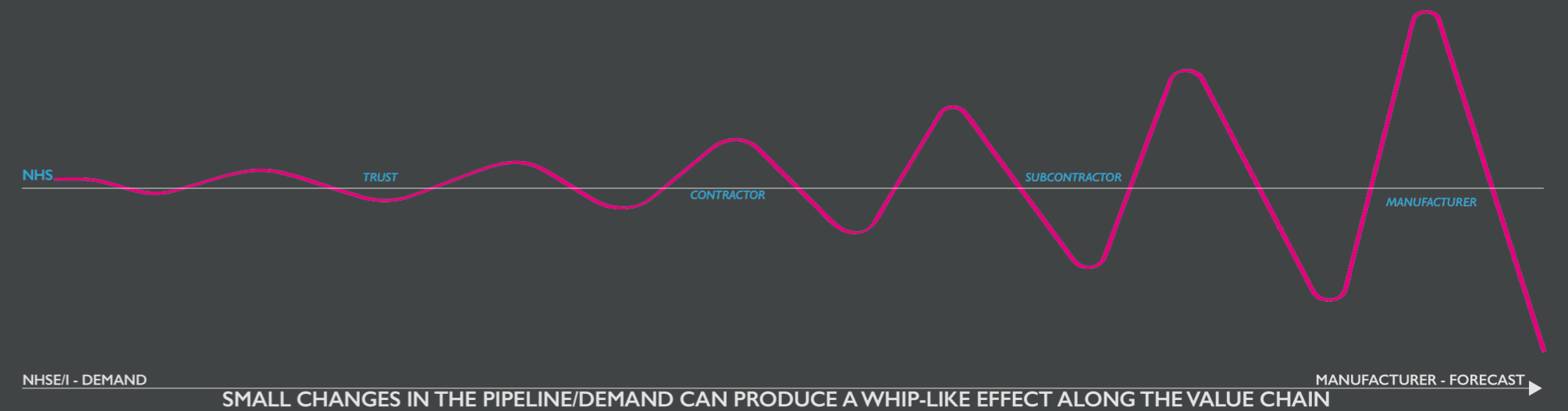
PART 4

HISTORICAL PIPELINE

WORK TYPE

On average, circa three-quarters of capital expenditure investment in new and improved buildings in the past decade was spent in the acute sector. At a macro level, this pattern closely correlates with the Trust revenue distribution.

The split between new build and refurbishment was generally equal, albeit two outliers exist: specialist hospitals have typically involved a greater proportion of new build work, whilst almost 90% of work for community Trusts was improvements to existing facilities.

Circa 75% of NHS Trust capital expenditure is spent in the acute sector.

IMPROVEMENTS
(EXCLUDING BACKLOG)

NEW BUILD

AREA=Expenditure in new and improved buildings (£m)

The split between new build and refurbishment (excluding backlog maintenance) is almost 50:50.

% of IMPROVEMENTS
(EXCLUDING BACKLOG)

Average spend
£1.17bn p.a.

% of NEW BUILD

Average spend
£1.244bn p.a.

OVERALL

CARE TRUST

AMBULANCE

COMMUNITY

SPECIALIST

MENTAL HEALTH

ACUTE

Average expenditure across ERIC data 2014-2020

GEOGRAPHICAL DISTRIBUTION

Geographically, work activity was distributed across the country, with no defined pattern other than a loose correlation with the population density of England.

NUMBER OF PROJECTS

1

5
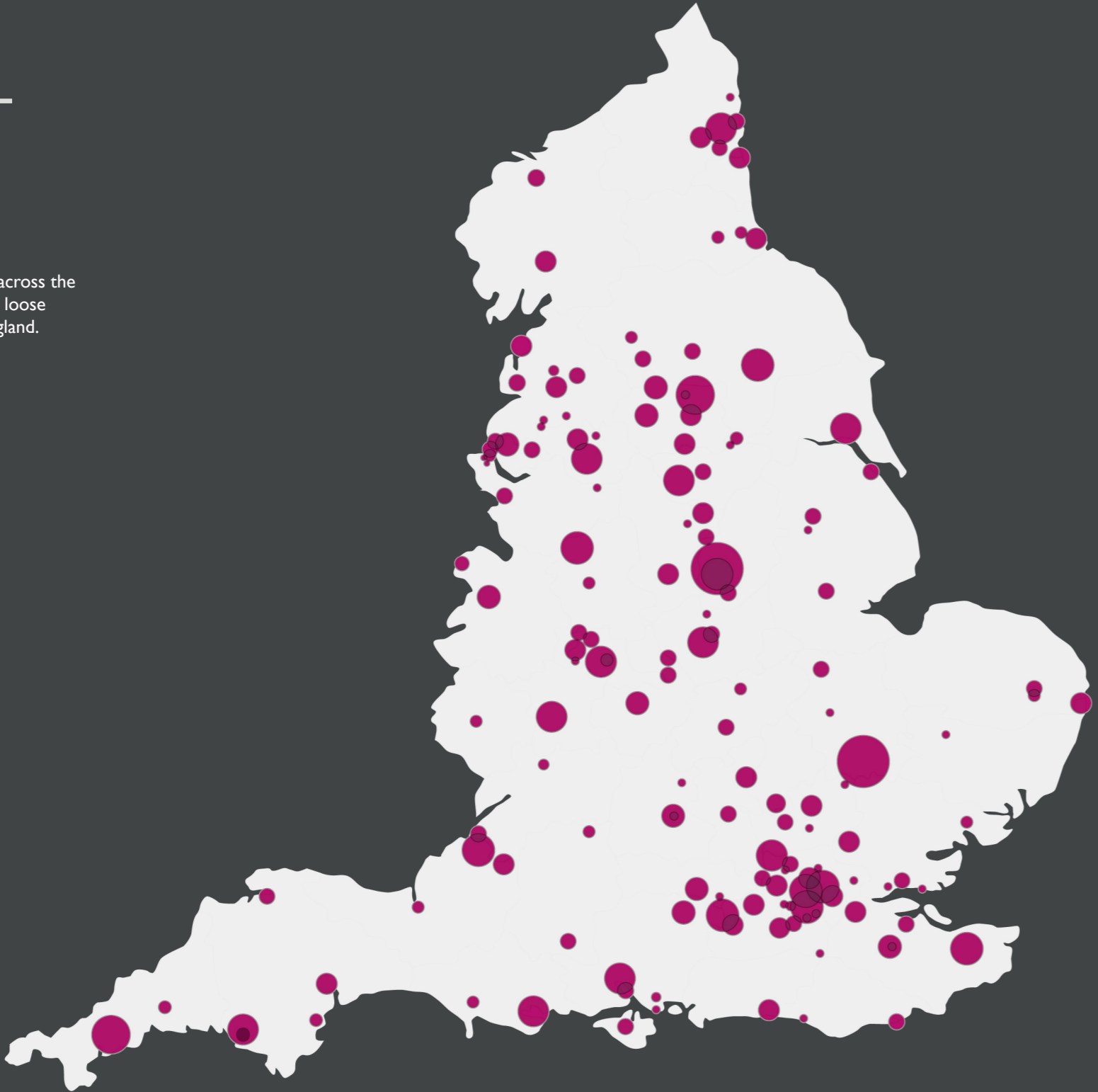
AVERAGE BUDGET PER PROJECT, BY REGION

AVERAGE BUDGET

£5.46M

£16.84M
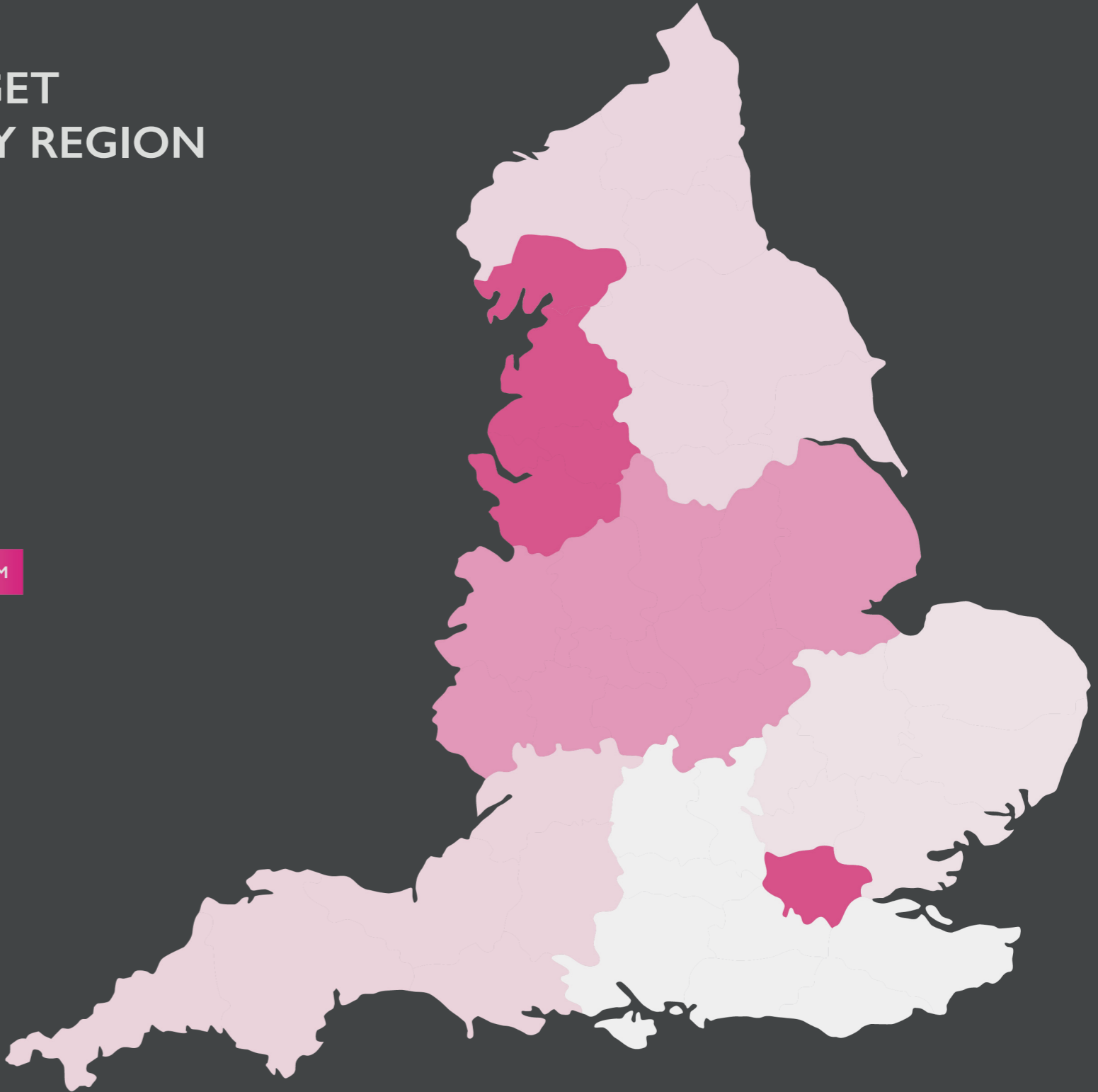
PROJECT SIZE

Over 80% of projects (by number) delivered between 2010 and 2020 were valued at less than £10m.

Stereotypically, improvement projects (extensions, refurb, etc) were at the lower value end of the scale, whilst new build projects were larger in value but far less frequent.

Some would say this is proof of the statement within the HIP the "NHS infrastructure is more than just large hospitals" and yet …..

….. whilst over 80% of projects were valued at less than £10m, they accounted for only circa 20% of expenditure. Instead, 80% of investment was spent on projects valued at greater than £10m.

The dynamic between frequency and value makes for interesting consideration when determining a platform and commonality strategy.

Should NHSE/I focus their energy on a smaller quantum of high-value projects, such as NHP, driving efficiencies through the scale of spending? Or instead, should energy be channelled towards engaging a broader circle of participants, leveraging the number of projects? To deliver upon the HIPs ambition to provide world-class facilities for the country, multiple strategies will be required.

NUMBER OF SCHEMES

VALUE OF SCHEMES (£m)

25 IMPROVEMENT SCHEMES (EXCLUDING BACKLOG)   25 NEW BUILD SCHEMES   £250m IMPROVEMENT SCHEMES (EXCLUDING BACKLOG)   £250m NEW BUILD SCHEMES
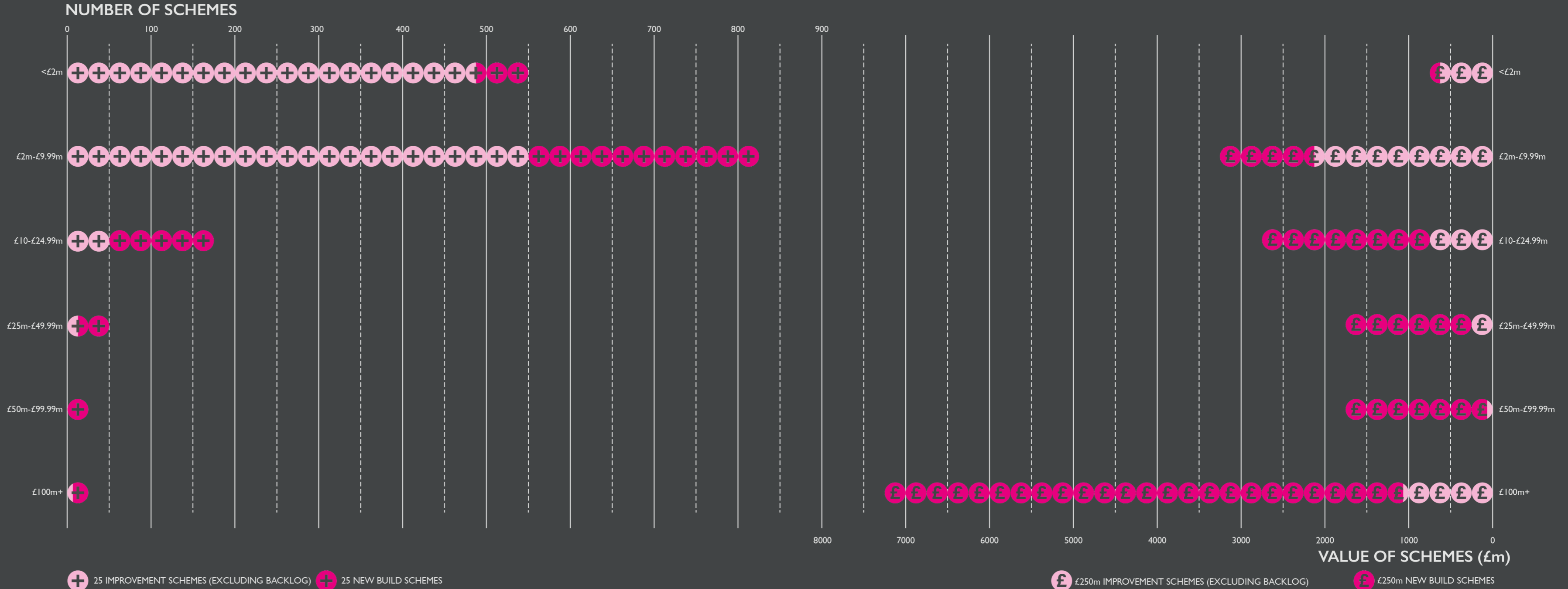
WHERE IS OUR PLATFORM FOCUSED?

Mapping the profile of work delivered over the past decade against axes of project value and healthcare category illustrates key market segments and activity, highlighting the need for a focused approach as part of a platform strategy. Plotting activity against these axis alone, also demonstrates the diversity of the sector; other factors such as typology or new build versus refurb only add to the complexity of this profile, reaffirming the need for clear market segmentation.

0 — 5+

NUMBER OF SCHEMES FOR
AN INDIVIDUAL TRUST

	£2m-£9.99m	£10m-£24.99m	£25m-£49.99m	£50m-£99.99m	£100m+
ACUTE					
AMBULANCE					
COMMUNITY					
MENTAL HEALTH					
SPECIALIST					

PROJECT TO PORTFOLIO

The exercise of market segmentation requires the aggregation of project demand and it is through this process that real value may potentially be unlocked.

For example, between 2010 and 2021, there were 57 projects delivered with a value greater than £25m. Most notably the overriding majority of the schemes were one-off's for the Trusts involved; across 10 years, only 6 Trusts are identified to have undertaken 3 or more schemes of greater size than £25m. Those Trusts that completed 2 projects averaged a 4.8-year gap between the completion of the two.

Such a low frequency of repetition, spread over prolonged periods, raises question marks around:

» The depth of experience of Trusts in delivering large scale capital projects
» The opportunity for knowledge transfer between projects to support continuous improvement.

This profile only serves to compound observations within the Naylor report that:

"skills and capacity in estates strategy and management in the NHS largely reflects traditional skills, including technical knowledge and project management. This will not be sufficient in developing a comprehensive estates strategy".

When reviewed in the aggregate, at a programmatic level, a different picture can be drawn. Tying together the 57 schemes shifts the perspective from one-offs or repeatability every 4-5 years, to instead a project delivery rate of 1 every 2 months. This offers a fundamentally different perspective in the context of knowledge exchange and continuous improvement.

This is where centralised coordination for the New Hospitals Programme will be key. Looking ahead, of the 40 defined hospitals only 3 Trusts have more than a single project, with a 91% balance of one-off schemes.

The establishment of a programmatic framework that facilitates knowledge curation and shared learning, both through the central team and across delivery partners along the supply chain offers significant value.

REPEATABILITY OPPORTUNITY

4 PROJECTS — 1 TRUST

3 PROJECTS — 5 TRUSTS

2 PROJECTS — 13 TRUSTS

1 PROJECT — 38 TRUSTS

TRUSTS WITH TWO OR MORE PROJECTS ABOVE £25M & TIME SINCE PREVIOUS LARGE PROJECT COMPLETION

BUDGET (£M) 25 — 725

- The Christie NHS Foundation Trust
- University College London Hospitals NHS Foundation Trust
- Cumbria, Northumberland, Tyne and Wear NHS Foundation Trust
- Great Ormond Street Hospital for Children NHS Foundation Trust
- Guy's and St Thomas' NHS Foundation Trust
- Mersey Care NHS Foundation Trust
- Northern Care Alliance NHS Foundation Trust
- University Hospitals Birmingham NHS Foundation Trust
- Barnet, Enfield and Haringey Mental Health NHS Trust
- Birmingham Womens' and Childrens' NHS Foundation Trust
- Cambridge University Hospitals NHS Foundation Trust
- Frimley Health NHS Foundation Trust
- Hertfordshire Partnership University NHS Foundation Trust
- Leeds Teaching Hospital NHS Trust
- Liverpool University Hospitals NHS Foundation Trust
- North Cumbria Integrated Care NHS Foundation Trust
- Northumbria Healthcare NHS Foundation Trust
- Royal Free London NHS Foundation Trust
- Sheffield Childrens' NHS Foundation Trust
- South London and Maudsley NHS Foundation Trust
- Surrey and Borders Partnership NHS Foundation Trust
- Tees, Esk and Wear Valleys NHS Foundation Trust
- Walsall Healthcare NHS Trust
- West London NHS Trust

2012 2014 2016 2018 2020 2022 2024

PART 5

ARCHITECTS

ARCHITECTURAL PRACTICES

NETWORK BETWEEN ARCHITECTS AND TRUSTS

To realise the intended benefits of a platform-based approach, the design strategies at an individual project level need to align to a programmatic vision.

As natural custodians of design, the role of the architect in embracing this philosophy and working within the parameters of a programmatic framework is pivotal. Close consultation will be critical to developing standards, guidance and solutions that sensitively balance standardisation and flexibility, in a manner that is embraced and owned by the architectural community.

However, the network of architectural practices designing healthcare schemes is complex, compounded by varied engagement across individual Trusts.

The route map to achieve consensus across this network is not immediately obvious.

This network diagram illustrates links between the Trusts and architectural practices that have worked together between 2010 and 2020.

Its complexity is reflective of the market profile, demonstrating both the quantum of organisations and varied points of engagement.

SCALE = VALUE (£m) OF WORK   TRUSTS   ARCHITECTS
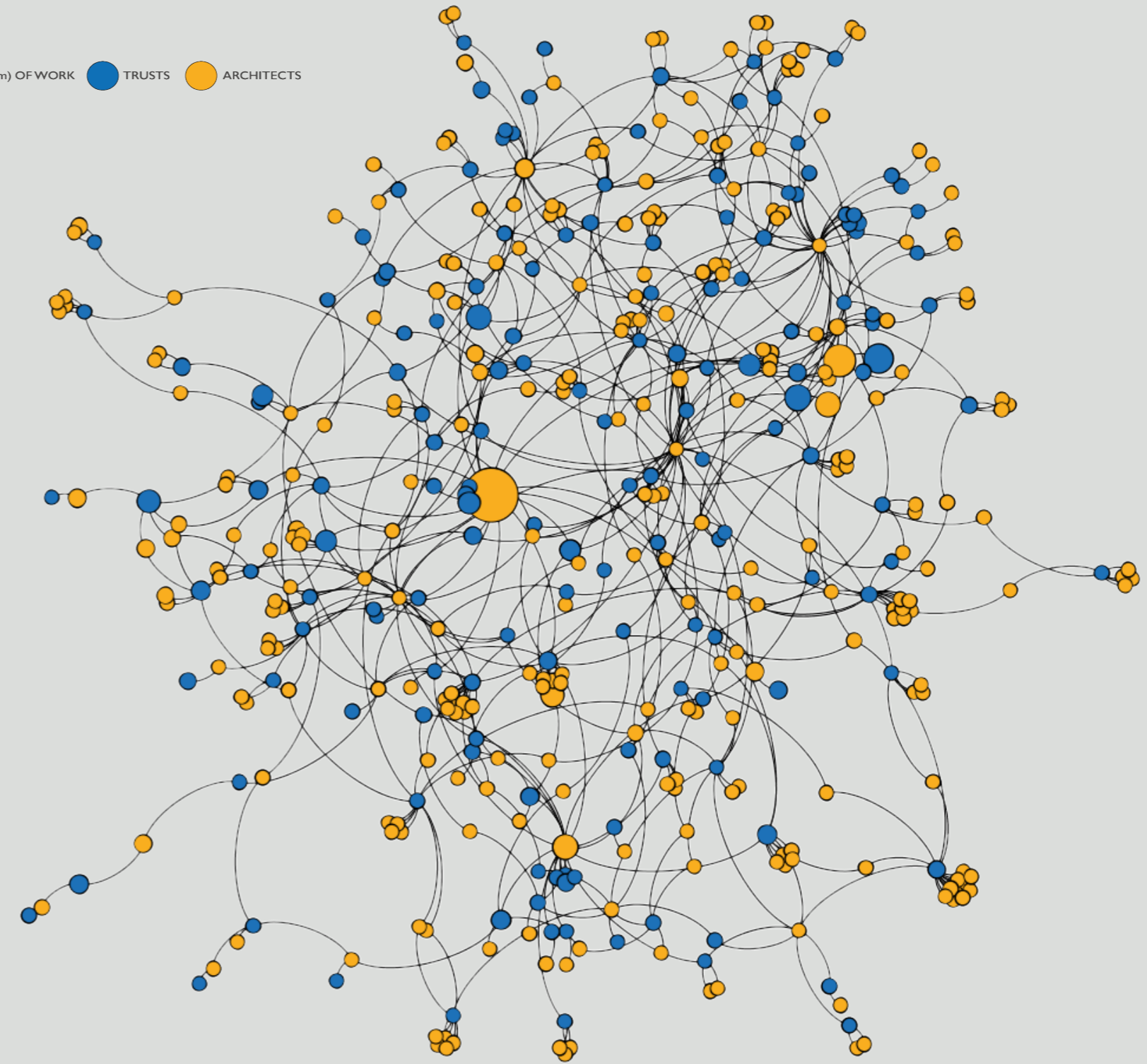
THE LONG
(BUT IMPORTANT) TAIL

30 ARCHITECTS ARE RESPONSIBLE FOR 51% OF PROJECTS UNDERTAKEN

By plotting the number of healthcare projects delivered by individual architectural practices a pattern does begin to emerge. There is a strong cluster of organisations (circa 30 practices), with leading healthcare specialism, having delivered cumulatively over half the workload by number during the past decade. Over the same timescale, there is equally a long tail of organisations that have worked in the sector intermittently, delivering a small number of projects (e.g. less than 2 or 3) in varying scale, often as part of a broader portfolio that spans beyond healthcare.

Such breadth of practices reaffirms the key role of both RIBA and collegiate forums such as Architect for Health and IHEEM in developing consensus and facilitating knowledge exchange. It also reinforces the importance and value of technical standards in themselves – to provide clarity that facilitates consistency of delivery across such a diverse resource base.

ARCHITECT INSIDE TOP 30   ARCHITECT OUTSIDE TOP 30

NUMBER OF PROJECTS

% OF TOTAL PROJECTS

51% OF PROJECTS
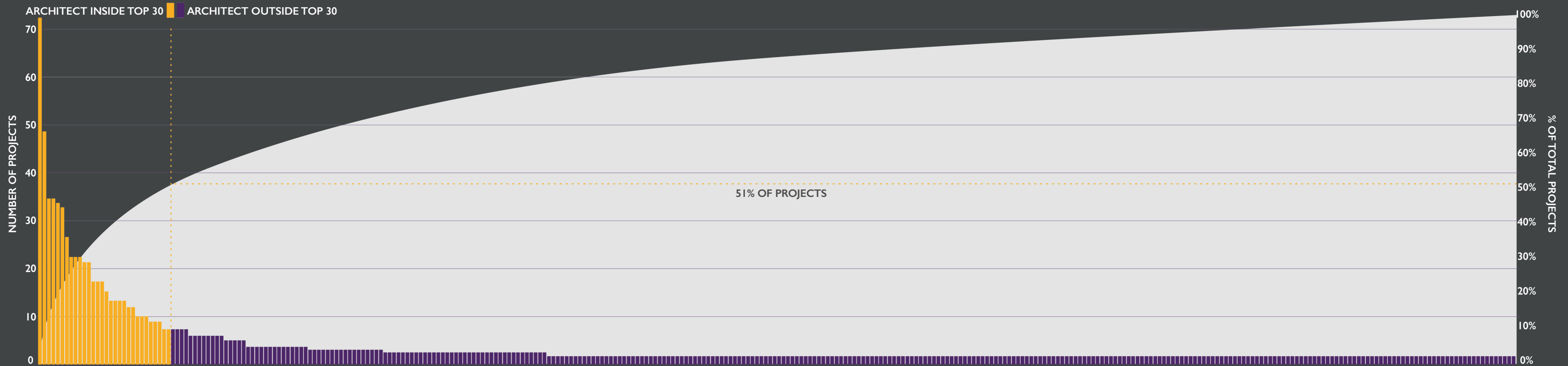
DELIVERING
AT SCALE

The length of the tail is even starker when reviewing projects with scale.

We identified 41 practices that designed healthcare projects, valued at more than £25m and completed in the past decade,.

For 60% of these organisations, these projects were one-offs, with a cluster of only 8 practices that delivered 3 or more largescale (£25m+) schemes.

Whilst our analysis may be skewed by being limited to public healthcare schemes in England (excluding both private healthcare and other countries) it nonetheless illustrates a dual dynamic in the context of seeking to embed platform principles:

i. It presents a smaller cluster of expertise in which focused communication could gain traction, quickly
ii. But as a small cluster, it potentially represents a limitation of skills and capacity.

NUMBER OF PROJECTS

Legend:
- £25m - £49.99m
- £50m-£99.99m
- £100m+

Categories: BDP, IBI Group, Medical Architecture, Ryder Architecture, Gilling Dod, HKS Architects, Murphy Philipps LLP, Stride Treglown, AD Architects, Anshen & Allen, Avanti Architects, BMJ Architects, Day Architecture, Hawkins Brown, HOK, Keppie Design Ltd, LDY Achitects, P+HS Architects, Pinnegar Hayward Design, AFL Architects, Atherden Fuller Leng, Bowman Riley, C F Moller, David Morley Architects, Design Buro, Fairhurst, HMY, Hopkins, John Cooper Architecture, Medical Design Partnership, NBBJ / HKS, Nieto Sobejano Architectos & CODA, One Creative Environments, Oxford Architecture, Penoyre & Prasad, Rogers Stirk Harbour, Scott Tallon Walker, Stanton Williams, Steffian Bradley Architects, Taylor Young, The Manser Practice

THE MINORITY
DELIVERING THE MAJORITY

The principle of a "minority delivering the majority" is brought into stark focus when analysing the profile of work delivered by expenditure (£).

Whilst 30 practices delivered circa 51% of projects by number, the same number of architects delivered schemes equating to almost 80% of the expenditure. In fact, 14 architects were responsible for almost 65% of the work delivered, by value.

14 ARCHITECTS | 65% PROJECTS

15 ARCHITECTS | 15% PROJECTS

267 ARCHITECTS | 20% PROJECTS
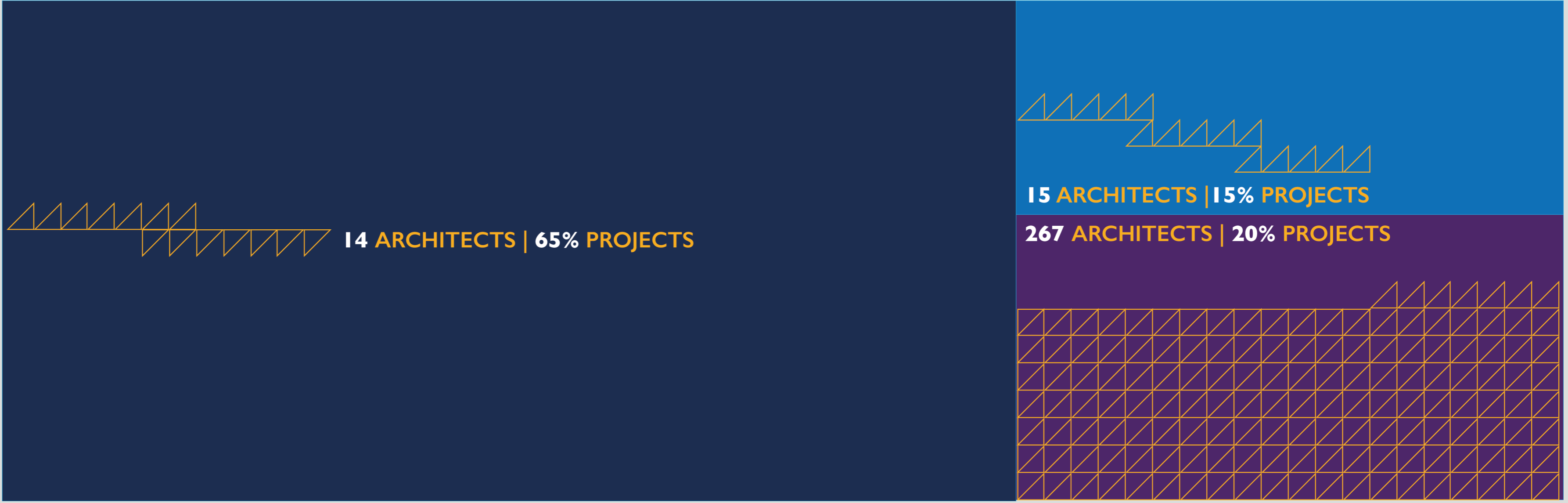
SCHEMES DELIVERED PER ARCHITECT

Plotting the average project budget against the number of schemes delivered per architectural practice serves to reaffirm the clusters observed earlier, namely:

1. **A portfolio majority** - a large quantity of firms that deliver healthcare intermittently, mainly with smaller scale (certainly less than £10m), as part of a broader design portfolio. For this group, the existence of standardisation through HTMs, HBNs and initiatives such as repeatable rooms are critical to supporting consistency in output but also mitigating learning curves and reinvention.

2. A cluster of **big project architects** – that delivered a small number of schemes, but with large project values. On closer review, the majority of these practices typically deliver their healthcare detailed design with specialist support,

3. The **healthcare specialists** – a minority of less than 30 firms that consistently deliver healthcare projects. This minority is a more concentrated group than say the Trusts, offering on one hand the potential to embed platform principles swiftly, on the other, an illustration of the limitation on market skills & knowledge.

To place this limitation upon resource and skills in context, a pipeline of £15bn for new hospitals would, at a hypothetical 2.5% of contract value, equate to a programmatic architectural design fee of £375m. This is, with the notable exception of BDP, the equivalent turnover of all 30 specialist firms for a 3 year period – leaving no capacity for business as usual. RIBA have historically noted that "adoption of a [platform] approach will inevitably require all professionals across the built environment to develop the necessary skills more widely …. whilst skills do exist within some architectural practices, this is not necessarily widespread".

The future demand profile may therefore present challenges in both capacity and capability.

TOTAL BUDGET FOR ALL PROJECTS AND NUMBER OF PROJECTS BY ARCHITECT

TOTAL BUDGET FOR ALL PROJECTS (LOGARITHMIC)

NUMBER OF PROJECTS

£48.65M

● PORTFOLIO   ● BIG PROJECT ARCHITECT   ● HEALTHCARE SPECIALIST ARCHITECT

AVERAGE BUDGET PER PROJECT AND NUMBER OF PROJECTS BY ARCHITECT

AVERAGE BUDGET PER PROJECT (LOGARITHMIC)

NUMBER OF PROJECTS

£12.31M

● PORTFOLIO   ● BIG PROJECT ARCHITECT   ● HEALTHCARE SPECIALIST ARCHITECT

REGIONAL VS NATIONAL CAPABILITY

The profile of the architectural market, albeit summarised simplistically, is consistent when reviewed through a geographical lens

NHS England and Improvement are structured around regional management structure of 7 regions (illustrated below). Analysis of activity across these 7 regions highlights that almost 80% of architects work within the demise of a single region, with only 12 architects working across 4 or more regions of England.

This pattern is not exclusive to the architectural fraternity.

Both the structural engineers and MEP engineers, follow a similar mould, with less than 12 engineers for each discipline working across 4 or more regions.

The natural channels to percolate knowledge through the market are limited.

Map regions:
- NORTH EAST & YORKSHIRE
- NORTH WEST
- MIDLANDS
- EAST OF ENGLAND
- SOUTH WEST
- SOUTH EAST
- LONDON

Bar chart — % OF TOTAL PROJECTS

Series: ARCHITECTS, STRUCTURAL ENGINEERS, MEP ENGINEERS

X-axis: NUMBER OF REGIONS (1–7)

1 — REGIONAL DELIVERY
7 — NATIONAL DELIVERY

STRATEGIC RELATIONSHIPS

1   2-5   5-9   10+
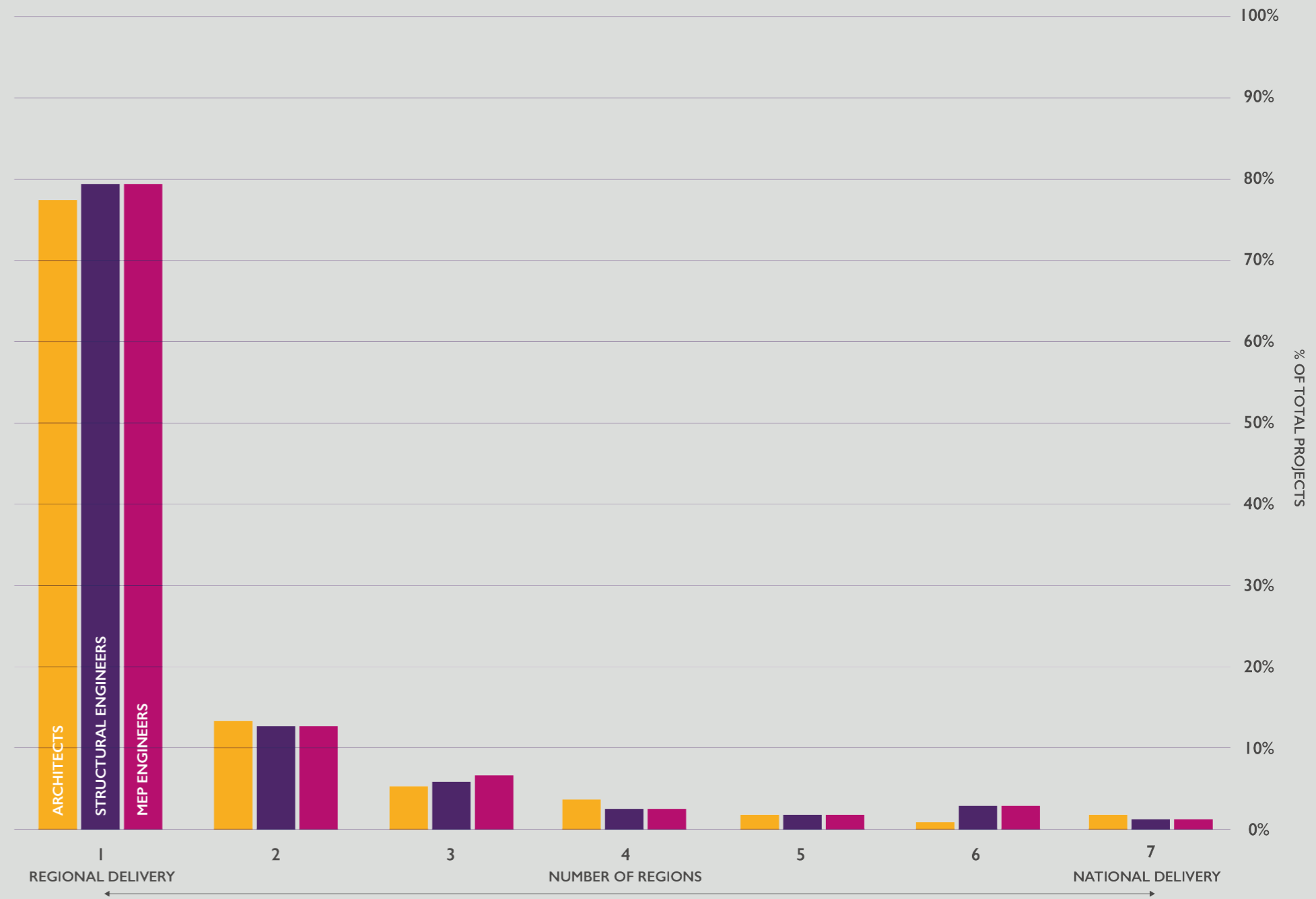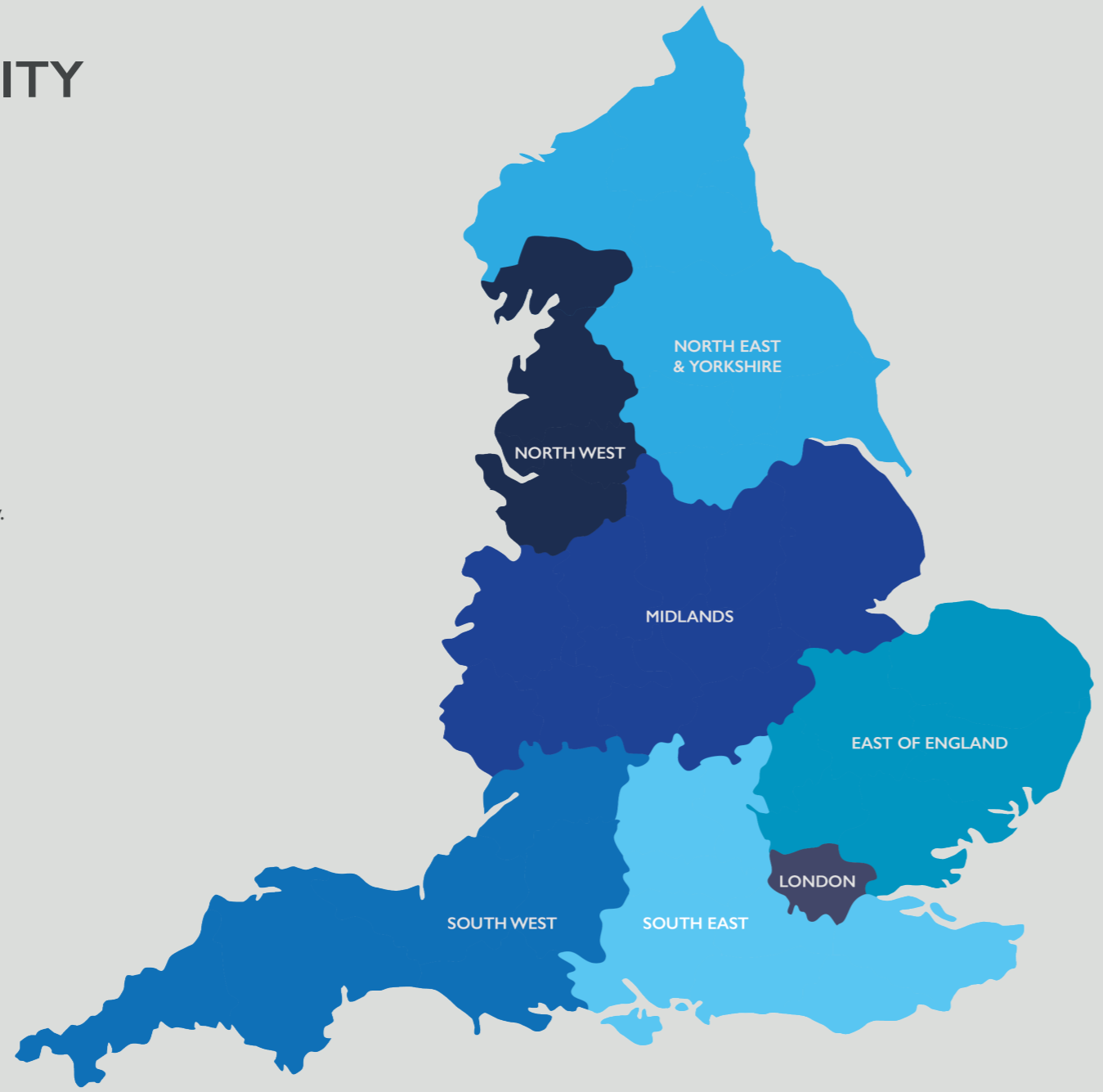
The market bias towards working at a local level, rather than nationally, links to the analysis we have conducted around commonality of relationships and repeat working.

We have identified that over two thirds of the market worked only with a single Trust.

Exclusivity of relationship on behalf of architectural practices did not however necessarily translate to repeat work. By number, the overriding proportion of schemes were delivered as one-off's, with only 15% of the market enjoying a sustained relationship with a Trust that extended beyond more than a couple of projects.

ONE-OFF RELATIONSHIPS
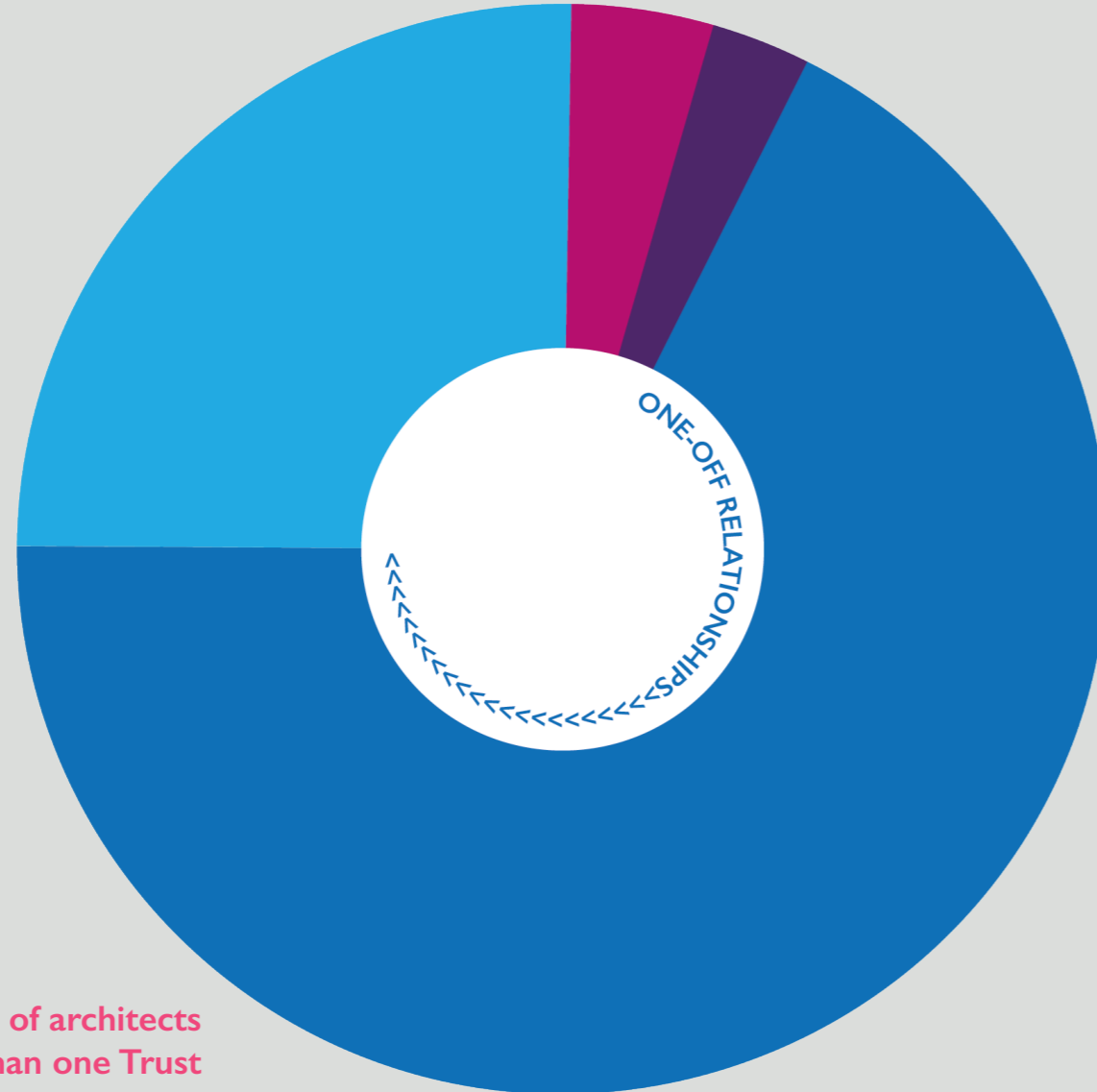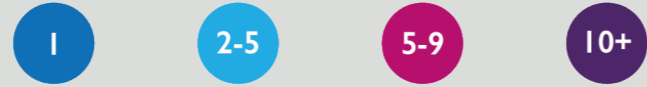
Less than a third of architects worked with more than one Trust

1   2   3   4   5   6+

Whether this is pattern was driven by intermittent demand, procurement protocols, contractor-led selection or other contributing factors has not been analysed. Nonetheless it begs a number of questions regarding the scale of duplicated endeavour and the opportunity for waste reduction through the creation of common repeatable processes, relationships or solutions.

As the status quo, it represents a challenge to developing consistency through a relationship-based network.

ONE-OFF PROJECTS
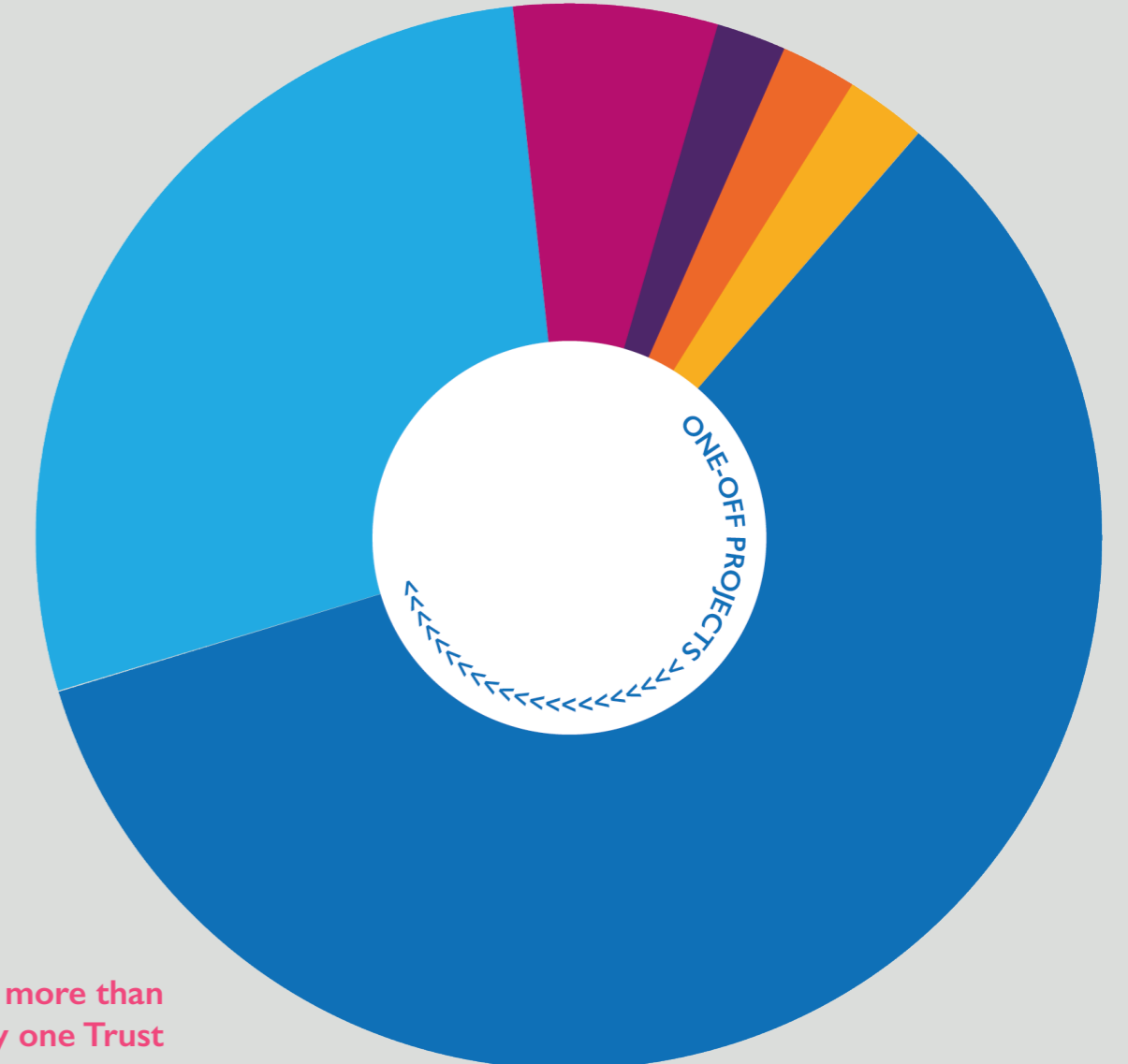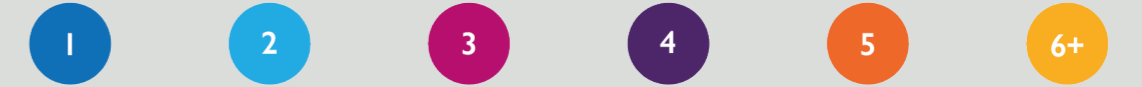
Only 15% of architects delivered more than two projects with any one Trust

PART 6

ENGINEERS
STRUCTURAL + MEP

STRUCTURAL ENGINEERS

The structural design (particularly superstructure) has a significant influence upon other elements of the building not least in terms of repeatability, deflection, vibration characteristics, thermal performance, embodied carbon, tolerances, etc. It is both an opportunity itself to apply platform principles as well as core to enabling the same in other elements, components and spaces within a building.

Standardisation of structural grids, floor slabs and floor-to-floor heights are simple but fundamental examples of where platform principles can unlock potential benefits in both design, delivery and operation.

The structural engineers' understanding of a platform-based approach is therefore as important as the architects'.

DIMENSIONS

<<< COMBINE + PRODUCTISE >>>

FIT OUT

MEP PLANT + DISTRIBUTION

<<< STRUCTURAL SPANS + PLANNING GRID >>>

<<< FLOOR TO FLOOR HEIGHTS >>>

<<< GRID + ROOM TYPE HARMONISATION >>>

<<< BUILDING PHYSICS + ENERGY BALANCE >>>

SUPERSTRUCTURE

CLINICAL + NON-CLINICAL LAYOUTS

FACADE

MEP STRATEGY

<<< LOCATION OF PLANT + LENGTH / DIRECTION OF DISTRIBUTION >>>

Adapted from an image courtesy of Bryden Wood: Delivery Platforms for Government Assets

STRUCTURAL ENGINEERS, A FAMILIAR TAIL

30 STRUCTURAL ENGINEERS ARE RESPONSIBLE FOR 51% OF PROJECTS UNDERTAKEN

In reviewing relationships and the distribution of historical work across the structural engineering discipline, we have identified a profile similar to the architects. A long tail exists, again with a minority of organisations (less than 30) mixed of large scale consultancies and specialist firms, delivering more frequently.

STRUCTURAL ENGINEER INSIDE TOP 30 ■ ■ STRUCTURAL ENGINEER OUTSIDE TOP 30

NUMBER OF PROJECTS

% OF TOTAL PROJECTS

51% OF PROJECTS
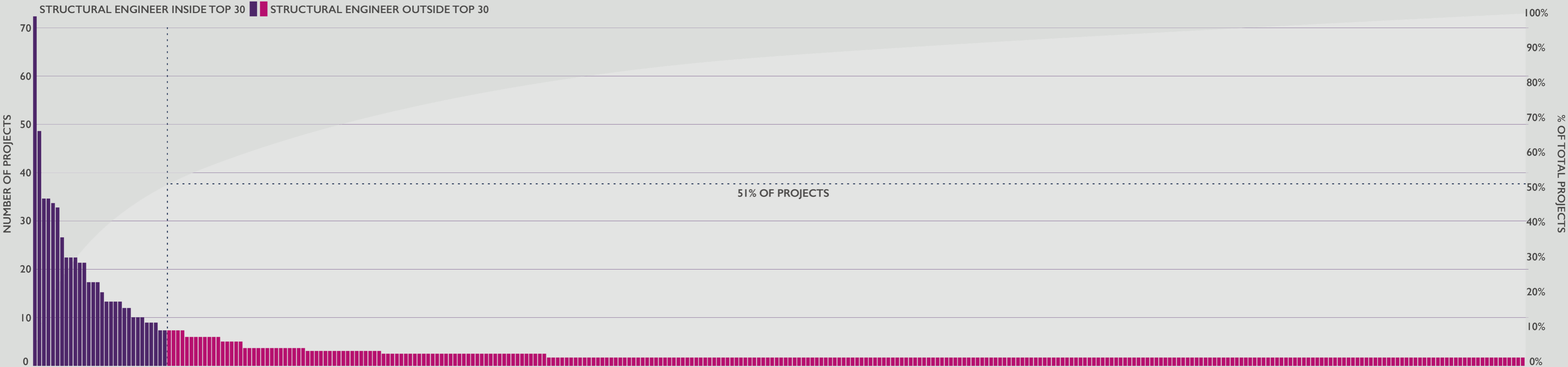
STRUCTURAL
ENGINEERS

NETWORK BETWEEN
STRUCTURAL ENGINEERS AND TRUSTS

Whilst a minority of structural engineers have taken a
majority stake, the network both Trusts and engineering
firms remains as complex as that illustrated for the
architects.

The dynamic of single Trusts employing multiple
professional design organisations is consistent; so too
is the minority of firms working for multiple Trusts in
multiple regions.
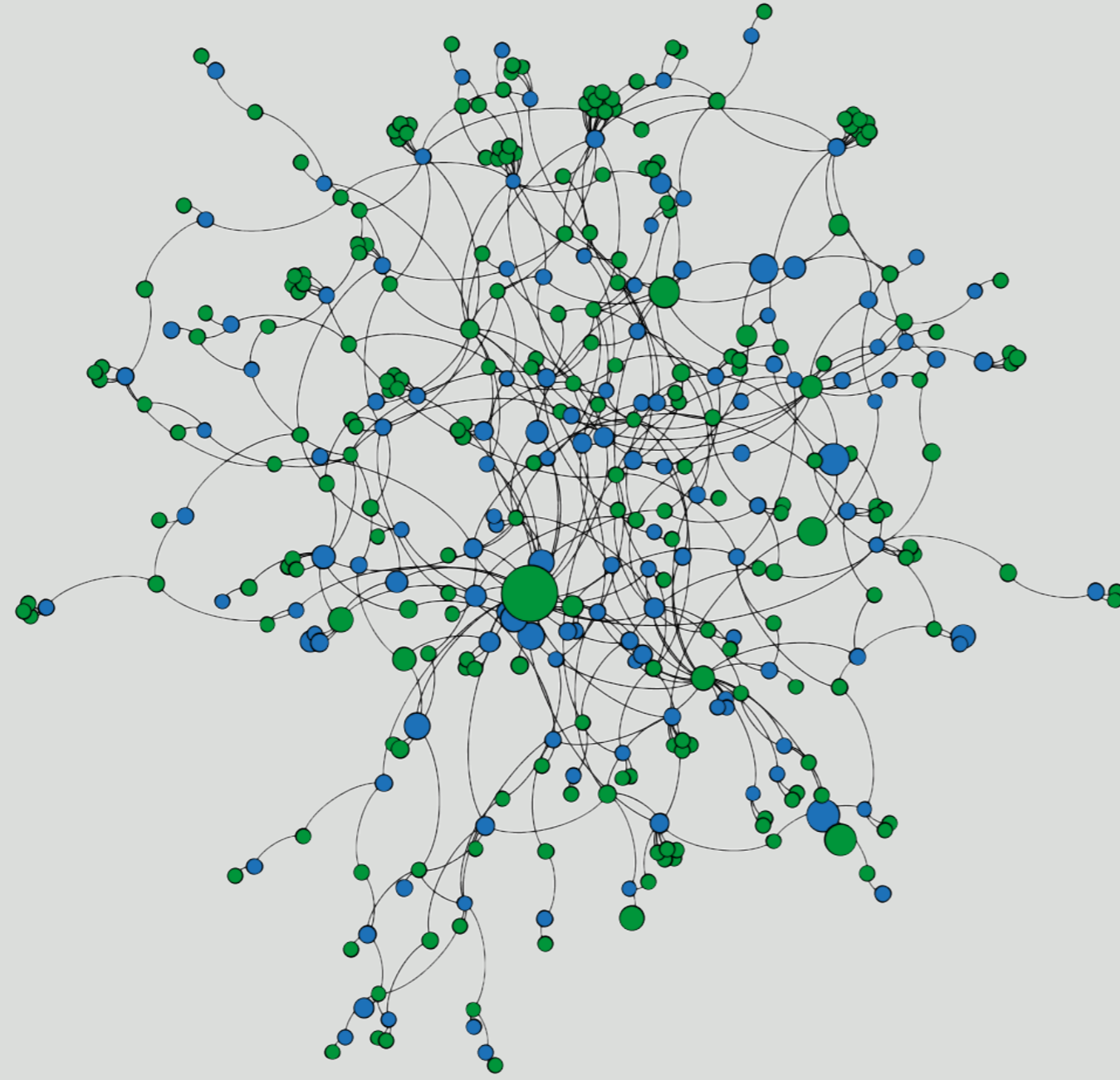
SCALE = VALUE (£m) OF WORK   ● TRUSTS   ● STRUCTURAL ENGINEERS

M&E
ENGINEERS

NETWORK BETWEEN
M&E ENGINEERS AND TRUSTS

The principles carry forward in exactly the same manner
to the MEP engineers.
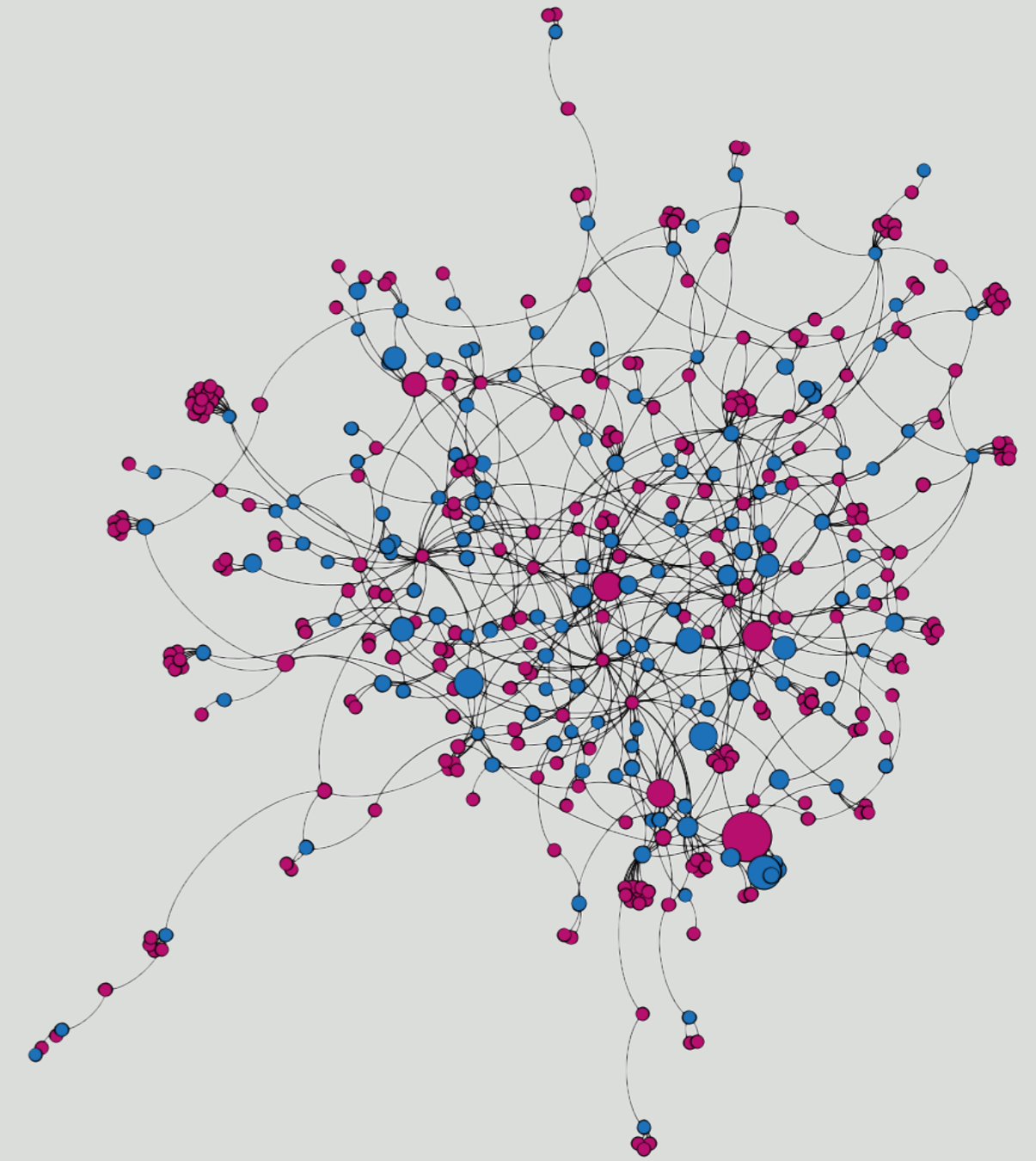
SCALE = VALUE (£m) OF WORK   ● TRUSTS   ● M&E ENGINEERS

MEP ENGINEERS

The mechanical and electrical systems of a healthcare project typically represent the largest proportion of works, with criticality to the delivery programme, the capital and operational cost and functionality of the hospital in use.

As a strategic, high-value element and typically with a high labour content, the potential benefits to be drawn from applying platform principles to the MEP design, manufacture and assembly are significant. The opportunity to develop standard, repeatable solutions offers significant potential to de-risk supply market otherwise challenged to meet capacity of the future NHP demand.

The awareness, understanding and engagement of MEP engineers to facilitate, enable and apply a platform based approach is therefore equally important as other design disciplines.
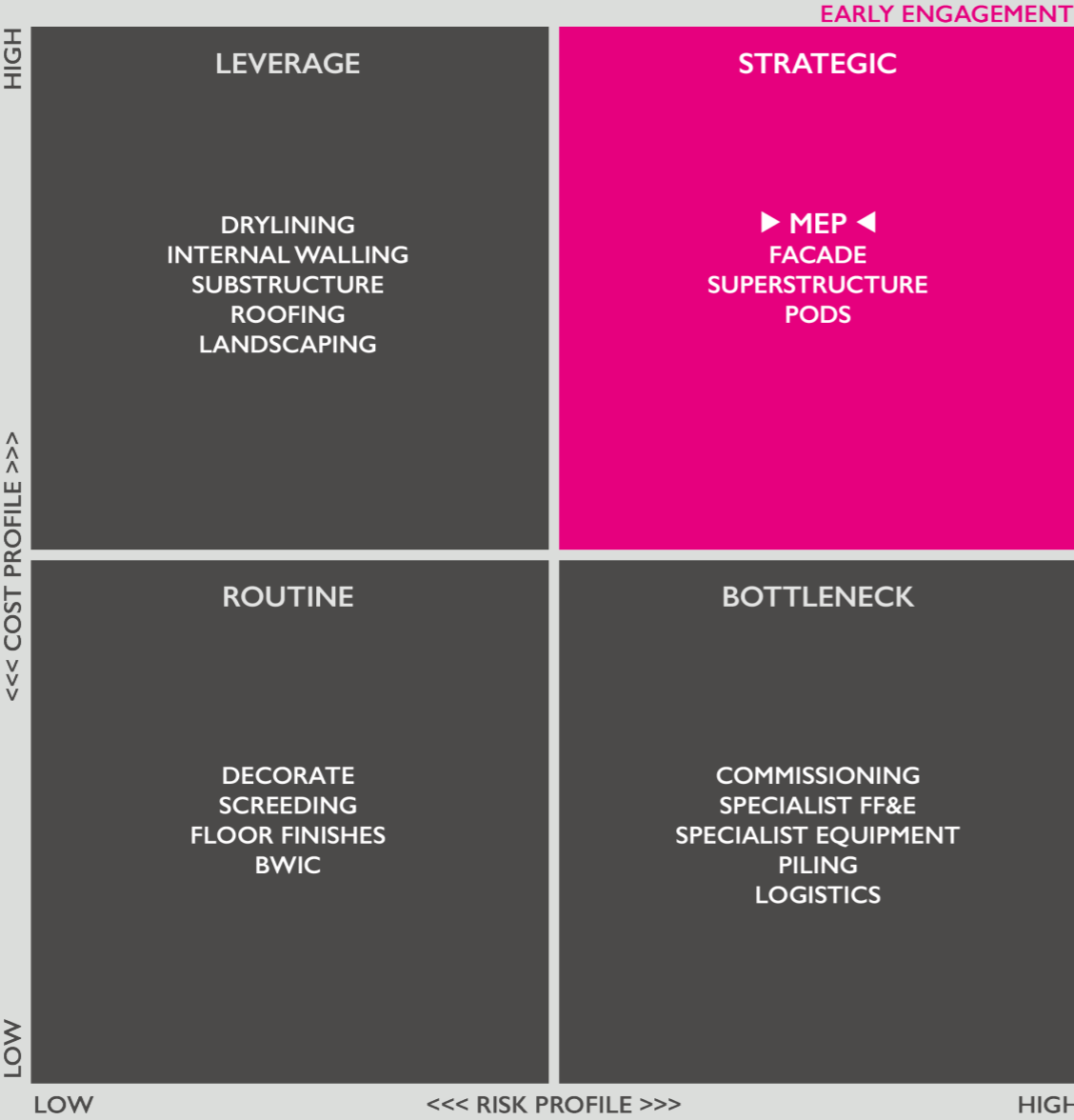
EARLY ENGAGEMENT

HIGH

LEVERAGE

DRYLINING
INTERNAL WALLING
SUBSTRUCTURE
ROOFING
LANDSCAPING

STRATEGIC

► MEP ◄
FACADE
SUPERSTRUCTURE
PODS

ROUTINE

DECORATE
SCREEDING
FLOOR FINISHES
BWIC

BOTTLENECK

COMMISSIONING
SPECIALIST FF&E
SPECIALIST EQUIPMENT
PILING
LOGISTICS

LOW

<<< COST PROFILE >>>

LOW   <<< RISK PROFILE >>>   HIGH

ANOTHER FAMILIAR TAIL

The M&E Engineering market follows the same pattern as the architects and structural engineers– a minority cluster of organisations undertook work at volume, followed by a long-tail.

The top 30 firms once again completed over half the projects by number and nearer 75% by value. Despite their dominance, the market leaders were not necessarily large scale companies however - in fact 80% of organisations within the top 30 were SMEs.

M&E ENGINEER INSIDE TOP 30   M&E ENGINEER OUTSIDE TOP 30

NUMBER OF PROJECTS

% OF TOTAL PROJECTS

53% OF PROJECTS
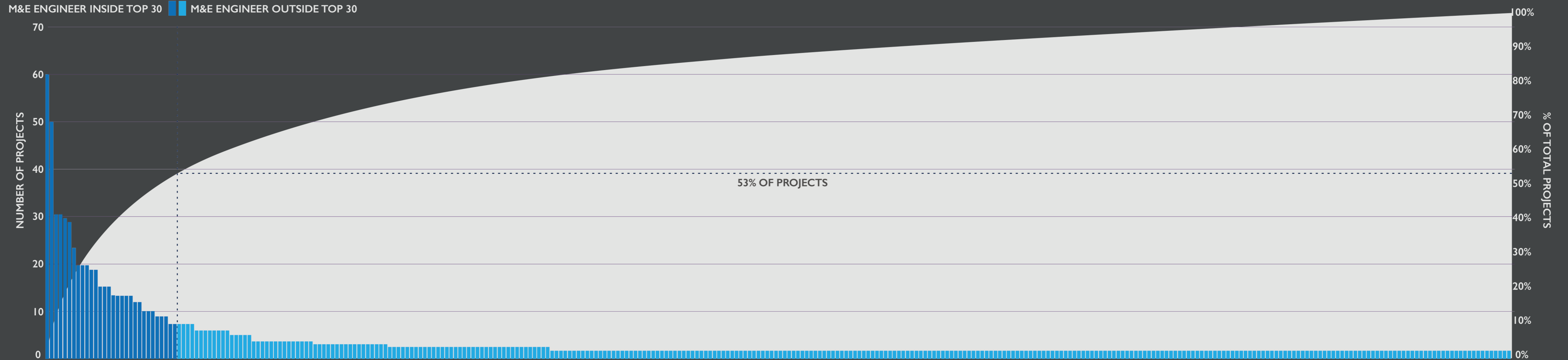
MEP SERVICES

Most notably, the cluster of market leaders had almost exclusivity upon design of the projects at £25m plus. Whilst large scale hospitals have been designed by a variety of architects, extending beyond healthcare specialists, the MEP services were in almost every instance developed upto RIBA Stage 3 by the main market players.

Whether this trend will continue is conjecture, however it provides an indication of the influence of these common players in integrating and adopting platform thinking to a critical element.

DISTRIBUTION OF PROJECTS BY M&E ENGINEER AND VALUE BAND

NUMBER OF PROJECTS

LEGEND: ● M&E ENGINEER OUTSIDE TOP 30   ● M&E ENGINEER INSIDE TOP 30
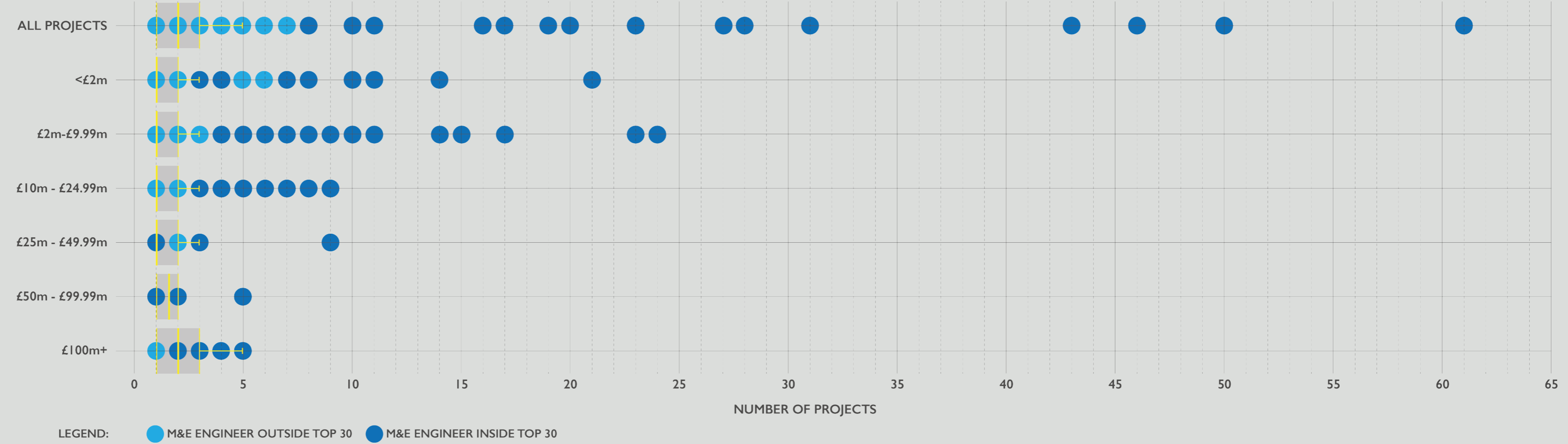
PART 7

CONTRACTORS

CONTRACTORS

With concerns regarding market capacity regularly cited, the number of organisations that worked over the past decade in a main contracting role may come as a surprise ….. we identified 421 companies that acted a principal contractor on projects worth greater than £1m.

Whilst at a headline this offers promise further analysis suggests however that, consistent with profile of the design professionals, there is a two-tiered market.

The overriding majority of contractors worked locally on smaller value schemes, delivering a diverse range of new build, refurbishment and specialist fit-out. A far smaller cluster delivered at scale. To put this in context, over the past decade only 21 contractors delivered public healthcare projects worth more than £25m.

ONLY 11 CONTRACTORS (INCL. CARILLION) DELIVERED PROJECTS GREATER THAN £100M.

Chart: NUMBER OF MAIN CONTRACTORS WITH NHSE HEALTHCARE DELIVERY EXPERIENCE BETWEEN 2010 - 2020 (y-axis, 0 to 400) versus VALUE OF SCHEMES (£m) (x-axis, 0 to £400m)
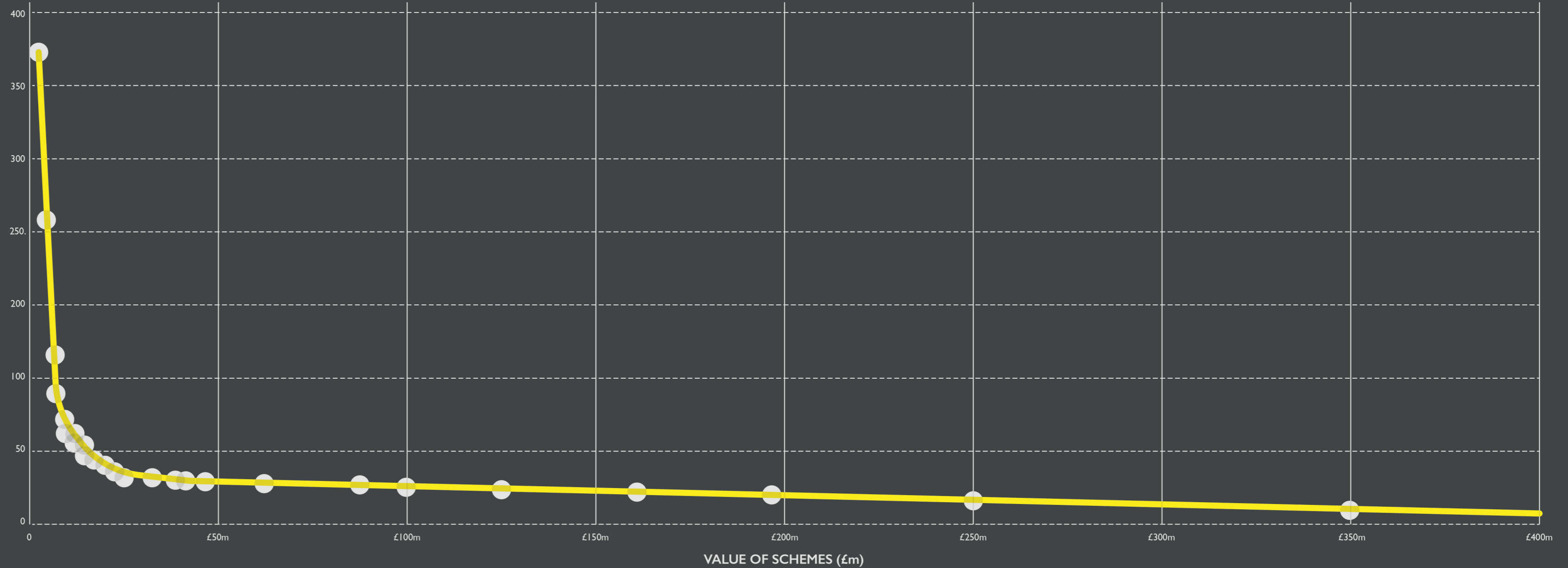
DELIVERING
AT SCALE

The lack of experience in delivering at scale should represent a key consideration to delivery of NHP, given its demand profile.

2010-2020 — — — 2020+ NEW HOSPITALS PROGRAMME

28 NHP SCHEMES VALUED £200m+
(INDICATIVE VALUE)

6
CONTRACTORS

have delivered
public healthcare
schemes in
England in excess
of £200m
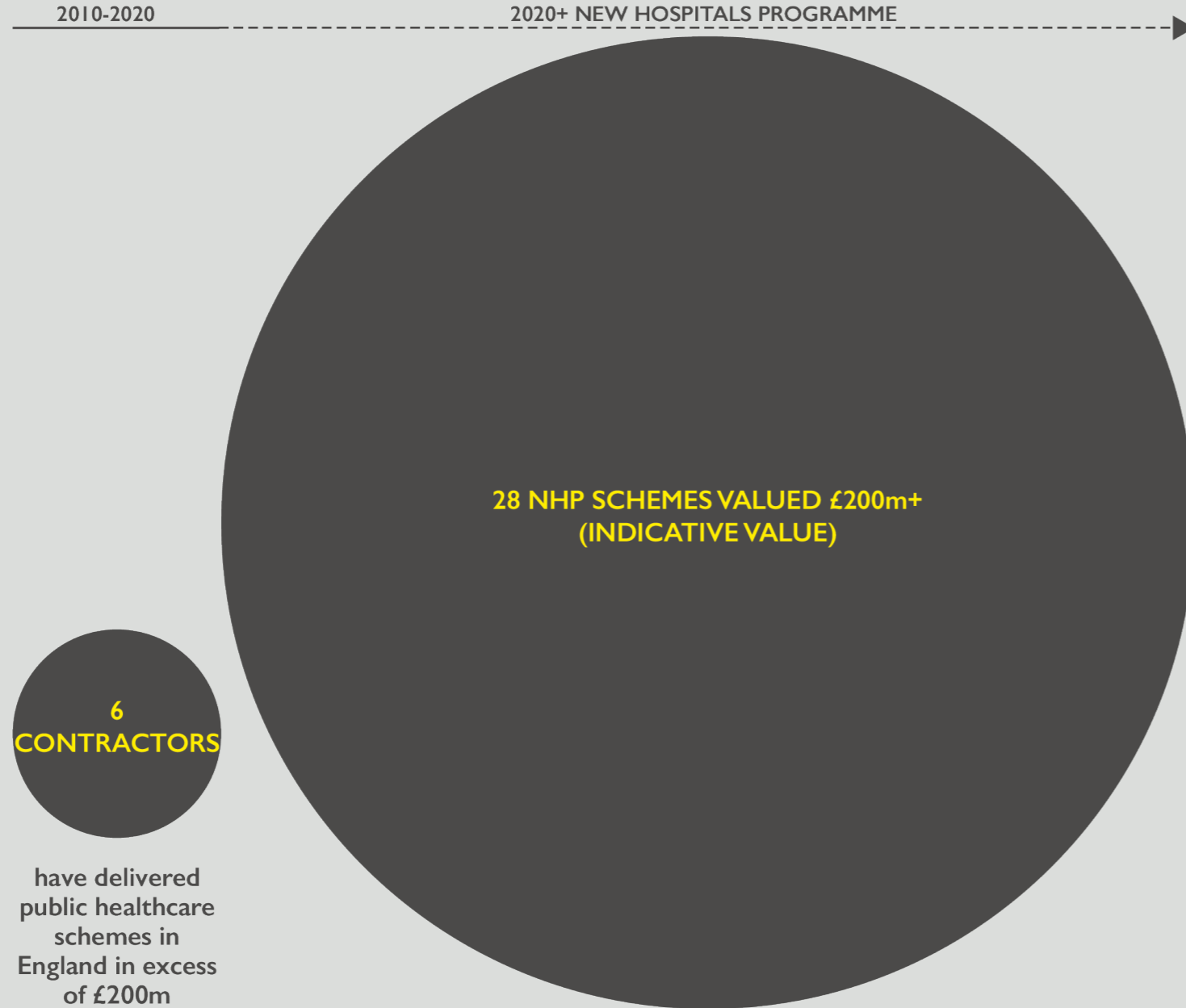
REGIONAL VS
NATIONAL DELIVERY

Whilst the market division by project size is worthy of note, the split between regional and national working is stark. The overriding proportion of contractors (83%) worked exclusively within the demise of a single NHSE/I region. Only 16 contractors (less than 5%) worked across 4 or more.

In many respects this localised landscape reaffirms the importance of a platform-based approach in establishing common threads that broaden the industry perspective beyond the singular projects or organisations and instead to a level that can identify and leverages efficiencies and economies of scale.

On the other hand, the dynamic of local contractors intermittently working on local projects, suggest that there is insufficient commonality of relationships to achieve this ambition through the contracting network, unless channelled via the cluster of established players.

Exploring this option may sound bells of preferential treatment however it is unlikely to widen any market gap further, with an exclusive network arguably already in existence via commercial frameworks, such as ProCure and CCS.

% OF TOTAL PROJECTS

100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%

1   2   3   4   5   6   7

REGIONAL DELIVERY   NUMBER OF REGIONS   NATIONAL DELIVERY

NORTH EAST & YORKSHIRE
NORTH WEST
MIDLANDS
EAST OF ENGLAND
LONDON
SOUTH WEST
SOUTH EAST
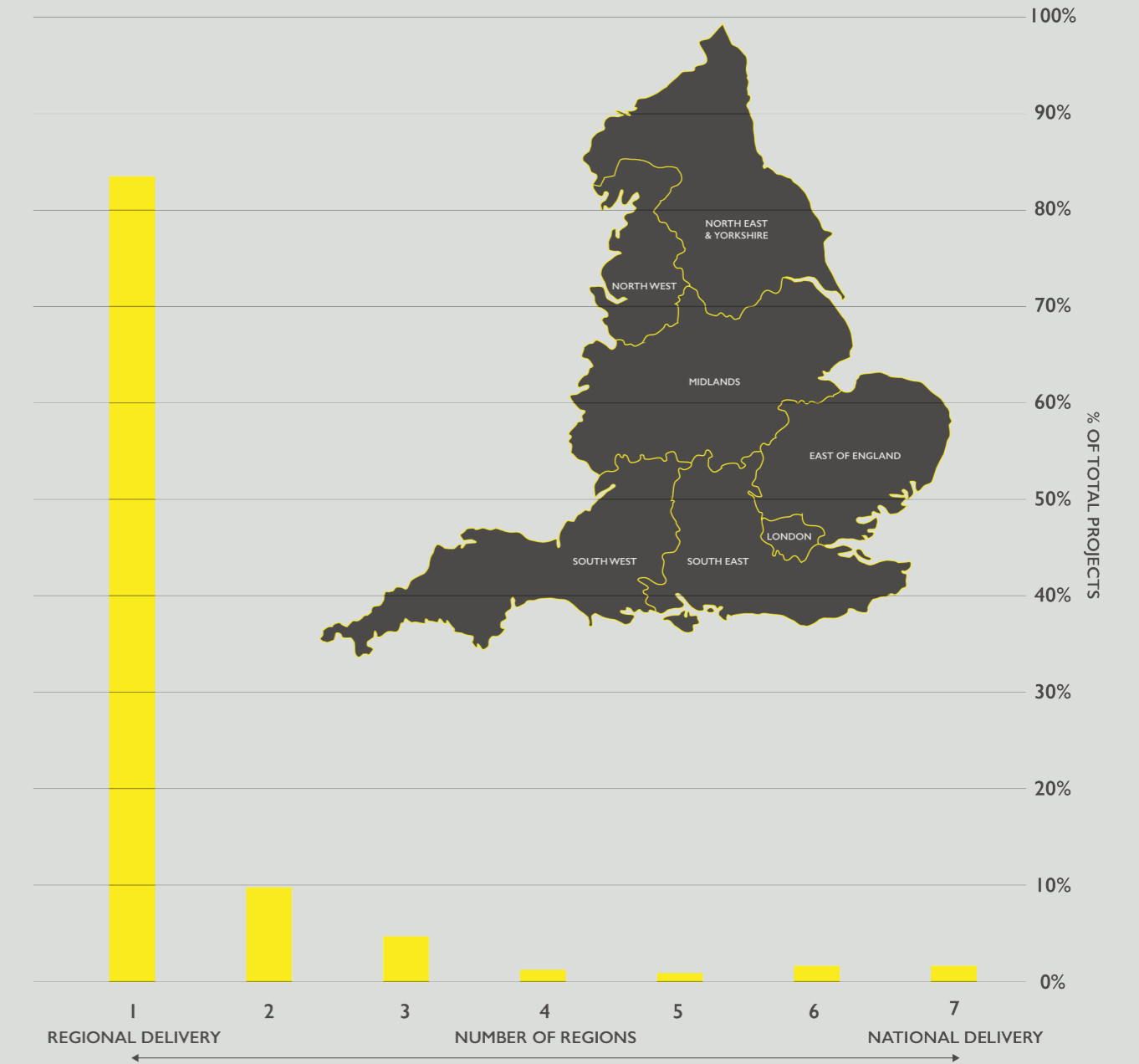
FRAMEWORKS

The overlap between major players and the use of frameworks can be visualised by plotting the activity of the top 10 contractors:

» 7 of the 10 contractors listed (plus Carillion prior to their insolvency) have been party to an iteration of the ProCure framework.

» 75% of contractors working nationally across 6 or 7 regions have acted as a PSCP (Principal Supply Chain Partner) on ProCure framework at some point.

Whether a place on the framework is the result, cause or mutually reinforcing of a strong healthcare pedigree is open to debate.

In any event, commercial frameworks provide a powerful tool for strategic planning, integrated teams, continuous improvement and the delivery of better, safer, faster and greener project outcomes. In many respects they are, through commonality of relationships and process, an illustration of platform principles.

PSCPs selected under historical iterations of the ProCure framework have demonstrated these principles to great effect, collaborating to leverage platform principles as part of initiatives such as repeatable rooms and standard component agreements, in order to deliver better value for money.

As highlighted by Professor David Mosey's independent review "Constructing the Gold Standards", future frameworks could create the conditions and structure that enable the department's platform ambitions to gain traction. In fact, when reviewing the disaggregation of demand, it may be a critical success factor.

Note: Figures for Carillion exclude Royal Liverpool and Midland Metropolitan on the basis that they were not completed prior to its insolvency.

Chart — VALUE OF PORTFOLIO (£m) vs NUMBER OF PROJECTS

- Laing O'Rourke
- IHP
- Kier
- Skanska
- Tilbury Douglas
- Balfour Beatty
- BAM Construction
- Carillion
- Lend Lease
- Galliford Try HPS
- Bouygues

● Non ProCure   ● ProCure PSCP (at some point up to P22)
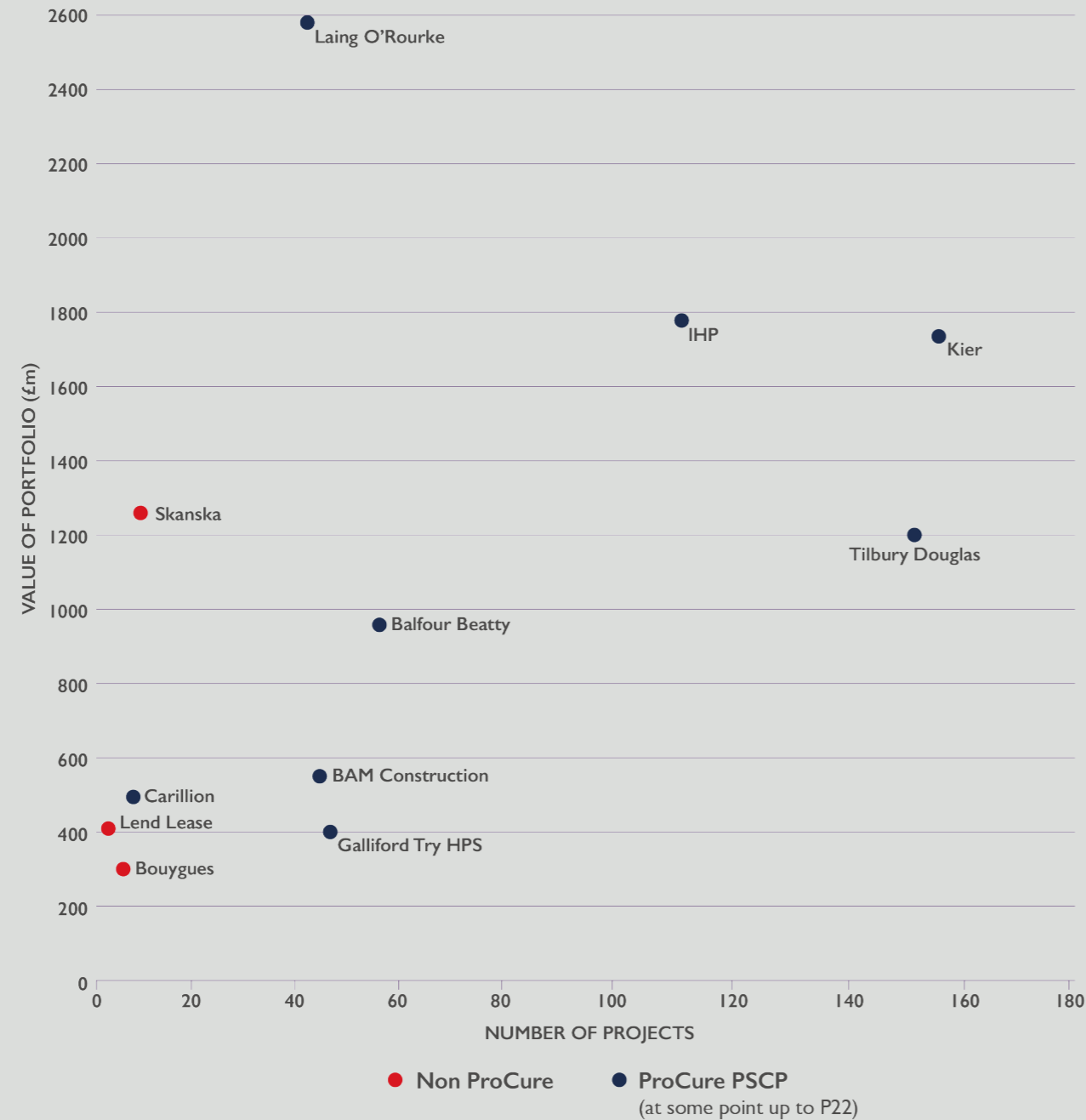
ENGAGEMENT

In the past decade 38% of projects (circa 650 schemes) were one-off schemes for the market, without any continued engagement between a Trust and the contractor, save for that single project. A third of these instances can be easily explained, with the Trust having no additional demand to procure; the rationale for the balance, albeit not analysed, is expected to be caused by multiple factors not least competitive procurement. The net result represents a significant lack of continuity at B2B level that could arguably inhibit long-term investment and continuous improvement.

When analysing the larger project arena, the intermittent nature of work is even more vivid. We have identified 53 contractors that delivered projects worth over £10m between 2010 and 2020, however only 12 contractors worked more than once with a Trust at this scale. Notably, on only 6% of occasions can the rationale for severing the relationship be attributable to a lack of follow-on work.

Earlier in this report, we highlighted the intermittent demand of large-scale projects by Trusts. Our analysis of the contracting market adds a new dimension, identifying that even when there is a continuity of pipeline, in almost two-thirds of cases a new relationship is formed. Some may argue that is reflective of a healthy, competitive market whilst others may diagnose a transactional culture, littered with inefficiencies.

Irrespective of viewpoint, the Top 10 contractors (previously referenced) delivered over 80% (by value) of healthcare projects greater than £10m+. Whilst demand and trading relationships may be fluid, the presence of dominant market players remained a common feature.

2010-2020

53 CONTRACTORS DELIVERED PROJECTS WORTH £10m+

ONLY **12** DELIVERED REPEATEDLY FOR A TRUST AT THIS SCALE
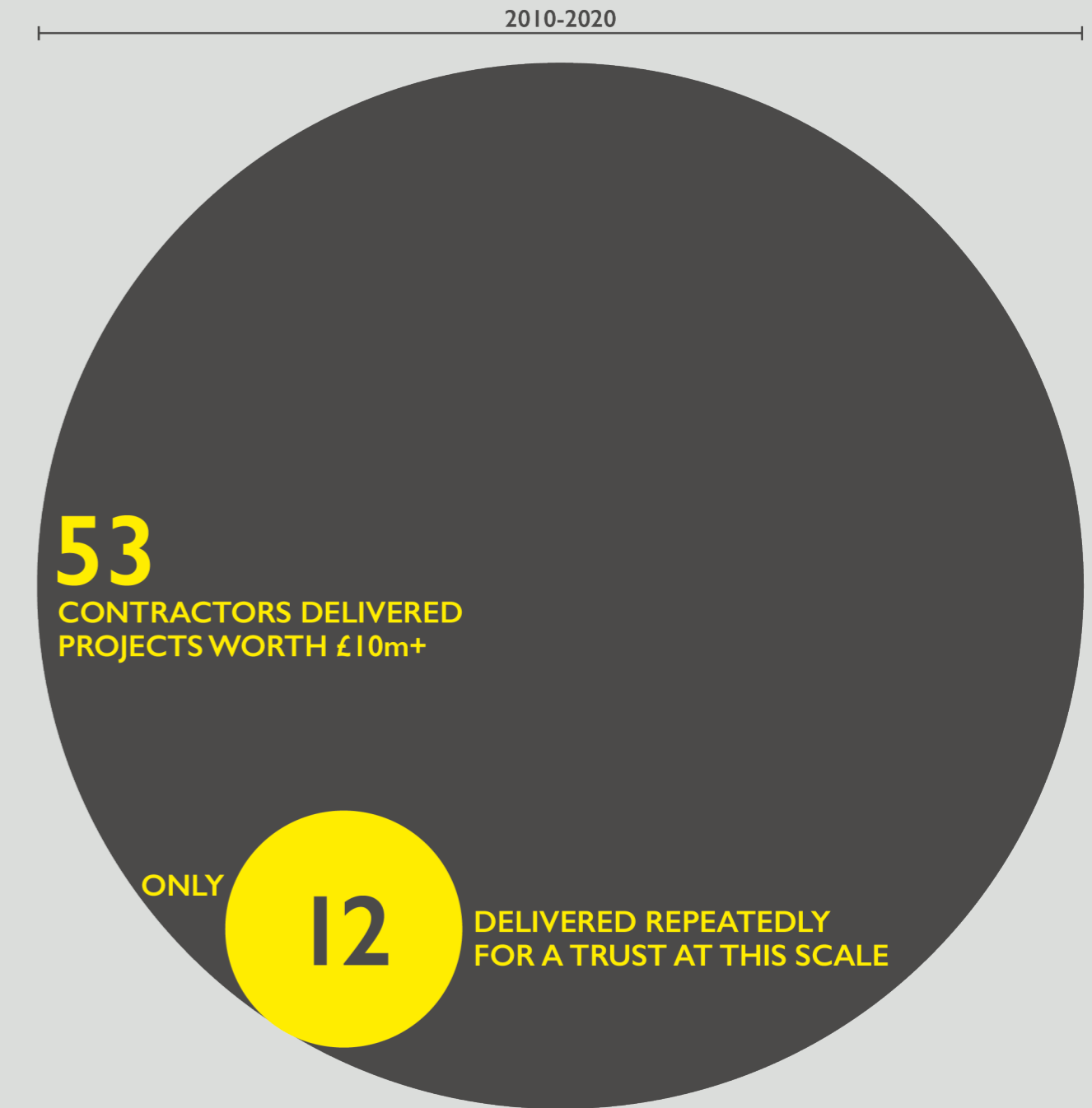
KEY MARKET CONTRACTORS ON £25M+ HEALTHCARE SCHEMES

Whilst we have highlighted the dominance held by a minority of contractors, this is not to infer that the major projects healthcare market (£25m +) has remained static.

Whilst the demise of Carillion is the most highly publicised exit of the sector others have following suit, albeit in somewhat more auspicious circumstances.

The prospect of pipeline growth, resultant of the pandemic and Health Infrastructure Plan, has equally attracted the interest and investment from new players, seeking to establish their position.

This includes the emerging prominence of organisations such as Darwin, MTX and ESS, reflecting a growth in demand for off-site, volumetric solutions.

The recent procurement of ProCure 23 and Crown Commercial Service Lot 5 (major projects) is expected to disrupt this landscape further.

The evolution of this picture holds implications for both the capacity of the Main Contracting market but also the landscape of the MEP supply chain.

With MEP such as critical and significant part of a hospital build, it is no coincidence that many of the health market leaders are vertically integrated with MEP delivery arms.

This commonality of relationship could again offer a potential route to quickly embed platform thinking with the market however its compatibility with principles of disaggregation of supply need to be considered.

M&E DELIVERY STRATEGY	NEW MARKET ENTRANTS	ESTABLISHED MARKET PLAYERS	MARKET EXIT
SUBCONTRACT M&E	ESS MODULAR / JOHN SISK / ISG / DARWIN	IHP / BOUYGUE / MTX CONTRACTS	CARILLION / SIMONS / LEND LEASE / MULTIPLEX*
EITHER	MACE/WILLMOTT DIXON	KIER / BAM	
VERTICALLY INTEGRATED M&E	WATES	LAING O'ROURKE / TILBURY DOUGLAS / BALFOUR BEATTY / SKANSKA	

MARKET STATUS - BASED ON DATA REVIEW OF PROJECT WINS 2020-2022

PART 8

NEW HOSPITALS PROGRAMME

NEW HOSPITAL PROGRAMME (NHP)

As has been referenced throughout this report, the Government has committed to build 40 new hospitals across England by 2030, backed by an initial £3.7bn of investment (between now and 2024).

The national programme comprises eight pre-existing schemes and 40 new projects. In October 2020, the government named the 32 hospitals which will form part of the 40 new hospitals, with an ongoing bidding process for the further eight. Collectively this investment represents the largest hospital building programme of a generation, intended to:

"transform the delivery of national healthcare infrastructure across the NHS, to provide world-leading experiences for patients and staff".

Leading the delivery of the New Hospitals Programme is a joint central team, formed between the Department of Health & Social Care and NHS England & NHS Improvement. A centralised organisational structure has been created to underpin a programmatic approach that leverages scale, commonality of components and commodities, rationalises and standardises processes and facilitates shared learning to maximise value across the portfolio of work ….. platform principles.

The works has currently been split into 4 phases of activity, with schemes in construction and pathfinder schemes planned in recognition of the learning curve of adoption of both platform principles and MMC. The profile of the works is as illustrated here.

NHP COHORT	NUMBER OF PROJECTS + WORK TYPE	HOSPITAL TYPE	NUMBER OF TRUSTS	INDICATIVE BUDGET
	NEW BUILD / REFURBISHMENT	MENTAL HEALTH / SPECIALIST / COMMUNITY / ACUTE		
COHORT 1: ON SITE 2024-2026				£2bn-£2.5bn
COHORT 2: EARLY 2024-2026				£1.5bn-£2.5bn
COHORT 3A+3: PATHFINDER 2026-2028				£4bn-£4.5bn
COHORT 4: FULL ADOPTERS 2027-2030				£9bn
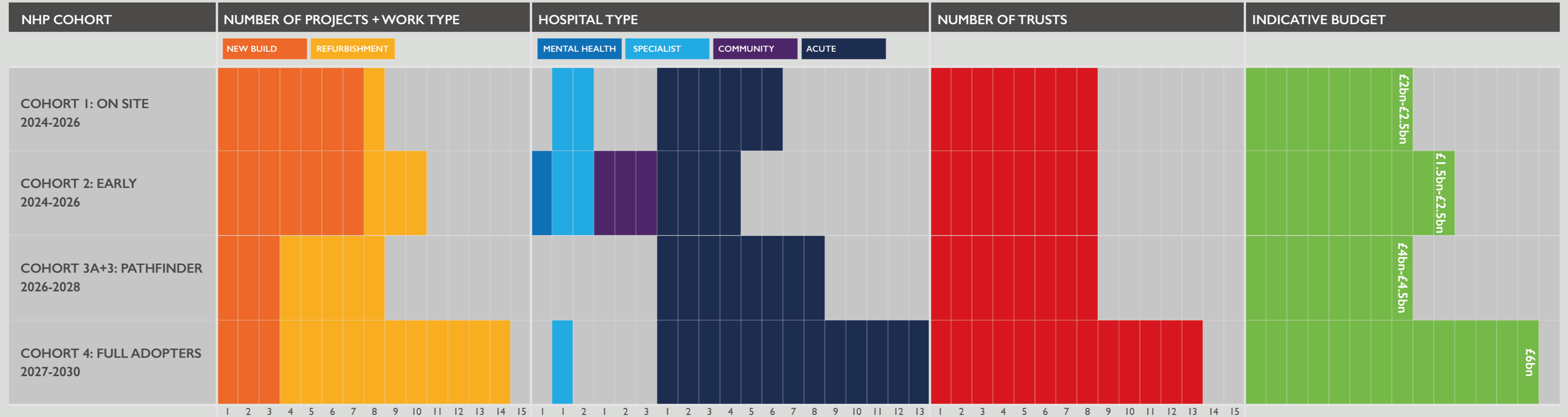
Please note: The budget forecasts are indicative, based upon high-level estimates (not reported figures) recognising that the majority of Cohorts 2, 3 and 4 remain subject to business case preparation, submission and approval.

DISTRIBUTION
OF NHP PROJECTS

The geographical distribution of the NHP is broad, as is the spectrum of communities in which the new hospitals serve.

For visibility we have plotted the location of the 40 schemes against a map of English Indices of Health Deprivation and Disability.

● ACUTE
● MENTAL HEALTH
● SPECIALIST
● COMMUNITY

-3.215 ▮ +3.547

HEALTH DEPRIVATION & DISABILITY SCORE
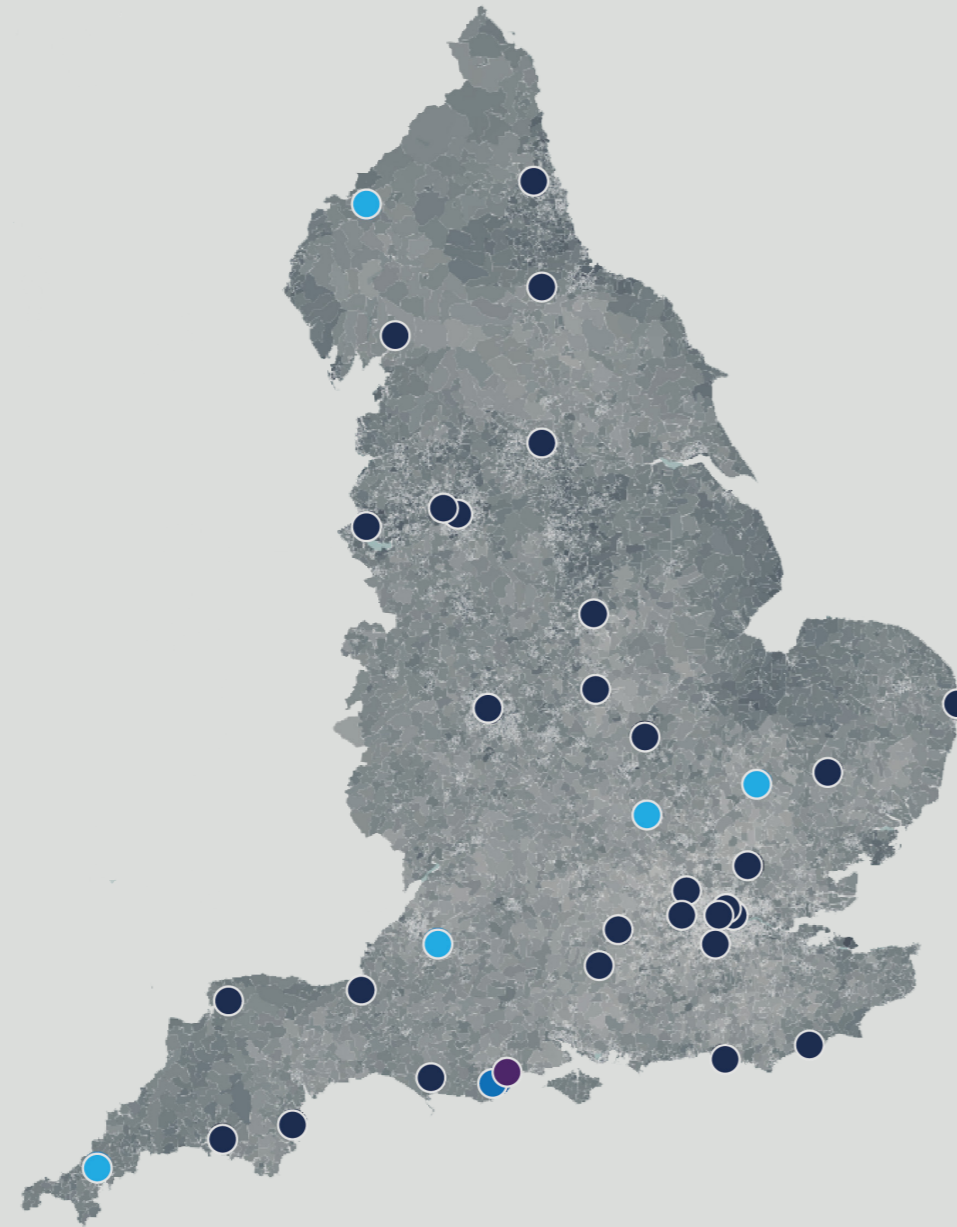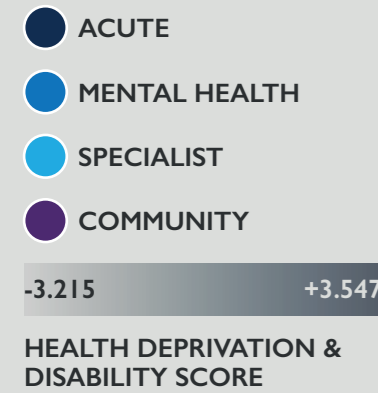
Evidencing the statement that NHP is the "biggest hospital building programme in a generation" we have mapped the forecast profile of planned schemes against those historically delivered between 2010-2020.

Whilst accepting a margin of error against the NHP figures (recognising the majority of schemes remain subject to business case), the shift in profile is nonetheless sizeable.

The quantity of schemes valued in excess of £100m is projected to to almost double relative to previous, with fundamental change in the median size of schemes. The gap between forecast demand and demonstrable historical experience is clear.

INDICATIVE PROJECTS VALUE £100m+

2010-2020 PROJECTS VALUE £100m+

NHP

2010-2020

£100m   £200m   £300m   £400m   £500m   £600m   £700m   £800m

PROJECT VALUE
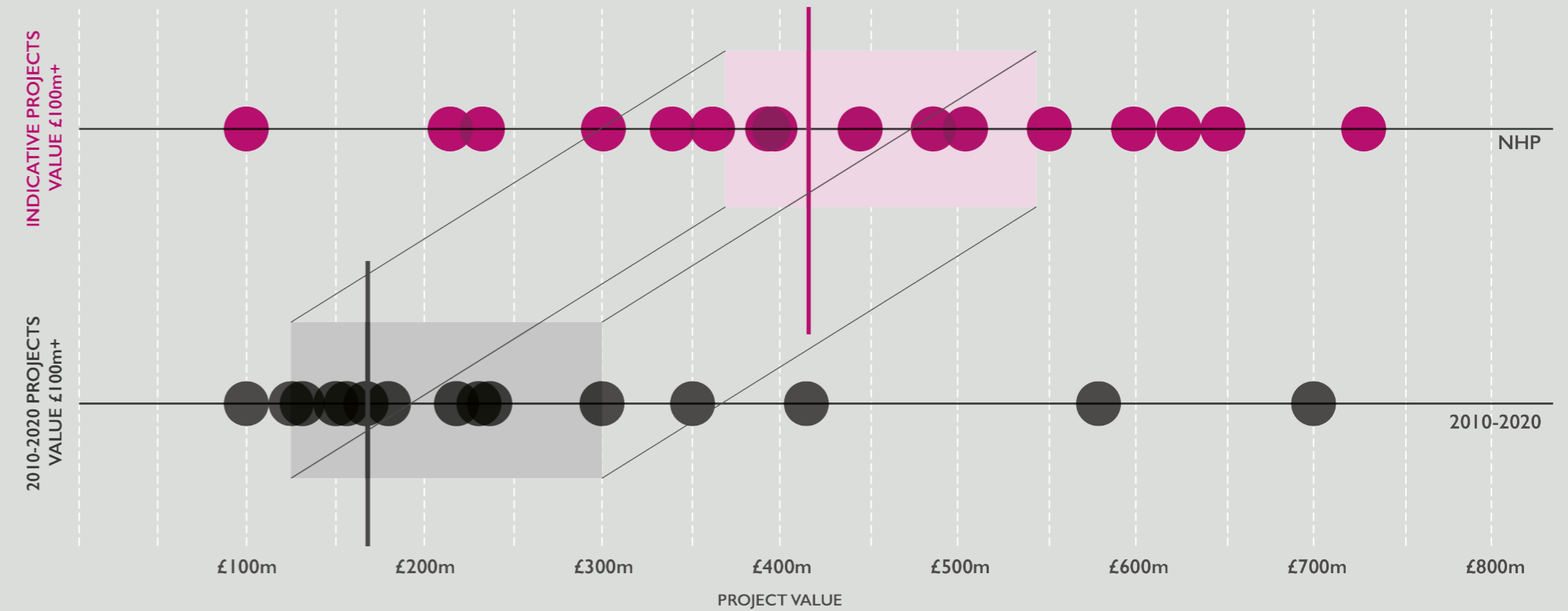
PART 9

REFLECTIONS

MARKET SUITED TO PLATFORMING?

PLATFORM STRATEGY

Platforming is not a panacea – but instead a strategic choice that offers benefits in certain contexts. Whilst many of the fundamental steps that underpin a platform-based approach are detailed within both the Construction Playbook and TIP Roadmap, neither document is specifically tailored to recognise the nuances of the healthcare sector.
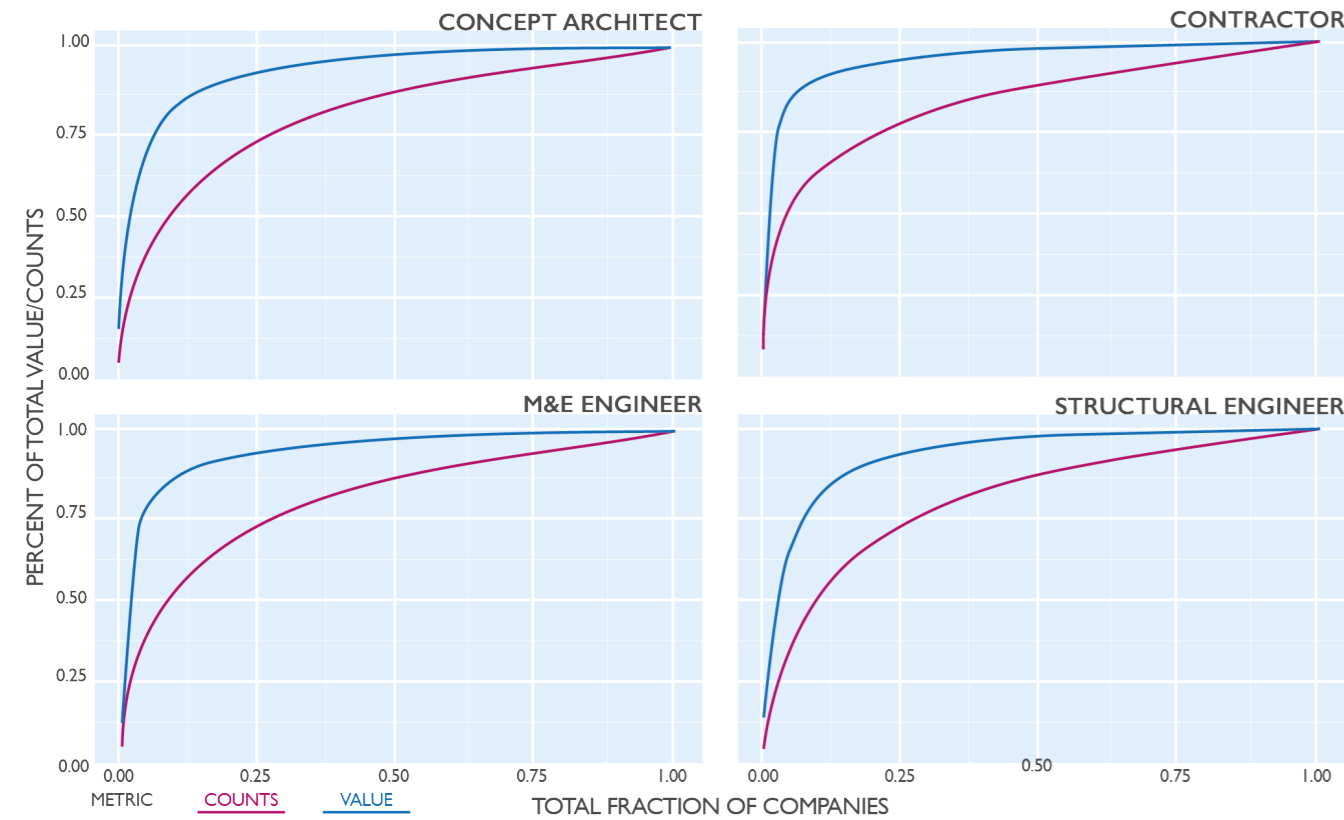
Our retrospective review has been compiled to define and visualise the context – against which principles outlined within central government policy can be overlaid to inform how and where platforms may best be applied and embedded moving forwards.

Our analysis of the historical pipeline and industry activity has highlighted several trends:

The work profile

» The majority of NHS Trusts provide acute care and thus the overriding proportion of capital investment follows suit.

» The capital investment profile has been typically split equally between new build and refurbishment, with a rapidly-growing backlog maintenance demand

» An almost continuous volume of low value (i.e. less than £2m) work exists, albeit this is fragmented across 212 Trusts

The relationships

» The strength of the network between Trusts and the supply chain is varied; repeat, strategic relationships do occur at a local level, albeit the extent varies significantly, depending upon the individual Trusts

The supply chain

The supply market is formed by two distinct clusters:

» A long tail of organisations working on single, often low-value projects, typically as part of a broader portfolio of construction work

» A select group of healthcare specialists or market leaders that deliver regularly, often at scale

In the contracting fraternity, the market leaders have typically been ProCure framework partners – this being the channel for the largest volume of healthcare work.

To successfully embed a platform-based approach within the healthcare sector the complex dynamics (not least the diversity of workload, the fragmentation of actors and historical challenges with planning, prioritisation and approval of expenditure) need to be recognised and addressed through strategic planning.

The Platform Rulebook, highlights that a platform strategy should address decisions such as those shown in the image on the right.

With a defined project portfolio, the New Hospitals Programme appears to be significantly along its path in addressing these questions. Nonetheless, repeated communication of the strategic vision will be required to bind together individual Trusts and market actors alike in maintaining commonality and a shared consciousness through the lifespan of the programme.

Initiatives such as the Intelligent Hospital and NHSE/I's Future Standards Working Group suggest that the application of platform principles do not stop with NHP; the focus, shape and direction of the strategy for other market segments, beyond the production of technical standards and guidance, is less readily visible, however.

This is not to suggest that the need is any less…. after all,

"the Health Infrastructure Plan is not just about capital to build new hospitals".

STRATEGIC PLANNING DECISION	OUTPUTS
What is the strategic intent?	Platform Vision
Which segments of the capital estate portfolio are we focusing upon?	Market definition
What target benefits are we seeking to realise?	Strategic themes/outcome statements
What customisation and differentiation are required by the Trusts?	Commonality and differentiation plan
What is the financial model?	Platform business case
What is the pipeline demand?	Variant plan and volumes
What is the planning horizon of the standard technology (how quickly do requirements evolve?)	Platform horizon/lifespan
What are we planning to standardise and share?	Sharing strategy
How do we plan to manage the adoption of the platform?	Platform Governance Structure

DEFINING THE NEED

Drawing from historical data, our heat map suggests that over and above the focus of NHP, there is a sufficient scale of pipeline to justify the consideration towards platform strategies for both (i) mental health schemes and (ii) lower value projects in the acute sector. With sustainability drivers demanding the modernisation of the estate via retrofit and refurbishment, the latter will become ever-increasingly important.

Notwithstanding our analysis, the extent to which these market segments are truly appropriate for a platform-based approach needs robust review and evaluation against both pipeline projections and technical criteria, to mitigate optimism bias around the scale of commonality and sharing.

The Hub's Defining the Need report demonstrated, as proof of concept, how this exercise could be completed, in harmonising, digitising and rationalising demand. To ensure that the outcome of any comparable exercise is deliverable, systematic structural issues also need to be tackled, not least:

» Capital expenditure planning, prioritisation and approval – in affording greater certainty and visibility of pipeline.
» Central coordination / organisational structure – that aligns with a platform-based approach.
» Collaboration and knowledge curation – that enables the ecosystem to sustain, evolve and continuously improve.

NUMBER OF SCHEMES FOR
AN INDIVIDUAL TRUST

0   5+

Heat map columns: £2m-£9.99m | £10m-£24.99m | £25m-£49.99m | £50m-£99.99m | £100m+

Rows: ACUTE, AMBULANCE, COMMUNITY, MENTAL HEALTH, SPECIALIST
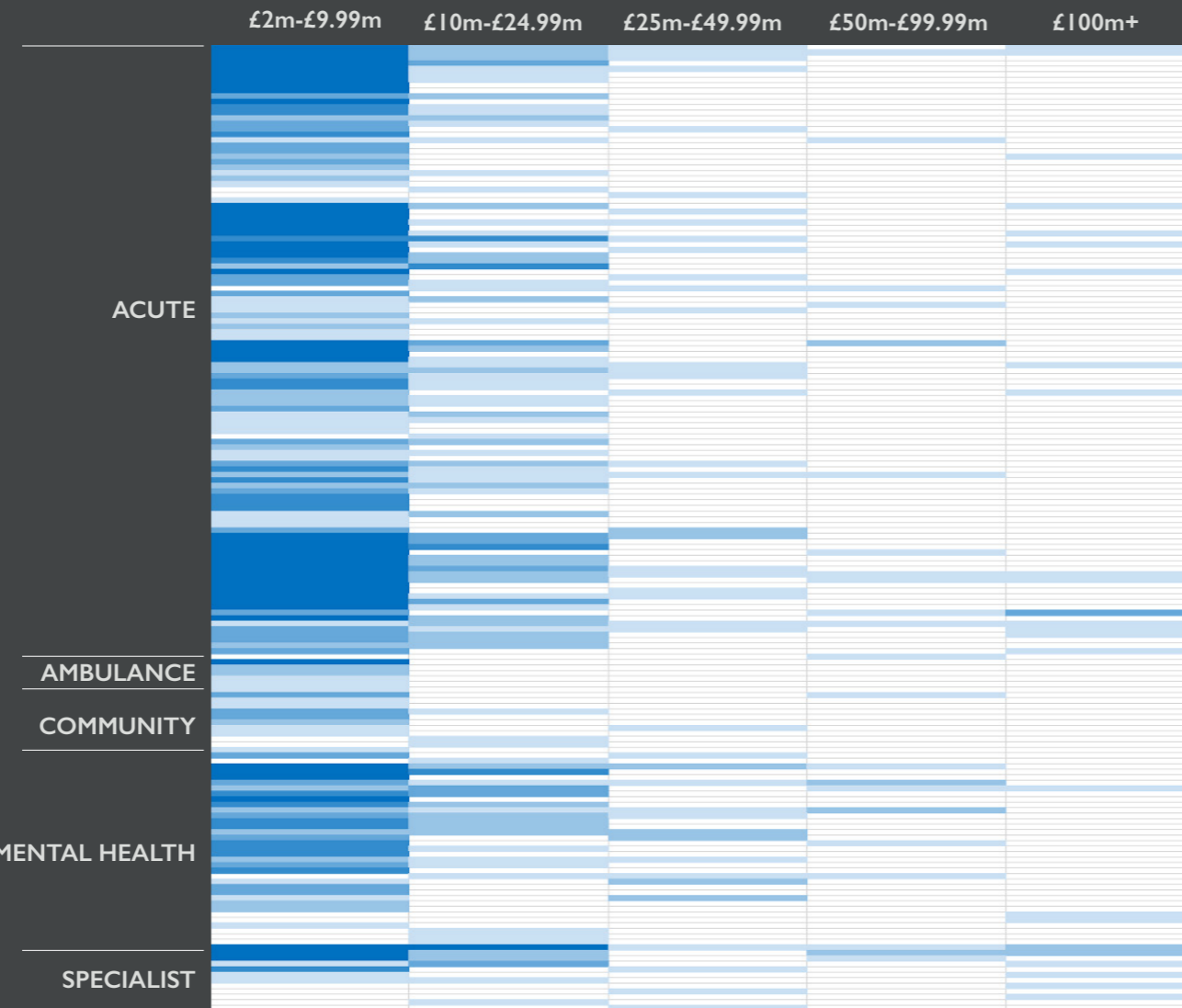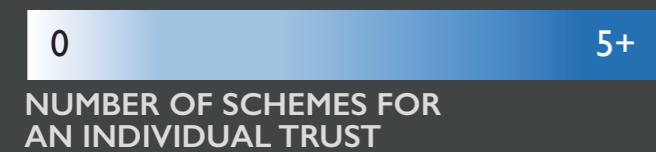
PLANNING, PRIORITISATION AND APPROVAL OF WORKS

In reviewing the historical pipeline we have analysed exclusively those schemes that were delivered; we have not attempted to track the extent to which work was cancelled, deferred or delayed. There is however a wealth of commentary to suggest that the process for planning, prioritisation and approval of works can and needs to be improved. The Health Infrastructure Plan acknowledges that a reformed system underpinning capital is required to make NHS infrastructure fit for the future. The Nuffield Trust were more forthright in their observations regarding the same, stating:

"The capital approvals process appears to have developed over the last 20 years as a method of capital rationing and delay rather than as a rational approach to capital allocation. The emphasis on a high level of detailed scrutiny at different stages of the approvals process has created a great deal of delay."

To leverage economies of scale and support longer-term capability growth, a modernised approach to capital allocation and approvals is required.

"Getting it right starts by publishing pipelines and identifying where we can create portfolios to drive investment in new technologies and sustainable solutions"

Construction Playbook

This needs to capture both large and smaller scale projects to address the two ends of the market.

QUANTUM   VALUE

80%

20%

Legend: <£2m | £2m-£9.99m | £10m-£24.99m | £25m-£49.99m | £50m-£99.99m | £100m+
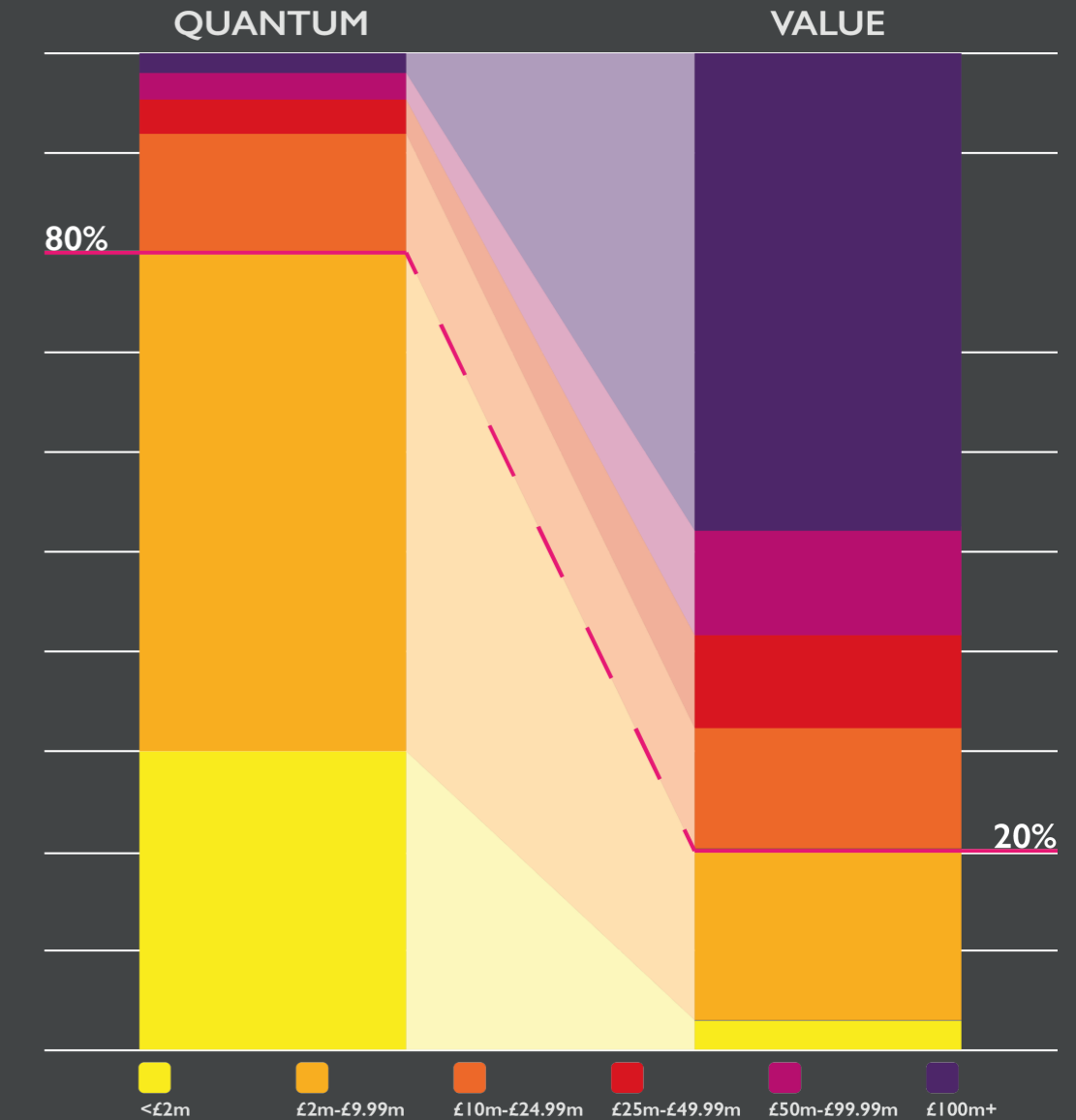
ORGANISATIONAL STRUCTURE

The Carter Review (Productivity in NHS Acute Hospitals) highlighted within the NHS "a systematic failure to capture the benefits of scale" and a need for greater collaboration and cooperation to derive efficiencies and improvements. Whilst pointed towards the delivery of clinical services, the same principles apply to the delivery of the capital budget.

The devolved structure of the Trusts and independency of projects is a challenge to a platform-based approach and the realisation of the benefits it affords. It warrants centralised coordination of some description however exactly where to draw the line is a critical decision.

The NHS has been historically criticised for "*veering between centralisation and decentralisation with alarming speed but dull predictability*"; the conundrum as to where best to gravitate towards is not new. In 1979, Henry Mintzberg wrote:

"The words centralisation and decentralisation have been bandied about for as long as anyone has cared to write about organisations."

Time has not made the challenge any easier to solve.

Albeit 100 years ago, Alfred Sloan famously implemented a framework labelled as 'Co-ordination by Committee' to embed a platform-based approach within General Motors decentralised divisional structure. More recently in the context of common-pooled resources, Elinor Ostrom advocated a polycentric system of governance. Both models, whilst distinct, recognise the sensitive balance between control and autonomy, commonality and local distinction.

As NHP seek to move from transactional, to hands-on and ultimately a "productised" mindset the relationship between NHSE/I and the Trusts will similarly need to evolve. The solution for other market segments will need as much, if not more consideration, to facilitate and enable the ecosystem to thrive.

CLIENT MODEL — TRANSFORMATION FROM TRANSACTIONAL TO HANDS-ON LEADERSHIP — PRODUCTISED MINDSET

DEGREE OF MMC AMBITION

COHORT 1: ONSITE

COHORT 2: EARLY

COHORT 3: PATHFINDERS

COHORT 4: FULL ADOPTER SCHEMES

COHORT 5: FULL ADOPTER SCHEMES

ATTAINMENT OF PROGRAMMATIC BENEFITS

TIME

KEY — CAPABILITY + CAPACITY OF THE MARKET
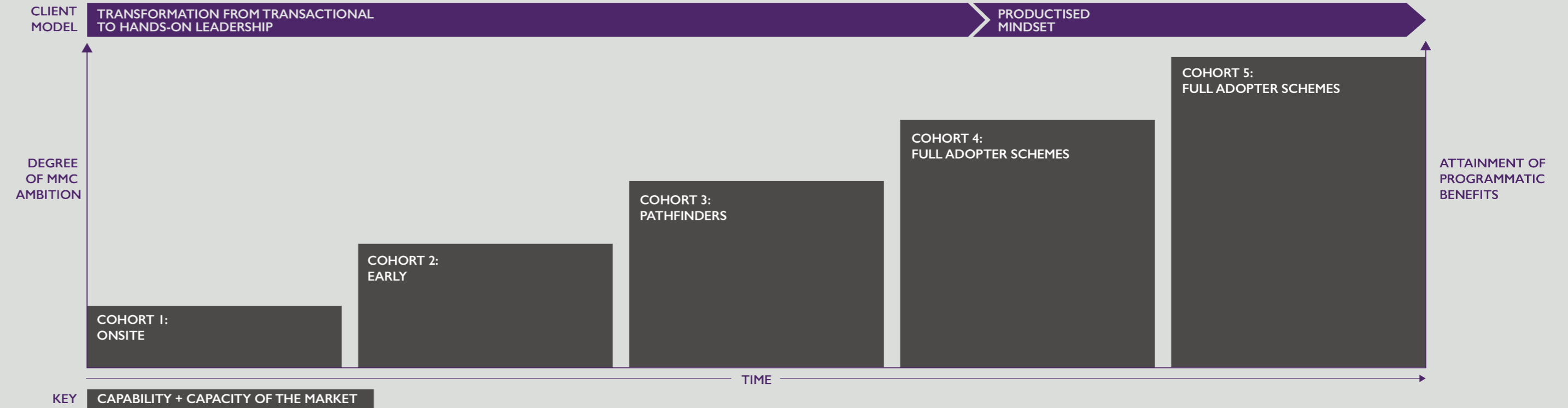
KNOWLEDGE CURATION

The Nuffield paper "*Lessons from the last hospital building programme*" outlined the importance of skills and expertise and how limited curation of knowledge nationally led to examples of reinventing the wheel. Reducing learning curves is a key benefit of a platform-based approach however diffusing the platform principles through the organisational networks we have identified will require concerted effort.

To offset this point, the New Hospitals programme has stated:

"We are working to develop best practice guidance and standards that we will be able to use across the board .... Those [best practice] guides will be dynamic and we'll be continuing to feed them in order to support all the organisation with the latest intelligence on how to build a new hospital".

New Hospitals Programme

Historically the Future Healthcare Network sought to fulfil a similar ambition, in spreading expertise and facilitating dialogue between schemes and with advisors, contractors and other experts. Whilst valuable and well supported at the time, in retrospect this was not enough alone to meet the need in this area.

To successfully embed the platform principles in a manner that facilitates learning, adaptation and continuous improvement (not least feedback from post-occupancy evaluation) will require a step-change in information sharing. In his book, Team of Teams, General Stanley McChrystal describes the need for connectivity of common purpose and transparent communication to establish a state of shared consciousness amongst decentralised, interdependent organisations.

Closer to home, research studies have advocated central leadership for standardised data exchange to support the healthcare building sector to "avoid duplication, fragmentation, redundancy and repetition". A multi-modal approach including collegiate forums, the application of digital tools (not least open-source health planning and design knowledge resources) and a cultural shift will be required in unison to make in-roads.

The realisation of benefits through a platform approach will rely heavily upon the commitment of project leadership and implementation by design and professional teams.

SKILLS DEVELOPMENT

By our assessment of work conducted in the past decade, **10 organisations (a mix of contractors and designers) were involved in the delivery of schemes amounting to circa 75% of expenditure**.

Ostensibly, this is the strongest point of commonality across the market, providing a clear focal point in which knowledge, understanding and application of platform principles could be swiftly and successfully embedded. Whether this represents the right approach however is debatable.

This simplistic model ignores the reality that the most significant market players are predominantly large scale organisations, with regional teams delivering healthcare projects periodically, as part of multi-sector portfolios. They too will have challenges in driving consistency, albeit behind closed doors.

Equally providing prioritisation to perceived market leaders only serves to reinforce their dominance and the existence of two market tiers, it will not encourage and enable a new dynamic. Instead, a model that supports SMEs to invest in skills development and the adaptions required by platform-based approach would appear better aligned with the intended outcomes.

Whilst Mechanical, Electrical and Public Health trades have been thrust into the spotlight (recognising MEP is typically the largest constituent element of a healthcare scheme), this should not detract from the importance of educating and supporting capital estates and professional teams in their journeys.

"The shortage of experienced project directors with the knowledge and ability to draw together the client-side expertise of the NHS is a major concern"

The Nuffield Trust

"Adopting the proposed P-DfMA approach will inevitably require all professionals across the built environment to develop the necessary skills more widely. While the skills required do exist within some [architecture] practices, this is not necessarily widespread."

RIBA

At a project level the shape of the opportunities for the supply chain is generally determined by the parameters and context set by the early-stage team.

The ability to realise the benefits promised by a platform-based approach will therefore rely heavily upon the commitment and understanding of both estates leadership and design and professional teams as much if not more so than the enthusiasm of the market.

REFERENCES

Pg 2 Platform Thinking for Construction, Transforming Construction Network Plus Digest (2020)
(https://www.ucl.ac.uk/bartlett/construction/sites/bartlett/files/digest-platform-thinking-for-construction.pdf)

Pg 2 Planning for Product Platforms by Robertson and Ulrich (1998)

Pg 5 Estates Returns Information Collection
(https://digital.nhs.uk/data-and-information/publications/statistical/estates-returns-information-collection)

Pg 5 Defining the Need, Construction Innovation Hub
(https://constructioninnovationhub.org.uk/wp-content/uploads/2020/12/FINAL_VERSION_DEFINING-THE-NEED-REPORT-DEC-2020.pdf)

Pg 7 Delivery Platforms for Government Assets, Bryden Wood (republished 2021)

Pg 7 Transforming Infrastructure Performance Roadmap to 2030, Infrastructure Project Authority
(https://www.gov.uk/government/publications/transforming-infrastructure-performance-roadmap-to-2030)

Pg 8 NHS Nightingale Instruction Manual - BDP
(https://www.bdp.com/globalassets/projects/nhs-nightingale-hospital/nhs-nightingale-instruction-manual.pdf)

Pg 8 Oliver David Kreig at Intelligent City (via Twitter)

Pg 10 Strategic Product Design for Multiple Global Markets, Nadadur et al (2013)

Pg 11 'Modernization of Our Hospital System': The National Health Service, the Hospital Plan, and the 'Harness' Programme, 1962–77 Alistair Fair (2018)

Pg 11 UCL Challenging space frontiers in Hospitals, Transforming Construction Network Plus (2020)
(https://www.ucl.ac.uk/bartlett/construction/sites/bartlett/files/challenging_space_frontiers_in_hospitals_-_industry_report_-_page.pdf)

Pg 11 Automated compliance checking in healthcare building design, P Tzortzopoulous et al (2021)
(https://pure.hud.ac.uk/en/publications/automated-compliance-checking-in-healthcare-building-design)

Pg 12 "How do we want to do things differently" New Hospital Programme (Build Offsite Update, July 2020)

Pg 17 Capital Investment in the NHS, The Kings Fund (2020)
(https://www.kingsfund.org.uk/projects/nhs-in-a-nutshell/nhs-capital-investment)

Pg 17 Construction Playbook, Cabinet Office (2020)
(https://www.gov.uk/government/publications/the-construction-playbook)

Pg 17 Health Infrastructure Plan, Department of Health and Social Care (2019)
(https://www.gov.uk/government/publications/health-infrastructure-plan)

Pg 23 NHS Property and Estates: Naylor Review (2017)
(https://www.gov.uk/government/publications/nhs-property-and-estates-naylor-review)

Pg 29 Evidence submission to IPA's P-DfMA Call for Evidence, RIBA (2019)
(https://www.architecture.com/knowledge-and-resources/resources-landing-page/platform-approach-to-design-for-manufacture-and-assembly-consultation-response)

Pg 41 Construction the Gold Standard, Professor David Mosey (2021)
(https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1041002/Constructing_The_Gold_Standard_Final.pdf)

Pg 44 New Hospital Programme Pipeline
(https://qrcgcustomers.s3-eu-west-1.amazonaws.com/account15220056/24514051_1.pdf?0.5534959605841592)

Pg 48 Rethinking healthcare building design quality: an evidence-based strategy Grant Mils, Michael Phiri, Jonathan Erskine and Andrew price (2015)

Pg 49 Productivity in NHS Hospitals, The Carter Review (2015)
(https://www.gov.uk/government/publications/productivity-in-nhs-hospitals)

Pg 49 Lessons from the last hospital building programme, and recommendations for the next, Nuffield Trust (2020)

Pg 49 Team of Teams, General Stanley McChrystal (2015)

Trust Summary report
(https://digital.nhs.uk/data-and-information/data-tools-and-services/data-services/patient-level-information-and-costing-system-plics-data-collections/integrated-trust-specific-summary-reports/trust-summary-report-overview)

AKERLOF

Akerlof is a consultancy that specialises in delivering better outcomes through modern methods of construction. In the past 24 months alone we have contributed to:

Through the development of our dataset, we are able to define specifically which organisations have worked with which (and how regularly).
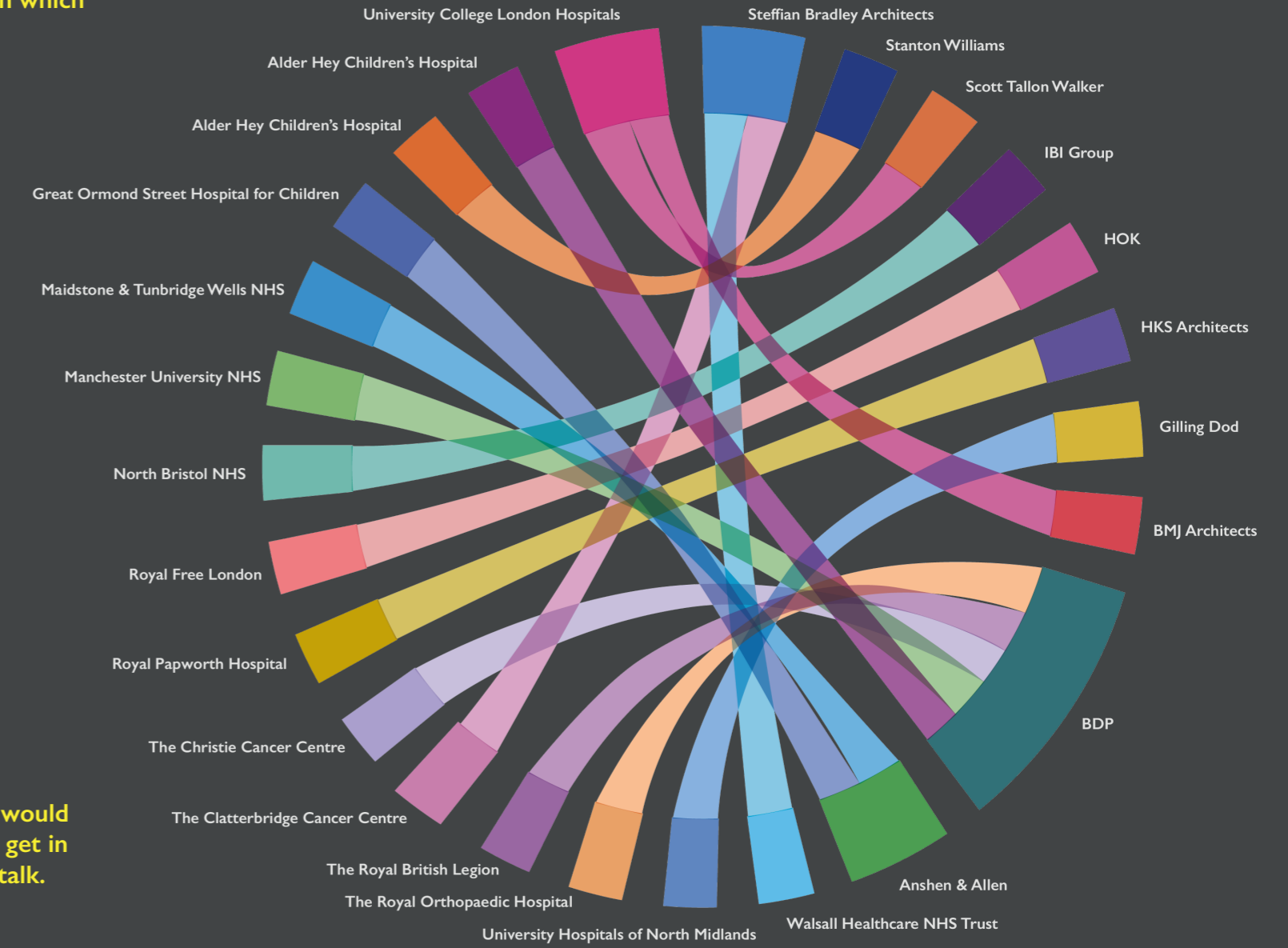
If, having read this report, you would like to learn more, then please get in contact with us – we'd love to talk.

platforms@akerlof.co.uk

A-Z OF THE NHS TRUSTS

or at least until they change again.......

Legend:
- ACUTE
- MENTAL HEALTH
- SPECIALIST
- COMMUNITY
- AMBULANCE
- CARE TRUST

- Airedale NHS Foundation Trust
- Alder Hey Children's NHS Foundation Trust
- Ashford and St Peter's Hospitals NHS Foundation Trust
- Avon and Wiltshire Mental Health Partnership NHS Trust
- Barking, Havering & Redbridge University Hospitals NHS Trust
- Barnet, Enfield and Haringey Mental Health NHS Trust
- Barnsley Hospital NHS Foundation Trust
- Barts Health NHS Trust
- Bedfordshire Hospitals NHS Foundation Trust
- Berkshire Healthcare NHS Foundation Trust
- Birmingham and Solihull Mental Health NHS Foundation Trust
- Birmingham Community Healthcare NHS Foundation Trust
- Birmingham Women's and Children's NHS Foundation Trust
- Black Country Healthcare NHS Foundation Trust
- Blackpool Teaching Hospitals NHS Foundation Trust
- Bolton NHS Foundation Trust
- Bradford District Care NHS Foundation Trust
- Bradford Teaching Hospitals NHS Foundation Trust
- Bridgewater Community Healthcare NHS Foundation Trust
- Buckinghamshire Healthcare NHS Trust
- Calderdale and Huddersfield NHS Foundation Trust
- Cambridge University Hospitals NHS Foundation Trust
- Cambridgeshire and Peterborough NHS Foundation Trust
- Cambridgeshire Community Services NHS Trust
- Camden and Islington NHS Foundation Trust
- Central and North West London NHS Foundation Trust
- Central London Community Healthcare NHS Trust
- Chelsea and Westminster Hospital NHS Foundation Trust
- Cheshire and Wirral Partnership NHS Foundation Trust
- Chesterfield Royal Hospital NHS Foundation Trust
- Cornwall Partnership NHS Foundation Trust
- Countess of Chester Hospital NHS Foundation Trust
- County Durham and Darlington NHS Foundation Trust
- Coventry and Warwickshire Partnership NHS Trust
- Croydon Health Services NHS Trust
- Cumbria, Northumberland, Tyne & Wear NHS Foundation Trust
- Dartford and Gravesham NHS Trust
- Derbyshire Community Health Services NHS Foundation Trust
- Derbyshire Healthcare NHS Foundation Trust
- Devon Partnership NHS Trust
- Doncaster and Bassetlaw Teaching Hospitals NHS Foundation Trust
- Dorset County Hospital NHS Foundation Trust
- Dorset Healthcare University NHS Foundation Trust
- East and North Hertfordshire NHS Trust
- East Cheshire NHS Trust
- East Kent Hospitals University NHS Foundation Trust
- East Lancashire Hospitals NHS Trust
- East London NHS Foundation Trust
- East Midlands Ambulance Service NHS Trust
- East of England Ambulance Service NHS Trust
- East Suffolk and North Essex NHS Foundation Trust
- East Sussex Healthcare NHS Trust
- Epsom and St Helier University Hospitals NHS Trust
- Essex Partnership University NHS Foundation Trust
- Frimley Health NHS Foundation Trust
- Gateshead Health NHS Foundation Trust
- George Eliot Hospital NHS Trust
- Gloucestershire Health and Care NHS Foundation Trust
- Gloucestershire Hospitals NHS Foundation Trust
- Great Ormond Street Hospital For Children NHS Foundation Trust
- Great Western Hospitals NHS Foundation Trust
- Greater Manchester Mental Health NHS Foundation Trust
- Guy's and St Thomas' NHS Foundation Trust
- Hampshire Hospitals NHS Foundation Trust
- Harrogate and District NHS Foundation Trust
- Herefordshire and Worcestershire Health and Care NHS Trust
- Hertfordshire Community NHS Trust
- Hertfordshire Partnership University NHS Foundation Trust
- Homerton University Hospital NHS Foundation Trust
- Hounslow & Richmond Community Healthcare NHS Trust
- Hull University Teaching Hospitals NHS Trust
- Humber Teaching NHS Foundation Trust
- Imperial College Healthcare NHS Trust
- Isle of Wight NHS Trust
- James Paget University Hospitals NHS Foundation Trust
- Kent and Medway NHS and Social Care Partnership Trust
- Kent Community Health NHS Foundation Trust
- Kettering General Hospital NHS Foundation Trust
- King's College Hospital NHS Foundation Trust
- Kingston Hospital NHS Foundation Trust
- Lancashire and South Cumbria NHS Foundation Trust
- Lancashire Teaching Hospitals NHS Foundation Trust
- Leeds and York Partnership NHS Foundation Trust
- Leeds Community Healthcare NHS Trust
- Leeds Teaching Hospitals NHS Trust
- Leicestershire Partnership NHS Trust
- Lewisham and Greenwich NHS Trust
- Lincolnshire Community Health Services NHS Trust
- Lincolnshire Partnership NHS Foundation Trust
- Liverpool Heart and Chest Hospital NHS Foundation Trust
- Liverpool University Hospitals NHS Foundation Trust
- Liverpool Women's NHS Foundation Trust
- London Ambulance Service NHS Trust
- London North West University Healthcare NHS Trust
- Maidstone and Tunbridge Wells NHS Trust
- Manchester University NHS Foundation Trust
- Medway NHS Foundation Trust
- Mersey Care NHS Foundation Trust
- Mid and South Essex NHS Foundation Trust
- Mid Cheshire Hospitals NHS Foundation Trust
- Mid Yorkshire Hospitals NHS Trust
- Midlands Partnership NHS Foundation Trust
- Milton Keynes University Hospital NHS Foundation Trust
- Moorfields Eye Hospital NHS Foundation Trust
- Norfolk and Norwich University Hospitals NHS Foundation Trust
- Norfolk and Suffolk NHS Foundation Trust
- Norfolk Community Health and Care NHS Trust
- North Bristol NHS Trust
- North Cumbria Integrated Care NHS Foundation Trust
- North East Ambulance Service NHS Foundation Trust
- North East London NHS Foundation Trust
- North Middlesex University Hospital NHS Trust
- North Staffordshire Combined Healthcare NHS Trust
- North Tees and Hartlepool NHS Foundation Trust
- North West Ambulance Service NHS Trust
- North West Anglia NHS Foundation Trust
- Northampton General Hospital NHS Trust
- Northamptonshire Healthcare NHS Foundation Trust
- Northern Care Alliance NHS Foundation Trust
- Northern Devon Healthcare NHS Trust
- Northern Lincolnshire and Goole NHS Foundation Trust
- Northumbria Healthcare NHS Foundation Trust
- Nottingham University Hospitals NHS Trust
- Nottinghamshire Healthcare NHS Foundation Trust
- Oxford Health NHS Foundation Trust
- Oxford University Hospitals NHS Foundation Trust
- Oxleas NHS Foundation Trust
- Pennine Care NHS Foundation Trust
- Portsmouth Hospitals University NHS Trust
- Queen Victoria Hospital NHS Foundation Trust
- Rotherham Doncaster and South Humber NHS Foundation Trust
- Royal Berkshire NHS Foundation Trust
- Royal Cornwall Hospitals NHS Trust
- Royal Devon and Exeter NHS Foundation Trust
- Royal Free London NHS Foundation Trust
- Royal National Orthopaedic Hospital NHS Trust
- Royal Papworth Hospital NHS Foundation Trust
- Royal Surrey NHS Foundation Trust
- Royal United Hospitals Bath NHS Foundation Trust
- Salisbury NHS Foundation Trust
- Sandwell and West Birmingham Hospitals NHS Trust
- Sheffield Children's NHS Foundation Trust
- Sheffield Health & Social Care NHS Foundation Trust
- Sheffield Teaching Hospitals NHS Foundation Trust
- Sherwood Forest Hospitals NHS Foundation Trust
- Shrewsbury and Telford Hospital NHS Trust
- Shropshire Community Health NHS Trust
- Solent NHS Trust
- Somerset NHS Foundation Trust
- South Central Ambulance Service NHS Foundation Trust
- South East Coast Ambulance Service NHS Foundation Trust
- South London and Maudsley NHS Foundation Trust
- South Tees Hospitals NHS Foundation Trust
- South Tyneside and Sunderland NHS Foundation Trust
- South Warwickshire NHS Foundation Trust
- South West London and St George's Mental Health NHS Trust
- South West Yorkshire Partnership NHS Foundation Trust
- South Western Ambulance Service NHS Foundation Trust
- Southern Health NHS Foundation Trust
- Southport and Ormskirk Hospital NHS Trust
- St George's University Hospitals NHS Foundation Trust
- St Helens and Knowsley Teaching Hospitals NHS Trust
- Stockport NHS Foundation Trust
- Surrey and Borders Partnership NHS Foundation Trust
- Surrey and Sussex Healthcare NHS Trust
- Sussex Community NHS Foundation Trust
- Sussex Partnership NHS Foundation Trust
- Tameside and Glossop Integrated Care NHS Foundation Trust
- Tavistock and Portman NHS Foundation Trust
- Tees, Esk and Wear Valleys NHS Foundation Trust
- The Christie NHS Foundation Trust
- The Clatterbridge Cancer Centre NHS Foundation Trust
- The Dudley Group NHS Foundation Trust
- The Hillingdon Hospitals NHS Foundation Trust
- The Newcastle Upon Tyne Hospitals NHS Foundation Trust
- The Princess Alexandra Hospital NHS Trust
- The Queen Elizabeth Hospital, King's Lynn NHS Foundation Trust
- The Robert Jones and Agnes Hunt Orthopaedic Hospital NHS Foundation Trust
- The Rotherham NHS Foundation Trust
- The Royal Marsden NHS Foundation Trust
- The Royal Orthopaedic Hospital NHS Foundation Trust
- The Royal Wolverhampton NHS Trust
- The Walton Centre NHS Foundation Trust
- Torbay and South Devon NHS Foundation Trust
- United Lincolnshire Hospitals NHS Trust
- University College London Hospitals NHS Foundation Trust
- University Hospital Southampton NHS Foundation Trust
- University Hospitals Birmingham NHS Foundation Trust
- University Hospitals Bristol and Weston NHS Foundation Trust
- University Hospitals Coventry and Warwickshire NHS Trust
- University Hospitals Dorset NHS Foundation Trust
- University Hospitals of Derby and Burton NHS Foundation Trust
- University Hospitals of Leicester NHS Trust
- University Hospitals of Morecambe Bay NHS Foundation Trust
- University Hospitals of North Midlands NHS Trust
- University Hospitals Plymouth NHS Trust
- University Hospitals Sussex NHS Foundation Trust
- Walsall Healthcare NHS Trust
- Warrington and Halton Teaching Hospitals NHS Foundation Trust
- West Hertfordshire Teaching Hospitals NHS Trust
- West London NHS Trust
- West Midlands Ambulance Service NHS Foundation Trust
- West Suffolk NHS Foundation Trust
- Whittington Health NHS Trust
- Wirral Community NHS Foundation Trust
- Wirral University Teaching Hospital NHS Foundation Trust
- Worcestershire Acute Hospitals NHS Trust
- Wrightington, Wigan and Leigh NHS Foundation Trust
- Wye Valley NHS Trust
- Yeovil District Hospital NHS Foundation Trust
- York & Scarborough Teaching Hospitals NHS Foundation Trust
- Yorkshire Ambulance Service NHS Trust

AKERLOF