About 2Bio

2Bio Ltd was established as a company in 2007, its founding team having successfully delivered the MerseyBio programme in Liverpool, which developed innovations, IP and new businesses from local Merseyside partners, including the NHS trusts, the universities and independent innovators.

2Bio Ltd is a private, Liverpool-based company that provides expertise in developing and managing innovation, across the healthcare and life science sectors. 2Bio also supports organisations to manage their intellectual property and to commercialise early-stage technologies.

2Bio has built on this success, working with clients who require strategic advice to develop their innovation strategies, optimise their R&D outputs, commercialise intellectual property and grow businesses in the Life Sciences and Healthcare sector. 2Bio is now working with a number of NHS trusts in the Merseyside region, including the Royal Liverpool & Broadgreen University Hospitals NHS Trust.

2Bio’s Healthcare Innovation team works with hospitals and research organisations to initially develop their ability to manage innovation and then where required embed themselves within the culture of the organisation; engaging with innovators to identify and appraise new ideas, supporting development of plans to test and implement good ideas and then sharing the outcomes with management and other organisations.

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Innovation Survey

Introduction

The Regional Innovation Fund is supporting the Walton Centre NHS Foundation Trust to develop an Innovation Toolkit to assist NHS Trusts across the North West Coast Academic Health Science Network to better develop an innovative culture within their organisation.

The Walton Centre NHS Foundation Trust is working with 2Bio Ltd and Good Squared to develop and test an Innovation Toolkit that will enable NHS Trusts to embed innovation as core trust business and support trusts in delivering against innovation objectives. The Innovation Toolkit that is to be developed will initially be tested by Liverpool Community Health NHS Trust to determine if it will also be suitable for a Community Trust setting (as well as an acute trust setting) and then tested more widely across a small panel of willing Trusts. The final Innovation Toolkit is intended to be rolled out across the North West Academic Health Science Network.

To best determine what Tools should be prioritised for development, we have performed a brief survey of a small panel of Trusts designed to understand how ‘Innovation Ready’ NHS organisations are in the local area, and how well equipped they are to manage, support and promote an innovative culture. The survey was pitched towards Innovation Managers within Trusts who are responsible for engaging with and delivering support to innovators within their organisation. The Innovation Managers were asked questions regarding their perception of the innovation culture within their organisation and to determine what tools they currently have available to them.

The following document provides a summary of the responses alongside an analysis of what needs are perceived to greatest as a consequence. The methodology employed to design the survey and analyse the data is described in the Methodology Section towards the end of this summary report.
Question 1: Your Organisation

Question 1 was simply aimed at obtaining details of the person and organisation responding. In all cases, it was the Innovation Manager (the person responsible for delivering innovation support) that responded. A range of Trust types were represented across the respondents (Figure 1).

Figure 1. Type of NHS Trusts responding to the survey

Of the NHS Trusts that responded:

- 2 stated that they were acute trusts
- 2 stated that they provide combined services; delivering acute and community-based care
- 1 stated that it was a specialist trust, and
- 1 was understood to be a community trust.

It is appreciated that this is a limited sample size, however the purpose of the survey was to simply gauge the current status quo with respect to being able to support innovation and the current engagement of the innovation community.
Question 2: How well does your organisation understand and prioritise innovation?

Question 2 was designed to obtain a broad picture of how well each organisation understands and prioritises innovation. Figure 2 demonstrates how the Innovation Managers (as a group) agreed with each of the statements; the red bars indicate those areas where the respondents disagreed more with the statement, whereas the green bars indicate those areas where the respondents agreed more with the statement. Where there is no bar the respondents were neutral about the statement.

Figure 2. How well do organisations understand and prioritise innovation.

It could be interpreted from the responses that in most cases, although the Trusts understand what innovation comprises, and consider it to be of great importance, they have not necessarily reached the point of committing extensive resource to supporting innovation and may not have an operational plan yet in place.

On the whole, the Trusts who have responded have taken positive steps towards developing an innovative culture; they have appointed an Innovation Manager, many have innovation represented at board level and state that innovation is of strategic importance to their organisation. However, for Trusts that lack an awareness of what supporting innovation actually involves on an operational level, this can leave Innovation Managers under-resourced, under-prepared and unclear regarding what aspects they can help with. Without proper awareness of the activities and tasks to be undertaken (and who should be responsible for delivery), there is a risk of duplication of effort or different support teams effectively working at cross-purposes.

The lack of a dedicated innovation budget is a challenge faced by many Trusts that impacts on the ability to implement new ideas on a number of levels; 1) there may be insufficient human resource to support innovation projects and 2) although projects may ultimately deliver financial benefits, it can be hard to justify any pump-priming required to initially pilot and test an idea. There may not be a quick solution to this issue in many Trusts and so the ability to attract external funding can be critical to project success.
Question 3: How well do you understand innovation?

Question 3 was designed to obtain an understanding of how well-prepared the Innovation Managers consider themselves to support innovation at their organisation. Figure 3 demonstrates how the Innovation Managers (as a group) agreed with each of the statements; the red bars indicate those areas where the respondents disagreed more with the statement, whereas the green bars indicate those areas where the respondents agreed more with the statement. Where there is no bar the respondents were neutral about the statement.

It could be interpreted from these responses that the Innovation Managers have equipped themselves well with respect to acquiring an understanding of innovation and the potential benefits, however they have not been provided with a clear remit from their organisation to deliver innovation support and they may be lacking clear operational plans for doing so.

The lack of a clear plan for managing innovation, that has been developed in a ‘corporate’ manner creates a risk of the innovation support team working in a silo; unconnected to the wider strategic objectives and working practices of the rest of the organisation. Once again there is the risk therefore, that Innovation Managers may not be clear regarding what tasks and activities are required and which should be undertaken by them; the risks of duplication of effort, over-committment of resource or overlapping with the delivery plans of other teams therefore persist.
Question 4: What do you consider to be included under the definition of innovation?

This question was a multiple choice question designed to confirm the understanding that Innovation Managers have with respect to what comprises innovation. Respondents were simply asked to tick the box next to each item they considered to be an ‘innovation’. Figure 4 demonstrates the extent to which the Innovation Managers recognised each innovation, which is represented as a percentage of the respondents who ticked the box corresponding to each innovation type.

![Figure 4](image-url)  

It could be interpreted from these responses that although the majority of the Innovation Managers recognised the vast majority of the different innovations, there is uncertainty in some areas, which may also be reflected within the innovation community. For instance, the more obvious innovations tended to reflect the more commercial areas, however the development of new procedures and clinical guidelines were less recognised as being innovative.

This suggests that the innovation community require broader examples of innovation projects that include some of the less well-known innovation types, to reduce the possibility of missing opportunities to support and disseminate innovation projects.
Question 5: How engaged is your Innovation Community?

Question 5 was designed to determine how well-engaged the innovation community is perceived to be across the respondent’s organisations. Figure 5 demonstrates how the Innovation Managers (as a group) agreed with each of the statements; the red bars indicate those areas where the respondents disagreed more with the statement, whereas green bars indicate those areas where the respondents agreed more with the statement. Where there is no bar the respondents were neutral about the statement.

Figure 5. How engaged is the Innovation Community at the Trusts

It could be interpreted from these responses that although innovators may be coming forwards in some trusts with ideas and there are some case studies that may be highlighted; the communication channels to share those case studies (and the arising benefits and successes) may be lacking.

These responses indicate that there may be a lack of innovation role models and individuals within Trusts who can help to champion good ideas from within the clinical base to management teams. Having Innovation Champions within clinical teams and departments, who understand the issues faced by a particular speciality, can be important for developing an innovative culture; staff invariably engage better with their peers due to the more frequent day-to-day contact. It is also much easier to ingrain innovation into a community when they hear from their peers how engagement in innovation activity has benefited a particular problem or issue they were facing. These Innovation Champions can also help to smooth the path to help the Innovation Manager to develop a rapport with the wider community, potentially giving them the opportunity to meet with staff more regularly.

By not having a regular point of contact within clinical teams or departments it becomes more challenging to share information about internal and external innovations. There is also the missed opportunity of ‘training’ individuals about innovation so that they can increase innovation awareness within their colleagues.
Question 6: How prepared are you to identify and support internally-developed innovations?

Question 6 was designed to derive a better understanding of the processes that the various Trusts have in place to support internally-developed ideas. Figure 6 demonstrates how the Innovation Managers (as a group) agreed with each of the statements; the red bars indicate those areas where the respondents disagreed more with the statement, whereas green bars indicate those areas where the respondents agreed more with the statement. Where there is no bar the respondents were neutral about the statement.

![Figure 6. How prepared are trusts to support internally-developed innovations](image)

From these responses it could be interpreted that some of the Trusts have processes in place for the initial documentation and appraisal of new ideas, but overall may lack a structured approach to identifying projects and for managing the downstream support activity.

In the first instance, the fact that some of the respondents disagreed with the statement relating to engagement with innovators may point towards a predominantly reactive process, whereby the Innovation Managers do not or cannot proactively seek to engage with potential innovators on a regular basis.

The lack of robust processes for delivering feedback to innovators is also of concern as providing feedback is critical to securing continued engagement from innovators. Innovators need to know that their idea has been properly considered and if it is not be taken forwards, they need to understand why.

Downstream from the initial appraisal and provision of feedback, there needs to be a structured process of supporting and managing innovation projects. An inability to support the process of developing plans for testing and implementation of ideas, means that the risk of a project failing to deliver the expected benefits is increased and it is also difficult to convince colleagues and management to support the project. The development of plans also helps to support applications for funding (internal and external sources) for which there needs to be some form of support in place. The lack of a structured process for tracking or monitoring of projects means that it is not possible to determine if the project is likely to be successful or to easily measure the benefits that have been achieved; which are essential for retaining management and board support for projects.
Question 7: How prepared are you to identify and support the adoption of externally-developed ideas?

Question 7 was designed to derive a better understanding of the processes that the various Trusts have in place to support the adoption of good ideas that have been implemented elsewhere. Figure 7 demonstrates how the Innovation Managers (as a group) agreed with each of the statements; the red bars indicate those areas where the respondents disagreed more with the statement, whereas green bars indicate those areas where the respondents agreed more with the statement. Where there is no bar the respondents were neutral about the statement.

Figure 7. How prepared are trusts to support adoption of externally-developed innovations

From these responses, it could be interpreted that some Trusts are aware of the external landscape that can provide examples of successful ideas, that have been implemented and more importantly tested and validated at other organisations. However, similar to the case for internally-developed innovations there is no structured approach to managing the downstream support activity.

The first challenge presented is the ability to communicate the existence of external ideas to the relevant clinical teams. A process is required whereby an understanding can be quickly derived about whether or not the innovation is feasible to implement, is likely to generate the desired outcomes or even if it has been considered or adopted already. There are a whole range of sources of innovation in the external landscape, each with an abundance of innovation examples and ranging from the highly tested and validated ideas (e.g. in QIPP case studies) to totally unvalidated ideas (e.g. in the NHS Catalogue of Potential Innovations). This external landscape requires initial scoping and appraisal and then for dialogue to commence with appropriate service delivery teams to determine in detail whether the ideas presented would work in the individual setting. Without a good process for communication there is a risk that clinical teams will feel like they are being bombarded with external ideas, many of which they may already be aware of. There also needs to be a process of regularly monitoring these external innovation sources for updates and new ideas.
The next challenge is the ability to support the development of plans to test and implement those external ideas that may have been selected. Funding may be required to support this and so a business case or funding application may need to be developed alongside the adoption plan. The development of a clear plan will also be required in most cases to obtain management support for making changes to a particular pathway or service, which may be easier where management teams have stipulated what information could help them to make a quick decision. If there is no process in place for development of a plan that can be quickly appraised by management then innovators are left second-guessing what information may be required. Additionally existing processes (e.g. business case process) may not factor in the appraisal of external evidence; ensuring that there is a process of appraising and approving projects for adoption of externally-developed innovations that aligns with existing processes is critical to the success of the innovation strategy within an organisation.
Question 8: Where do you go to source external innovations

This multiple choice question was designed to confirm the knowledge that Innovation Managers have with respect to external sources of innovation. Figure 8 demonstrates the extent to which the Innovation Managers recognised each innovation source. Respondents were simply asked to tick the box next to each item they considered to be a source of innovation, which is represented as a percentage of the respondents who ticked the box corresponding to each innovation source.

![Chart: Q8. Where do you go to source external innovations?](chart-image)

Figure 8. Where do trusts go to source external ideas

Overall, these responses tend to indicate that the trusts tend to refer to more validated sources of innovation such as QIPP and NICE. The untested ideas arising within sources like the NHS Catalogue of Potential Innovations are not frequently recognised as a useful source of innovation. This may reflect the fact that the validated ideas have a great deal of evidence behind them as well as some quantification of the likely benefits, which may make it easier to convince organisations to support an idea.

The Trusts also tend to see companies as a useful source of innovation, and so they may wish to develop plans to better engage with industry so that they can increase the number of opportunities for getting involved in testing and validating new innovations.

Finally, the respondents see other NHS Trusts as useful sources of innovation as well as the Academic Health Science Network, that has the role to disseminate good ideas across the trusts in its region. Each organisation therefore may need to develop a strategy to maximise the sharing of ideas across the AHSN and member Trusts.
Question 9: What are the biggest challenges you face with respect to innovation?

Question 9 was a multiple choice question designed to derive a better understanding of the challenges that the organisations face with respect to delivering their innovation programme. Respondents were simply asked to tick the box next to each item they considered to represent a challenge for delivery of innovation at their organisation. Figure 9 demonstrates the extent to which the Innovation Managers recognised each issue, which is represented as a percentage of the respondents who ticked the box corresponding to each challenge.

Figure 9. What are the biggest challenges with respect to innovation

Looking at the more positive aspects, there were very few concerns regarding a willingness by staff to accommodate change and to consider ideas developed elsewhere. The key areas of concern however were:

- A lack of awareness (by staff) about what innovation is and what it involves
- A failure for staff to engage with the innovation team
- Insufficient resource available to support projects
- A lack of time for staff to lead and implement projects

It could be interpreted that the responses tend to reflect the early-stage nature of many of the Trusts innovation programmes. If these areas are prioritised for development by the organisations, then there is the possibility of improving the culture of innovation. However, some of the other downstream issues may then start to become an issue e.g. having too many ideas to manage and an inability to prioritise projects for support.
Question 10: What tools do you currently have available to you to support innovation engagement & management?

This multiple choice question was designed to confirm what tools the Innovation Managers currently have available to support delivery of their innovation programmes. Respondents were simply asked to tick the box next to each item they considered to represent a challenge for delivery of innovation at their organisation. Figure 10 demonstrates what tools the Innovation Managers indicate they have, which is represented as a percentage of the respondents who ticked the box corresponding to each tool.

Figure 10. What innovation tools do the trusts currently have available

The responses to this question indicated that although many of the trusts had a method of capturing and logging innovation projects, most of the trusts lack the necessary tools and processes for effectively managing their innovation activity. Very few of the trusts have a strong profile for their innovation activity, and lack basic resources that can support development of an innovative culture. For instance, background reading on innovation (available via websites or brochures/leaflets) can be an important means of allowing staff to derive an understanding of innovation and to enable innovators to help themselves (to an extent). It is also important to develop routes to being able to educate staff on a more focused basis through workshops, seminars and other opportunities to network; this can often enable ideas to be initially identified with more detailed follow-up possible at a subsequent meeting. Downstream from initial discovery, the trusts lack the systems and tools required for appraising and prioritising ideas, for tracking project progress, for monitoring and reporting on the performance of the innovation activity i.e. what benefits have been delivered.

It is noted that the responses to whether or not the organisation has an innovation fund or budget contradicts somewhat to the responses obtained for Question 2 (where a lack of innovation budget was highlighted), However, this may reflect the fact that fewer of the Innovation Managers responded to this particular question and it is understood that dedicated budgets for innovation are not widely available across Trusts.
Summary

Although there were a limited number of respondents to this survey we do consider that this is a useful gauge of which areas are of most concern to Innovation Managers who are tasked with supporting and managing their organisation's innovation programme.

The responses overall tended to indicate that many of the trusts are at an early-stage with respect to a focused innovation strategy, with very few having an operational plan and dedicated resources for supporting innovation projects. The opportunity to create culture change within these organisations therefore may bring forwards the realisation of the benefits that will help to justify investment into the support of innovation activity. However the limited resources available means that organisation will have to carefully prioritise projects for support and will need to have the tools available to capture and report on the outcomes.

Through this initial temperature check of the innovation support landscape we have identified several areas which may be prioritised for development of tools, that may assist the Innovation Managers to more effectively deliver support. These areas and suggested tools are as follows:

### Staff Engagement Tools

<table>
<thead>
<tr>
<th>Description</th>
<th>Format</th>
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</thead>
<tbody>
<tr>
<td>Introduction to Innovation - intended to be used to raise awareness with staff</td>
<td>Template Presentation</td>
</tr>
<tr>
<td>Staff Survey - intended to determine the level of understanding that staff have in respect of innovation and to identify priority areas for engagement/strategy development</td>
<td>Document</td>
</tr>
<tr>
<td>Workshop Agenda &amp; Exercises - intended to guide development of a focused engagement programme</td>
<td>Document</td>
</tr>
<tr>
<td>Innovation Champion Role Description - intended to be used to provide a detailed understanding of the role &amp; responsibilities.</td>
<td>Document</td>
</tr>
<tr>
<td>Case Studies - broad examples of innovation projects from within the AHSN member trusts as well as external projects</td>
<td>Document</td>
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### Knowledge

<table>
<thead>
<tr>
<th>Description</th>
<th>Format</th>
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</thead>
<tbody>
<tr>
<td>Menu of useful innovation information resources for innovation managers and innovators</td>
<td>Document</td>
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</table>

### Innovation Management

<table>
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<tr>
<th>Description</th>
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<tbody>
<tr>
<td>Innovation Record Form - designed to capture ideas and create a formal record</td>
<td>Document</td>
</tr>
<tr>
<td>Description</td>
<td>Format</td>
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<tr>
<td>-----------------------------------------------------------------------------</td>
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<tr>
<td>Innovation Decision Tree - designed to enable Innovation team to decide how to proceed with an idea, to determine what stage it is at and how the project should be directed. Can also allow for signposting to other sources of support</td>
<td>Document</td>
</tr>
<tr>
<td>Innovation Portfolio - template intended to be used to document a portfolio of innovation projects and their current status. To be updated at regular intervals</td>
<td>Spreadsheet</td>
</tr>
<tr>
<td>Innovation Management Activities - a description of the activities &amp; tasks that are required to be undertaken to best support innovation</td>
<td>Document</td>
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</table>

### Innovation Support

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<thead>
<tr>
<th>Description</th>
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<tbody>
<tr>
<td>Menu of funding schemes which may be used to support innovation adoption &amp; diffusion</td>
<td>Document</td>
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</tbody>
</table>

### Reporting

<table>
<thead>
<tr>
<th>Description</th>
<th>Format</th>
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</thead>
<tbody>
<tr>
<td>KPI dashboard - a template report for documenting progress in innovation engagement &amp; portfolio growth</td>
<td>Spreadsheet</td>
</tr>
</tbody>
</table>

### Landscaping

<table>
<thead>
<tr>
<th>Description</th>
<th>Format</th>
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</thead>
<tbody>
<tr>
<td>Menu of resources for identifying external ideas that may be useful for Trusts, including validated &amp; recommended ideas as well as untested or early-stage ideas</td>
<td>Document</td>
</tr>
</tbody>
</table>

### Networking

<table>
<thead>
<tr>
<th>Description</th>
<th>Format</th>
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</thead>
<tbody>
<tr>
<td>A discussion board, forum or group that will enable Innovation Managers to share their ideas and experiences</td>
<td>Social media group e.g. Linkedin Website/blog</td>
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</tbody>
</table>

### Implementation

<table>
<thead>
<tr>
<th>Description</th>
<th>Format</th>
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</thead>
<tbody>
<tr>
<td>A guide to implementation of the Innovation toolKit</td>
<td>Document</td>
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</tbody>
</table>
Methodology

Survey Design

Many of the questions were rating style, designed to obtain an opinion from the Innovation Manager on how much they agree or disagree with particular statements regarding innovation activity at their organisation. Questions 2-3 and 5-7 were structured in this manner, with respondents asked to rate how much they agree or disagree with the statement i.e. a Rating Scale was employed. The purpose of these questions was to identify any gaps in the resources and processes currently implemented across the Trusts. Questions 4 and 8 were multiple choice questions that were simply aimed at confirming the knowledge and understanding of the Innovation Managers so that the resulting Toolkit may be appropriately positioned. Questions 9 and 10 were multiple choice questions designed to identify the key issues faced by Innovation Managers in developing a culture of innovation within their organisation.

Responses

A total of 6 NHS Trusts provided responses to the survey.

All 6 Trusts responded to Questions 1 to 8; However, just 4 responded to Question 9 (respondents were asked to tick all answers that applied) and then only 2 responded to Question 10 (again respondents were asked to tick all answers that apply, although 2 Trusts did provide additional comment on this question).

Data Processing

Rating Questions

In respect of the questions that were structured as a Rating Scale, a weighted average was calculated based on a weight being assigned to each answer choice, so that it was possible to determine how much the respondents agreed or disagreed with a particular statement (on the rating scale). Where respondents ‘Strongly Agree’ with a statement these responses were weighted more heavily so it is possible to scale the overall opinion.

The rating average is calculated as follows, where:

\[ w = \text{weight of answer choice} \]
\[ x = \text{response count for answer choice} \]

\[ \frac{X_1w_1 + X_2w_2 + X_3w_3 + \ldots + X_nw_n}{\text{Total}} \]

An example of how this works is provided as follows:
We employed a 5-point rating scale question with the weights assigned to each answer choices shown in parentheses. In question 2 (Q2. How well does your organisation understand and prioritise innovation?) we asked respondents to rate how much they agreed or disagreed with the following statements:

**My organisation communicates a strong message about what innovation is**

**My organisation understands what supporting innovation involves**

The answer choices included:

- Strongly Disagree (1)
- Disagree (2)
- Neither Agree nor Disagree (3)
- Agree (4)
- Strongly Agree (5)

After collecting responses to the survey, the results for the first 4 statements looked like this (Table 1):

**Table 1: Responses to Question 2**

<table>
<thead>
<tr>
<th>Number of Responses</th>
<th>Strongly Disagree</th>
<th>Slightly Disagree</th>
<th>Neither Agree nor Disagree</th>
<th>Slightly Agree</th>
<th>Strongly Agree</th>
<th>Total Responses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>My organisation communicates a strong message about what innovation is</strong></td>
<td>33.33% 2</td>
<td>0.00% 0</td>
<td>16.67% 1</td>
<td>33.33% 2</td>
<td>16.67% 1</td>
<td>6</td>
</tr>
<tr>
<td><strong>My organisation understands what supporting innovation involves</strong></td>
<td>33.33% 2</td>
<td>0.00% 0</td>
<td>50.00% 3</td>
<td>0.00% 0</td>
<td>16.67% 1</td>
<td>6</td>
</tr>
<tr>
<td><strong>My organisation has a dedicated support framework for innovation</strong></td>
<td>33.3% 2</td>
<td>0.00% 0</td>
<td>33.33% 0</td>
<td>16.67% 1</td>
<td>16.67% 1</td>
<td>6</td>
</tr>
<tr>
<td><strong>Supporting innovation is a stated strategic objective of my organisation</strong></td>
<td>16.67% 1</td>
<td>16.67% 1</td>
<td>16.67% 1</td>
<td>16.67% 1</td>
<td>33.33% 2</td>
<td>6</td>
</tr>
</tbody>
</table>

For the first statement (my organisation communicates a strong message about what innovation is) the weighted average was calculated as follows:

\[
\frac{(2\times1) + (0\times2) + (1\times3) + (2\times4) + (1\times5)}{6} = \frac{18}{6} = 3
\]

The weighted averages were calculated for the other three statements in this example as shown in Table 2.
For the first statement (*my organisation communicates a strong message about what innovation is*) the average rating of 3.0 indicates that the average sentiment among respondents is that they neither agree nor disagree that their organisation communicates a strong message about innovation. For the second statement (*my organisation understands what supporting innovation involves*) the average rating of 2.67 indicates that the average sentiment among respondents is that they do not believe that their organisation understands what supporting innovation involves. For the 4th statement (*supporting innovation is a stated strategic objective of my organisation*) the average rating of 3.33 indicates that the average sentiment among respondents is that they do think that supporting innovation is an important strategic objective for their organisation.

To easily visualise these responses in a graph, we have represented the weighted average as a residual chart using the neutral position (Neither Agree nor Disagree) as the mid point. This neutral position represents a weighted average of 3 and so for each statement we have calculated a Residual Value as follows:

\[
\text{Residual Value} = \text{Weighted Average} - \text{Neutral Weighted Average} \\
\text{Residual Value} = \text{Weighted Average} - 3
\]

Using the previous example from question 2, for the first statement (which has a Weighted Average of 3) the Residual Value would be 0, calculated as follows:

\[
\text{Residual Value} = 3 - 3 \\
\text{Residual Value} = 0
\]
of 2.67) the Residual Value would be $-0.33$:

\[ \text{Residual Value} = 2.67 - 3 \]
\[ \text{Residual Value} = -0.33 \]

By way of example we have plotted the Residual Value for all of the responses to every statement used in the entire survey as shown in Figure 11. We have highlighted (in red) the statements for which the average rating was less than 3 (i.e. the respondents tended to disagree with the statement) and (in green) the statements for which the average rating was more than 3 (i.e. the respondents tended to agree with the statement). The Residual Value maximally ranges between 2 (where all the respondents Strongly Agree with the statement) and -2 (where all the respondents Strongly Disagree with the statement).

For each of the individual questions we have plotted a residual bar chart and similarly highlighted in red the statements for which the average rating was less than 3 (i.e. the respondents tended to disagree with the statement) and (in green) the statements for which the average rating was more than 3 (i.e. the respondents tended to agree with the statement), as shown in the following example (Figure 12).
Figure 12. Example Residual Bar Chart showing which statement were agreed with (in green) and which statements were disagreed with (in red).