

Review of Innovate UK's Connect KTN activities

Draft Final Report to Innovate UK

February 2018

The logo for SQW, consisting of the letters 'SQW' in a bold, dark red, sans-serif font.

Contents

| | |
|---|-----------|
| Executive Summary | i |
| 1. Introduction and context..... | 1 |
| 2. Research methods and approach | 3 |
| 3. Developing logic models..... | 6 |
| 4. Review of remit..... | 8 |
| 5. Review of activities | 17 |
| 6. Review of impacts on business..... | 27 |
| 7. Review of the impacts on the strategic landscape..... | 45 |
| 8. Review of governance | 55 |
| 9. Value proposition and recommendations | 66 |

| | | | | | |
|-----------------|-------------|------|---------------|--------|------------------|
| Contact: | Osman Anwar | Tel: | 0131 243 0729 | email: | oanwar@sqw.co.uk |
|-----------------|-------------|------|---------------|--------|------------------|

| | | | |
|---------------------|-------------|-------|----------|
| Approved by: | Joe Duggett | Date: | 14/02/18 |
| | Director | | |

Executive Summary

1. Knowledge Transfer Network (KTN) is the UK's innovation network, designed to bring together businesses, entrepreneurs, academics and funders, to help them develop new products, processes and services. **The core purpose of KTN is to facilitate and accelerate innovation through collaborations.** Established as a single network in 2014, KTN is a not-for-profit company limited by guarantee, and delivers a 'KTN programme' of activity, funded by and on behalf of Innovate UK, as set out in a Grant Funding Agreement, alongside wider activities where these contribute to its strategic purpose.
2. In July 2017, **SQW was commissioned by Innovate UK to undertake a review of KTN since it became a single organisation in 2014.** The review is focused on four – related – elements of KTN, namely its: remit, activities, impacts, and governance structures. Across these elements, the review was tasked with considering evidence on KTN's "value proposition", and providing recommendations to inform policy and investment decisions by Innovate UK; this in the context of changes in the delivery and strategic landscape for Innovate UK, as it moves into UK Research and Innovation from April 2018.
3. The review has drawn on five main sources of evidence: a survey of 500 businesses that engaged with KTN in the review period; consultations with external stakeholders in the innovation landscape; primary research with KTN staff at all levels across the organisation, including bilateral consultations, activity-based focus-groups, and an online survey; case studies of businesses, focused on those businesses that have had substantive engagement to probe in detail the pathways to impacts; and case studies on a set of 'thematic' KTN activities. The governance review also included consultations with KTN Board members and senior Innovate UK representatives. In all, **the review draws on the perspectives of over 650 individuals involved with KTN over the review period.**
4. This primary research is underpinned by data/document review, and analysis, including an 'exploratory' regression analysis that focusses on the key factors that are associated with outcomes, based on data collected via the business survey; this involves two approaches, focused on the 'intensity' of engagement, and the 'nature' of engagement.

Remit

5. There appears to be broad agreement on the rationale for KTN, based on the imperative for good innovation to be 'collaborative', with connections and networking within and across sectors and technologies important to meet this intent. Barriers which limit this and need to be mitigated relate to: information gaps; risk aversion; and co-ordination/network failures. The 'strategic case' to accelerate business-led innovation (and commercialisation) to improve UK's international competitiveness was also recognised consistently as providing the underpinning case for KTN. More widely, the review identified the need for a less fragmented innovation ecosystem. This rationale for KTN – failure based and strategic – has remained relatively constant over the review period. KTN's rationale was reasonably well understood by both internal KTN staff, and external stakeholders. **The rationale for KTN was strongest in its 'core' Connect and Engage activity, but less clear in terms of its more intensive**

support to business. On the latter, the review proposes a refreshed assessment of the rationale for KTN, to identify more explicitly the justification its activity in this space.

6. KTN's three headline objectives over the review period were to: increase business-led R&D in the UK; facilitate exploitation of R&D to capture more UK value from innovation; and increase collaboration (B2B and B2R). The strategic aims of KTN were to: be the strategic partner of choice for innovation networking; provide "breadth and depth" of experience for businesses; and be a highly effective organisation with the Innovate UK 'family' of organisations. The objectives were developed over time with associated KPIs. **The review found the headline objectives were well articulated in what KTN was seeking to achieve.** However, the KPIs used to measure progress against these objectives could have been more clearly defined, including to ensure they were directly attributable and logical in relation to the objectives and resulting activity. Further, objectives at KTN Activity Strand level were inconsistent and not comprehensive, and this needs to be addressed going forward.
7. **The review suggests that there has been 'sufficient' complementarity in KTN's remit with that of Innovate UK's.** However, there was mixed evidence on the degree to which KTN's rationale and objectives fit with those of other organisations across the innovation landscape. Most external stakeholders were relatively clear on the rationale for KTN, however a minority of stakeholders, mainly from industry were somewhat uncertain. For this group, the remit was too broad thus diminishing its clarity and focus. **There is scope to develop a more focused statement of rationale of KTN, and work to raise awareness and external communication of this to ensure stakeholders, particularly industry representatives, understand fully the remit of KTN.**
8. KTN exhibits a pro-active role in developing "existing and emerging industries" (notably through Special Interest Groups). However, its broader role in terms of engaging with businesses appears to be more responsive than pro-active, particularly in relation to meeting the expectations of Innovate UK as its core funder. The review validates the remit articulated in the logic model for the overall KTN; a key strength of KTN in this context, is that its **remit enables KTN to add value as a free, neutral, and importantly trusted organisation.**

Activities

9. KTN delivers an extensive range of activities across different sectors and technology areas, including: 'Connect and Engage' activities, involving engagement with the business and research bases via hosting events, managing Special Interest Groups (SIGs), and offering advice and support on innovation opportunities through Knowledge Transfer Managers (KTM's); strategic contributions to promote UK innovation; and selective 'project' delivery where this contributes to KTN's purpose and strategy.
10. Priorities for activity planning were decided in different ways within KTN, principally: influenced by Innovate UK's agenda, KTN's own 'thinking' of innovation challenges, and the potential demand from the business base for specific interventions or activities. The priorities reflected the nature of the seven Activity Strands, and prioritisation of activities based on demand was a particularly common theme across most Activity Strands, reflecting the focus of KTN to be member-driven as well as strategically aligned.

11. The review found no clear and consistent mechanism to monitor and review activities delivered by the seven Activity Strands, with monitoring practices varying across the Activity Strands over the review period. Overall, the review consultations indicate that where formal reporting systems were in place, there was variation in how they were used and the value of the information they were capturing. **The monitoring and reporting within KTN could have been further strengthened to ensure consistency and to inform delivery of activities.**
12. KTN plays an important role in signposting and advice activities (including facilitating introductions and collaborations), and KTN's activities have contributed to simplifying the innovation landscape. Overall, the review found complementarities between the activities undertaken by KTN, Innovate UK and other organisations involved in knowledge transfer and networking activities. Some duplication or overlap in the activities undertaken with organisations was identified but this mainly related to events, workshops, and networking.
13. However, further work could have been done to develop practical linkages with external organisations to maximise innovation opportunities and ensure further alignment. Most organisations that identified a link with KTN stated that there were no formal structures or systems in place to take advantage of the links. **The review found there is a need for KTN to develop a more organisational link with external stakeholders rather than be overly reliant on individual relations between KTN staff and external stakeholders.**
14. **The activity delivered by KTN over the review period appear to be broadly the “right ones”**, taking account of the underpinning rationale and objectives of KTN. However, the review indicated that KTN is arguably delivering an intensity of business support that may fall outside of its formal Connect and Engage remit, commonly involving multiple meetings with businesses involving specialist sector or technology-related advice. Whilst this support is valued by firms and important in delivering outcomes, whether KTN is best placed to offer the level of support is open to question, with the risk that KTN is duplicating support available elsewhere. It is proposed that a more clearly defined ‘offer’ to businesses (over and above Connect and Engage support) would be beneficial, whilst retaining a degree of flexibility in KTN's offer to businesses. The strength of KTN is the cross-disciplinary nature of its activities.

Impacts

15. **KTN made a strong contribution to delivering against its key objectives over 2014-17.** KTN identifies investment in R&D and innovation as the ‘one metric that really matters’, as it provides a strong proxy for levels of innovation, and over 60% of businesses surveyed for this review reported they had increased and/or expected to increase their investment in R&D and innovation as a direct result of engagement with KTN. The median increase in investment to date (for those firms that experienced a change) was around £100k. However, the range of increased investment was large (in some cases in the millions), reflecting the varied nature of engagement with KTN, and the heterogenous nature of businesses engaged with KTN and their level of R&D activity.
16. A significant volume of introductions to potential innovation collaborators have been made. The monitoring data are not comprehensive, but over half of businesses surveyed had been introduced for the first time to an external organisation by KTN. The survey evidence also suggests a substantial volume of new innovation collaborations facilitated directly by KTN:

39% of business surveyed had been supported to establish a new innovation collaboration with KTN arranging and facilitating meetings and engagement with collaborators.

17. Both introductions and collaborations span B2B and B2R relationships. The 'conversion' from introductions to collaborations was around one-in-two for within-sector B2B relationships, and B2R relationships. However, fewer (absolutely and proportionally) introductions were converted to collaborations across business sectors. This may reflect that these opportunities are likely to be more 'speculative', leading to fewer tangible opportunities, however, this may be an area where KTN should look to address going forward, as promoting 'interface' opportunities is a key strategic focus of KTN. Business case study evidence found that cross-sector collaborations facilitated by KTN do occur, and can be particularly important for firms seeking to move into new markets.
18. **A high majority of collaborations facilitated by KTN have, or are expected to, lead to practical joint-working on a formal R&D or innovation project/initiative;** in most cases this involves progressing a commercial opportunity. The collaborations facilitated by KTN therefore offer the potential for substantial economic impact should the commercial opportunities be taken to the market over the longer-term. The survey also suggests that the collaborations facilitated by KTN are generally appropriate, with only a small proportion not leading to joint activity.
19. KTN has also generated positive outcomes in terms of: **supporting businesses to make successful funding applications; raising the profile of businesses through networking activity; and raising awareness and understanding of new market opportunities.** Nearly all business surveyed identified some benefits from their engagement with KTN, and most commonly 'packages' of outcomes; this is not unexpected, but reflects the varied pathways to impact.
20. These are positive findings on outcomes; however, **the additionality of KTN appears, in the round, to be quite modest.** The survey suggested that many of the benefits are likely to have occurred in any case, as observed by the businesses themselves. This said, timing effects were found to be common – that is, KTN activity bringing forward outcomes – which is consistent with its strategic purpose to accelerate innovation activity. The acceleration effect was most commonly between one and two years, which can be significant in fast-changing technology and market areas with which businesses engaged with KTN are commonly involved.
21. A mixed picture on additionality is not unexpected, and reflects both the varied ways in which businesses engage with KTN, and its focus on catalysing innovation activity, rather than directly funding it. **Econometric analysis also confirms the hypothesis that those businesses that have engaged with KTN on a 'light-touch' basis have experienced a lower level of benefit, when other observable characteristics are taken into account.** This does provide some confidence that KTN is influencing, to a greater or lesser degree, the realisation of positive outcomes for businesses, even where the additionality of these outcomes is modest. In nearly all cases, high engagement associated with more substantive or realised outcomes.
22. Econometric analysis also suggests that **whilst most KTN activity-types are associated with some positive outcomes, 'direct one-to-one' engagement via the provision of**

advice from a KTN expert is most strongly associated with the key outcome of increase investment in R&D and innovation.

23. Overall, the services of KTN are considered useful by businesses engaged. However, **satisfaction is strongly correlated with the level of engagement with KTN, and with involvement in more 'direct' elements of support** e.g. involvement in SIG or receipt of advice from a KTN expert. Other elements of KTN activity are also important, and the business case study evidence highlights the importance of the integrated 'package' of engagement that can be mutually reinforcing including attendance at events and reviewing KTN materials and publications. However, there may be a case for KTN to seek to maximise its contribution through a more targeted approach to business engagement, reducing the 'long tail' of businesses that are engaged to a limited extent, and where levels of satisfaction – and outcomes – are in turn quite modest.
24. Stakeholder consultations and thematic case study evidence indicate that **KTN also generates important strategic outcomes, in particular improving the policy and strategic landscape for business-led innovation.** There is some evidence of time, quality and scale additionality associated with the strategic outcomes reported, although it is not possible to quantify this with any precision given there was no formal framework in place to guide this activity over the review period.
25. The review indicates that KTN adds strategic value through providing leadership, acting as a catalyst for innovation, and in the exchange of knowledge and expertise with external stakeholders. However, the evidence on KTN influencing and leveraging resources of external stakeholders, outside of Innovate UK is limited.
26. Whilst the strategic contributions of KTN are evident through specific cases (e.g. response to the Industrial Strategy Challenge Fund; delivery of the Industrial Biotechnology SIG), at an aggregate KTN level the evidence is opaque. Further work needs to be done to address this, and ensure the strategic work of KTN is greater than 'sum of its parts'. In this regard, **having greater clarity on the strategic purpose of KTN (at an organisational level), and developing a set of externally-focused strategic objectives should provide greater focus and transparency to achieving strategic outcomes.**

Governance

27. A number of reasons and benefits were identified as part of the decision to establish KTN as a single independent organisation outside of Innovate UK. The **clearest benefits have stemmed from KTN's flexibilities on recruitment.** KTN has responded effectively to demands from industry and to new requests for activities from Innovate UK by drawing in new expertise quickly where required. There was also broad consensus of the benefits associated with the distance from government, and the ability of KTN to signpost widely in the innovation landscape. As a step removed from Innovate UK, KTN can engage with organisations on an independent footing with no hidden agendas.
28. KTN is able to provide strategic inputs, e.g. as a critical friend to Innovate UK and as a voice to government, and a number of examples were noted. As a single entity, KTN can cast widely for views and provide an integrated response on particular areas of policy or operational delivery of Innovate UK. There were questions over how far KTN should be doing this on its

own, though **given its 'connect' remit it is in a position that adds to Innovate UK's reach and capabilities, and this should be leveraged for strategic thinking, policy influence and operational delivery to a greater extent than is currently the case.**

29. Strengthening individual relationships between Innovate UK and KTN would also help to stimulate this. This should include formal relationships (such as the nature of Executive Team and Board representation) as well as informal bilateral relationships.
30. Internally within KTN, there are sound arrangements in place for the implementation of the Grant Funding Agreement, including through Board structures and planning processes. **However, the monitoring and reporting from KTN to Innovate UK needs to be strengthened.** Improved metrics with respect to the delivery of the Grant Funding Agreement should be in place as part of regular reporting to Innovate UK; and Innovate UK should be using this evidence more systematically and feeding back to KTN as appropriate.
31. In addition to the core grant, Innovate UK commissions KTN to deliver a range of additional pieces of work. This flexibility is welcome, but **the process of commissioning needs to be clarified with a stronger and quicker audit and justification process.**
32. **There is an opportunity for KTN to raise more of its income from non-Innovate UK sources.** There was general agreement that this would be desirable, and this would have governance implications in terms of how such income sources are incentivised, generated and reported upon.
33. The review identified a number of areas where governance ought to be strengthened. **At the current time, refinement to governance is called for, rather than structural changes.**

Value proposition and recommendations

34. It is challenging to identify explicitly a *single* value proposition of KTN. This partly reflects the nature of KTN as an innovation networking organisation (e.g. intangible properties of networking and R&D tend to be harder to value), the wide range of activities it undertakes and its varied offer to the business base and wider strategic landscape, and the indirect nature of its outcomes, which are often reliant on the activities of other organisations in the innovation landscape to be translated into practical innovations and solutions.
35. Notwithstanding the above issues, the review suggests that the value proposition of KTN is that it is a **free-to-access network which has a national reach** enabling it to facilitate connections and collaborations across both the UK and disciplines and sectors. It is also seen as **neutral, and trusted in the innovation landscape**, by both businesses and external stakeholders. The 'flexibility' of KTN in relation to meeting Innovate UK's agenda and wider stakeholders adds to the value it brings. Other networks can organise and undertake similar work, including across sectors, but they are not considered to be of the same **scale** as KTN.
36. The following recommendations are made based on the findings of the review, covering all elements of the review – remit, activities, impacts and governance.
 - **Recommendation 1:** The use of logic modelling approaches – to set out why KTN is seeking to intervene, what it hopes to achieve, and how this will be measured – should be integrated into the activity planning and strategic thinking of KTN, at both an

Activity Strand and overall level. KTN may wish to use the logic models developed for this review as the starting-point for this process, with logic models updated over time to both reflect changing priorities, and inform activity planning.

- **Recommendation 2:** The rationale underpinning KTN's direct engagement with businesses, and the scope of this activity, should be tested fully. The review indicates that KTN often engages in substantive and intensive engagement with individual businesses, covering a wide range of topics/issues, including specialist sector or technology advice. This offer is important, valued by businesses, and strongly associated with the achievement of outcomes. However, the 'reach' of the offer to businesses is very wide ranging, and more clarity is required on why KTN (not other actors in the innovation landscape) is best placed to offer this level of support. Greater clarity here on the scope of the offer - what KTN will and will not do with businesses – may help to drive-up additionality.
- **Recommendation 3:** The review indicates that there is some uncertainty across the innovation landscape over the core rationale and objectives of KTN, notably amongst industry representatives and those that are 'further away' from the Innovate UK 'family' and related government bodies. Innovate UK and KTN should ensure that the core of what KTN does (and why) is communicated consistently to all key players in the innovation landscape. The 'innovation map' used as part of this study may be the starting point for this external communications effort.
- **Recommendation 4:** The KPIs used by KTN should be revised to ensure there is (i) the ability for direct attribution to its activity and (ii) that there is no ambiguity in statement or collation of key terms and definitions used. As part of this, the review suggests that the use of 'value' should be considered, and potentially dropped, given the long time-paths to impacts and challenges in direct attribution.
 - Our view is that KPIs should focus on: increased investment on R&D and innovation directly attributed to KTN; number of collaborations facilitated by KTN; proportion of collaborations facilitated leading to practical R&D activity; number of funding submissions improved by KTN; and funding secured for businesses supported by KTN with improved submissions. The latter should distinguish between 'new' and 'existing' businesses, however, this definition needs to be used consistently across KTN to ensure that data are accurate.
- **Recommendation 5:** Working with Innovate UK, KTN should consider a more structured approach to engagement with other organisations in the innovation landscape, with a clear 'prioritisation' of where it can best engage to deliver against its aims and objectives. The review suggests that this engagement to date has been largely 'ad-hoc', rather than 'strategic', and such an approach will also enable a more targeted approach to engage with organisations where gaps are identified; again, the 'innovation map' could be used here to prioritise engagement going forward.
- **Recommendation 6:** KTN monitoring practice should be improved, operating at two levels:

- Monitoring *within* KTN needs to be more consistent and systematised. The review suggests that monitoring practiced is very varied across the Activity Strands, leading to gaps at the aggregate level. The new CRM system in place should help to drive behaviours here, alongside the proposed logic modelling approach and revised KPIs set out in preceding recommendations.
- The process of *reporting progress to Innovate UK* should be revised, with a clearer set of defined metrics (see Recommendation 4) and wider evidence used to highlight how the core activities are being delivered. Innovate UK should provide comment on these monitoring reports, providing challenge and thinking to help inform KTN discussions and actions. In addition, the monitoring reports should summarise the additional activities that are being delivered for Innovate UK and other organisations. These need not report on deliverables, though a summary of what is being delivered and the value would help ensure that Innovate UK has oversight in a single place.
- **Recommendation 7:** The attendance of Innovate UK and KTN representatives at respective Executive and Board level meetings should be formalised where this has not already been done. For instance, the representation of Innovate UK at KTN Board and the capacity of attendance (as a NED or observer on behalf of Innovate UK) should be formalised. In addition, the dialogue between senior representatives of the two organisations should be more frequent and regular. For example, regular diarised meetings to discuss strategic and policy direction should take place between Innovate UK's CEO and KTN's CEO and Chair. Other such relationships at Director level may also be worthwhile.
- **Recommendation 8:** The expectations of KTN with respect to its wider inputs to innovation policy should be clarified. KTN is currently undertaking some policy influence activities and there is a lack of common understanding of KTN's remit in this regard. The evidence indicates that KTN is in a position to collate a wide range of perspectives on policy developments and issues affecting the innovation ecosystem in the UK, and can offer challenge both to Innovate UK and government. This should be acknowledged, and the process for how this is done, e.g. in its own name or through Innovate UK, should be agreed.
- **Recommendation 9:** The process for how additional activities delivered by KTN are commissioned by Innovate needs to be clarified. The process illustrated in Figure 8-1 should be followed. This should be supplemented, at the very least, with a simple 'case' document that justifies the course of action. The case should cover what alternatives to KTN have been considered, and where a single tender to KTN is the preferred option justification of why this represents best value. Innovate UK's Heads of Finance and the Connect Portfolio ought to have final say on approvals for single tenders. Any requirements for purchase orders for new contracted services and grants where there may be scope for other providers offering best value ought to be subject to competitive procurement.
- **Recommendation 10:** Innovate UK and KTN should consider establishing a formal evaluation framework for KTN, to inform an impact and economic evaluation of KTN to cover any future Grant Funding Agreement (or similar) periods. Reflecting the

complicated and complex nature of KTN – with very varied treatments, many actors, and emergent outcomes – this evaluation framework is likely to require a mixed methods approach. However, as part of this, it may be appropriate to consider establishing a ‘panel’ of businesses with whom KTN engages that can be tracked over time to understand in more detail how KTN activities are leading to outcomes and benefits in ‘real time’. The evaluation framework should also consider the viability of establishing a formal ‘control group’ of businesses. Ensuring that comprehensive contact data, and information on the nature and scale of activity in a consistent manner will also be important to inform this programme of evaluation research.

- **Recommendation 11:** It is important to maximise and demonstrate the strategic contributions of KTN, particularly at an organisational level. In this regard, Innovate and KTN should provide further clarity on the strategic purpose of KTN (at an organisational level), and develop a set of strategic objectives which are operational. This should provide greater focus and transparency to achieving strategic outcomes. KTN may wish to consider three proposals as part of a wider strategic strategy: segment stakeholders depending on their nature and function; use a framework/typology for capturing different types of strategic outcomes; and use ‘systems’ thinking and approaches for strategy development. The design and implementation of these would require further consideration by Innovate UK and KTN, if adopted.

37. Finally, the evidence from the review suggest that all elements of the core ‘Connect and Engage’ activity delivered by KTN lead to positive benefits, including information raising activity, event management, application mentoring, and direct engagement on innovation activity including SIGs, and one-to-one support. This evidence does not support a recommendation that any of this core activity should be stopped; rather existing KTN activity should continue. However, in this context, one final recommendation is made:

- **Recommendation 12:** KTN should consider putting in place a more targeted and segmented approach to client acquisition and support, regarding the one-to-one engagement element of its work. The review indicates that there is a ‘long tail’ of businesses engaged with KTN where the engagement is limited, and the outcomes are modest; a more targeted approach may help to drive-up additionality and generate greater impact.

1. Introduction and context

The Knowledge Transfer Network

- 1.1 Knowledge Transfer Network (KTN) brings together businesses, entrepreneurs, academics and funders, to help them develop new products, processes and services. With an active network of over 85,000 contacts across all UK business sectors and technologies, **KTN aims to support innovation through collaborations**. Innovate UK is responsible for overseeing the work of KTN through a Grant Funding Agreement. As set out in this Agreement, KTN Ltd is a not-for-profit company limited by guarantee, which manages and operates the KTN programme. This is set-up as a separate entity to Innovate UK to ensure some flexibility and freedom to its operations.
- 1.2 KTN has undergone a series of reforms since it was initially launched as a number of separate entities. Formerly known as the Faraday Partnerships, they were established to bring academics and research facilities together with industry. In 2004, Knowledge Transfer Networks were introduced, merging some Faraday Partnerships and introducing new network activity. Following further amalgamation, a single KTN was introduced in April 2014, to encourage more cross-cutting activity, enable consistent high performance, harmonise costs and operating models, improve efficiency, and target resources more efficiently.
- 1.3 With around 125 staff based across the UK, KTN delivers a very wide range of activity which involves, broadly put, 'engaging and connecting' individuals and organisations involved in innovation activity across the UK. This engaging and connecting activity is delivered via seven 'Activity Strands': Competition Support across priority sectors, 10 Sector Teams¹, Special Interest Groups (SIGs), European Programmes, Access to Funding and Finance, Design and Innovation Effectiveness, Manufacturing, and Knowledge Transfer Partnerships (KTPs). As the UK's innovation network, KTN also has a wider role in supporting the development of the UK's innovation landscape. through strategic engagement and influencing activity, and some direct project delivery, where this contributes to KTN's overall purpose and strategy.

Purpose of the review

- 1.4 In July 2017, SQW was commissioned by Innovate UK to undertake a review of KTN since it became a single organisation in 2014. The focus is on reviewing both the 'function and form' of KTN – covering its remit, activities, impacts, and governance structures for the period April 2014 to March 2017. The review is expected to identify key strengths and capabilities of KTN, any areas for improvement, and the degree to which there has been progress towards the delivery of KTN's objectives. In doing so, the review aims to identify the "value proposition" of KTN, and *how* this occurs.
- 1.5 The **review was also tasked with providing recommendations**, setting out (where relevant), what KTN should stop doing, what it should continue to do, and what it should start doing, alongside any wider recommendations with relation to governance.

¹ Agri-food; Chemistry and Industrial Biotech; Complex systems; Creative Industries & Digital; Emerging Technologies & Industries; Enabling Technologies; Health; Infrastructure; Materials; and Transport.

- 1.6 Underpinning the overall objectives of the review are a series of specific research questions for each of the four strands, namely: remit, activities, impacts and governance. These are drawn from the study research questions identified in the Specification and from the scoping phase of the review, as set out in the Inception Report to Innovate UK².

Study coverage

- 1.7 Within this context, three points are made regarding the scope of the review;
- First, it was agreed with Innovate UK that the focus of the 'impacts' elements of the review will be on capturing evidence on the direct and indirect *intermediate* outcomes of KTN (e.g. new connections, collaborations, investment in R&D/innovation) as experienced by beneficiaries, partners and stakeholders of KTN. Business performance metrics – employment, turnover, productivity – were not the focus, although they should be reported on where identified. This reflects the challenges associated with attributing changes in business performance to KTN owing to long time-paths and complex routes to impacts, and the nature of its activities focused on support innovation through facilitating collaboration not direct support for specific R&D and innovation project activity that leads to new products/services.
 - Second, the **review will cover the full range of KTN's activity, *not just the activity funded by the core Innovate UK Grant***. KTN's business model and agreement with Innovate UK includes a degree of flexibility with (in broad terms) 80% of activity expected to deliver directly against Innovate UK's strategic objectives, and 20% of activity to contribute more broadly to developing the UK's innovation ecosystem, and meet its core role to 'make connections'³. The review includes research questions to test explicitly the balance between a 'responsive' and 'pro-active' approach, and the strategic influence of KTN, to reflect this business model.
 - Third, **the Knowledge Transfer Partnership (KTP) activity of KTN is not a core element of the review**. KTN's delivery of KTPs via a network of Knowledge Transfer Advisers commenced in April 2017, and falls outside of the review's time-period. This said, evidence of signposting to KTPs in the review period by KTN is covered.

Structure of this report

- 1.8 The remainder of this report is structured as follows: Section 2 summarises the review method; Section 3 presents an overall logic model for KTN; Sections 3-8 provide findings on the remit, activities, impacts (related to businesses and strategic in turn) and governance, and Section 9 sets out the value proposition of KTN and recommendations. Alongside this main report, a separate document contains: details of the consultees engaged in the work and the research methods; the logic models for the seven Activity Strands; the full results from a business survey and online survey of KTN staff, and econometric analysis; full business and thematic case studies; and the key research questions for the review against the specific research methods from which the evidence was drawn.

² SQW (2017) Review of Innovate UK's Connect KTN activities, Inception Report for Innovate UK.

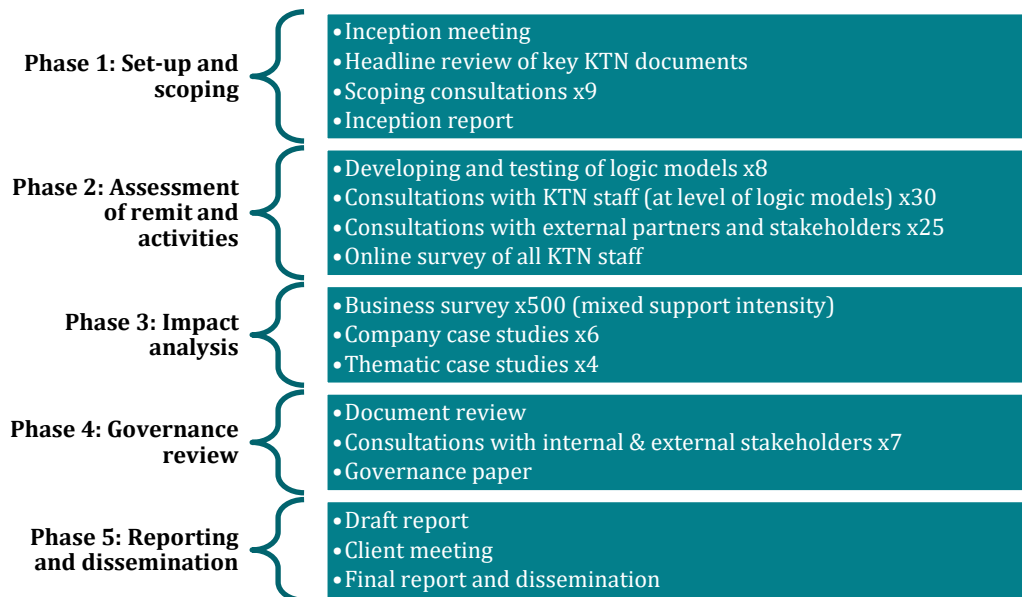
³ For example, KTN has been asked to mobilise and convene activities relating to the recently announced Industrial Strategy Challenge Fund (ISCF).

2. Research methods and approach

Summary of approach

- 2.1 Figure 2-1 provides an overview of the review methodology. This comprised of five phases structured around the main re-enforcing workstreams covering the remit and activities, impact, and governance of KTN.

Figure 2-1: Overview of methodology



Source: SQW

- 2.2 The business survey⁴ achieved 500 responses and captured data on: business characteristics; innovation behaviours; benefits of engagement with KTN; additionality and contribution associated with KTN; other factors that may have led to the observed outcomes; satisfaction with KTN provided by KTN, and overall perspectives on the value of KTN to the business. The respondents to the business survey had been engaged to different levels of intensity with KTN: this enabled us to test how different levels and types of engagement led to different outcomes, and whether more intense engagement is associated with greater benefits.

Synthesis and analysis

- 2.3 The findings from the elements of the research have been brought together to inform an integrated analysis of the remit, activities, impacts and governance of KTN.
- 2.4 For the business survey responses, the quantitative analysis employed a combination of descriptive statistics – including reporting on the different levels of effects reported by businesses that had engaged with KTN to different levels of intensity – and econometric analysis that applied regression analysis focussed on: first, the intensity with which a company had engaged with KTN; and second, KTN activities most associated with outcomes.

⁴ To ensure the survey was fit-for-purpose, it was piloted prior to the full roll-out, with some modifications made.

- 2.5 This quantitative survey evidence was considered alongside qualitative data gathered in the business survey. We adopted a structured approach to the qualitative data analysis for the business survey responses, using specialist software (MaxQDA)⁵ which allowed text to be coded to identify common themes and tag responses by level of engagement with KTN. Both quantitative and qualitative perspectives were used to assess the benefits, additionality and relative influence of KTN on outcomes identified by businesses relative to other factors.
- 2.6 In addition, the review used other sources of evidence, including: primary research with KTN staff, including bilateral consultations to develop logic models, activity-based focus-groups, and an online survey; consultations with external stakeholders (public sector and industry) to gather perspectives on KTN's remit, activities, and impacts including its role in the innovation landscape; business case studies to test and probe additionality of KTN in more detail; thematic case studies to explore and assess the strategic contributions of KTN; and consultations with KTN Board members and senior Innovate UK representatives as part of the governance review.

Caveats and limitations

- 2.7 Three points are noted that should be taken into account in considering the findings from the review:
- First, as may be expected the range of research elements and different levels of engagement with KTN means that there is no 'one view' of KTN across the review elements; we have sought to synthesis this wide range of evidence, but in doing so this means that not every perspective can be set out in detail (see research annexes for details). We have also tried to balance the findings/analysis based on the level of insight of KTN, whilst ensuring the review remains independent and not solely based on views from KTN itself.
 - Second, there was no external comparison group that would have represented a suitable 'counterfactual scenario' for business survey respondents (i.e. how businesses would have performed in the absence of KTN). It was not possible within the time and resource available for the review, to gather a suitable dataset data to construct a valid 'comparison group'. The approach taken, therefore, was an exploratory regression analysis that focussed on the key factors that were associated with a range of outcomes, in terms of intensity and activity-type. The intensity analysis used companies that had "low" engagement with KTN as a 'quasi-comparison group', with their experience compared with those that received "medium" or "high" intensity levels of engagement as 'treatment' groups. This analysis (a type of "dose-response design") was used to test whether more intense engagement was associated with the achievement of business outcomes.
 - Third, given that KTN was not 'new' in 2014 at the start of the review period (with the single KTN combining the activity delivered by the earlier individual sector-focused KTNs), there is a risk that previous activity/experiences from prior to the review period may influence perspectives on KTN over 2014-17. For example, approaching a fifth (17%) of the respondents to the business survey reported that they first engaged

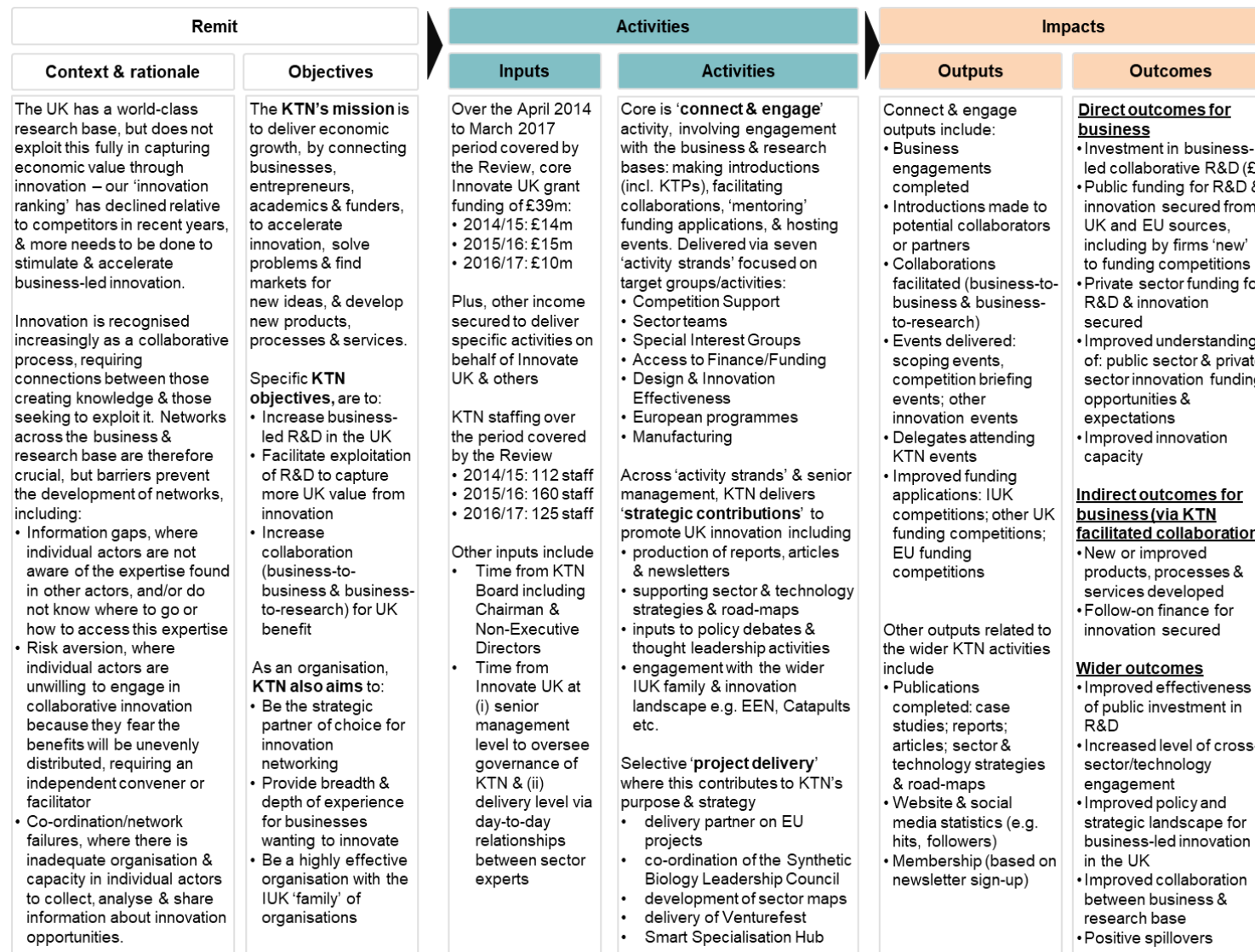
⁵ <https://www.maxqda.com/>

with KTN before 2014, and their experience may reflect, in part, support prior to the review period. Further, in a number of the case studies, activity delivered prior to 2014 was an important part of the overall 'story' of KTN engagement and influence. In all cases, the businesses or stakeholders involved have remained engaged with KTN in the review period, and their evidence has therefore been included in the analysis.

3. Developing logic models

- 3.1 An important element of the review involved developing and testing a set of 'logic models' to provide a framework for the assessment of KTN's remit, activities, and impacts. Logic models articulate explicitly the context and rationale for an initiative, and describe the relationship between the inputs, activities, outputs, outcomes and impacts. The review has sought to collect evidence that validate (or otherwise) the content of the logic models, and the pathways to impact for KTN.
- 3.2 Eight logic models were developed: an overall KTN logic model, and seven 'Activity Strand' logic models covering: Competition support (which included the work on the ISCF); Special Interest Groups; Sector Teams; Access to Funding and Finance; European programmes; Manufacturing; and Design and Innovation Effectiveness. The logic models are wide ranging and reflect complex interventions, with several routes to impacts.
- 3.3 The logic models demonstrate the wide range of activity delivered by KTN and the varied ways in which it is seeking to bring about outcomes and impacts. However, the underpinning rationale and wider issues KTN was seeking to address were broadly consistent, reflecting the key failures outlined in the overall logic model (we return to this in Section 4).
- 3.4 Three points are highlighted on the Activity Strand logic models. First, there were generally no existing and explicit objectives at the level of the Activity Strands, and no evidence that the discipline of developing 'logic models' was in place in KTN prior to the review. The process has suggested that developing the logic models has been of some value in articulating the 'why and what' of KTN. Both KTN and Innovate UK may find it useful to use the logic models content and process going forward to identify what in terms of activities they are doing, and to communicate this internally and potentially externally. Crucially, thinking around rationales (why are we doing this?), and objectives (what do we want to achieve?) should be integrated fully into KTN thinking and activity planning (we return to this in Section 5).
- 3.5 Second, the Activity Strand logic models highlighted the 'cross cutting' nature of the Connect and Engage activities and the importance of overlaps between logic models, with staff from KTN regularly working across the Activity Strands, including the provision of 'specialist' advice (e.g. on finance, or sector insights). There were also particularly important linkages in terms of external activities, for example between SIGs and Sector Teams where events and conferences have been hosted to support both objectives.
- 3.6 Third, and in this context, it is worth noting that the logic models are 'mission based' not 'management based' with in most cases no direct alignment between activities and the organisational structure (i.e. the four Directorates of KTN). This does reflect the complexity of KTN and the importance of overlaps in practical delivery across Directorates, and the need to ensure that the purpose and benefits of this activity are well defined, to provide clarity.
- 3.7 The 'overall KTN' logic model is set out in Figure 3-1. This includes 'strategic activity' that is not contained within the individual Activity Strands. The subsequent sections test whether the overall logic model has been realised in practice. In doing so, it is important to note that the logic model was developed to inform the review: it does not set out what KTN 'should have done' (or 'should do' in the future).

Figure 3-1: Overall summary logic model for KTN



Source: SQW

4. Review of remit

Section purpose

This section reviews KTN's remit, including its rationale and objectives, and examines whether KTN is a 'responsive' or 'pro-active' organisation in the innovation landscape. The evidence is drawn primarily from consultations with internal KTN staff and external stakeholders, as well responses from the online KTN staff survey.

Summary of key findings

There appears to be broad agreement on the rationale for KTN, based on the imperative for good innovation to be 'collaborative', with connections and networking within and across sectors and technologies important to meet this intent. Barriers which limit this and need to be mitigated relate to: information gaps; risk aversion; and co-ordination/network failures. The 'strategic case' to accelerate business-led innovation (and commercialisation) to improve UK's international competitiveness was also recognised consistently as providing the underpinning case for KTN. More widely, the review identified the need for a less fragmented innovation ecosystem.

This rationale for KTN – failure based and strategic – has remained relatively constant over the review period. KTN's rationale was reasonably well understood by both internal KTN staff, and external stakeholders. The rationale for KTN was strongest in its 'core' Connect and Engage activity, but less clear in terms of its intensive support to individual firms. On the latter, the review proposes a refreshed assessment of the rationale for KTN, to identify more explicitly the justification for the network to engage in activity in this space.

KTN's three headline objectives over the review period were to: increase business-led R&D in the UK; facilitate exploitation of R&D to capture more UK value from innovation; and increase collaboration (B2B and B2R). The strategic aims of KTN were to: be the strategic partner of choice for innovation networking; provide "breadth and depth" of experience for businesses; and be a highly effective organisation with the Innovate UK 'family' of organisations. The objectives were developed over time with associated KPIs, although the KPIs could have been more clearly defined, including the extent to which they were directly attributable and logical in relation to the objectives. The review found the headline objectives were well articulated in what KTN was seeking to achieve. However, the objectives at the KTN Activity Strand level were inconsistent and not comprehensive.

There has been 'sufficient' complementarity in KTN's remit with that of Innovate UK. However, there was mixed evidence on the 'fit' of KTN's rationale and objectives with other organisations in the innovation landscape. Most external stakeholders consulted were clear on the rationale for KTN, however a minority (mainly industry) were somewhat uncertain. For this group, the remit of KTN was regarded as too broad, reducing its clarity and focus. The review also indicates that there is scope for greater awareness and external communication to ensure stakeholders understand the remit of KTN.

Part of KTN is pro-active in "existing and emerging industries" (notably through SIGs). However, the broader role in terms of engaging with businesses appears generally responsive in nature.

The review validated the remit articulated in the logic model for the overall KTN: this enables KTN to add value as a free, neutral, and importantly trusted organisation.

Rationale

- 4.1 Overall, across the wide and varied individuals consulted for the review, there was broad agreement on the rationale or need for KTN based on the premise that innovation is increasingly a collaborative process which requires connections and networking across (not just within) sectors and technology areas. These connections and networks are required between business (B2B), and between business and the research base (B2R) to ensure R&D and innovation activities occur effectively. A range of barriers were identified which limit the development of networks and innovation, and which KTN is thought to be addressing, albeit to varying degrees. These include:
- *information gaps* – a lack of knowledge and awareness of organisations, expertise and innovations existing within and across disciplines. Related to this is insufficient transfer of knowledge from industry to the research base (and vice-versa)
 - *risk aversion* – businesses are held back by the level of risk and uncertainty involved in forming consortia especially in cross-industry working (even where there is sufficient knowledge and resource amongst businesses). A neutral “facilitator” is required to de-risk the collaboration and commercialisation process
 - *co-ordination or network failures* – there is a lack of organisation and capacity amongst businesses and the research base to collect, analyse and share information about innovation opportunities. This is underpinned by a perception that there is a “fragmented” innovation (and business support) landscape which requires navigation (e.g. through “connecting” and “signposting”).
- 4.2 Consultations with strategic stakeholders and KTN staff also highlighted a rationale for KTN related to information gaps on the availability of funding opportunities for innovation, with a need for an organisation to provide information and raise awareness of funding opportunities to businesses (e.g. through events and subsequent one-to-one support). Given the range of potential opportunities, individual businesses were seen to lack awareness of where to go for this information, or how to access these opportunities. A single high-profile organisation, with both a pan-UK and pan-sector remit to address these information gaps in businesses (notably small and early-stage businesses) was seen as important. This consultation evidence is corroborated with the results from the business survey (see Section 6) which found that seeking information or support on funding opportunities was the most common reason cited by businesses for why they approached KTN, identified by over three-quarters of the survey sample.
- 4.3 The justification for KTN was also expressed by consultees in terms of the need to stimulate and accelerate business-led innovation, as the UK is not considered to be as strong relative to international competitors, especially in recent years. As one external stakeholder put it: support is needed from KTN to progress through Technology Readiness Levels (TRLs), and to bridge the “Valley of Death”⁶. More widely, the consultations identified the need to “join-up”

⁶ According to the House of Commons Science and Technology Committee Report (2013) ‘Bridging the valley of death: improving the commercialisation of research’: “The valley of death describes the point where a business, often a technology based business, has a working prototype for a product or service that has not yet been developed enough to earn money through commercial sales. The company needs to find sufficient money to develop the prototype until it can generate sufficient cash, through sales to customers, that would allow it to be self sufficient and grow”.

the innovation ecosystem using the “breadth and depth” of KTN. In the view of one external stakeholder:

“The KTN exists to join-up players within the innovation system. It is very easy for organisations to work independently and lose sight of what other entities in the innovation ecosystem are doing. The KTN is there to help minimise this and link-up activity as far as possible.”

- 4.4 The consultations with internal KTN staff indicate that KTN’s rationale is relatively clear and well understood. This is reinforced by the results of the online survey of KTN staff which found that three-quarters of respondents considered the description outlined in the overall KTN logic model (Figure 3-1) captured fully the rationale for KTN over the review period. Two further points are highlighted.
- 4.5 First, all internal KTN staff consultees considered the remits (in terms of rationale) as set out in each of the individual Activity Strands logic models (see Annex C) to be appropriate and fit well with the overall KTN rationale. Second, although most external stakeholders were relatively clear on the rationale for KTN, a minority (mainly industry representatives) were somewhat unaware, uncertain, or found this hard to describe, and would welcome further clarity. This may simply reflect the wide range of stakeholders KTN engages with, as some are more in the ‘sphere’ of KTN than others.
- 4.6 More fundamentally, a minority of external consultees point out the KTN’s remit as possibly too broad. This perhaps limits its clarity, focus and understanding amongst a minority of external stakeholders. In the view of one external consultee: “the mission of KTN is too broad - it is not clear what KTN is good at – trying to be all things to all people”. It was pointed out that KTN cannot and should not “try to please everyone”. There is also perhaps an external communication issue for KTN to address – to ensure stakeholders understand fully not just *what* KTN does, but *why* it does it. For example, one external stakeholder identified the need for “having a clear vision for KTN’s role and communicating this clearly to others”.
- 4.7 The review found that the rationale has remained relatively constant over the review period. However, as a result of a reduction in KTN’s grant funding in 2015/16 (and other external factors e.g. Brexit) some prioritisation or emphasis took place in relation to certain objectives and the work undertaken by individual Activity Strands activities (see below and Section 5).

Reflections on the rationale

- 4.8 Addressing the market failures described above (i.e. information gaps, risk aversion and co-ordination/networking failures), as well as the perceived fragmentation and complexity in the innovation landscape comprising of a wide range of actors, is necessary but not sufficient for intervention in the form of KTN specifically. The key question is why KTN, as opposed to another similar intervention, or a more locally and/or sector-based approach? Two points are noted.
- 4.9 First, our view based on the evidence from across the review is that the rationale for KTN was strongest and is most clearly recognised, in its ‘core’ Connect and Engage activity - providing information, making connections and facilitating innovation activity. However, there was less clarity on why KTN was needed (or best placed) in relation to its more intensive delivery/support activities with individual businesses, and what exactly KTN was seeking to

achieve here (e.g. in access to finance support, and some sector based activity where there were clear overlaps to other parts of the innovation landscape). Whilst KTN's primary role to engage, introduce and collaborate are reasonably well grounded in the rationale, a refreshed assessment of the rationale for KTN in relation to its more intensive support activities would identify more explicitly the justification for publicly funded intervention.

- 4.10 Second, a consistent theme in the feedback from external and internal stakeholders, and to some extent the business survey (albeit the focus here was less strategic), was that a national and integrated network is required in order to address the fragmentation of information and relationships that are present in the innovation landscape. Whilst KTN cannot address all of these issues, the presence of a national innovation network – that is seen to be both independent and wide-ranging (rather than tightly sectorally drawn) is regarded as valid.

Objectives

- 4.11 KTN had three specific objectives over the review period, to: increase business-led R&D in the UK; facilitate exploitation of R&D to capture more UK value from innovation; and increase collaboration (B2B and B2R) for UK benefit. Each of these objectives were identified in the review consultations, albeit articulated in different ways. In most cases, the objectives were reasonably clear to internal KTN and external consultees, and fit with those of Innovate UK over the review period. However, there were mixed views on the degree to which KTN's objectives (and rationale) fit with those of other organisations (see below). Although secondary to the principal objectives above, the review consultations also identified the strategic aims of KTN to: be the strategic partner of choice for innovation networking; provide "breadth and depth" of experience for businesses; and be a highly effective organisation with the Innovate UK 'family' of organisations.
- 4.12 KTN board papers reviewed indicate a commitment within KTN to develop clear tangible objectives and KPIs that could measure progress towards its mission. In a series of workshops, key KTN objectives were devised which were intended to be both supportive of government innovation policy, and which were distinctive and complementary to other forms of business support from Innovate UK and other organisations. Table 4-1 identifies the metrics used to measure each of the objectives; the Table also includes a commentary on the appropriateness of the identified metrics.

Table 4-1: KTN objectives and metrics

| Objectives | Metrics | How achieved? | Commentary on metric |
|---------------------------|--|---|--|
| Increase business-led R&D | How much (£) new private R&D investment is made in businesses via engagement with KTN? | Sign-posting investment to companies or helping investors to develop new investment funds | The link between the metric and how it is achieved is not clear/direct i.e. sign-posting itself will not necessarily lead to new private R&D investment, and investment funds many not involve R&D investment. |
| Increase business-led R&D | How much (£) public R&D money has gone to "new" | Supporting Innovate UK, EC and other funders' | Not clear what "new" means, and we |

| Objectives | Metrics | How achieved? | Commentary on metric |
|---|--|---|--|
| | businesses helped by KTN? | competitions. Engagement with target businesses. | understand this has not been collected formally/consistently by KTN to date |
| Increase collaboration (B2B and B2R) for UK benefit | What is the value (£) of new collaborations between B2B and B2R developed via KTN? | Network support, events & introductions, 1-2-1 engagement | Not clear what "value" means, and how this is to be captured from nature of activity which is focused on making connections, where there are long time-paths and routes to impact involving other activity necessary to generate value |
| Facilitate exploitation of R&D to capture more UK value from innovation | What is the value (£) generated in new markets by businesses supported by KTN? | Promotion of "new" markets to target businesses and research base | As above. |

Source: KTN Objectives and KPIs document (Confidential)

- 4.13 Overall, the review found the headline objectives articulate well what KTN was seeking to achieve over the review period. This is reflected in the review consultations and the responses to the online survey of KTN staff. The latter found that 70% of respondents gave a measure of between "1" and "3" of how 'fit for purpose' they are (where 1 is completely fit for purpose, and 5 is not at all fit for purpose).
- 4.14 However, in developing the logic models for the individual Activity Strands, we found the objectives at this level to be inconsistent and not comprehensive; in most cases, no formal objectives were in place prior to the development of the logic model. Whilst the review did not find any evidence of clear misalignment between Activity Strand level objectives and activities to the overall KTN objectives, this was largely owing to the broad nature of these overall objectives (e.g. to increase business-led R&D in the UK), against which Activity Strand objectives can be seen to deliver against in some way. A more 'managed' process here may be helpful, to ensure that objectives at the Activity Strand level feed in logically to, and will inform activity to deliver against, the headline KTN objectives.
- 4.15 With regards to KPIs, we consider there to be some definitional issues including the extent to which they were directly attributable and logical in relation to the objectives (as set out in Table 4-1). Whilst the 'intent' of the KPIs is appropriate, there is a case to better articulate what KTN will directly deliver, and include this more clearly in the stated KPIs for the network, with measurable, tangible and clearly defined metrics that focus on the outcomes from KTN activity.

Fit of KTN's remit with organisations in the innovation landscape

- 4.16 The review found that KTN's remit fits reasonably well with that of Innovate UK, and there has been 'sufficient' complementarity between KTN's remit and the aims and objectives of Innovate UK over the review period. Perhaps, inevitably, there has been some duplication

with Innovate UK's 'family' of interventions that are also seeking to promote business-led innovation, but, where possible, action was taken to minimise this (e.g. running joint events with the Catapult Network).

- 4.17 In addition, there are other organisations in the innovation ecosystem which have been identified through the review consultations as being important to the work of KTN. The types of organisations are presented in Table 4-2, alongside the observed 'fit' of KTN's remit with these organisations. It is not within the scope of this review to establish how KTN's remit relates to the other specific organisations taking account issues of complementarity, duplication and alignment. However, it was also noted that the main area of duplication with other organisations (trade associations, sector bodies, industry leadership councils, and other networks) was a focus on raising the profile of innovation opportunities, and addressing information gaps amongst the business base. The review also found the need for further "visibility" of KTN in the innovation landscape and further exploration of how KTN could have worked with other organisations. Although there was general awareness (and understanding) of KTN and its remit amongst external stakeholders, there was some variation on what the remit actually entails in practice. In this context, there was a desire for further visibility of KTN and a more detailed depiction and communication from KTN on their role relative to other organisations and initiatives; this is consistent with the feedback on the communication of the rationale for KTN discussed above.

Table 4-2: Fit of KTN's remit with other organisations it works with

| Organisation | Comment |
|---|---|
| Innovate UK | <ul style="list-style-type: none"> Innovate UK is a funder, works at a more strategic level, more aligned with government KTN is a promoter/networker with more operational/hands-on delivery remit with direct links to industry KTN supports the remit of Innovate UK |
| Central government departments | <ul style="list-style-type: none"> Government departments (e.g. BEIS, DCMS, Defra Office for Life Sciences, Department for Health) define the policy but cannot reach small businesses in the direct way that KTN can Government departments tend to work with trade associations who in turn have large companies as members (these companies pay more for membership) KTN has national presence which reflects its "breadth and depth" offer |
| Local government, devolved administrations, regional bodies | <ul style="list-style-type: none"> Local government, devolved administrations etc. set the local policy (and implement national policy) but cannot reach small businesses like KTN can KTN's local presence is varied – there is mixed evidence on the strength of KTN's local presence |
| Research Councils | <ul style="list-style-type: none"> Research Councils have specific remits to undertake research and attract funding in their area – they also do cross-sectoral work Varying degrees of fit with Research Councils - further work required to align with BBSRC |
| Trade associations, sector bodies, industry leadership councils, networks | <ul style="list-style-type: none"> These organisations have more specific remits to grow particular sectors/technologies, whilst KTN's remit is |

broader and cross-sectoral (and may focus more on innovation than a particular sector body)

- KTN adds value because it is free and “neutral”, whereas many trade associations and sector bodies require a membership fee which deters SMEs (and tend to reflect the interests of large corporates)
- KTN can thus bring SME concerns to the attention of the leadership councils (which tend to be represented by large firms who may not necessarily know the issues facing SMEs).

Source: SQW review consultations and desk research

Is KTN regarded as a ‘responsive’ or ‘pro-active’ organisation?

- 4.18 The evidence from the review found that, on balance, KTN was regarded across the innovation landscape as generally more ‘responsive’⁷ than ‘pro-active’⁸ in its remit, particularly in relation to Innovate UK. However, it is important to qualify this finding, and the balance between a responsive and pro-active role for KTN is complex.
- 4.19 First, KTN is “tasked” explicitly to be responsive to Innovate UK’s strategic objectives and priorities. Although not included as a formal element of the grant agreement (given challenges in specifying specific metrics to monitoring), Innovate UK do expect that around 80% of KTN activity will deliver directly against Innovate UK’s priorities. The remaining activity (broadly speaking, around 20%) is left open to enable KTN to respond flexibly to opportunities that arise that will contribute to developing the UK’s innovation ecosystem, and meet its core role to facilitate collaboration in innovation. With most of KTN activity expected to be delivering against Innovate UK’s remit, it is perhaps not unexpected that KTN is generally regarded as having a responsive role in the innovation landscape, and linked closely in the eyes of stakeholders to Innovate UK, rather than as a pro-active separate organisation. This emphasis was set out in the plan developed for KTN to guide activity over the 2014-2017 period⁹, with strategic alignment identified as core focus, alongside a more modest (but important) focus on ‘member driven’ activity.
- 4.20 Second, both external stakeholders and internal KTN staff viewed KTN playing both responsive and pro-active roles at different times, and in relation to different groups. From an external perspective, KTN was thought to reflect both roles at some points, with several consultees expressing the ‘wish’ that KTN could and should to do more pro-actively, whilst appreciating there were resource (and remit) constraints over the review period. A few examples from external stakeholders capturing the mixed role of KTN and where it could do more are set out below.

⁷ ‘Responsive’ means KTN’s role is mainly to react to the strategic priorities of other organisations in the innovation landscape, and to respond to needs identified by the business base.

⁸ ‘Pro-active’ means that KTN’s role is mainly to identify and lead on developing strategic priorities, and leading businesses towards new innovation opportunities.

⁹ KTN Project Plan for October 2014 to March 2017

External stakeholder views on KTN's mixed role, and where it could be more pro-active

KTN is "both responsive and pro-active. KTN has been very supportive in bringing the Industrial Strategy Challenge Fund to life and has been agile in terms of being able to move quickly. In this instance, it is fair to say the KTN has been particularly responsive to the wider innovation landscape..."

...on the other hand, there are occasions where the KTN has been more pro-active in their work. The people I have worked with over the last few years certainly have their finger on the pulse and this helps them identify new opportunities for innovative businesses and take the necessary steps to help them exploit this."

"KTN has been a fairly responsive organisation...there is definitely scope for KTN to interface more with the research councils and adopt a much more pro-active approach."

"KTN has been helpful and responsive to the needs of organisations...KTN can be pro-active in representing business needs to Innovate UK/Government and seeking to influence policy. KTN should continue to be pro-active, and become more so, to deliver the Industrial Strategy objectives and help channel funding to its most impactful uses. This would depend on the KTN being better resourced."

- 4.21 Internally, it is notable that over three-quarters of respondents to the KTN staff survey staff considered the role of KTN in the innovation landscape in working with external partners to be *equally* responsive and pro-active, with the approach dependent on the activity. Some examples of the feedback from the staff survey reflecting this position are set out below.

KTN staff views on KTN's role as a responsive or pro-active organisation

"We are tasked to be responsive to the needs and wants of Innovate UK, connecting people and disseminating funding calls, but there is an equally important role of understanding the important issues of an industry and by proactively following these trends we can inform Innovate UK and facilitate industry collaboration."

"I think I spend equal amounts of time reacting to what Innovate UK needs in terms of support, and pro-actively trying to stay ahead of the curve and convene activity in new and upcoming business areas."

"When working with individual companies we are more likely to be reactive, though the value and credibility of our contribution comes from being aware of latest thinking, lead actors etc, as well as historic developments. To achieve this, we pro-actively provide opportunities for internal and external thought-leaders to co-create and share knowledge, whether through SIGs, workshops or showcases."

- 4.22 With over three-quarters of KTN staff surveyed indicating that the role was a balance, this could suggest that staff are not fully sighted on the 'expected' role of KTN, however, the feedback from staff and the wider evidence from the consultation indicates this is principally owing to the varied roles that KTN plays with different groups e.g. businesses, public sector

stakeholders, industry representatives. Indeed, a consistent theme from the detailed feedback on the role in terms of the balance between responsive and pro-active was that in working with businesses KTN was able to offer insight and support to businesses as a result of their alignment with Innovate UK and wider government policy thinking (as a result of a responsive approach), whilst also offering advice and support to enable firms to maximise the potential from new opportunities (offering a more pro-active inputs).

- 4.23 Third, a useful approach to assess KTN's balance as an organisation between a responsive or pro-active role in the innovation landscape is to reflect on how KTN's Knowledge Transfer Managers (KTMs) were expected to "prioritise their time" over the review period. Specifically, KTN indicated that KTMs were expected to focus more on 'targeting innovative businesses', than being 'responsive to business requests'¹⁰. However, it is notable that from our survey of 500 businesses that have been engaged with KTN over the review period, only 6% indicated that they were directly approached by KTN (see Section 6). Our survey sample may not be fully representative of all business engagement, but this does suggest that KTN has generally responded to requests for support from business over the review period, with modest evidence of actively seeking out new opportunities to work with the business base.
- 4.24 Fourth, where KTN was more consistently regarded as playing a more pro-active role (both internally and externally) was around the broader strategic and technology/market development area of its role, rather than related to direct business engagement. The role of KTN to design and deliver SIGs to drive and shape technologies and trends over time, its role in developing technology roadmaps for specific technology areas, and seeking to influence Innovate UK in the development and design of new funding competitions, were recognised as examples of where KTN has adopted a more pro-active role. This said, as noted above, the overall relationship with Innovate UK is regarded as one where the overall approach is to ensure alignment with Innovate UK priorities; as such this pro-active role is one focused on seeking to add-value and insight to Innovate UK's existing priorities.
- 4.25 Taken together, the review suggests that KTN is regarded as, and has operated as, on balance a more responsive than pro-active organisation in terms of engagement with the business base. However, the approach has been more balanced in terms of supporting broader industry and technology development and in making strategic contributions, where there is clear evidence of a pro-active role in some cases.
- 4.26 However, consistent with this, the review also highlights the variation in the role of KTN; a binary assessment of KTN as either a responsive or pro-active organisation is not appropriate, with individual staff and the organisation as a whole playing both roles in different contexts. Whilst there does appear to be scope for a more pro-active role in terms of client acquisition with business, and as discussed in Section 8 greater clarity may be needed in terms of the role of KTN in providing responses to government reviews/consultations, this generally balanced approach appears to be broadly appropriate. A more prescribed role – either responsive or pro-active - is not likely to be appropriate.

¹⁰ KTN (2017), An Introduction to KTN. PPT.

5. Review of activities

Section purpose

This section reviews the activities of KTN. It draws on evidence from desk research, consultations with KTN staff and external stakeholders.

Summary of key findings

KTN delivers an extensive range of activities across different sectors and technology areas, including: 'Connect and Engage' activities, involving engagement with the business and research bases; strategic contributions to promote UK innovation; and selective 'project' delivery where this contributes to KTN's purpose and strategy.

Priorities for activity planning were decided in different ways within KTN, principally: influenced by Innovate UK's agenda, KTN's own 'thinking' of innovation challenges, and the potential demand from the business base for activities. The priorities reflected the nature of the seven Activity Strands. The prioritisation of activities based on demand was a common theme across most Activity Strands.

The review found no clear and consistent mechanism to monitor and review activities. The monitoring practices varied across the Activity Strands over the review period. Overall, the review consultations indicate that where formal reporting systems were in place, there was variation in how they were used and the value of the information they were capturing. The monitoring and reporting within KTN could have been further strengthened to ensure consistency and to inform delivery of activities.

KTN plays an important role in signposting and advice activities (including facilitating introductions and collaborations). The review found a perception that KTN's activities had contributed to simplifying the innovation landscape. Overall, the review found complementarities between the activities undertaken by KTN, Innovate UK and other organisations involved in knowledge transfer and networking activities. Some duplication or overlap in the activities undertaken with organisations was identified; this mainly related to events, workshops, and networking.

However, further work could have been done to develop practical linkages with external organisations to maximise innovation opportunities and ensure further alignment. Most organisations that identified a link with KTN stated that there were no formal structures or systems in place to take advantage of the links. The review also suggests that many of the links to other organisations are based on individual staff rather than corporate relationships; this is potentially a risk that should be addressed through a more formalised approach to partnership working.

The activities delivered by KTN over the review period appear to be broadly the "right ones", taking account of the underpinning rationale and objectives of KTN. However, the review found KTN's activities to businesses outside of its Connect and Engage function were varied and unclear. It is proposed that a more clearly defined offer of activities to businesses (over and above Connect and Engage support) would be beneficial, whilst retaining a degree of flexibility in KTN's offer to businesses. One of the strengths of KTN is the cross-disciplinary nature of its activities.

Overview of KTN activities

- 5.1 KTN delivers a diverse range of activities across different sectors and organisations (e.g. SMEs, large companies, universities, research councils). As outlined in Section 1, the activities can be grouped into specific strands: Competition Support, Sector Teams (10), SIGs, European Programmes; Access to Funding and Finance, Design and Innovation Effectiveness, and Manufacturing. The logic models for each of these Activity Strands identify the main activities delivered over the review period (see Annex C). The activities can also be structured as shown in Table 5-1 to reflect KTN's wider strategic and selective project delivery work, and involving the various Activity Strands identified above.

Table 5-1: KTN activities

| Type of activity | Examples |
|---|--|
| 'Connect and Engage', involving engagement with the business & research bases | <ul style="list-style-type: none"> • Making introductions (incl. KTPs), facilitating collaborations, 'mentoring' for funding applications, and hosting events • Delivered via seven 'activity strands' focused on target groups/activities |
| Strategic contributions to promote UK innovation | <ul style="list-style-type: none"> • Production of reports, articles & newsletters • Supporting sector & technology strategies & road-maps • Inputs to policy debates & thought leadership activities (e.g. responding to government consultations including separate from Innovate UK) • Engagement with other the wider IUK family and innovation landscape e.g. Enterprise Europe Network (EEN), Catapults etc. |
| Selective 'project' delivery where this contributes to KTN's purpose and strategy | <ul style="list-style-type: none"> • Delivery partner on EU projects • Co-ordination of the Synthetic Biology Leadership Council • Development of sector maps • Delivery of Venturefest. |

Source: SQW based on KTN documentation

- 5.2 The Grant Funding Agreement also identifies specific activities that cut across all sectors and communities (and which KTN are expected to deliver). These activities cover: KTN member targeting and added value activities to attract membership; networking; communication; development of technology roadmaps; government and other funding - engaging with the finance community; and developing awareness of the importance of Intellectual Property (IP).
- 5.3 Monitoring data on network membership and communications reflects the scale of activity delivered by KTN against these expectations, and the 'reach' of KTN across the innovation landscape. By the end of 2016/17, KTN membership had reached 92,000 (up from around 75,000 in 2014/15), with 53,000 individuals/organisations subscribing to KTN newsletters, and over 62,000 'followers' on Twitter.

Priorities for activity planning

- 5.4 The evidence suggests that priorities for activity planning were decided in different ways within KTN. At the overall KTN level, activities were influenced by Innovate UK's agenda and KTN's own thinking of the innovation challenges to be addressed, as well the potential

demand from the business base for activities. The variation within KTN reflects the nature of the different Activity Strands:

- Competition support: publishing funding calls is a responsive activity, so priorities were determined by funders. However, in scoping out calls and supporting applicants a more pro-active approach was adopted as KTN had greater scope to decide its level of activity. It was also noted that before the review period, Innovate UK and KTN had joint responsibility for running promotional events on competitions. At the start of the review period, KTN took sole responsibility for this.
- SIGs: the priorities were developed in collaboration with the Steering Group of the SIG, including industry representatives. There was a KTN-Innovate UK body which approved the creation of these. Within the SIGs, there was a nominated KTN lead and a small Steering Group (usually with an industrial chair, and Innovate UK representation). The SIG lead developed an activity plan which the Steering Group signed-off. When each SIG was approved, it had an activity plan (drawn up by KTN, sometimes with private sector involvement). Some SIGs had designed plans and stuck to these, others updated plans in response to changing community needs. The approach taken often related to the timescales of the SIG (e.g. long period of two years provided more flexibility on activities).
- European programmes: the priorities for activity were often dictated by the cycle of funding calls. Once the first batch of funding calls were launched, timescales could be tight which meant the types of support that could be offered by KTN were limited. This, therefore, dictated KTN's prioritisation of activities that could feasibly be undertaken.
- Design and Innovation Effectiveness: a design specialist interest group was set-up in 2015 which did a lot of groundwork on activities, the different interventions that were possible, along with consultations across organisations to identify challenges and issues faced. Subsequently a small team developed a range of activities focused on design, including working with Innovate UK to develop the Design Foundations competition, and internal programme focused on enhancing the capacity of KTN staff to understand the use of design in innovation, and on innovation effectiveness.

- 5.5 In relation to other Activity Strands: (i) in Manufacturing, there was issues with engaging SMEs in digital manufacturing, so a new process was developed to engage them including a new tool ("4Manufacturing") which dictated the prioritisation of activities; (ii) in Access to Funding and Finance priorities were demand-led i.e. what businesses and finance provider wanted; and (iii) in Sector Teams, priorities for activity planning varied across the individual teams and it is not clear from the review evidence how these were established.

Mechanisms to monitor and review activities

- 5.6 The review found no clear and consistent mechanism to monitor and review activities across KTN. The monitoring practices varied across the Activity Strands over the review period. This involved: the use of the formal KTN CRM system; monitoring spreadsheets to collect data and information on businesses and activities; project managers assigned to collate data to log engagements, introductions and activities (and turned into monthly update reports);

monitoring frameworks for funding projects; other less formal/mechanistic processes to improve activities; and in one case no formal monitoring and reviewing of activities – progress against activities were not formally tracked, but quarterly team meetings were held to discuss progress. Whilst recognising the complexity and breadth of KTN activity, this varied performance management approach should be addressed going forward.

- 5.7 Further, where formal reporting systems were in place, there was variation in how they were used and the value of the information they were capturing. Also, a number of internal KTN staff consultee suggested that in some cases further interrogation of the monitoring information could have been undertaken to match the capabilities and needs of businesses more fully i.e. based on information available on individual businesses held by KTN, pro-actively see how KTN could have addressed the needs of businesses rather than waiting for them to reach out to KTN for support.
- 5.8 The review is not sighted on any formal monitoring spreadsheets developed and used by individual Activity Strands relating to the review period, and so cannot comment on their quality. However, as part of the review, monitoring data were requested on KTN's activities (at aggregated level) which was put together by KTN. This was challenging to provide as consistent and reliable year-on-year measures for 2014-2017 were not readily available. The reason for this included moving away from KTN's previous online platform to a new website, dropping previous set of KPIs and moving to a new CRM system, so no comparable data were readily available for the review period. Subsequently, KTN compiled and provided new metrics for what has been delivered for 2014-2017 (covered earlier in this Section).
- 5.9 Overall, the review found that the monitoring and reporting within KTN (and from KTN to Innovate UK as reported in Section 8) could have been further strengthened to ensure consistency and to inform delivery of activities. It is noted that after the review period, KTN introduced a new electronic CRM system ("Workbooks") designed to capture data on the activities undertaken. Plus, data on activities now feed into KTN's overall KPIs which have become more prominent over the last 12-18 months.

Alignment and role in the wider innovation landscape

- 5.10 The UK innovation landscape is comprised of a plethora of organisations and initiatives which support businesses at different stages of their development: start-up, early stage, scale-up/growth, and established large corporates. This system can often appear complex for the user to navigate. This is compounded by the inherent nature of the innovation process, which is often non-linear and iterative, requiring much 'back and forth' for businesses in engaging with various actors in the innovation landscape. There have been many arguments put forward by policy makers and practitioners to simplify the landscape. For example, the Dowling Review (2015)¹¹ of Business-University Research Collaborations argued that the user experience of the innovation system could be improved by working to "hide the wiring". This means a "user interface, accompanied by appropriate support, signposting and advice, which is simple and coherent enough to enable users to find relevant schemes or networks, without being exposed to the full level of complexity at play". The Dowling Review recommended:

¹¹ The Dowling Review (2015) of Business-University Research Collaborations. Report can be accessed [here](#).

“Government and its funding agencies should seek to reduce complexity wherever possible, for example by consolidating schemes with similar aims. Where simplification is not possible, every effort should be made to ‘hide the wiring’ from businesses and academics seeking support.”

- 5.11 In this context, KTN plays an important role in the provision of signposting and advice activities, including facilitating introductions and collaborations between businesses (within and across sectors) and with the research base. The review consultations (including external stakeholders) stressed this and pointed out the general complementarity of KTN with other organisations. It was perceived that KTN's activities had contributed to simplifying the innovation landscape - 'hiding the hard wiring' described above.
- 5.12 Although this is helpful to understand the alignment of KTN generally, a more structured assessment is warranted given the wide range of organisations KTN has worked with - reflecting its extensive reach in the innovation landscape. To do this, we draw on SQW's separate research for Innovate UK on the innovation ecosystem, which involved producing a map of the innovation ecosystem at a national level, setting out the main organisations and initiatives involved in the innovation landscape. This depicts how Innovate UK fits within the landscape and identifies the main links and reach of Innovate UK.
- 5.13 The map is replicated in Figure 5-1 below. We have used this as a framework to: (i) visualise the range of interventions in the innovation landscape - many of which have also been identified through the review consultations; and (ii) analyse the links of KTN with other organisations in the landscape. We have, therefore, amended the original map to reflect feedback from the review consultations. In introducing this map for KTN, we have drawn on the evidence presented in Table 5-2, highlighting the very wide range of organisations that KTN works with in delivering its activities.

Table 5-2: Organisations KTN works/ partners with in delivering activities

| Internal KTN staff consultations | Online KTN staff survey |
|--|--|
| <ul style="list-style-type: none"> Innovate UK, central government departments (e.g. BEIS, DIT, DCMS, DoH, DfT, Defra), devolved governments and agencies (Welsh Government, Scottish Enterprise, Invest Northern Ireland) LEPs, Local Authorities, Growth Hubs, Catapults, HEIs, finance providers, Prince's Trust, national and regional sector bodies, industry leadership councils, trade associations, professional bodies, learned societies, research councils, NCP network (for Horizon 2020), EEN, network of National Contact Points (NCPs), TWI Innovation Network | <ul style="list-style-type: none"> The three most important partner organisations KTN works with in delivering activities: aside from Innovate UK, these include other public organisations, central government departments and industry. Key target groups that KTN works with in delivering against the objectives of KTN in terms of connect and engage activity, involving engagement with the business and research bases (most frequently cited): businesses, universities, industry, public sector (national government, devolved administrations, public bodies), local government (LEPs, NHS) regional support networks, TROs, Catapults Key target groups that KTN works with in delivering against the objectives of KTN in terms of strategic contributions to promote UK innovation (most frequently cited): businesses, universities, public sector (national government, devolved administrations, public bodies), research councils, trade associations, local government (e.g. LEPs). |

Source: SQW review consultations; See Annex C for full list of organisations from online KTN staff survey

- 5.14 The map is divided into the following six sections: influencing government policy and regulation; connecting businesses to the research base; ensuring access to high quality premises and facilities; providing the finance to innovate and grow; providing wider business

and innovation support; and providing opportunities for international growth. The map depicts an 'inner circle' where Innovate UK through its 'family' of interventions, including KTN (i) directly provides innovation support to businesses; and (ii) connects with and influences the 'outer circle' of organisations and initiatives.

5.15 On this map, we have shaded (using a 'traffic light' system) the organisations which KTN mostly works/partners with in delivering activities. This is based on the responses from the internal KTN staff consultations and online KTN staff survey. This can be inferred as the strength or alignment of KTN with the shaded organisations and their area of influence. Not surprisingly, KTN mainly works with organisations in: influencing government policy and regulation; connecting businesses to the research base; providing wider business and innovation support. We caveat this with the following:

- organisations which have not been shaded does not mean that KTN has not engaged with them at all, simply that it was not commonly cited in the review by KTN staff
- the two sections of the map on: ensuring access to high quality premises and facilities, and providing opportunities for international growth, have least engagement with KTN – this is not unexpected, as the activities of KTN were not designed to focus on provision of facilities and international work over the review period (with the parallel Enterprise Europe Network focused on international linkages)
- although not shaded, the review indicates that KTN is strongly engaged with the organisations and initiatives in the 'inner' circle' i.e. other Innovate UK interventions
- the map is not comprehensive in its depiction of the innovation landscape and KTN's influence in it, but does illustrate where KTN's main influence lies.

5.16 The findings from the map were calibrated with the evidence from stakeholder consultations which broadly validate the connections and alignment in the innovation landscape. Overall, the review found complementarities between the activities undertaken by KTN, Innovate UK and other organisations involved in knowledge transfer and networking activities. The complementary nature of the relationship between the activities of KTN and the organisations they work with was consistently highlighted. As with KTN's remit (Section 4), some duplication or overlap in the activities undertaken with organisations was identified but this mainly related to connect and engage activities: events, workshops, and other brokerage/networking related activities.

Synergies in activities with other organisations

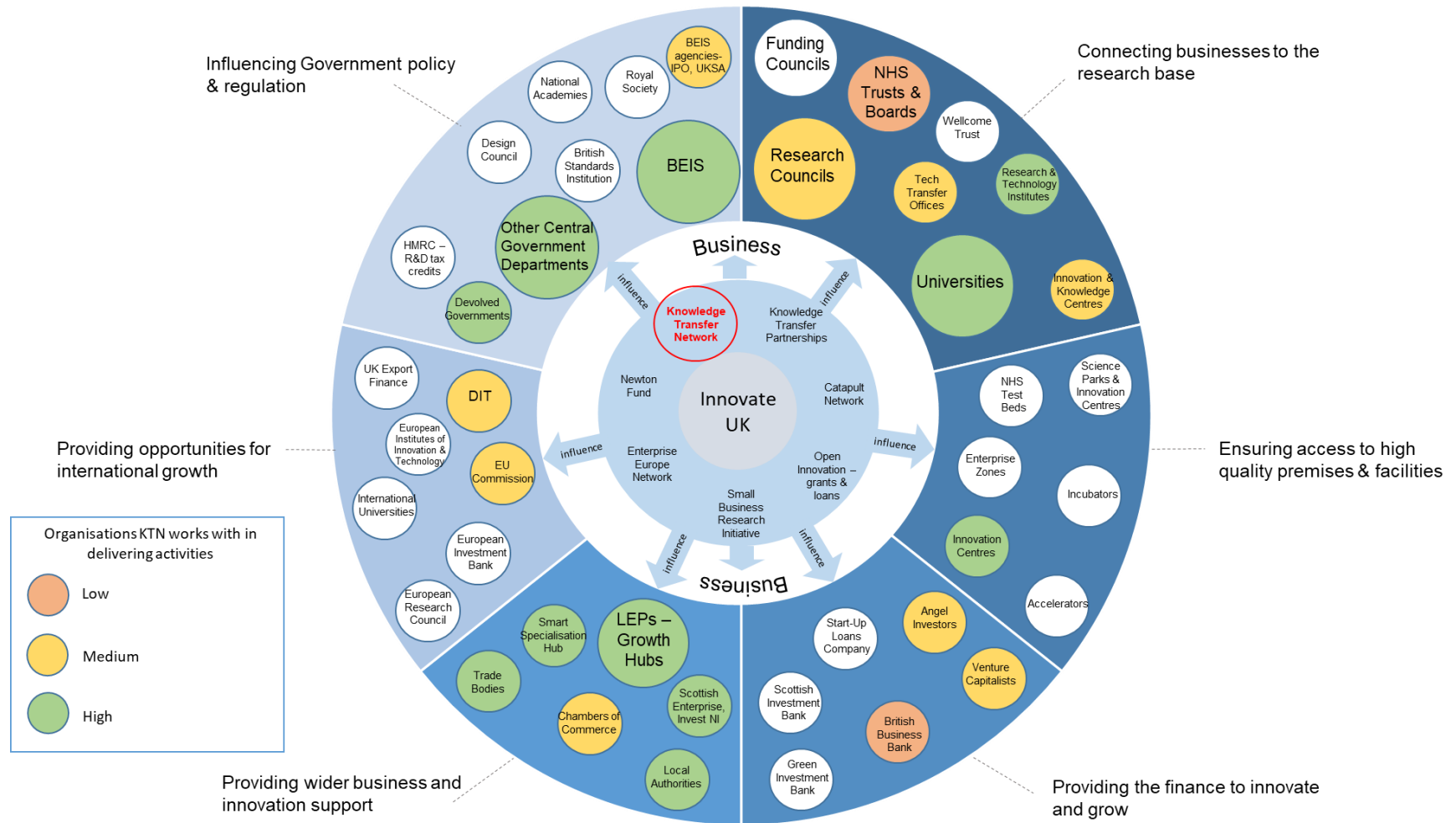
5.17 Where there are practical links with other organisations, benefits gained from these over the review period as identified by external stakeholders included: gathering information on growing research areas and opportunities; the ability to shape and support funding calls; conveying sector needs and opportunities; raising demand for innovation support activities (e.g. competitions; technology that a SIG is promoting); extending the reach of external organisations through KTN's extensive network; and enabling a more coordinated approach to policy development.

5.18 However, the review found that further work could be done to both develop practical linkages with external organisations to maximise innovation opportunities and ensure further

alignment, and to better prioritise and structure these relationships so that KTN is able to influence and work with organisation that are best aligned with its own aims and objectives.

- 5.19 Most organisations that identified a link with KTN stated that there were no formal structures or systems in place to take advantage of the links – the partnership appears to be based largely on informal and ad-hoc meetings/engagement. It was also cited by a number of external stakeholders that they knew or had good relations with individuals within KTN, and relied on these individual connections more than KTN as an organisation. Taken together, this does leave KTN open to a degree of risk: if KTN person leaves then the connection may be lost with the external stakeholder or requires re-building with a new KTN contact. Whilst appreciating that networking is a ‘people to people’ phenomenon, there appears to be a need for KTN to develop a more ‘corporate’ link with key external stakeholders. Notwithstanding these issues, external stakeholders were generally keen to exploit the links to ensure the partnership works for all parties.
- 5.20 Given the lack of formal links between KTN and external organisation, a more prioritised approach to partnership working is recommended. Whilst this may not be necessary for all organisations – especially those where the links are least well developed – KTN should better identify those external stakeholders where the alignment is strongest and where they want to influence in a more systematic way (see also Section 7 for categorising stakeholders).

Figure 5-1: Map of the innovation landscape - Organisations KTN works/ partners with in delivering activities



Source: Based on SQW's research for Innovate UK on the innovation ecosystem; Note: KTN is part of the delivery of the Smart Specialisation Hub.

Reflections on the appropriateness of activities

- 5.21 Based on the feedback from internal staff, external stakeholders and the primary research via the business survey and business and thematic case studies, the review suggests that the activities delivered by KTN over the review period were in the vast majority of cases broadly the “right ones”, taking account of the underpinning rationale and objectives (as described in Section 4). The activities were wide ranging and had evolved over the review period, reflecting the emphasis on continuous learning (through e.g. ‘customer’ feedback surveys).
- 5.22 However, the scope of KTNs support to businesses outside of its Connect and Engage function appeared to be very varied, with a highly tailored and business-specific approach taken across the Activity Strands. Whilst this may be of value to the individual firms (see Section 6), the evidence suggests that a more clearly defined ‘offer’ of the activity that KTN provides to businesses (over and above Connect and Engage support involving making introductions and facilitating collaborations) would be beneficial, whilst retaining a degree of flexibility in KTN’s offer to businesses. This is important to ensure that KTN activity does not duplicate other business support provision available in the wider innovation and business support landscape, from the public or private sector, and maintains focused on its remit to support innovation through collaboration, not direct and extended business support activity.
- 5.23 The review suggests that the scale of support from KTN may have moved into this wider business support territory. For example, over 10% of the businesses surveyed for the review (n=500) indicated that they had spent over 20 person-days engaging with KTN over the review period, and of the businesses that indicated they had received advice from a KTN expert (n=369), 40% indicated this had involved six or more meetings with the expert, and 60% indicated this had involved the provision of specialist sector or technology-related advice. With no formal definition of what support KTN can – and cannot – provide to businesses, it is not possible to comment on whether this scale and nature of support is legitimate, however, it may suggest that in terms of intensive business support, KTN is delivering activity that may be more appropriately delivered by other organisations in the innovation landscape.
- 5.24 This is a not a straightforward issue: as noted in Section 6, the evidence indicates that greater impact is derived from those businesses that have engaged most intensively with KTN, and the business case studies highlight the benefits generated from sustained and flexible engagement between a business and KTN, including where this includes KTN providing insight and advice on specific business issues and opportunities, alongside wider connecting and engagement activity; indeed, the two are often seen as part of an integrated ‘package’ of support that is key to generating impact. The ability to develop relationships with businesses and provide one-to-one support is also regarded as important part of the KTN offer to business by KTN staff (see below).
- 5.25 However, the review evidence indicates that KTN is delivering much more to individual businesses than support to make connections and facilitate innovation. Greater clarity on the business support offer and how this align with other elements of the landscape, is therefore required.

KTN staff perspectives on the most and least effective activities

- 5.26 The most and least effective activities found from the review consultations and online survey of KTN staff are presented in Table 5-3. The Connect and Engage activities were commonly cited in the review consultations and online survey of KTN staff as the most effective activities, followed by strategic contributions to promote UK innovation.

Table 5-3: KTN activities - most and least effective

| Type of activity | Most effective | Least effective |
|---|--|--|
| 'Connect and Engage', involving engagement with the business & research bases | <ul style="list-style-type: none"> • Introductions, facilitating collaborations, consortia building, networking, events, workshops (e.g. Industrial Strategy Challenge Fund) • Connecting, informing and engaging cross-sector communities • One-to-one relationships between businesses and KTNs • SIGs that are focused, time bound and have clear deliverables • Sector teams with expert knowledge which help businesses in priority sectors identify key opportunities | <ul style="list-style-type: none"> • Marketing and communications (incl. website and digital offer) • Developing guidance material for funding |
| Strategic contributions to promote UK innovation | <ul style="list-style-type: none"> • Developing and supporting sector/technology strategies and road-maps • Inputs to policy debates and thought leadership activities e.g.: <ul style="list-style-type: none"> ➢ responding to government consultations ➢ identifying suitable innovation areas for investment • Engagement with other the wider IUK family and innovation landscape • Working with Leadership Councils | <ul style="list-style-type: none"> • Marketing and communications • Branding of KTN • Production of reports, articles and newsletters |
| Selective 'project' delivery where this contributes to KTN purpose and strategy | <ul style="list-style-type: none"> • Development of sector maps • Partnering businesses on European projects | <ul style="list-style-type: none"> • Marketing and communications. |

Source: SQW review consultations and online survey of KTN staff

- 5.27 Review consultations with external stakeholders suggested a few areas for further improvement in delivering activities: (i) follow-up support with businesses (i.e. post-activity) to maximise their impacts; and (ii) further segmentation of KTN's "customer base" (e.g. breakdown by "top-tier", "middle-tier" and "lower-tier" businesses) so that activities are more clearly defined for individual groups, against which progress and impact can be accurately measured. The first suggestion has resource implications, and the second aligns with the review finding outlined above on making KTN's more intensive activity with businesses more clearly defined, to ensure that KTN is clearly the 'best placed' organisation in the innovation landscape to deliver this activity.

6. Review of impacts on business

Section purpose

This section assesses the impacts of KTN, focusing on intermediate outcomes for businesses such as collaborations, innovation activity and investment, and access to funding. The section also considers the 'additionality' of KTN, and evidence on which activities are most strongly associated with outcomes.

Summary of key findings

The KTN made a strong contribution to delivering against its key objectives over 2014-17. KTN identifies investment in R&D and innovation as the '*one metric that really matters*', and over 60% of businesses surveyed for this review reported they had increased and/or expected to increase their investment as a direct result of engagement with the KTN. The median increase was around £100k to date, and £100k in the next three years, however, the scale of increased investment varied widely reflecting the variation in how businesses engage with KTN, and their level of investment in R&D and innovation activity.

A significant volume of introductions to potential innovation collaborators have been made. The monitoring data are not comprehensive, but over half of businesses surveyed had been introduced for the first time to an external organisation by KTN. The survey evidence also suggests a substantial volume of new innovation collaborations facilitated directly by KTN: 39% of business surveyed had been supported to establish a new innovation collaboration.

Both introductions and collaborations span B2B and B2R relationships. The 'conversion' from introductions to collaborations was around one-in-two for within-sector B2B relationships, and B2R relationships. However, fewer (absolutely and proportionally) introductions were converted to collaborations *across* business sectors; this may reflect that these opportunities are likely to be more 'speculative', leading to fewer tangible opportunities. Case study evidence found that cross-sector collaborations do occur, and can be particularly important for firms seeking to move into new markets.

A high majority of collaborations facilitated by KTN have, or are expected to, lead to practical joint-working on a formal R&D or innovation project/initiative; in most cases this involves progressing a commercial opportunity. The collaborations facilitated by KTN therefore offer the potential for substantial economic impact should the commercial opportunities be taken to the market over the longer-term. The survey also suggests that the collaboration made by KTN are generally appropriate, with only a small proportion not leading to joint activity.

KTN has also generated positive outcomes in terms of: supporting businesses to make successful funding applications; raising the profile of businesses through networking activity; and raising awareness and understanding of new market opportunities. Nearly all business surveyed identified some benefits from their engagement with KTN, and most commonly 'packages' of outcomes; this is not unexpected, but reflects the varied pathways to impact.

These are positive findings on outcomes; however, the additionality of KTN appears, in the round, to be quite modest. The survey suggested that many of the benefits are likely to have occurred in any case, as observed by the businesses themselves. This said, timing effects were found to be common – that is, KTN activity bringing forward outcomes, whether these are related to funding applications or new innovation collaborations – which is consistent with its strategic purpose to accelerate innovation activity.

A mixed picture on additionality is not unexpected, and reflects both the varied ways in which businesses engage with KTN, and its focus on catalysing innovation activity, rather than directly funding it. Econometric analysis also confirms the hypothesis that those businesses that have engaged with KTN on a 'light-touch' basis have experienced a lower level of benefit, when other observable characteristics are taken into account. This does provide some confidence that KTN is influencing, to a greater or lesser degree, the realisation of positive outcomes for businesses, even where the additionality of these outcomes is modest. In nearly all cases, high engagement associated with more substantive or realised outcomes.

Econometric analysis also suggests that whilst most KTN activity-types are associated with some positive outcomes, 'direct one-to-one' engagement via the provision of advice from a KTN expert is most strongly associated with the key outcome of increase investment in R&D and innovation.

Overall, the services of the KTN are considered useful by businesses engaged. However, satisfaction is strongly correlated with the level of engagement with KTN, and with involvement in more 'direct' elements of support e.g. involvement in SIG or receipt of advice from a KTN expert.

Stakeholder consultations and thematic case study evidence indicate that KTN generates strategic outcomes, in particular improving the policy and strategic landscape for business-led innovation. There is some evidence of time, quality and scale additionality associated with the strategic outcomes reported, but it is difficult to ascertain fully the extent of this.

KTN adds strategic value through providing leadership, acting as a catalyst for innovation, and in the exchange of knowledge and expertise with external stakeholders. However, it is harder to gauge the ability of KTN to influence and leverage resources of external stakeholders.

Whilst the strategic contributions of KTN are evident through specific cases (e.g. response to the Industrial Strategy Challenge Fund; delivery of the Industrial Biotechnology SIG), at an aggregate KTN level the evidence is opaque. Further work needs to be done to address this, and ensure the strategic work of KTN is greater than 'sum of its parts'. In this regard, having greater clarity on the strategic purpose of KTN (at an organisational level), and developing a set of strategic objectives which are operational should provide greater focus and transparency to achieving strategic outcomes.

Effectiveness of KTN

- 6.1 The review finds that **KTN has made a strong contribution to delivering against its key objectives over the 2014-17 period**. As set out in the logic model in Section 3, KTN had three key objectives over the review period: to increase business-led R&D in the UK; to facilitate exploitation of R&D to capture more UK value from innovation; and to increase collaboration between (i) businesses and (ii) businesses and the research base.
- 6.2 The core metric for KTN to assess progress against its objectives – identified in internal KTN documents as '*the one metric that really matters*' – is the value of additional investment in R&D and innovation that its activity delivers. The use of R&D and innovation investment as a proxy for outcomes reflects both the nature of what KTN does (or should do) – facilitation and acceleration of innovation activity, not direct innovation support or grant funding – and the potentially long and complex time-paths to impact e.g. where KTN introduces a firm to

collaborators and facilitates an innovation collaboration, which some 3-5 years (or later) leads to a new product/service in the market, which may have drawn on a wide range of subsequent support (including from the public sector for example via Innovate UK funding).

- 6.3 Associated data on the number of introduction and collaborations made and whether they have facilitated new R&D activity; the number of events held/attendees at events; and public funding secured by firms for R&D following KTN engagement, are also important indicators of the effectiveness of KTN against its key objectives. The evidence from the review against these metrics is set out below.

Investment in R&D

- 6.4 The 500 businesses surveyed that have engaged with KTN were asked whether *as a direct result of their engagement with KTN* their business had, or expected to in the next three years, increase their investment in R&D and innovation, and (where evident) the scale of this.
- 6.5 The findings from the survey are encouraging: over 60% of the businesses reported that they had increased and/or expected to increase their investment in R&D and innovation as a direct result of their engagement with KTN. Businesses that had 'high' engagement were most likely to report an increase to date in R&D investment (73%). However, it is notable that over 40% of businesses surveyed with 'low' engagement reported an actual/expected increase in R&D investment, albeit this was generally expected rather than achieved. The data therefore indicate that even a limited engagement with KTN can lead to an increase in investment in R&D and innovation amongst businesses.

Table 6-1: Business survey evidence on increase in R&D investment

| | High engagement (n=103) | Medium engagement (n=189) | Low engagement (n=198) | Total (n=490) |
|---|----------------------------|------------------------------|---------------------------|------------------|
| Experienced already | 50% | 25% | 13% | 26% |
| Expect to experience in future | 23% | 38% | 28% | 31% |
| Experienced already <u>and</u> expect to experience in future | 10% | 7% | 3% | 6% |
| Have not and will not experience | 17% | 30% | 57% | 38% |

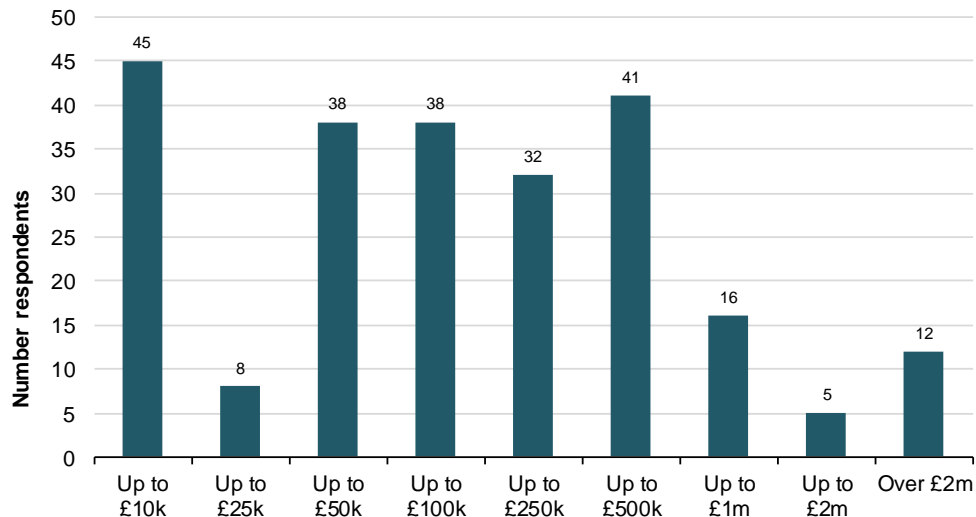
Source: Business survey

- 6.6 In terms of scale, on average, the firms that reported an increase in R&D/innovation investment had invested c.£550k more as a result of their engagement with KTN to date, with an average of c.£345k increased investment in R&D/innovation expected in the next three years. The median increase was £100k in both cases (i.e. both achieved and expected), reflecting the wide range of increased investment in R&D and innovation as a result of engagement with the KTN.¹²
- 6.7 In Figure 6-1, the range of increased investment per business is summarised, combining both actual and expected increased investment. Most common was a reported increase of up to £10k, with increased investment in the ranges of £50k to £500k accounting for the majority of businesses. This range is to be expected, and **reflects the different and varied ways in**

¹² Data for the investment to date is based on 117 responses, and data for investment in the future is based on 140 responses

which businesses engage with KTN, and their level of investment in R&D and innovation activity.

Figure 6-1: Total increase in R&D investment (to date and expected) by range



Source: Business survey

- 6.8 The econometric analysis confirmed that an increase in actual R&D investment (achieved to date) was strongly associated (significant at the 1% level) with 'high' and 'medium' intensity of engagement, relative to those with 'low' intensity engagement. This association holds true when the timing of first engagement with KTN is also controlled for i.e. the findings do not simply reflect that those engaged earlier are more likely to have increased their expenditure on R&D and innovation. As may be expected, the econometric analysis also found an association between those businesses with high growth ambition (based on survey data) and an increase investment in R&D.
- 6.9 The survey data on increased R&D/innovation investment from the survey cannot be accurately 'grossed up' to the population of all firms that engaged with the KTN over the review period, as the scale and characteristics of that population are not known. The wide range of increased investment also means that average values are potentially misleading. However, **the survey does provide strong evidence that (in gross terms) the effect of engagement with KTN on increasing investment in R&D and innovation is substantial.**

Introductions, collaborations and networking events

- 6.10 Aggregate data from KTN demonstrates the scale of introductions made, collaborations facilitated, and events held over the review period. The data was not available on introductions in each year (an issue we return to in Section 8), however, in the latest year (2016/17), monitoring data indicate that the KTN made approaching 2,000 introductions between businesses and businesses and the research base¹³, and facilitated 400 collaborations. Over the review period, the KTN also held over 1,000 events, with aggregate attendance recorded at around 65,000 delegates.

¹³ The data is not disaggregated between B2B and B2R.

- 6.11 By any measure, **these are substantial numbers and reflect the scale of 'connecting' activity delivered by KTN over the review period**, both directly via introductions and facilitating collaborations, and providing the platform for these connections via hosting events to support networking activity.

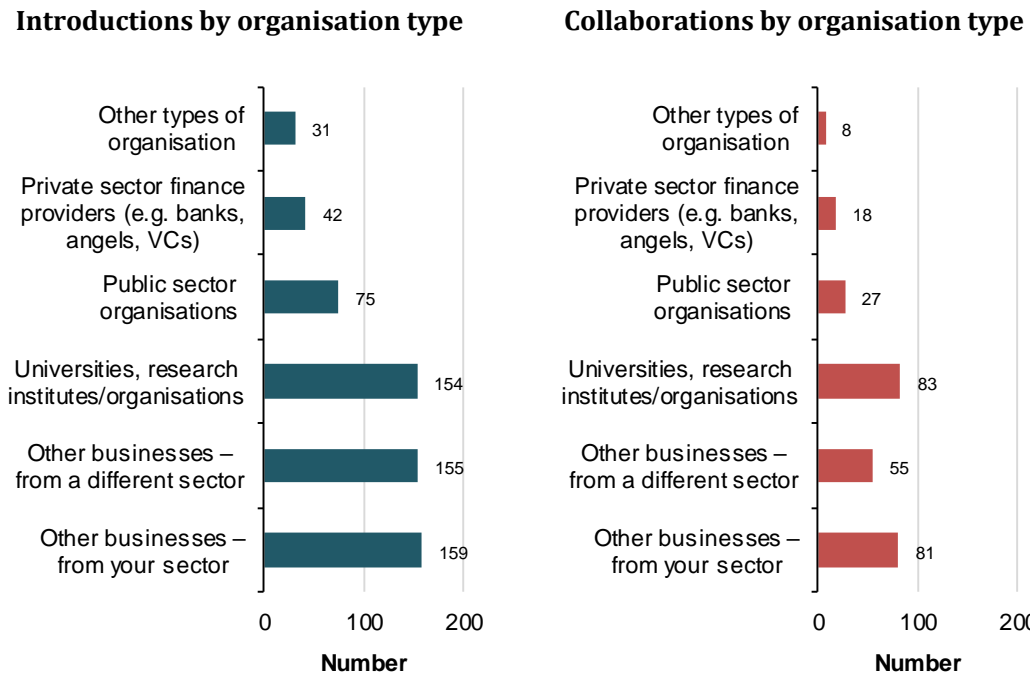
Table 6-2: KTN data on introductions, collaborations, and events

| | 2014-15 | 2015-16 | 2016-17 |
|--------------------------------|----------------------|---------|---------|
| B2B & B2R introductions | <i>Not available</i> | 960 | 1,959 |
| New collaborations facilitated | 236 | 455 | 400 |
| Number of events | 325 | 403 | 310 |
| No of event attendees | 20,305 | 21,758 | 23,593 |

Source: KTN Annual Reports and monitoring data

- 6.12 The business survey highlighted the importance of connecting activity, of 500 respondents:
- 62% first approached KTN in order to find new innovation collaborators; this was the second most common reason cited, after seeking to gain information or support on funding competitions which was the most common reason cited
 - 80% had attended a KTN event, with most attending two or more events and an average attendance (from those that provided data, n=385) of approaching 4 events
 - 57% had been introduced for the first time to an external organisation by KTN (increasing to 83% for those reporting 'high' engagement with KTN); this included 87 businesses in the survey sample that had not previously co-operated on innovation activities with other organisations, indicating the role of KTN in supporting firms to engage potentially in collaborative innovation for the first time
 - 39% had been supported to establish a new innovation collaboration by KTN (increasing to 66% for those reporting 'high' engagement with KTN).
- 6.13 The monitoring data above was not split by B2B and B2R introductions. However, the survey indicates that KTN commonly made introductions, and facilitated collaborations, both between businesses and other businesses (within and across sectors), and with organisations in the research base: of the 193 survey respondents that indicated that KTN had facilitated an innovation collaboration, in 83 cases (over 40%) this involved the research base, broadly equal to the number of collaborations facilitated with other businesses in the same sector.
- 6.14 The lower 'conversion rate' from introductions to collaborations with businesses from different sectors is notable, relative to businesses from the same sector and research base; at broadly one in three, rather than one in two. The reason for this is not clear from the data, but it may reflect that such introductions are more 'speculative' than intra-sector introductions, or those with the research base where the specific academic expertise may be identified clearly in advance.

Figure 6-2: Survey respondents with at least one introductions/collaborations by type of organisation



Source: Business survey

- 6.15 Reflecting the importance of the ‘connect and engage’ benefits, when survey respondents were asked what aspects of their engagement with the KTN they had found *most valuable/useful*, the opportunity for networking that it provided was the most commonly cited aspect (across all engagement levels), and KTN events were regularly cited as opportunities to extend networks. The brokerage aspect of KTN was also valued. This survey evidence is consistent with the findings from the business case studies that demonstrated how KTN events can play an important role in providing the platform to progress new innovation partnerships and collaborations. The case studies identified examples of where partnerships were developed as result of ‘happenstance’ meetings at KTN events, and in some cases after a company had been given an opportunity to showcase their technology/products at a KTN event, which led to organisations coming forward to take forward collaborative projects. The potential for informal engagement noted as important here, as one case study lead noted:

“Events are not just about the people presenting on the day but are also about the people you meet in the lunch queue, the people you talk to over coffee. There is no substitute for face-to-face activity.”

- 6.16 Not all collaborations facilitated by the KTN will lead onto new collaborative innovation activity. However, 71% of the businesses surveyed that had a collaboration facilitated by the KTN (n=184) reported that this has involved practical joint-working on a formal R&D or innovation project/initiative, and a further 17% that they expect it to do so in the future. So, **around 90% of the collaborations facilitated by the KTN are expected to lead to tangible collaborative R&D/innovation activity, which in most cases involves progressing a commercial opportunity.**
- 6.17 This suggests that the collaborations facilitated by KTN are generally appropriate and valued by businesses engaged with the network, and offer the potential for substantial economic impact should the commercial opportunities be taken forward to the market over the long-

term. The extent to which the introductions/collaborations were 'appropriate' was also a key theme that emerged from the case study research with businesses. A particular strength of KTN from the case study evidence appears to be its ability (in these selected cases) to make relevant and informed introductions, drawing on the sector and technology expertise in the organisation, that offer the potential for credible and valuable follow-on activity. In this context, it is the quality of the introductions and facilitated collaborations that matter, not their quantity.

Public funding secured for R&D

- 6.18 One of the key ways in which KTN aims to increase business-led R&D is to ensure that businesses across the UK are aware of, understand, and make strong applications to, public funding opportunities. The review indicates that KTN has delivered substantial benefits in this area. This finding was reflected in our business survey:
- over three-quarters of the survey sample (392 of the 500, 78%) cited gaining information or support on funding competitions as a reason why they first approached the KTN; this was the most common response to this question
 - approaching two-thirds (321 of the 500, 64%) had attended at least one KTN competition briefing for a UK funding programme; over a quarter (132 of the 500, 26%) had attended at least one competition briefing for a European funding programme; and over a quarter had attended at least one event on the Industrial Strategy Challenge Fund (139 of the 500, 28%)
 - approaching two-thirds (313 of the 500, 63%) reported they had experienced an improved understanding of public innovation funding opportunities as a result of their engagement with the KTN: this increased to 69% for those that attended a KTN event, 72% for those that attended a KTN competition briefing for a UK funding programme, and 79% for those that attended a competition briefing for a European funding programme.
- 6.19 Further to awareness benefits, tangible benefits in securing public funding were also identified: over 200 of the 500 businesses surveyed indicated that they had experienced 'improved' submissions for public innovation funding opportunities as a result of their engagement with the KTN (with over 500 individual funding submissions 'improved' across the survey sample. Whilst not all of these submissions were successful (as expected), most (over 70%) respondents were successful in at least one submission that had been supported by KTN.
- 6.20 The aggregate funding secured by survey respondents following KTN advice was £81m across the survey cohort, with an average per business (*not* per submission) that was successful in at least one application of around £700k, and an average funding secured per submission improved (based on all submissions, even where they were not successful) of £162k. Whilst the source of funding was not identified in all cases, Innovate UK programmes were very common, and accounted for at least half of the total. Other sources included Horizon 2020, Newton Fund and devolved administrations.

- 6.21 The qualitative feedback from survey highlights the important role played by KTN in supporting firms to secure this public sector funding. As noted above, when asked what aspects of their engagement with KTN they had found *most valuable/useful*, the opportunity for networking was the most commonly cited aspect, but the role of KTN in supporting businesses to secure public funding was also frequently noted. This ranged from the KTN identifying funding opportunities, to assisting with and reviewing grant applications.
- 6.22 The business case studies also sought to assess the contribution of KTN in supporting businesses to know about funding opportunities, develop appropriate bids, and enhance their chances of securing innovation funding. In four of the six business case studies, the outcomes from KTN engagement included an improved understanding of public funding opportunities, and successful submissions for public funding. Three key themes emerged from this evidence:
- 6.23 First, the important role that KTN can play in raising awareness of funding opportunities for businesses that are highly active in innovation/R&D, but that do not have the time or ability to track the full range of funding opportunities available. Whilst it may be expected that R&D intensive firms are aware of potential funding opportunities, the case studies demonstrate that even firms of this nature value the information raising role of KTN, both from a short-term perspective – to identify specific opportunities – and over the longer-term – to raise their overall level of understanding and insight on the funding landscape, which may lead to further opportunities at a later date. This information role includes raising awareness of opportunities that are in related sectors where individual firms may not always identify potential links, but which KTN are able to identify and highlight.
- 6.24 Second, the scope for ‘added value’ for the business through both raising awareness of funding opportunities, and helping to facilitate potential collaborations and partners. With many of Innovate UK’s (and other funders’) competitions requiring collaboration, this can be an important role. As such, KTN is not simply providing information, but helping to improve the chances of businesses developing relevant partnerships, including with academic partners where they may not have an existing relationship.
- 6.25 Third, the case studies highlighted the different ways in which KTN support is used by firms related to funding. In one example, the firm had initially sought to engage with KTN to fund about funding opportunities and navigate the Innovate UK competition process, but required less support from KTN over time on this issue as they gained more experience with the process, meaning that the engagement with KTN focused on broader technology development opportunities, with a more ‘strategic’ input from KTN. However, in other cases, the role of KTN in providing information and supporting applications has remained constant over time, including involvement in multiple applications. This variation in support is consistent with the wider evidence on the ‘tailored’ offer to individual businesses provided by KTN.

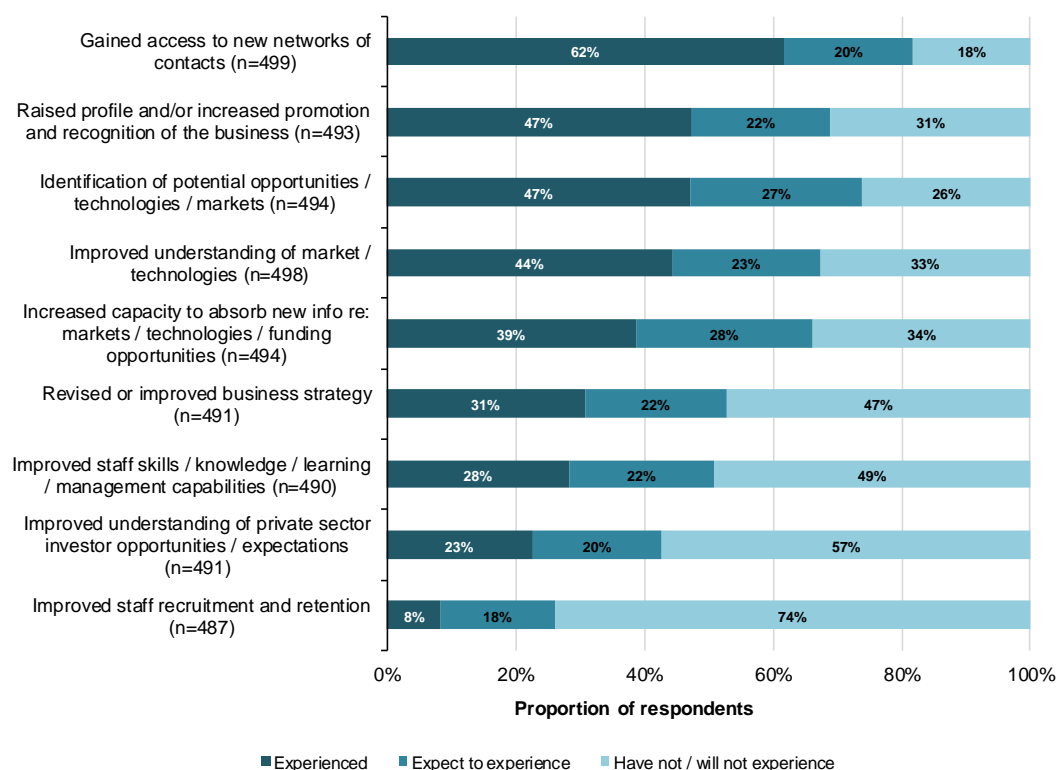
Other benefits

Direct benefits

- 6.26 Consistent with the range of activity delivered by KTN set out in the logic model, the review sought to gather evidence on a wider range of direct benefits. **The business survey results highlight the varied ways in which businesses have benefited from KTN.** Notably, around

half of the businesses identified that they had experienced: a raising of their own profile and recognition; the identification of potential new market opportunities/technologies; and an improved understanding of markets/technologies.

Figure 6-3: Wider benefits from engagement with the KTN



Source: Business survey

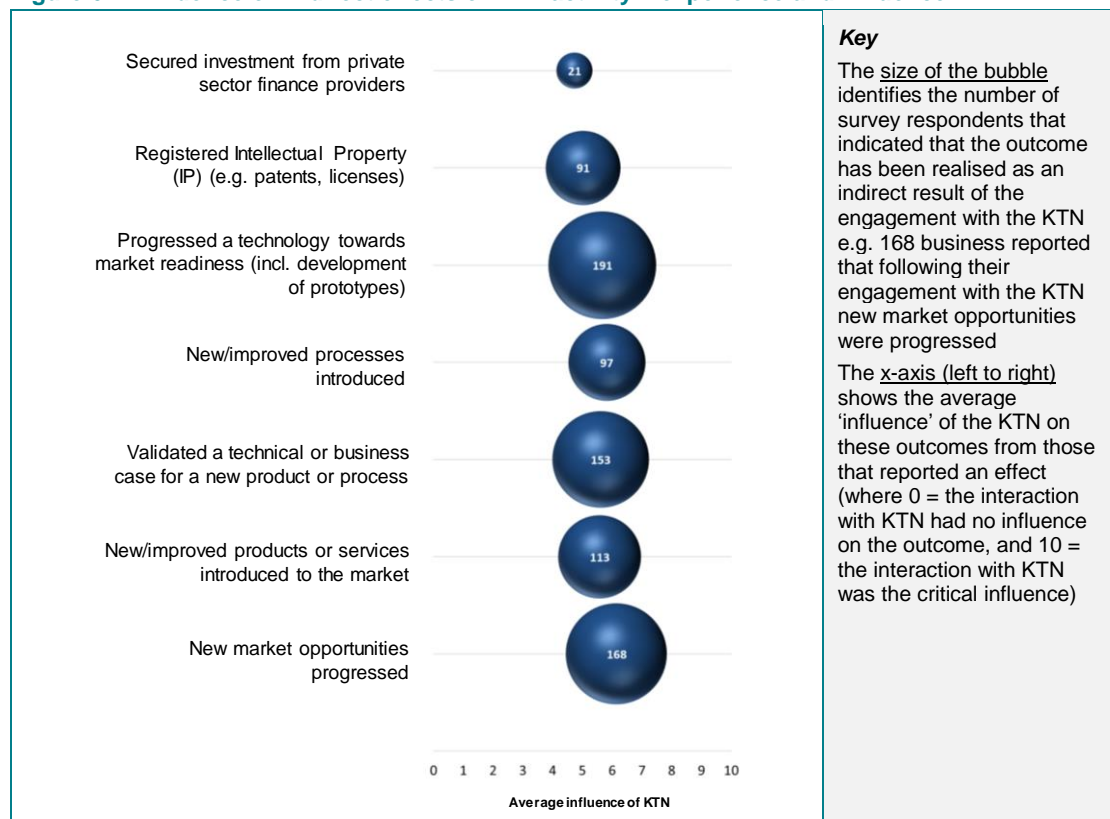
- 6.27 The benefits of KTN engagement on raising the business profile also emerged as a theme from the business case study research. For example, one case study noted how being engaged with the KTN '*acts as a free form of publicity and helps generate serious enquiries*'. Quantifying this effect is challenging – subsequent activity may not involve KTN directly. However, **the review finds that KTN is important as a mechanism through which business can and do seek to raise their own profile**. This appears to be particularly important for small and medium sized firms (where over 55% of surveyed businesses had experienced a benefit); this may reflect that these firms are seeking to build a profile, whereas micro firms are not yet at that point, and large firms do not as commonly as require such profile development. The case studies suggested that the ability to showcase or present at KTN events was a particularly important way in which KTN enabled businesses to raise their profile.
- 6.28 The business survey sought to identify any unintended outcomes or impacts of the KTN on businesses. Whilst individual businesses identified outcomes that they did not explicitly expect, these were within the existing framework of expected outcomes for the KTN as a whole i.e. some individual businesses noted that new introductions or profile benefits were unexpected for them, but these are expected from the KTN in the round. The evidence from the case studies was similar with outcomes largely within the expected range of effects. However, in one case there was evidence that engagement with KTN had led a company to engage in other business and innovation networks, because KTN had demonstrated the value of networking; this 'demonstrator effect' was not evidence elsewhere by businesses engaged

in the research but is a potentially important effect in terms of KTN's ability to increase levels of collaboration across the innovation landscape more broadly.

Indirect benefits

- 6.29 KTN's core objective is to facilitate and accelerate collaboration and innovation, putting organisations and people together to take forward practical activity, and provide the information required to progress R&D activity. The potential long-term effects of this are substantial, but KTN will not be involved in this activity following this initial contribution.
- 6.30 The business survey therefore sought to understand 'what happens next' following engagement with KTN – and the extent to which the engagement with KTN continues to influence – to a greater or lesser extent – the longer-term realisation of outcomes from innovation activity. These indirect effects are principally intermediate outcomes (e.g. progressing technologies through technology level, securing private financed,) in advance of final quantitative outcomes effects on businesses in terms of jobs and turnover.
- 6.31 The findings across seven intermediate outcomes are summarised in Figure 6-4. The data indicate that whilst indirect outcomes are evident – notably around developing technologies towards market readiness, and progressing new market opportunities – the influence of the KTN is modest, and broadly consistent across indirect outcomes (generally around 5/6 out of 10). The indirect outcome where the influence of KTN was the highest (average 6.1/10) was on 'progressing new market opportunities', and the lowest (4.7/10) was on 'Secured investment from private sector finance providers'; the latter likely reflects the other actors engaged in this process including angels/VCs that are the source of capital.

Figure 6-4: Evidence on indirect effects of KTN activity – experience and influence



Source: SQW analysis of business survey

Additionality

- 6.32 The findings above regarding the direct outcomes of KTN are positive, indicating the wide range of ways in which the activity delivered has brought about benefits for those engaged. There is also evidence of substantive quantitative outcomes in terms of increased investment in R&D and innovation, and public funding secured. However, these findings do not take into account: the 'counterfactual' position – that is, what would have occurred without KTN? – or the 'contribution' of KTN relative to other factors – that is, whether the outcomes that appear to have been generated by KTN have been influenced (to a greater or lesser extent) by other factors. Taken together, these issues enable an assessment of the overall 'additionality' of KTN.

The counterfactual position

- 6.33 The evidence is that whilst the direct effects of KTN for businesses are positive, a high proportion of these benefits are likely to have occurred in any case, as observed by the businesses themselves, although acceleration effects are also common.

Self-reported additionality

- 6.34 This overall finding is based principally on the evidence from the business survey, where respondents were asked to comment on whether the direct benefits identified would have been achieved if they had *not* engaged with KTN. **Over a quarter (28%) of businesses indicated 'full deadweight' where (in their view) the outcomes reported would have been achieved at the same speed, scale and quality without engagement with KTN.** By contrast, a very small proportion of the sample (3%) stated that they 'definitely' would not have achieved the same outcomes without KTN (see supporting document for full results).¹⁴
- 6.35 However, 'timing additionality' was also common, where KTN engagement was observed to have brought about outcomes more quickly than would otherwise have been the case, identified by 26% of the businesses surveyed. Where 'timing additionality' was reported (n=202), the effects was generally up to one year (54%) or up to two years (26%). Acceleration is an important effect, enabling businesses to collaborate and undertake R&D more promptly, and develop new products/services/processes and access markets in the UK and internationally more quickly. **Evidence of speed additionality is also consistent with – and evidence of a contribution to – the overall purpose of KTN to accelerate innovation in the UK.**
- 6.36 Three other points are noted on self-reported additionality:
- Where the outcomes would have been achieved anyway, the use of other networks, and/or direct bilateral relationships, were most commonly cited as the ways in which outcomes would have been achieved. However, the proportion of respondents identifying 'full deadweight' was consistent irrespective of whether the respondent was involved in other business and innovation networks.

¹⁴ Given the wide breadth of benefits covered in the survey, and the need to ensure that the survey did not place undue burden on respondents, the question covered all of the benefits that the business had identified as being realised or expected (i.e. it was not asked on a benefit-by-benefit basis).

- There does not appear to be a relationship between self-reported additionality and business size; the proportion of businesses that identified 'full deadweight' was in the range of 23% to 33% (the differences were not statistically significant)
- Self-reported additionality was substantially more positive for businesses with 'high' engagement: 29% of those 'high' engagement businesses indicated they 'definitely/probably' would *not* have achieved the same outcomes without KTN, compared to 12% for 'medium' engagement, and 6% for 'low' engagement. From a self-reported perspective, the additionality of the KTN is therefore more pronounced the greater the level of support secured. This is not unsurprising, and those that feel that are benefiting (over and above what would happen anyway) from KTN may be more likely to seek further support.

6.37 This final finding related to the intensity of support is important in the context of the business case study evidence, with cases selected purposely to focus on those businesses that had engaged most substantively with KTN. Across the six case studies, the self-reported additionality of KTN support was generally high, although in most cases the additionality was principally in terms of quality, scale, or timing, rather than 'fully additional' i.e. some of the effects would have been achieved in any case. However, the case studies demonstrated how even for individual businesses the additionality of KTN activity can vary, with different effects across different types of support, and no consistent picture across businesses i.e. there was no single activity type that was seen to be most additional as this was highly dependent on context. However, a common theme that did emerge from the case studies was that the 'networks' that the businesses had developed would have been considerably less well-developed that they were following KTN engagement, and that KTN had enabled them to engage with a more diverse range of organisations (sectorally and technologically) than would otherwise have been the case. For example, one case study lead noted that:

"Without the KTN support, we wouldn't have done as well in accessing funding and we definitely wouldn't have met as many people through networking."

6.38 This evidence does highlight the challenges in evidencing quantitatively the overall additionality of KTN activity when the support offer to businesses is so tailored and context specific. This said, the case study evidence suggests that the overall finding that a high proportion of benefits are likely to have occurred in any case does need to be tempered to some extent for those businesses that have engaged most substantively with KTN, where the additionality appears to be stronger, and more consistent, albeit still generally partial in nature.

Econometric analysis

6.39 The final finding above is consistent with the econometric analysis on intensity. Across the full range of 22 outputs, direct outcomes, and indirect outcomes covered in the survey, 'high' engagement intensity was strongly statistically associated in 16 cases (at the 1% level of significance) with securing this benefit, relative to low engagement. The one direct outcome where there is no or only a weak statistically association with engagement intensity relates to improved understanding of *private* sector funding opportunities and expectations, an

outcome that was identified by a relatively small proportion of respondents (210 of the 500 businesses surveyed).

- 6.40 There are also some outcomes were only high engagement – and not medium engagement – is found to be statistically significant, around revised or important business strategy as a result of engagement with KTN (a direct outcome) and firms progressing new market opportunities (an indirect outcome).

Table 6-3: Summary findings of the econometric analysis on intensity

| | Low engagement (baseline) | Medium engagement | High engagement | Obs. |
|--|---------------------------|-------------------|-----------------|------|
| Outputs | | | | |
| Introduction to an external organisation | | * | ** | 407 |
| New innovation collaboration established | | ** | ** | 385 |
| Direct Outcomes | | | | |
| Improved understanding of markets/technologies | | * | ** | 424 |
| Identification of potential opportunities/technologies/markets | | ** | ** | 418 |
| Access to new networks | | * | ** | 437 |
| Raised profile | | ** | ** | 405 |
| Improved understanding of public funding opportunities | | * | ** | 435 |
| Improved understanding of private funding opportunities and expectations | | <> | + | 431 |
| Improved submissions | | ** | ** | 431 |
| Successful submissions | | * | ** | 424 |
| Increased business-led investment in R&D and innovation | | ** | ** | 416 |
| Increased experimentation | | ** | ** | 434 |
| Increased absorptive capacity | | ** | ** | 432 |
| Increased staff skills | | <> | <> | 429 |
| Improved staff recruitment and retention | | <> | + | 378 |
| Revised or improved business strategy | | <> | ** | 416 |
| Indirect Outcomes | | | | |
| New market opportunities being progressed | | <> | ** | 238 |
| New or improved products or services to the market | | <> | <> | 210 |
| New/improved processes introduced | | * | ** | 216 |
| Registered IP (e.g. patents) | | * | * | 210 |
| Validation of a technical or business case | | <> | <> | 215 |
| Progressed a technology towards market readiness | | * | <> | 211 |

Source: SQW analysis of business survey. Note: [** and dark green shading = positive and significant at 1% level]; * and mid-green shading = positive and significant at 5% level; + and light-green shading = positive and significant at 10% level; <> = no significant effect]

- 6.41 These findings are not unexpected. However, the purpose of the intensity analysis was to test the hypothesis of whether businesses that have engaged with KTN on a 'light-touch' basis have experienced a lower level of benefit. Where they have, and there is evidence of outcomes being

greater as a function of different levels or intensities of support (and where those associations are statistically valid taking into account other observable characteristics), we can be more confident that KTN is influencing, to a greater or lesser degree, the realisation of these outcomes. The analysis indicates that this hypothesis is fair with in nearly all cases, high engagement associated with more substantive or realised outcomes.

- 6.42 Taken together, the survey suggests that where KTN is substantially engaged with a business, the additionality of the support is positive, both accelerating benefits, and generating outcomes that would in some cases not have been delivered without support. However, where the engagement is less substantive, the additionality of KTN appears to be modest, with other potential sources of support seen to be available.

Contribution

- 6.43 A related issue is the 'contribution' of KTN i.e. whether the benefits that appear to have been generated as a result of KTN have been influenced – to a greater or lesser extent – by other factors. In this context, it is important to recognise that the survey found businesses engaged with KTN were generally innovation-active *prior* to their first engagement with KTN; of the 500 businesses surveyed, 77% had engaged in R&D in the three years prior to their first engagement, and 64% had co-operated on innovation activities. Further, 59% were involved with other innovation/business networks when they first engaged with KTN (increasing to 70% by the time of the survey). The majority of businesses engaged by KTN are therefore not 'new' to innovation or networking activity. This matters, as it means that they were likely to have continued to engage with other sources of support on innovation and collaboration, and these may have influenced the outcomes observed.
- 6.44 The findings here are complex, however, they do suggest that other factors may have influenced the outcomes associated with KTN. This is consistent with the evidence on the counterfactual position, where (overall) the effects were modest.
- 6.45 Given the range of outcomes of KTN activity, the review did not seek to link directly specific outcomes to other factors. Rather, businesses were asked in the survey and case studies whether a range of changes were evident in their business since they first engaged with KTN; these factors may help explain the positive outcomes reported.
- 6.46 Detailed findings from the business survey are set out in the accompanying document. Key findings include: 80% of businesses had implemented other R&D activities to those related to the engagement with the KTN; 72% had implemented a new business plan or strategy in their business; and 58% had purchased new equipment. The survey evidence suggests that KTN is nearly always one of a number of factors, which, taken together, may be contributing to innovation and related outcomes.
- 6.47 The business case studies probed this contribution issues in more detail and highlighted the role of KTN alongside other factors in realising outcomes. In none of the six case studies was KTN the only decisive factor required to generate outcomes, i.e. in all cases other factors were required. However, this finding is not unexpected given the types of firms that KTN engaged with that are undertaking other R&D activity, the range of factors influencing business decisions, and the nature of KTN activity which is – by design – focused principally on enabling innovation to happen, rather than directly delivering innovation support. Indeed, a consistent

theme from the business case studies was that the ability of KTN engagement to lead to positive outcomes for the business was the associated availability of public funding for innovation, particularly through Innovate UK.

Table 6-4: Evidence from the business case studies on other factors influence outcomes

| Case example | Evidence on contribution of other factors | Overall contribution of KTN |
|--------------|---|--|
| Case 1 | <ul style="list-style-type: none"> Internal: a shift to an 'open innovation' culture was central to the innovation activity supported by KTN; this change meant the firm was open to collaborative R&D activity External: changing market contexts were an important driver, with an increased need to look for funding opportunities outside of the firm's core sector. The availability of public funding for R&D was also crucial | KTN required alongside other factors to generate outcomes , with KTN regarded as a very important in realising outcomes |
| Case 1 | <ul style="list-style-type: none"> Internal: the firm has invested significantly in R&D and internal capacity alongside support from KTN to take forward innovation opportunities External: the availability of innovation funding was cited as a key factor in enabling outcomes to be realised in terms of both securing partnerships and progressing specific R&D projects | KTN required alongside other factors to generate outcomes , with KTN support regarded as complementary to these other factors, of critical importance |
| Case 3 | <ul style="list-style-type: none"> Internal: the firm's targeted business strategy which is centred on developing high performance, high value components was core to generating outcomes; without this drive to innovate, the firm would not have engaged with KTN. External: the availability of suitable funding sources, the presence of compatible collaborative partners, and the availability of support from other organisations | KTN required alongside other factors to generate outcomes , with KTN regarded as 'very important' to realising outcomes |
| Case 4 | <ul style="list-style-type: none"> Internal: the value that the firm placed in networking (pre-KTN) was identified as an important factor, alongside a strategic focus on engagement in R&D projects and wider policy and sector development initiatives External: technology and market changes were identified, with an increasing 'maturity' in the technology and rising demand. This was reported to have led to an increase in availability of relevant public innovation funding | KTN required alongside other factors to generate outcomes , regarded as significant, working alongside and complementing other factors |
| Case 5 | <ul style="list-style-type: none"> Internal: the firm's willingness to engage in collaborative R&D projects was cited as a key factor, alongside significant financial support from investors/shareholders External: the availability of a range of different UK and EU funding opportunities was identified as a key factor, alongside policy changes which helped to develop the market demand for the opportunities progressed by the firm | KTN required alongside other factors to generate outcomes , with KTN regarded as equally as important as other factors in realising outcomes, both to date and expected |
| Case 6 | <ul style="list-style-type: none"> Internal: the firm's business plan has been regularly refreshed to reflect market conditions and opportunities, this has been a key driver underpinning innovation activity External: none identified | KTN required alongside other factors to generate outcomes , with KTN of "critical importance" to achieving the benefits discussed |

Source: Business case studies

- 6.48 The evidence highlight how KTN support is commonly working alongside other factors and initiatives to deliver innovation outcomes. It is also important to recognise that in most cases the 'internal factors' identified around a willingness to engage in collaborative R&D and other business strategic aims underpinned the firm's initial engagement with KTN. KTN engagement as therefore important to enable the firms; to realise the potential benefits of these behaviours and attitudes.

Key activities in generating impacts

- 6.49 A key research question for the review was which KTN activities are more or less effective e than others. This is not straightforward: the evidence of the review is that businesses – and other partners – most commonly engage with a range of KTN activities (just 42 of the 500 businesses surveyed reported they had been involved in only one activity type), and there is a very wide range of outcomes generated by the engagement. The business case studies highlighted this variation, with each case study focused on firms that had secured a wide range of support from KTN as part of an integrated 'package' of support, with different elements of support complementing each other.
- 6.50 However, econometric analysis has been undertaken on the business survey to seek to identify where there is a statistical association between engagement in each type of broad KTN activity-type (attendance at a KTN event, advice from a KTN expert, participation in a SIG, signposting to the KTP scheme, reading KTN material, and 'other' activity) and key outcome measures. The full results are set out in the supporting document. The findings on key outcomes are summarised below.

Table 6-5: Key findings from econometric analysis on activities

| Outcome for business | Evidence from the econometric analysis | Commentary |
|---|--|---|
| New innovation collaboration established | <ul style="list-style-type: none"> Very strongly associated (at 1% significance) with receiving advice from a KTN expert and participation in a SIG There was also a strong association (at 5% significance) with those firms that had a 'prior involvement in innovation/business network' | <p>Findings suggests that the 'direct' engagement with businesses involved through one-to-one support or SIG participation is most effective in supporting new collaborations</p> <p>Wide survey evidence suggests that businesses value the 'platform' provided by events, but the econometrics may suggest that 'direct' KTN involvement is helpful to ensure that collaboration are realised</p> |
| Increased business-led investment in R&D and innovation | <ul style="list-style-type: none"> Very strongly associated (at 1% significance) with receiving advice from a KTN expert Weak association (at 10% significance) with attending a KTN event and participation in a SIG (although this is not significant when timing of first engagement with KTN is included in the model) No other variables had a strong association | <p>Findings suggests that 'direct' engagement (often on a one-to-one basis) is the principal activity through which increased investment in R&D can be supported by the KTN, with 'one-to-many' mechanisms such as events and SIG not as effective (in themselves) in leading to increased investment</p> |
| Improved understanding of | <ul style="list-style-type: none"> Very strongly associated (at 1% significance) with attending a KTN event | <p>The range of KTN activities associated with the outcome reflects the cross-cutting role of KTN is providing</p> |

| Outcome for business | Evidence from the econometric analysis | Commentary |
|------------------------------|--|--|
| public funding opportunities | <ul style="list-style-type: none"> Strong association (at 5% significance) with participation in a SIG, receiving advice from a KTN expert, reading KTN material, and signposting to KTP scheme No other variables had a strong association | <p>information around public funding opportunities via a range of mechanisms</p> <p>Findings suggest that KTN events in particular are effective in raising business understanding of public funding opportunities</p> |
| Raised profile | <ul style="list-style-type: none"> Very strongly associated (at 1% significance) with attending a KTN event and participation in a SIG No other variables had a strong association | <p>Findings are consistent with what would be expected, with activities involving engagement by businesses with others leading to (observed) raised profile.</p> |

Source: Econometric analysis of business survey results

- 6.51 The emphasis on the importance of 'direct' engagement from the survey analysis is consistent with feedback from business case studies, where the direct relationship between KTN and the business was seen as key in realising outcomes, as one business noted: *'there is no substitute for face to face activity'*.

Satisfaction with KTN

- 6.52 The **review finds that the services of the KTN are generally considered useful by businesses engaged**. However, satisfaction does appear to be strongly correlated with the level of engagement with the KTN, and with the more 'direct' element of support via involvement in SIG or receipt of advice from a KTN expert.
- 6.53 The business survey asked respondents on a scale of 0-10 whether they would recommend the KTN to others (where 0 is they would not recommend the KTN at all, and 10 is that they would recommend unreservedly). Positively, the most common response, by 29% of the survey sample (n=482¹⁵), was 10, with just 2% providing a score of 0.
- 6.54 This data has been used to calculate a 'Net Promoter Score'¹⁶ (NPS) for the KTN for the business survey cohort. The NPS for the survey sample as a whole is +12, indicating a 'net positive' view of the KTN from the survey cohort.
- 6.55 However, consistent with the self-reported additionality findings, the NPS is very different for those businesses that self-reported a 'high' intensity engagement with the KTN at a highly positive +66. This is compared to those that self-reported a 'low' intensity engagement, where the overall score was negative -28, and medium intensity' at +27. The **more KTN engages with a business, the more likely they are to have a positive overall impression of the value of its support offer**.
- 6.56 The econometric analysis also tested satisfaction, based on the likelihood that respondents were 'promoters' (i.e. reporting a 9 or 10 in the survey). Consistent with the NPS data,

¹⁵ 17 businesses were asked the question in the pilot survey where the scoring was slightly different (based on a 1-10 scale); these pilot responses have been excluded to ensure consistency. One respondent did not provide a response.

¹⁶ This is an accepted overall measure of satisfaction, KTN has previously adopted the commonly-used net promoter score in its own survey work. Those responding with a 9 or 10 out of a possible 10 are 'promoters'; those responding with scores of between 0 and 6 are 'detractors'. The net promoter score is the promoters minus detractors.

businesses with 'high' or 'medium' intensity engagement was found to be strongly associated (at 1% significance) with being a promoter relative to those with 'low intensity'. The analysis also found that those involved in a Special Interest Group, and those receiving advice from a KTN expert were also strongly associated (at % significance) with being a 'promoter'.

- 6.57 This does not mean that the other KTN activities such as events and supporting materials are not valued by individual businesses – and the survey data indicates these have led to outcomes around awareness, learning and networking – but it does suggest that when other (observable) factors are taken into account, **those KTN activities that involve 'direct' engagement, both with KTN staff and with other businesses, are seen to be the most useful, as this is reflected in the willingness to recommend KTN to others.**

Comparison to earlier evidence on NPS

- 6.58 In Autumn 2015, KTN completed a survey over 2,000 stakeholders, including businesses. The survey included an equivalent question to identify a NPS for KTN. The average NPS from the survey was +30, which is considerably higher than the overall funding from our survey for this review, however, this +30 score from the 2015 survey includes research organisations and public sector organisations (and other organisation types) alongside businesses.
- 6.59 A more accurate comparison is therefore to focus only on the business respondents to the KTN survey. The two sets of responses are set out in the table below, including the NPS score.

Table 6-6: Net Promotor Score

| Score | KTN survey (2015) respondents (n=844) | Review survey (2017): respondents (n=499) |
|------------|--|--|
| 0 | 14 | 10 |
| 1 | 8 | 11 |
| 2 | 24 | 10 |
| 3 | 19 | 20 |
| 4 | 20 | 16 |
| 5 | 79 | 43 |
| 6 | 77 | 31 |
| 7 | 108 | 54 |
| 8 | 188 | 102 |
| 9 | 130 | 57 |
| 10 | 177 | 145 |
| NPS | +8 | +12 |

Source: KTN Survey (2015) and KTN Review Survey (2017)

- 6.60 The data indicate that the NPS findings is quite similar for the review survey to the earlier survey, if slightly more positive. This uplift in score may potentially reflect the survey sampling that explicitly sought to ensure that those businesses with high engagement were included. However, it is an encouraging finding that the overall level of business satisfaction with KTN appear to be broadly consistent (when considering businesses across all levels of engagement) over the review period.

7. Review of the impacts on the strategic landscape

Section purpose

This section assesses the strategic contribution of KTN, based on evidence from consultations with internal KTN staff and external stakeholders, and thematic case studies of KTN activity.

Summary of key findings

Stakeholder consultations and thematic case study evidence indicate that KTN generates strategic outcomes, in particular improving the policy and strategic landscape for business-led innovation. There is some evidence of time, quality and scale additionality associated with the strategic outcomes reported, but it is difficult to ascertain fully the extent of this.

KTN adds strategic value through providing leadership, acting as a catalyst for innovation, and in the exchange of knowledge and expertise with external stakeholders. However, it is harder to gauge the ability of KTN to influence and leverage resources of external stakeholders.

Whilst the strategic contributions of KTN are evident through specific cases (e.g. response to the Industrial Strategy Challenge Fund; delivery of the Industrial Biotechnology SIG), at an aggregate KTN level the evidence is opaque. Further work needs to be done to address this, and ensure the strategic work of KTN is greater than 'sum of its parts'. In this regard, having greater clarity on the strategic purpose of KTN (at an organisational level), and developing a set of strategic objectives which are operational should provide greater focus and transparency to achieving strategic outcomes.

Understanding KTN's strategic contribution

- 7.1 The strategic contribution of KTN is brought about through its work with stakeholders in government, industry and academia to influence policy and the wider environment for innovation. As highlighted in the overall summary logic model for KTN (Figure 3-1) this involves work across the Activity Strands and senior management, to promote UK innovation, for example through: production of reports and articles; supporting sector and technology strategies/road-maps; inputs to policy debates, government consultations, thought leadership activities; and other engagement with the Innovate UK family and the wider innovation and regulatory landscape.
- 7.2 Given the nature of 'strategic contribution' it can be difficult to capture and evidence (especially quantify) – it may appear relatively intangible and indirect when compared to the direct business outcomes covered in the previous section. In addition, strategic contribution is a 'long-term game', whereby the impacts on a specific sector and the wider innovation landscape may take a long time to work through.
- 7.3 In this context, the review sought to analyse the strategic contributions of KTN in delivering the 'wider outcomes' identified in the overall summary logic model for KTN, including 'improved policy and strategic landscape for business-led innovation in the UK'. In doing so,

the evidence set out below for this is largely based on: perceptions of stakeholders and businesses through consultations and thematic case studies; a document review, including of KTN annual reports and wider literature on capturing strategic contributions. The review also provides recommendations for capturing strategic contributions, to ensure a more systematic approach to this in the future.

Activity focused on strategic contribution

- 7.4 The review evidence suggests KTN undertakes a range of activities which are of a strategic nature. The volume or level of these is hard to gauge fully but reflects that most of KTN's activity is expected to deliver directly against Innovate UK's strategic objectives, with around one-fifth activity to developing the UK's innovation ecosystem. Table 7-1 provides some specific examples of KTN's strategic activity and the associated outputs/outcomes as identified by KTN and captured in the review's research. It is important to note that it was not within the scope of the review to verify the outputs and outcomes reported in the table below (including the degree to which they are additional), nor is the table comprehensive. Nevertheless, the examples indicate KTN contributes to: developing strategies, partnerships and policies; co-ordination of activities across stakeholders; and addressing diversity and inclusion issues in innovation.

Table 7-1: Examples of KTN's strategic activity/contribution

| | KTN activity/contribution | Output/outcome (realised and future) |
|---------------------------------------|---|---|
| Strategy and partnership development | KTN led on the CRM_InnoNet project to inform EU strategy on critical raw materials (CRMs) which are used in various technologies and applications (e.g. ICT, electronics, transport), and which have serious issues around continuity of supply. KTN brought together partners to develop a broader European Expert Network, SCRREEN – a consortium of CRM experts with thirty partners across fifteen countries. | European Funding call on the substitution of critical materials (resulting in UK organisations being awarded nearly half of the available €9 million funding). SCRREEN being a forum for policy-makers and industry, encouraging ongoing dialogue, promoting research and innovation. |
| Strategy development | In partnership with government and industry, KTN helped to update the 2010 Space Innovation and Growth Strategy delivery plan. KTN also contributed to publications on location based services and space insurance. | Production of wider body of research to inform the space community about the competitiveness of the UK business climate and identified opportunities for exploitation. |
| Strategy development | KTN works as the secretariat for the Synthetic Biology Leadership Council which played a key role in the development and delivery of the UK Synthetic Biology Strategic Plan (SBSP) 2016 'Bio-design for the Bio-economy'. The SBSP built on the recommendations in the Synthetic Biology Roadmap (published by Innovate UK in 2012). | Delivery of SBSP which aims to accelerate the commercialisation of synthetic biology products and services with clear public benefit. |
| Partnership development/Co-ordination | KTN led the secretariat in 2016 for the Medicines Manufacturing Industry Partnership (MMIP) and enabled the co-ordination of activities, delivery of workshops, and stakeholder engagement, as well as providing in-depth knowledge of the sector. | Increased efforts to attract the commercial manufacture of advanced therapies – such as cell and gene therapies and tissue-engineered products – in the UK. |

| | KTN activity/contribution | Output/outcome (realised and future) |
|--|--|---|
| Joint-response to consultation - inform policy | KTN hosts the Advisory Board for Digital Health comprising of Innovate UK, NHS consultants, Standards Bodies and academics. As part of their work, the Group jointly responded to a consultation on the National Information Board (NIB) Roadmapping aimed at making access to health and social care services easier for the public through digital services. | Roadmaps were amended and refined, detailing how the proposals made in Personalised Health Care will be progressed over the next five years. |
| Diversity and inclusion | KTN supported the Innovate UK Infocus Programme: Women in Innovation. KTN delivered a business support package for the chosen entries which included a two-day boot camp, with sessions on social media, leadership and engaging investors. | The programme revealed the high demand for more specific support for female innovators and KTN continues to receive funding from Innovate UK to support the Infocus diversity and inclusion activities for 2017-18. |

Source: KTN - Annual Reports (2014/15-2017/18) and other material; SQW

- 7.5 These examples demonstrate some of the strategic activity delivered by KTN. Alongside this activity, information from KTN indicate that over the review period, KTN developed and published over 140 reports, roadmaps and publications (55 in 2014/15, 51 in 2015/16, and 37 2016/17), representing a very significant body of 'collateral' to help inform the innovation community across the UK.

Stakeholder and KTN staff perspectives on strategic outcomes

- 7.6 Overall, the consultation evidence indicates that KTN has made a relatively strong contribution to promoting UK innovation. In particular, the review consultations with external stakeholders identified that KTN had played an important role in developing links between industry and academia, fostering new innovation collaborations; this is consistent with the business survey data set out above.
- 7.7 External consultees also emphasised KTN's success in helping to improve awareness and understanding of public sector funding opportunities across the business base, leading to increased investment in business-led collaborative R&D, again consistent with the business survey evidence. In the view of two external stakeholders:

"The main outcomes for businesses and the research community is the increased awareness of funding opportunities, resulting in increased funding for R&D and innovation and the ability to find suitable partners, leading to increased collaborative activity"

"It is easier to comment on the outcomes for businesses and the research community – from our point of view it has really helped provide an improved understanding of opportunities and has increased the level of business level collaborative R&D through the delivery of various facilitation events".

- 7.8 The outcomes reported are subject to other influences and as such, it is important to question whether there is strong evidence that KTN, rather than other factors, was critical in contributing to the outcomes observed. Other organisations were identified as having contributed to the same outcomes, including: members of the Innovate UK family (in particular the Enterprise Europe Network and Catapults), Research Councils, and trade

organisations. In addition, other wider factors were identified as potentially contributing to the outcomes reported, including external economic conditions, legislative changes and policy developments. KTN was generally considered to be of moderate to critical importance relative to these other factors, although the picture was complex and varied, highlighting how KTN's contribution will be different in different contexts and circumstances.

7.9 The online survey of KTN staff identified two key areas of perceived strategic contribution of KTN:

- *Government engagement and policy development* – connecting and raising awareness within UK Government departments of technology providers; assisting policy development for Innovate UK including the ISCF; work with the Leadership Councils to influence strategy and gather information on the needs of sectors; shaping and informing government policy in terms of increased access to funds for specific sectors.
- *Sector landscape mapping and promotion* – developing and promoting sector landscape maps as a tangible product to use with stakeholders and businesses. For example, the roadmapping exercise for the Content Industries undertaken with the EPSRC was considered particularly productive. It is claimed by KTN staff that this was one of the factors which led to the establishment of Immerse UK (SIG), and the inclusion of immersive technologies in the announcement of research funds relating to the Government's Industrial Strategy.

Evidence from the thematic case studies

7.10 In addition to the stakeholder consultations and online survey of KTN staff, four case studies were selected focusing on the work of KTN in particular 'thematic' areas relating to selected Activity Strands of KTN:

- Special Interest Group - Industrial Biotechnology¹⁷
- Competition support - Industrial Strategy Challenge Fund¹⁸
- Sector - Offshore Wind Innovation Exchange (OWiX) pilot¹⁹
- Access to Funding & Finance – Venturefest²⁰ [**NBSQW – this CS is to be completed**].

7.11 The purpose of the thematic case studies was to explore the specific strategic activity undertaken by KTN to promote UK innovation, and identify the effects that this has had on the development of the market, the academic base, and the policy landscape in the UK. Critically, each case study examined qualitatively the counterfactual (i.e. what would have happened if KTN had not been involved), and the relative contribution of KTN to other factors that may have led to the outcomes and benefits observed.

7.12 All four case studies involved a desk review of relevant background documentation; primary research with the relevant KTN staff involved in the work; and primary research with relevant

¹⁷ <https://ktn-uk.co.uk/programmes/special-interest-groups>

¹⁸ <https://www.gov.uk/government/collections/industrial-strategy-challenge-fund-joint-research-and-innovation>

¹⁹ <http://offshorewindinnovationhub.com/>

²⁰ <https://ktn-uk.co.uk/programmes/venturefest-network>

stakeholders/partners outside of KTN. The full thematic case studies can be found in the accompanying document. The main findings from the thematic case studies are set out below.

7.13 The review found that the key benefits commonly reported (listed below) related to the 'wider outcomes' identified in the overall summary logic model for KTN. Thus, demonstrating the theory set out in the logic model is being realised in practice (or expected in the future).

- **Improved policy and strategic landscape for business-led innovation in the UK:**
 - ISCF - identification and scoping of the six challenge areas which led to business cases for the Wave 1 challenges were developed by Innovate UK and approved by HM Treasury
 - IB SIG - growth (and integration) in the UK's IB community, with more firms adopting IB techniques and R&D projects progressed – growing from a low number of firms in 2010 to c. 60 firms being involved in c. 90 projects (many funded by Innovate UK) by 2015
 - IB SIG - the value of IB to the UK economy has risen from £1.8bn in 2009 to £4.5bn in 2015 – this is claimed by case study consultees to be partly driven by the work of the IB SIG and partners such as the IB Leadership Forum.
- **Improved effectiveness of public investment in R&D:**
 - IB SIG - increased awareness of IB amongst funders and policy makers resulting in more public R&D funding available for IB, for example: Innovate UK's five competitions on "sustainable high-value chemical manufacture through industrial biotechnology" provided a total of c. £11m of funding to almost 50 companies between 2012 and 2015
 - IB SIG - the IB Catalyst²¹ which was jointly funded by Innovate UK, BBSRC and EPSRC, funded approximately 80 projects worth a combined spend of £75m by 2016
 - ISCF - improved understanding of public sector innovation funding opportunities; and de-risking future government investment in R&D by demonstrating that industry and academia are willing to engage with the ISCF.
- **Increased level of cross-sector/technology engagement:**
 - ISCF - some challenge areas are expected to lead to an increased level of cross-sector/technology engagement, for example: developing robotics and artificial intelligence for extreme environments is expected to include the offshore energy, nuclear and space sectors
 - OWiX - SMEs engaged with the Offshore Renewable Energy (ORE) Catapult and with other partners - actively exploring opportunities for cross-industrial proposals. In addition to this, the OWiX attracted knowledge and expertise

²¹ The IB Catalyst was a joint Innovate UK, BBSRC and EPSRC funding competition. See [here](#) for more details.

from cross-sectors to address the offshore wind specific challenges (e.g. marine and med-tech sectors).

- **Improved collaboration between the business and research base:**

- ISCF - case study consultees expected that future funding competitions under all six challenges of Wave 1 of the ISCF would attract collaborations between the business and the research base. This is across all the challenge areas: healthcare and medicines; satellites and space technology; robotics and artificial intelligence; clean and flexible energy; driverless vehicles; and manufacturing and materials of the future.

- **Positive spillovers:**

- IB SIG - environmental spillovers - IB processes use renewable raw material (rather than fossil fuels)
- OWiX - faster development of a supply chain across different sub-sectors within offshore wind.

7.14 The review found some evidence of **time, quality and scale additionality** associated with the strategic activities and outcomes reported. For example, the speed with which KTN organised nine ISCF workshops in eight cities in about one month was thought to be crucial, as was the quality of the attendees (SMEs, multinationals, research organisations, public sector representatives) and the workshop delivery (structure, content and UK wide). Similarly, it was unlikely that the UK's IB community would have developed at the speed and scale since 2013.

7.15 Without KTN (i.e. the counterfactual scenario), other partners and stakeholders could have delivered and contributed to the outcomes reported above (e.g. government, Innovate UK, Research Councils/UKRI, trade associations, regional organisations, and academic networks). However, this would have taken longer, and been of lower quality and/or scale. In some cases, there was no additional cost to using KTN as the support was part of its 'core' activity, although there is perhaps an opportunity cost as KTN had to scale back in other areas of its work to deliver strategic outcomes (e.g. in responding to the ISCF). More widely, developments in science, technology, market, economic and the financial environment were identified as contributing factors to the outcomes realised and expected in the future. Overall, the relative contribution of KTN to other factors was 'moderate-to-high'.

7.16 The review found that a key strength of KTN in delivering these activities related to its credibility, impartiality and neutrality. It is identified as a "flexible" organisation with a uniquely broad and deep network, underpinned by its national reach. Whilst other networks can organise and undertake similar work, including across sectors, they are not considered to be of the same scale as KTN.

Forms of strategic contribution ...

7.17 The strategic influence of KTN as set out above is generally valued by consultees. However, the extent and strength of this influence is less clear. This is partly due to the intrinsic nature of strategic contribution, which is *inter-alia*: indirect, long-term, qualitative, and reliant on a

range of external factors not within the direct control of the intervention (i.e. KTN). In this context, it is useful to apply a degree of rigour and standardised approach to provide a further interpretation of KTN's strategic contributions. Drawing on SQW's reviews and evaluations where strategic contributions was a particular focus, three particular forms of strategic contributions are defined in Table 7-2: 'leadership and catalyst', 'influence and leverage', 'synergy and engagement'. We use these as criteria against which to provide an overall summary on the strategic role of KTN. It is worth noting that the three categories are not mutually exclusive but reinforce each other to ensure strategic contributions are maximised.

Table 7-2: Forms of strategic contributions

| Strategic categories... | ...and their functions | SQW comment |
|--------------------------------|---|---|
| Leadership and catalyst | Communicating effectively innovation needs, opportunities and solutions to stakeholders in ways that affect their policy design and strategic priorities | <ul style="list-style-type: none"> • KTN provides leadership and acts as a catalyst in communicating needs and opportunities to stakeholders that affects their strategic priorities (e.g. strategy and partnership development activities). However, the challenge for KTN is to ensure this communication remains consistent and targeted (and which potentially make more use of digital tools). • Further consistency in communication is required to maximise effectiveness of the leadership KTN provides to stakeholders. • The very existence of KTN is important as it demonstrates the government's and Innovate UK's commitment to promoting collaboration and seeking to develop a genuine innovation community across the UK. |
| Influence and leverage | Affecting the allocation of funds and/or resources by stakeholders at national, regional and local levels through research, pilot studies and other means | <ul style="list-style-type: none"> • KTN is influencing the behaviour of other stakeholders (e.g. Leadership Councils), but it is less clear from the available evidence the degree to which KTN is affecting/leveraging the allocation of resources of stakeholders (especially which is beyond that just of the activity/intervention in question). This is happening to varying degrees. For example, there is evidence of KTN influencing Innovate UK, but less so in terms of innovation funding and programmes of wider external stakeholders (the latter is more difficult to assess from the available evidence). • To address this, KTN ought to consider gathering and recording data on how the allocation of funds/resources of stakeholders have been affected as a result of the engagement with KTN (this may also be captured in a future evaluation of KTN). |
| Synergy and engagement | Improving knowledge exchange and coordination between stakeholders - to reduce duplication, increase innovation and more effective collaboration | <ul style="list-style-type: none"> • There is strong evidence to suggest knowledge exchange and coordination between stakeholders has occurred (e.g. joint-response to consultations, sector roadmapping, ISCF, IB SIG). However, a more systematic approach which is not overly reliant on individual connections with external organisations needs to be considered to ensure corporate (not only personal) links are in place, to ensure sustainability. • The learning from knowledge exchange should be consistently and explicitly recorded across |

| Strategic categories... | ...and their functions | SQW comment |
|-------------------------|------------------------|---|
| | | KTN, so it is more than a 'sum of its parts'; and coordination with stakeholders can be enhanced by make use categorising or segmenting stakeholders depending on their function (see for example categories for partnership working in Table 7-3 below). |

Source: SQW

- 7.18 Overall, the evidence from the review indicates that KTN adds strategic value through providing leadership and acting as a catalyst for innovation. It is hard to gauge the ability of KTN to influence and leverage resources of other stakeholders. KTN also attempts to develop synergies and engage with stakeholders in the exchange of knowledge and expertise, and to simplify the innovation landscape. That said, the review finds that further work could be done against all three categories of strategic contribution. We put forward some suggestions, to which we now turn.

Going forward...

- 7.19 In terms of future development, three initial suggestions are outlined below to help maximise the strategic contribution of KTN. Taken together, they may help Innovate UK and KTN itself to better understand and evidence (and potentially enhanced) KTN's strategic contribution. It is important to mention that these are not meant to be comprehensive, but simply initial outlines to be considered. Their design and implementation requires further consideration by Innovate UK and KTN, if adopted.
- 7.20 First, the review proposes segmenting stakeholders depending on their nature and function. How this is done will need to be thought through by Innovate UK and KTN. For illustrative purposes, the literature commonly identifies the six categories, summarised in Table 7-3. This may make it easier to identify and establish the level and/or strength of the relationships with external organisations - it may also help in affecting the allocation of resources of external organisations especially those outside of the Innovate UK family. This would also draw on the map of the innovation landscape previously depicted in Figure 5-1.

Table 7-3: Categories of partnership working

| Category | Detail |
|--------------------------|---|
| Synergy model | Combines knowledge and resources of partners to achieve more together than they can separately |
| Budget enlargement model | Based on the greater access to funding and other resources afforded by working in partnership rather than separately |
| Transformation model | Gains to be had from exposing partners to their respective working cultures and practices in ways that bring about innovation and a transformation in the way that each of them thinks and operates |
| Systematic partnerships | Involve agencies in jointly seeking strategic solutions to large-scale and deep-rooted problems. This type of partnership has also been described as being focused on strategic facilitation |
| Programme partnerships | Focused on the implementation of programmes or schemes - co-ordinating partnerships |

| Category | Detail |
|------------------------|--|
| Technical partnerships | Usually short-term arrangements to achieve a specific objective - focused on implementation. |

Source: SQW (2009) *Pushing the boundaries of impact evaluation*; based on Carter (2000) *Strategy and partnership in urban regeneration*

- 7.21 Second, strategic outcomes ultimately refer to the changes in attitudes and behaviour of partners and other stakeholders, and their capacity and performance in changing the delivery of their functions in ways that contribute more to the achievement of shared strategic objectives. The review proposes that KTN uses a framework or typology for capturing different types of strategic outcomes, for example as set out in Table 7-4. This may assist not only in identifying and evidencing these types of strategic outcomes, but also provide a more targeted approach to undertaking activities. Evidence against these categorises could form part of an evaluation framework, involving primary research with stakeholders to gather evidence on their perspective on the extent to which these outcomes have been realised as a result of engagement with KTN.

Table 7-4: Strategic outcomes

| Strategic outcome categories | Detail |
|------------------------------|--|
| Analytical capacity | Improvements in the capacity of partners and others to understand and take account of wider strategic interests and the agency in question and its constituents in how they assess their objectives and priorities |
| Functional capacity | Improvements in the ability of partners and others to translate this increased understanding into their budgets, structures and planning procedures |
| Delivery capacity | Improvements in the capacity of partners and others to deliver their assistance, regulations and/or services in ways that take account of the interests of the agency and its constituents |
| Changed performance | By partners and/or stakeholders with regard to the allocation and use of their capacity (knowledge, budgets) to bring about improvements for target beneficiaries and recipients of the joint or integrated interventions. |

Source: SQW (2009) *Pushing the boundaries of impact evaluation*

- 7.22 Third, the review proposes a systems-based thinking and approach is used for the design and implementation of strategic (and other) work of KTN. Through its constituent parts, KTN can be seen to generate outcomes where there is direct and relatively linear engagement with the business base (as reported from the results of the business survey reported earlier in this section). However, when it comes to more strategic contributions, there is greater difficulty in getting a 'sense' of the difference which KTN is making at an organisational level. In this regard, systems thinking can take account of the various functions of large organisations and the wider system in which they operate.
- 7.23 Systems thinking and practice is increasingly being considered in the innovation sphere. This is mainly due to the recognition that the interventions as well as the contexts in which they are delivered are frequently complex. Simple, linear causal relationships often are not realistic – as is the case with knowledge and innovation networks like KTN. They do not operate in a vacuum but in a wider innovation 'system'.

- 7.24 Taking a systems perspective means recognising that it is often the interaction between bottom-up changes in culture/behaviour, and the responses of governments and businesses, with a combination of new technologies, changed market dynamics, and changed policies, that leads to changes in behaviour. Systems-approaches can provide a way of conceptualising and analysing the complexities and interactions. They can also enable understanding of how making a change in one part of an organisation affects another part, including the difference the changes make to outcomes (positive or negative). According to Williams and Hummelbrunner (2011)²², the systemic approach focuses on the key elements of the system in which an intervention takes place; this entails not only looking at actors and interventions, but also the following three key dimensions.
- **Interrelationships** – how things are connected and with what consequences.
 - **Perspectives** – the objectives and interests of different stakeholders.
 - **Boundaries** – defines what is ‘in’ and ‘out’ of a particular inquiry i.e. how is a situation framed (and the practical consequences of this).
- 7.25 The review proposes that KTN use systems thinking/approaches in its business planning for developing a specific strategic strategy. This may help to develop greater clarity on the strategic purpose of KTN (at an organisational level), along with a set of strategic objectives to ensure focus and transparency in achieving strategic outcomes. This could be underpinned by the development of a tailored logic model for the strategic function of KTN in the innovation landscape.

²² Williams, B. and Hummelbrunner, R. (2011) Systems Concepts in Action, A Practitioner's Tool.

8. Review of governance

Section purpose

This section reviews the governance structures that were adopted from April 2014 when the KTN became a single organisation that was established outside of Innovate UK. In doing so, it sets out the evidence on the benefits of the new governance structures, how the structures have facilitated the implementation of the Grant Funding Agreement, and whether any changes or new arrangements should be considered.

Summary of key findings

A number of reasons and benefits were identified as part of the decision to establish KTN as a single independent organisation outside of Innovate UK. The clearest benefits have stemmed from KTN's flexibilities on recruitment. KTN has responded effectively to demands from industry and to new requests for activities from Innovate UK by drawing in new expertise quickly where required. There was also broad consensus of the benefits associated with the distance from government, and the ability of KTN to signpost widely in the innovation landscape. As a step removed from Innovate UK, KTN can engage with organisations on an independent footing with no hidden agendas.

KTN is able to provide strategic inputs, e.g. as a critical friend to Innovate UK and as a voice to government, and a number of examples were noted. As a single entity, KTN can cast widely for views and provide an integrated response on particular areas of policy or operational delivery of Innovate UK. There were questions over how far KTN should be doing this on its own, though given its 'connect' remit it is in a position that adds to Innovate UK's reach and capabilities, and this should be leveraged for strategic thinking, policy influence and operational delivery to a greater extent than is currently the case.

Strengthening individual relationships between Innovate UK and KTN would also help to stimulate this. This should include formal relationships (such as the nature of Executive Team and Board representation) as well as informal bilateral relationships.

Internally within KTN, there are sound arrangements in place for the implementation of the Grant Funding Agreement, including through Board structures and planning processes. However, the monitoring and reporting from KTN to Innovate UK needs to be strengthened. Improved metrics with respect to the delivery of the Grant Funding Agreement should be in place as part of regular reporting to Innovate UK; and Innovate UK should be using this evidence more systematically and feeding back to KTN as appropriate.

In addition to the core grant, Innovate UK commissions KTN to deliver a range of additional pieces of work. This flexibility is welcome, but the process of commissioning needs to be clarified with a stronger and quicker audit and justification process.

There is an opportunity for KTN to raise more of its income from non-Innovate UK sources. There was general agreement that this would be desirable, and this would have governance implications in terms of how such income sources are incentivised, generated and reported upon.

The review identified a number of areas where governance ought to be strengthened. At the current time, refinement to governance is called for, rather than structural changes.

Overview of existing governance

- 8.2 As set out in the Grant Funding Agreement, KTN Ltd is a not-for-profit company limited by guarantee, which manages and operates the KTN programme.²³ Although KTN Ltd has been set up as a separate entity to IUK in order to provide some flexibility and freedom to its operations, Innovate UK has set out within the Grant Funding Agreement a number of key conditions and rights over KTN Ltd, thereby defining the grant funding relationship, and *'to ensure the Grant is used for the purpose for which it is awarded'*.²⁴
- 8.3 Overarching this is the principle that Innovate UK and KTN Ltd will work in partnership to achieve objectives, complete activities and resolve issues, and will act in a spirit of mutual trust and cooperation. Within this, the Grant Funding Agreement sets out a number of specific elements, including: requirements around structures, such as the Company Board (see below); obligations, e.g. for reporting, record-keeping and data confidentiality; monitoring requirements; and other issues such as on branding.
- 8.4 The Grant Funding Agreement also identifies explicitly that KTN is required to align its activities with the strategic objectives of Innovate UK. Through the Agreement, Innovate UK reserves the right to redefine – in consultation with KTN – the direction, objectives and activities of KTN in line with changes to Innovate UK's strategy. As such, whilst KTN is a separate organisation, the Grant Funding Agreement seeks to ensure that it remains aligned and complementary to Innovate UK as the UK's innovation agency.
- 8.5 KTN's organisational governance and structure includes a Company Board of Directors. This currently includes the KTN CEO, an independent Chair, and several (currently three) Non-Executive Directors (NED), one of which is an Innovate UK employee. As discussed later, the Innovate UK attendee reflects the individual's expertise rather than formal Innovate UK representation, and this should be clarified going forward. The second key component to the KTN governance structure is the Advisory Board, which provides advice to the operation of different aspects of the KTN programme. The advisory board includes NEDs, as well as other representatives such as from industry. Other advisory boards exist to support specific topics or sectors. Finally, there are Finance and Audit and Remuneration Committees of the KTN that 'complete' the main elements of the formal governance. Its members are from the KTN Board.
- 8.6 It is important to note that the internal KTN structure has evolved from what was set out in the original delivery plan. The current structure consists of six directorates, covering: Communications and Marketing; Finance and Operations; and four further directorates covering sector/technology areas and cross-cutting issues. These four are:
- Directorate A: Chemistry and Industrial Biotechnology; Agri-Food; Health; and Materials.
 - Directorate B: Infrastructure; Digital economy and creative industries; Transport; Enabling technologies; Emerging technologies and industries; and Complex systems.
 - Directorate C: Access to funding; European programmes; Manufacturing; Development and international.

²³ The Grant Funding Agreement that is the focus of the review covered the June 2015 to March 2017 period.

²⁴ Grant Funding Agreement in relation to the Knowledge Transfer Network.

- Directorate D: Innovation process/design; and Regional.

Benefits of the new governance structure

- 8.7 A number of reasons and anticipated benefits were identified as part of the decision to establish KTN as an independent organisation outside of Innovate UK²⁵. These have been tested through the interviews undertaken as part of the governance review, with varying perceptions of whether KTN has realised these benefits in practice: Table 8-1 provides an overview of the findings. In some cases, this variation has partly reflected the different levels of awareness of KTN and its activities.²⁶
- 8.8 The consultations indicate that the clearest benefits have stemmed from the **flexibilities in relation to procurement and recruitment** that the governance structure has allowed. These flexibilities, especially with respect to recruitment, have enabled KTN to respond effectively and efficiently to demands from industry and to new requests for activities from Innovate UK. Without headcount caps for instance, KTN has been able to recruit additional staff to deliver activities with greater agility than Innovate UK could do. On procurement, the flexibilities have been used by Innovate UK to ask KTN to deliver additional activities. This has resulted in expedited activities that have helped to facilitate delivery of Innovate UK programmes. As is discussed later, however, this has caused tensions and the flexibilities themselves were viewed as being too lax with respect to good procurement practice.
- 8.9 In addition, KTN has used its own website for communications (rather than the gov.uk), and this was viewed by governance consultees as important in engaging with industry. The business survey results show that 80% of survey respondents had read KTN materials; these will mainly have been disseminated via the KTN website, and the scale of engagement with the website is significant with over 210,000 visits to the KTN website in 2016/17²⁷: both data may suggest that the bespoke KTN website is relatively effective as a communication channel with industry. The flexibilities, therefore, have been a genuine benefit of KTN's independent legal status and has served the relationship between KTN and Innovate UK very well – albeit with some needs for tightening on procurement (see more later).
- 8.10 In addition, there has been broad consensus of the benefits associated with the **distance from government**, and the **ability of KTN to signpost widely, i.e. to non-Innovate UK programmes**. The absence of civil servant involvement has provided an external face to industry that has been seen as independent of government, thereby enabling better relationships with organisations that may not traditionally engage with government support and/or may have some concerns around government funding programmes. Whilst this could potentially have been achieved to an extent through alternative governance arrangements (e.g. if KTN was within Innovate UK), the benefits are likely to have been enhanced through independence. Moreover, KTN's more independent position has enabled it to discuss ideas for innovation projects in ways that Innovate UK would not. For instance, KTN has been in a position to help organisations navigate the innovation landscape to find the right support or partner, whether Innovate UK-funded, funded elsewhere or sourced commercially. KTN has not been tied to just selling Innovate UK. This was reinforced by the findings from the business

²⁵ Innovate UK (no date) *The KTN. Who, what and why?* PowerPoint presentation, Unpublished.

²⁶ Note that it was not within the remit of this study to review/comment on the decision to integrate the individual KTNs into a single KTN in 2014.

²⁷ KTN Annual Report 2016/17.

survey: KTN was quite commonly approached because it was viewed as being independent, not for profit and government funded, operating without a “hidden agenda”.

- 8.11 In addition, the independent position has provided a basis for wide-ranging signposting to non-Innovate UK programmes, for instance to European programmes, the Intellectual Property Office, private providers and so on. Some of those consulted did express the view that as beholden to Innovate UK, there were still incentives to push organisations to Innovate UK programmes, though other argued that this would only be where it was clearly appropriate. The data from the business survey corroborates the perception that KTN has most commonly signposted businesses to Innovate UK programmes/instruments, but there is also evidence of signposting to other non-Innovate UK programmes; sources identified in the survey included Horizon 2020, devolved administrations programmes, and the Newton Fund.
- 8.12 The extent to which KTN is reliant on Innovate UK funding was a key point of discussion. In theory, the governance structures should have allowed for providing **support to other agencies and government departments** – and so attracting income from other organisations. However, in practice those consulted agreed that this has been ad hoc and limited, with scope to do more. Two key barriers were noted with respect to this. First, Innovate UK has required KTN to deliver an extensive range of activities, both through the core Grant Funding Agreement and additional activities (see below). As a result of this, along with time spent on restructuring following reductions in budgets, there have been limited resources and incentives to seek work from elsewhere. The second barrier has related to the observed lack of awareness amongst other organisations as to what KTN could do. This is a tricky barrier to overcome, because it would be difficult to justify the use of public sector resources to engage in any kind of proactive business development, and so KTN has simply been in responsive mode with respect to other agencies and departments. It is worth noting in this context that the consultations with wider external stakeholders found mixed views on the reactive and proactive nature of KTN, and its ability to respond to other organisations.
- 8.13 The consultations indicate that other intended benefits, namely the **critical friend role to Innovate UK**, the potential to **provide an additional voice to government**, and the scope for having a **wider vision for accelerating innovation** have been realised to a degree, though there were some differing views on these inter-related aspects. A number of examples were noted, such as the CEO of KTN attending Executive Management meetings of Innovate UK (to provide views), the relationships between KTN and Innovate UK specialists, and the responses provided to certain government reviews. Whilst these could potentially have been realised under alternative governance arrangements, the combination of the 14 KTNs into one was reported to have been critical to the way in which these benefits can be brought about: as a single entity, KTN can cast widely for views and provide an integrated response on particular areas of policy or operational delivery of Innovate UK.
- 8.14 This said, the consultations did identify some uncertainty over whether KTN *should* be providing such responses, and the nature of the wider vision for innovation that it should offer. For example, it was noted that government may not see a difference between a KTN response and an Innovate UK response as they are likely to be seen as the same entity; although it was not clear from consultations with government representatives that this is (or is not) the case. Nevertheless, given KTN's ‘connect’ remit it is in a position that adds to Innovate UK's reach and capabilities, and this could be leveraged for strategic thinking, policy

influence and operational delivery to a greater extent than is currently the case – in particular if the KTN was to continue to be independent of Innovate UK going forward. Whether this is a voice into Innovate UK or a genuinely additional voice to government is likely to depend on the specific issue (e.g. providing thinking on delivery may naturally feed into Innovate UK anyway, whereas policy influence could be to government) and the extent of independence.

- 8.15 The review did not identify examples of where the potential for different (or even conflicting) responses has been an issue. However, there does appear to be scope to provide greater clarity on the appropriate 'audience' for the KTN's perspectives – that is, whether these should be shared 'externally' (for example to Government directly), or with Innovate UK to inform the latter's thinking and position. Such clarity would both mitigate the risk of potential issues down the line, and provide the KTN with a clear 'role' in terms of its contribution to the innovation policy agenda.

Table 8-1: Benefits of the new governance structure

| Intended benefit/purpose | Overall assessment | Examples/commentary |
|--|---|---|
| Distance from Government – not run by Civil Servants and not perceived as government | On balance some benefits , though those consulted indicated that these could have been achieved under other governance arrangements | As an independent entity, the KTN has been able to: (i) engage with organisations unsure about working with or asking for support from government; and (ii) help discuss ideas for possible funding bids. In the first instance, this could feasibly have been achieved under other governance arrangements. In the second, the independence of KTN has been more fundamental – whereas Innovate UK would have had a conflict of interest. |
| Acts as a critical friend to Innovate UK | No consensus here – though on balance evidence of some benefits . View that more benefits could be realised. | There are two key ways that this has been achieved. First, sector experts have been able to feed thinking back to equivalent sector teams in Innovate UK. Second, at senior level, the KTN CEO in particular has inputted to discussions at Innovate UK Executive Management level. Senior level relationships between KTN and Innovate UK could be used more regularly. |
| Provides another voice to strategically respond to government | Examples indicate that there have been some benefits here, and single KTN provides scope to collate range of views. However, question as to whether the KTN should be providing a different voice, or whether this should be through/part of Innovate UK. | There have been examples where KTN has provided inputs to government consultations, e.g. Patient Capital Review and the Nurse Review. The ability for the KTN to reach widely across business, academic and other perspectives has been key to this, facilitated by the KTN being a single organisation (rather than 14 separate networks). Question as to whether the KTN's voice would be understood by government as being separate to Innovate UK's however. |
| Can serve/provide support for other government departments and agencies | Consensus that some limited benefits , but scope for more unrealised as yet. Governance structures are important in KTN being able to do this. | This has been ad hoc, and a number of examples of supporting other agencies were noted, e.g. Scottish Government, Biotechnology and Biological Sciences Research Council, as well as the private sector (e.g. a special interest group for a sector that was not a public priority). |

| Intended benefit/purpose | Overall assessment | Examples/commentary |
|--|--|---|
| | | However, the KTN remains heavily dependent on Innovate UK for its work. |
| Able to signpost companies to the right support, i.e. independent of Innovate UK and so not just a salesperson for Innovate UK | Consensus that there have been reasonable benefits – though with a minor caveat that there is a focus on Innovate UK programmes | Consultees highlighted that the KTN has signposted companies to a range of support outside of Innovate UK programmes, e.g. European funding, intellectual property advice. |
| Provides a wider vision for accelerating innovation, not limited to Innovate UK focus/strategy | Has the scope and connections to provide wider strategic thinking, and examples exist of this. View that there could be more of this type of challenge. | The 'connect' remit of the KTN provides a broad remit for the KTN to consider a wider vision for acceleration innovation. Examples focussed on the special interest groups and inputs to specific sector strategies. Perceived by some that these benefits could be achieved through alternative governance arrangements. |
| KTN has flexibility in relation to procurement, recruitment and focus so that it can adapt to industry demand more freely | Consensus that there have been strong benefits | Whilst Innovate UK has some flexibilities, KTN's are even greater. These have enabled the KTN to more readily recruit extra staff as required and to procure expert services where these have been needed to carry out activities. The independence of the KTN has enabled it to do this. |

Source: SQW, based on consultation responses

Implementation of the Grant Funding Agreement

8.16 Internally within KTN, the review finds that there are sound arrangements in place for the implementation of the Grant Funding Agreement. There are a number of key features of this:

- The Company Board was perceived to be working well. At each Board meeting there is an activity report for the whole KTN, and the Board provides challenge as appropriate, e.g. to understand coverage and how this could be improved. In addition, on a rolling basis a different KTN director presents an update on the activities of their directorate, thereby providing a 'deep dive' into one aspect of KTN at each Board meeting. Also, whilst there are only a few NEDs on the advisory board, they are considered to be effective.
- The Advisory Boards support at different levels, with the overall Advisory Board currently assisting with the changing context of Industrial Strategy for instance, and individual sector/subject Advisory Boards providing steer to KTN's work. It was noted that there could be scope to add representatives to the overall Advisory Board, to bring more breadth and perspectives.
- In terms of personnel, KTN has an annual review which informs their learning and development, and resource requirements. In response to Innovate UK's 2016 restructuring, a key issue in terms of resources is in ensuring that KTN is sufficiently equipped for Innovate UK's new focus on four sector areas.
- KTN continues to respond to areas that could be strengthened, for instance the development of a new client relationship management system. Prompted by Board-

level challenge, there is also consideration as to how data analytics could be better used to address gaps in KTN's coverage and to make new networking introductions (e.g. across different sectors).

- 8.17 The above findings appear to be consistent with results from our online survey of KTN staff²⁸ which indicate that a net positive²⁹ of 48% of respondents 'feel KTN management/leadership has articulated a clear strategy for the organisation'; net positive of 54% report 'KTN is taking steps to implement this strategy'; and a net positive of 57% stated 'I have the resources I need to do my job well'. Notwithstanding the 'bias' associated with self-reporting evidence, these results suggest that internally there is a sense that overall implementation is working and KTN staff are given the resource needed to do their job.
- 8.18 However, the arrangements for the interface between KTN and Innovate UK need to be strengthened. Whilst there are some good aspects to the relationship, a number of gaps and weaknesses were identified by those consulted. On the positive side, for instance, every six months KTN's programme of activities is reviewed with relevant Heads at Innovate UK. Amongst these "many-to-many" links between KTN and Innovate UK are some close working relationships, and these help to facilitate the partnership, enable "buy-in" from both parties, and ensure that the organisations are aligned in their pursuit of objectives.
- 8.19 There is a basis for a strong strategic relationship, though this should be formalised and built on. For instance, KTN's CEO attends relevant agenda items of Innovate UK Executive Management meetings, providing an opportunity to feed into Innovate UK strategic discussions, and take back into KTN any implications for its work. Innovate UK has a NED on the KTN Company Board, although this appointment was based on the individual's expertise and it pre-dated their role at Innovate UK. These arrangements should be formalised, and the Innovate UK presence on the KTN Board should be clarified, either as a NED or observer representing Innovate UK. In addition, there could be more regular senior level discussions between Innovate UK and KTN, e.g. at the level of Chair, CEO and Directors. This would assist in moving more towards a partnership-based relationship, as opposed to the customer-supplier relationship that currently prevails. Such a change will require both organisations to actively foster this new relationship.
- 8.20 The basic principle of monitoring reporting from KTN to Innovate UK for the core grant is in place, though the content does not fully meet the requirements of the agreement. There are monthly reports of progress which are, in the main, narrative reports without any formal metrics and, as discussed in Section 6, data on introductions and collaborations do not appear to have been collected and reported on a consistent basis. Without formal metrics, the requirements as set out in the Grant Funding Agreement have not been fully met, and there was consensus across those consulted (both KTN and Innovate UK representatives) that improved metrics should be in place as part of regular reporting to Innovate UK. This would help to formalise the reporting process and, once established, is likely to save time – with the current narrative reports taking significant time to compile. The monitoring reports should align with the agreed delivery plan at the start of each cycle (e.g. annual) and cover, at the least, expenditure, activities and metrics associated with events, attendees, introductions (B2B and B2R), and new collaborations. Given the networking role of KTN, setting metrics for

²⁸ The online survey of KTN staff was fully completed by 96 respondents.

²⁹ The number agreeing/strongly agreeing to a statement minus the number disagreeing/ strongly disagreeing with the statement

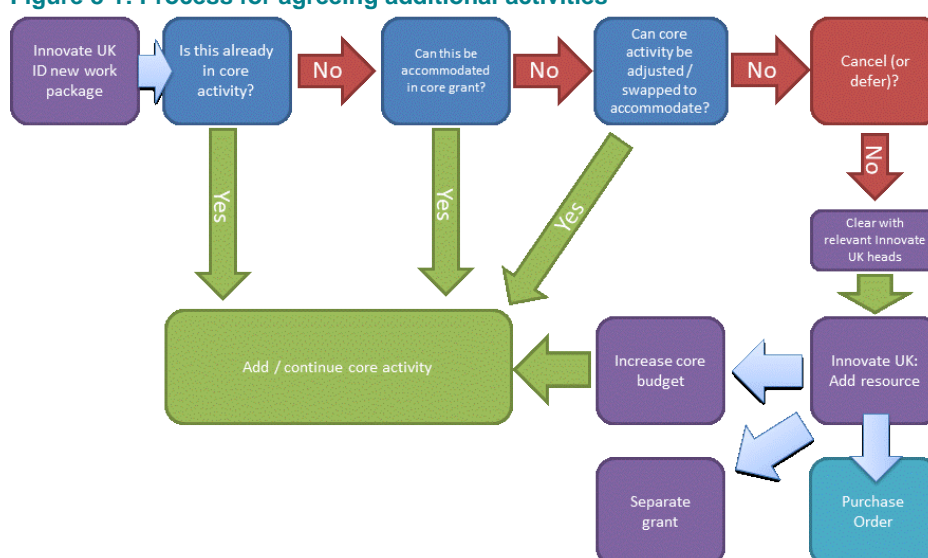
outcomes and impacts that can be tracked through monitoring is challenging. Therefore, greater focus should be given to coverage of networking events and attendees (e.g. geographical, sectoral) to identify where improvements could be made, as well as to use of case studies and user survey feedback. Getting the process and content of monitoring reporting is critical. The frequency should be agreed, and this need not be monthly (as is the case currently); quarterly monitoring ought to meet the needs of KTN and Innovate UK.

- 8.21 The way in which KTN monitoring information is used within Innovate UK is reported to be limited. This may reflect the need to strengthen the robustness of monitoring, and so in parallel to developing a clearer basis for monitoring reports themselves, the process of how these are reported and to whom in Innovate UK should be established. KTN representatives commented on the challenge and feedback that they would welcome from Innovate UK as part of this process.

Delivery of additional activities

- 8.22 In addition to the core grant, Innovate UK commissions KTN to deliver a range of additional pieces of work where it can add value, where the work is a logical extension of its remit, or where KTN is regarded by Innovate UK as best-placed to carry out a particular piece of work. These additional workstreams vary in terms of duration, value and outputs, though it was noted that they are often relatively small scale (such as delivery of a programme of events) with few in excess of £50k. The mechanism for delivery of these projects also varies. They can be added to the core grant, have their own separate grant, or be a contract for services with a purchase order.
- 8.23 The consultations indicated that these additional activities are often initiated bilaterally between different personnel within Innovate UK and KTN. For example, an Innovate UK sector or technology lead may discuss with their equivalent in KTN scope for delivering an additional set of activities. Whilst there is a process for agreeing such additional activities (see Figure 8-1), the consultations indicated that this is not followed in practice.

Figure 8-1: Process for agreeing additional activities



Source: Innovate UK

8.24 This has caused tensions that need to be addressed:

- Innovate UK requires KTN to start on the delivery of additional activities before a separate grant agreement or purchase order is in place. Whilst this has not caused any specific issues to date given the relationships, goodwill and desire to be flexible, the KTN is fundamentally spending resource “at risk”.
- The default position is for the KTN to be commissioned to deliver activities, whether through a new grant or a purchase order. This is increasingly causing some concerns within Innovate UK. There needs to be greater clarity on situations where KTN is the only appropriate supplier and where commissioning of new activities should be subject to procurement (whether grant or purchase order) and state aid rules, and so should be put out to competitive tender. This is currently not happening, which may mean non-compliance, but also result in Innovate UK not receiving best value.

8.25 There was debate in the consultations undertaken as to the appropriate responses to these issues. On the one hand, there was an appetite for a formalised process, which would likely result in more commissioning and potentially slower lead times for implementation of activities. There could be some benefits to this, nevertheless. It would address the issue of KTN undertaking work “at risk”, and may mean that grant agreements or purchase orders were in place sooner. Second, Innovate UK may consider more carefully and strategically the services to be commissioned, which may mean bringing together complementary activities that are currently requested separately.

8.26 In contrast to a call for a more formalised process, the flexibilities of KTN, including its ability to be agile in responding to Innovate UK requests, was identified as a key benefit of the current governance arrangements. If such benefits were lost, this may both impact on Innovate UK's ability to leverage KTN to deliver against its strategic agenda, and raise some questions over the value of KTN as a separate organisation (albeit, the additional activities form a relatively small part of the activities of KTN in the round). In addition, it was noted that if there was simply a process of competitive commissioning, then KTN may choose not to bid for certain activities, even where it was a natural fit given expertise and capabilities; this may lead to the activity being delivered at a lower cost, but less well, and Innovate UK would not be leveraging the expertise and experience that KTN offers.

Recommendations going forward

8.27 Drawing on the review, four key areas of recommendation are identified with respect to governance arrangements:

- **Monitoring:** The process of reporting progress to Innovate UK should be revised and be made more robust. As part of this, a clearer set of defined metrics and wider evidence should be used to highlight how the core activities are being delivered. Innovate UK should provide comment on these monitoring reports, providing challenge and thinking to help inform KTN discussions and actions. In addition, the monitoring reports should summarise the additional activities that are being delivered for Innovate UK and other organisations. Reporting on additional activities for Innovate UK should include clearly-defined metrics covering spend and deliverables. For non-Innovate UK activities, reporting should summarise what is

being delivered and the associated funding to help ensure that Innovate UK has oversight in a single place.

- **Strategic and senior-level relationships:** The attendance of Innovate UK and KTN representatives at respective Executive and Board level meetings should be formalised where this has not already been done. For instance, the representation of Innovate UK at the KTN Board and the capacity of attendance (as a NED or observer on behalf of Innovate UK) should be formalised. In addition, the dialogue between senior representatives of the two organisations should be more frequent and regular. For example, regular diarised meetings to discuss strategic and policy direction should take place between Innovate UK's CEO and KTN's CEO and Chair. Other such relationships at Director level may also be worthwhile.
- **Critical friend and wider voice role of KTN:** The expectations of KTN with respect to its wider inputs to innovation policy should be clarified. KTN is currently undertaking some policy influence activities and there is a lack of common understanding of the KTN's remit in this regard. The evidence from our review indicates that KTN is in a position to collate a wide range of perspectives on policy developments and issues affecting the innovation ecosystem in the UK, and can offer challenge both to Innovate UK and government. This should be acknowledged, and the process for how this is done, e.g. in its own name or through Innovate UK, should be agreed.
- **Commissioning additional activities:** The process for how additional activities are commissioned by Innovate UK of the KTN needs to be clarified. In theory, the process illustrated in Figure 8-1 should be followed. This should be supplemented, at the very least, with a simple 'case' document that justifies the course of action. The case should cover what alternatives to KTN have been considered, and where a single tender to KTN is the preferred option justification of why this represents best value. Innovate UK's Heads of Finance and the Connect Portfolio ought to have final say on approvals for single tenders. Any requirements for purchase orders for new contracted services and grants where there may be scope for other providers offering best value ought to be subject to competitive procurement.

8.28 There are a range of further options for consideration going forward. These are set out in Table 8-2. This includes an option that was discussed with consultees for a substantially different governance structure, through bringing KTN fully in-house within Innovate UK. There are other substantial changes that could also be considered for KTN as part of a formal options assessment, including a 'full independence' model in set-up and operation, with KTN operating without an equivalent to the prevailing Grant Funding Agreement. This would involve significant legal, structural, and resource implications and was not identified as a viable potential option, with no evidence found supporting the case for such a change. **The feedback from the review indicated that refinements, rather than fundamental changes, to governance are most appropriate at the current time.** Three further points are noteworthy in considering the options:

- The opportunity for KTN to raise more of its income from non-Innovate UK sources was frequently stated. This would have governance implications in terms of how such income sources are incentivised, generated and reported upon. The point about

monitoring and reporting is mentioned above. In order to incentivise and support generating of further income sources, there may be a need to establish targets for non-Innovate UK funding, and the use of stronger KTN branding and awareness-raising. A cautionary note is on the funding of business development efforts. It may be difficult to justify using resources for this until private income was generated. Those consulted indicated that this is more likely to happen if the KTN remains independent of Innovate UK, though this may reflect current mindsets. Indeed, whilst countries and agencies differ in their specific contexts, other innovation agencies have track records in raising income, e.g. FINEP in Brazil and OCS in Israel.

- It was also suggested as part of the consultation that an independent KTN could provide more scope for experimentation or challenging the norms than would be the case if it existed within Innovate UK. This relates to the flexibilities afforded to KTN, and also its position one step removed from government. Again, however, other innovation agencies are able to experiment and take risks (e.g. DARPA in the USA and TEKES in Finland); Innovate UK itself has also adapted organisationally and successfully piloted new ideas.
- Finally, if KTN were to have a greater degree of independence, then governance still needs to be strong, with clear performance management in place. The Catapults have arguably been more independent of Innovate UK, and for some of these governance is now being made stronger to address identified weaknesses.

Table 8-2: Further options

| Option | Pros | Cons |
|---|--|--|
| Bring the KTN in-house | <p>Maximises flexibilities for KTN to deliver additional activities for Innovate UK</p> <p>Gives clearer oversight and monitoring of progress</p> | <p>Less flexibility in terms of recruitment, procuring specialist services/sub-contracts, and using own industry-facing website. Would be subject to Innovate UK headcount targets.</p> <p>Would require fundamental restructuring within Innovate UK – though may lead to savings</p> <p>Less able to deliver benefits associated with a semi-independent strategic voice</p> <p>There is no evidence to suggest this is being called for – it also does not align with the wider review findings</p> |
| Shift to 3-yearly contracted delivery plans with greater degree of independence | <p>More funding certainty (if renewed in advance of cycle end dates), and so longer planning cycle for KTN</p> <p>May incentivise securing other funding from non-Innovate UK sources</p> | <p>May mean less flexibility for KTN to respond to Innovate UK's additional requests – though it could still bid for these opportunities</p> <p>Risks associated with greater financial independence – especially if alternative sources of income are difficult to attract</p> |
| Appointment of more and higher profile NEDs | <p>Would help raise awareness of KTN, and so assist with attracting further non-Innovate UK income, and in any advocacy role</p> <p>Would potentially provide wider breadth in expertise</p> | <p>Costs of recruitment</p> <p>Time and costs of managing inputs and in ensuring NEDs are fully up-to-speed</p> |

Source: SQW

9. Value proposition and recommendations

Value proposition of KTN

- 9.1 A key aim of the review was to identify what the evidence suggests was the “value proposition” of KTN since it became a single organisation in 2014, that is what KTN offers that other organisations cannot and do not provide, and that encapsulates its key value to the UK innovation landscape. To address this, we have drawn on the full range of evidence from across the review including the business survey, consultations with external stakeholders in the innovation landscape, primary research with KTN staff, and case studies of businesses and ‘thematic’ activities.
- 9.2 In making this assessment, the following key findings of the review are highlighted.
- First, the evidence indicates that **KTN has made a strong contribution to delivering against its key objectives over 2014-2017**. There are positive findings on a range of business outcomes, for example: increased investment in business-led R&D; new innovation collaborations facilitated; and raising awareness and understanding of new market opportunities. KTN also appears to offer an important mechanism for businesses – particularly for small and medium sized firms. However, **the extent to which outcomes have been realised is linked strongly to the level of engagement with KTN**; where businesses have been more engaged with KTN, the outcomes are more pronounced, meaning that there is a ‘long tail’ of engagement that has generated modest gross outcomes. In turn, the level satisfaction for these businesses with KTN – as evidenced by their willingness to recommend KTN to another business – is quite low.
 - Second, and related to this, **the additionality of outcomes is mixed, and appears to be quite modest overall for KTN**. For example, over a quarter of the businesses surveyed reported that (in their view) the outcomes generated directly as a result of their engagement with KTN would have been achieved in any case, without KTN. There was evidence of important timing additionality of KTN engagement, with over 40% of businesses surveyed reporting they realised outcomes sooner than they would have done without KTN: **this is consistent with KTN’s focus on accelerating innovation**.
 - Third, the complex picture on additionality reflects the **highly flexible way in which KTN engages with business**. There is no ‘standard’ treatment or support offer provided by KTN, and the experience with KTN is therefore very different for different beneficiaries, including in some cases what appears to be very substantial and on-going support for business development. The review also indicates that different elements of KTN support are often complementary, with ‘direct’ engagement (e.g. advice from KTM and engagement in SIGs), working alongside events, information and awareness raising activities which are also important to meeting KTN’s overall remit. Whilst some individual activities do appear to be more strongly associated with positive outcomes – notably advice from a KTM – the **overall ‘package’ of support**

that KTN is able to offer – from awareness raising and funding events, to making introductions, and on to more focused advice – appears to be a key strength.

- Fourth, the review highlights how **KTN is commonly one of a number of reinforcing elements required to generate outcomes**, with KTN often acting as an important early catalyst and facilitator of innovation. This innovation is then progressed through other mechanisms, and support/finance by other funding agencies including Innovate UK. KTN is reliant on these other organisations to realise the potential of the innovations that it helps to stimulate: this is consistent with KTN's overall focus on making connections as a means to promote innovation activity. Put simply, in delivering innovation outcomes, KTN does not stand-alone and complements and often informs a range of other organisations and drivers.
- Fifth, alongside the business outcomes, **there is evidence of the strategic contribution of KTN, notably through providing leadership, acting as a catalyst for innovation, and in the exchange of knowledge and expertise with external stakeholders**. However, further work is required to fully understand the extent and effectiveness of this activity, which was not formalised over the review period.

9.3 In this context, it is challenging to identify explicitly a *single* value proposition of KTN. This partly reflects the nature of KTN as an innovation networking organisation (e.g. intangible properties of networking and R&D tend to be harder to value), the wide range of activities it undertakes and its varied offer to the business base and wider strategic landscape, and the indirect nature of its outcomes, which are often reliant on the activities of other organisations in the innovation landscape to be translated into practical innovations and solutions.

9.4 Added to this is the risk of confusing the 'strengths' of KTN with a value proposition. For example, a key strength consistently found in the primary research relates to the cross-sectoral capabilities of KTN which is underpinned by the 'breadth and depth' of expertise it can offer. However, other networks may have similar features (e.g. sectoral, local networks). Similarly, the knowledge and breadth of expertise embedded in the staff of KTN was also highlighted as a strength; whilst this is important, it does not represent in itself a value proposition that KTN offers to the innovation landscape.

9.5 Notwithstanding the above issues, the review suggests that the value proposition of KTN is that it is a **free-to-access network which has a national reach** enabling it to facilitate connections and collaborations across both the UK and disciplines and sectors. It is also seen as **neutral, and trusted in the innovation landscape**, by both businesses and external stakeholders. The 'flexibility' of KTN in relation to meeting Innovate UK's agenda and wider stakeholders adds to the value it brings. Other networks can organise and undertake similar work, including across sectors, but they are not considered to be of the same **scale** as KTN.

Recommendations

9.6 The following recommendations are made based on the findings of the review, covering all elements of the review – remit, activities, impacts and governance.

- **Recommendation 1:** The use of logic modelling approaches – to set out why KTN is seeking to intervene, what it hopes to achieve, and how this will be measured – should

be integrated into the activity planning and strategic thinking of KTN, at both an Activity Strand and overall level. KTN may wish to use the logic models developed for this review as the starting-point for this process, with logic models updated over time to both reflect changing priorities, and inform activity planning.

- **Recommendation 2:** The rationale underpinning KTN's direct engagement with businesses, and the scope of this activity, should be tested fully. The review indicates that KTN often engages in substantive and intensive engagement with individual businesses, covering a wide range of topics/issues, including specialist sector or technology advice. This offer is important, valued by businesses, and strongly associated with the achievement of outcomes. However, the 'reach' of the offer to businesses is very wide ranging, and more clarity is required on why KTN (not other actors in the innovation landscape) is best placed to offer this level of support. Greater clarity here on the scope of the offer - what KTN will and will not do with businesses – may help to drive-up additionality.
- **Recommendation 3:** The review indicates that there is some uncertainty across the innovation landscape over the core rationale and objectives of KTN, notably amongst industry representatives and those that are 'further away' from the Innovate UK 'family' and related government bodies. Innovate UK and KTN should ensure that the core of what KTN does (and why) is communicated consistently to all key players in the innovation landscape. The 'innovation map' used as part of this study may be the starting point for this external communications effort.
- **Recommendation 4:** The KPIs used by KTN should be revised to ensure there is (i) the ability for direct attribution to its activity and (ii) that there is no ambiguity in statement or collation of key terms and definitions used. As part of this, the review suggests that the use of 'value' should be considered, and potentially dropped, given the long time-paths to impacts and challenges in direct attribution.
 - Our view is that KPIs should focus on: increased investment on R&D and innovation directly attributed to KTN; number of collaborations facilitated by KTN; proportion of collaborations facilitated leading to practical R&D activity; number of funding submissions improved by KTN; and funding secured for businesses supported by KTN with improved submissions. The latter should distinguish between 'new' and 'existing' businesses, however, this definition needs to be used consistently across KTN to ensure that data are accurate.
- **Recommendation 5:** Working with Innovate UK, KTN should consider a more structured approach to engagement with other organisations in the innovation landscape, with a clear 'prioritisation' of where it can best engage to deliver against its aims and objectives. The review suggests that this engagement to date has been largely 'ad-hoc', rather than 'strategic', and such an approach will also enable a more targeted approach to engage with organisations where gaps are identified; again, the 'innovation map' could be used here to prioritise engagement going forward.
- **Recommendation 6:** KTN monitoring practice should be improved, operating at two levels:

- Monitoring *within* KTN needs to be more consistent and systematised. The review suggests that monitoring practiced is very varied across the Activity Strands, leading to gaps at the aggregate level. The new CRM system in place should help to drive behaviours here, alongside the proposed logic modelling approach and revised KPIs set out in preceding recommendations.
- The process of *reporting progress to Innovate UK* should be revised, with a clearer set of defined metrics (see Recommendation 4) and wider evidence used to highlight how the core activities are being delivered. Innovate UK should provide comment on these monitoring reports, providing challenge and thinking to help inform KTN discussions and actions. In addition, the monitoring reports should summarise the additional activities that are being delivered for Innovate UK and other organisations. These need not report on deliverables, though a summary of what is being delivered and the value would help ensure that Innovate UK has oversight in a single place.
- **Recommendation 7:** The attendance of Innovate UK and KTN representatives at respective Executive and Board level meetings should be formalised where this has not already been done. For instance, the representation of Innovate UK at KTN Board and the capacity of attendance (as a NED or observer on behalf of Innovate UK) should be formalised. In addition, the dialogue between senior representatives of the two organisations should be more frequent and regular. For example, regular diarised meetings to discuss strategic and policy direction should take place between Innovate UK's CEO and KTN's CEO and Chair. Other such relationships at Director level may also be worthwhile.
- **Recommendation 8:** The expectations of KTN with respect to its wider inputs to innovation policy should be clarified. KTN is currently undertaking some policy influence activities and there is a lack of common understanding of the KTN's remit in this regard. The evidence indicates that KTN is in a position to collate a wide range of perspectives on policy developments and issues affecting the innovation ecosystem in the UK, and can offer challenge both to Innovate UK and government. This should be acknowledged, and the process for how this is done, e.g. in its own name or through Innovate UK, should be agreed.
- **Recommendation 9:** The process for how additional activities delivered by KTN are commissioned by Innovate needs to be clarified. The process illustrated in Figure 8-1 should be followed. This should be supplemented, at the very least, with a simple 'case' document that justifies the course of action. The case should cover what alternatives to the KTN have been considered, and where a single tender to the KTN is the preferred option justification of why this represents best value. Innovate UK's Heads of Finance and the Connect Portfolio ought to have final say on approvals for single tenders. Any requirements for purchase orders for new contracted services and grants where there may be scope for other providers offering best value ought to be subject to competitive procurement.
- **Recommendation 10:** Innovate UK and KTN should consider establishing a formal evaluation framework for KTN, to inform an impact and economic evaluation of KTN to cover any future Grant Funding Agreement (or similar) periods. Reflecting the

complicated and complex nature of KTN – with very varied treatments, many actors, and emergent outcomes – this evaluation framework is likely to require a mixed methods approach. However, as part of this, it may be appropriate to consider establishing a ‘panel’ of businesses with whom KTN engages that can be tracked over time to understand in more detail how KTN activities are leading to outcomes and benefits in ‘real time’. The evaluation framework should also consider the viability of establishing a formal ‘control group’ of businesses. Ensuring that comprehensive contact data, and information on the nature and scale of activity in a consistent manner will also be important to inform this programme of evaluation research.

- **Recommendation 11:** It is important to maximise and demonstrate the strategic contributions of KTN, particularly at an organisational level. In this regard, Innovate and KTN should provide further clarity on the strategic purpose of KTN (at an organisational level), and develop a set of externally-focused strategic objectives. This should provide greater focus and transparency to achieving strategic outcomes. KTN may wish to consider three proposals as part of a wider strategic strategy: segment stakeholders depending on their nature and function; use a framework/typology for capturing different types of strategic outcomes; and use systems thinking and approaches for strategy development. The design and implementation of these would require further consideration by Innovate UK and KTN, if adopted.

9.7 Finally, the evidence from the review suggest that all elements of the core ‘connect and engage’ activity delivered by KTN lead to positive benefits, including information raising activity, event management, application mentoring, and direct engagement on innovation activity including SIGs, and one-to-one support. This evidence does not support a recommendation that any of this core activity should be stopped; rather existing KTN activity should continue. However, in this context, one final recommendation is made:

- **Recommendation 12:** KTN should consider putting in place a more targeted and segmented approach to client acquisition and support, regarding the one-to-one engagement element of its work. The review indicates that there is a ‘long tail’ of businesses engaged with KTN where the engagement is limited, and the outcomes are modest; a more targeted approach may help to drive-up additionality and generate greater impact.