



HPCA and FedIP - AI Digital & Data Readiness Across NHS Teams

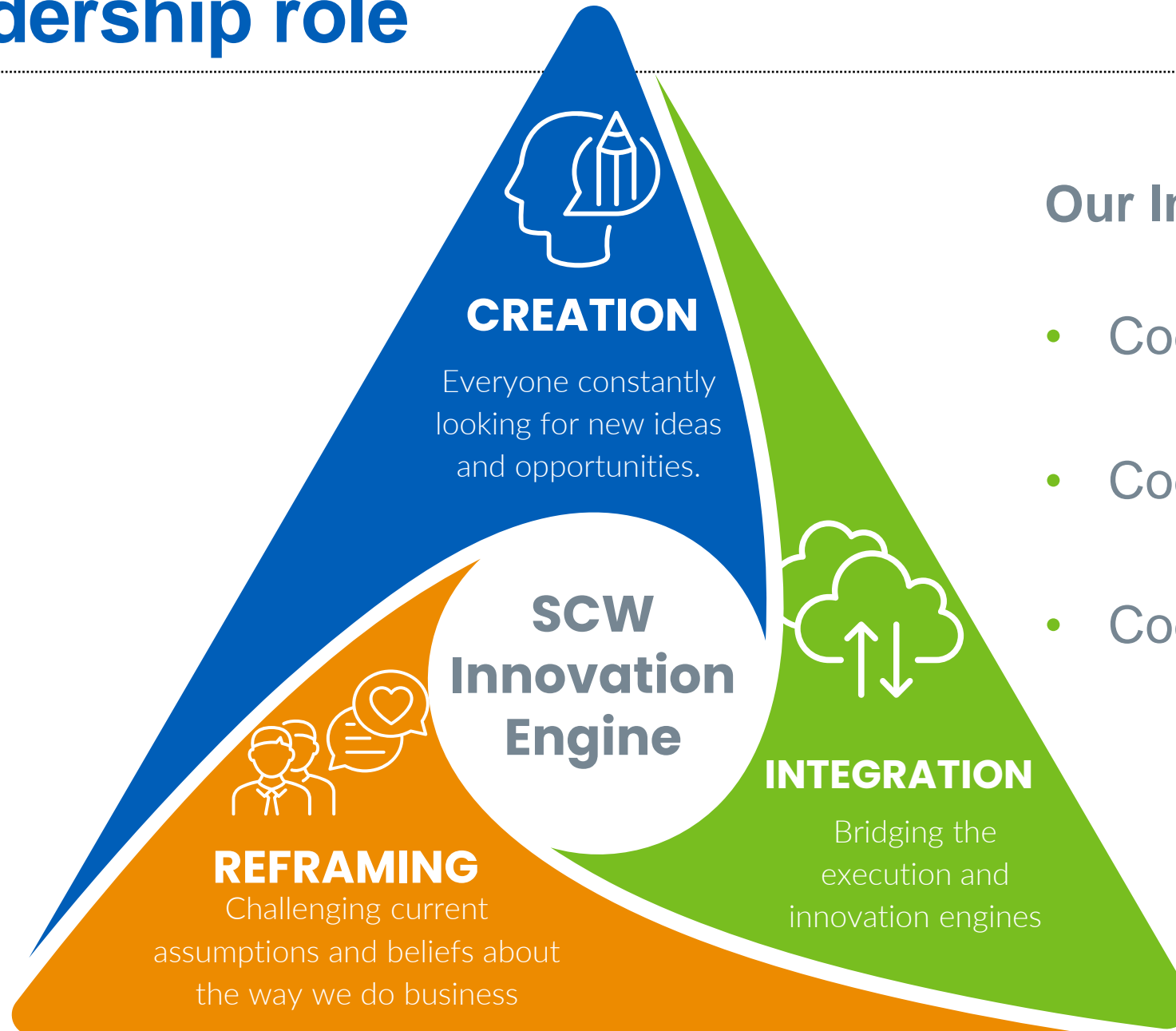
John O'Connell MA FBCS CHCIO
Director of Strategic and Service Innovation
18th June 2025

Flow...

- NHS Wicked problems
- Digital, Data and AI opportunities
- Organisational preparedness
- Workforce skills
- Data Governance
- System interoperability
- Takeaways
- Q&A



My leadership role

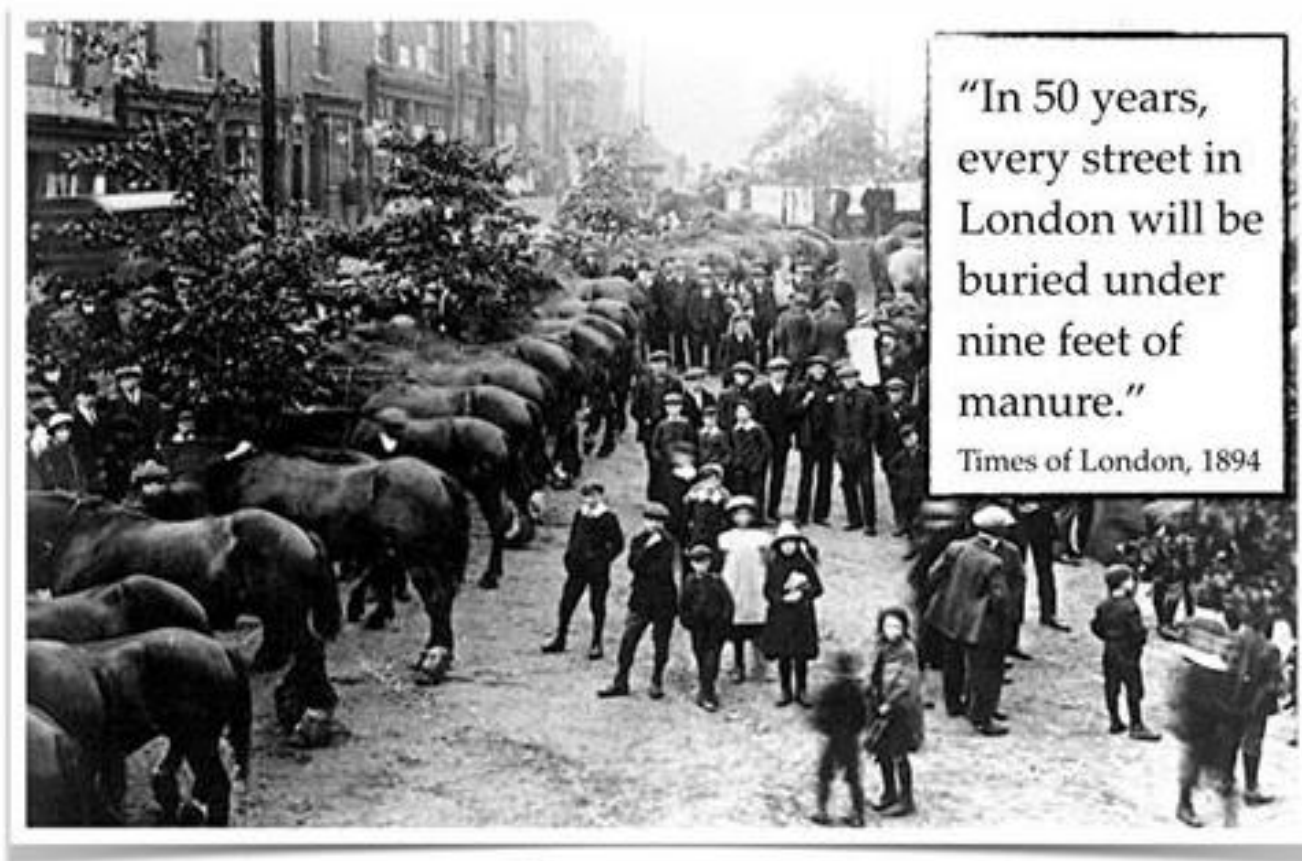


Our Innovation focus:

- Cognitive automation
- Cognitive insights
- Cognitive engagement

The Great Horse Manure Crisis of 1894

Lessons from the past



- In the late 1800s, large cities all around the world were “drowning in horse manure”
- The manure on London’s streets also attracted huge numbers of flies which then spread typhoid fever and other diseases, creating a significant health problem for the population

NHS Wicked problems

NHS CHALLENGES

Challenge 1:
Multi-morbidity



Challenge 2:
Tackling broader
health and
well-being needs



Challenge 3:
Ageing workforce



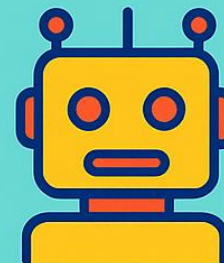
NHS OPPORTUNITIES



Opportunity
Genomics



Digital medicine



Artificial
intelligence (AI)
and robotics

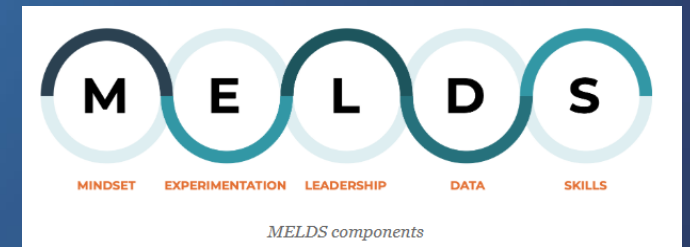
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Organisational preparedness

The MELDS Framework

Leading companies that are successfully developing next-generation, adaptive processes and the skills that are necessary to capitalise on human-machine collaborations are accomplishing this by **adopting five crucial principles** relating to:

1. Mindset (the *missing middle*)
2. Experimentation
3. Leadership
4. Data
5. Skills



P Daugherty and H J Wilson HBR 2018 Accenture Global Solutions Limited.



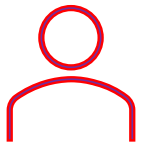
The Missing Middle Defined

Lead,
empathise,
create,
judge

Train,
explain,
sustain

Amplify,
interact,
embody

Transact,
Iterate,
Predict,
adapt



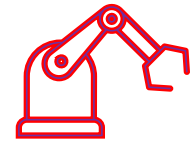
Human-only
Activity

**HUMANS
COMPLEMENT
MACHINES**

**MACHINES
COMPLEMENT
HUMANS**



**HUMAN & MACHINE
HYBRID ACTIVITIES**



Machine-only
Activity

THE MISSING MIDDLE



How to define 'optimal' and reduce inequalities in care?



Which pathway is optimal?



Patient A

Diabetes + CVD



£20 k/yr

poor outcomes



Patient B

Diabetes + CVD



£7k/yr

good outcomes



NHS 111
calls



A&E



Inpatient



Outpatient



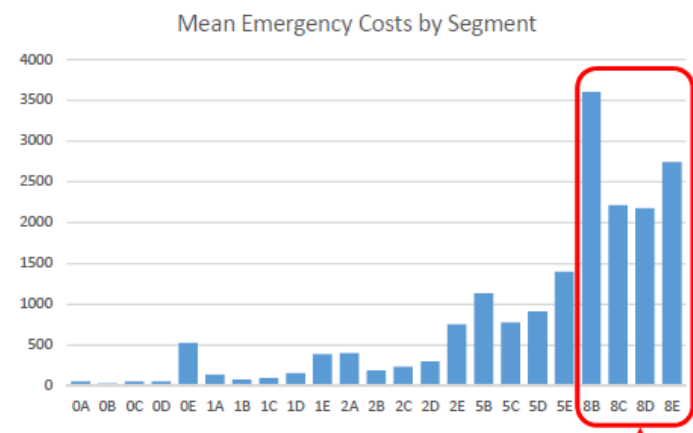
Primary care



Mental
health

Busting some myths!

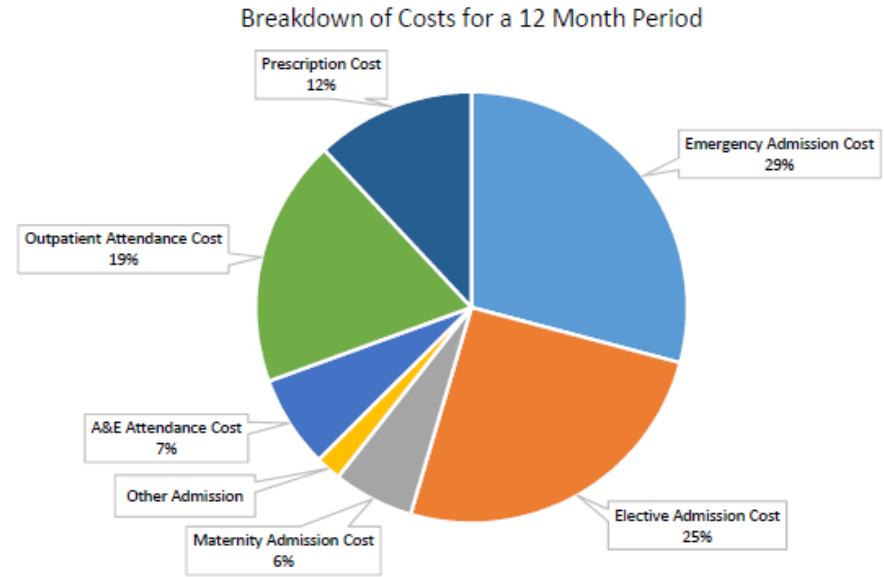
Identify trends and patterns in healthcare usage



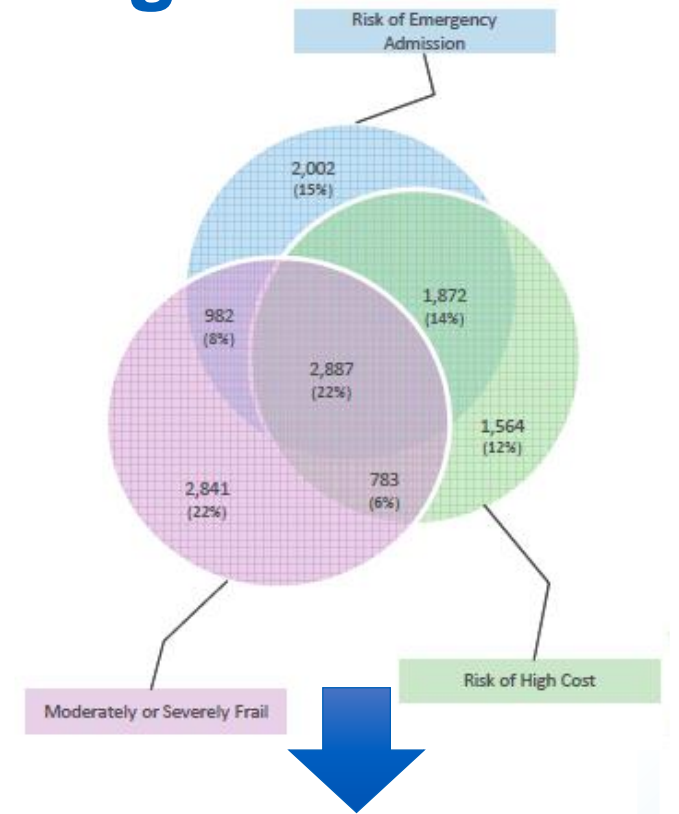
- Multimorbidity more than age drives emergency admission costs
- Multimorbidity does not just occur in the elderly



Multimorbidity drives costs; this doesn't just occur in the elderly

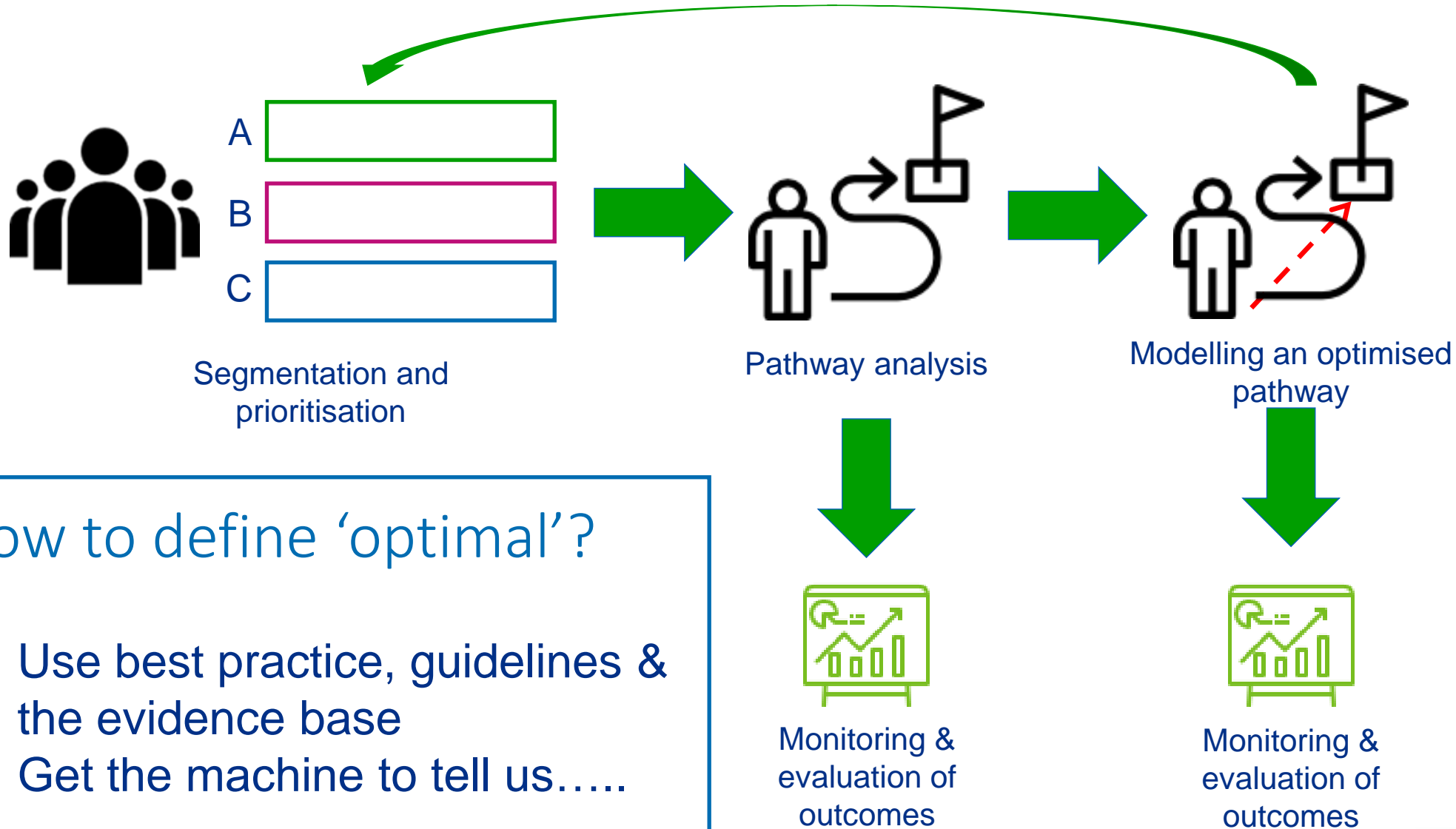


Its not all about emergency admissions when it comes to costs



High risk groups are not all the same

How to define 'optimal' and reduce inequalities in care?



How to define 'optimal'?

1. Use best practice, guidelines & the evidence base
2. Get the machine to tell us.....



NHS 111
calls data



A&E
data



Outpatient
data



Primary
care data



Mental
health data



Actively developing the eight “fusion skills” necessary for reimagining processes in the middle;

- **Skill 1:** Rehumanising Time
- **Skill 2:** Responsible Normalizing
- **Skill 3:** Judgement Integration
- **Skill 4:** Intelligent Interrogation
- **Skill 5:** Bot-Based Empowerment
- **Skill 6:** Holistic Melding
- **Skill 7:** Reciprocal Apprenticing
- **Skill 8:** Relentless Reimagining



AnalystX + NHS Data and Analytics Academy *ANALYST*



Launched in April 2025, the NHS Data and Analytics Academy consists of four workstreams:

- **New entry talent:** Encourage school-age children to pursue data and analytics careers.
- **Upskilling:** Upskill the existing NHS workforce with apprenticeships and certifications.
- **Data leadership:** Develop future data leaders with specialized leadership skills.
- **Data literacy and confidence:** Increase data literacy and confidence across the wider NHS workforce.



NHS Data and Analytics
Academy & Learning Hub

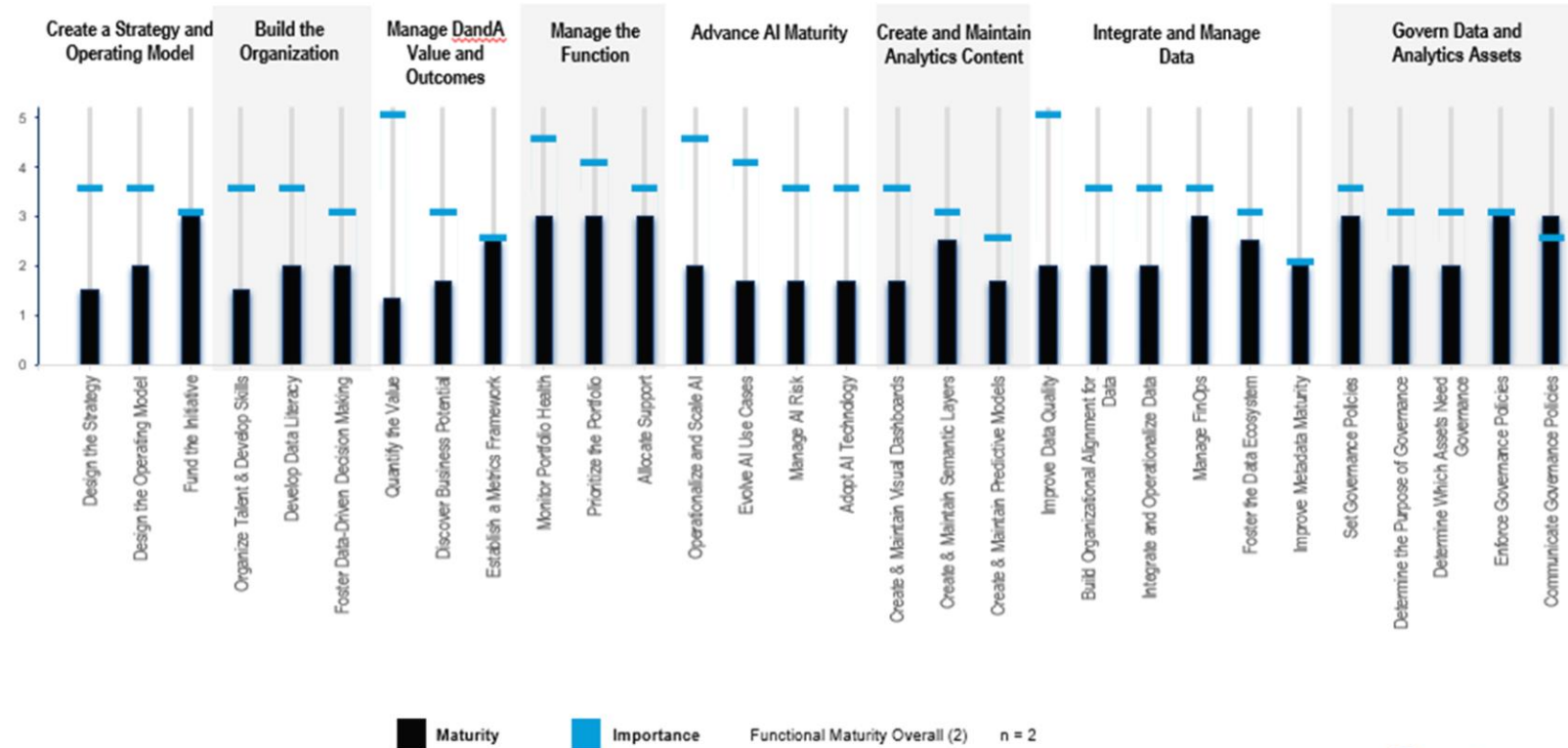




Self assessment Data and Analytics Maturity Score for CDAOs



Maturity and Importance



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Workforce skills

Organisational Development



The Top

You should plan on having each Top Executive invest a **minimum of 20 hours of learning** before they can be ready to productively engage in defining a digital roadmap with colleagues.

- McKinsey 2024



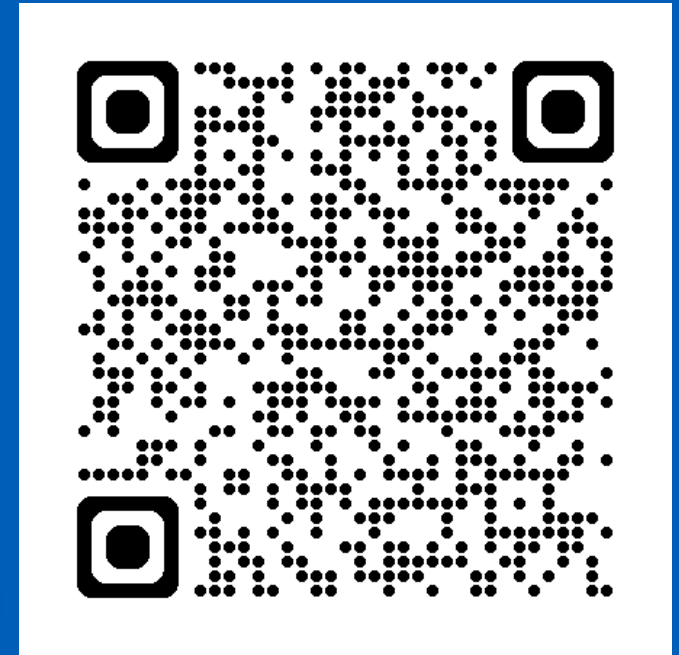
Leadership Development

What is most important for leaders in the AI age?

- Have the **courage** to reimagine what is possible
- **Explore** the future but don't get lost in it
- Rethink **business models**
- Lead by **example**
- Focus on **customer experience**
- Encourage **innovation**
- Prize **curiosity**
- **Be open** about what you don't know
- **Be patient** but don't wait too long.

'Rush a miracle man,
you get rotten miracles"
- Miracle Max from "The
Princess Bride"

10 Essential Leadership Traits for the AI Era - video



MIT Sloan Management Review
- MIT Sloan CIO Symposium interviews

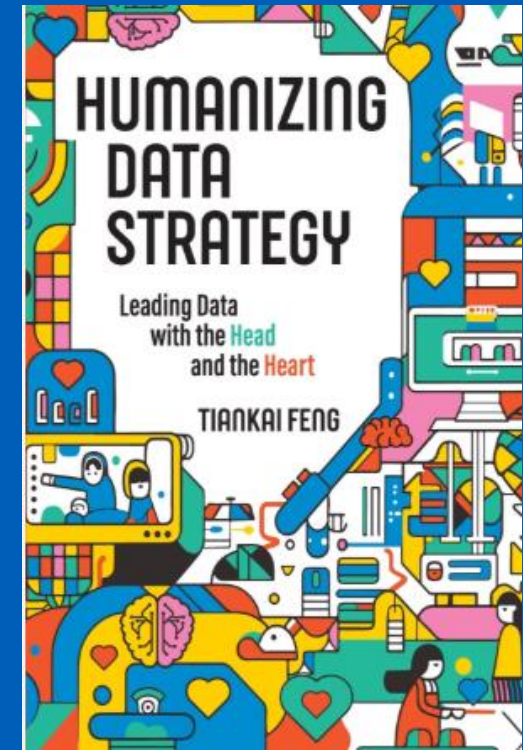
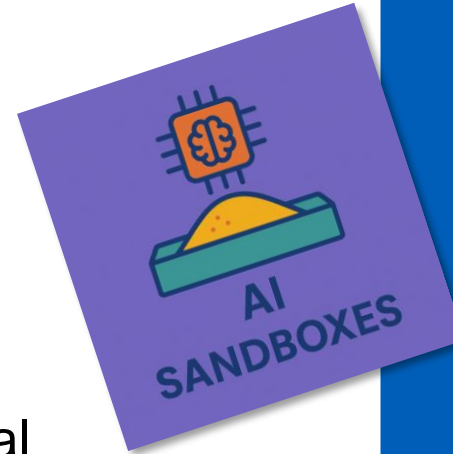


Management Development

Humanizing Data Strategy

The 5 C's Framework - Tiankai Feng

- **Competence** - *empower everyone*
- **Collaboration** - *inter-and cross functional*
- **Communication** - *audience specific narratives*
- **Conscience** - *secure, compliant and ethical*
- **Creativity** - *motivation, **environments** and reward*



Decodes the **human aspects** of 'Data strategy' into an actionable framework



Personal Development

While its only a thought experiment today, I think we would be wise to prepare for a blended workforce of the future.

So how?

- 1) Establish a growth Mindset (MELDS)
- 2) Set Standards for Trust (Responsible AI)
- 3) Unleash creativity (Missing Middle)
- 4) Continuous **Ultra-learning**



“The next generation will manage a team of humans and AI agents”

– Roland Busch – CEO of Siemens AG



Personal Development

Four Rules for Co-Intelligence

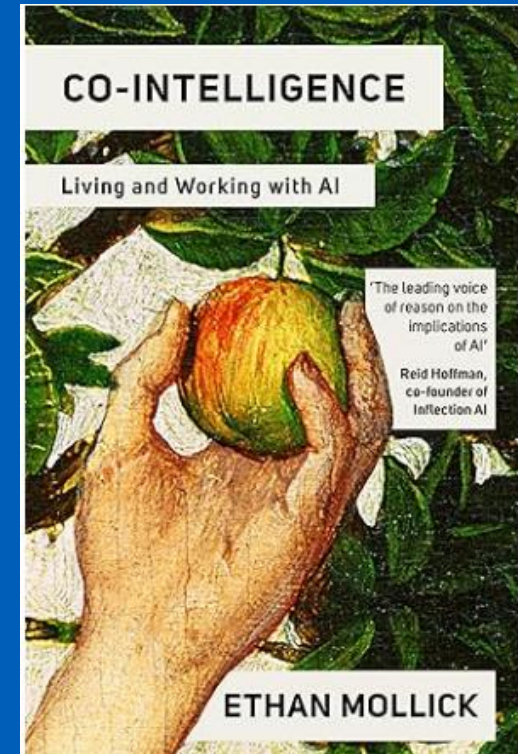
Principle 1: Always invite AI to the table

Principle 2: Be the Human in the loop

Principle 3: Treat AI like a person
(but tell it what kind of person it is)

Principle 4: Assume this is the worst AI you will ever use

****Principle 5:** Professionalisation

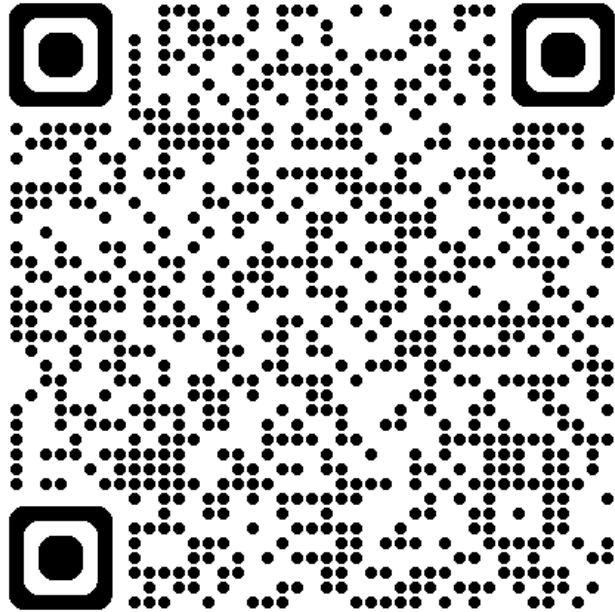


Personal Development



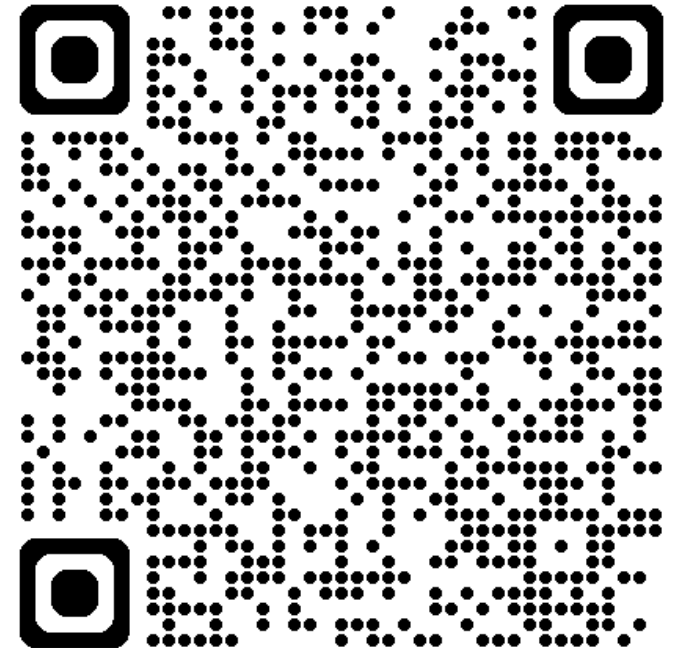
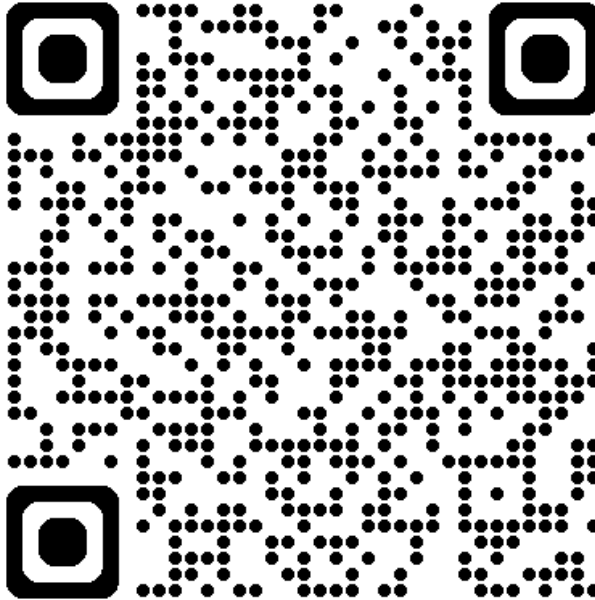
ULTRALEARNING & PROFESSIONALISATION





**Introduction to
Value Based
Healthcare**
Prof. Sir Muir Gray

The Alan Turing Institute

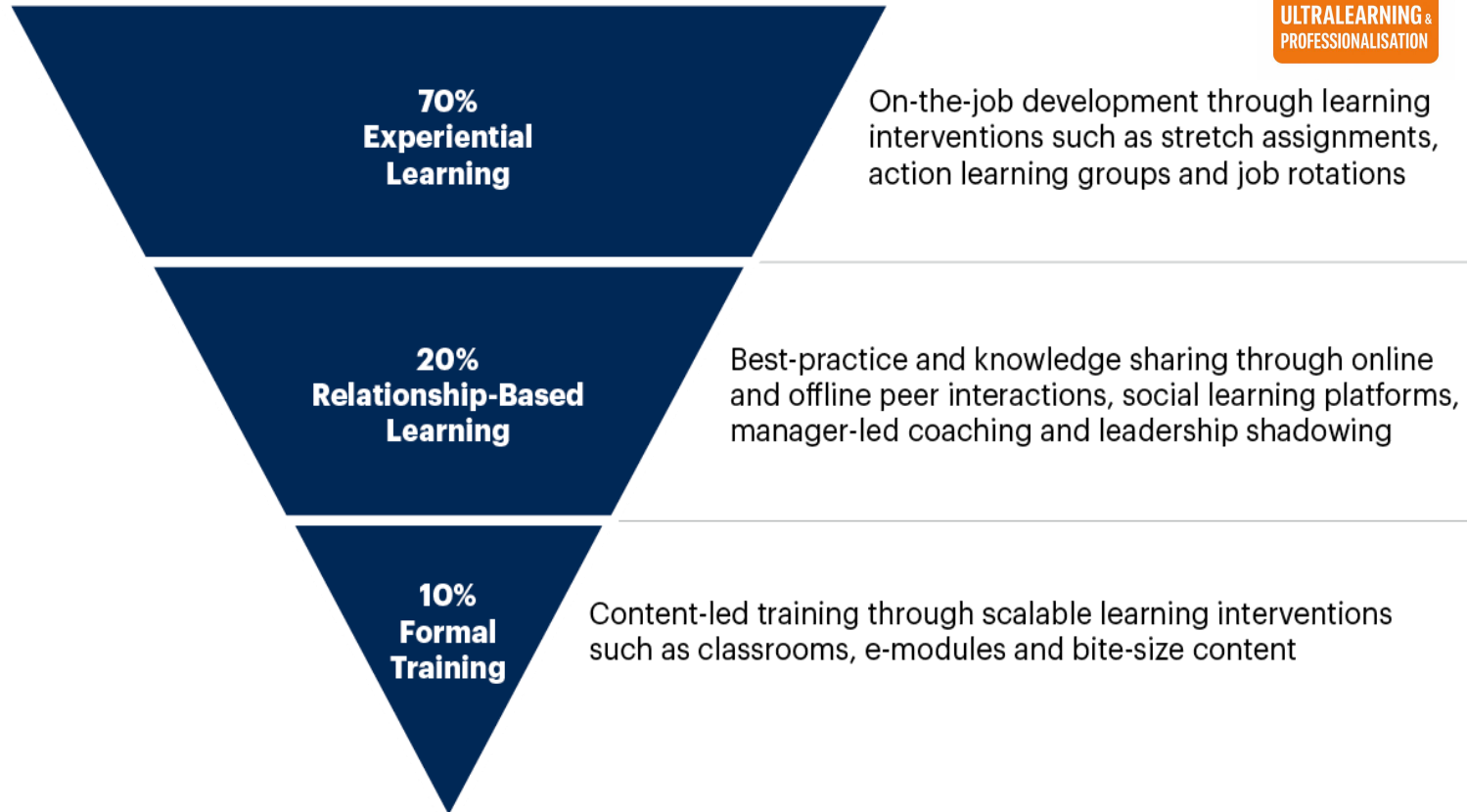
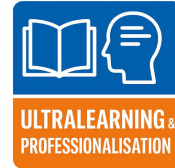


**STFC - Digital & AI
Skills Network**



Personal Development

The 70-20-10 Learning and Development Breakdown



Consider developing your skills using the 70-20-10 Breakdown

Source: Gartner

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Data Governance

Through 2026, those organisations that don't enable and support their AI use cases through an **AI-ready data practice** will see **over 60% of AI projects fail to deliver** on business SLAs and be abandoned.

Gartner

Survey

AI Data Challenges

- M
- C
- L
- T
- B

No amount of AI algorithmic sophistication will overcome a lack of data [architecture] ... bad data is simply paralyzing.

—MIT Sloan

The three Pitfalls of AI

Privacy

- Data exploitation
- Identification and tracking
- Prediction
- Profiling
- Take note of the law that currently exists to regulate the way personal data is used by these applications.

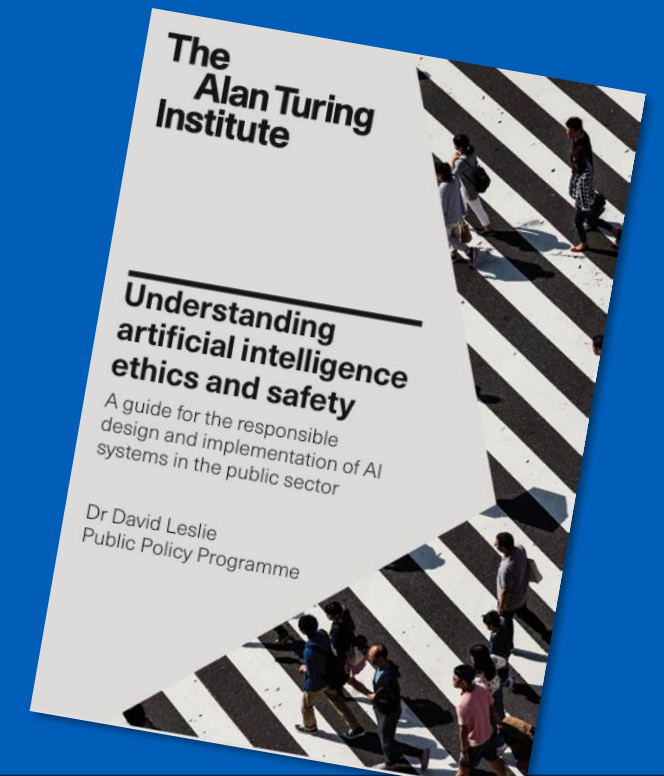
Replication

- Explainability or explanation
- Neural networks and deep neural networks problem

Bias

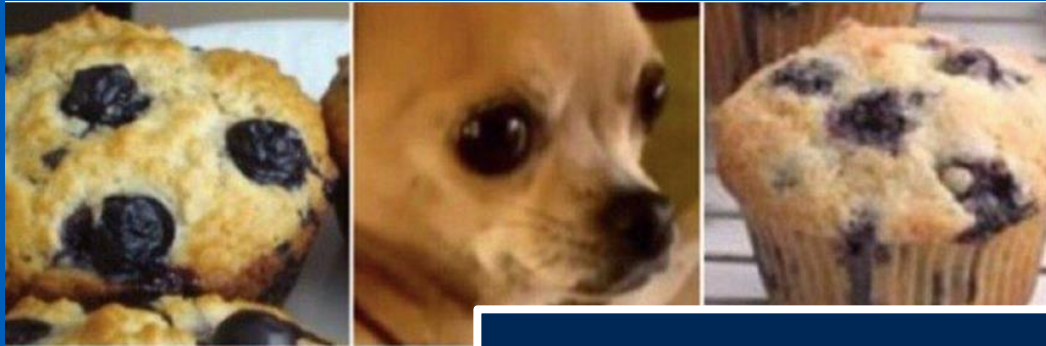
- Poor data not representative of the population
- Outdated models will propagate biases from the past into the future
- Mathematical de-biasing models can be utilised

.....be vigilant of these pitfalls



AI-Ready Data

Humans and AI Do Not See Data in the Same Way

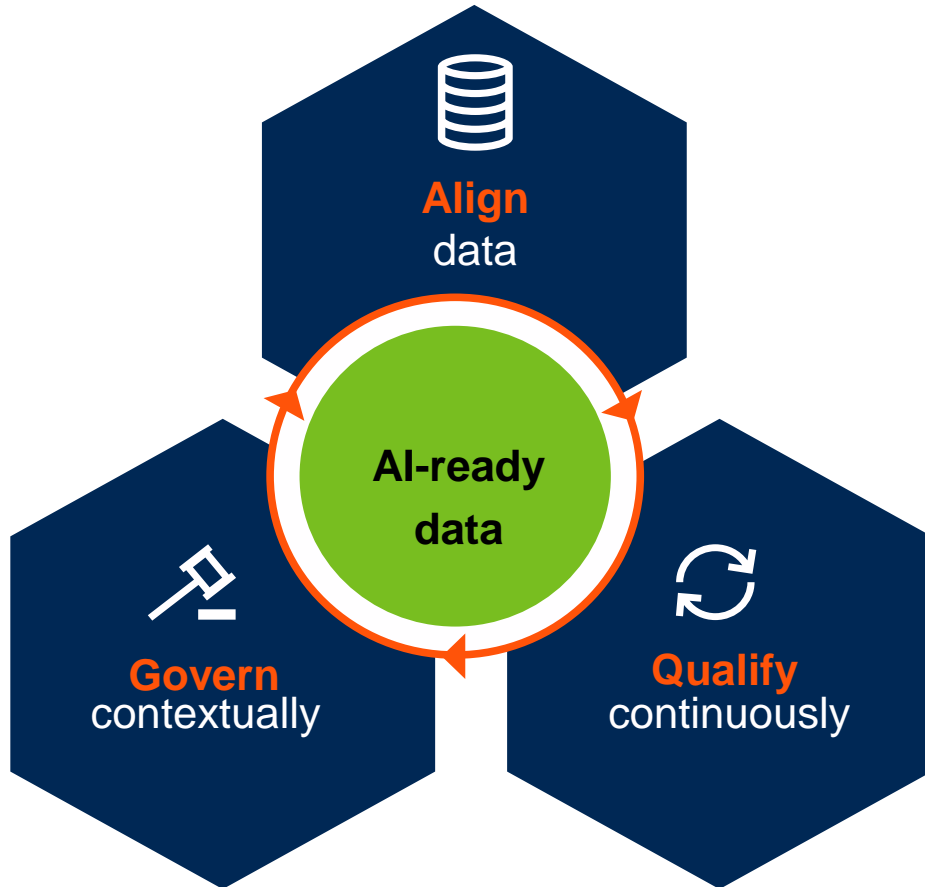


AI builds up from details.
Humans fill in the missing details with experience.



Through 2026, 30% of generative AI projects will be abandoned after proof of concept due to **poor data quality, inadequate risk controls, escalating costs** or **unclear business value**.

Gartner AI-Ready Data Framework



Alignment	Qualification	Governance
<ul style="list-style-type: none">• AI requirements• Quantification• Semantics, annotation and labeling• Quality• Trust and fairness• Diversity• Lineage	<ul style="list-style-type: none">• Consistency assessment• Validation and verification• Operational SLAs• Versioning• Continuous regression testing• Observability metrics	<ul style="list-style-type: none">• Data stewardship• Data and AI standards and regulations• Controlled inference and derivation• Data bias and fairness• Data sharing• Regulatory and compliance



What are AI guardrails?

AI guardrails help ensure that an organisation's AI tools, and their application in the business, reflect the organisation's standards, policies, and values.

What are the main types of AI guardrails?

Guardrails are grouped according to their purpose and the types of risks they address.

- Appropriateness
- Hallucination
- Regulatory Compliance
- Alignment
- Validation

What are the benefits of AI guardrails?

Ensuring technology can operate safely and responsibly—with AI guardrails playing a critical role

- Enhance Security
- Ensure Compliance
- Trust
- and reputation

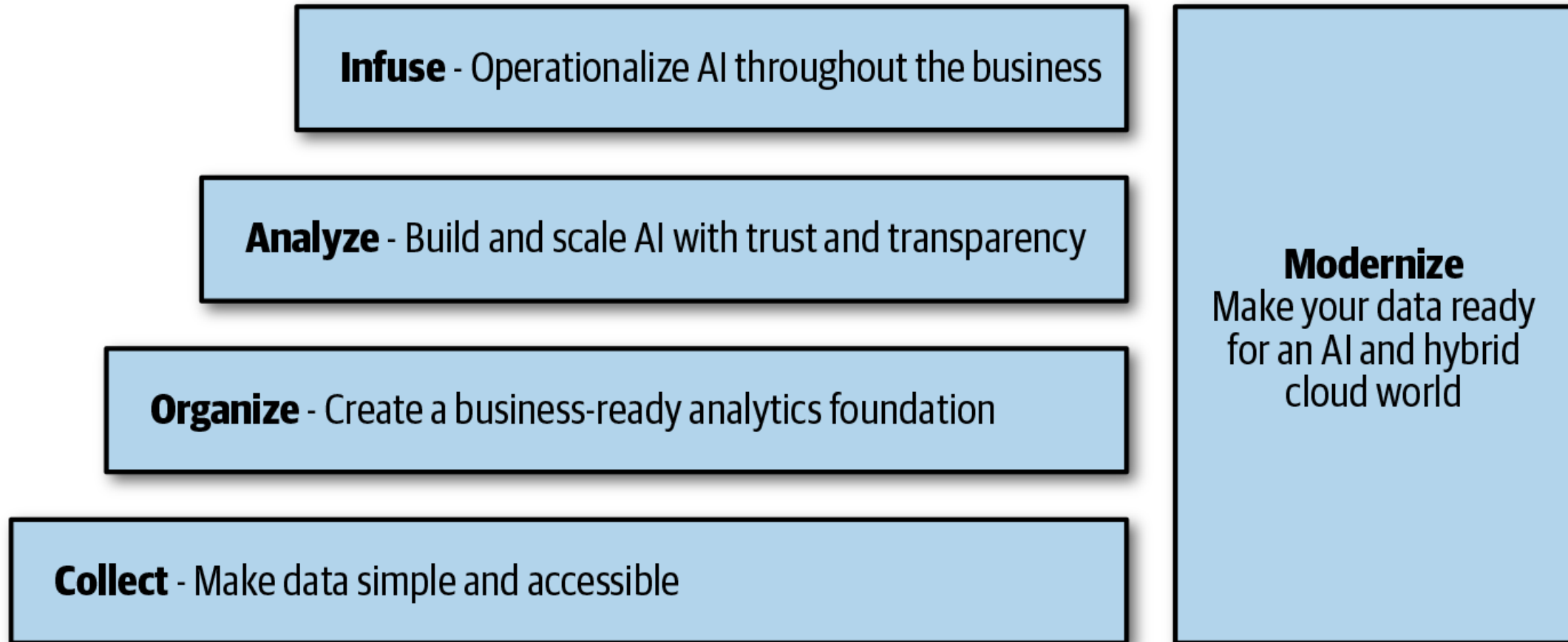
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System Interoperability

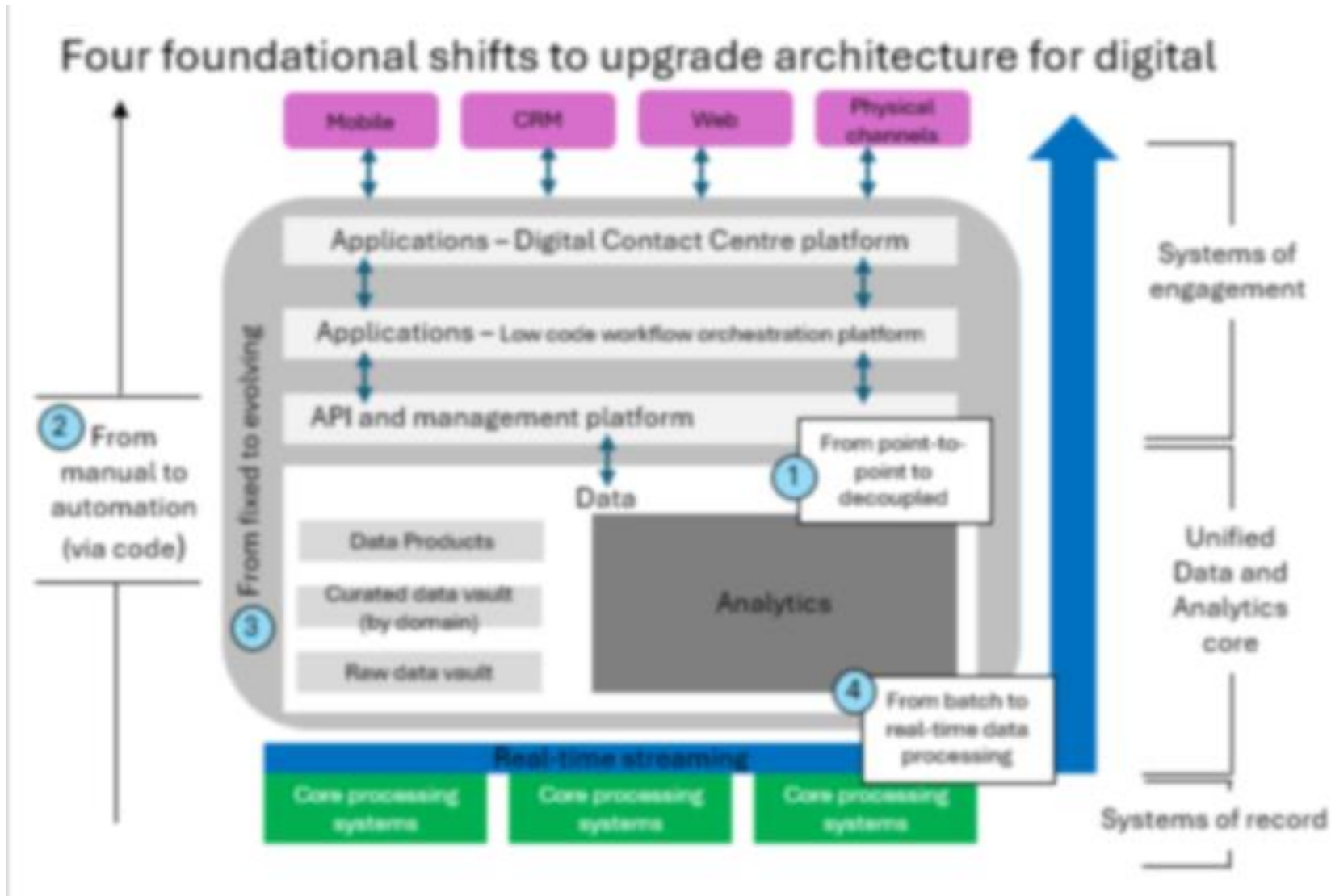
The AI Ladder



Provides organisations with an understanding of where they are in their AI journey as well as a framework for helping them determine where they need to focus.



Four foundational shifts to upgrade architecture for digital

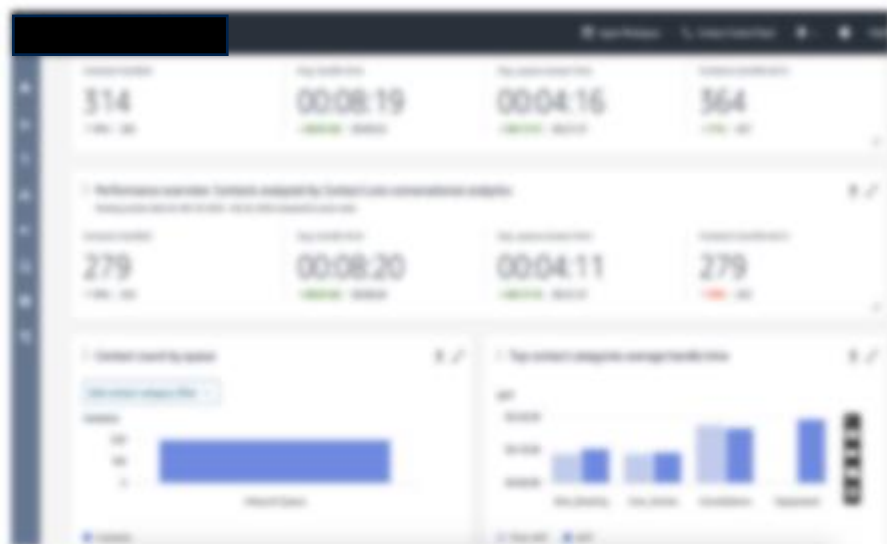


Early lessons learned from the pilot

Insights	Lessons learned
1 Inbound calls queued were much higher than expected for [redacted] Line (87 vs 50 / day)	PTAC had limited visibility on actual performance prior to [redacted]
2 31% were handled by IVR <ul style="list-style-type: none">• Of which 20% is not within 6 weeks• Of which 20% does not qualify• Of which 30% is out of working hours	Effective IVR screening questions can help PTAC free up agents time and educate patients at the same time
3 Callbacks were very popular, people requested a callback even when queue was <10mins	Patients will prefer call back, this reaffirms a need for callback requirement
4 IVR data capture and display have been useful for agents	Effective data capture can remove the burden of agents to repetitively input data in the systems
5 Huge amount of metrics available via [redacted]	Ability to gain deep insight into performances and making data-driven discussions and decisions

...whilst [redacted] empowers agents by allowing them to handle calls more efficiently

A survey was conducted post pilot to gain an understanding of the agent's experience with [redacted]



100%
Of agents feel AC enables them to handle calls efficiently

4.25/5
Overall agent satisfaction

"Calls where patient has a recent qualifying assessment & needs a [redacted] when the NHS number is entered in the IVR. On 3CX these calls used to take me 4-5 min though on [redacted] I have now had a few of these type of calls between 3-4 min call duration"

4/4
Agents would recommend [redacted]

[redacted] user friendly both agent and patients

"Pretty good, we can see the patient before they confirm who they are" "It has been great"

"ACW helps cool down a little bit, choose when to pick up (a new call)"

"Great to see all the contact telephone numbers added on to the quick connect option [redacted]"

A total 4 agents (100%) of responses captured

Source: Monstarlab Agent Survey [redacted] N=4 (100%)



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TAKEAWAYS

You should plan on having each Top Executive invest a **minimum of 20 hours of learning** before they can be ready to productively engage in defining a digital roadmap with colleagues.

- McKinsey 2024



Ability to pair continuing technological advances with talent strategies.



Missing Middle
Humanizing Data Strategy
5 C's Framework



Courage to reimagine what is possible
MELDS

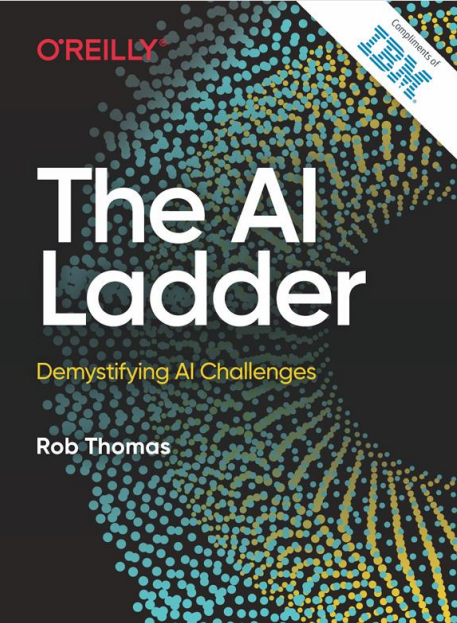


Ownership
Professionalisation
Continuous **Ultra-learning**

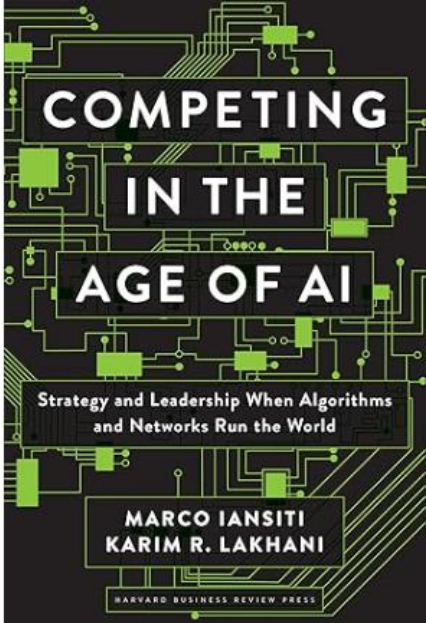
Always and continuously assessing the new risks...



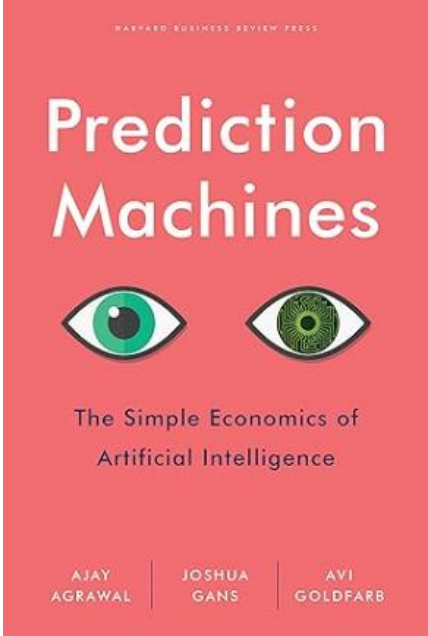
Recommended reading



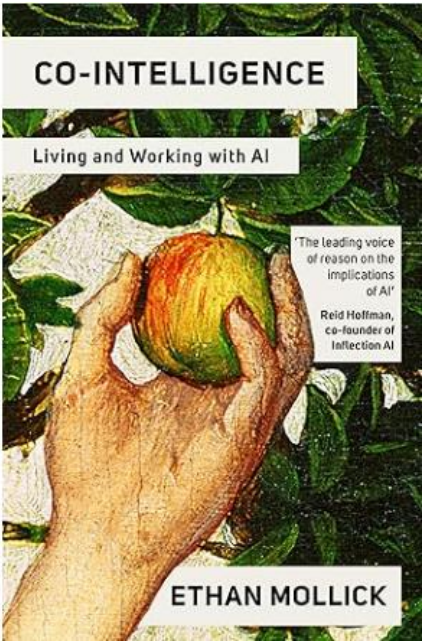
Modernising your architecture for AI



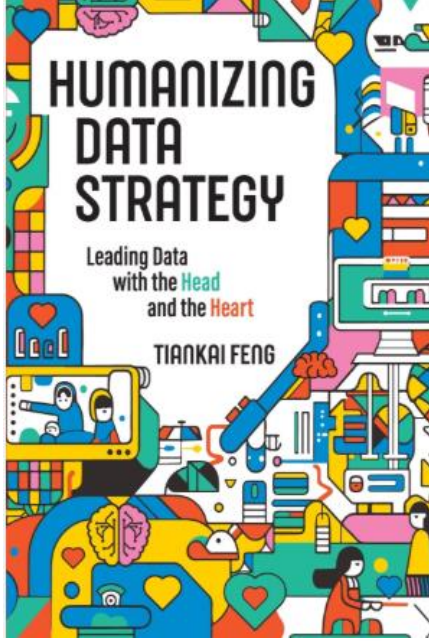
AI Strategy and Leadership



The Economics of AI



AI Trends and future expectations. AI as a Co-worker, co-teacher and coach



The Economics of AI

Q&A

