North East & North Cumbria ICS Digital Care Programme

Population Health Management (PHM), Axiom and TREE

16th September 2021

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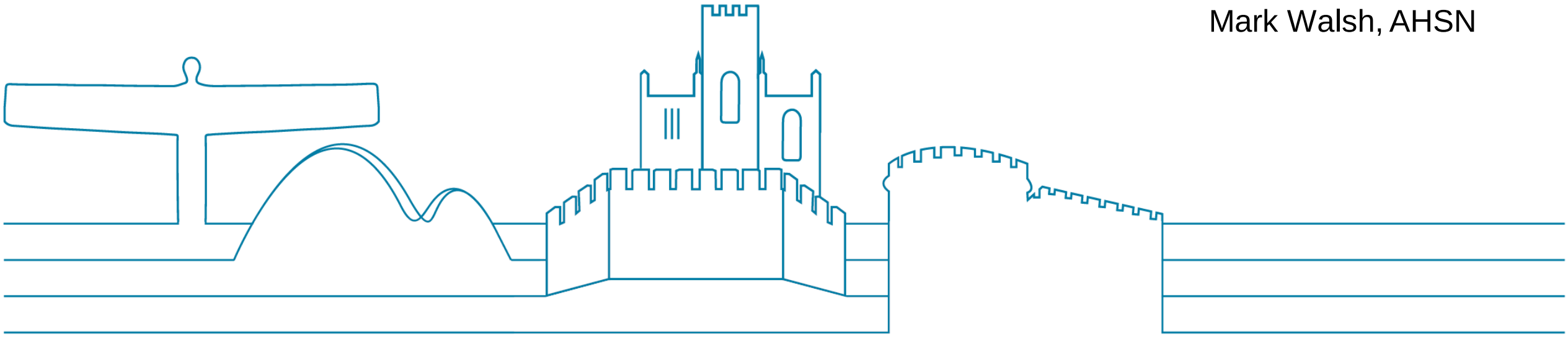


PHM – national definition

Population health is an approach aimed at improving the health of an entire population. It is about **improving the physical and mental health outcomes** and wellbeing of people, whilst **reducing health inequalities** within and across a defined population. It includes action to reduce the occurrence of ill-health, including **addressing wider determinants of health,** and requires working with communities and partner agencies.

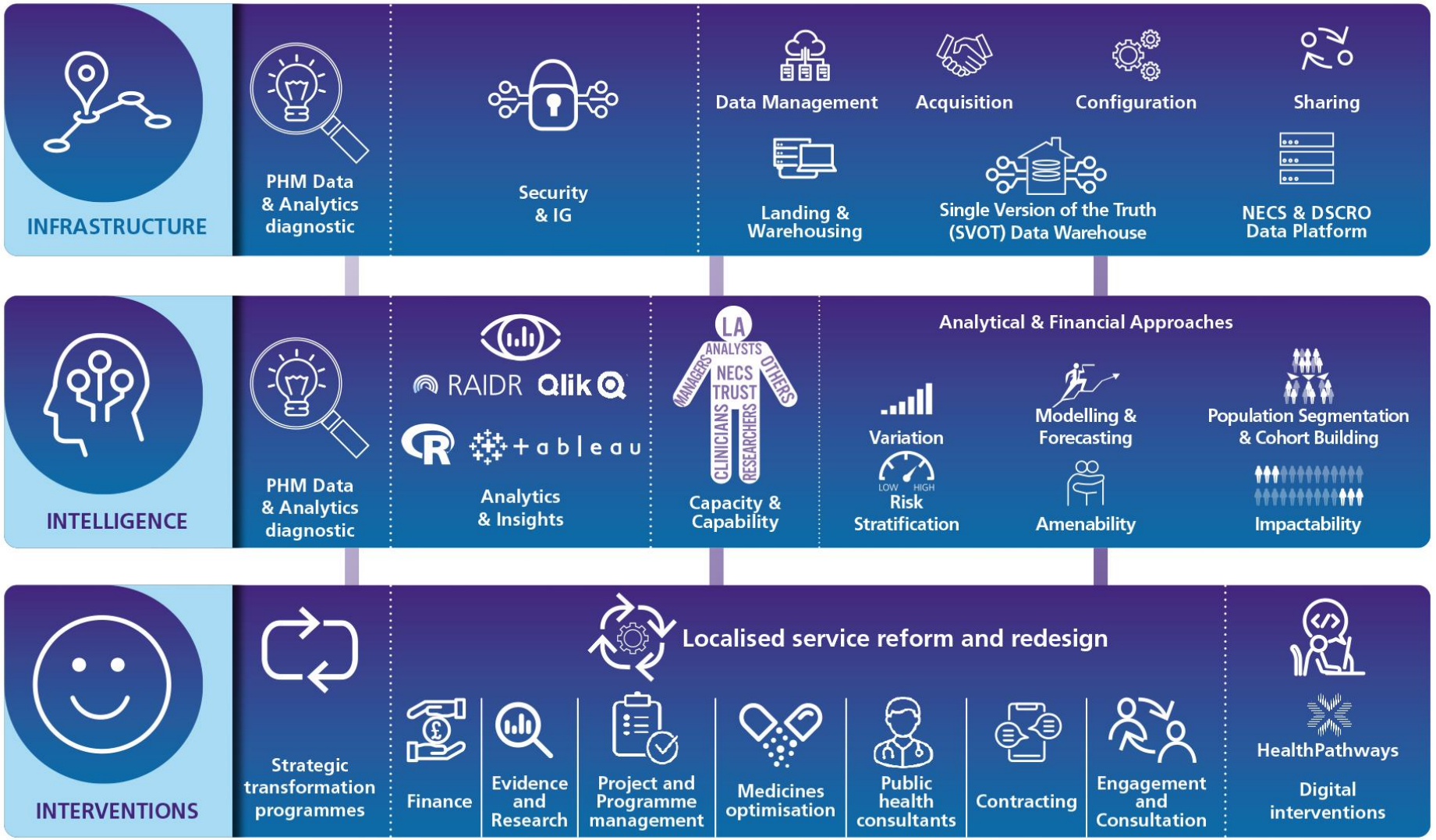
Population health management improves population health by **data driven planning and delivery of care to achieve maximum impact.** It includes segmentation, stratification and impactability modelling to identify local at risk cohorts - and, in turn, designing and targeting interventions to prevent ill-health and to improve care and support for people with ongoing health conditions and reducing unwarranted variations in outcomes.

In summary …..
Data driven decision making, and subsequent interventions

10% Data, 90% Change

PHM – 3 I's model

Today



1. Axiom and TREE

Core interest of Digital Leads ?

2. Analyst Community

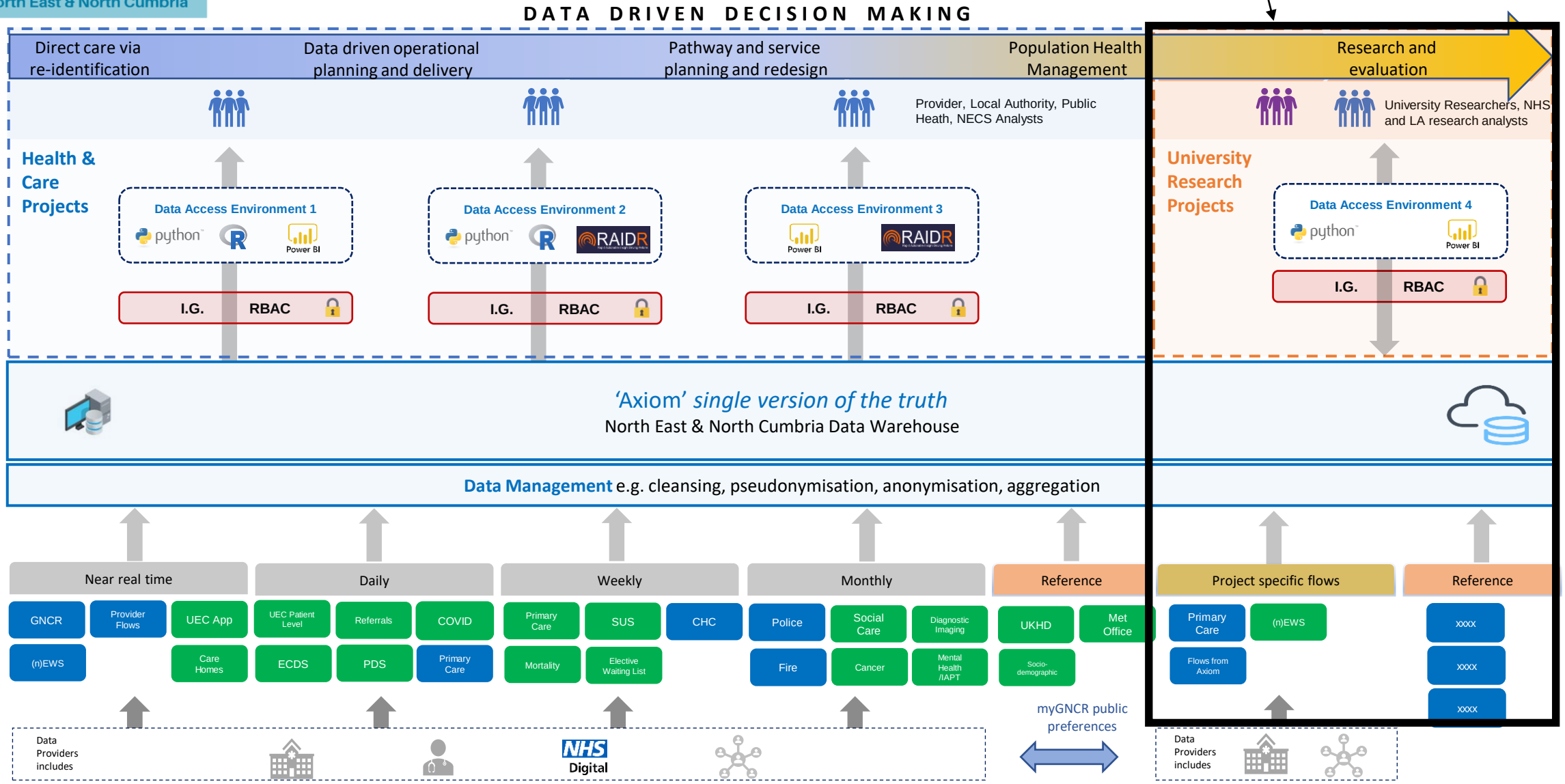
90% change !

Intro – TREE and Axiom

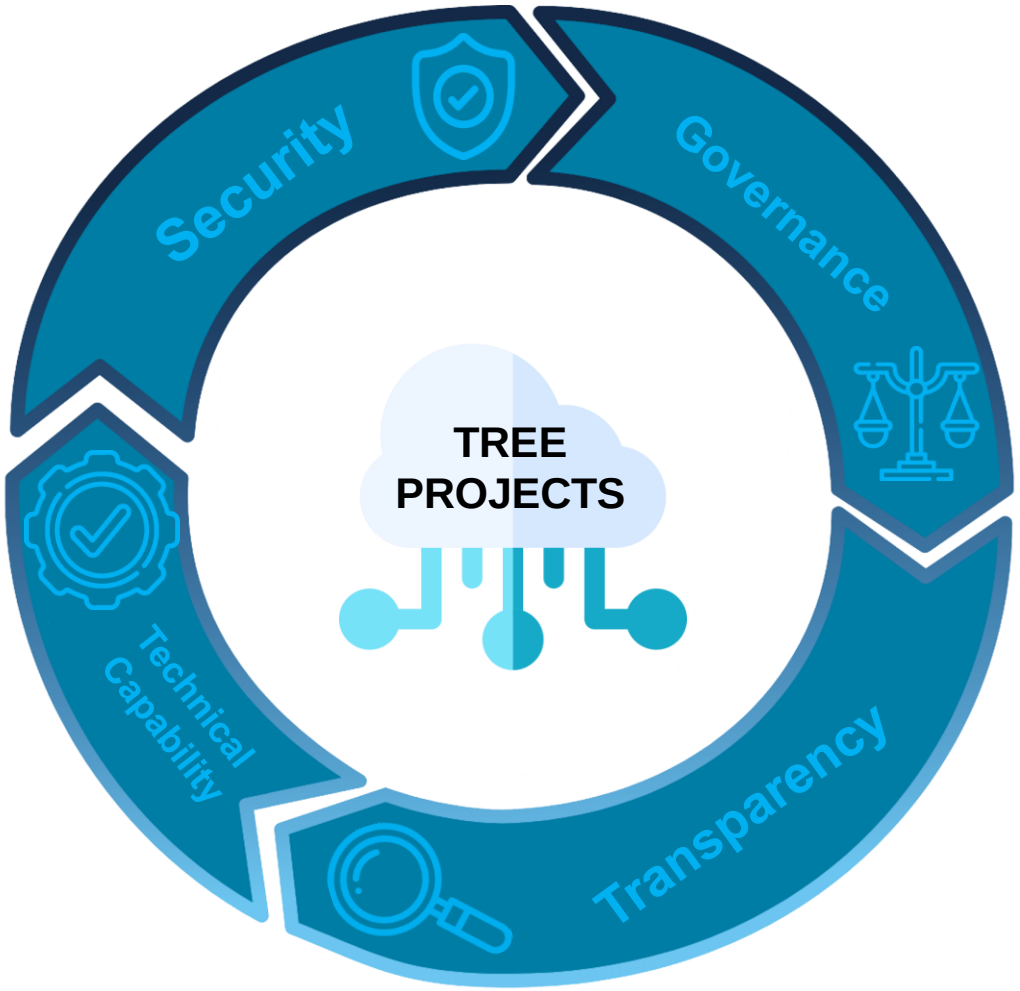
- The Trusted Research and Evaluation Environment (TREE) will provide health, care and academic staff (time limited and secure) access to data for research and innovation projects
- Axiom is a data system which will provide access to a wide variety of health, care and other data to health and care staff for planning, for redesign, for operational reporting, for PHM etc.
- Axiom and TREE will work in an integrated manner to maximise the benefits to health and care services, to drive PHM and to conduct leading edge research
- Both initiatives use our installed base: resources, specialist skills and talent; regional governance (PHM, digital); infrastructure

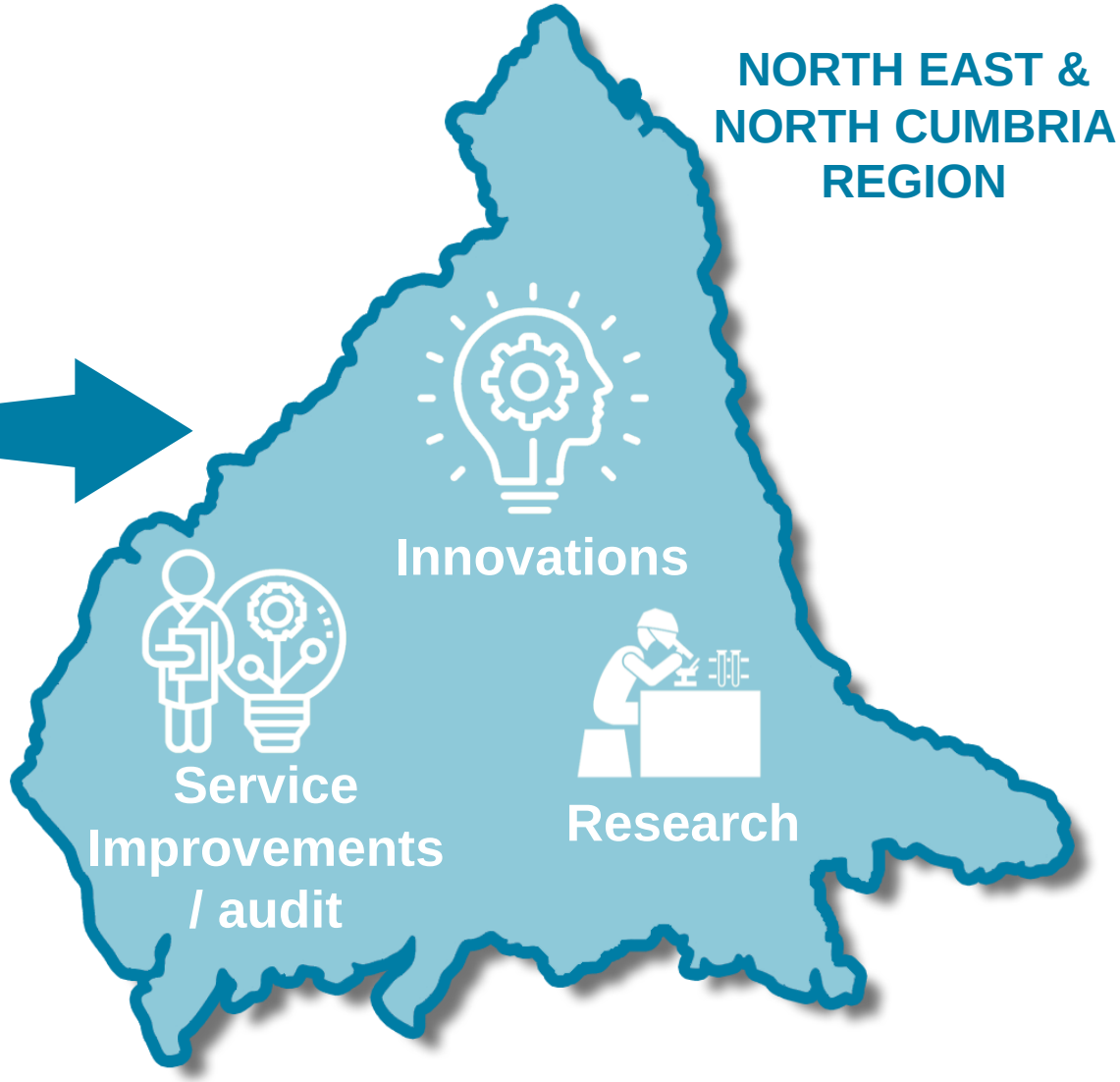
Overview of Data Environment

Trusted Research and Evaluation Environment (TREE)

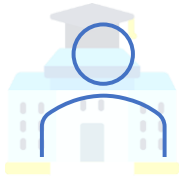


TREE Overview





Current Situation



Data use audit and governance

Organisational capability to handle increasingly large datasets and process complex algorithms

Complexity of multiple data controllers

data management and transfer project agreements

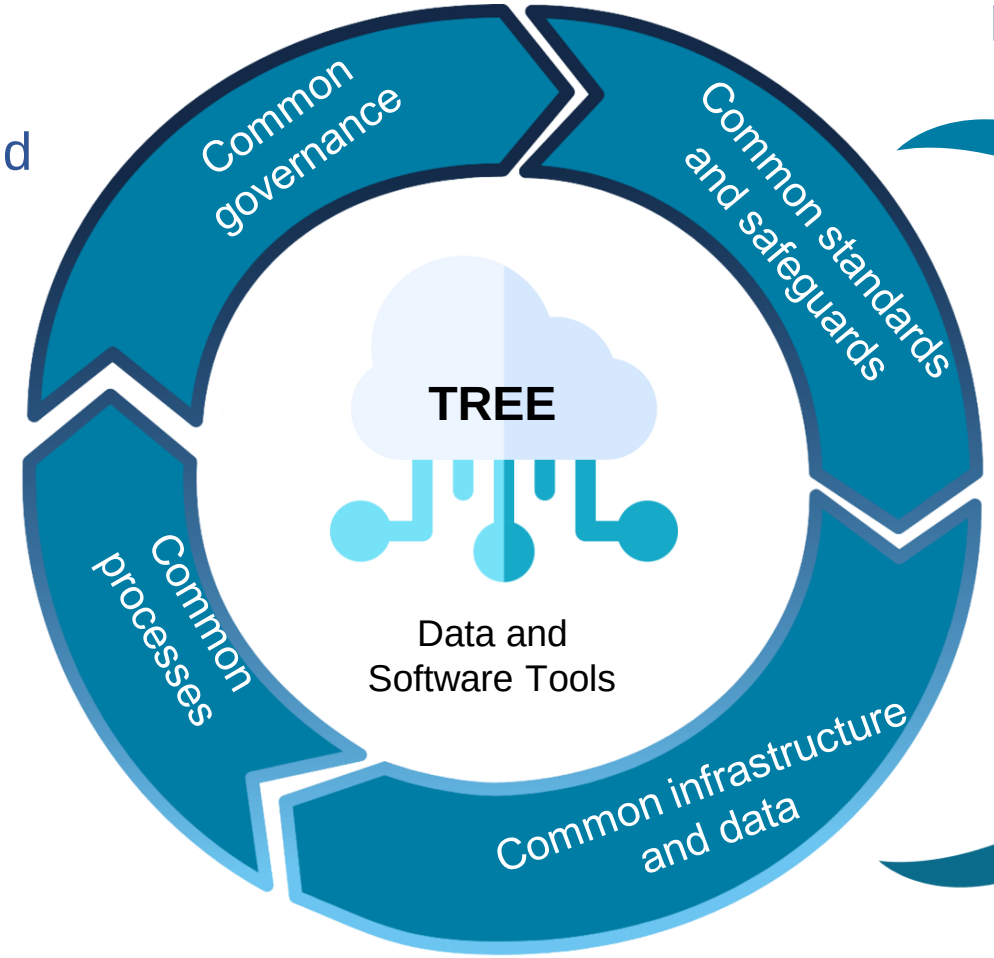
What does the TREE Provide?

Project collaborators access data and tools virtually

Axiom

Data from multiple controllers

Data linked, anonymised, pseudonymised



'5 safes' national principles

Project sponsors and teams

Confidence

Trust

Data controllers

Public transparency

TREE benefits to the region

Region

- For our public provide more understanding and involvement of how data can be safely used to improve health and care services and treatments
- provide a regional research and innovation capability, facilitating collaborative working across healthcare, academic and industry partners
- develop a more skilled regional workforce and improve experience, develop research leaders and attract new talent

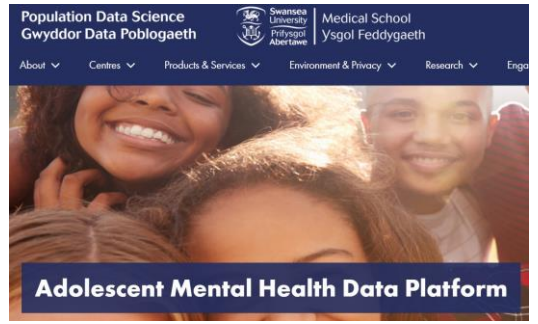
- strategically position and enhance the reputation of the NENC region
- provide opportunities for new funding through national research and industry partnerships
- provide economies of scale through joint investment in people and infrastructure

TREE example projects

University of Dundee
Health Informatics Centre

Data driven collaboration between the NHS and academics to improve primary care prescribing safety [Case studies : Health Informatics Centre : University of Dundee]

Projects include exploring the impact of Adverse Childhood Experiences children's and education on young people
[Adolescent Mental Health Data Platform | Population Data Science at Swansea University Medical School]



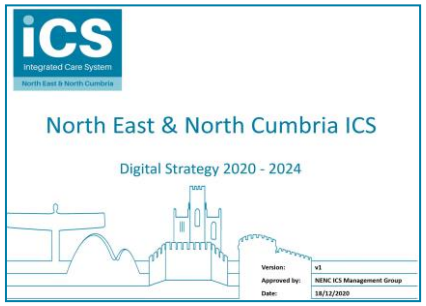
OpenCARE
precision AI for CMR

Collaboration between Barts Health NHS Trust & University College London developing an AI Precision Diagnostics Tool for Cardiovascular Care [OpenCARE – AIMES – Intelligent Data Solutions]

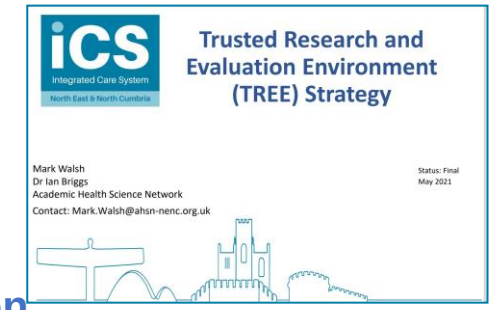
OpenSAFELY

National Covid-19 intelligence and research [OpenSAFELY: Research]

Current Status



Tree regional consultation



ICS Management Board review

Options appraisal for regional service

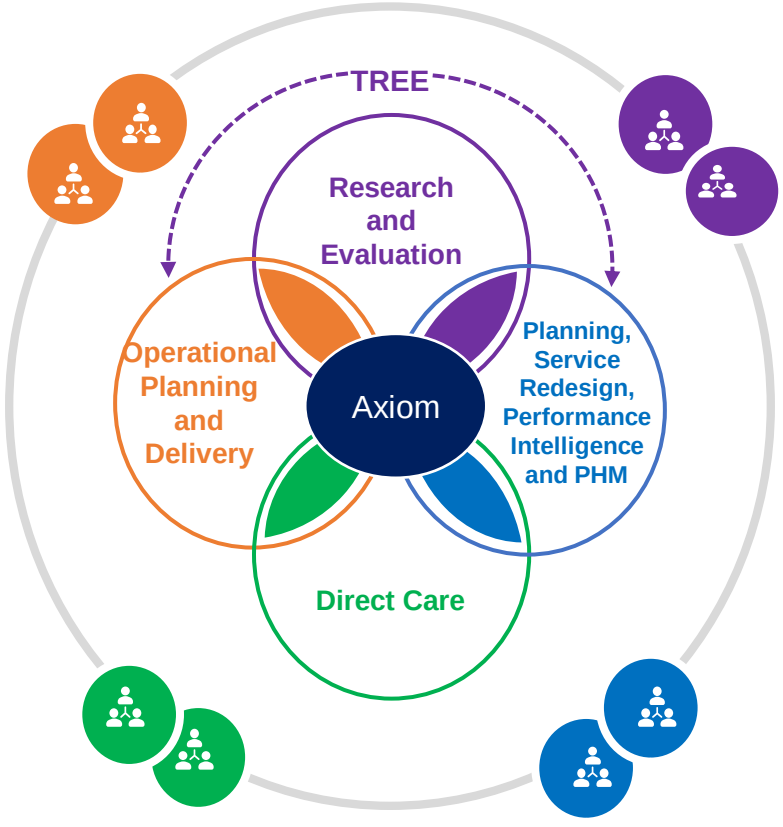
Report available

January → May → June → July → Sept

Axiom and TREE Benefits and Opportunity

Axiom

- All organisations have access to one source of the truth, professionally managed, robustly secured, supporting system / place / neighbourhood working.
- Integrated patient level data covering health, care and wider determinants of health.
- Underpins PHM, commissioning, planning, reform, and informs care coordination.
- Can underpin shared analytics working across organisations.
- Removes debate, waste, inefficiencies and duplication of resource working on data and contract management, allowing more focus on value adding activities.



NENC developments

- Common platform and support services (data mgt, IG….)
- Seamless service for users
- Efficiencies/cost savings in infrastructure and resources
- Flexible and scalable platform
- Joint governance

TREE

- Unlock the value of our data by bringing together the expertise and knowledge of our regional academic and health and care communities, in partnership with our citizens, to improve and sustain better health and well-being outcomes in our region.
- Enable joint collaborations to focus on local healthcare priorities and opportunities for service improvements, innovative treatments and evaluation.
- Have a nationally recognised TREE of choice for future industry collaborations, generating funding for regional healthcare improvements.
- Provide an environment recognised by all our stakeholders as inclusive, accessible, safe, secure, ethical and well governed.

PHM Analytics

How to make the most from our collective Analyst community

PHM Analytics capacity & capability

- Following agreement from Digital Boards, Prevention and PHM Boards, and the ICS Mgt Group, baseline exercise undertaken in a series of workshops in June facilitated by PHE colleagues
- Purpose = understand PHM analytical capacity and capability across NENC
- Why ?
  - The Integrating Care Next Steps paper states ***'Develop shared cross-system intelligence and analytical functions'*** including ***'the capacity and skills needed for population health management'***
  - The March planning guidance includes ***'Meeting population need requires ….. robust analytical capability aligned across system partners'***
  - We need to make maximum use of and impact from our collective analytical community
  - Analytics underpins PHM and PHM is at the core of continuing to improve the health of our population
  - To inform training and upskilling of Analysts across the ICS
- Results are now available …..

From data to decisions: *Building blocks for place-based population intelligence systems*

PHM Analytics capacity and capability baseline assessment

Results for North East & North Cumbria ICS

Public Health England

Protecting and improving the nation's health

NHS England

The survey covered 25 organisations / 30 teams / 549 Analysts

Organisation type/team	WTE
Trusts & NEQOS	**285**
County Durham & Darlington NHS Foundation Trust, Not known	10
Gateshead Health NHS Foundation Trust, Planning, Performance, Analytics and Information + Digital solutions development team	20
Newcastle upon Tyne Hospitals NHS Foundation Trust, Information Services - Analysis Team	11
North Cumbria Integrated Care NHS Foundation Trust, Information Service	17
North Tees and Hartlepool NHS Foundation Trust, Business Intelligence Unit	11
Northumbria Healthcare NHS FT, Information Services	37
Northumbria Healthcare NHS FT, Public Health Intelligence	1
South Tees Hospitals NHS FT, Not known	66
South Tyneside & Sunderland NHS Foundation Trust, Performance & Information Management	48
Tees Esk & Wear Valleys NHS Foundation Trust, Business Intelligence and Clinical Outcomes	39
North East Ambulance Service, Informatics Department	19
North East Quality Observatory Service (NEQOS), NEQOS	6
CSU	**129**
NECS, NECS Data, Analytics, Research and Consultancy	129

Organisation type/team	WTE
Local authorities	**126**
Durham County Council, Strategy Team	19
Gateshead Council, Performance Management and Information	9
Gateshead Council, Public Health	2
Gateshead Council, Research and Intelligence	4
Hartlepool Borough Council, Public Health	1
Middlesbrough Council, Analytics Team/Data Team/PH Intelligence	14
North Tyneside Council, Policy Performance and Research	12
Northumberland County Council, Public Health	5
Redcar and Cleveland Borough Council, Intelligence	9
Redcar and Cleveland Borough Council, Policy and Performance	2
South Tyneside Council, Performance and Information Team	10
South Tyneside Council, Public Health	2
Stockton-on-Tees Borough Council, Whole Council including Public Health	7
Sunderland City Council, SCAS, Business Development, Intelligence Team, Public Health	30
CCGs	**9**
NHS Sunderland CCG, Business Intelligence	6
North Tyneside CCG, Business Intelligence	1
Northumberland CCG, Business Intelligence (BI)	2
TOTAL	**549**

Note : Not all organisations took part or submitted details for all teams so the total WTE is likely to be an under-estimate

17 skills are grouped into 3 categories

Category	Skills
From intelligence to decisions	Population health approaches
	Options appraisal
	Data visualisation
	Consultancy skills
	Communication to different audiences
From information to intelligence	Statistical analysis
	Routine monitoring
	Research and evaluation skills
	Predictive analytics
	Database analysis
	Data science skills
	Benchmarking and measuring variation
	Analytics
From data to information	Database design, development and operations
	Data sources for population health intelligence
	Data sharing and information governance
	Data linkage

Each ‘skill’ is actually a group of skills

Statistical analysis

The team has the range of skills and experience that are needed to:

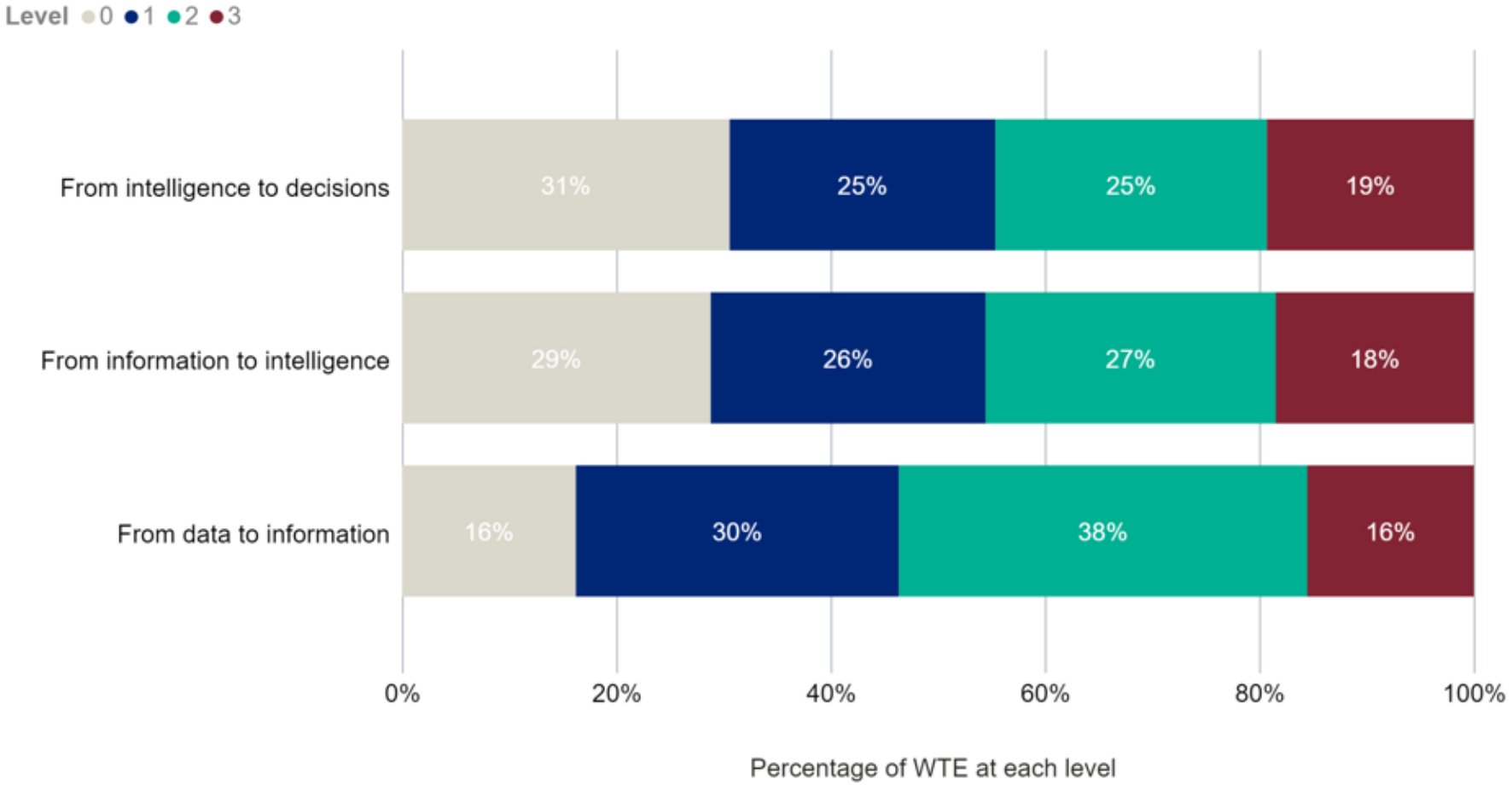
- undertake time series analysis
- use statistical process control methods
- explain simple random sampling and sampling error
- calculate confidence intervals for estimation of mean and proportion
- undertake regression analysis
- investigate correlation between two variables
- explain the differences between quantitative and qualitative methods and their appropriate uses
- interpret common measures such as odds ratio and relative risks when critically reviewing studies

For each team, each WTE (person) is assessed against a particular skill at one of four levels

Level	Description
0	**no experience** of this skills group or **it is not needed** within the role
1	**some understanding** of this set of skills but are **not applying these on a regular basis** within their role
2	**using this skills group routinely** within their usual day to day activities
3	**high level of experience** in this skills group, who are **regularly supervising and training other staff** to use and develop these skills

For example, in a PH Intelligence team of 6 staff, for the skill *Statistical analysis*, 2 might be assessed as level 1, 3 at level 2 and 1 at level 3

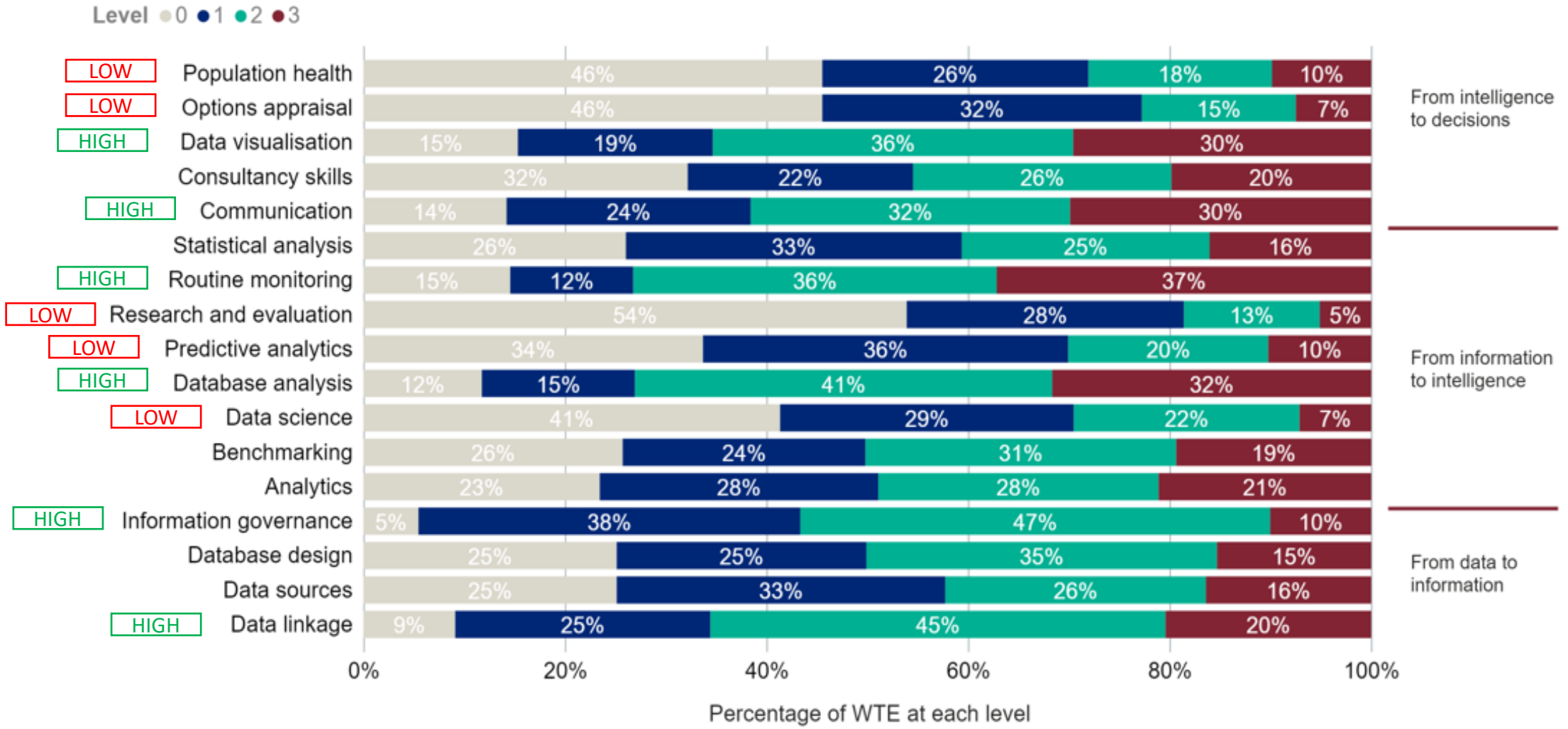
NENC Results – 3 categories



Reminder: levels
0: no experience, or skills not needed within the role
1: have some understanding but not applying on a regular basis
2: using skills routinely within their usual day to day activities
3: a high level of experience, regularly supervising and training other staff

Across all 3 categories, around half of staff have moderate or high skills (levels 2 & 3); this is highest for *data to information*

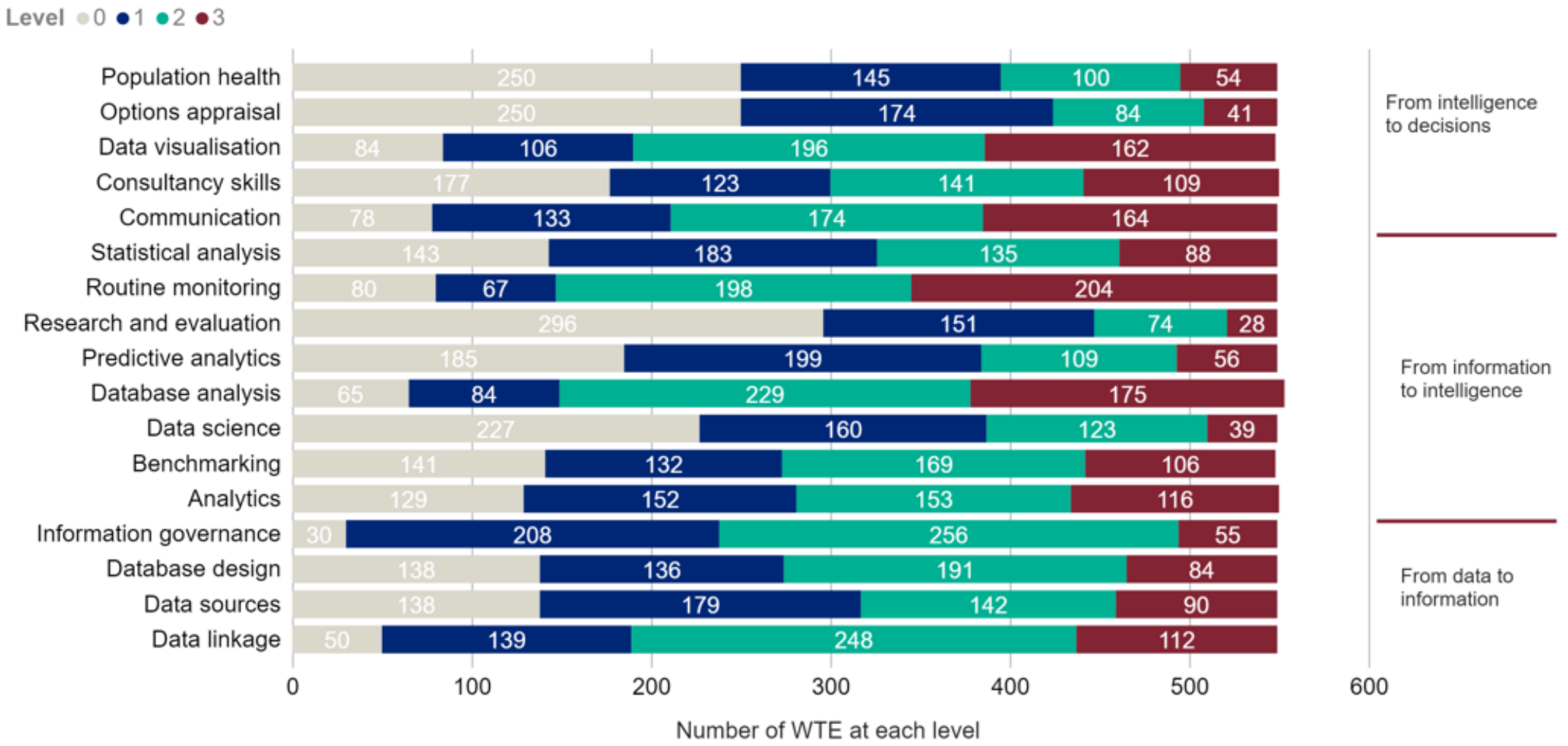
NENC Results – 17 skills / 3 categories (%s)



There is expertise across all skills; unsurprisingly, it's lower for more 'specialist' skills

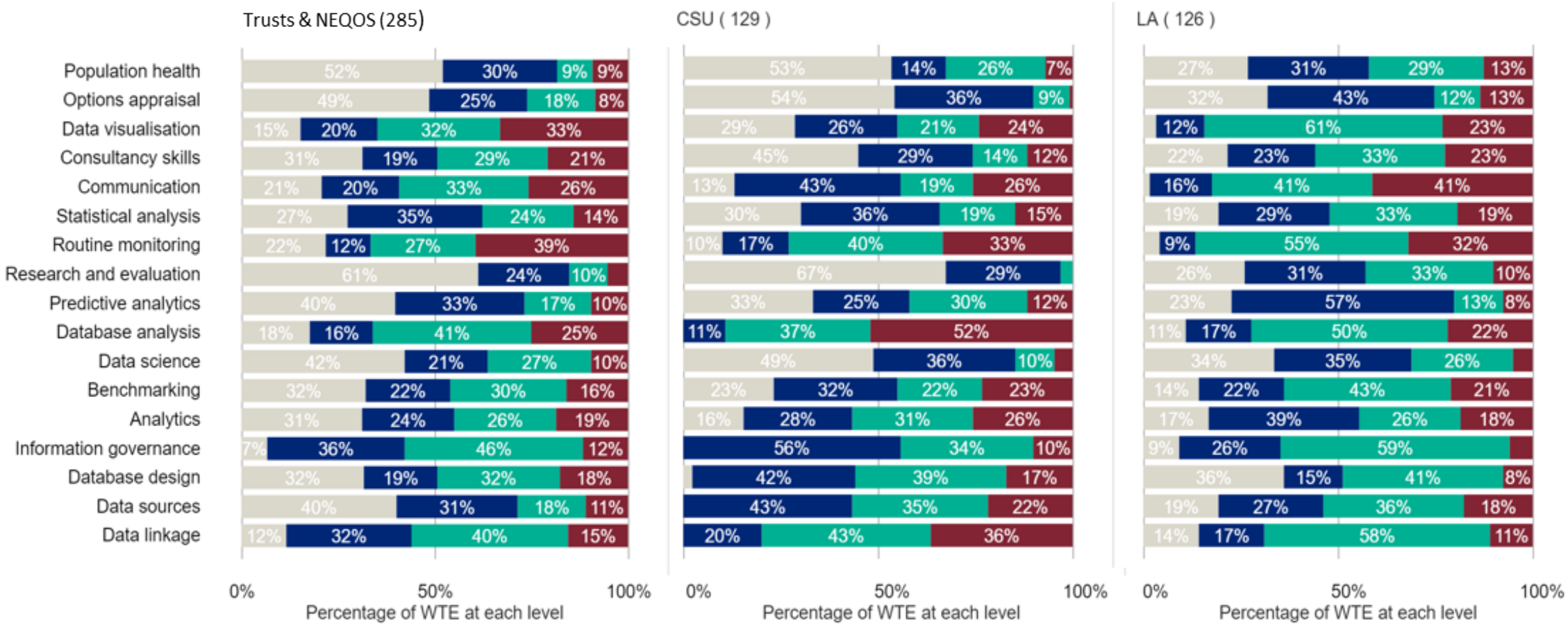
The NENC profile is similar to the other 16 ICSs who have ran the same exercise

NENC Results – 17 skills / 3 categories



Given our scale, even the lowest % represents 28 highly-skilled people

NENC Results – by org groupings



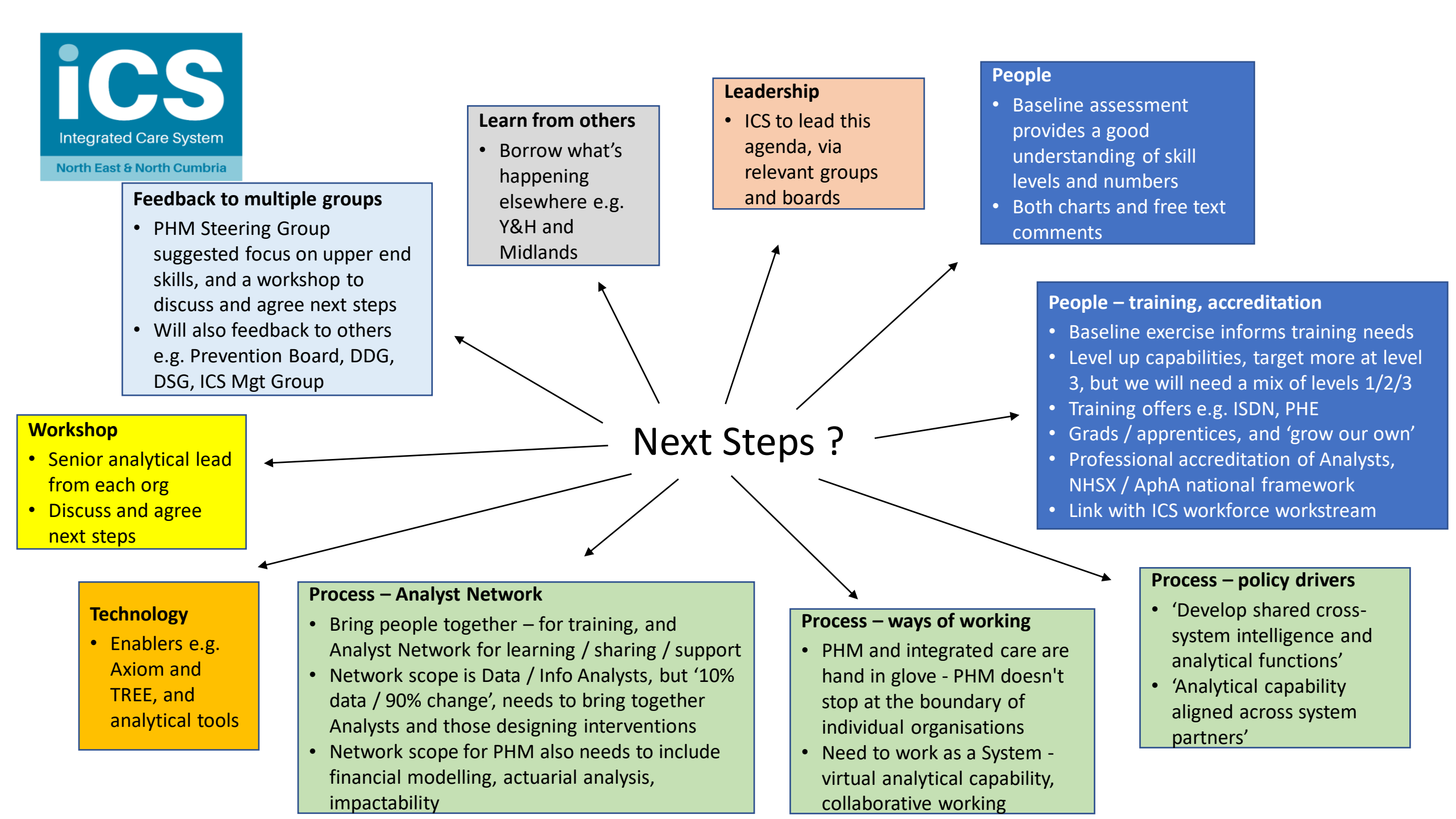
Profiles across the 3 main organisation groups are not too dissimilar

As agreed in the workshops, the lowest level of aggregation reported here is organisation type

Key messages

- There is capability within the ICS across all skills areas with the lowest including 28 people at level 3 (and not all orgs submitted)
- Given the number of highly-skilled WTEs, there is potential to share expertise locally through training, networking and joint-working

- Looking forward, analytical teams are planning on:
  - using new tools for data manipulation and visualisation
  - generally up-skilling in e.g. data science, modelling & forecasting (but basic analyst skills/aptitudes need to be kept)
  - using training to upskill staff (and the skills of end-users need to be developed too)
  - using recruitment/apprenticeships to develop team capability
  - re-organising to be more effective and efficient
  - collaborating, doing once for all


iCS
Integrated Care System
North East & North Cumbria
Next Steps ?
Feedback to multiple groups
• PHM Steering Group suggested focus on upper end skills, and a workshop to discuss and agree next steps
• Will also feedback to others e.g. Prevention Board, DDG, DSG, ICS Mgt Group
Learn from others
• Borrow what's happening elsewhere e.g. Y&H and Midlands
Leadership
• ICS to lead this agenda, via relevant groups and boards
People
• Baseline assessment provides a good understanding of skill levels and numbers
• Both charts and free text comments
Workshop
• Senior analytical lead from each org
• Discuss and agree next steps
People – training, accreditation
• Baseline exercise informs training needs
• Level up capabilities, target more at level 3, but we will need a mix of levels 1/2/3
• Training offers e.g. ISDN, PHE
• Grads / apprentices, and 'grow our own'
• Professional accreditation of Analysts, NHSX / AphA national framework
• Link with ICS workforce workstream
Technology
• Enablers e.g. Axiom and TREE, and analytical tools
Process – Analyst Network
• Bring people together – for training, and Analyst Network for learning / sharing / support
• Network scope is Data / Info Analysts, but '10% data / 90% change', needs to bring together Analysts and those designing interventions
• Network scope for PHM also needs to include financial modelling, actuarial analysis, impactability
Process – ways of working
• PHM and integrated care are hand in glove - PHM doesn't stop at the boundary of individual organisations
• Need to work as a System - virtual analytical capability, collaborative working
Process – policy drivers
• 'Develop shared cross-system intelligence and analytical functions'
• 'Analytical capability aligned across system partners'

Questions for you

Questions

1. What are you most likely to use Axiom and/or TREE for (provide specific examples where possible) ?
   - *Open, not multiple choice*
2. What, if any, barriers and concerns do you have with Axiom and/or TREE ?
   - *Open, not multiple choice*
3. How realistic is it for Analysts from your org to work with other orgs in an integrated manner in support of PHM ?
   1. Sorry, I can't see my people having time for this, they're busy with other priorities
   2. It's realistic, we see the value of working together, but only at my local Place
   3. It's realistic, we see the value of working together, at my local Place and wider e.g. NENC
   4. We're up for this, we can get great value from working together, we could dedicate 10% of our people
4. How often would you support Analysts coming together in a Network for sharing / learning / mutual support etc. ?
   1. Sorry, I can't see my guys having time for this, or don't see it as a priority
   2. Monthly
   3. Quarterly
   4. Twice a year
5. What are your suggestions for Next Steps for developing our PHM Analytics capability ?
   - *Open, not multiple choice*

Reserve Questions

1. What analytics training would your org be most interested in ?
2. How would you like to participate in an Analyst Network ?
3. What barriers do you see to Analysts working in an integrated manner, and coming together in a Network for sharing / learning / mutual support etc. ?
   - *Open, not multiple choice*

Thank you for your time

Q&A