NATIONAL INFORMATION BOARD
Personalised Health and Care 2020

WORK STREAM 1.2 ROADMAP
Enable me to make the right health and care choices

Providing citizens with access to an assessed set of NHS and social care 'apps'

CONTENTS

1 CONTEXT

1.1 Background

The high level objective of work stream 1.2 is to provide citizens with access to a set of NHS and care digital applications which have been assessed by the health and care system to enable them to make the right health and care choices.

The assumption underlying the objective is that an assessment framework for applications will enable health and care professionals to recommend the use of safe and effective digital applications and give greater confidence to patients and citizens to select and use them.

1.2 Terminology

Where the words "app" or "apps" are used in this document it should be understood that this is shorthand for digital applications, which may include either a mobile app, a web-based application or in certain cases a digital service.

1.3 Approach

The development of an assessment framework for digital applications is worth pursuing if it leads to better outcomes for service users and more efficient use of health and care systems, and personal resources. Our current knowledge about apps and their benefits means that any evaluative process will need to proceed developmentally, with the assumptions on which it is based being tested at intervals as our knowledge improves.

We intend to trial the assessment framework proposed in this document by running a series of carefully selected pilot apps through early prototype versions, challenging and improving the various parts of the emerging framework iteratively. We will also validate the proposal by undertaking user research with patients, citizens, commissioners and care professionals. We will continue to do this until the model is ready to be adopted and released to the wider app developer community.

It is important to note that assessment of apps is an entirely new endeavour which does not have the benefit of the decades-long research and development foundation of conventional health technology assessment. It may not yield the benefits referred to earlier or it may need to be significantly modified to enable it to do so.

1.4 Assumptions

A number of assumptions underpin the approach we are proposing to take. The evidence we have gathered is supportive but more is required to establish if an assessment framework for applications can add value and if so what shape it should take. These assumptions are that:

- Some apps can improve outcomes;

- An assessment framework can be developed which will allow the NHS and the care system to exercise a judgement as to whether certain apps can be promoted and recommended for use;
- An assessment system will help improve the confidence of health and care professionals in the use of apps;
- Careful selection and promotion of apps will improve the use of health and care systems, and personal resources;
- Developers are interested in improving the quality of their apps and are willing to participate in an assessment process on the basis that it can help them access the market (and generate revenue);
- The assessment framework will encourage the development of good apps, including in areas of unmet needs.

1.5 Document Structure

This Roadmap document was first published in June 2015. It was updated in September 2015 to reflect feedback received from stakeholder during summer 2015.

The structure of the paper is as follows:

- Stakeholder Engagement – outlines the importance and breadth of engagement so far;
- Research and evidence base – briefly summarises the evidence and its implications for the proposals;
- Feedback from consultation – summarises the key themes of the feedback received on the first iteration of the Roadmap during summer 2015;
- Building the picture for delivery – outlines the proposed framework for the assessment of apps. This section also outlines the next steps involved in pursuing this work;
- Benefits – summarises the key benefits that are assumed.

2 STAKEHOLDER ENGAGEMENT

Stakeholder engagement sits at the very core of work stream 1.2. Indeed, there would be no value in setting up an assessment framework in isolation of what users and the market need. In starting work stream 1.2, the team was conscious that the idea of assessing apps is not new and that many organisations would have already reflected on the issues the team was about to uncover. The team fully intended to leverage this knowledge where possible and to build on it where appropriate.

Since this project started, a broad range of experts have directly participated in the team weekly project meetings. By the end of September 2015, representatives from nearly 25 external organisations will have attended the working meetings and engaged in open discussions about the issues associated with the assessment of apps. The organisations invited ranged from app developers themselves, clinicians, academic organisations, professional societies, trade bodies, patient charities, organisations providing regulation and standards, and commercial organisations providing curation services. In addition to inviting these stakeholders to our team meetings, our project leads have met a number of interested parties in one-to-one

meetings as well as part of organised events or conferences, some specifically set up by the National Information Board (NIB). These larger events have given the team the opportunity to meet many interested parties but especially to make contact with a large number of app developers. These contacts will be invaluable as the assessment proposals start to be tested.

Finally, it is worth noting that the project team has also engaged with colleagues internationally, in the United States and Spain specifically, as the assessment of apps and of digital services more broadly is an issue which many other health economies are grappling with.

To facilitate future engagement with stakeholders, two advisory groups have been formed. Membership of the groups includes NHS and industry experts as well as app developers. The main role of the advisory groups is to provide on-going strategic advice and insights to the project team as the proposals for assessment develop and iterate.

3 RESEARCH AND EVIDENCE BASE

3.1 What We Have Done to Inform Our Proposals

To develop our proposals, we have undertaken a number of evidence gathering activities including the following:

3.1.1 Structured reviews

- **Literature review** – considered what existing literature tells us about the current acceptability and adoption of health and wellbeing apps and personal health records. It also reviewed the evidence regarding the impact of these digital technologies on health outcomes.

- **State of the apps market review** – assessed the current state of the UK health app market to understand the nature of UK's most popular apps but also to understand the level of availability of medical apps for specific health conditions.

- **Regulatory framework review** – reviewed any existing regulatory frameworks applicable to digital applications, including guidelines, existing models of endorsement and assessment, and medical device regulation. This also covered other sectors and countries.

- **Clinical effectiveness review** – focused on exploring existing models for assessing the clinical effectiveness of digital applications and the challenges that arise from attempting such an assessment.

Most of this review work was completed by June 2015. As the project continues, it is likely further targeted research will be undertaken to inform the continued development of the assessment framework.

3.1.2 Stakeholder engagement

Since this project started, a broad range of experts have attended the work stream's weekly delivery team meetings to share their knowledge and experience in this area. Stakeholder

engagement has also been conducted via informed expert, industry and NHS representative bodies including international organisations.

To facilitate future engagement with stakeholders, two advisory groups were formed. Membership of the groups includes NHS and industry experts as well as app developers.

3.1.3 App developer engagement

The advisory groups include selected app developers but in addition to this we are working directly with developers in the three selected pilot areas. Developers of apps from these three areas have, or will be asked, to test the emerging assessment model.

3.2   What We Have Discovered

A number of themes have emerged from the evidence gathered. Key themes are summarised below.

- There is a large volume of apps (over 100,000 currently available in Europe);
- The popularity of apps is not necessarily linked to quality;
- The majority of apps are focused on health and wellbeing and have simple functionality;
- There are concerns over the safety of apps and their data security;
- The usability of apps can be a key challenge;
- There is mixed evidence regarding the impact/utility of apps;
- New research methods may be needed to evaluate the effectiveness of apps;
- Entering the NHS is challenging due the lack of a clear regulatory framework. The commercial incentives for doing so are also not clear.

3.3   Evidence Still Required

More evidence is still required to establish if an assessment framework for applications is needed and if so what shape it should take. This, together with the feedback received on the initial Roadmap proposals (see below), will shape further research and evidence collection as described later in this document.

4   FEEDBACK FROM CONSULTATION

The NIB Work Stream 1.2 Roadmap document which was published in June 2015 received a substantial amount of feedback. This feedback was delivered in writing as well as in person during visits to the team weekly meetings.

The feedback received was constructive and generally positive. Most stakeholders expressed support for the overall initiative although some continued to indicate scepticism, quoting the challenges of scale and complexity, and the failings of previous attempts. Nevertheless, the

prevailing view was that 'something needs to be done' and that the complexity and scale of the challenge are no reason to leave it unresolved.

The 4-stage approach and the design principles put forward were generally supported. The next steps were understood and the potential benefits were generally agreed with.

Key areas of challenge or of divergence in the feedback have been summarised below:

Feedback on the overall purpose and scope of the proposed model

- The definition of 'apps' needs to be clarified: what is an app for the purpose of this assessment?
- The scope of the assessment may be too broad: which apps should be covered? Some believe only apps which can put patients at risk of harm should be assessed, others that the focus should be on apps connecting to patient records. There are views that the focus should be on apps that have the potential to be cost saving. There is also a view that the assessment of apps should focus on nationally set priorities where there are unmet needs from the app market. There is a general consensus that the process will fail if it does not attempt to segment the market and establish focus and some priorities.
- It is unclear who the assessment is for: for care professionals recommending apps? For commissioners who decide to procure apps locally? Or for the end users of apps, patients, citizens or carers?
- There is a need to clarify what the different stages of the assessment mean for users and to establish if users will be able to differentiate between different degrees of 'endorsement' or 'recommendation'.
- Is an assessment framework the only solution? Can guidelines be developed to help developers and users alike create and choose better apps?
- Is a yes/no result to the assessment the only solution? An alternative output could be a rating scale based on the key dimensions of the assessment such as, for example, privacy, effectiveness, usability, cost.

Feedback on the benefits and impact of the proposed framework

- More information on the benefits to app developers is needed including at which stage of the assessment these benefits accrue.
- More should be done to ensure the recommended apps can be found. It is critical to leverage existing points of download such as app stores. Inventing new routes of access to apps does not make sense.
- There is a need to consider tools and systems to support the use of assessed apps by professionals. The concern was as follows: even if GPs have access to an excellent list of apps, will they have the time and systems to recommend them and follow up with patients on their usage? Linked to this is the need to consider which professionals are best positioned to recommend apps. We were urged to consider pharmacists.
- There is a need to make the assessment framework equitable to the supplier market with transparency and opportunities for redress.
- There is a need to clarify who will pay for each stage of the assessment.

Feedback on the proposed assessment process/method

- The robustness of a self-assessment stage was challenged. Suggestions for making self-assessment more robust included audits and a sponsorship scheme.
- The robustness of the 'crowd sourcing' stage was also challenged. These models can be manipulated by the market and vested interests.
- The illustrative number of apps shown to filter through the assessment in our June Roadmap was seen as too low. Many commented that the number of apps expected to reach Stage 4 was much too small to have any impact on the healthcare system.
- Many asked how the proposed process would deal with app iteration, new releases and apps being retired.
- The need for a robust technical evaluation when apps interfaces with patient records was reiterated including privacy and interoperability.
- The importance of linking to existing standards and regulatory frameworks where suitable was reiterated including BIS, MHRA, DH Information Standard.
- The criticality of the data privacy issues was often mentioned as was the need for alignment with other NIB activities in the area.
- There is a need to clarify the status of the assessment alongside existing regulatory processes and the impact our assessment would have on these processes. Specifically, what would happen if an app failed the assessment? What action would be taken is negative feedback was received on an app which is successfully endorsed? Linked to this were questions regarding the liability position of the assessment framework.

This input has been taken into account to refine our high level proposals (section 5.1., 5.2 and 5.3) where suitable. More significantly, the input has helped refine our programme of work to continue develop the framework (summarised under section 5.4 and 5.5). Significant new work packages have been added to our work plan. For example, we are now developing a 'classification of apps' which will help define the scope of the assessment. Another example is that we have now expanded our planned user research activities to pharmacists.

5 BUILDING THE PICTURE FOR DELIVERY

Our app assessment framework proposals address the original NIB objectives, take account of the challenges identified in our research and where applicable reflect the feedback received on our June 2015 Roadmap proposals.

The proposed framework seeks to build an affordable as well as credible solution. It proposes a staged approach to assessment which blends the use of self-assessment and community participation to identify apps with promising utility, with a more formal evaluative process, in which certain groups of digital applications can be assessed leading to more 'formal' recommendations for use, based on independently evaluated evidence of impact.

5.1 A value proposition for the assessment of apps

At this stage of the programme, a lot more work is still needed to establish how the assessment framework will work, which type of apps and how many apps it will be able to assess, and the methods it will follow to conduct the assessments. Whilst much is still in development, this

section of the report articulates what the value proposition to the system of the app assessment could be. The diagram in Appendix A supports this narrative.

What will app assessment deliver to users?

- The app assessment process will be designed to identify and promote the best apps for a specific disease or condition or function. It will not systematically assess nor provide a comprehensive review of all health apps.
- The app assessment framework and methods will define what good looks like, creating a new benchmark of quality for the health apps market – for all app developers to aim for when developing apps and for all users of apps to expect when selecting apps for themselves, and for the NHS when it is promoting apps.
- The assessment process will not be a regulatory process and as such will not provide nor take away permission to market apps to patients or the NHS (although the process may refer apps to the relevant regulatory authorities where appropriate). It will not prevent poor apps being developed and made available.
- The assessment process will not be able to cover all categories of apps, or at least to cover all categories in the same depth. Assessment may need to start with some segments of the app market and expand over time.
- The assessment will involve different stages (see section 5.3) to be manageable and scalable. These stages will provide different levels of information and assurance about apps. Completing Stage 1 will indicate that an apps functionality, connectivity (where relevant) and security has been self-assessed against a set of essential requirements. Successfully completing Stage 2 will mean that a user community has identified utility in the app in the service area it is designed for. Emerging positively from Stages 3+4 will indicate that an app has demonstrable value to patients and the health service, in terms of cost saving, clinical effectiveness or behaviour change. This will provide the strongest signal to users, professionals and commissioners that an app is a worthwhile investment.

How will assessment make a difference in practice?

Any model for assessing apps would serve no purpose if the results from assessment were not communicated and used to change practice and behaviours in order to produce better outcomes. Critical to the assessment framework are therefore the mechanisms which will be put in place to ensure the outcome is communicated and used by end users and professionals.

- The outcome of assessment will be made available to health professionals, such as GPs and pharmacists. Integration of this information to the clinical systems they use will be critical. Health professionals will be encouraged to take account of the outcome of the assessment process.
- Commissioners will also have access to the outcome of assessment. Commissioners may be guided by the assessment when investing in digital technologies. Some may want local app developers with which they are collaborating to undergo the assessment process.
- Patients, service users and citizens will be sign-posted towards recommended apps when they visit digital services such as NHS Choices to enquire about a condition or

their wellbeing. It is also our ambition that recommended apps may be available as part of an elite category in the leading apps stores.

- The assessment framework will set a benchmark for producing quality health and care applications. We expect app developers will be able to improve their product as they follow the guidance which underpins the assessment process. Similarly, this information will be available to users and commissioners of apps who will become educated on what good looks like.

5.2   Design Principles

As our proposals evolve and iterate, we will seek to adhere to a number of design principles which we set out as we embarked in this process. These design principles are:

- **The model should be 'open' to support new entrants and innovation.** As far as possible, the first stages of the model will be open to all digital applications, although, as identified earlier, work is under way to clarify the scope of the assessment – this may identify apps which are deemed 'out of scope'. Alongside this open approach, there will also be a means of encouraging and supporting participation by disease and condition specific apps. These may be apps with the greatest claims of clinical utility or for areas where an unmet need has been identified;

- **The model should be low cost and must deliver value to the health and care system.** The bulk of the apps considered should not need to go beyond the low cost assessment stages. Higher levels of investment should only be considered where there is an expectation of positive return on investment from the category of applications subjected to a higher degree of assessment;

- **The model should be scalable.** By being digitally supported, the model should be scalable for the early stages of assessment where most of the volume is expected;

- **The approach should be flexible and proportionate**, adapting the assessment components to the nature of each application – relative risk, benefit, cost of each app; and

- **The model should involve health and care community participation.** Community participation should be encouraged and integrated into the assessment process;

- **The model should involve testing claimed utility/benefits.** This type of impact/utility validation is likely to be high cost and not scalable and therefore should only be undertaken where the claimed benefit/impact is significant;

- **The model should build on existing standards and regulation** where possible (for example the regulation of the MHRA or the standards from the British Standards Institute). A collaborative approach with international initiatives should be sought to ensure a consistent approach is followed across borders where suitable;

- **The model should be attractive to the industry.** Each stage of the assessment should deliver value to applicants.

5.3   Overview of Proposed Assessment Framework

We have developed a high level outline of the proposed assessment framework (see Appendix A). The four stages of the proposed assessment framework are summarised thereafter.

Our proposed framework is designed to offer an affordable as well as credible solution. To do so, it proposes a staged approach to assessment. The process starts with self-assessment and community participation to identify apps with promising utility in Stages 1 and 2. A more formal evaluative process in Stages 3 and 4 is then added in which certain groups of digital applications can be assessed leading to more 'formal' recommendations for use, based on independently evaluated evidence of impact.

It is important to note that the model assumes that a relatively low number of apps will go through the entire process and that apps do not need to go through the entire assessment in order to benefit from the process. Visibility, for example exposure on nhs.uk (NHS Choices), or promotion in app stores, may arise from completing Stage 2. However, strong positive recommendations to use and to fund applications will require independent evaluation that will occur in Stages 3 and 4. It is likely this level of assessment will be relevant to only a sub-set of applications.

5.3.1 Decision to apply

The assessment process will be open to all apps in scope. In addition, the health and care system may choose to encourage certain groups of applications to participate in the assessment based on strategic or policy priorities, local priorities or public trends.

5.3.2 Stage 1: Self-assessment against agreed criteria

This stage is designed to screen the large number of apps that might apply and to identify those apps that meet some agreed criteria, based on self-assessment.

Apps which undertake self-assessment will follow a structured set of questions organised against key 'quality' dimensions. These dimensions will include safety, privacy, sharing data onwards, accessibility, usability, technical stability and interoperability. Self-assessment will also ask questions about the sources of data used to build the app and their reliability. This stage will also uncover if the app developers are collecting information and evidence about the app impact.

The intention is for Stage 1 to be supported by a digital service. This will lead developers through the assessment and provide guidance and links to best practice where appropriate.

High transparency and the use of random audits will be used to keep answers honest and prevent some entrants from 'gaming' the self-assessment process. A referral or sponsoring approach may also be used to further ensure questions are responded to truthfully.

Some apps may be identified, through the responses given, as higher risk apps. These will be required to undertake additional external assessments - for example, if they are likely to qualify as a medical device, to register with the MHRA and self-certify as a class1 device or employ a Notified Body (for higher class devices) to approve CE certification.

Apps which require access to patient record information and NHS systems are likely to be subject to additional technical scrutiny.

Only those apps that meet the necessary criteria will be progressed into Stage 2 and be available for community evaluation.

5.3.3 Stage 2: Community evaluation

Similar to many online up-voting websites, this stage is designed to use the wisdom of an engaged community of professionals, commissioners or end-users to evaluate and therefore support the better apps emerging from self-assessment. The 'crowd' would be asked to give opinion on functionality, usability and share anecdotal evidence of impact and utility. Much of the feedback may arise from local pilots and the evidence of impact from local implementation projects. Early adopters in the clinical community will be provided with a platform to share their successes and challenges with health apps.

Current models for crowdsourcing can be open to commercial bias or are too unstructured to help clinicians recommend an app so this stage will be designed to take this into account.

Apps that are evaluated by the 'crowd' through Stage 2 will benefit from exposure on nhs.uk. Exposure may also be available through other channels e.g. Public Health England's 'Stoptober' campaign. Preferential exposure through established channels such as app stores is also being considered.

It should be noted exposure in this way will not constitute a formal practice recommendation by the NHS but an indicator of relative quality and utility as assessed by the self-assessment process and the community. The way apps appear may reflect the relative performance of apps in Stages 1 and 2.

5.3.4 Stage 3: Collecting suitable evidence

Stages 3 and 4 of the framework are about taking selected apps through a more robust assessment process. This level of assessment will be required to ensure that apps that are eventually recommended by the NHS, that may be reimbursed or possibly prescribed, have the evidence to support their claims.

It is likely these stages of the assessment will be reserved for a smaller number of apps from distinct priority areas, with strong business cases for efficiency or cost effectiveness.

Information about suitable study types for evaluating the impact of apps will be collated and made available to all app developers. In Stage 3, some apps may be enrolled in a range of activities to support the collection of evidence. This may include data sharing and end user participation and advice on study design.

The type of study recommended and support needed in Stage 3 will vary with the type of applications under consideration. This is where the chosen method of apps categorisation will be of particular importance.

5.3.5 Stage 4: Independent evidence evaluation

Stage 4 involves an independent impact evaluation. As in Stage 3, different approaches may be required for different categories of apps with clinical interventions likely to require the most

robust evaluation process. Some categories of apps may be assessed much faster than others. These approaches still need to be defined (see Next Steps section below).

Apps emerging from Stage 4 will become recommended interventions and as such it is expected they will benefit from a range of adoption support mechanisms that could include branding, commissioning support, or possibly reimbursement.

5.4   Next Steps

Key strands of activities expected from September 2015 through to early 2016 include:

- Engagement with stakeholders – engagement with a range of stakeholders to gather feedback on the proposed framework will continue following the publication of this revised Roadmap in September 2015. This, together with the on-going feedback from the user needs research (see below), will be used to evolve and iterate the model where necessary;

- User needs research – We will test that the proposed model serves actual user needs. This will include separate research with commissioners, health and care professionals, patients and citizens. Nurses, GPs and pharmacists will be key user groups to engage as we expect they will be users of the system, as well as core contributors to the crowd-sourced component. A key output of this research will be to ascertain who wants an assessment model for apps, who needs it the most and which type of apps the assessment should focus on as a result;

- Piloting with apps developers – We start piloting our emerging assessment framework with actual apps developers from September 2015. Initially, the pilot will be limited to a handful of apps representing different types of apps in terms of users (professionals, patients, and carers), perceived risk level, and whether they are about treatment or prevention. The pilots start with Stage 1 of the assessment for which a prototype is ready to be tested. The pilots will expand to the other stages of the assessment later in the year. A greater cohort of apps will be brought into the pilots as the prototype iterates;

- Development of an evaluative classification of apps – This is a critical area of work that will help define which type of apps will be considered by the assessment framework and why. The classification will also establish if and how different types of apps can be routed though different levels of assessment;

- Further development of Stage 1 self-assessment questions, algorithms and digital platform - This will be achieved through the pilot approach, as described earlier. Organisations that have expertise in the various components of the assessment will be consulted again. A scoring algorithm including a threshold for 'good enough', which qualifies apps for Stage 2, will need to be agreed. Stage 1 must also include a more in-depth assessment of higher risk apps. Apps which require a connection to national systems and patient records will also be subject to additional scrutiny. How this is achieved will need to be defined as well. Finally, there is also a question as to whether

self-assessment should include random audits or require formal sponsorship to ensure greater quality of responses;

- Defining the principles for Stage 2, the crowd-sourcing of community feedback - More work is needed to establish who should contribute to the community evaluation stage, how contribution can be made, how to promote and incentivise contributions, and the technical implications of operationalising crowd-sourced evaluations;

- Further development of Stages 3 and 4 evaluative processes - the latter stages of the model require further engagement with experts in the field of impact and effectiveness assessment. For Stage 3, advice needs to be developed on how to conduct valuable research for digital technologies including advice on selecting outcome and comparators. This may differ for different types of applications. The advice should recognise that digital technologies may engage new types of outcome such as patient empowerment. The advice should also recognise that the technologies may be dependent on new models of care being adopted and new capabilities being available across the system such as the ability to handle larger amounts of patient-generated data. For Stage 4, agreement on how to conduct a formal assessment and whether this assessment is carried on individual applications or categories of applications has to be established;

- Establish how to deliver the benefits of assessment to app developers working with other NIB work streams;

- Develop the operating model and business case for this overall framework; and

- If applicable, develop an implementation plan.

5.5   Deliverable Timing, Including Quick Wins

The work stream deliverables at the end of September 2015 are:

- Proposals for an application assessment framework – as articulated in this updated Roadmap document;
- Digital (early) prototype of the self-assessment stage (Stage 1).

Key activities leading to December 2015 will include:

- Development of a classification methods for the purpose of app assessment;
- Piloting of the Stage 1 prototype;
- Development of Stage 2 models and testing with pilots apps;
- Academic research on the types of evidence and studies used to evaluate apps to underpin Stages 3 and 4;
- User research to test audience needs;
- Engagement with clinicians, starting with GPs and pharmacists.

Progress beyond these activities will be contingent on the outcome of the Comprehensive Spending Review (CSR) due to conclude in November 2015. The CSR will establish whether this

work stream of the NIB will be funded by the health and care system. The availability and level of funding will impact on how the work progresses beyond 2015.

Assuming that funding is approved and resources applied to the current programme can be maintained, we expect that a 'beta' version of the Stage 1 digital service can be launched and Stage 2 be piloted by April 2016. Decisions on whether and how to progress Stages 3 and 4 should also have been reached by this time and a plan for operationalising the broader framework be in development as part of a business case for implementation.

6 BENEFITS

A number of benefits can be assumed from putting in place an assessment framework for apps. It should reiterated that these benefits are based on the assumptions that an assessment framework can truly identify the better apps, influence decisions and change the adoption levels of apps and lead to the increased use of higher quality apps. If these assumptions hold, then the key end benefits of an assessment framework for digital applications could include:

- **Reduced costs to the health and care system:** Digital interactions have been shown to be cheaper than other interactions between professionals and the public. There is some good evidence to show that digital interactions cost about 1% of face to face costs;

- **Improved outcomes:** Although there is some evidence to suggest that digital interactions are more cost effective than face to face equivalents in certain circumstances, this evidence is relatively poor. It is expected that better outcomes will be delivered by channelling scarce funds to deliver face to face services where they are most needed, using digital as an integral part of the suite of treatments and interventions available to the health and care service in therapeutic areas, where a good evidence base exists for the efficacy of digital interventions;

- **Improved system:** other industries are 10–20 years ahead of the health and care system when it comes to using technology. This model will help to improve the reputation of the English health and care system. The assessment model brand, and the organisations delivering it, may come to be synonymous with good quality, trusted digital therapies.

Some intermediary benefits can also be identified and include:

- Developers of good quality, safe and effective apps will be able to market their products much more effectively to the health and care system and, to a lesser extent, the public here and the wider world. More 'good' applications will be available, developed by experienced application developers and their visibility will improve;

- End users will have a more informed choice of apps they choose for themselves or in conjunction with a care professional;

- Clinicians will be able to access apps assessed as meeting some minimum quality criteria and validated by their peers, enabling them to promote or use apps with much less fear of them being ineffective or even causing harm;

- Commissioners will be able to use information produced through the different stages of the assessment process to inform a cost/benefit assessment of adoption of an app for a service or across a catchment area;

- Gaps and areas of needs in the market could be identified and the market influenced to respond to these needs; and

- Over time, stronger evidence around the impact of apps and digital services will emerge, which should lead to higher levels of engagement and support for digital services.

APPENDIX A: HIGH LEVEL OUTLINE OF THE PROPOSED ASSESSMENT FRAMEWORK

Stage

| Decision to apply | → | Stage 1: Self-assessment against criteria | → | Stage 2: 'Community' evaluation | → | Stage 3: Preparing a benefit case | → | Stage 4: Independent impact evaluation |

Light iteration process

Process Components

Self-selection by app developers.	Self-assessment against pre-set criteria.	Crowd-sourced feedback from professionals and public.	Selection of groups of apps for impact assessment.	Categories of apps independently evaluated for impact (efficacy and cost effectiveness) leading to recommendation for System to use (or not).
or	**+**	**+**	**+**	
Applications encouraged for some categories of apps based on System needs.	Some apps may need to go through other assessment processes; for example, compliance with medical device regulation.	Sharing of experience and support by local commissioners.	Enrolment in range of activities to enable further assessment including robust studies.	

Volumes

| A sub-set of the app market choose to apply. | A share of the registered apps meet the self-assessment threshold. Poor apps drop out. | A share of the self-assessed apps are reviewed by community/local areas. | A small number of apps become ready for benefit/impact evaluation. | A small number of apps are recommended. |

Benefits for apps

| | These apps become available for rating on the crowd sourcing platform. | Community feedback is exposed on nhs.uk and in relevant context Potential selection for Stage 3. | These apps have received evaluative support during Stage 3. | The apps have access to benefits including: promotion, funding, prescribing, NHS brand |