

How scientific improvement methods can increase the rigour of quality and safety

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AGENCY FOR
**CLINICAL
INNOVATION**



Complex system challenges

- Shared decision-making and co-design
- Social determinants of health and healthcare
- Physical and mental health comorbidities
- Aged health, end of life care and supportive care
- Clinical variation
- Performance trade-offs - experience of care, access and efficiency
- Integration across service delivery sectors and organisations
- Investment and disinvestment

Need to improve care – safety and quality

- Under-use of beneficial treatments
- Over-use of diagnostics and therapies
- Sub-optimal use of care bundles and pathways
- Mis-use of effective care
- Use of low value care

Need to renew care – innovation and change

- *-omics*
- Information technology
- Frailty, end of life care and moral dilemmas
- Self-management and tele-health
- Alternate models and levels of care
- Wearables and remote monitoring

- Technologies are disrupting clinical processes and systems

The urge to act can easily overwhelm the need for evidence to inform that action, to the extent that much quality improvement work is unscientific

Marshall, Pronovost and Dixon-Woods, 2013

Knowledge Dissemination and Utilisation Framework

The National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP) KTA Framework

Promoting Action on Research Implementation in Health Services (PARIHS)

Push, pull, linkage and exchange

VA Quality Enhancement Research Initiative (QUERI)

Knowledge transfer process framework

RE-AIM

Diffusion of innovations in health service
organisations

Plan-Do-Study-Act (PDSA) cycles

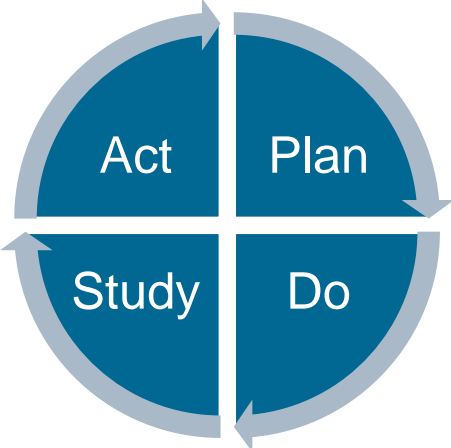
Institute for Healthcare Improvement (IHI) Model for Improvement

The Knowledge to Action (KTA) Cycle

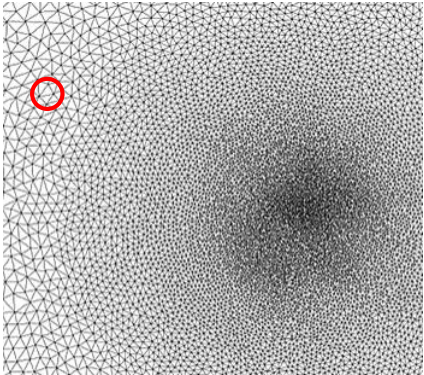


Simplicity can resonate, but brings risks

Reductive



Blinkered



Reducing research and implementation waste

- A more scientific approach to improvement could enhance the ability of systems to provide high-quality care
- Need to shift to a comparative-effectiveness model for implementation research
- The current approach involves accumulating evidence from small trials for indirect analyses in systematic reviews
- A promising solution are implementation laboratories that involve collaboration between health systems and networked research teams

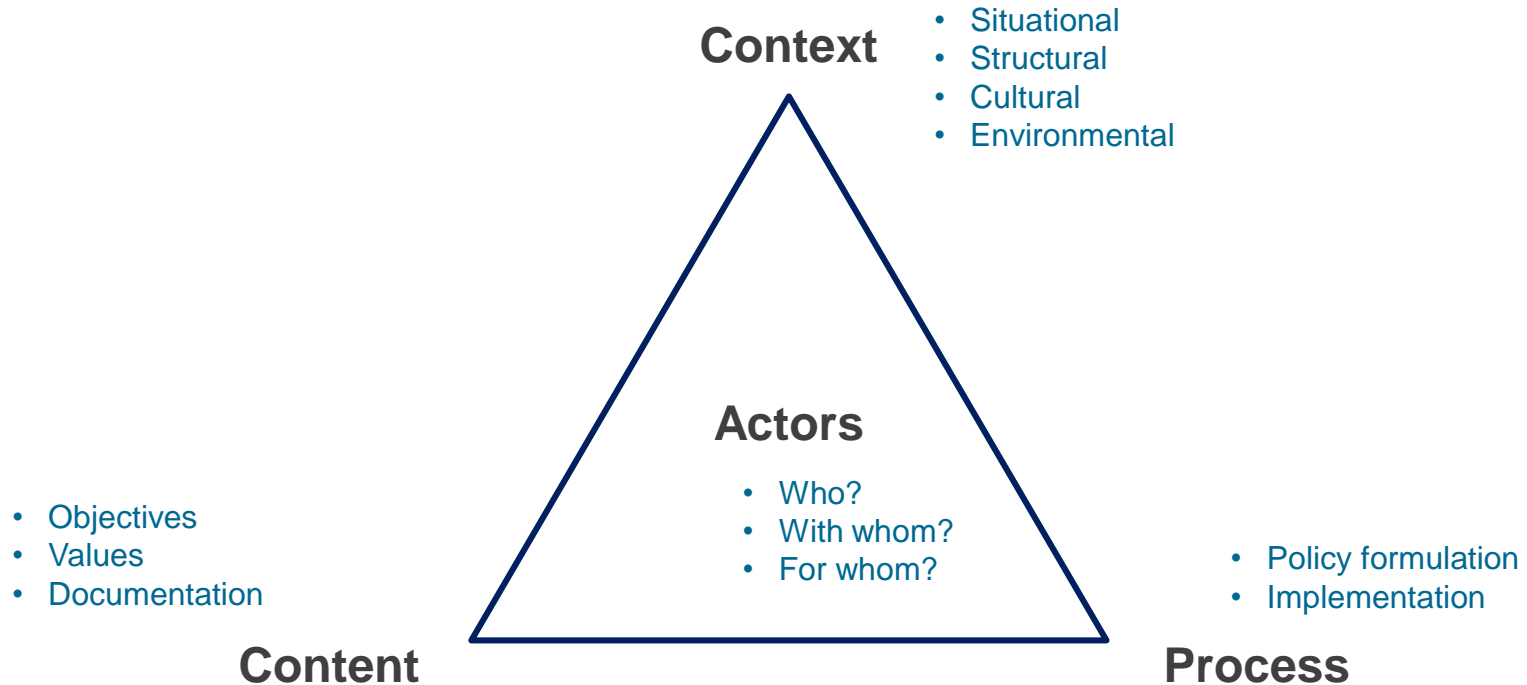
Three propositions

1. **Meta-theory** – supporting pragmatic action in healthcare through theory
2. **Meta-science** – mobilising science in the transformation of healthcare
3. **Meta-cognition** – thinking and learning

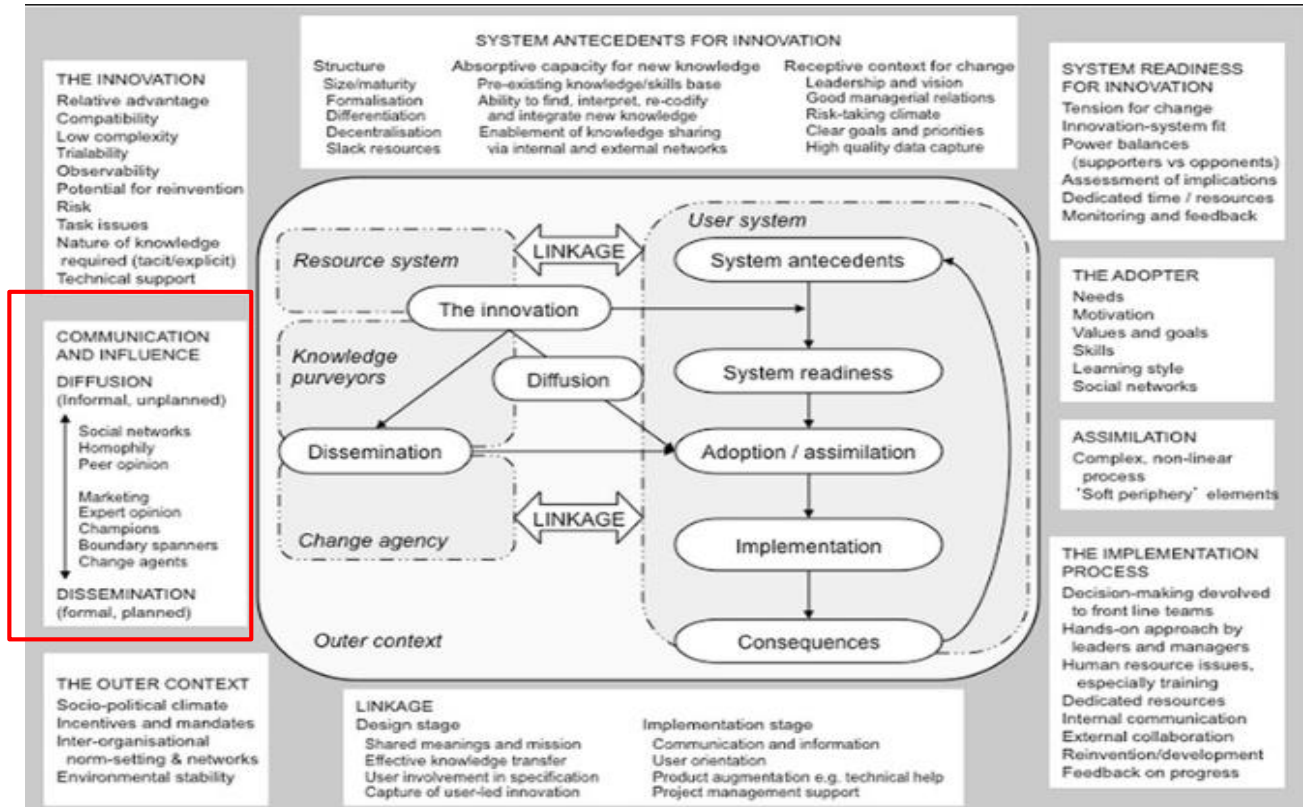
1. Meta-theories of improvement and innovation

- Meta-theory is the investigation and analysis of theories
- Many theories, frameworks and models have been proposed to describe health improvement and innovation
- Most are empirically-derived or attempt to synthesise various disciplines
- Healthcare systems are complex and therefore we need to combine various theories to better understand and act on healthcare

Simple – policy development and evaluation



Complex – diffusion of innovation



Integrative – levers for change

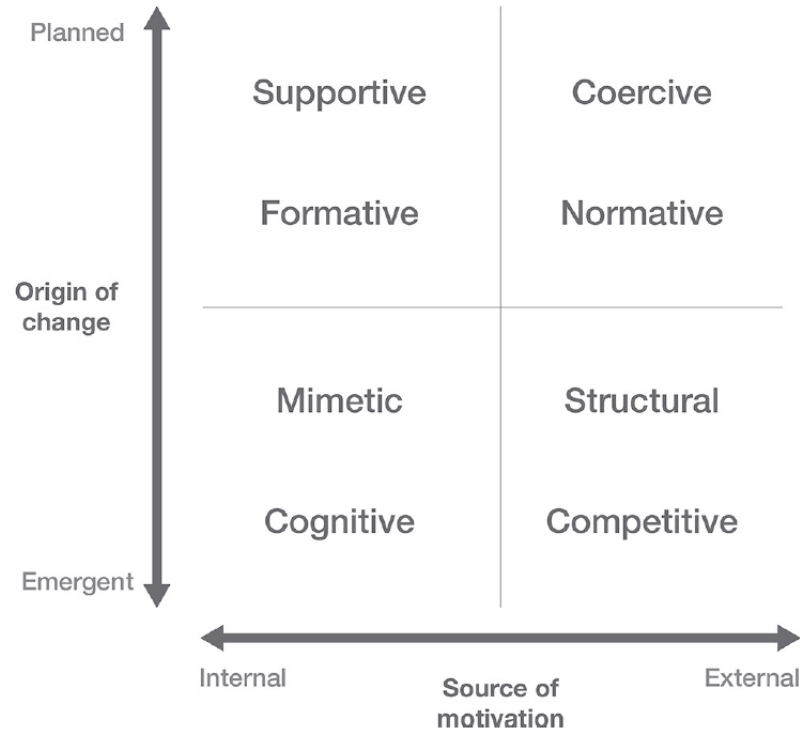
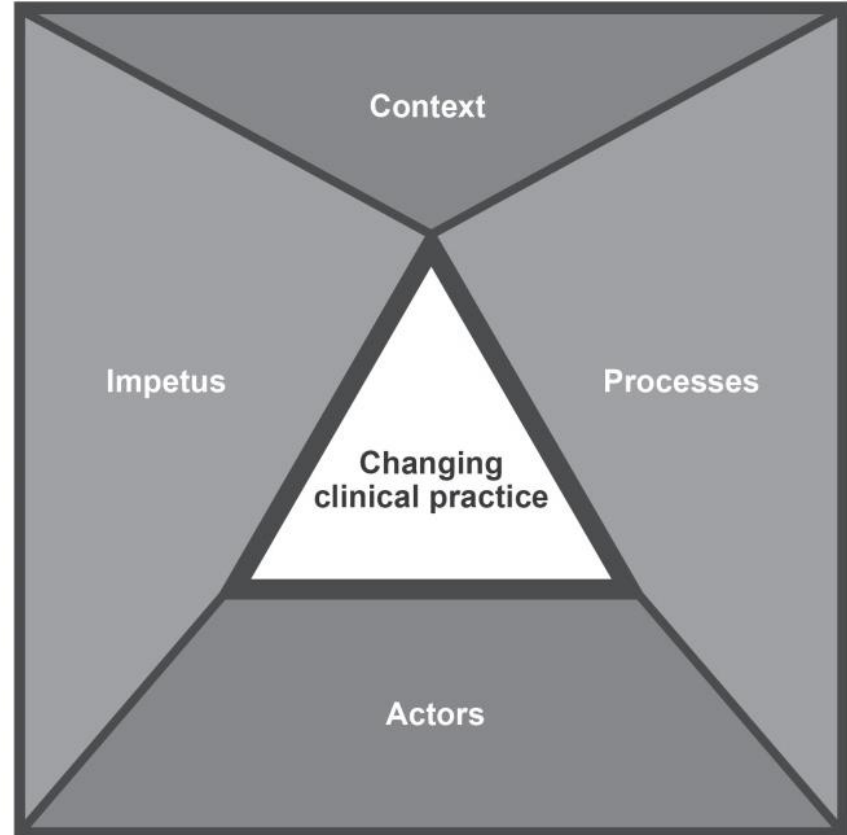


Figure 1 Integrated conceptual framework of levers for change in healthcare.

Source: Levesque & Sutherland 2017

Meta-theory of innovation

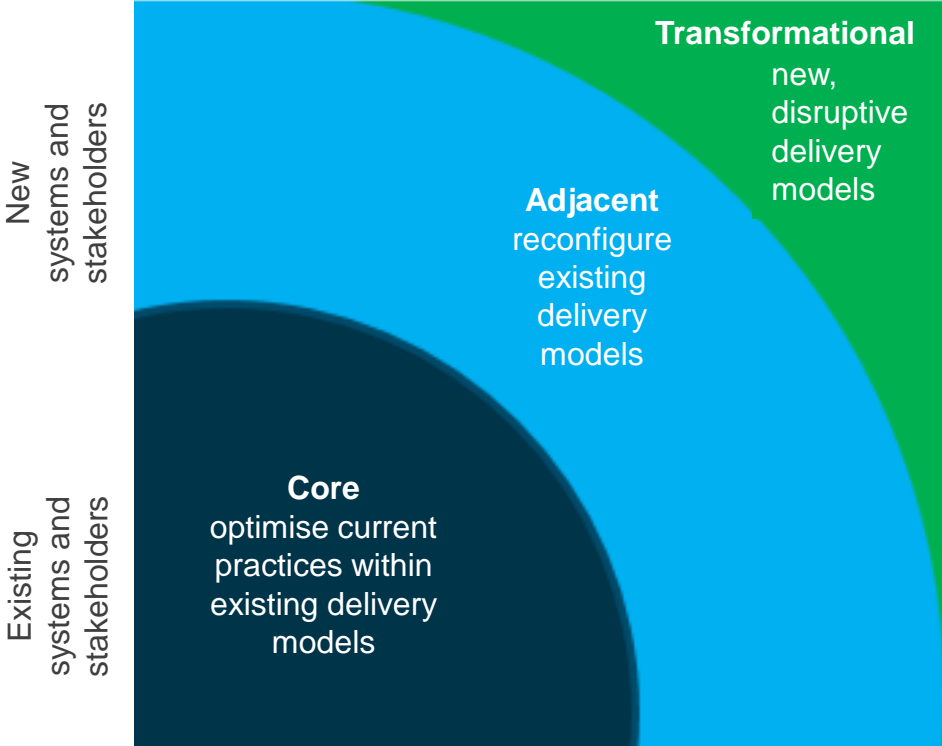
- Overarching framework to support a systematic assessment of factors that impact the design, implementation, measurement of innovations
- Meta-theory meets meta-science
- Informs future improvement
- Generates new knowledge



2. Meta-science to reduce waste in improvement

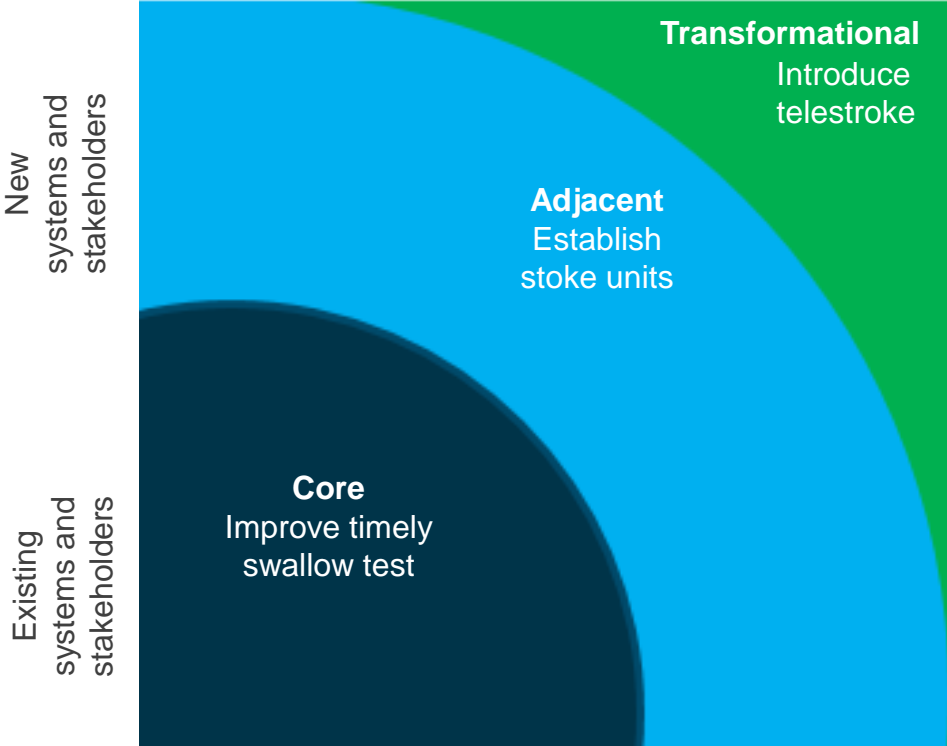
- While implementation and innovation are underdeveloped fields of inquiry, there is mounting evidence about drivers of success
- There is a lack of recourse to evidence that does exist and poor capacity for healthcare systems to tap into accumulated knowledge
- We need tools to develop a meta-science using automated knowledge generation tools to increase access to timely evidence

Improvement – redesign - innovation



Adapted from: Bhattacharyya et al, 2019

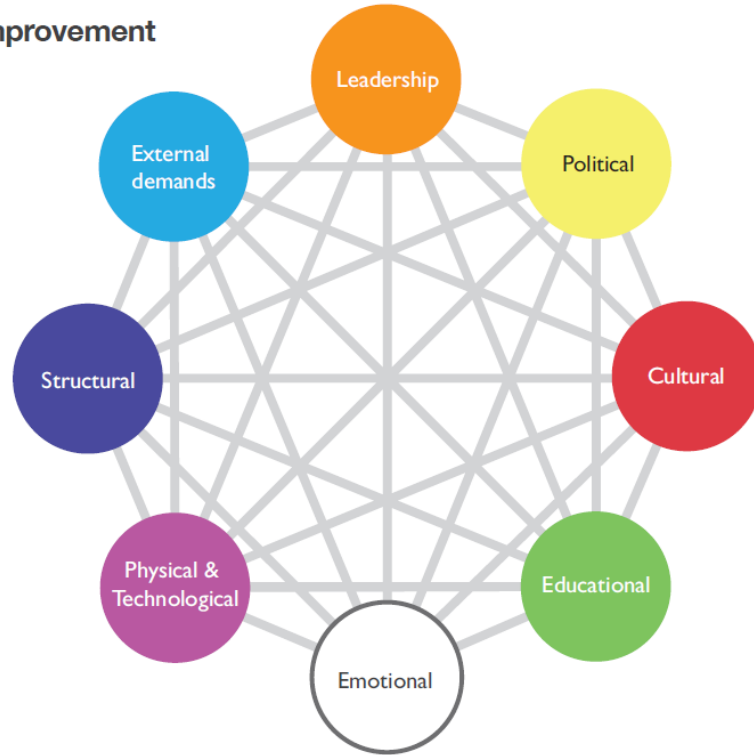
Improvement – redesign – innovation e.g. stroke



Adapted from: Bhattacharyya et al, 2019

A framework to guide local innovation and improvement

The eight challenges of quality improvement



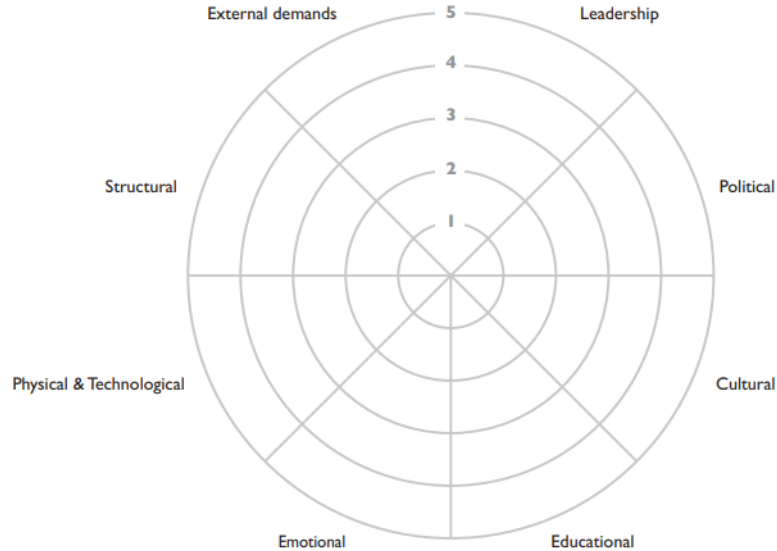
Organisational 360s - barriers


- **Leadership** – sponsorship and authorising environments are often lacking or volatile; clinicians and patients are poorly involved
- **Political** – the internal organisational politics are often ignored or underestimated
- **Cultural** – understanding the knowledge and influences that will ultimately change behaviours, attitudes and relationships (core elements of culture) is often lacking
- **Educational** – giving knowledge and providing a supportive environment has to be in a healthy tension with more coercive approaches

Organisational 360s - barriers

- **Emotional** – the discourse often remains technical and disconnected from real-life values and exemplars
- **Physical and technological** – few logic models (or driver diagrams) of “how is this going to work?”
- **Structural** – the support we provide to sustain changes is often time-limited and smaller than needed
- **External demands** – limited slack and space for system learning

Organisational 360s – positive deviance





NSW
Health

Leading Better Value Care

Chronic obstructive pulmonary disease

Local vignette – Royal Prince Alfred Hospital

RESPIRATORY COORDINATED CARE PROGRAM
A CLINICIAN'S PERSPECTIVE – BEULAH BENEDICT

What is important to know about your service?

The Respiratory Coordinated Care Program (RCCP) spans hospital and community and is for patients living with respiratory conditions across the local health district (LHD). The program runs out of Royal Prince Alfred Hospital and is delivered by three full-time expert nurses who have access to a respiratory multidisciplinary team that includes physiotherapists and respiratory consultants.

What organisational models do you use?

The RCCP is an integrated inreach and outreach model of care with a multidisciplinary team approach.

What is special about the way care is delivered that is valuable for others to know?

This hospital-based community program coordinates care for patients with COPD in the context of other existing comorbidities. Expert nurses transition patients from hospital to the community and offer diagnostic testing including blood pressure, spirometry and oximetry, referrals and exacerbation management. Patients can access home-based physiotherapy and education including breathlessness management techniques.

Patients have management plans to activate if they experience a mild exacerbation of their condition and to prevent unnecessary presentations to the emergency department (ED).

Management plans are key. They guide patients to treat mild exacerbations and when to present to the ED.

A companion document describes options for organisational models in COPD. One option is a respiratory coordinated care program – this vignette describes the RCCP model from a local perspective.

Expert nurses visit patients in their own home. The frequency of visits reflects the needs of patients and range from weekly to monthly. Patients have 24-hour telephone access if they require additional support. Respiratory consultants are on week-by-week rotation to support the expert nurses through the RCCP.





Additional interventions can be planned via a telehealth model to help patients return to their baseline function within the community both during and following an exacerbation.


How does it make a difference to care?


"It is easy to access our program. Patients can call or text us. Patients seem to be less anxious when accessing the program."

What tips do you have for others?

1. Patients need quick access multidisciplinary care so they can be treated outside of the hospital.
2. Networking and establishing strategic partnerships support care transitions.
3. Address all the determinants of wellness. It's not just about health.


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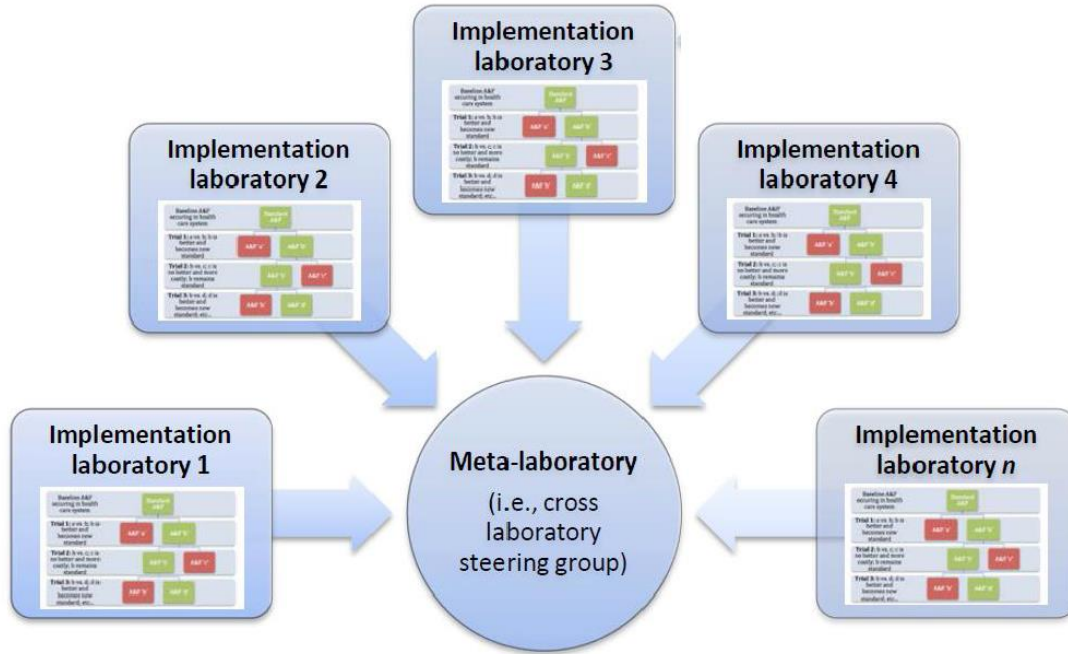


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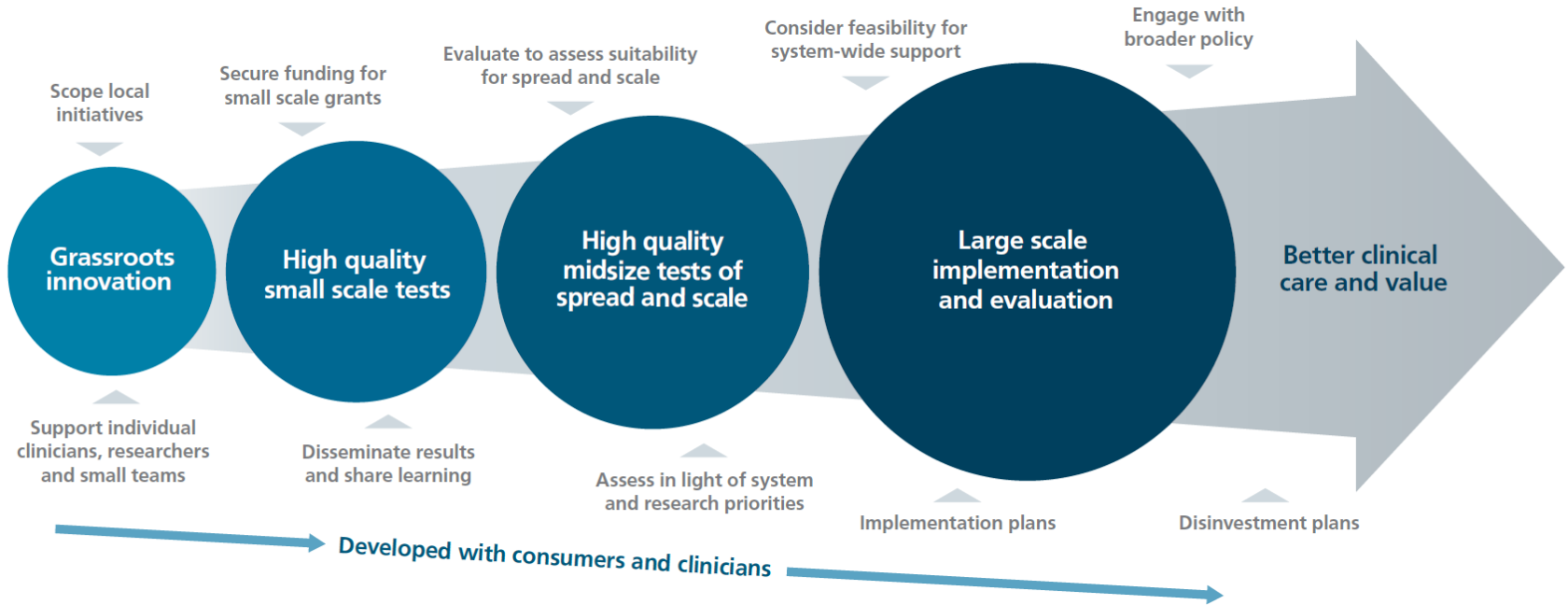
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Meta-science - building the knowledge base

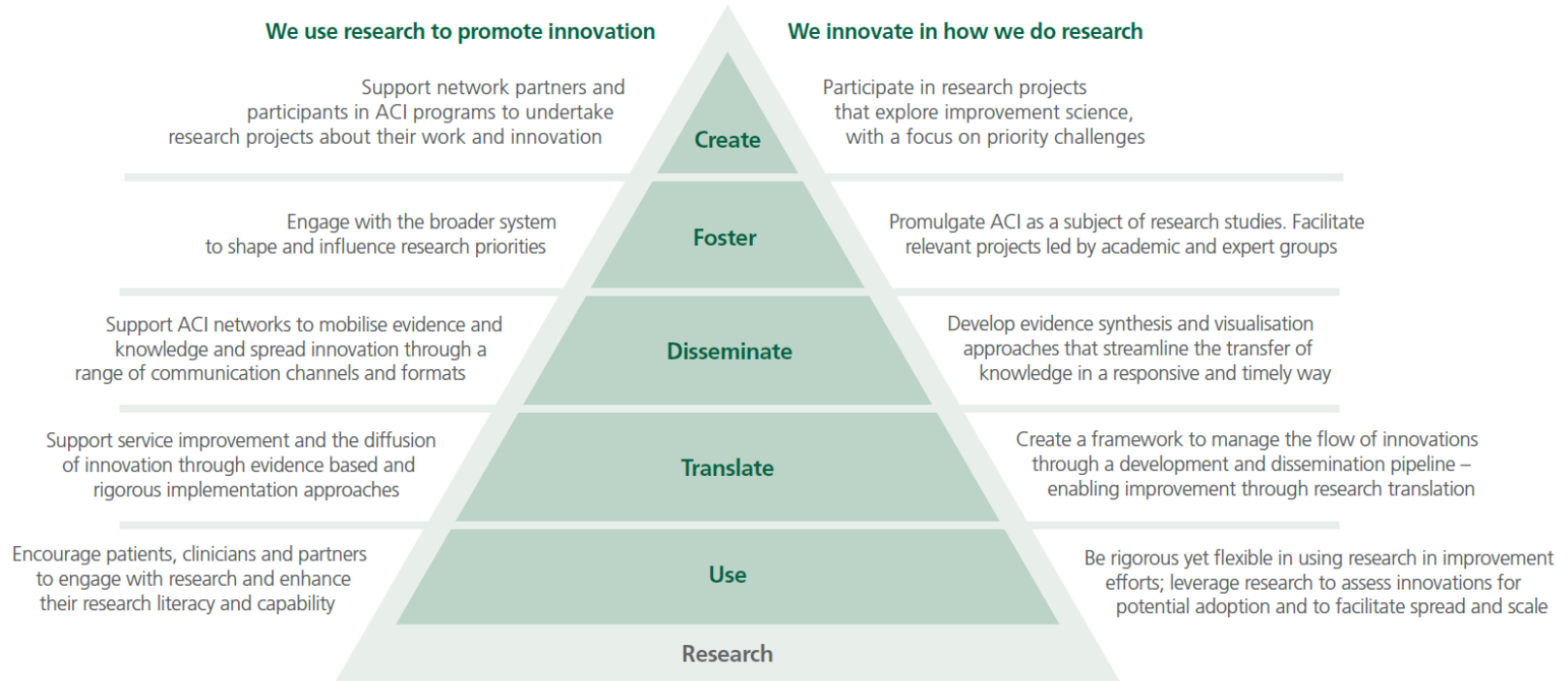
- Many studies are underpowered and lack appropriate designs to generate evidence in implementation
- Leverage multi-methods, big data
- Creation of meta-labs of improvement and innovation to support the creation of stronger evidence and reduce research waste
- Creation of networks of teams that can pool interventions and evaluations can increase our capacity to generate evidence
- Support rigorous self-evaluation



Meta-labs in innovation pipelines



Innovation organisations as part of meta-labs



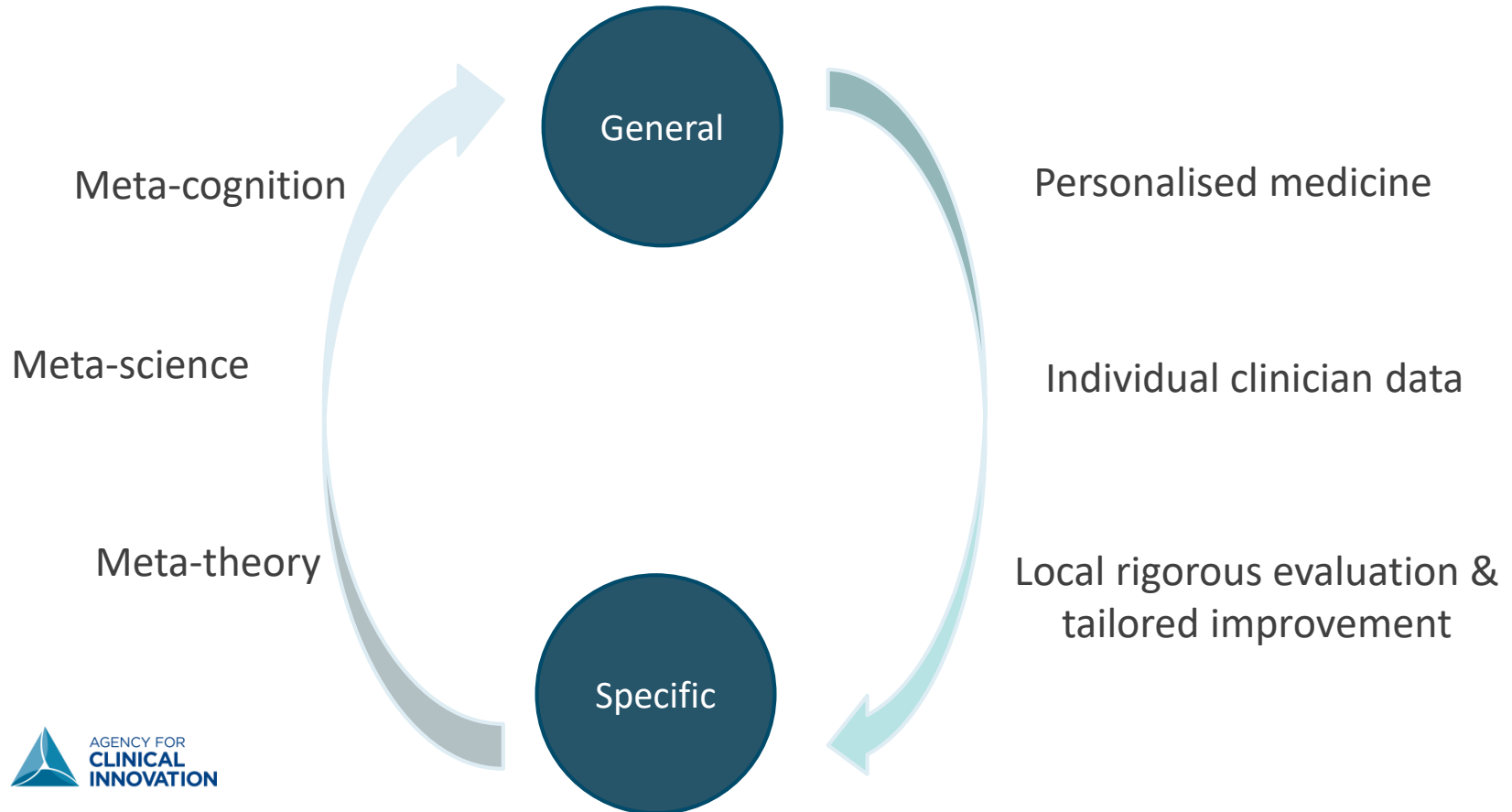
3. Meta-cognition and *Learning Systems*

- **Embedding research into healthcare**
 - Conducting research on healthcare activities
 - Rapid cycles of designing, testing, piloting, spreading, evaluating
- **Measurement of all aspects of care delivery (through workflows and sensors and less manual collection)**
- **Pooling natural experiments**
- **Bridging worlds through researchers in residence, practice-based networks and boundary-spanners**

Meta-cognition: Combining rigour with pragmatism

- **Myriad combinations of content / actors / processes / context in healthcare**
 - Time for *personalised* innovation and implementation?
- **Need for theory- and evidence-informed, real world applications that utilise:**
 - Theoretical evidence – use of different theoretical frameworks for thinking about a problem
 - Empirical evidence – based on data and measurement
 - Experiential evidence – craft, tacit knowledge, real world

Agility in thinking, acting, learning, organising



Key messages

- **The science of improvement may lie in the art of combining multiple scientific disciplines, through a meta-theory of change**
- **We need systems to embed evidence about what influences change to generate the meta-science of improvement**
- **We need to foster agility in moving from the specific to generic and back, through meta-cognition of improvement**

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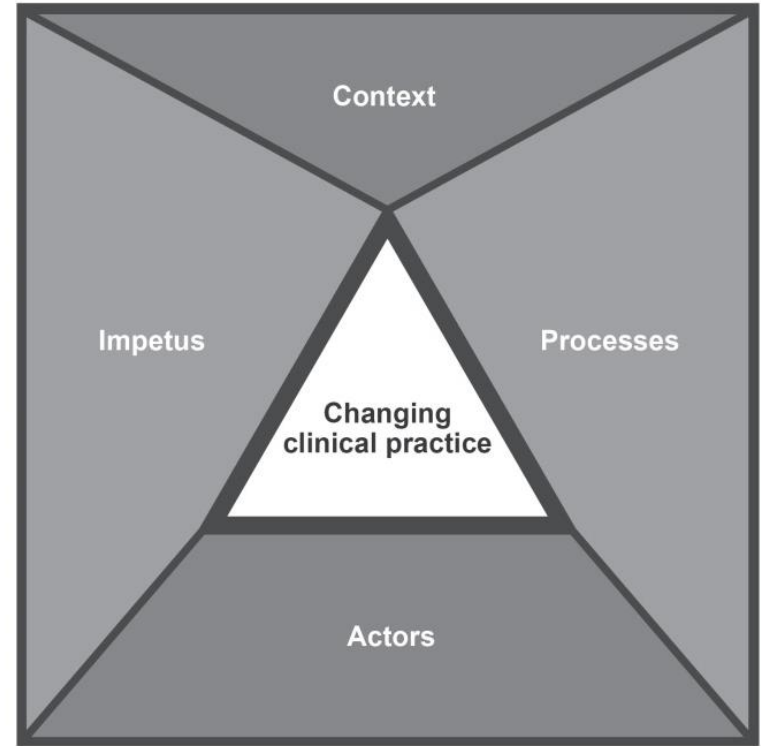
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**Collaboration.
Innovation.
Better Healthcare.**

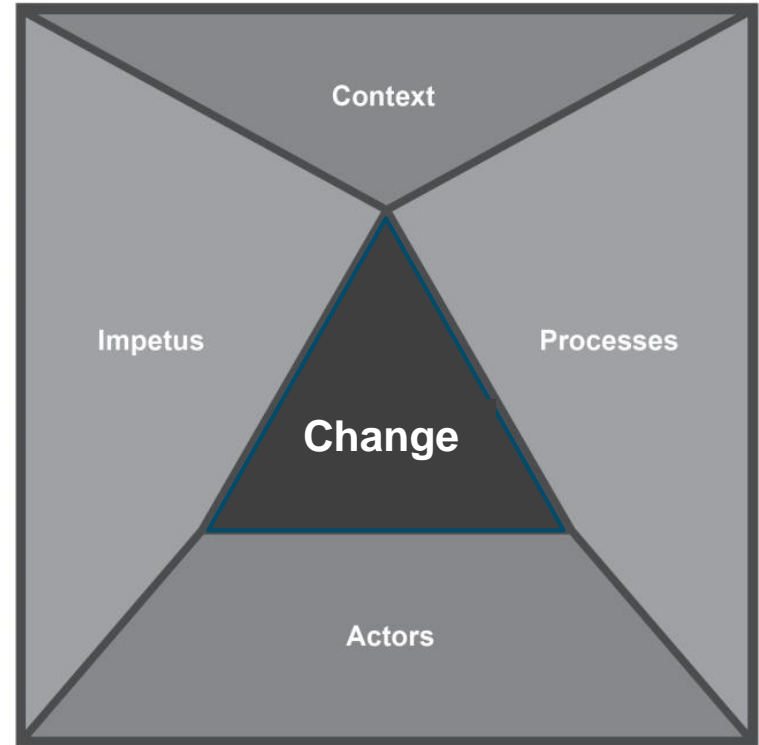
Identifying the *desired change*

- Knowledge / decisions
- Attitudes / behaviours
- Delivery models / processes
- Therapeutic technology
- Information technology
- Environment / structures



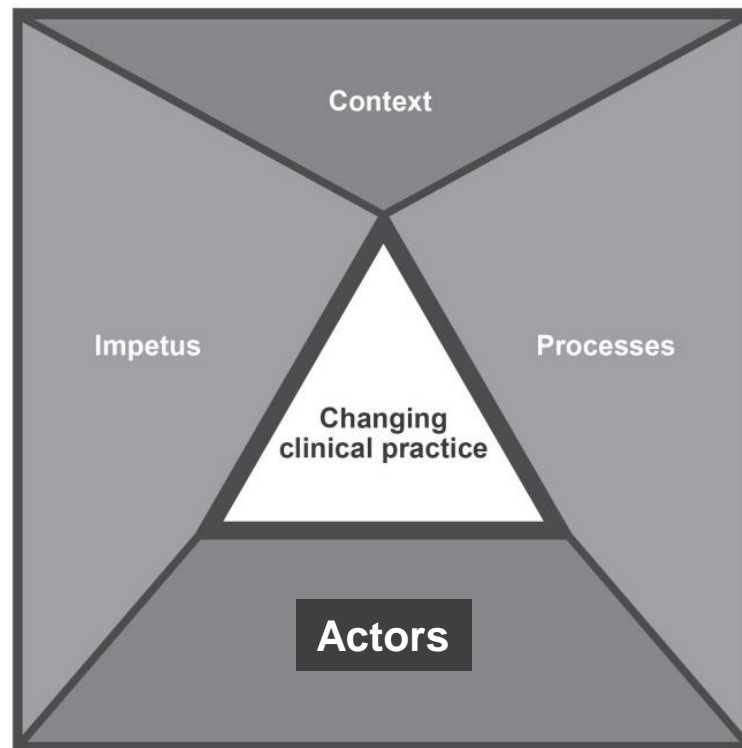
Assessing *the innovation / improvement*

- Relative advantage
- Compatibility
- Complexity
- Trialability / divisibility
- Cost / investments
- Communicability / observability



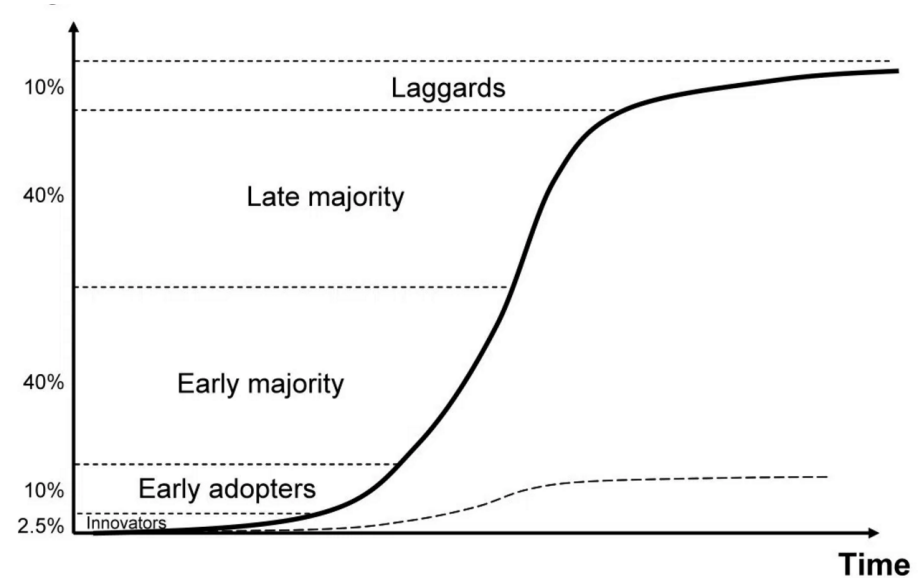
Considering the *actors of change*

- Patients / carers
- Clinicians / teams
- Managers
- Communities / groups
- Politicians / advocates
- Improvers / champions



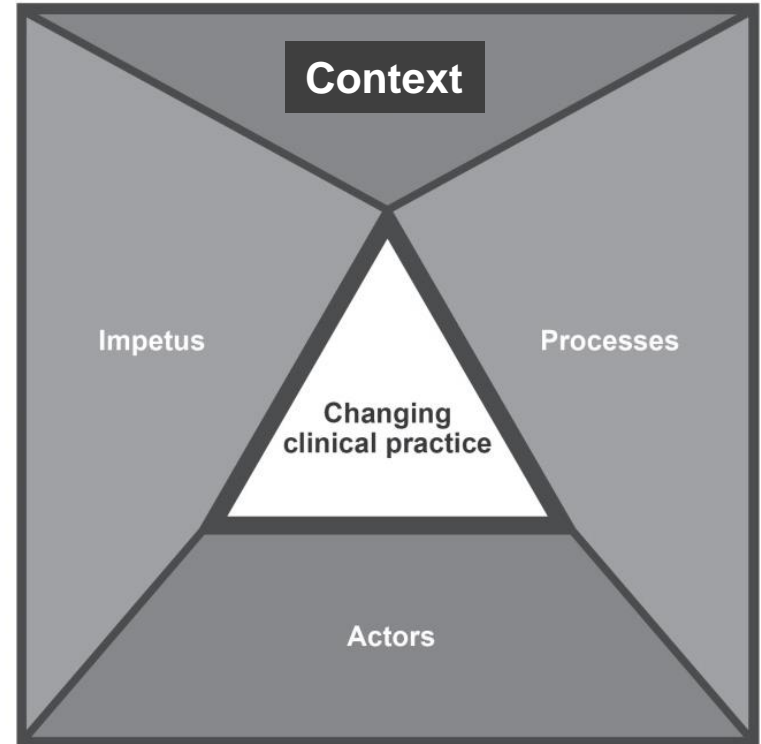
Characterising *actors*

- Knowledge, skills, learning confidence and style
- Beliefs about and attitude to change, emotions, motivation, values
- Professional roles and identities, autonomy, community connections
- Optimism, tolerance to ambiguity, intellectual ability and resilience



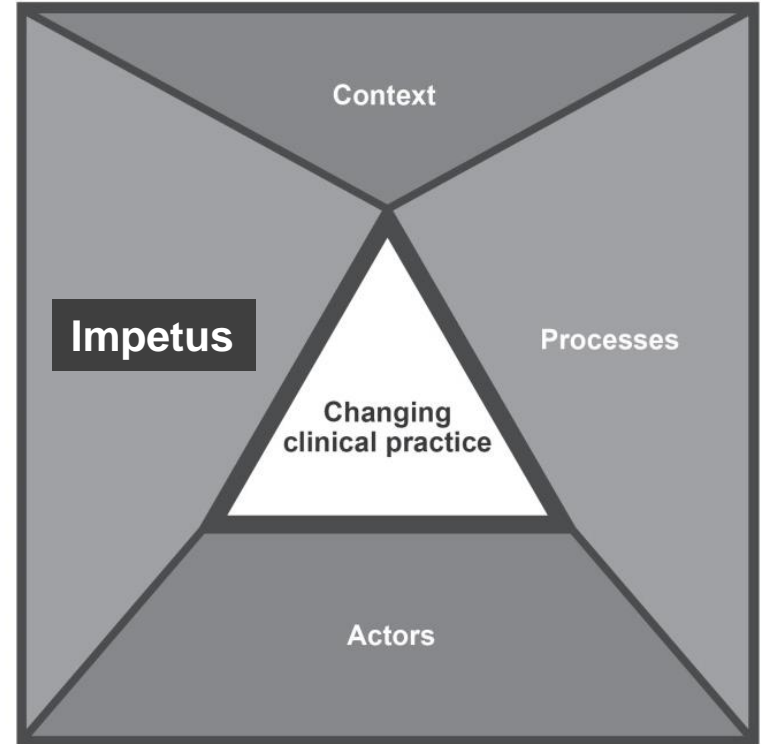
Assessing the *context of change*

- Internal case for change
- Internal organisational
- Internal social
- External case for change
- External organisational
- External societal



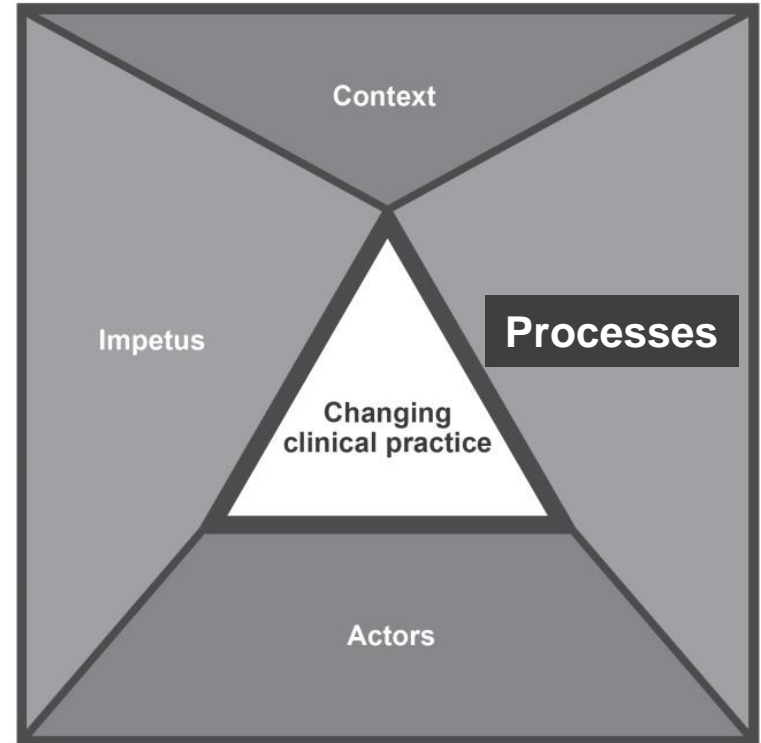
Identifying the *impetus of change*

- Emergent / planned change
- Internal / external motivation
- Levers for change



Selecting *processes of change*

- Ongoing or episodic
- Overt or covert
- Agile or linear
- Local or systemic
- Iterative or deterministic



Improvement – redesign – innovation

- Defining the problem and its organisational foundations
- Understanding contexts and actors
- Choosing an iterative and agile process of change
- Identifying levers
- Monitoring change

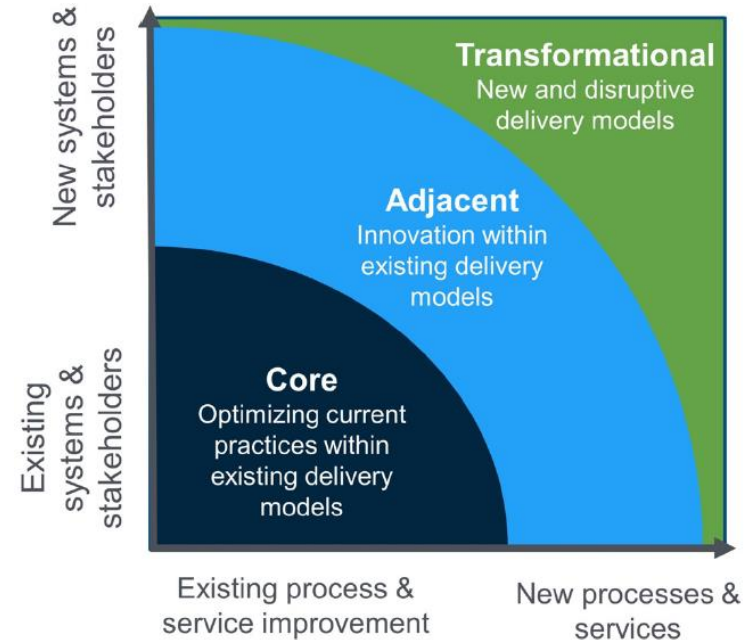


Figure 1 Improving existing services versus creating new services.
Adapted from Nagji B, Tuff G. Managing your innovation portfolio. *Harvard Business Review*. May 2012.

Improvement – redesign – innovation

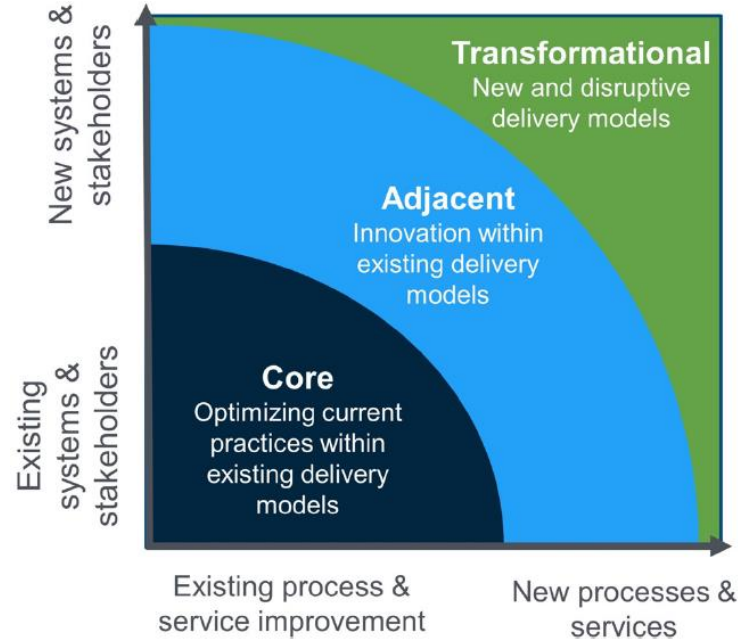


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Stroke: Improvement – redesign – innovation

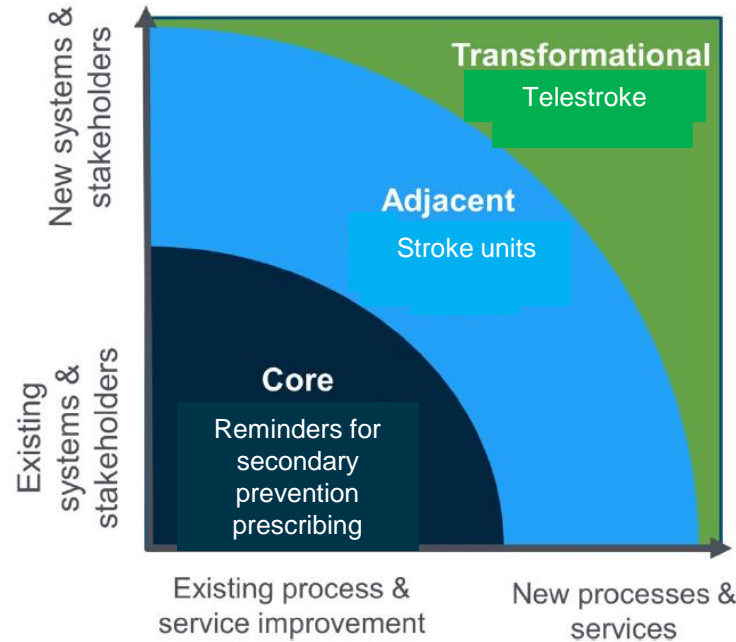


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