Guide on spread and sustainability

Healthcare Improvement Scotland

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INTRODUCTION

The lack of effective spread of innovations results in the existence of ‘pockets of excellence’ or ‘improvement islands’. Successful improvements tend to be localised and their benefits can only be observed within the context of the improvement project. Having effective mechanisms to spread innovations would multiply their benefits and accelerate improvement widely.

On the other hand, improvements are often considered ‘within the boundaries of the project only (ibid), without noting effectiveness afterwards’. Too often changes are not sustained over time, suffering from ‘initiative decay’ or ‘improvement effect evaporation’. This results in a waste of resources.

Given the current climate, where financial constraints are pushing organisations to make the best use of their resources, having a better understanding of the factors affecting spread and sustainability of change is of strategic importance. This justifies the increasing interest in these topics.

The purpose of this guide is to summarise the existing resources and key pieces of research around spread and sustainability. The aims of this guide are: first, to increase the understanding of the key issues around spread and sustainability; second, to signpost readers to existing valuable resources on these topics; third, to assist quality improvement practitioners in the process of planning for spread and sustainability of improvement and its implementation and; finally to advise supporting organisations on initiatives that could facilitate spread and sustainability of improvements at a national level.

As there are already good reviews of the literature around spread and sustainability, this guide does not aim to provide another comprehensive review of the literature, but to combine existing resources in an accessible and practical way. The use of diagrams, visual aids and hyperlinks aims to facilitate understanding of the content and access to existing resources.

The main sources of information were secondary studies (for example, a very good systematic review of the evidence around how to spread good ideas carried out by Greenhalgh et al, literature review on sustainability of change by Buchanan et al, resources developed by recognised organisations (for example, the Institute of Healthcare Improvement (IHI), the former NHS Institute for Innovation and Improvement) and complementary peer-review papers identified to clarify specific areas.

The content of this guide is structured following the spread and sustainability framework in figure 1. Although there exist other frameworks (for example, Massoud et al’s framework for spread based on Rogers’ definition of diffusion), it was considered that the one proposed in this guide was more systemic and easy to follow for the purpose of this guide. Massoud et al’s framework (shown in figure 2) is widely referred to when speaking about spread. Although it is an excellent conceptual model, a more process-driven framework that can guide practitioners through the different stages involved in spread and sustainability of innovations was considered more appropriate for the purpose of this guide. The process approach was thought more suitable, as the adoption of innovation is not an event but a lengthy process which involves specific concerns at different stages.
Figure 1. Proposed Spread & Sustainability framework
‘Adoption is an individual process detailing the series of stages one undergoes from first hearing about a product to finally adopting it’

Wikipedia

The framework proposed in this guide is divided into five different sections:
1. Innovation
2. Spread
3. Decision to adopt
4. Implementation
5. Sustainability

The first stage in the framework is to reflect on the innovation itself, on its characteristics. Once the innovation is completed, embedded and evaluated, the next step would be to spread it. This process involves providing information about what the innovation does, how it does it and how this would affect the existing system using formal and informal means. The aim of this stage is to raise awareness and to convince people to adopt the information. However, the decision to adopt the innovation (the next stage in the framework) will not only depend on specific individuals (potential adopters), but on their internal and external context, so the readiness of the system should be assessed. If the decision is to adopt the innovation, then it should be implemented by adopting and adapting it to the local context as necessary. This is the fourth stage in the framework. The final stage is to ensure the
innovation is sustainable and embedded into daily work. A necessary step within this last stage would be to evaluate the intended and unintended consequences before spreading the innovation further and sharing the learning with others.

To conclude, without underestimating but building on the valuable work done so far around spread and sustainability of improvement, this guide aims to help quality improvement practitioners and supporting organisations in effectively spreading and sustaining innovations. The framework proposed here aims at helping to think through the different stages and to build on the strengths of existing resources by combining them in a meaningful and helpful way. Also, this framework aims to clarify terminology as sometimes concepts are being used interchangeably causing some confusion.
1. INNOVATION

The first item in the framework is the innovation itself, which can be a change in practice, a change package or a new product, service or tool. Its characteristics can affect its spread and adoption. Greenhalgh et al.\(^6\) carried out a comprehensive systematic review of the literature about spreading new ideas. In this review they summarised the key characteristics for innovations to be easily adopted and implemented based on the existing evidence, which mostly originated from Rogers’\(^1\) classification of ‘worthiness of ideas’. They classified the innovation attributes into two categories: standard and operational attributes. Standard attributes are based on how innovations are perceived by potential adopters, while operational attributes are based on the innovation-in-use within specific contexts\(^6\). The tables below describe the key elements of both types of attributes.

### Standard Attributes

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Brief description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative Advantage</td>
<td>How clear the advantages or benefits of the innovation are in relation to the current situation.</td>
</tr>
<tr>
<td>Compatibility</td>
<td>Degree of compatibility of the innovation to be integrated within the potential adopters’ systems.</td>
</tr>
<tr>
<td>Complexity</td>
<td>How simple the innovation is to use.</td>
</tr>
<tr>
<td>Triability</td>
<td>How easily the innovation can be experimented with by potential adopters on a trial basis.</td>
</tr>
<tr>
<td>Observability</td>
<td>How easily can potential adopters observe the innovation.</td>
</tr>
<tr>
<td>Re-invention</td>
<td>How easily can potential adopters adapt and modify the innovation to make it more suitable to their needs.</td>
</tr>
</tbody>
</table>

Table 1. Description of standard attributes of innovation

### Operational Attributes

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Brief description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task Relevance</td>
<td>‘Innovation is relevant to the performance of the intended user’s work’(^6)</td>
</tr>
<tr>
<td>Task Usefulness</td>
<td>‘Innovation improves task performance’(^6)</td>
</tr>
<tr>
<td>Feasibility</td>
<td>How feasible it is to adapt the innovation to the potential adopter’s context.</td>
</tr>
<tr>
<td>Implementation Complexity</td>
<td>How easy it is to implement the innovation within the adopter’s context.</td>
</tr>
<tr>
<td>Divisibility</td>
<td>‘Innovation can be broken down into more manageable parts &amp; adopted on an incremental basis’(^6)</td>
</tr>
<tr>
<td>Nature of the knowledge required to use it</td>
<td>‘Knowledge required for the innovation can be codified and separated from one context’(^6)</td>
</tr>
</tbody>
</table>

Table 2. Description of operational attributes of innovation

Greenhalgh et al.\(^6\) concluded that there is strong and direct evidence that standard attributes affect how easily new ideas are adopted and implemented. Similarly they found that generally there is strong and indirect evidence that operational attributes affect how easily new ideas are adopted and implemented.
### Table 3. Summary of the evidence on how innovation attributes affect the ease with which new ideas are adopted and implemented.

<table>
<thead>
<tr>
<th>Innovation Attributes</th>
<th>Evidence - More easily adopted and implemented</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard</strong></td>
<td></td>
</tr>
<tr>
<td>Relative Advantage</td>
<td>Strong Direct</td>
</tr>
<tr>
<td>Compatibility</td>
<td>Strong Direct</td>
</tr>
<tr>
<td>Complexity</td>
<td>Strong Direct</td>
</tr>
<tr>
<td>Triability</td>
<td>Strong Direct</td>
</tr>
<tr>
<td>Observability</td>
<td>Strong Direct</td>
</tr>
<tr>
<td>Re-invention</td>
<td>Strong Direct</td>
</tr>
<tr>
<td><strong>Operational</strong></td>
<td></td>
</tr>
<tr>
<td>Task Relevance</td>
<td>Strong Indirect</td>
</tr>
<tr>
<td>Task Usefulness</td>
<td>Strong Indirect</td>
</tr>
<tr>
<td>Feasibility</td>
<td>Strong Indirect</td>
</tr>
<tr>
<td>Implementation Complexity</td>
<td>Strong Indirect</td>
</tr>
<tr>
<td>Divisibility</td>
<td>Strong Indirect</td>
</tr>
<tr>
<td>Nature of the knowledge</td>
<td>Strong Indirect [Moderate] Direct</td>
</tr>
<tr>
<td>required to use it</td>
<td></td>
</tr>
</tbody>
</table>

**Tip:**

Bear in mind the innovation attributes when designing and/or when spreading new ideas.

*Example: Doing demonstrations of a new practice increases the new idea observability and reduces its complexity. Therefore it will be more easily adopted and implemented.*

**Appendix 1** provides a worksheet that could help practitioners to reflect on the characteristics of their innovations and potential initiatives that could help to spread innovation based on these characteristics.

Innovations might not be suitable for all contexts. Parry\(^9\) argues that the range of contexts where the innovation sample is originally tested is generally narrow and produces high levels of success (100%). However, when the innovation is spread and applied to a wider range of contexts, improvement can only be seen in a small number of sites. Figure 3 illustrates this argument.

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Figure 3. Reduction in effectiveness from applying the same fixed-protocol programme in different contexts

Detailed description of innovations and the context in which the innovations were tested is highly recommended to have a good understanding of the context in which the innovation was successful. There is no agreement on which contextual factors should be reported or assessed, but at least comprehensive information of the sample (for example, characteristics of the patients, providers, organisations and treatments) should be provided.

Access to the evaluation report of the innovation can also provide valuable insights on the factors that made the innovation successful in the original innovation sample. Evaluation of intended and unintended outcomes should be carried out to assess the innovation’s effectiveness and its external validity, or generalisability.

Outcome frameworks are commonly used to evaluate healthcare improvement initiatives. Evaluation is another topic in itself, which will require its own guide. Although evaluation is intrinsically linked with spread, this guide does not intend to cover this topic in depth. Learning more about evaluation is highly recommended.

Tip:
- Provide comprehensive and clear details of the context in which the innovation has been implemented successfully. Details can be recorded on the worksheet in Appendix 1.
- Evaluate the intended and unintended outcomes of the innovation. The evaluation report can provide valuable insights on why the innovation worked or did not work in the context.

Sustainability of the change should be addressed and planned before completing the introduction of an innovation, and this topic will be covered later in the guide.

A necessary and often forgotten stage in an improvement plan is the spread of the innovation to expand its benefits beyond the context of the project, to enable the transformation of ‘pockets of excellence’ into ‘standards of excellence’. Adequate resources should be dedicated to this stage. The next section in the framework focuses on how innovations could be spread.
2. SPREAD

Spread can be defined as the process of communicating new ideas or innovations outside the original system. This process is of great importance to prevent ‘improvement islands’ and ‘pockets of excellence’.

There are two widely-recognised approaches to spread: dissemination and diffusion. It must be noted that these are the two ends of the spectrum and not distinct and independent approaches. The table below describes their main characteristics.

<table>
<thead>
<tr>
<th>Dissemination</th>
<th>Diffusion</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>‘Spread of innovation is planned, formal, centralised and occurs through vertical hierarchies’&lt;sup&gt;6&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Methods</strong></td>
<td>Wide range of methods: presentation in conferences and seminar, leaflets, peer-reviewed publications, formal dissemination programmes, websites, etc.</td>
</tr>
<tr>
<td><strong>Strengths</strong></td>
<td>The message and means of communication used can be tailored depending on the target audience.</td>
</tr>
<tr>
<td><strong>Weaknesses</strong></td>
<td>It usually attracts early adopters only. Often the initial will of early adopters fades away before any action has been taken.</td>
</tr>
</tbody>
</table>

Table 4. Characteristics of different spread strategies

When planning spread, a combination of both approaches is recommended as both can be effective ways of spreading innovations. The evidence confirms that specific circumstances make more innovations more easily adopted and implemented. For example, there is strong direct and indirect evidence which shows that **the structure and**
The quality of the social networks make innovations more easily adopted. Horizontal networks among individuals at similar organisational levels are more effective for spreading peer influence and reframing of meaning, while vertical networks (for example, based on hierarchical structures) are more effective for cascading down codified information and decisions. On the other hand, there is strong and direct evidence that proves that spread is more effective when the receivers are homophiles, in other words, people with similar characteristics in terms of socioeconomic, educational, professional and cultural background with the existing users of the innovation. ‘Formal networking activities initiatives (such as quality improvement collaboratives) are sometimes but not always effective (moderate direct evidence).’

There is strong direct and indirect evidence which demonstrates that certain types of individuals can make the adoption and implementation of innovations easier. The first type of influential individuals are opinion leaders, individuals who have an effect on the behaviours of their colleagues, either by their authority and status (expert opinion leaders) or by their representativeness and credibility (peer opinion leaders). The second type of influential individuals are champions. Champions differ from opinion leaders in that they are not seen as models to follow, but as facilitators of change. They act as transformational leaders, so they need to have good relationships within their networks and buy into the innovation. The difficulty resides in identifying and effectively utilising champions’ energy. A third type of influential individuals are boundary spanners, individuals ‘who have significant social ties both within and outside the organisation, and who are able and willing to link the organisation to the outside world in relation to this particular innovation.’ Finally, patient networks can exert great influence in disseminating innovations; however the value of these networks is often overlooked when designing a spread strategy. Albury et al argue that ‘patient and carer networks and organisations can be powerful agents of diffusion, mobilising and expressing demand for innovations that produce better clinical and patient reported outcomes’. The internet revolution has contributed to the increasing power of patients and carers.

Albury et al also state that providing ‘granular, accessible comparative performance information at the level of the specialty, clinic or clinician’ could encourage competition and accelerate innovation by generating reputational pressures. Provision of incentives and rewards for scaling-up and spread could also promote competition.

The Department of Health summarises the three types of pressures that can help to accelerate spread. See figure 4.
Tip:
Certain individuals can be the catalysts of the diffusion of the innovation across internal and external boundaries. Therefore, when developing your spread plan:

1. **Identify** the potential influential individuals who could promote the diffusion of the innovation.
2. Ensure these individuals are **willing to back** the innovation. Initiatives to demonstrate the value of the innovations (for example, demonstrations (remember the innovation attributes!) should focus on these individuals first).

In terms of formal **dissemination programmes**, Greenhalgh et al.\(^6\) highlight that there is strong evidence that these kinds of programmes are effective if:

- They are based on potential adopter’s needs
- They have different strategies tailored to different types of audiences
- They 'use a message with appropriate style, imagery, metaphors and so on'\(^6\)
- They use appropriate means of communication
- They have specific measurable objectives that are rigorously monitored.

In conclusion, spread of innovations is a process that should be properly managed, with adequate resources, and that should employ diverse strategies ranging from diffusion to active dissemination of innovations. Figure 5 visually summarises the strategies that could support the spread of innovation.
Planning Spread

The creation of a spread plan is highly recommended\textsuperscript{2,8,13}. It is advised to start thinking of the spread plan at an early stage, during the testing stage of the innovation. In this way, ideas for spread can start being captured. Also, it can help to inform the testing stage (for example, thinking of the innovation attributes can influence some decisions during the testing stage). As with any good plan, the spread should begin with a clear aim.

As a preliminary stage, the IHI How-to Guide on spread and sustainability\textsuperscript{13} states that laying the foundation for spread by creating a spread team and getting executive sponsorship is critical.

Regardless of what spread strategies are adopted, it is essential to tailor them to specific target audiences. A communication plan is vital to do this\textsuperscript{8,13}. Thinking of the innovation characteristics (for example, using the worksheet in Appendix 1) will help to develop a communication plan. The communication plan should aim at raising awareness of the innovation, but most importantly, transforming this awareness into a desire to adopt the innovation.
We use the example of home haemodialysis to illustrate how a communication plan could be done. In spite of the proven benefits of this innovation, as demonstrated in Manchester Royal Infirmary (see details next), this innovation is not widely spread.

**HOME HAEMODIALYSIS**

Manchester Royal Infirmary redesigned dialysis provision to enable patients to choose home haemodialysis. Over 15% of their patients now choose to perform haemodialysis independently at home compared to the current UK rate of 1-2%. Projected annual savings at Manchester are approximately £1m. Home dialysis has fundamentally changed patients’ lives, enabling them to spend more time with their families.

Department of Health

![Figure 6. Different audience types, different interests](image)

The first step is to define the different target audiences (bear in mind all types of influential individuals, including patient networks, mentioned in the previous section). Then, the key messages for each target audience should be agreed. The values, motivations and attitudes from each audience type will be different and they should be considered when designing the spread strategy. For example, for policy makers reference to the savings might be essential, while for patients the improvement in the quality of life will be the most attractive feature of the innovation. The next step is to agree the methods or strategies to reach each target audience. Using the home haemodialysis example, providing succinct research summaries with clear statistics on costs and benefits of this innovation could be the best way to reach policy makers. On the other hand, posting podcasts which show how home haemodialysis works onto renal association websites, together with word of mouth among patients could be the most effective way to activate bottom up pressures. Finally, a measurement plan to monitor and evaluate the success of the communication plan should be defined. This feedback mechanism is essential to refine the spread plan. It is also advisable to continuously monitor the effectiveness of the spread initiatives and refine the spread plan accordingly.

![Figure 7. How to develop a communication plan for spread](image)
Tip:
- Provide sufficient and succinct information about **WHAT it does** and **HOW to use it**
- Think of the **hook** for **different audiences** – how the idea would affect them should be clearly explained.
- Think of the means and format you will use (for example, succinct messages, use of graphics and visual aids), how you deliver and present your message is essential.
- Show ideas in use.
- Use key people/networks.

**Appendix 2** provides a **worksheet** where you can record all your ideas for the communication plan for spread. **Appendix 3** contains a **worksheet** where the specific actions for spread agreed can be recorded and monitored on a regular basis by the spread team.

The IHI 100,000 Lives How-to Guide: Spread and Sustainability\(^\text{13}\) is a very helpful resource to assist in the development of a **spread plan**. It provides a framework, best practice and examples of success. Reference to this guide is highly recommended. Figure 8 summarises the framework proposed in this IHI guide\(^\text{13}\).

So far the discussion around spread has focused on an individual/project level. However, initiatives at an organisationational and national level could also facilitate the spread of innovations at a micro level. **Appendix 5** contains a list of **recommendations** that could support spread at a **macro level**. Improvement practitioners should **investigate and make use of any spread support / service available from change agencies**.

Tip:
- **Find out which agencies** could help you to plan and implement your spread plan.
Figure 8: figure created to visually summarise the

100,000 Lives Campaign
How-to Guide: Sustainability and Spread
3. DECISION TO ADOPT

Adopters

Once the message has reached potential adopters, either by dissemination or diffusion or a combination of both, they have to make a decision on whether to adopt it.

Rogers\(^1\) model of diffusion is widely used to understand different types of adopters: innovators, early adopters, early majority, late majority and laggards. Although innovators will uptake innovations with eagerness, their initial enthusiasm might evaporate relatively quickly as other new innovation appear. Langley et al\(^8\) recommend to focus on the early adopters, who will not only be keen to adopt the innovations but will be more likely to implement them successfully.

Greenhalgh et al\(^6\) makes a call for caution as there is not empirical evidence of the validity of this classification outside the commercial market, describing it as ‘somewhat stereotypical and value-laden, and which are popular with the marketing industry’. They argue that general personality traits and other psychological variables such as tolerance of ambiguity, prior knowledge or cultural values are of great importance. However, further research is needed to have a better understanding of how psychological antecedents relate to propensity to adopt innovations. Greenhalgh et al\(^6\) also recommend negotiating and reframing the meaning of the innovation for individuals through discourse, as the meaning is usually flexible.

Tip:
Try to identify motivated and capable people likely to adopt and implement innovations when planning your spread activities. There is strong evidence that they will adopt and implement innovations more easily. Assess contextual factors such as organisational culture when planning your spread activities as culture can influence potential adopters’ decisions.

Readiness of the system to adopt

Even if the communication plan is successful and/or the message has been effectively diffused across different networks reaching potential adopters, these need to evaluate the wider system and assess its readiness to adopt the initiative before making any decision.

The former NHS Institute for Innovation and Improvement developed a spread and adoption tool\(^14\), a free online tool designed to assess the readiness of the system to adopt new innovations and to provide a guide on how to improve the readiness of the system (figure 10).
The former NHS Institute’s Spread and Adoption Tool assesses the **readiness of the system** based on three factors: People, Context and Innovation. The People criteria focus on senior leadership, motivational and cultural issues. The Innovation criteria focus on the characteristics of the innovation described in Section 1. The Context criteria focus on the suitability of the innovation in this specific context in terms of benefits, timing and compatibility with existing systems.

Details of the criteria assessed by the Spread and Innovation tool can be seen in figure 11.

**Tip:**
- Use the **spread and adoption tool** to assess the readiness of the system to adopt an innovation.
- Doing the assessment as a **team** might be very insightful and it will help to agree the actions to be taken.
Figure 11. Criteria assessed by the former NHS Institute for Improvement and Innovation's Spread and Adoption Tool\textsuperscript{14}

(Copyright material above reproduced with permission from the NHS Institute for Innovation and Improvement)
4. IMPLEMENTATION

As discussed in section 1, the success of the innovation might differ depending on the context. Generally, innovations will not be directly adopted but they will need some degree of adaptation. The more information practitioners have about the innovation and its context, the easier it will become for practitioners to interpret the innovation and to identify the generalisable knowledge. Information about the innovation is essential, details of the journey through which the innovation was developed might be invaluable to new adopters. Access to this learning might be particularly important for new adopters who need to adapt the innovation to their particular settings.

After reviewing all the available information on the innovation and the context of application, practitioners should start by ‘using their local knowledge to make an initial adaptation based on the small theory of improvement’[10]. This would be first amendment of the ‘test and refine’ stage, which would follow the typical PCSA cycle. Different reiterations might be needed to finalise the adaptation of the innovation. Evaluation of the outcomes is highly recommended to learn in which contexts the innovation works, as the innovation is spread to a wider range of contexts[10]. Figure 12 illustrates the process explained above.

Figure 12. Improvement replication programme to increase the generalisability of improvement research"
There is strong indirect and moderate direct evidence that proves that the absorptive capacity of the system influences the success of innovation adoption. Absorptive capacity can be defined as the ability to systematically ‘identify, capture, interpret, share, re-frame, and re-codify new knowledge, to link it with its own existing knowledge base, and to put it to appropriate use, will be better able to assimilate innovations – especially those that include technologies’. Factors such as the existing knowledge and skills base, a ‘learning organisation’ culture which explicitly values the capture and sharing of knowledge and that is supported by proactive leadership define the level of absorptive capacity of the system. Organisations should develop their absorptive capacity in order to be able to make sense and adapt innovations to their context more effectively.

In terms of the implementation of the adopted innovation, Greenhalgh et al found that there is strong indirect evidence that ‘successful adoption of an innovation is more likely if the intended adopter has continuing access to information about what the innovation does, and to sufficient training and support on task issues’. Therefore, assistance especially at early stages could be critical for the success of innovation adoptions. Initiatives such as improvement collaboratives, communities of practice, direct access to experts or innovation users could address this issue if effectively managed. Greenhalgh et al state that a change agency could influence the dissemination and implementation of innovations. The change agency should promote external networking and collaboration between organisations and assist them in the adoption of innovations.

The formation of semi-autonomous multidisciplinary project teams is recommended, as this is correlated with successful implementation of innovations.

Tip:
- If not available, try to get access to information about the context where the innovation was tested with success and its generalisability.
- Think of the similarities between the original context and your context, to determine the modifications needed to adapt it to your system.
- **Appendix 4** provides a worksheet that can help you to reflect on the contexts and the required changes to adapt the innovation.
- Ensure there is **senior management buy-in**
- Investigate possible **sources of assistance** (for example, improvement advisors or existing change agencies)
- Apply the principles of **improvement methodologies** (for example, small test of change)
- Form a **multidisciplinary project team** with enough autonomy to implement the innovation.
- **Evaluate** the adapted innovation to assess whether the outcomes have been achieved and the factors affecting this outcome.
5. SUSTAINABILITY

The final stage of the framework is Sustainability although, as stated before, this could also be considered a part of Stage 1. Innovation.

Too often innovations or changes suffer from ‘improvement evaporation effect’ or ‘initiative decay’. With time improvements are not sustained. Sustainability of change is a common challenge improvement projects that requires further attention.

‘The challenge is not starting, but continuing after the initial enthusiasm has gone.

Ovretveit (2003) Making temporary quality improvement continuous: A review of the research relevant to the sustainability of quality improvement in healthcare’

The NHS Modernisation Agency defines sustainability as follows:

‘Sustainability is when new ways of working and improved outcomes become the norm. Not only have the process and outcome changed, but the thinking and attitudes behind them are fundamentally altered and the systems surrounding them are transformed in support. In other words it has become an integrated or mainstream way of working rather than something ‘added on’

Buchanan et al’ carried out a comprehensive literature review on sustaining organisational change. Their review was not systematic for three reasons: first, the complexity and ambiguity of the concept posed difficulties in formulating a clear question; second, the scarce research on sustainability of change made it difficult to find objective selection criteria, and third, the available research on this topic was very limited and varies widely in terms of settings, level of analysis, theoretical underpinning, timescales, etc. In spite of the methodological weaknesses, their review provides a good overview of the seven main perspectives on sustainability of change identified in table 6.

<table>
<thead>
<tr>
<th>Perspective</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>The dance of change</td>
<td>Kurt Lewin, Peter Senge</td>
</tr>
<tr>
<td>Anchoring change</td>
<td>John Kotter</td>
</tr>
<tr>
<td>Institutionalising change</td>
<td>Ronald Jacobs</td>
</tr>
<tr>
<td>Sustaining best practice</td>
<td>Malcolm Rimmer</td>
</tr>
<tr>
<td>Sustaining TQM</td>
<td>Barrie Dale</td>
</tr>
<tr>
<td>Momentum busters</td>
<td>Robert Reisner</td>
</tr>
<tr>
<td>The process of sustainability in context</td>
<td>Andrew Pettigrew</td>
</tr>
</tbody>
</table>

Table 6. Seven main perspectives to sustainability of change reviewed by Buchanan et al
They concluded that sustainability depend on 11 factors at different levels of analysis:

<table>
<thead>
<tr>
<th>Category</th>
<th>Outline definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substantial</td>
<td>Perceived centrality, scale, fit with organisation</td>
</tr>
<tr>
<td>Individual</td>
<td>Commitment, competencies, promotions, expectations</td>
</tr>
<tr>
<td>Managerial</td>
<td>Style, approach, preferences, behaviours</td>
</tr>
<tr>
<td>Financial</td>
<td>Contribution, balance of costs, benefits</td>
</tr>
<tr>
<td>Leadership</td>
<td>Setting vision, values, purpose, goals, challenges</td>
</tr>
<tr>
<td>Organisational</td>
<td>Policies, mechanisms, procedures, systems, structures</td>
</tr>
<tr>
<td>Cultural</td>
<td>Shared beliefs, perceptions, norms, values, priorities</td>
</tr>
<tr>
<td>Political</td>
<td>Stakeholder and coalition power and influence</td>
</tr>
<tr>
<td>Processual</td>
<td>Implementation methods, project management structures</td>
</tr>
<tr>
<td>Contextual</td>
<td>External conditions, stability, the threats, wider social norms</td>
</tr>
<tr>
<td>Temporal</td>
<td>Cap timing, pacing, flow of events</td>
</tr>
</tbody>
</table>

Table 7. Factors affecting sustainability (according to Buchanan et al\textsuperscript{7,16})

In the context of healthcare, the former NHS Institute for Innovation and Improvement developed a very powerful suite of resources to help organisations to plan for sustainability. The NHS Institute for Innovation and Improvement's sustainability model\textsuperscript{15} identifies the main factors affecting sustainability of change, which are grouped under three themes: staff, process and organisation. The figure below illustrates the model:
Based on this model, the NHS Institute for Innovation and Improvement developed a diagnostic tool that allows users to assess the sustainability of their innovations or new practices. The factors in the sustainability model have relative significance, being the staff factors most critical to support the sustainability of change in healthcare (see illustration in figure 14).

![Figure 14. Relative importance of the sustainability success factors according to the NHS Institute for Innovation’s Sustainability Model](image)

This tool can assist improvement teams to assess the sustainability of their improvement projects and identify the areas that need to be addressed. The tool produces a spider diagram which visually compares the improvement project against the ideal situation in terms of sustainability. This comparison allows teams to put measures in place as required.

**Tip:**
- Use the **sustainability diagnostic tool** to assess the sustainability of your innovations and to identify areas where work should be done to ensure sustainability.
- Doing the assessment as a team might be very insightful and it will help to agree the actions to be taken.

**Designing the systems** to avoid reliance on people's memories and ensure sustainability of change (for example, modifying information systems to oblige users to confirm the completion of specific steps before proceeding or show prompts to help users to carry out tasks in specific ways).
Visual aids can be very effective ways of reminding people of new processes. For example, the ThinkGlucose support package developed by the NHS Institute for Innovation and Improvement includes fridge magnets that constantly remind staff of the content of the improvement package. Another example is the Butterfly scheme which uses the butterfly symbol to trigger appropriate care of patients suffering from dementia. See details below:

(1) ‘At-a-glance *discreet identification* via the Butterfly symbol is available for hospital patients who have dementia-related memory impairment and wish staff to be aware of it
(2) All staff who interact with patients are trained to offer a specific five-point *targeted response*
(3) The Butterfly alerts all staff to the existence of an easy-to-use *carer sheet*


It is recommended to monitor compliance with the change until the new processes are embedded in the system over time. Having a *measurement system* in place or by some kind of insistence method such as regular *audits* or *inspections* can help to monitor any deviance from the system agreed and address any issue on a timely basis. Making the results of these activities visible and open to everybody (for example, *dashboards* or *information boards*) can help to sustain the change over time.

The frequency of the monitoring systems could be reduced as changes become embedded and institutionalised or, in other words, as they become organisational routines.

**Tip:**
- Think how you can **design** the system to make it ‘mistake-proof’.
- Use **visual aids** to remind people of the changes made.
- **Monitor compliance** with the changes regularly and use visual aids to communicate the results in an easy way. **Adjust** the monitoring **frequency** as the change becomes embedded.
CONCLUSION

This guide has provided a framework to assist improvement teams and supporting organisations in the spread and sustainability of changes. The framework includes evidence-based advice and reference to existing tools. Figure 15 provides a visual summary of the content of this guide.

The usefulness of the guide needs to be tested and evaluated. It aims at being a live document that incorporates new findings and examples from research and experience as these topics are investigated further.

Given the increasing importance of spread and sustainability of improvement, the use and further development of this guide is highly recommended.

Any feedback is very welcome. Please contact amaia.ibanezdeopacua@nhs.net.
Testing Stage

Planning – include time / resources for Spread Stage

Testing – PDSA

Expected results? Process in Control?

No

Ensure sustainability factors addressed

Evaluation

Evaluation report provided

Yes

Inform of tests & results

Measuring

Inform of tests & results

Sustainability assessment tool

NOTE: you need to register to access the tool. It is free

Testing Stage

Spreading Stage

Create spread plan

Provide granular comparable data

Analyze data and identify trends

Provide training and support

Capture and publicize the lessons learnt from unsuccessful results

Publicize & reward successful results (including spread activities)

Update public database

Change agency

Improve the spread plan

Inform of results

Willingness to adopt?

Yes

System ready to adopt?

No

System readiness assessment tool

Worksheet in Appendix 1

Worksheet in Appendix 2

Worksheet in Appendix 3

Worksheet in Appendix 4

Worksheet included in this guide (appendices)

Key:

- Worksheet included in this guide (appendices)
- Access to existing tool or guidance (press button)
- Steps carried out by improvement teams
- Decision points
- Activities carried out by Change Agency

Figure 15. Proposed process and assisting tools and worksheets
### APPENDIX 1: Checklist to reflect on innovation attributes and contextual factors

<table>
<thead>
<tr>
<th>Innovation Attributes</th>
<th>Comments</th>
<th>Potential Initiatives</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standard</strong></td>
<td></td>
<td></td>
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<tr>
<td>Relative Advantage</td>
<td></td>
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<tr>
<td>Compatibility</td>
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<td>Complexity</td>
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<td>Triability</td>
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<td>Observability</td>
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<td>Re-invention</td>
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<tr>
<td><strong>Operational</strong></td>
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<tr>
<td>Task Relevance</td>
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<td>Task Usefulness</td>
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<tr>
<td>Feasibility</td>
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<tr>
<td>Implementation</td>
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<tr>
<td>Complexity</td>
<td></td>
<td></td>
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<tr>
<td>Divisibility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nature of the knowledge required to use it</td>
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</tr>
</tbody>
</table>
## APPENDIX 2: Developing a Communication Plan for Spread

<table>
<thead>
<tr>
<th>BRAINSTORMING</th>
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</thead>
<tbody>
<tr>
<td><strong>Target Audience</strong></td>
<td><strong>Message(s)</strong></td>
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</tbody>
</table>
## APPENDIX 3: Spread Action Plan

<table>
<thead>
<tr>
<th>ACTION PLAN</th>
<th>MONITORING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actions</td>
<td>Responsible</td>
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</table>

Measure **rate** of spread

Measure **effectiveness** of spread
APPENDIX 4: Reflection on context

Innovation description:

<table>
<thead>
<tr>
<th>ORIGINAL CONTEXT DESCRIPTION</th>
<th>OUR CONTEXT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Similarities</td>
</tr>
</tbody>
</table>

Description of the proposed modification to the innovation:
APPENDIX 5: Recommendations for supporting the spread of innovations at a macro level

A recent paper from Norton et al\textsuperscript{17} describes 5 recommendations to improve spread, identified by the attendees at a conference on Scale-up and Spread in Healthcare and Public Health held in Washington on July 10, 2010. A year after, a survey was issued to the conference attendees to help to operationalise and prioritise the 5 recommendations identified. Please, refer to Norton et al\textsuperscript{17}'s paper for more details on the list of the recommendations and corresponding sub-recommendations resulting from this prioritisation exercise.

The 5 recommendations described by Norton et al\textsuperscript{17} are briefly discussed next.

1. \textit{Increase awareness of the need for greater attention and activity in scale-up, including research, practice, and policy activity.}
   Spread should be an integrated part of any improvement project and sufficient resources should be invested in this stage. Educational activities targeting staff at all levels, from improvement staff to senior leaders, will be beneficial to increase the awareness of the need for scaling-up innovations (eg. spread should be included as part of any quality improvement methodology course).

   The Department of Health\textsuperscript{12} identifies that a leadership culture to support innovation is inconsistent or lacking and this is one of the barriers that slow the spread of innovation in the NHS. Training and education programmes should focus on senior managers and clinicians.

   \textquote{Leadership for innovation begins at the Board. An empowering Board is one that opens its eyes to the potential for innovation inside the organisation, outside the organisation and in collaboration with other organisations.}

   \textit{Sir Keith Pearson, NHS Confederation Chair\textsuperscript{12}}

   Providing the right incentives and rewards could help to draw the attention to the need to spread innovations\textsuperscript{11,12}.

2. \textit{Facilitate better information exchange, collaboration and use of existing knowledge.}
   The development of a web portal for innovation for NHS Scotland could be key in improving access to data and information and facilitating the sharing of knowledge and collaboration. Poor access to metrics and information has been identified as one of the 6 barriers to hinder the spread of innovation in the NHS\textsuperscript{12}.

   This web portal could host a central database of the existing improvement activities, the stage they are at, together with a brief description of the project (and results if available). Users should be able to search the database easily. This web portal should have other sections such as online
forums where practitioners can share their experiences and advice could be provided, support tools and e-learning modules.

‘The NHS needs an intellectual marketplace of ideas, a ‘problems and solutions warehouse’ where innovators can showcase and exchange their ideas

Laszlo Igali, Norfolk and Norwich University Hospital

Ideally a formal change agency could be the host of this web portal to promote collaboration across the NHS in Scotland. Change agencies can play a key role in supporting spread of innovations.

3. Develop, evaluate and refine innovative scale-up and spread methods, including novel incentives and ‘pull’ strategies.

The development of a taxonomy of strategies and factors influencing the effectiveness of spread activities would help practitioners to understand which strategies or methods work better in different contexts.

Funded research programmes could advance the existing knowledge on scale-up and spread methods. Translation of the research finding into practical advice and/or tools should also be considered.

4. Develop and apply new approaches for evaluation

A standardised tool for evaluating spread is recommended. In order to evaluate naturally occurring spread, in other words, diffusion, observational research will be required. Evaluating spread will help to learn more about the spread process and its effectiveness, and therefore, develop the taxonomy referred in recommendation 3.

5. Expand capacity for scale-up policy, practice, and research.

Apart from raising awareness of the need for spread discussed in recommendation 1, enough resources and expertise will be required to ensure the success of spread initiatives. A diverse range of initiatives such as training courses, discussion on ongoing scale-up activities, recognition and awards for good spread practices should be in place to contribute to the development of expertise and interest in this area.

Change agencies should incorporate in their agenda the provision of capacity for spread.

‘The NHS must build innovation and the concept of adoption and spread into undergraduate and post-graduate curricula.

Professor Normal Williams, Royal College of Surgeons
REFERENCES


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The Healthcare Environment Inspectorate, the Scottish Health Council, the Scottish Health Technologies Group and the Scottish Intercollegiate Guidelines Network (SIGN) are part of our organisation.

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