European Innovation Partnership on Active and Healthy Ageing

B3 Action Group on Integrated Care

Maturity Model for Adoption of Integrated Care Enabled by ICT

Quick Start Guide

The B3 Maturity Model is a conceptual model intended to show how healthcare systems are attempting to deliver more integrated care services for their citizens. It has been derived from interviews with 12 European countries, or regions within a country, responsible for healthcare delivery. The many activities that need to be managed in order to deliver integrated care have been grouped into 12 'dimensions', each of which addresses a part of the overall effort. By considering each dimension, assessing the current situation, and allocating a measure of maturity within that domain (on a 0-5 scale), it is possible for a country or region to develop a 'radar diagram' which reveals areas of strength, and also gaps in capability. Using these insights, and comparing the radar diagram with those of other regions/countries that have conducted the same exercise, it should be possible to find expertise to fill the gaps in capability, and to offer to others knowledge and experience from the sites' areas of strength.

This Quick Start Guide is intended to provide a simple description of the model and its dimensions, along with guidance on how to measure maturity, so that an assessment can be quickly carried out.

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Readiness to Change to enable more Integrated Care

Objectives:

If the existing systems of care need to be re-designed to provide a more integrated set of services, this will require change across many levels, the creation of new roles, processes and working practices, and new systems to support information sharing and collaboration across care teams. This will be disruptive and may be viewed negatively by workers, press and public, so a clear case needs to be made for those changes, including a justification, a strategic plan, and a vision of better care.

- Creating a compelling vision, with a real sense of urgency, and enlisting stakeholder support including political leadership, management, care professionals, public and press.
- Accepting the reality that care systems are unsustainable and need to change.
- Publishing a clear description of the issues, the choices that need to be made, and the desired future state of the care systems, stating what will be the future experience of care.
- Creating a sense of urgency to ensure sustained focus, and building a 'guiding coalition' for change.

Indicators of maturity:

Evidence of public consultation; a published plan with clear strategic goals & milestones; a plan embedded in national/regional health policy; evidence of effective stakeholder engagement; emergence of leaders and champions of change; broad political and public support.

Assessment:

0 – No acknowledgement of crisis

1 – Crisis recognised, but no clear vision or strategic plan

2 – Dialogue and consensus-building underway; plan being developed

3 – Vision or plan embedded in policy; leaders and champions emerging

4 – Leadership, vision and plan clear to the general public; pressure for change

5 – Political consensus; public support; visible stakeholder engagement.

Structure & Governance

Objectives:

The broad set of changes needed to deliver integrated care at a regional or national level presents a significant challenge. It needs multi-year programmes with excellent change management, funding and communications, and the power to influence and (sometimes) mandate new working practices. This means alignment of purpose across diverse organisations and professions, and the willingness to collaborate and put the interest of the overall care system above individual incentives. It also

means managing the introduction of eHealth services to enable integrated care in a way that makes them easy to use, reliable, secure, and acceptable to care professionals and citizens alike.

- Enabling properly funded programmes, including a strong programme, project management and change management; establishing ICT or eHealth competence centres to support roll-out; distributed leadership, to reduce dependency on a single heroic leader; excellent communication of goals, progress and successes.
- Managing successful eHealth innovation within a properly funded, multi-year transformation programme.
- Establishing organisations with the mandate to select, develop and deliver eHealth services.

Indicators of maturity:

Evidence of effective planning and management of change, including stakeholder involvement; collective decision-making; benefits realisation; regular communication of progress; establishment or re-orientation of eHealth competence centres, usability labs etc.

Assessment:

0 – No overall attempt to manage the move to integrated care

1 – Change underway, but with fragmented organisations & plans

2 – Formation of task forces, alliances and other informal ways of collaborating

3 – Governance established at a regional or national level

4 – Roadmap for a change programme defined and broadly accepted

5 – Full, integrated programme established, with funding and a clear mandate.

Information & eHealth Services

Objectives:

Integrated care requires, as a foundational capability, sharing of health information and care plans across diverse care teams that leads progressively to systems for enabling continuous collaboration, measuring and managing outcomes, and enabling citizens to take a more active role in their care. This means building on existing eHealth services, connecting them in new ways to support integration, and augmenting them with new capabilities, such as enhanced security and mobility.

- Essential components to enable information-sharing, based on secure and trusted services.
- 'Digital first' policy (where possible, move phone and face-to-face services to digital services to reduce dependence on staff and promote self-service).
- Availability of fundamental building blocks to enable eHealth and eServices ('infostructure').
- Confidentiality and security designed into patient records, registries, online services etc.

- Enabling of new channels for healthcare delivery to replace face-to-face and telephone contact.

Indicators of maturity:

Unique citizen ID; linked health records; regional/national longitudinal electronic health record; at-scale teleservices; ability to combine health and social care information; care collaboration platforms.

Assessment:

0 – No connected health services, just isolated medical record systems

1 – No integrated services used, only pilots/local services

2 – eHealth deployed in some areas, but limited to specific organisations or patients

3 – Voluntary use of regional/national eHealth services across the healthcare system

4 – Mandated or funded use of regional/national eHealth infrastructure across the healthcare system

5 – Universal, at-scale regional/national eHealth services used by all integrated care stakeholders.

Standardisation & Simplification

Objectives:

When considering eHealth services and how they can support the information sharing and collaboration needs of integrated care, the task can be made easier if the number of different systems in use, and the formats in which they store data, can be simplified. Practically, this means trying to consolidate data centres, standardising on fewer systems, and agreeing on what informatics standards will be used across a region or country.

- Simplification of infrastructure; fewer integration points to manage; easier interoperability.
- Consolidation of applications and data centres into fewer sites.
- Regional standardisation on fewer (or single) solutions.
- Ability to view and exchange medical data from different systems across diverse care settings.

Indicators of maturity:

Use of international standards (e.g. HL7, ICD, SNOMED) and profiles (e.g. IHE XDS, Continua Design Guidelines); reduction in total number of different applications; regional procurements to replace diverse applications with more integrated systems (e.g. a regional electronic patient record); policy mandates requiring information to be made available in agreed formats.

Assessment:

0 – No systematic attempt to standardise the use of citizen health & care data, or to simplify systems in use

1 – Debate on information standards (e.g., coding, formatting); exploration of options for consolidating ICT

2 – A recommended set of agreed information standards at local level; a few local attempts at ICT consolidation

3 – A recommended set of agreed information standards at regional/national level; some shared procurements of new systems at regional/national level; some large-scale consolidations of ICT underway

4 – A unified set of agreed standards to be used for system implementations specified in procurement documents; many shared procurements of new systems; consolidated data centres and shared services widely deployed

5 – A unified and mandated set of agreed standards to be used for system implementations fully incorporated into procurement processes; clear strategy for regional/national procurement of new systems; consolidated datacentres and shared services (including the cloud) is normal practice.

Finance & Funding

Objectives:

Changing systems of care so that they can offer better integration requires initial investment and funding; a degree of operational funding during transition to the new models of care; and on-going financial support until the new services are fully operational and the older ones are de-commissioned. Ensuring that initial and on-going costs can be financed is an essential activity that uses the full range of mechanisms from regional/national budgets to 'stimulus' funds, European Union investment funds, public-private partnerships (PPP) and risk-sharing mechanisms).

Indicators of maturity:

Use of regional/national stimulus funds; innovative procurement approaches (e.g., PPP, risk-sharing, multi-year contracts for IT service provision).

Assessment:

0 – No special funding allocated or available

1 – Fragmented innovation funding, mostly for pilots

2 – Consolidated innovation funding available through competitions/grants for individual care providers

3 – Regional/national (or European) funding or PPP for testing and for scaling-up

4 – Regional/national funding for scaling-up and on-going operations

5 – Secure multi-year budget, accessible to all stakeholders, to enable further service development.

Removal of Inhibitors

Objectives:

Even with political support, funded programmes and good eHealth infrastructure, many factors can still make integrated care difficult to deliver, by delaying change or limiting how far change can go. These include legal issues with data governance, resistance to change from individuals or professional bodies, cultural barriers to the use of technology, perverse financial incentives, and lack of skills. These factors need to be recognised early, and a plan developed to deal with them, so as to minimise their impact.

- Actions to remove barriers: legal, organisational, financial, skills.
- Changes to the law concerning e.g., medical acts, information governance, data sharing – factors which may hold up innovation.
- Creation of new organisations or collaborations to encourage cross-boundary working ('normative integration').
- Changes to reimbursement to support behavioural change and process change.
- Education and training to increase understanding of ICT and speed up solution delivery.

Indicators of maturity:

Laws to enable data-sharing; financial incentives aligned to teamwork and outcomes (value rather than volume); training programmes to fill skills gaps; formation of new organisational structures or contracts between organisations to deliver integrated care.

Assessment:

0 – All projects delayed or cancelled due to inhibitors

1 – Some projects delayed or cancelled due to inhibitors

2 – Process for identifying inhibitors in place

3 – Strategy for removing inhibitors agreed at a high level

4 – Solutions for removal of inhibitors developed and commonly used

5 – High completion rate of projects & programmes; inhibitors no longer an issue for service development

Population Approach

Objectives:

Integrated care can be developed to benefit those citizens who are not thriving under existing systems of care, in order to help them manage their health and care needs in a better way, and to avoid emergency calls and hospital admissions and reduce hospital stays. This is a practical response to meeting today's demands. Population health goes beyond this, and uses methods to understand where future health risk (and so, demand) will come from. It offers ways to act ahead of time, to predict and anticipate, so that citizens can maintain their health for longer and be less dependent on care services as they age.

- Understanding and anticipating demand; meeting needs better.
- Improving the resilience of care systems by using existing data on public health, health risks, and service utilisation.
- Taking steps to divert citizens into more appropriate and convenient care pathways based on user preferences.
- Predicting future demand and taking steps to reduce health risks though technology-enabled public health interventions.

Indicators of maturity:

Use of risk stratification models; a range of care pathways available for different groups of citizens; strong public health and prevention programmes; feedback available about effectiveness of new pathways and interventions.

Assessment:

0 – No consideration of population health in service provision

1 – A population focus of risk stratification but no risk stratification tools

2 – Individual risk stratification for the most frequent service users

3 – Group risk stratification for those who are at risk of becoming frequent service users

4 –Population-wide risk stratification started but not fully acted on

5 – Whole population stratification deployed and fully implemented.

Citizen Empowerment

Objectives:

Health and social care systems are under increasing pressure to respond to demands which could otherwise be handled by citizens and carers themselves. The evidence suggests that many individuals would be willing to do more to participate in their own care if easy-to-use services, such as appointment booking, self-monitoring of health status, and alternatives to medical appointments, were available to them. This means providing services and tools which enable convenience, offer choice, and encourage self-service and engagement in health management.

Indicators of maturity:

At-scale use of teleservices; multi-channel ways to access care services; citizen portals offering booking & prescriptions refills; online access to health records; recommended apps and health management services, which are also integrated with medical records.

Assessment:

0 – No systematic plan for empowerment

1 – Citizens are not involved in decision-making processes and do not participate in the co-design of their services

2 – Policies to support citizens' empowerment and protect their rights, but may not reflect their real needs

3 –Incentives and tools to motivate and support citizens to co-create health and participate in decision-making processes

4 – Citizens are supported and involved in decision-making processes, and have access to information and health data

5 – Citizens are involved in decision-making processes, and their needs are frequently monitored and reflected in service delivery and policy-making.

Evaluation Methods

Objectives:

As new care pathways and services are introduced to support integrated care, there is a clear need to ensure that the changes are having the desired effect on quality of care, cost of care, access and citizen experience. This supports the concept of evidence-based investment, where the impact of each change is evaluated, ideally by health economists working in universities or in special agencies. Health technology assessment (HTA) is an important method here, and can be used to justify the cost of scaling up good practices to regional or national level.

- Establishing baselines (on cost, quality, access etc.) in advance of new service introduction.
- Systematically measuring the impact of new services and pathways using appropriate methods (e.g., observational studies, incremental improvement, clinical trials).
- Generating evidence that leads to faster adoption of good practice.

Indicators of maturity:

Academic institutes and agencies with experts in health economics and HTA; published health impact measurements; measurable care cost/quality improvements.

Assessment:

0 – No routine evaluation

1 – Evaluation exists, but not as a part of a systematic approach

2 – Evaluation established as part of a systematic approach

3 – Some initiatives and services are evaluated as part of a systematic approach

4 – Most initiatives are subject to a systematic approach to evaluation; published results

5 – A systematic approach to evaluation, responsiveness to the evaluation outcomes, and evaluation of the desired impact on service redesign (i.e., a closed loop process).

Breadth of Ambition

Objectives:

Integrated care includes many levels of integration, such as integration between primary and secondary care, of all stakeholders involved in the care process, or across many organisations. It may be developed simply for healthcare needs (i.e., vertical integration) or it may include social workers, the voluntary sector, and informal care (i.e., horizontal integration). The broader the ambition, the more numerous and diverse the stakeholders who have to be engaged. Similarly, integration may include all levels of the system or may be limited to clinical information sharing. The long-term goal should be fully integrated care services which provide a complete set of seamless interactions for the citizen, leading to better care and improved outcomes.

- Integration supported at all levels within the healthcare system – at the macro (policy, structure), meso (organisational, professional) and micro (clinical) levels.
- Integration between the healthcare system and other care services (including social, voluntary, informal, family services).
- Seamless transition for the patient between and within care services.

Indicators of maturity:

Evidence of successful integration as viewed by the citizen; both vertical and horizontal integration; strong connections between organisations based on protocols, service level agreements, contracts and (if required) mergers.

Assessment:

0 – No level of integration

1 – Services in silos; the citizen or their family as the integrator of services

2 – Integration within the same level of care (e.g., primary care)

3 – Integration between care levels (e.g., between primary and secondary care)

4 – Integration includes both social care service and health care service needs

5 – Fully integrated health & social care services.

Innovation Management

Objectives:

Many of the best ideas are likely to come from clinicians, nurses and social workers who understand where improvements can be made to existing processes. These innovations need to be recognised, assessed and, where possible, scaled up to provide benefit across the system. At the same time, universities and private sector companies are increasingly willing to engage in open innovation, and innovative procurement, in order to develop new technologies, test process improvements and deliver new services that meet the needs of citizens. There is also value in looking outside the

system to other regions and countries that are dealing with the same set of challenges, to learn from their experiences. Overall, this means managing the innovation process to get the best results for the systems of care, and ensuring that good ideas are encouraged and rewarded.

- Adopting proven ideas faster.
- Enabling an atmosphere of innovation from top to bottom, with collection and diffusion of best practice.
- Learning from inside the system, as well as from other regions, to expand thinking and speed up change.
- Involving universities and private sector companies in the innovation process (i.e., 'open innovation').
- Using innovative procurement approaches (Pre-Commercial Procurement, IPP, PPP, Shared Risk, Outcome-Based Payment)
- Using European projects (e.g., Horizon 2020, EIP, CEF).

Indicators of maturity:

Innovation management methods; outreach to regions; creative involvement of academic & industry relations; innovative procurement methods.

Assessment:

0 – No plan for innovation management

1 – Isolated innovations across the region/country, but limited visibility

2 – Innovations are captured and published as good practice

3 – Innovation is governed and encouraged at a region/country level

4 – Formalised innovation management process in place

5 – Extensive open innovation combined with supporting procurement & the diffusion of good practice.

Capacity Building

Objectives:

As the systems of care are transformed, many new roles will need to be created and new skills developed. These will range from technological expertise and project management, to successful change management. The systems of care need to become 'learning systems' that are constantly striving to improve quality, cost and access. They must build their capacity so as to become more adaptable and resilient. As demands continue to change, skills, talent and experience must be retained. This means ensuring that knowledge is captured and used to improve the next set of projects, leading to greater productivity and increasing success.

- Increasing technology skills; continuous improvement.

- Building a skill base that can bridge the clinician-technologist gap and ensure that needs are understood and addressed by ICT.
- Providing tools, processes and platforms to allow organisations to assess themselves and build their own capacity to deliver successful change.
- Creating an environment where service improvements are continuously evaluated and delivered for the benefit of the entire care system.

Indicators of maturity:

Capturing knowledge from every project; nurturing deployment skills; creating new roles that bridge the gap between clinician and technologist; self-assessment tools to identify readiness, expose gaps, and acquire expertise.

Assessment:

0 – No plan for capacity-building

1 – Single organisational initiatives engaged in process improvement

2 – Some mechanisms for sharing knowledge among organisations

3 – Systematic learning about IT; integrated care and change management

4 – Knowledge shared, skills retained and lower turnover of experienced staff

5 – A 'learning healthcare system' involving reflection and continuous improvement.

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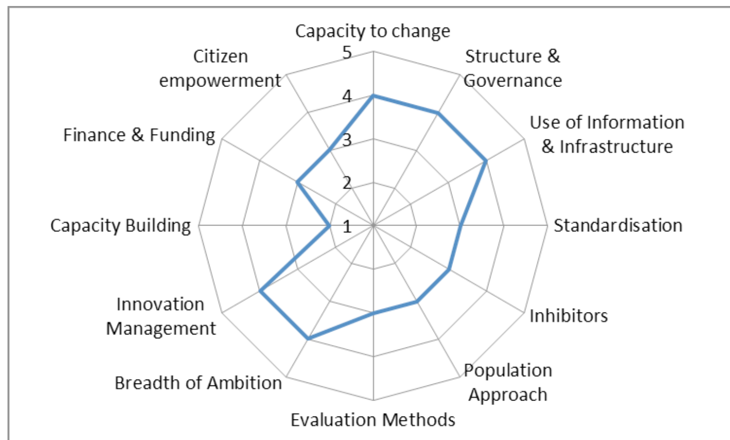
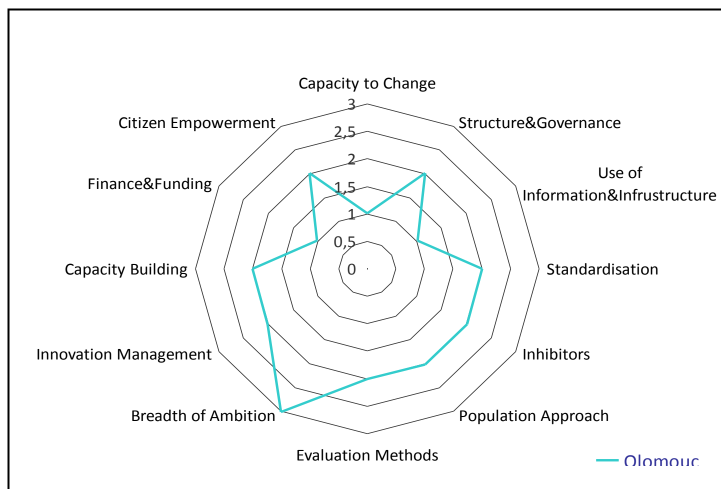
Examples from three regions that have already tested the self-assessment framework

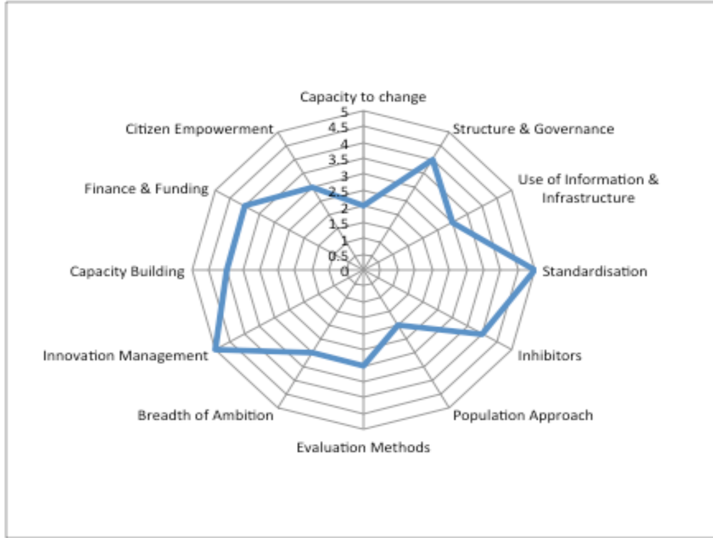
Maturity Assessment for Scotland



Maturity Assessment for Olomouc region, Czech Republic



Maturity Assessment for Puglia region, Italy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