

Learning Health System

What does it take to get started?

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NHS Grampian Public Health

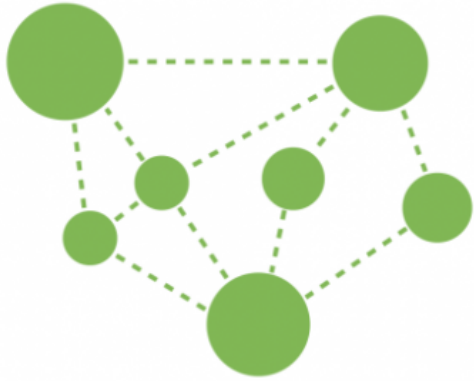
Aberdeen Centre for Health Data Science



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Learning in a Complex System



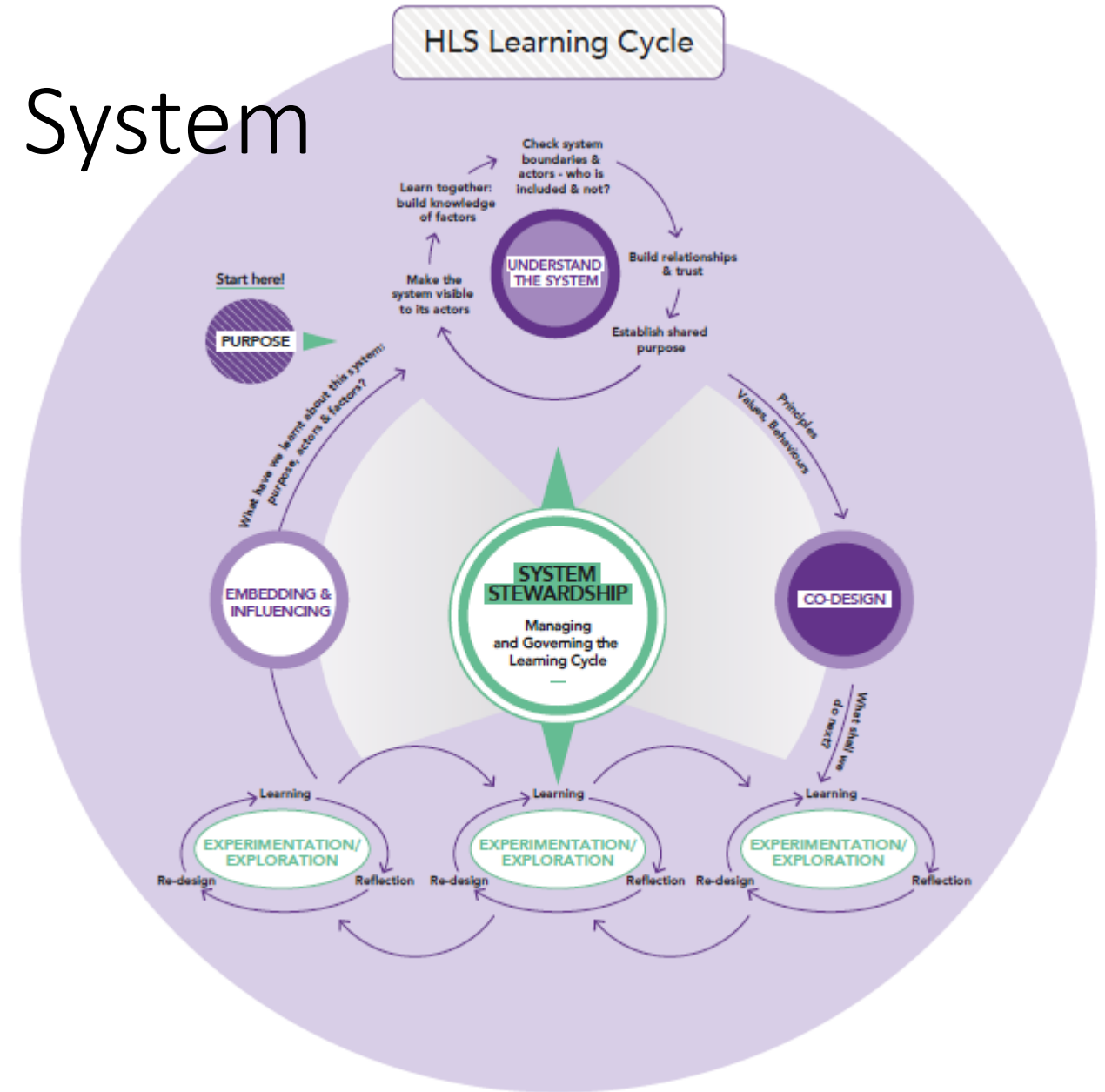
Complex

Here, causes and effects are indistinguishable. Each action is simultaneously a reaction. Issues are connected in ways that mean problems are not open to being solved but instead need to be held in a **dynamic equilibrium**.

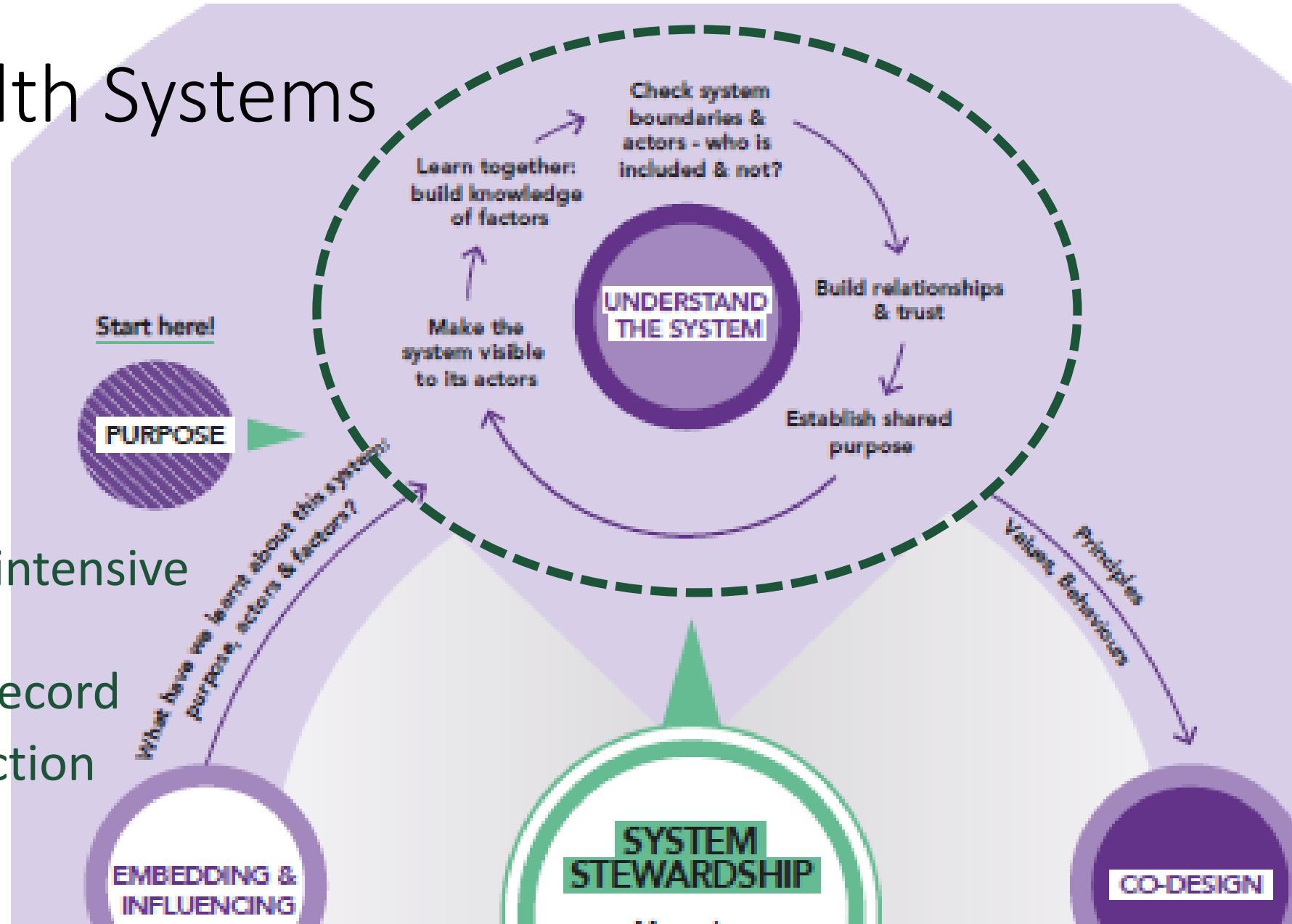
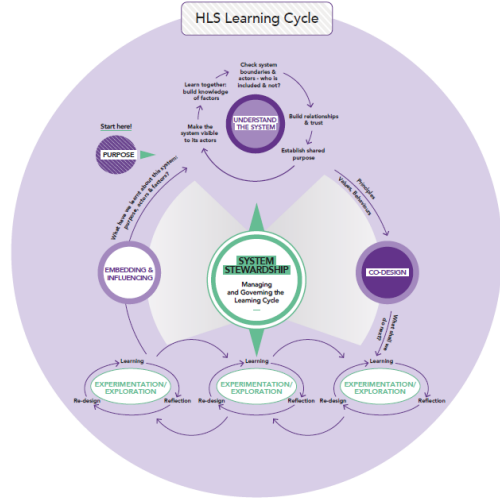
Why is complexity important?

Complexity describes the fundamental processes by which the **outcomes** we care about are made (outcomes such as improved wellbeing for people, or having a job).

If we fail to understand and embrace complexity, we will not be able to create the outcomes we seek.



Learning Health Systems



- Emerged from data intensive sciences
- Driven by what we record
- Struggled to drive action

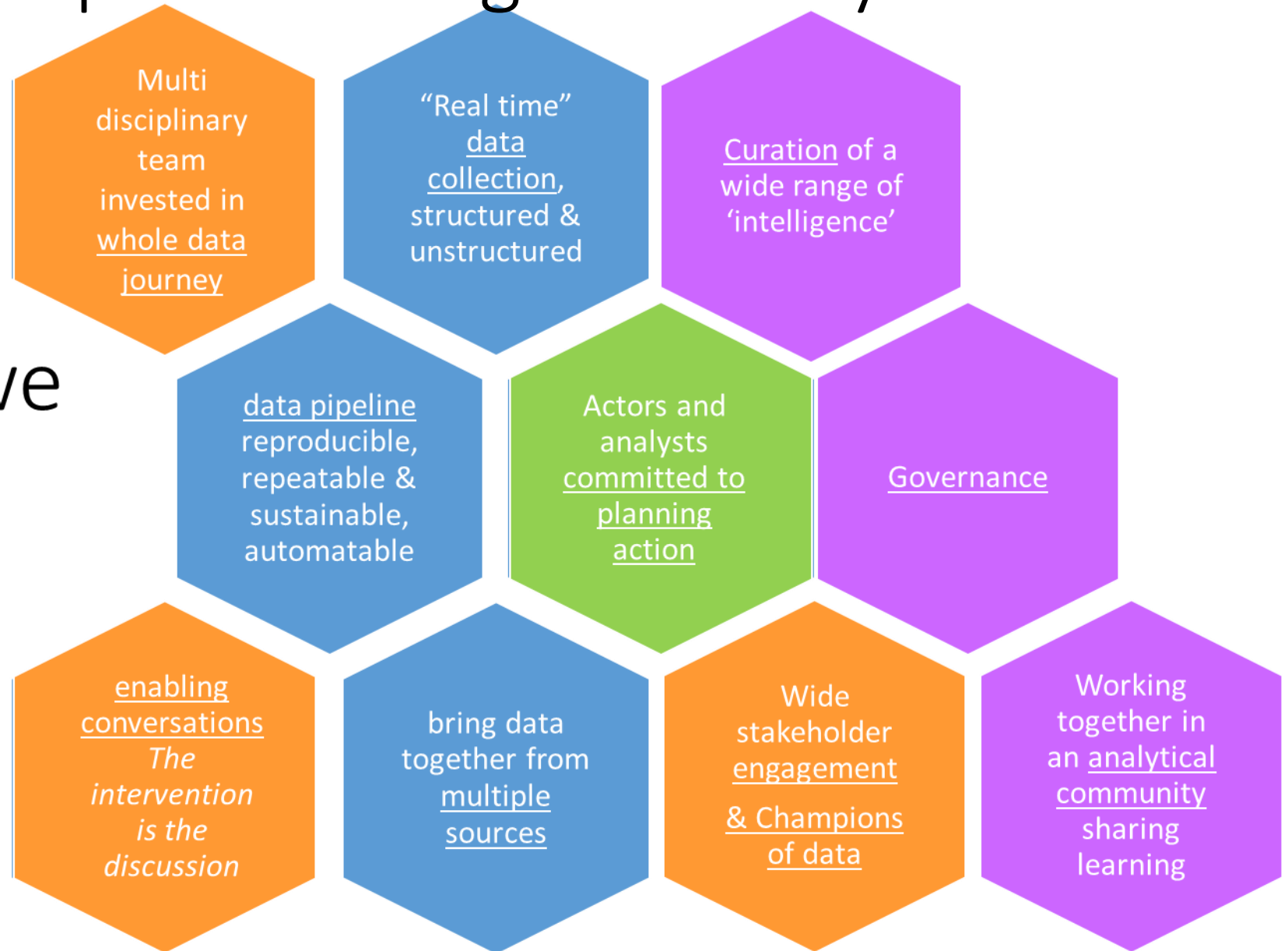
But...

What makes up a Learning Health System?

What do we mean?

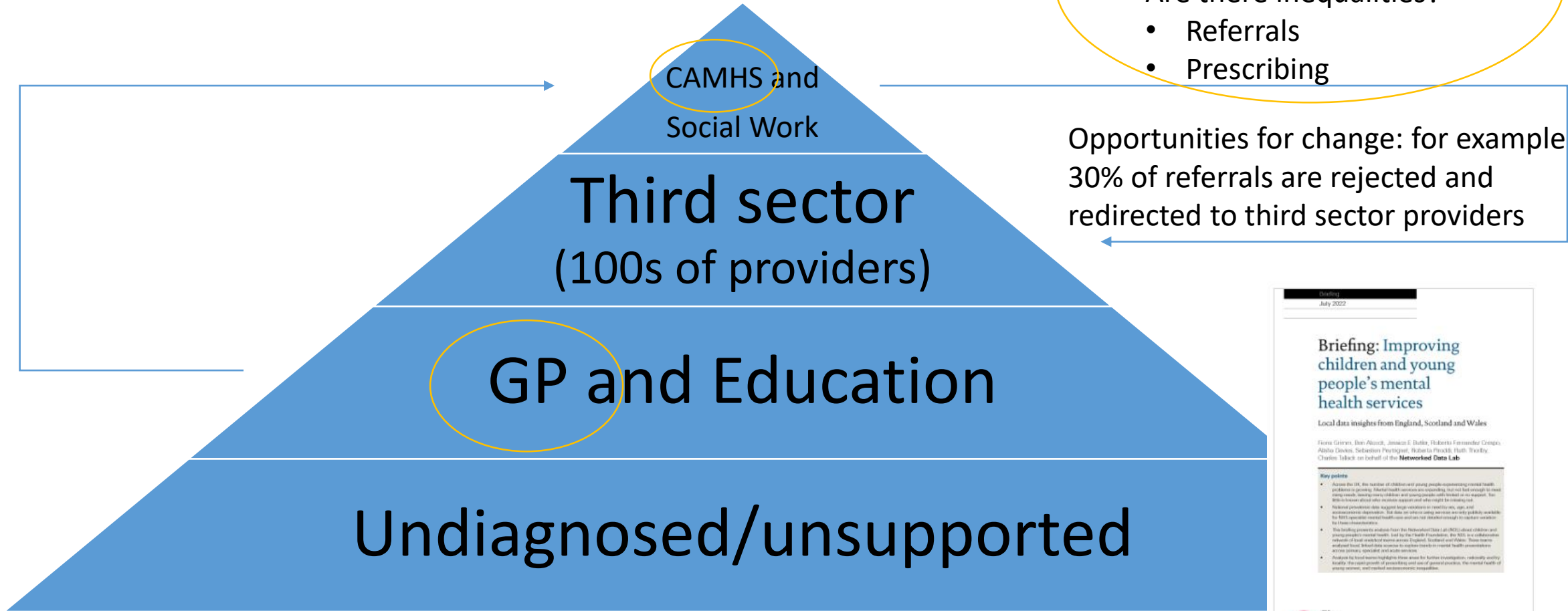
Learning from COVID

- more than 'real time' data
- more than data



Example Challenge: integrated care and preventative care are difficult

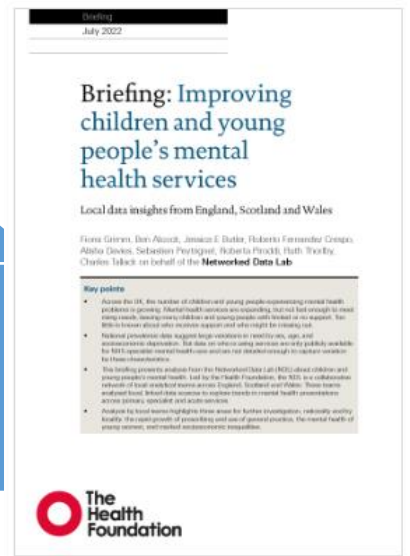
It is difficult to visualise the whole system and peoples experiences



So far we have looked at:
What is happening over time?
Are there inequalities?

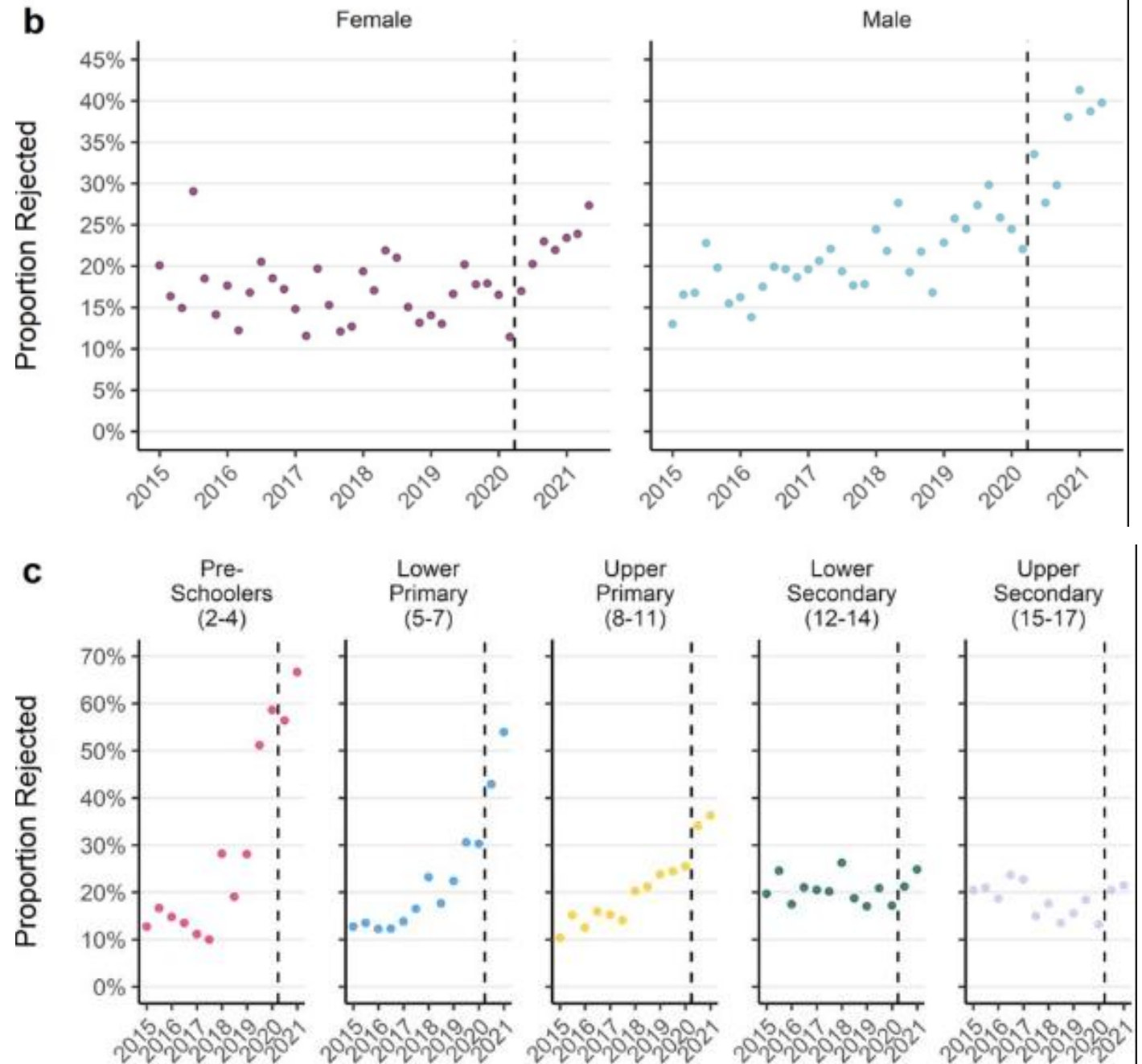
- Referrals
- Prescribing

Opportunities for change: for example
30% of referrals are rejected and
redirected to third sector providers



Example

Even small insights through the data and lived experience identify important opportunity to learn and act



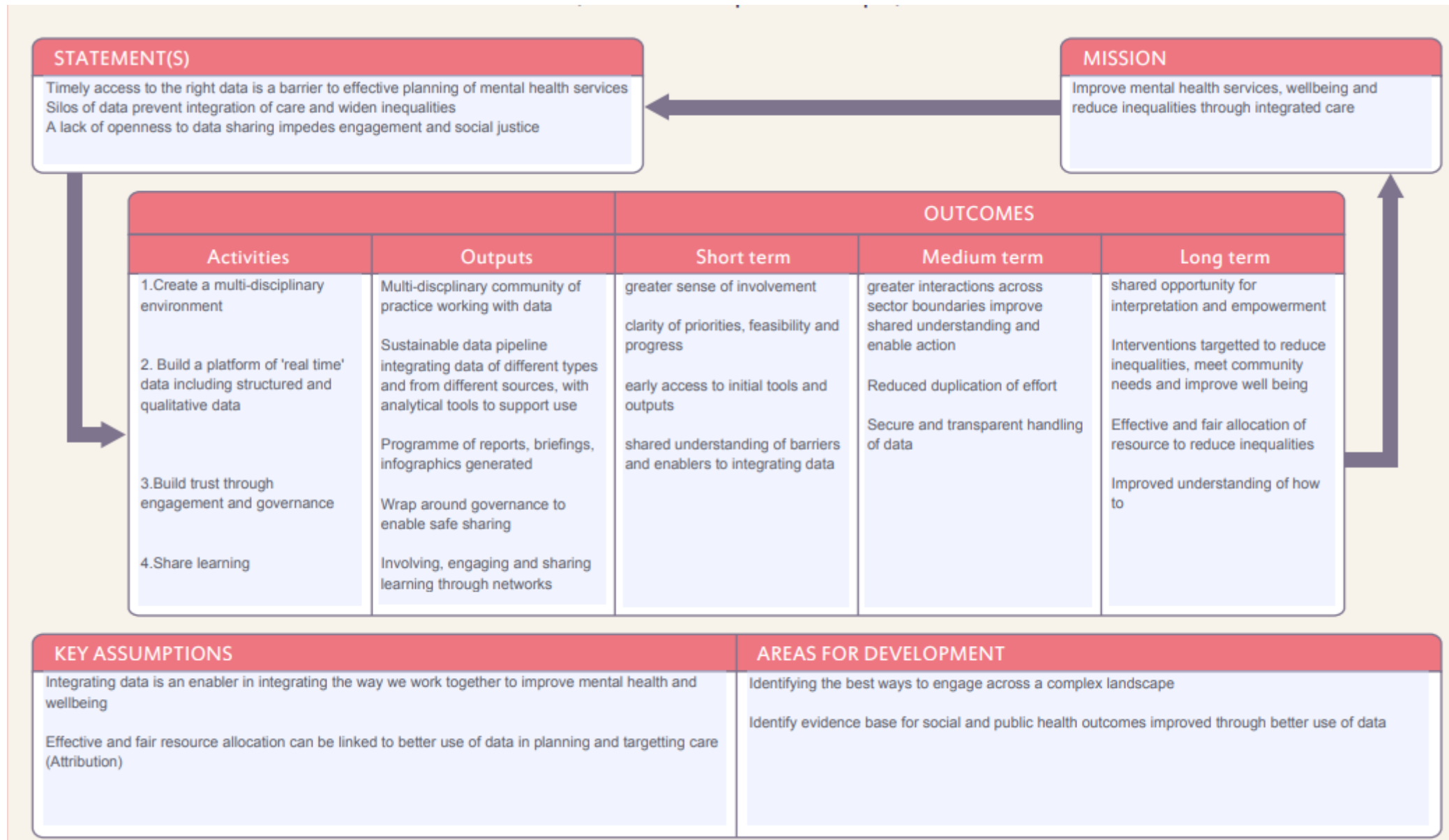
Developing a Learning Health System: a data perspective

WHO vision for a global digital strategy:

“to improve health for everyone, everywhere by accelerating the development and adoption of appropriate, accessible, affordable, scalable and sustainable person-centric digital health solutions to prevent, detect and respond to epidemics and pandemics, developing infrastructure and applications that enable countries to use health data to promote health and well-being”

- What if, in 5 years, when approaching improving children’s health and well-being and reducing inequalities, an integrated child data platform allows us to understand the impact of health on education in our communities; identify localities where housing is poorest, impacting on child health and school attendance?
- What if we could show you that children rejected from CAHMS referrals were prescribed more medication and missed more school; what would you change? What if we were able to measure the impact of interventions in child mental health wellbeing aimed at reducing CAHMS referrals, rejections and prescribing to enable teams to innovate, learn and share learning?

How might improving data improve mental health?



Principles

- **“Real time”** data – The timeliness of data is critical to enabling action
- Data that is **more than** administrative **counts** and includes bringing evidence synthesised from elsewhere and deep qualitative local understanding
- Moving from ‘looking back at the past’ to being able to **see the current** and **forecast** to the future
- **Automation** both within the way we work with data but also supporting automation across the system, skilling up on knowledge of techniques including machine learning and AI
- **Boundaryless** data breaking down traditional silos within and between organisations through excellence in governance and integration
- **Usability** of data products, seeking information that can support action, advocacy and change
- The **culture** and engagement to work together across the system to solve problems, to have **honest conversations** and to bring focus to our efforts is vital
- **Creating and holding space** to innovate and learn
- **Adaptability**, planning now for a future of accelerated technological change
- **Transparency** about the data we use and why

Work plan (example)

	2022	2022	2023	2024
	Phase 1 Proof of concept	Phase 2 Pilot integration	Phase 3	Phase 4
	Jan - Jun	Jul - Dec	Jan - Dec	Jan -
Engagement/Co-production	CAMHs team, ACHDS data PPIE group	Multi-agency working group	Multi-disciplinary community of practice	
Mobilise Data	Mobilise: CAMHs, PIS (community dispensing), Scope: A&E, Admissions	Mobilise: Child Protection Register Suicide Scope: Health Visitor data, Drug & Alcohol Build: Initial live platform based on Phase 1	Mobilise: Education, Housing Scope: LA, NHS and Thrid sector data suite Begin developing: lived experience library	Continue to build shared data platform
Governance	Approvals for Phase 1 DPIA for sharing LA data	Approvals for phase 2 DPIA/DSA for platform Workshop(s) to scope for shared governance and access models	Approvals for platform Audit process for access and releases Approved data published on website	
Infrastructure	DaSH	DaSH Live data platform on NHS Workshop(s) for shared platform model	Designing and comissioning shared platform	
Analysis	Understanding use of CAMHs, Prescribing, inequalities	Mental health care access for children on Child Protection Register Rejections Multi drug prescribing	Grampian atlas for child mental health Build family metrics Build tools to describe pathways through care Programme of reports	
Staff Resources	External funding (HF) DaSH, 2 HDS, 1 PPIE, HI support	External funding (HF) DaSH, 2 HDS, HI architect and analyst PH Researcher, LA analyst(s)	Multi agency - Core staffing team	
Outputs	Breifing paper, Reports, slide deck LHS development reports	Work programme	Community of practice Sustainable data pipeline	Platform with wrap around governance and audit "Whole system" engaged in dynamic learning
Outcomes		Increased sense of involvement early use of emerging tools and reports Shared understanding of barriers	Increased interactions across sector boundaries to enable action Reduce duplication of effort	Shared oportunity for interpretation and empowerment Targetted interventions to meet community need Improved understanding of integration

Final integrated “product”: is about people as much as it is about data



- Live multiagency data platform
- Drillable dashboard of data available to support cross sector working
- Multi disciplinary team working with the platform to support action
- Library of qualitative stories of lived experience
- Publically available atlas of mental health and well being for Grampian
- Reports, briefing papers and public facing infographics about mental health in Grampian
- Governance to enable shared data and appropriate access
- Research programme

But it doesn't work alone – the Data Learning Health System – needs to exist within organisations that deliver by learning