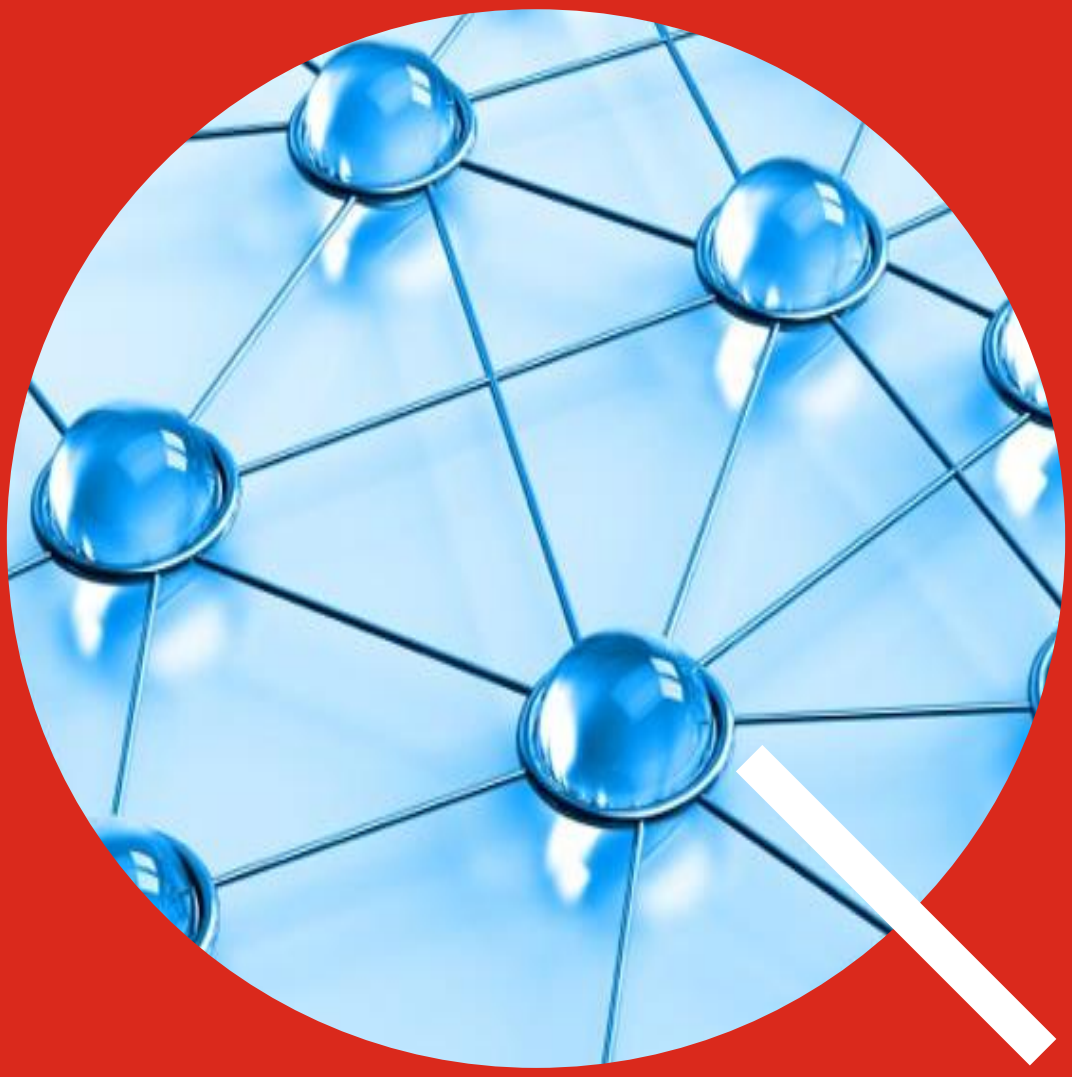
October 2020

Knowledge Exchange Funding: Novel Evaluation Methodologies

Phase Two

Final Report



SQW

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1. Introduction

Background and context

1.1 The Higher Education Innovation Fund (HEIF) is a well-established component of the UK's knowledge exchange (KE) landscape. It has operated since 2001 based on an earlier programme which sat alongside the Higher Education Business and Community Interaction (HEB-CI) survey launched in 1999. This collects financial and output data related to KE each academic year. Since 2001 HEIF has been distributed to higher education institutions (HEIs) in England to support the delivery of institutional KE strategies. HEIF is a strategic fund that is used to increase and improve HEIs' strategic development, including their capacity, capability and performance for KE. It supports the broad range of knowledge-based interactions between institutions and the wider world including the exchange of ideas, evidence and expertise which result in economic and social impact.

1.2 HEIF is administered by Research England (RE), and in line with RE's role it supports institutional strategy and delivery in KE through allocating funds through a performance-based formula. This allows institutional leaders to take responsibility for, and determine, the most effective use of funds in line with their broader strategic objectives and understanding of their particular underlying academic and institutional capabilities – to address Government priorities. HEIF is allocated selectively taking account of performance; currently, approximately 80% of eligible HEIs in England benefit. In 2019/20, HEIF allocated £213m to HEIs, calculated based on data taken from the HE-BCI survey for 2015-16 to 2017-18. In 2020/21, Research England's HEIF allocation increased to £250m, which was the first year of a new five-year strategic period to 2024-25[1]. All institutions in receipt of HEIF are required to have a Research England approved accountability statement.

1.3 A full-scale evaluation of HEIF was published in 2009[2]. This produced quantitative evidence on the value of HEIF, particularly in terms of its return on investment (ROI), which focused on the comparison of investment via HEIF (and other 'third stream' funding at the time) and income from KE activities (e.g. from collaborative and contract research, Continuous Professional Development etc.) as a proxy for impact on the economy and society. The 2009 evaluation was updated in 2015[3], with an evaluation focused on quantitative impacts. A separate qualitative evaluation of the Fund also took place in 2015[4]. This produced insights on the additional non-monetised value of HEIF and a series of case studies that provided a narrative on the non-quantifiable value of the Fund.

[1] In response to the Covid-19 pandemic, Research England have separated the reporting requirements for 2020-21 from the remainder of the new five year funding period (see more details here)
[2] PACEC & University of Cambridge Centre for Business Research, 2009. *Evaluation of the effectiveness and role of HEFCE/OSI third stream funding* (accessible here).
[3] Ulrichsen, 2015. *Assessing the economic impacts of the Higher Education Innovation Fund: A mixed-method quantitative assessment* (accessible here).
[4] PACEC, 2015. *Evaluating the non-monetised achievements of the Higher Education Innovation Fund* (accessible here).

1.4 However, while quantitative evaluations have provided good evidence on the ROI using monetised measures and benefits of HEIF support, they have generated high-level and averaged results. Crucially, they have not provided (and were not intended to provide) evidence of how different uses of HEIF drive different and specific impacts, and the relationships between activities and resulting outputs and outcomes across different categories of KE. This evidence gap means that although there is historic evidence on what HEIF has achieved in quantitative terms, and an established process to replicate this evidence in the future, '*how*' it has done this – which can both help to inform strategy and demonstrate further the value of the Fund – is uncertain.

1.5 This is in part due to challenges associated with evaluating a programme of funding as broad and as complex as HEIF. Key characteristics of HEIF that make understanding the pathways to outputs and outcomes complex include:

- the diversity of HEIs funded – particularly in scale but also in their underlying academic and institutional capabilities that drive their KE strategic objectives. To illustrate, the Fund provided support to over 100 institutions in the latest (2019/20) funding round, which each has its own model and approach to the delivery of KE activity
- the flexible nature of HEIF, and consequentially the variety of KE activities it supports
- challenges delineating the relative impact of HEIF from the impact of HEIs' other funding sources; and
- identifying longer-term impacts generated by KE activity, and the likelihood that these impacts will have been driven by multiple inputs.

1.6 In this context, Research England commissioned SQW, supported by City-REDI, to undertake a study examining the potential for the use of novel theory-based approaches as part of the next overall evaluation of HEIF. Such theory-based approaches have not previously been implemented systematically or at a national level in a UK KE context.

1.7 The aim was to consider a potential approach/approaches that can complement quantitative evidence on the outcomes and impacts HEIF funding is generating (i.e. the 'what'), with systematic and robust evidence on the mechanisms by which HEIF-funded activities lead to these outcomes/impacts (i.e. the 'how').

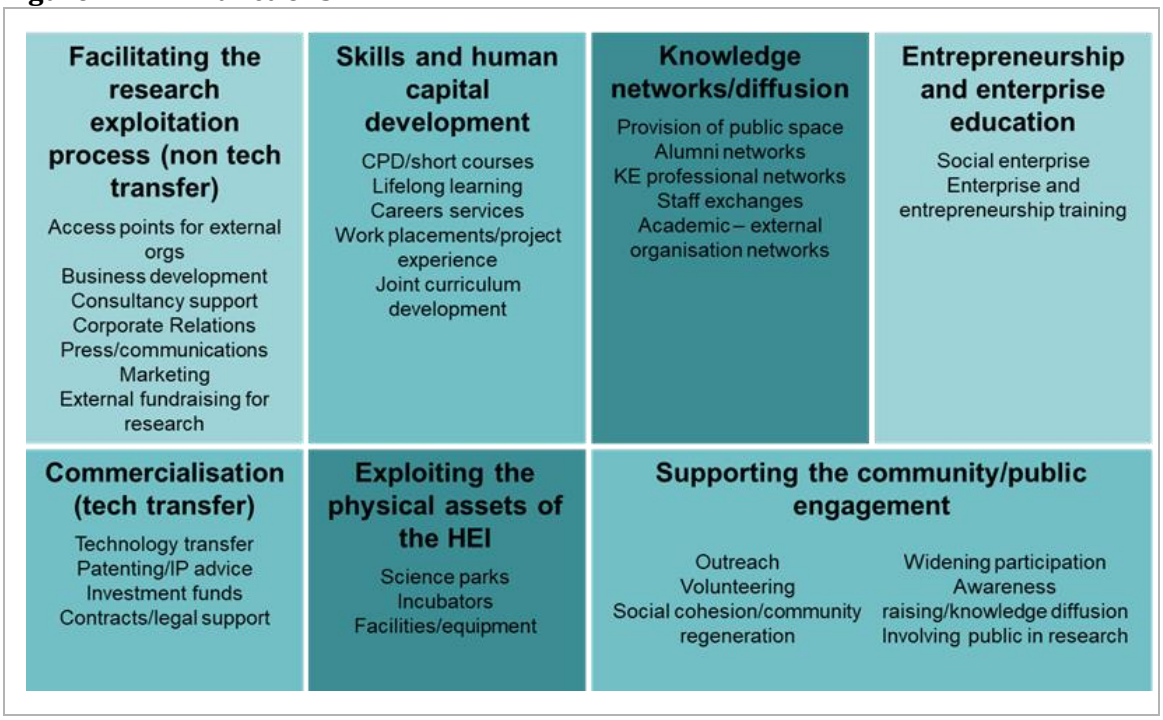
1.8 Specifically, the study sought to identify (including via a formal review of academic literature) and test potential theory-based approaches that would enable an evaluation to:

- **Provide better explanation of 'how' HEIF generates impact**: exposing the relationship between inputs, activities, outputs, and outcomes, and considering its relative contribution alongside other factors and activities, which may also provide insights on improving the efficiency and effectiveness of the programme.

- **Provide more detail and granularity on HEIF impact, beyond average return on investment (ROI) figures**: focusing on giving a more complete picture of value created, which can help to inform policymaking.
- **Although the focus of this work was on programme evaluation at the national level, both points listed above may also provide insights for Higher Education Providers (HEPs) on good practices.**

1.9 The study was structured around institutional uses of HEIF against the delivery of seven broad KE functions (summarised in Figure 1-1).This depiction has been adopted by Research England based on evidence from the 2009 evaluation, reflecting that the functions are sector-wide stylisations and will vary in any particular HEP. These are used, for example, in HEIF institutional templates to record expenditure for use in quantitative evaluations. The study did not seek to develop an updated or alternative function typology. Rather, the functions were identified as a framework around which potential theory-based methodologies for the evaluation of HEIF could be framed.

Figure 1-1: KE Functions



Source: The state of the English university knowledge exchange landscape (RSM PACEC, 2017)

1.10 Two points are noted in this context. First, for the purposes of the study, the activities covered by the 'Entrepreneurship and enterprise education' function were considered as part of other functions given the read across and linkages (notably to the 'Skills and human capital development' function). Second, whilst a formal assessment was not covered by the study, we do make some comments in relation to the function depiction in the final section of this report, drawing on the study process.

Summary of outputs from Phase One

1.11 The study on novel evaluation methods (referred to as Phase One) was completed in November 2019 and published by Research England[5]. Phase One identified methodologies deemed appropriate to meet the requirements for the evaluation of HEIF. The 'core' method proposed was Contribution Analysis. Two KE functions that had sound HEBCI metrics to provide proxies for impacts were chosen to test the insights, so that the work could focus on the logic around these impacts.

Contribution Analysis

Contribution Analysis is a theory-driven approach that aims to define the links between each element of a Logic Model. The theoretical links between an intervention and the expected impacts are then tested and refined.

It provides a framework for analysing not just whether an intervention has had an impact, but how that impact materialised and whether any particular element of the intervention or contextual factors were crucial to the impact.

It builds up evidence to explain and demonstrate the contribution an intervention makes to subsequent outcomes, whilst also establishing the relative importance of wider factors. This produces a 'contribution story' about the influence that the intervention itself (instead of or alongside other factors) has had on the realisation of observed outcomes.

1.12 Phase One identified the use of Realist Evaluation as a potential supplementary approach, considering individual outcomes in more detail. This is an approach that seeks to examine '*what works, for whom, to what extent, and in what contexts*' by seeking to identify the 'generative mechanisms' that enable an intervention to achieve results, including those that influence its success in different contexts.

1.13 Both Contribution Analysis and Realist Evaluation rely on the development of a 'Logic Model' and associated 'Theory of Change' (ToC) at the outset of an evaluation process, which serve as the hypothesis for the subsequent evaluation research to test. Phase One involved developing Logic Models and ToCs for two KE functions as 'exemplars', with input from KE practitioners: 'Facilitating the research exploitation process', and 'Skills and human capital development, including enterprise education'[6].

[5] The report is published here

[6] Enterprise education is an element of the 'Entrepreneurship and Enterprise Education' function in the depiction in Figure 1-1. Based on discussion with Research England and for the purposes of this study it was included within the 'Skills and Human Capital Development' function given its read across within this function and the similarity in outcomes between the two.

Logic Models and Theories of Change

Logic Models set out the key building blocks of an intervention or activity: inputs (financial and non-financial), activities, outputs, and outcomes. For example, as seen in the 'Commercialisation' Logic Model below, inputs include HEIF funding and staff time, while activities include specialist advice on issues related to knowledge ownership such as patenting/IP. Outputs generated within this function included patents filed, leading on to outcomes including new business and job creation. Logic Models are useful devices to inform evaluation because they encourage thinking about the steps required for an intervention to have its desired effects.

A Theory of Change sets out how an intervention is expected to work, considering the links between the building blocks of the Logic Model, and the assumptions, barriers and other factors that will influence the pathway from activity to outcomes. In the example provided above within the 'Commercialisation' function, HEI staff time would be used to provide support to academics (or students) with understanding/managing knowledge ownership which, if successful would lead to patents being filed and if granted, possibly creating new businesses and therefore jobs. Assumptions underpinning this include that academics (and students) need support owing to issues such information asymmetries/gaps, and that effective relationships are established in the support pathway that facilitate the progress of ideas to commercialisation. In short, a Theory of Change considers the causal mechanisms by which an intervention is expected to achieve its outcomes.

1.14 The process of developing the Logic Models/ToCs for the KE functions highlighted that the pathways to outcomes for HEIF are complex, and indicated that there will be important linkages and inter-dependencies between different KE functions. Phase One also identified the important role of KE practitioners supported by HEIF working across KE functions. The work focussed at the operational level and hence did not explore the role of HEIF in development of institutional KE strategic objectives and KE leadership.

The focus of Phase Two

1.15 Following the completion of Phase One, Research England commissioned the SQW-led team, to lead a follow-on Phase Two, the focus of this report.

1.16 The purpose of Phase Two was to develop Logic Models/ToCs for the remaining four KE functions ('Commercialisation: technology transfer', 'Knowledge sharing and diffusion', 'Supporting the community and public engagement', and 'Exploiting the HEI's physical assets'), providing Research England with the 'full-set' of Logic Models and ToCs. Phase Two was also expected to comment on the integration of the Logic Models/ToCs, and the implications of this for the next evaluation of HEIF.

2. Methodology

Research approach

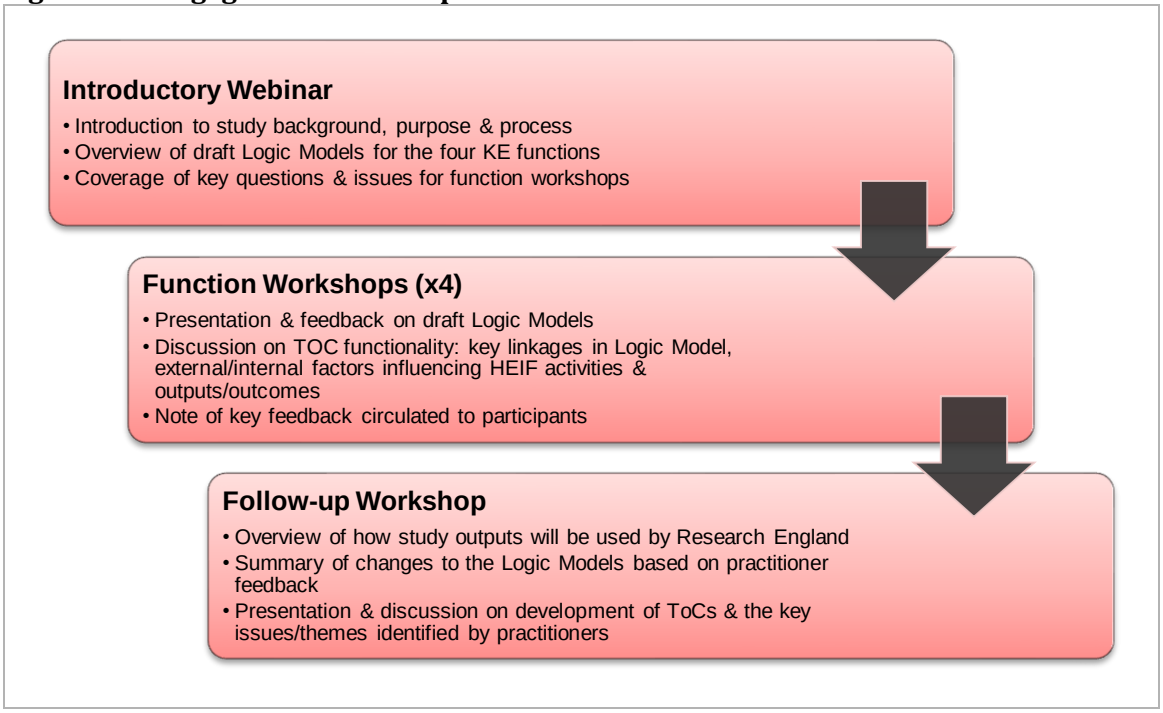
2.1 Phase Two adopted a consistent approach to the development of the Logic Models and ToCs as delivered in Phase One, including engagement with KE practitioners from HEIs across England, organised via PraxisAuril.

2.2 This involved:

- **Document review of key reports on KE and HEIF activity**[7], providing an indication on the nature of activities and outputs/outcomes associated with the four functions covered by Phase Two:
  - Commercialisation: technology transfer
  - Knowledge sharing and diffusion
  - Supporting the community and public engagement
  - Exploiting the HEI's physical assets
- **Development of draft Logic Models for each of the four functions**, identifying the activity supported by HEIF within each function, and the outputs/outcomes that result drawing on the document review.
- **Engagement with KE practitioners** to test the Logic Models and discuss the key issues and factors to be considered in the development of the Theories of Change. The approach taken to engagement with KE practitioners in Phase Two is set out in Figure 2-1. Across the functions, 19 KE practitioners were involved in the process, covering a wide range of institution types, from large research intensive and multi-disciplinary HEIs, to small specialist HEIs.
- **Development of Theories of Change for each of the four functions**, drawing on the feedback from practitioners, setting out the linkages between the inputs, activities, outputs and outcomes (differentiated by direct intermediate and final outcomes, and indirect outcomes where relevant) in the Logic Models. The ToCs also set out the assumptions, risks/barriers and other factors (internal to HEIs and externally) that will influence pathways from activity to outcomes.
- **Review of the 'full set' of Logic Models and ToCs**, drawing out the key issues related to linkages and integration across the functions, implications for the proposed implementation of novel evaluation methods, and key reflections from the process.

[7] Including: PACEC/CBR (2011), Understanding the Knowledge Exchange Infrastructure in the English Higher Education Sector; PACEC (2015), Evaluating the Non Monetised Achievements of the Higher Education Innovation Fund; and RSM PACEC (2017), The state of the English university knowledge exchange landscape.

Figure 2-1: Engagement with KE practitioners



Purpose of the Logic Models and ToCs

2.3 Three important (and related) points are highlighted regarding the purpose of the Logic Models and associated ToCs developed through Phase Two:

- **They focus on the activities (and associated outputs/outcomes) that are delivered specifically through the use of HEIF resource, they do *not* seek to depict all KE activity associated with each function**. Given the enabling and flexible nature of HEIF this distinction is not straightforward, however, it is important to recognise that the Logic Models and associated ToCs will not cover all KE activities delivered by HEIs to meet their institutional aims and objectives.

- **They are intended to be descriptive not prescriptive as the basis for informing sector wide/national programme evaluation**. That is, they set out the types of activities that *are* supported by HEIF within the functions based on the document review/practitioner feedback, but they are in no way identifying what activity *should be* funded by HEIF, nor what activities any particular HEP should pursue and how they should pursue it, given ToCs are sector wide aggregates. The purpose of the Logic Models and ToCs is rather to inform national sector-wide programme evaluation activity (which will involve testing and iterating the current depictions set out in the report below), to derive insights on impacts and also efficiency and effectiveness.

- **They are intended to be reasonably comprehensive (though at high level/sector aggregate picture) but reflecting important HEI diversity.** The activity-types contained in the Logic Models are kept purposefully broad and at an aggregated level to provide an appropriate picture for the English HE sector as a whole. Therefore, they do

not seek to identify each individual action/transaction that will be involved across broad activities or capture every possible type of activity that may be delivered. The extent to which other types of activity are, in practice, delivered through HEIF resource (and their subsequent outputs and outcomes) will be considered as part of a full evaluation.

3. Logic Models and Theories of Change

Key themes and considerations

… in developing the Phase Two Logic Models and ToCs

3.1 This Section sets out the six Logic Models and associated ToCs developed throughout Phase One and Phase Two of this study. As explained above, Phase Two focussed on developing the Logic Models/ToCs for four KE functions ('Commercialisation: technology transfer', 'Knowledge sharing and diffusion', 'Supporting the community and public engagement', and 'Exploiting the HEI's physical assets').

3.2 The Logic Models and associated ToCs developed in Phase Two were informed by a number of key themes and messages that emerged from engagement with KE practitioners (outlined in Section 2 and set out in more detail in Annex A):

- **HEIF is a dynamic source of funding that enables a wide range of activities**, including institutional strategic development and KE leadership, ringfencing staff time for KE activities, supporting innovative/pilot activities, widening the reach and engagement in existing knowledge exchange activities, and supporting relationship development and new and enhanced partnerships across several knowledge exchange functions. The role of HEIF in enabling better quality, and more strategic KE activity was also highlighted as a key theme: this was recognised as challenging to capture in Logic Model and ToC depictions. However, it will need to be recognised in the subsequent evaluation activity. i.e. HEIF is not simply about doing 'more things', but also 'doing things better'.

- **The importance of the interactions between HEIF and other sources of funding** e.g. where institutions use HEIF to fund resource to manage ERDF-funded projects/activities. A common theme from across the workshops was that HEIF's role is often to provide the 'glue' between different funding sources for activities across functions. How this is realised practically will vary across institutions, depending on access to and use of other sources of funding, as well as the institution's priorities or strategies.

- **The role of place and local and regional context as well as wider communities of various sorts**, in informing the use of HEIF, and in realising outputs and outcomes. This reflects the role of HEIs as key 'anchor' economic development and strategic institutions in their local areas and communities.

- **The recognition that KE activities are rarely transactional** – instead, as inherent when engaging in knowledge *exchange* rather than *transfer,* they are typified as a set of two-way relationships and iterative processes, highlighting the importance of relationship development and the non-linearity of processes within functions. For example, by using HEIF to resource strategic engagement with local/regional policy planning groups, HEIs may generate new or enhanced partnerships with key stakeholders, leading to enhanced

alignment between institutional and policy agendas. This alignment in turn may create the potential for other forms of knowledge diffusion and strategic engagement, leading to both outcomes for the HEI (e.g. in terms of reputation), and local businesses, and public and third sector organisations.

… in reflecting on the Phase One Logic Models and ToCs

3.3 Feedback obtained from the KE practitioner workshops conducted in Phase Two also suggested some revisions to the Logic Models and ToCs developed in Phase One. The focus here was not to revise substantively the content of the two Phase One function depictions, but rather to ensure consistency across the 'full set' of six function-level depictions, to inform the potential evaluation research. Four changes have been made:

- **The distinction between direct and indirect outcomes has been clarified and emphasised**, with some additional indirect outcomes added. For example, outcomes on 'improved policy making' and 'wider economic and social effects' in the 'Facilitating the research exploitation process' function have been identified explicitly as indirect, with the same for the 'new enterprises started-up' and the resulting business outcomes (e.g. employment, turnover and investment) in the 'Skills and human capital development' function. In addition, reflecting on the feedback in Phase Two, a number of further indirect outcomes have been included. For example, 'increased employability for students' was added in the 'Facilitating the research exploitation process' depiction, and 'contribution to local/regional economic growth' in 'Skills and human capital development'.

- **The outcome 'income generation' has been revised to reflect the focus on income generated through KE as an enabler for further KE activity**. This positive feedback loop associated with income generation is recognised as important in supporting the sustainability and continuity of KE activity. It is also important to distinguish this from income used as a proxy for impact.

- **Reputation-related outcomes for HEIs has been included/emphasized**, drawing on feedback from practitioners in Phase Two. This highlighted that engaging with, partnering and supporting businesses, delivering successful consultancy and collaborative research projects and attending events are all likely to enhance the HEI's reputation within local areas and wider communities. This outcome has been added to the 'Facilitating the research exploitation process' Logic Model/ToC and broadened in the 'Skills and human capital development' (which previously included reputation as an outcome, but only in reference to graduate employment).

- **The role of the research pipeline that provides the basis for exploitation has been included explicitly as an input in the 'Facilitating the research exploitation process' Logic Model/ToC**. Recognising this pipeline in the knowledge exchange process (specifically commercialisation) was highlighted in Phase Two, and this is directly relevant for the 'Facilitating the research exploitation process'.

… and in reflecting on their use by policy makers

3.4 Reflecting the range of activity supported by HEIF, and the complexity of routes to impacts, the Logic Models (and resulting Theories of Change) developed at a function level in Phase One and Phase Two are detailed. This detail is important to inform the proposed qualitative evaluation methods.

3.5 However, to facilitate the wider usage of the study's outputs in discussions with policy makers, a high-level 'summary' Logic Model looking across the functions was developed. This 'summary Logic Model' provides an accessible overview (complementing the detailed function-level depictions) of the ways in which HEIF is used at an operational level across the KE functions, and the types of outputs and outcomes that can be expected to be generated from this broad suite of activity.

Logic Models and Theories of Change

3.6 The 'summary' Logic Model, and the six detailed 'function-level' Logic Models and Theories of Change are set out below.

Summary Logic Model; uses of HEIF funding

Inputs	Activities	Outputs	Outcomes
• HEIF funding • Other sources of funding (e.g. research councils, government, seedcorn funding, venture capital, tuition fees) • Time from HEI staff (incl. tech transfer office) • Time from partner organisations • Time from beneficiaries (academic, students, external businesses etc.) • Pre-existing knowledge & technical understanding • Institutional missions and capabilities • Regional/ local contextual factors (incl. ecosystems, key stakeholders) • Pre-existing networks & partnerships • HEI assets, facilities & equipment • Research pipeline (with commercialisation potential)	• Support on knowledge ownership (e.g. patenting, IP, legal advice/ management) • Support for pilot / innovative KE projects / activities • Management of investment funding (e.g. seed finance for spin-outs) & investor networks • Intelligence & analysis (e.g. commercial due diligence, technology sourcing) • Pro-active business development (e.g. partner identification, facilitation of collaborative/contract research • Consultancy (management, delivery, case making) • Management & facilitation of assets (e.g. specialist research facilities/equipment; science parks/incubators etc.) • Provision of specialist staff time/wrap-around support (e.g. value-added services for established firms & or start-ups; proof-of-concept activities) • Facilitation / strategic engagement between academics & external groups • Formation/leaderships/access to networks & communities of interest • Training provision (e.g. CPD/short courses/lifelong learning, enterprise/entrepreneurship) • Curriculum development • Development of community infrastructure/ social cohesion • Student & staff volunteering • Awareness raising (e.g. public lectures)	• Individuals supported with commercialisation advice • Patents/disclosures filed • Licenses granted • Concepts & technologies identified/validated • Connections made between potential investors & entrepreneurs • Businesses engaged/supported, including SMEs • Collaborative research/consultancy projects secured & supported • New relationships & partnerships established (research, strategic etc.) • Funding bids/business cases developed • Organisations/individuals supported with value-added services • Organisations/.individuals accessing specialist equipment • Organisations attracted to science parks/incubators/accelerators etc • KE events delivered/hosted/supported • Businesses/external organisations, identified & engaged • Formal/informal networks established • Strategies/plans developed/influenced • Latest research/best practice shared • Individuals trained (in businesses, students, HEI staff, wider community) • Qualifications secured • New/revised curricula developed • Work placements delivered • Social capital developed • Participation in community/social projects & programmes • Attendance at awareness raising/KE events (e.g. public lectures)	**For engaged individuals & businesses** • Patents granted • New businesses created (including spin-offs) • Jobs created (in new business created & established businesses supported) • Enhanced capacity to secure finance/investment, & finance/investment secured (public, private, third sector) • Improved knowledge of opportunities around KE/ entrepreneurship • New/improved skills developed • Raised educational/career participation/aspirations • Business outcomes incl. innovation/sales/productivity/progression of technology through TRL stages/new products developed **For institutions** • Enhanced relationship with businesses & external organisations (incl. public and third sector organisations) • Stronger & more expansive/divers networks & partnerships developed, enabling further KE activity • Achievement of institutional objectives/strategies • Enhanced HEI reputation • Enhanced student/staff satisfaction • Improved teaching & research capabilities • Increased capacity/expertise around KE & research exploitation • Increased collaboration with local actors, informing policy making & improving alignment between national & institutional strategy • Income generation as an enabler for further activity **For society & the economy** • New/enhanced workforce skills (meeting national skills needs) • Enhanced innovation ecosystems • Increased student/graduate retention for local/regional areas • Improved ability for areas to deliver against strategic priorities • Enhanced social & community capital & capacity • Improved policy/public service development through: access to research, enhanced engagement, new partnerships with public/third sector • Wider economic benefits incl. increased employment, exports, local/regional economic growth

Commercialisation: technology transfer

Inputs

- HEIF funding
- Tech transfer office staff time (incl. dedicated 'change agents', KE mentors, business development staff, contracts/negotiations staff, admin/support staff)
- HEI staff time (incl. research faculty and admin/support staff)
- Time from customers and partner organisations
- Other sources of funding (e.g. research councils, government, seedcorn funding, venture capital)
- Pre-existing knowledge and technical understanding
- Research pipeline (with commercialisation potential)

Activities

- Intelligence and analysis:
  - Technological and commercial due diligence
  - Technology sourcing
  - Market analysis
- Support on knowledge ownership:
  - Patenting and IP advice
  - Legal advice
  - Commercial assessment of IP
  - IP management
  - Licensing advice
  - Start-up advice
  - Marketing advice
- Investment funding:
  - Seed funding start-ups/spin-offs
  - Support applying for translational funding
  - Management of angel/investment networks
  - Collaborative investment funds
    - With other HEIs
    - With private sector
- Pro-active business development
  - Identification of key partners, incl.:
    - Businesses looking for commercialisation advice/support
    - Individuals needing start-up advice/support
    - Potential private funders
    - Academics and students with commercialisation potential
  - Engagement with key partners (e.g. direct approach)

Outputs

- From Intelligence and analysis
  - Concepts and technologies identified
  - Concepts and technologies validated / invalidated
  - Market assessment reports / outputs
  - New commercial partnerships established
- From Support on knowledge ownership:
  - Individuals supported with knowledge commercialisation advice
    - Academics
    - Students
  - IP assessments completed
  - Patents filed
  - Patents filed by an external party naming the HEP as an inventor
    - UK
    - Overseas
  - Disclosures
  - Licenses granted
    - Software only
    - Non-software
- From Investment funding
  - External finance applications / submissions developed
  - Connections made between potential investors and entrepreneurs
- From Pro-active business development
  - Prospective new partners identified
  - New partners secured

Outcomes

Institution

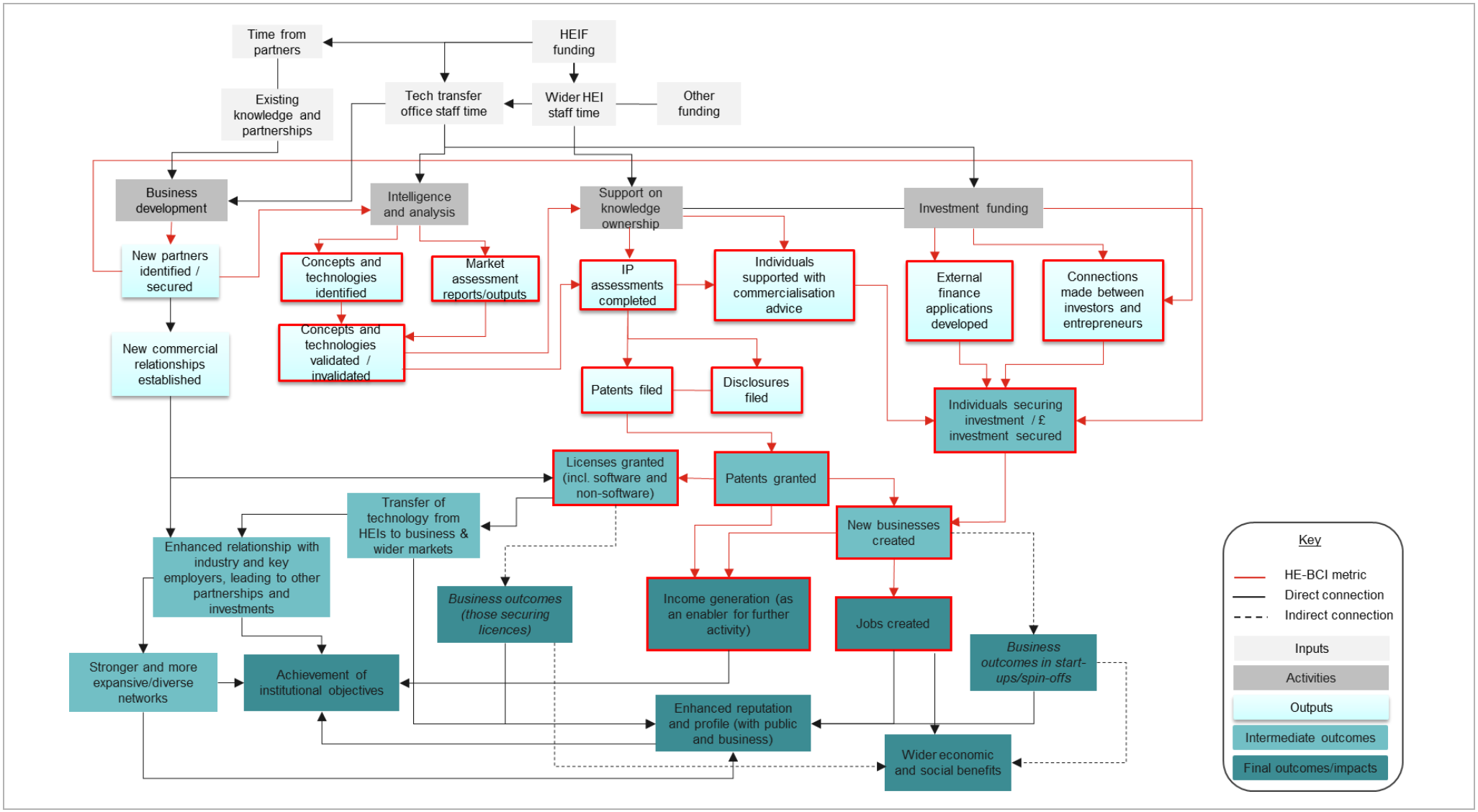
- Patents granted
- Income as an enabler of further activity, including from:
  - IP revenue generated (SME, other, non-commercial)
  - Licenses
  - Business support provided (e.g. market analysis)
- Enhanced relationship with industry and key employers, leading to other partnerships and investments
- Stronger and more expansive/diverse networks
- Enhanced reputation and profile (with public and business)
- Achievement of institutional objectives

Individuals and business

- New businesses created:
  - Staff start-ups
  - Graduate start-ups
  - Spin-offs with some HEI ownership / no HEI ownership
  - Social enterprises
- Jobs created
  - In start-ups
  - In businesses securing licenses
- Patents granted
- Individuals securing investment:
  - Public
  - Private
- Investment secured (£)
  - Public
  - Private
- *Business outcomes in start-ups/spin-offs (indirect)*
  - *Concepts and technologies progressing through TRL stages*
  - *New products/services introduced*
  - *Investment in R&D*
  - *Sales*
- *Business outcomes: securing licenses/other commercialisation support (indirect)*
  - *New products/services introduced*
  - *Investment in R&D*
  - *Sales*
  - *Productivity benefits*

Society and the economy

- Increased transfer of technology from HEIs to business and wider markets
- Wider economic and social benefits (locally and/or nationally)
  - Increased employment opportunities
  - Exports
  - GVA


Time from partners
HEIF funding
Existing knowledge and partnerships
Tech transfer office staff time
Wider HEI staff time
Other funding
Business development
Intelligence and analysis
Support on knowledge ownership
Investment funding
New partners identified / secured
Concepts and technologies identified
Market assessment reports/outputs
IP assessments completed
Individuals supported with commercialisation advice
External finance applications developed
Connections made between investors and entrepreneurs
New commercial relationships established
Concepts and technologies validated / invalidated
Patents filed
Disclosures filed
Individuals securing investment / £ investment secured
Licenses granted (incl. software and non-software)
Patents granted
Transfer of technology from HEIs to business & wider markets
New businesses created
Enhanced relationship with industry and key employers, leading to other partnerships and investments
Business outcomes (those securing licences)
Income generation (as an enabler for further activity)
Jobs created
Business outcomes in start-ups/spin-offs
Stronger and more expansive/diverse networks
Achievement of institutional objectives
Enhanced reputation and profile (with public and business)
Wider economic and social benefits
Key
HE-BCI metric
Direct connection
Indirect connection
Inputs
Activities
Outputs
Intermediate outcomes
Final outcomes/impacts

Assumptions …

- HEIs generate a pipeline of research and concepts/ideas with commercialisation potential
- Academics and students need support at multiple points to successfully progress through the commercialisation process, owing to market failures (including information asymmetries/gaps, externalities, risks)
- Effective relationships are established, and there is continuity of support and engagement throughout the commercialisation process
- HEIF provides flexibility, that enables HEIs to focus on activities and target groups that meet their strategic aims and local/regional priorities
- HEIF resources create capacity/time for staff to mobilise resources and facilitate relationships, that otherwise would not exist
- There may be feedback loops, meaning that the commercialisation process may not be linear, as ideas/concepts are revised and iterated, leading to different types of support and advice funded via HEIF

… and risks / barriers

- Activities would happen in any case, using other resource (including other Govt funding schemes)
- Technology/technical failure limits outcomes from activity/support at stages through the process
- Practitioners prioritise other KE functions, leading to sub-optimal resource/expertise available to support technology transfer
- Path dependency (e.g. limited previous activity or success) limits quality/scale of offer and demand
- Other sources of funding and support for business growth are reduced or stopped, limiting demand and long-term impacts
- Lack of demand from industry for new ideas/concepts/technologies via licencing / other transfer mechanisms

Factors influencing the logic model …

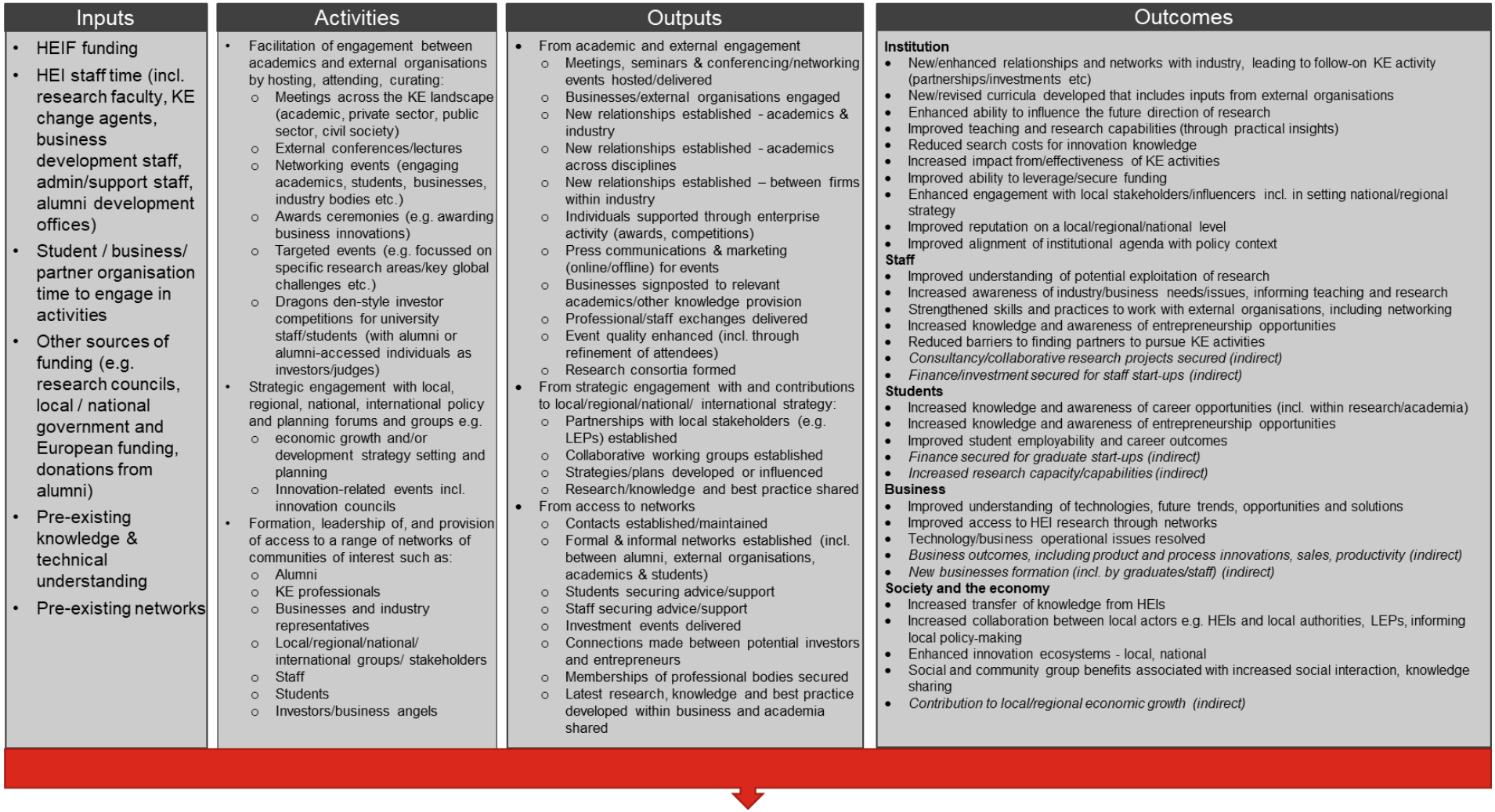
Internal to institutions

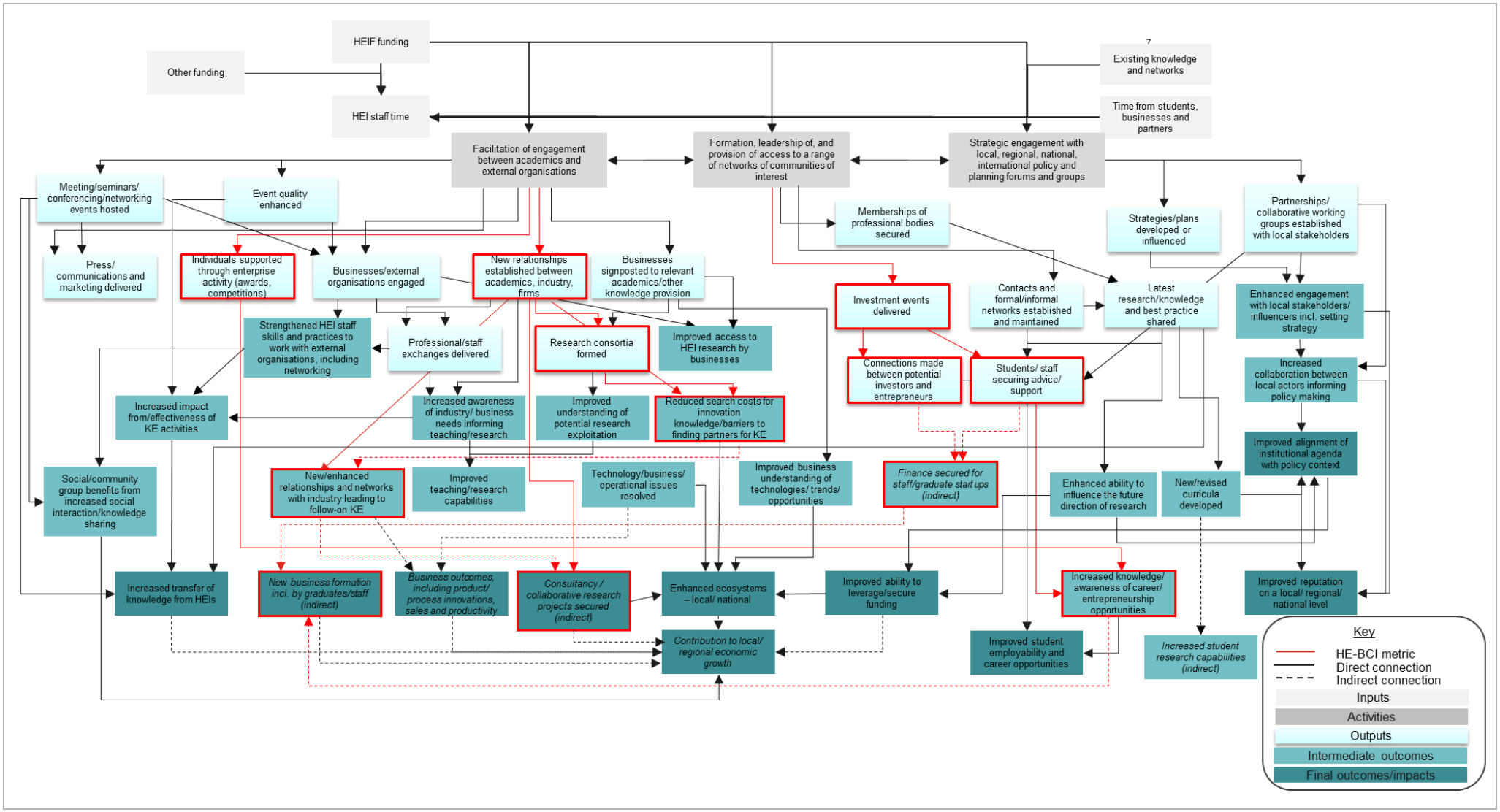
- **Sectoral and discipline mix** of ideas/concepts for commercialisation, informed by institutional strengths, focus, and investment
- **Pre-existing partnerships and collaborations** with other HEIs, private companies, government bodies etc.
- **Processes, policies and infrastructure within the HEI**, including both formal policies and strategies as well as institutional/departmental culture
- **Strategic support** from KE practitioners and senior leadership, including governance, management of funding pots, network building
- **Internal offices/organisations** set up to support commercialisation, and extent to which these are integrated with existing teams or standalone

External to institutions

- **HEIs' geographic base and spatial context**, encompassing factors including the scale and nature of the local business base, the local skills base, and the access to finance landscape (investors, investment networks, advisors etc.)
- **Varied times-scales to impacts, investment requirements, and technology and cultural capacity across sectors/disciplines**, which influences nature of activities and realisation of outcomes
- **Availability and criteria of other sources of funding to support commercialisation, at** local, national, and international levels
- **Market and technology change**, and how this varies across sectors and disciplines, including influence on policy agendas
- **Macro-economic conditions,** e.g. influencing interest in commercialisation, demand

Knowledge sharing and diffusion




HEIF funding
Other funding
HEI staff time
Existing knowledge and networks
Time from students, businesses and partners
Facilitation of engagement between academics and external organisations
Formation, leadership of, and provision of access to a range of networks of communities of interest
Strategic engagement with local, regional, national, international policy and planning forums and groups
Meeting/seminars/ conferencing/networking events hosted
Event quality enhanced
Memberships of professional bodies secured
Strategies/plans developed or influenced
Partnerships/ collaborative working groups established with local stakeholders
Press/ communications and marketing delivered
Individuals supported through enterprise activity (awards, competitions)
Businesses/external organisations engaged
New relationships established between academics, industry, firms
Businesses signposted to relevant academics/other knowledge provision
Investment events delivered
Contacts and formal/informal networks established and maintained
Latest research/knowledge and best practice shared
Enhanced engagement with local stakeholders/ influencers incl. setting strategy
Strengthened HEI staff skills and practices to work with external organisations, including networking
Professional/staff exchanges delivered
Research consortia formed
Improved access to HEI research by businesses
Connections made between potential investors and entrepreneurs
Students/ staff securing advice/ support
Increased collaboration between local actors informing policy making
Increased impact from/effectiveness of KE activities
Increased awareness of industry/ business needs informing teaching/research
Improved understanding of potential research exploitation
Reduced search costs for innovation knowledge/barriers to finding partners for KE
Improved alignment of institutional agenda with policy context
Social/community group benefits from increased social interaction/knowledge sharing
New/enhanced relationships and networks with industry leading to follow-on KE
Improved teaching/research capabilities
Technology/business/ operational issues resolved
Improved business understanding of technologies/ trends/ opportunities
Finance secured for staff/graduate start ups (indirect)
Enhanced ability to influence the future direction of research
New/revised curricula developed
Increased transfer of knowledge from HEIs
New business formation incl. by graduates/staff (indirect)
Business outcomes, including product/ process innovations, sales and productivity
Consultancy / collaborative research projects secured (indirect)
Enhanced ecosystems – local/ national
Improved ability to leverage/secure funding
Increased knowledge/ awareness of career/ entrepreneurship opportunities
Improved reputation on a local/ regional/ national level
Contribution to local/ regional economic growth
Improved student employability and career opportunities
Increased student research capabilities (indirect)
Key
HE-BCI metric
Direct connection
Indirect connection
Inputs
Activities
Outputs
Intermediate outcomes
Final outcomes/impacts

Assumptions …

- Demand for knowledge sharing activities involving the HEI is evident, and there are effective routes to engagement with businesses, public sector and the wider community for function activity
- The knowledge sharing activities (e.g. events, networks etc.) are sufficiently unique, specific and in demand to attract participation from businesses and local stakeholders, HEIs are able to understand local need
- The quality of the knowledge sharing activities, and individuals that partake in them, are sufficient/ sufficiently well curated to lead to the outputs and outcomes described i.e. the HEI are able to attract the 'right' people to the 'right' event/network etc.
- Practitioners are sufficiently skilled to harness speculative knowledge diffusion activities to secure additional KE activities and returns to the HEI.
- Businesses and other external organisations are willing / able to engage in bilateral knowledge diffusion activity
- Businesses would not engage in knowledge sharing unilaterally or have sufficient skills to utilise these appropriately, therefore require support from HEIs
- Businesses are aware of these limitations and aware of HEI support that is available to them
- Knowledge sharing and diffusion often acts as an initial stage of KE engagement, creating relationships and linkages taken forward through other HEIF functions
- HEIF provides flexibility, that enables HEIs to focus on activities and target groups that meet their strategic aims and local/regional priorities
- Supporting funding streams are sufficiently long-term to enable outcomes
- HEIF resources create capacity/time for staff to mobilise resources and facilitate relationships, that otherwise would not exist

… and risks / barriers

- Activities would happen in any case, using other resource (including other Govt funding schemes) or private sector resource
- Practitioners prioritise other KE functions
- Path dependency (e.g. limited previous activity, level of engagement with businesses) limits quality/scale of offer and demand
- Delivery of activity via other functions (or wider KE activities) is not delivered effectively, meaning indirect outcomes are not realised.
- Pathways from knowledge sharing and diffusion to other KE functions are not in place or effective, leading to breakdown in journeys of those engaged via events, meetings, strategic engagement etc.

Factors influencing the logic model …

Internal to institutions

- **Pre-existing knowledge and experience**, including existing networks and contacts, technical/subject matter expertise and expertise in/ability to engage with external organisations effectively / provide effective strategic oversight of activities
- **Effective and/or pre-existing partnerships/ relationships** with other HEIs, private companies, government bodies, local stakeholders (e.g. LEPs)
- **Processes, policies and infrastructure within the HEI**, including both formal policies and strategies (whether these align with those of relevant external bodies) as well as institutional/departmental culture
- **Strategic support** from KE practitioners and senior leadership, including governance, management of funding pots, network building

External to institutions

- **HEIs' geographic base** in particular **local/ regional priorities/agendas**, and whether these align with those of the HEI. Encompassing factors including the sectoral make-up and strengths of the business base, and skills and capabilities of the local population
- **The priorities and strategic focus of external partners**., including the level of interest in the engagement with HEIs as sources of knowledge and expertise, and the drivers of local economic strategy and decision-making
- **Other sources of knowledge diffusion** (including cultural and educational assets) in the local area) and/or relevant disciplines with relevance to HEIs, influencing demand and engagement in HEIF supported activity
- **Levels of engagement of key actors in networks**, including alumni, investors, local partners etc.

Supporting the community and public engagement

Inputs

- HEIF funding
- HEI staff time (incl. research faculty, dedicated 'change agents', KE mentors, outreach/widening participation managers, admin/support staff)
- HEI student time
- HEI facilities
- HEI funding
- Time from community members and partners organisations
- Other sources of funding (e.g. government funding)

Activities

- Social cohesion / community infrastructure
  - Grants and loans to community organisations and/or events (direct)
  - Grants and loans to community organisations (signposting to third parties)
  - Fund-raising events for charities
  - Hosting information hubs for the public/community organisations
  - Engagement in community organisation boards/decision-making fora
- Student and staff volunteering:
  - Pupil/young person mentoring
  - Educational programmes within schools
  - Other community projects
- Awareness raising / knowledge exchange:
  - Public lectures
  - Exhibitions at museums and/or galleries
  - Museum education
- Developing social capital:
  - Hosting participative projects and programmes (e.g. hackathons, participative arts projects)
  - Providing work placements to under-represented/priority groups
  - Co-design/delivery of research projects
  - Piloting innovative projects

Outputs

- From Social cohesion / community infrastructure
  - Community organisations receive grants/loans/fund-raising money
  - New links formed between community organisations (and also with HEIs and business)
  - Community organisations with HEI staff on boards/decision-making fora
- From Student and staff volunteering
  - Pupils/young people mentored
  - Schools participating in/benefiting from educational programmes
  - Students/staff participating in volunteering opportunities
- From Awareness raising / knowledge exchange
  - Attendance: public lectures
  - Attendance: exhibitions
  - Attendance: museum education
  - Speakers from public, private and third sector organisations delivering presentations
  - Knowledge sharing networks established between different speakers/attendees
- From Developing social capital:
  - Participation in projects and programmes
  - Participation in work placements
    - Pupils
    - Adults (incl. vulnerable groups)
  - Delivery of co-designed research projects
  - Innovative projects piloted

Outcomes

Institution

- New partnerships formed
- Stronger and more expansive/diverse networks
- Improved research outcomes
- Enhanced capacity/knowledge to deliver community engagement activities
- Increased applications to courses (incl. by under-represented groups)
- Increased interest in different subject areas (e.g. STEM, arts) from prospective students
- More diverse student cohorts
- Enhanced domestic and international reputation (from leadership in outreach activities)
- Income generation as an enabler of further activity (via chargeable events)

Students

- New skills acquired though volunteering/outreach
- Improved student experience/satisfaction
- Increased student wellbeing
- Increased retention of students (incl. by under-represented groups)

Staff

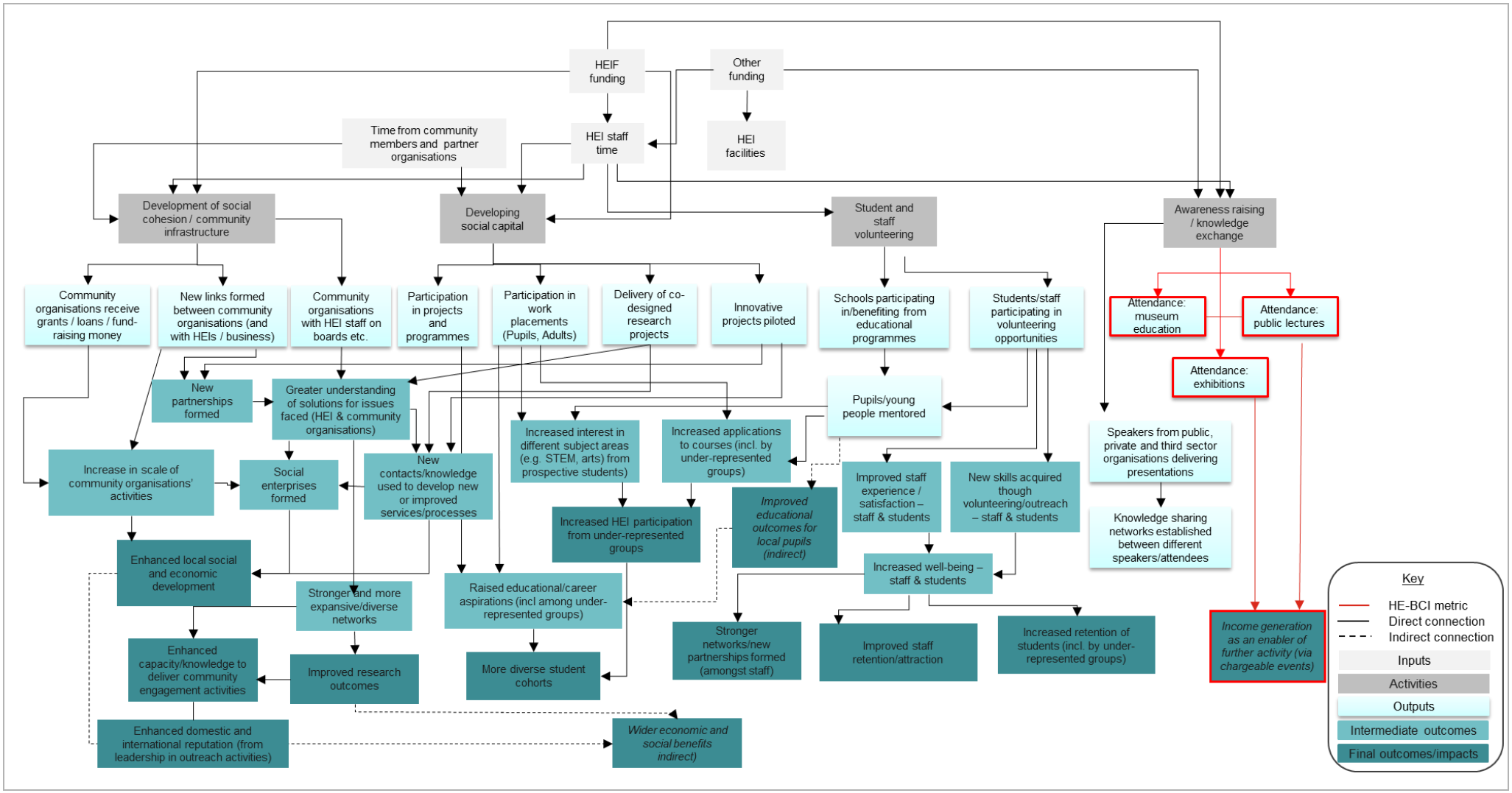
- New skills acquired though volunteering/outreach
- Improved staff experience/satisfaction
- Increased staff wellbeing
- Improved staff retention/attraction
- Stronger networks/new partnerships formed

Community cohesion and social capital

- Increase in scale of community organisations' activities
- Greater understanding of solutions for issues faced
- New contacts/knowledge used to develop new or improved services/processes
- Social enterprises formed (external to HEI)

Local residents

- Increased HEI participation from under-represented groups
- Raised educational/career aspirations (including among under-represented groups)
- Enhanced local social and economic development
- *Wider economic and social benefits e.g. increased employment opportunities, new products/processes created (indirect)*
- *Improved educational outcomes for local pupils (indirect)*


HEIF funding
Other funding
Time from community members and partner organisations
HEI staff time
HEI facilities
Development of social cohesion / community infrastructure
Developing social capital
Student and staff volunteering
Awareness raising / knowledge exchange
Community organisations receive grants / loans / fund-raising money
New links formed between community organisations (and with HEIs / business)
Community organisations with HEI staff on boards etc.
Participation in projects and programmes
Participation in work placements (Pupils, Adults)
Delivery of co-designed research projects
Innovative projects piloted
Schools participating in/benefiting from educational programmes
Students/staff participating in volunteering opportunities
Attendance: museum education
Attendance: public lectures
Attendance: exhibitions
New partnerships formed
Greater understanding of solutions for issues faced (HEI & community organisations)
Pupils/young people mentored
Increased interest in different subject areas (e.g. STEM, arts) from prospective students)
Increased applications to courses (incl. by under-represented groups)
Speakers from public, private and third sector organisations delivering presentations
Increase in scale of community organisations' activities
Social enterprises formed
New contacts/knowledge used to develop new or improved services/processes
Improved staff experience / satisfaction – staff & students
New skills acquired though volunteering/outreach – staff & students
Increased HEI participation from under-represented groups
Improved educational outcomes for local pupils (indirect)
Knowledge sharing networks established between different speakers/attendees
Enhanced local social and economic development
Increased well-being – staff & students
Stronger and more expansive/diverse networks
Raised educational/career aspirations (incl among under-represented groups)
Stronger networks/new partnerships formed (amongst staff)
Improved staff retention/attraction
Increased retention of students (incl. by under-represented groups)
Income generation as an enabler of further activity (via chargeable events)
Enhanced capacity/knowledge to deliver community engagement activities
Improved research outcomes
More diverse student cohorts
Enhanced domestic and international reputation (from leadership in outreach activities)
Wider economic and social benefits indirect)
Key
HE-BCI metric
Direct connection
Indirect connection
Inputs
Activities
Outputs
Intermediate outcomes
Final outcomes/impacts

Assumptions …

- Some activities/events would happen anyway, but KE potential not fully exploited without HEIF support and at lower quality
- Involvement of KE practitioner is necessary for identifying and/or exploiting knowledge exchange potential in different events/activities
- HEIF provides flexibility, that enables HEIs to focus on activities and target groups that meet their strategic aims and local/regional priorities
- Other funding streams are sufficiently long-term to enable outcomes
- HEIF resources create capacity/time for staff to mobilise resources and facilitate relationships, that otherwise would not exist
- Demand is evident, and there are effective routes to engagement with partners

… and risks / barriers

- All activities would happen in any case, using other resource (including other Govt funding schemes)
- Practitioners prioritise other KE functions
- Path dependency (e.g. limited previous activity or links with community groups) limits quality/scale of offer and demand
- Different perspectives between academic and community development communities leads to breakdown in relationships / pathways to impacts
- Capital and revenue funding to support HEI assets (including museums, event spaces) is not provided and/or limited, impacting on scope of HEIF supported activity

Factors influencing the logic model …

Internal to institutions

- **Strategic focus on and commitment to community and public engagement activities**, including priority placed on knowledge exchange activities that do not lead to outcomes captured in HE-BCI and other 'direct' commercialisation outcomes
- **Pre-existing relationships and links to local community and third sector networks, organisations and leadership**
- **Asset base, in terms of museums, collections, etc.** to support community and public engagement activities
- **Processes, policies and infrastructure within the HEI**, including both formal policies and strategies as well as institutional/departmental culture, and priority places on community and public engagement

External to institutions

- **HEIs' spatial, socio-economic and demographic context**, encompassing factors including levels of existing social capital and community networks and infrastructure, and educational and labour market conditions
- **Other assets and organisations** in the local area delivering community and public engagement activities, including other education institutions, arts and cultural assets, and the public sector. Scope for complementarity and duplication of effort.
- **Policy, funding and economic landscape**, impacting on levels of demand and interest in community and public engagement activities

Exploiting the HEI's physical assets

Inputs

- HEIF funding
- HEI staff time (incl. research faculty, dedicated facility managers, KE change agents, business development staff, admin/support staff, specialist advisors)
- Time from businesses supported and partner organisations
- Other sources of funding (e.g. research councils, local / national government and European funding, donations from alumni)
- Pre-existing knowledge and technical understanding
- HEI assets made available for use e.g. land and property assets (including endowments)
- Pre-existing networks (e.g. with venture capital investors)

Activities

- Management and facilitation of the use of physical assets (broadly covering specialist research facilities and equipment; science parks, incubators, co-working/maker spaces; wider assets such as exhibition space, IT equipment or lecture theatres)
  - Operational management (e.g. facility managers and support staff)
  - Strategic management (e.g. leasing/pricing strategy, asset coordination across projects/stakeholders)
  - Marketing and business development activities and events
  - Public events
- Provision of specialist staff time and/or 'wrap around' support such as:
  - Specialist/technical staff to facilitate asset use by external users, and internal users (including students) for knowledge exchange activities
  - Programmes of support around facilities and equipment usage e.g. demonstration events, pilot activities
  - Value-added services for established firms and/or start-ups based at business/enterprise assets including:
    - training courses/workshops
    - mentoring/coaching services
    - specialist advisors
    - networking events/activities
    - referrals/signposting to academics and sources of knowledge
    - marketing and media activity
    - business plan support
    - funding/finance support
    - access to business angel and venture capital forums/networks
    - networking events/activities
    - accelerator schemes

Outputs

- From management and facilitation of the use of physical assets
  - Commercial floorspace available for lease to:
    - Established firms
    - Start-ups (incl. student-led)
    - Other (e.g. research institutes)
  - Organisations attracted to science park/incubators
    - Established firms
    - Start-ups (incl. student-led)
    - Other (e.g. research institutes)
  - R&D projects enabled through use of specialist assets
  - Organisations accessing specialist equipment/assets/resources
    - SMEs
    - Large firms
    - Other HEIs/research institutions
  - External meetings/events hosted
    - SMEs
    - Large firms
    - Other HEIs/research institutions
    - Public sector
  - Community events delivered, including exhibitions
  - Additional KE activity enabled
  - Press/media communications released

From provision of specialist staff time/wrap around support:

  - Organisations supported with value-added services
    - Established firms
    - Start-ups (incl. student-led)
    - Other (e.g. research institutes)
  - New relationships established with academics
  - Individuals supported via accelerator schemes
  - Start-ups supported (incl via on-site and virtual incubation services)
  - Students engaged in KE activities
  - Business plans developed/supported
  - Funding bids developed
  - Connections made between potential investors and entrepreneurs
  - Academics engaged in business activities/issues

Outcomes

Institution

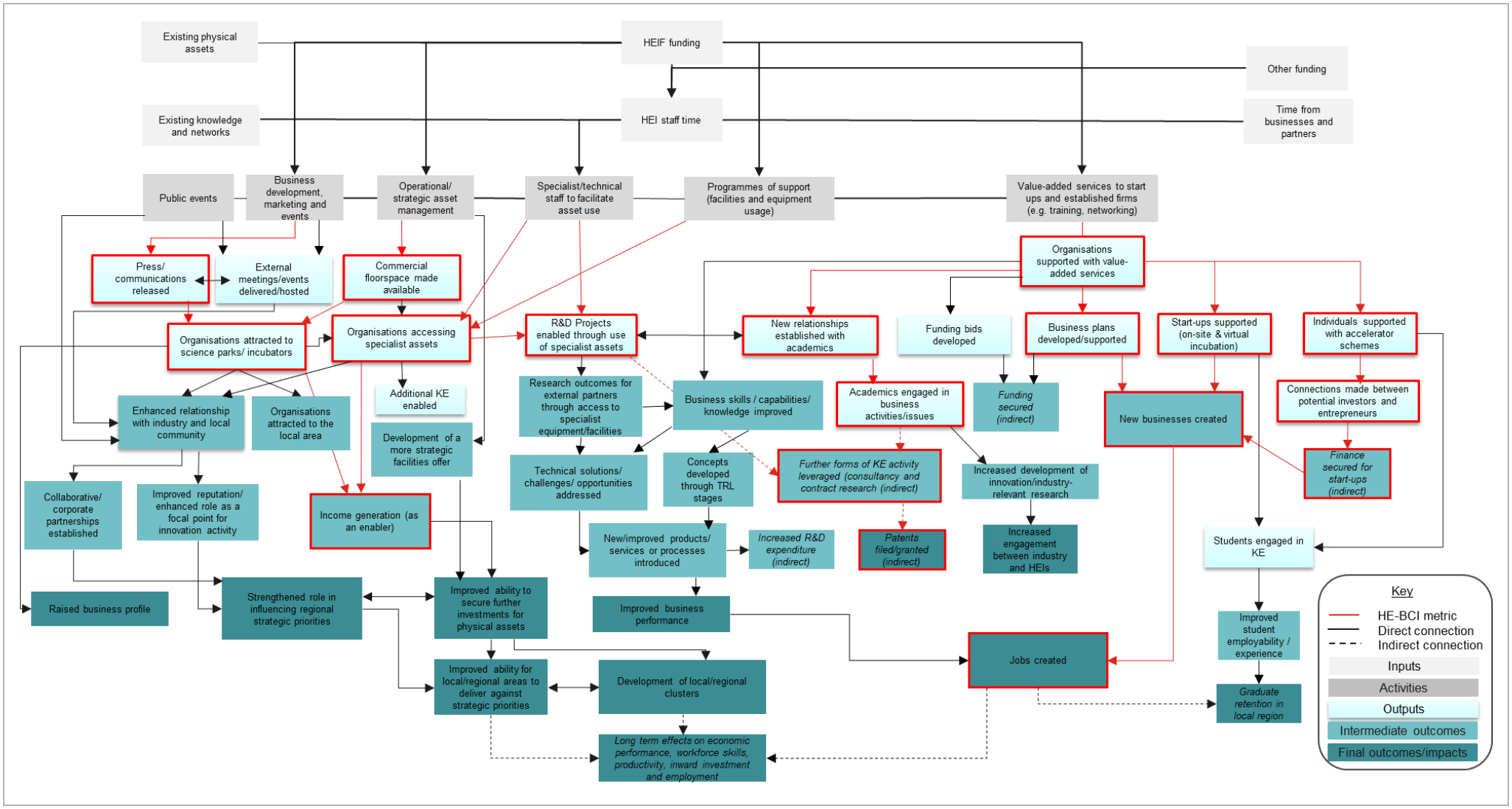
- Income generation as an enabler of further activity (rent, equipment/facilities hire)
- Enhanced relationship with industry and local community
- Improved reputation
- Collaborative/corporate partnerships established
- Enhanced role as focal point for local innovation activity
- Improved ability to secure further investment/funding to develop additional physical assets
- Strengthened role in influencing regional strategic priorities
- Increased development of innovation/industry-relevant research.
- Development of a more strategic facilities offer
- *Further forms of KE activity leveraged e.g. consultancy and contract research (indirect)*

Individuals and business

- New businesses created:
  - Staff start-ups
  - Graduate start-ups
  - Spin-offs with some HEI ownership / no HEI ownership
  - Social enterprises
- Businesses attracted to the local area (established)
- Jobs created
  - Growth of tenant businesses
  - In start-ups
- Improved business capability/skills/knowledge
- Technical solutions / challenges / opportunities addressed
- Concepts developed through TRL stages
- New/improved products, services or processes introduced
- Improved business performance: (Sales, Productivity)
- Raised business profile
- *Funding secured (£): (Public, Private) (indirect)*
- *Finance secured for start-ups (indirect)*
- *Patents filed/granted (indirect)*
- *Increased R&D expenditure (indirect)*
- Research outcomes for external partners through access to specialist equipment/facilities
- Improved student experience and/or employability

Society and the economy

- Contribution to development of local/regional clusters
- Improved ability for local/regional areas to deliver against strategic priorities
- Increased engagement between industry and HEIs
- *Graduate retention in local region (indirect)*
- *Increased inward investment (Indirect)*
- *Long term effects on workforce skills, productivity, inward investment and employment incl. strengthened local/regional/national economic performance, start-up growth etc. (indirect)*


Existing physical assets
HEIF funding
Other funding
Existing knowledge and networks
HEI staff time
Time from businesses and partners
Public events
Business development, marketing and events
Operational/ strategic asset management
Specialist/technical staff to facilitate asset use
Programmes of support (facilities and equipment usage)
Value-added services to start ups and established firms (e.g. training, networking)
Press/ communications released
External meetings/events delivered/hosted
Commercial floorspace made available
Organisations supported with value-added services
Organisations attracted to science parks/ incubators
Organisations accessing specialist assets
R&D Projects enabled through use of specialist assets
New relationships established with academics
Funding bids developed
Business plans developed/supported
Start-ups supported (on-site & virtual incubation)
Individuals supported with accelerator schemes
Additional KE enabled
Research outcomes for external partners through access to specialist equipment/facilities
Business skills / capabilities/ knowledge improved
Academics engaged in business activities/issues
Funding secured (indirect)
Connections made between potential investors and entrepreneurs
Enhanced relationship with industry and local community
Organisations attracted to the local area
Development of a more strategic facilities offer
New businesses created
Finance secured for start-ups (indirect)
Collaborative/ corporate partnerships established
Improved reputation/ enhanced role as a focal point for innovation activity
Income generation (as an enabler)
Technical solutions/ challenges/ opportunities addressed
Concepts developed through TRL stages
Further forms of KE activity leveraged (consultancy and contract research) (indirect)
Increased development of innovation/industry-relevant research
Students engaged in KE
New/improved products/ services or processes introduced
Increased R&D expenditure (indirect)
Patents filed/granted (indirect)
Increased engagement between industry and HEIs
Raised business profile
Strengthened role in influencing regional strategic priorities
Improved ability to secure further investments for physical assets
Improved business performance
Jobs created
Improved student employability / experience
Improved ability for local/regional areas to deliver against strategic priorities
Development of local/regional clusters
Graduate retention in local region
Long term effects on economic performance, workforce skills, productivity, inward investment and employment
Key
HE-BCI metric
Direct connection
Indirect connection
Inputs
Activities
Outputs
Intermediate outcomes
Final outcomes/impacts

Assumptions …

- Demand for the HEI's physical assets and wrap-around support is evident, and there are effective routes to engagement with businesses, public sector and the wider community for function activity
- Physical assets are sufficiently unique and in demand to attract businesses and inward investment, and contribute to the development of regional clusters and therefore policy. HEIs are able to understand local need
- The HEI's strategic/operational management of its physical assets enables their use by businesses/external organisations (e.g. in terms of pricing/ marketing strategy, provision of specialist / wrap-around support)
- HEIF resources create capacity/time for staff to mobilise resources and facilitate relationships, that would not exist otherwise
- Businesses would not invest in specialist assets/equipment/facilities unilaterally or have sufficient skills to utilise these appropriately, therefore they require access to facilities hosted by HEI's
- Businesses are aware of the availability of the assets and how to access them
- The HEI is able to effectively develop business cases for future investment in its physical assets
- HEIF provides flexibility, enabling HEIs to focus on support activities/ investment in assets that meet their strategic aims and local/regional priorities

… and risks / barriers

- Activities would happen in any case, using other public resource (including other Govt funding schemes) or private sector resource e.g. businesses would invest in specialist equipment / commission wrap-around support privately
- Path dependency (e.g. limited previous activity or ownership/investment in specialist assets, level of engagement with businesses) limits quality/scale of offer
- HEI physical assets (notably science parks and incubators) duplicates and displaces market provision
- Policy/strategic approach to delivering funding and/or managing assets is inefficient or uncoordinated, limiting business' ability to exploit them
- Academics find the process of engaging with non-academic partners too complicated
- Lack of demand from industry for new ideas/concepts/technologies that require the use of specialist assets
- Technology/technical failure limits outcomes from activity/support at stages through the process
- Other sources of funding that support/ scale up activities are reduced or stop
- Practitioners prioritise other KE functions
- Businesses might be unaware they can access the HEI's assets and/or partner with HEIs
- Financial constrains and drivers lead to focus on alternative use of HEI physical assets for non-KE activity (i.e. teaching, administration)

Factors influencing the logic model …

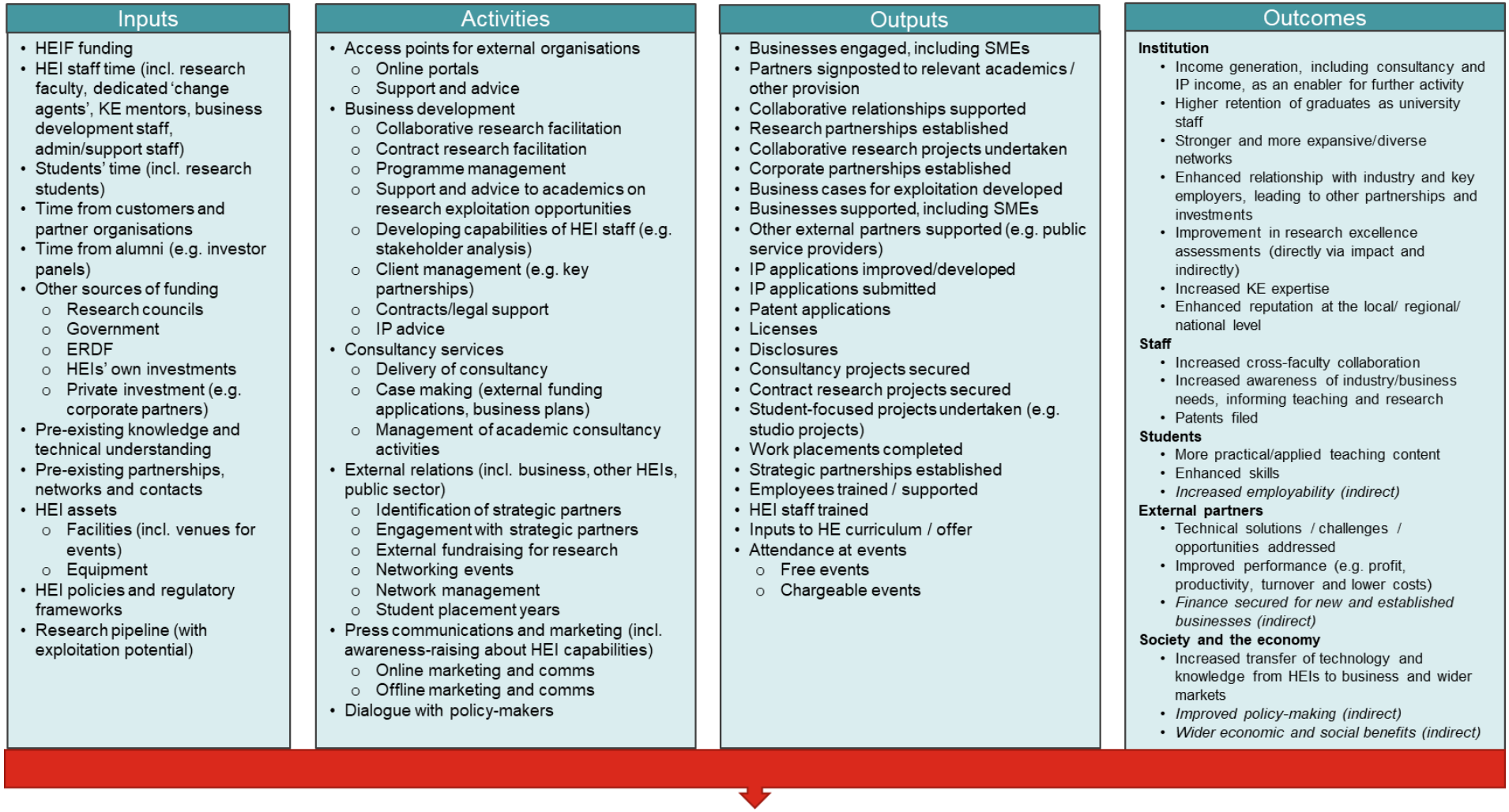
Internal to institutions

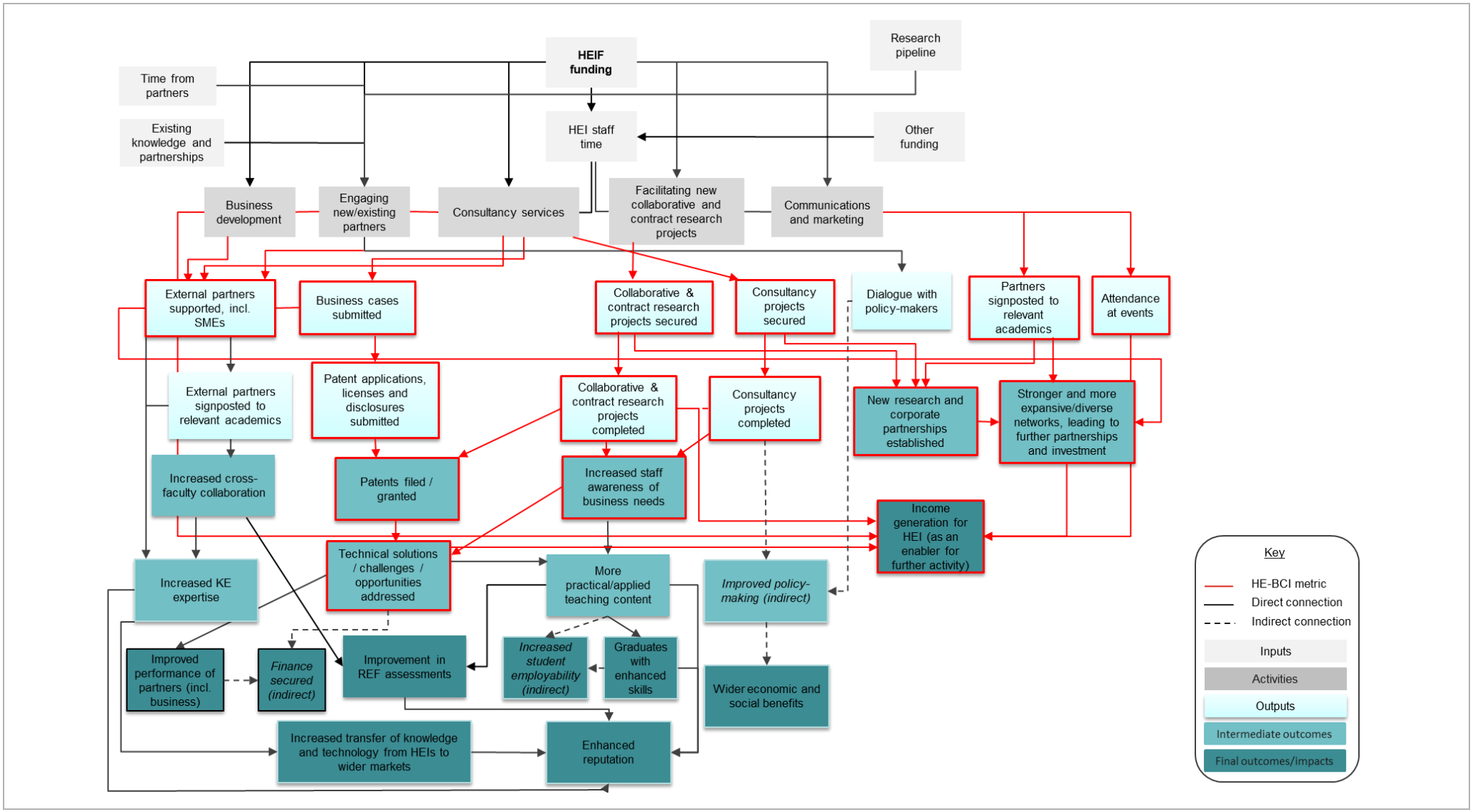
- **Endowment of physical assets, including from** donations / previous investments
- **Pre-existing knowledge and experience**, including existing networks and contacts, technical/subject matter expertise and experience in physical asset management
- **Pre-existing partnerships and collaborations** with other HEIs, private companies, government bodies, local stakeholders (e.g. LEPs) etc.
- **Processes, policies and infrastructure within the HEI**, including both formal policies and strategies as well as institutional/departmental culture
- **Strategic support** from KE practitioners and senior leadership, including governance, management of funding pots and assets, network building
- **Complementary KE offers** e.g. skills and CPD provision, tech-transfer and IP advice

External to institutions

- **HEIs' spatial and socio-economic context**, encompassing factors including the scale and nature (including sectoral and technology mix) of the local business base
- **The rate/level of innovation activity** within the local business community and/or the relevant sector/discipline focus of HEIs and physical assets
- **The level and quality of market and other provision of enterprise facilities and specialist equipment** in the local area, including offers from other educational assets where relevant.
- **Changes in working practices and expectations related to physical assets** for enterprise and business development, including mix of demand for different types of space (e.g. laboratory, office, flexible workspace etc)
- **Local economic development policy and strategic landscape**, including investment in and commitment to enterprise development assets within and outside HE contexts (e.g. related to planning, financial support etc.)

Facilitating the research exploitation process




HEIF funding
Research pipeline
Time from partners
Existing knowledge and partnerships
HEI staff time
Other funding
Business development
Engaging new/existing partners
Consultancy services
Facilitating new collaborative and contract research projects
Communications and marketing
External partners supported, incl. SMEs
Business cases submitted
Collaborative & contract research projects secured
Consultancy projects secured
Dialogue with policy-makers
Partners signposted to relevant academics
Attendance at events
External partners signposted to relevant academics
Patent applications, licenses and disclosures submitted
Collaborative & contract research projects completed
Consultancy projects completed
New research and corporate partnerships established
Stronger and more expansive/diverse networks, leading to further partnerships and investment
Increased cross-faculty collaboration
Patents filed / granted
Increased staff awareness of business needs
Income generation for HEI (as an enabler for further activity)
Increased KE expertise
Technical solutions / challenges / opportunities addressed
More practical/applied teaching content
Improved policy-making (indirect)
Improved performance of partners (incl. business)
Finance secured (indirect)
Improvement in REF assessments
Increased student employability (indirect)
Graduates with enhanced skills
Wider economic and social benefits
Increased transfer of knowledge and technology from HEIs to wider markets
Enhanced reputation
Key
HE-BCI metric
Direct connection
Indirect connection
Inputs
Activities
Outputs
Intermediate outcomes
Final outcomes/impacts

Assumptions …

- Regulatory frameworks influence the outputs and outcomes that HEIs seek to deliver (as opposed to simply influencing metrics reported by HEIs)
- HEIF provides flexibility, that enables HEIs to focus on activities and target groups that meet their strategic aims and local/regional priorities
- HEIF acts as a political signal, telling HEIs KE activity is something they should be engaging in and that is expected of them
- Supporting funding streams are sufficiently long-term to enable outcomes
- HEIF resources create capacity/time for staff to mobilise resources and facilitate relationships, that otherwise would not exist
- Demand is evident, and there are effective routes to engagement with businesses, public sector and the wider community for function activity
- Local private/public sector demand shapes HEIs networks and offer, but HEIs have a wider geographic focus than just their local area/region
- Businesses in particular can struggle to articulate their additionality (esp. SMEs) and therefore need big-writing/case making support
- Businesses are aware of these limitations and aware of HEI support that is available to them

… and risks / barriers

- Activities would happen in any case, using other resource (including other Govt funding schemes)
- Practitioners prioritise other KE functions
- Path dependency (e.g. limited previous activity, level of engagement with businesses) limits quality/scale of offer and demand
- Other sources of funding that support/ scale up activities are reduced or stop
- Businesses might be unaware they can reclaim R&D expenditure and/or partner with HEIs
- Academics find the process of identifying and engaging with non-academic partners too complicated
- Policy/strategic approach to delivering funding is inefficient or uncoordinated

Factors influencing the logic model …

Internal to institutions

- **Pre-existing knowledge and experience**, including existing networks and contacts, and technical/subject matter expertise
- **Pre-existing partnerships and collaborations** with other HEIs, private companies, government bodies etc.
- **Processes, policies and infrastructure within the HEI**, including both formal policies and strategies as well as institutional/departmental culture
- **Strategic support** from KE practitioners and senior leadership, including governance, management of funding pots, network building

External to institutions

- **Regulatory frameworks,** including the KE Concordat and frameworks such as REF, KEF and TEF influencing the research agenda and activities
- **Other sources of funding**, to support research exploitation activities
- **HEIs' geographic base**, encompassing factors including local private enterprises, local authorities (and their strategies), and skills supply
- **The priorities of external partners**. Business partners might want activities to focus on meeting their business needs, academic partners might have aims relating to their institutional mission/goals

Skills and human capital development

Inputs

- HEIF funding
- Other sources of funding
- HEI staff time (incl. research faculty, trainers, faculty involved in delivery of career services, admin/support staff)
- Time from training and work placement providers
- Time from students, business and academics to undergo training

Activities

- CPD/short courses including:
  - career development opportunities
  - short courses/evening courses
  - bespoke training
  - workshops on business skills, personal transferrable skills, entrepreneurship etc.
- Lifelong learning including:
  - for academics and students
  - professional and personal education
  - employability
- Work placements/project experience
  - apprenticeships/internships/work experience
  - support for work-based placements and student consultancy projects
- Curriculum development
  - engagement with external orgs e.g. employers, trade bodies, local stakeholders
  - engagement with academic community to translate external inputs in the curriculum
- Enterprise and Entrepreneurship training including on:
  - entrepreneurship education courses
  - executive education
  - technical/ negotiation skills
  - support for staff engagement / capacity in enterprise (one-to-one, one-to-many)
  - enterprise-related careers advice to students

Outputs

- Businesses supported, including SMEs
- Individuals trained
  - in businesses / public sector
  - students
  - HEI staff
  - in the wider local community (non-employer led
- Learner days delivered
- Qualifications secured
- Memberships of professional bodies secured

- Student placements/project experience delivered
- Business benefiting from placements/project experience
- New curricula developed that includes inputs from external organisations
- Revised curricula that includes inputs from external organisations

- Individuals with increased knowledge, skills and competence in enterprise / entrepreneurship
- Students with increased knowledge and awareness of enterprise as a career opportunities
- Networks developed with local/regional businesses

Outcomes

To the institution:

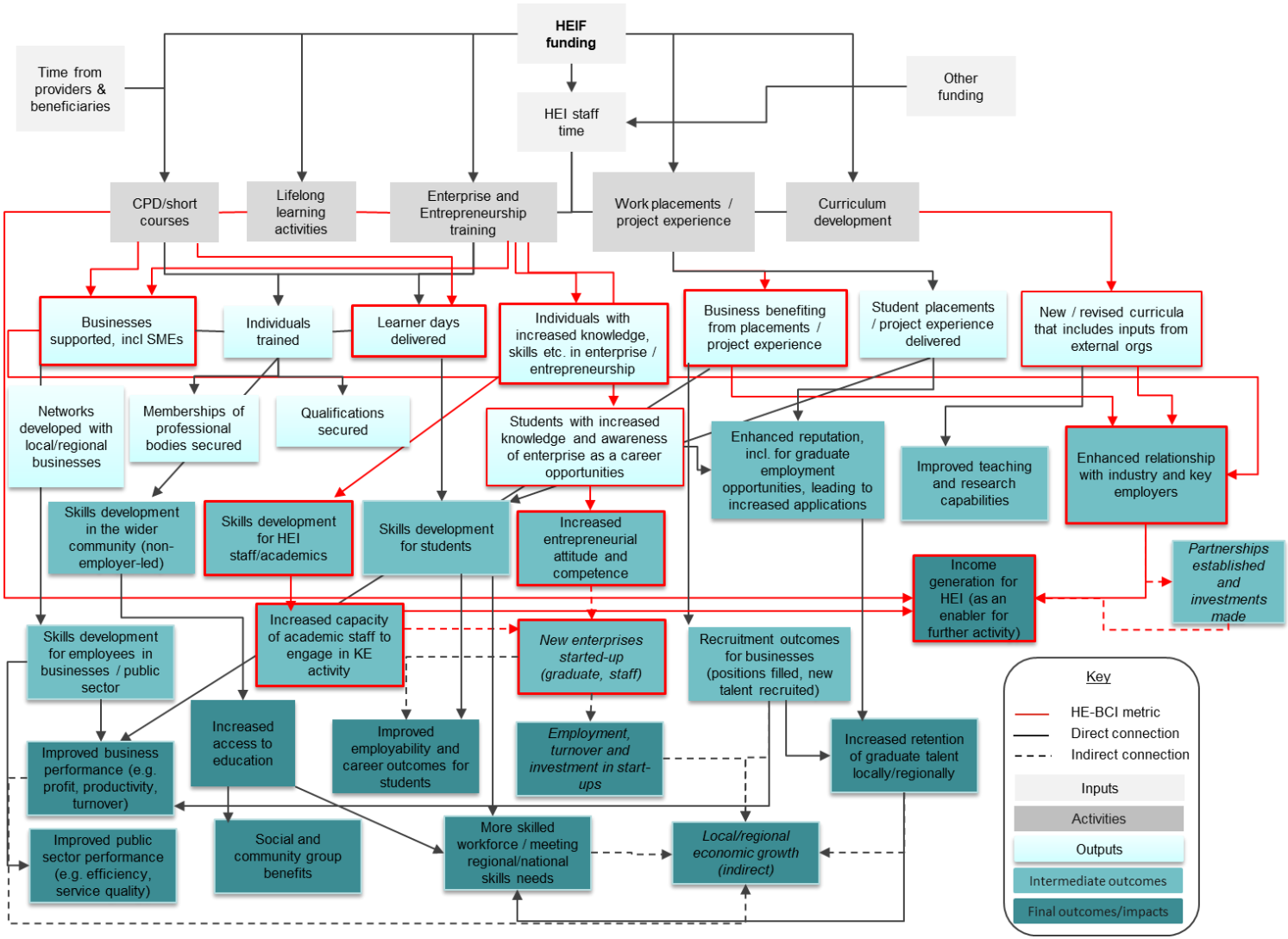
- Income generation as an enabler for further activity
- Improved teaching and research capabilities
- Enhanced relationship with industry and key employers
- *Partnerships established and investments secured, enabling further activity (indirect)*
- Enhanced reputation, incl. for graduate employment opportunities, leading to increased applications
- Increased retention of graduate talent locally/regionally

To target groups:

- Skills development for key actors incl:
  - Students
  - HEI staff/academics (incl capacity to engage in KE)
  - in businesses / public sector
  - in the wider local community (non-employer led)
- Employment outcomes
  - Improved employability and career outcomes for students
  - recruitment outcomes for businesses (positions filled, new talent recruited)
- Improved business performance (e.g. profit, productivity, turnover)
- Improved public sector performance (e.g. efficiency, service quality)
- Increased access to education
- Increased entrepreneurial attitude and competence
  - Students; HEI staff; in the wider local community (non-employer led)
- *New enterprises started-up (including social enterprise) (indirect)*
  - *Graduates; staff*
- *Employment, turnover and investment in start-ups (indirect)*
  - *Graduates; staff*

To society/the economy:

- More skilled workforce and meeting regional/national skills needs
- Social and community group benefits


HEIF funding
Time from providers & beneficiaries
HEI staff time
Other funding
CPD/short courses
Lifelong learning activities
Enterprise and Entrepreneurship training
Work placements / project experience
Curriculum development
Businesses supported, incl SMEs
Individuals trained
Learner days delivered
Individuals with increased knowledge, skills etc. in enterprise / entrepreneurship
Business benefiting from placements / project experience
Student placements / project experience delivered
New / revised curricula that includes inputs from external orgs
Networks developed with local/regional businesses
Memberships of professional bodies secured
Qualifications secured
Students with increased knowledge and awareness of enterprise as a career opportunities
Enhanced reputation, incl. for graduate employment opportunities, leading to increased applications
Improved teaching and research capabilities
Enhanced relationship with industry and key employers
Skills development in the wider community (non-employer-led)
Skills development for HEI staff/academics
Skills development for students
Increased entrepreneurial attitude and competence
Income generation for HEI (as an enabler for further activity)
Partnerships established and investments made
Skills development for employees in businesses / public sector
Increased capacity of academic staff to engage in KE activity
New enterprises started-up (graduate, staff)
Recruitment outcomes for businesses (positions filled, new talent recruited)
Improved business performance (e.g. profit, productivity, turnover)
Increased access to education
Improved employability and career outcomes for students
Employment, turnover and investment in start-ups
Increased retention of graduate talent locally/regionally
Improved public sector performance (e.g. efficiency, service quality)
Social and community group benefits
More skilled workforce / meeting regional/national skills needs
Local/regional economic growth (indirect)
Key
HE-BCI metric
Direct connection
Indirect connection
Inputs
Activities
Outputs
Intermediate outcomes
Final outcomes/impacts

Assumptions …

- HEIF enables delivery of skills and human capital development activity that would not otherwise be delivered at the same scale/quality
- HEIF provides flexibility, that enables institutions to focus on activities and target groups that meet their strategic aims and local/regional priorities
- New or improved skills developed via support and activity formal and informal) leads to changes in behaviours and attitudes of those engaged, including further involvement in KE by staff and entrepreneurship actions by staff/students
- Demand is evident, and there are effective routes to engagement with businesses, public sector and the wider community for KE skills and human capital development activity
- Academics are conducive to inputs from external organisations in curriculum development, and other capacity development in KE
- Feedback loops are evident, with activities leading to enhanced relationships (e.g. with businesses) that leads to other forms of KE engagement and longer-term strategic partnerships
- Income generation is delivered via a range of KE routes from skills and human capital development, both directly and indirectly

… and risks / barriers

- Activities would happen in any case, using other resource (including other Govt funding schemes)
- Practitioners prioritise other KE functions (incl HEIF supported)
- Path dependency (e.g. limited previous activity, level of engagement with businesses) limits quality/scale of offer and demand
- Offer does not meet the needs of target groups, and/or barriers and market failures prevent pathways to outcomes from activities/outputs and changes in behaviours do not lead to tangible effects e.g. related to time, access to finance etc.
- Training activities duplicates or displaces other provision (e.g. crowding out private sector providers)

Factors influencing the logic model …

Internal to institutions

- **Leadership, strategy and priority placed on KE capacity development**, influencing resource allocation (incl related to research and teaching), staff incentives, recruitment, culture etc
- **Availability of appropriate facilities and staff**, particularly related to CPD and executive education including basic 'hygiene factors' (e.g. parking, accessibility, appropriate IT infrastructure etc.)
- **Delivery of/participation in non-HEIF related schemes for KE capacity development**, which may include local/regional schemes with target groups, and access/use of other funding streams
- **Discipline focus,** and alignment to changing external demand/need
- **Complementary KE offers** e.g. incubation space and support, tech-transfer and IP advice

External to institutions

- **Policy and regulatory environment**, influencing levels of demand and need for capacity development particularly amongst businesses / public sector, funding landscape for complementary activities
- **Local and regional economic, enterprise and spatial context** e.g. related to access to finance opportunities; scale, nature and concentration of business base; strength of business and other networks and innovation ecosystems around institutions; accessibility of institution (particularly for non-employer led activity)
- **Macro-level economic conditions** e.g. influencing levels of entrepreneurship, access to employment opportunities, business investment in skills development

4. Implications and next steps for the evaluation of HEIF

Implications from Phase Two

4.1 The following points are noted in terms of the key implications from the Phase Two work, providing the 'full set' of Logic Models and Theories of Change across the KE functions supported by HEIF. It is important to note that this work did not examine the strategic/institutional level developments in HEIs which are an important part of what HEIF supports and incentivises, which any full evaluation would need to address.

4.2 First, the full set of Logic Models and Theories of Change highlights both the varied ways in which HEIF is anticipated to generate outcomes within individual KE functions, and the extent to which there are important linkages and relationships between functions. Notably, key outcomes from the 'Knowledge Sharing and Diffusion' and 'Exploiting the HEI's Physical Assets' functions include leveraging or enabling further follow-on KE activity (e.g. through collaborative research, consultancy or other forms of commercialisation/technology transfer activity). Indeed, the 'Knowledge Sharing and Diffusion' function was highlighted by practitioners as an important initial 'route' into knowledge exchange activities in many cases, which will be subsequently delivered via other function areas; this is reflected in the indirect outcomes that the HEIF-supported activity in this area is anticipated to generate as set out in the Theory of Change.

4.3 Second, and related to this, it is important to recognise that multiple functions can be expected to deliver – directly or indirectly – against a number of key KE outcomes captured in the HE-BCI survey, notably patents filed/granted, new businesses created (including staff start-ups, graduate start-ups, and spin-offs with/without HEI ownership), and KE income (as a proxy for impact), which itself is an enabler to support further knowledge exchange activity. It may also be the case that additional non monetised impacts identified in relation to one ToC may apply to others. This shared and mutually re-enforcing contribution to outcomes, which is intrinsic to, and supported by, the institutional formula-based approach to HEIF, will need to be considered in the proposed theory-based evaluation. One key issue to test will be how and why this supportive and re-enforcing relationship may potentially break down and/or enable outcomes to be delivered.

4.4 Third, the full set of Logic Models and Theories of Change also highlights the range of ways in which HEIF funds specific activities and projects which can (in theory) realise outcomes, alongside investment in time and staffing resource. A key theme from the Phase One report was the crucial role of HEIF in providing resource for KE practitioners working across functions, enabling them to play a 'connecting and translational' role, as well as in providing resource at the strategic level to drive leadership and mission. This point remains valid and is an important element in ensuring the linkages noted above are realised in practice. However, Phase Two – as reflected in the Logic Models and Theories of Change –

demonstrates how HEIF is also used to fund specific projects/activities, including pilot activities to test new ways of working, bespoke demand-led activities that respond to individual contexts, and tailored support activities (e.g. investment funds, accelerator schemes etc.). It will be important for the evaluation to recognise and test fully this flexibility in the use of HEIF – within the broad framework of activity-types articulated in the Logic Models – over and above providing support for knowledge exchange 'infrastructure'.

4.5 Fourth, Phase Two also highlighted the importance of HEIF in supporting 'strategic engagement' activities and generating strategic outcomes. These were relevant particularly for the 'Knowledge Sharing and Diffusion' and 'Exploiting the HEI's Physical Assets', and 'Community and Public Engagement' functions. The outcomes from these activities are likely to be long-term and challenging to evidence quantitatively, and subsequently they are not currently captured by the HE-BCI metrics that are one possible way of focussing the Contribution Analysis. However, considering in some detail how HEIF-supported activity in one or a number of these functions does lead to changes in local/sub-national/national policy- and decision-making may be of particular interest and could be considered through the Realist Evaluation approach identified in Phase One.

4.6 Fifth, it is recognised that the coverage of the HE-BCI in relation to the Community and Public Engagement function is limited, covering attendance at public lectures, exhibitions, and museum education, and the resulting income (for chargeable events, where relevant)[8]. It is not within the scope of this work to provide specific recommendations regarding the scope of the HE-BCI survey – which is subject to a review by HESA. However, some consideration for metrics that could be collected to better reflect the nature of benefits generated through this function may be appropriate. For example, inclusion of metrics on students/staff participating in volunteering opportunities, or co-designed research projects with community organisations (from which subsequent outcomes could be inferred based on the theory-based evaluation evidence) would be worth considering (and is consistent with feedback in the HE-BCI consultation[9]). Alternatively, if the theory-based evaluation approach adopting Contribution Analysis is progressed, Research England and partners could consider identifying a small number of 'priority outputs and outcomes', where data collection in advance of an evaluation would be proportionate e.g. on the metrics set out above. These priority routes to impact could then be used as proxies for HE-BCI metrics for the Contribution Analysis as part of the next evaluation of HEIF.

[8] The Logic Model does include 'Social enterprises formed' however, this is not via social enterprise spin-offs set-up to exploit IP that has originated from within a higher education institution (as covered by HE-BCI), rather this relates to social enterprise that may be established by community organisations or external individuals engaged in community engagement activities supported by HEIF.
[9] HESA, HE-BCI Major Review Consultation Analysis, March 2020

Next steps

4.7 The Logic Models and Theories of Change developed in this study may be used by Research England as the basis for progressing the theory-based evaluation proposed in the Phase One report, with a 'core approach' using a Contribution Analysis methodology.

4.8 In progressing this work, two points are noted:

- First, both Phases of this study have been based on the KE functions used by Research England in, for example, HEIF accountability return templates to record expenditure for use in programme evaluation. The work did not include a formal requirement to consider or develop an updated or revised function typology or provide recommendations on the use of this typology going forward. This said, reflecting on the process through which the function Logic Models and Theories of Change were developed, which drew largely on extensive engagement with KE practitioners, these appear to remain an appropriate mechanism to capture the range of HEIF-supported KE activity. In our view, the functions may also be used to inform and frame theory-based evaluation, including recognising the important linkages between the function and the higher strategic level, as noted above. This would include considering the activity in 'Entrepreneurship and enterprise education' function from the original depiction as part of other functions, consistent with the coverage of the Logic Models.

- Second, Research England should consider how both the outputs of this study (i.e. the Logic Model and Theories of Change), and the process of the study (i.e. engaging practitioners in discussions on the scope of activities, the routes to outputs and outcomes, and the factors and assumptions underpinning this) may be used to communicate the use and potential benefits of knowledge exchange, and enhance evaluation capacity in the sector, including for continuous improvement purposes. The workshops with practitioners suggest that 'Logic Modelling' approaches can be a useful mechanism to frame and articulate thinking about knowledge exchange activities, including those areas that are not traditionally as well understood and recognised in the knowledge exchange landscape. Research England should look to build on this learning going forward.

Annex A: Summary Note of Key Practitioner Feedback

Background and context

In August 2019, Research England commissioned SQW, supported by City-REDI, to undertake a study examining the potential application of novel theory-based evaluation approaches in the next evaluation of the Higher Education Innovation Fund (HEIF). The aim was to identify novel theory-based approaches that provide systematic and robust evidence on 'how' HEIF-funded activities lead to outcomes/impacts, to complement quantitative approaches of the scale of these effects.

This included the development of exemplar Logic Models and Theories of Change for knowledge exchange functions used in HEIF monitoring to test the use of novel methods. The work prioritised two functions: '*Facilitating the research exploitation process*', and '*Skills and human capital development, including enterprise education*'. As part of this work, a one-day workshop was held with knowledge exchange practitioners in October 2019, organised by PraxisAuril.

In February 2020, the SQW-led team was retained to develop Logic Models and Theories of Change for the remaining functions. Four function-specific online workshops were held with knowledge exchange practitioners in April 2020, again organised by PraxisAuril. The aim of the workshops was to secure feedback on a draft Logic Model for each function and discuss the Theory of Change, including the key factors that will influence the use of, and outputs and outcomes from, HEIF in the relevant function. In total 19 practitioners were involved in the workshops.

This note sets out the key messages from the workshops. The note does not seek to provide a detailed verbatim account of all the points raised by practitioners in each workshop, however, these detailed comments will be taken into account by the study team in revising the Logic Models and developing the Theories of Change.

Summary messages

Overall, **the practitioner feedback indicated that the coverage and content of the draft Logic Models – establishing the activities supported by HEIF and the resulting outputs/outcomes – was largely accurate and comprehensive**. However, there will be a need to review and revise substantively two of the Logic Models (Community and Public Engagement, and Knowledge Sharing and Diffusion) based on the feedback. These revisions are outlined in Section 3 of this report This is not unexpected given that these functions are inherently wide ranging and are areas where the nature of activities, outputs, and outcomes

is less well understood and captured in existing knowledge exchange monitoring and reporting regimes.

The workshops also highlighted that **Logic Models are recognised by practitioners as a useful mechanism to frame and articulate the activities that are supported by HEIF**, including those areas not as well recognised and acknowledged as important components of knowledge exchange.

This said, there were **elements of HEIF-funded activities and resulting outcomes that do need to be reflected more fully in the Logic Models**. Further to the specific examples for individual functions (discussed below), areas of interest across the workshops included: reputational benefits for institutions, student engagement in knowledge exchange, and effects on local/regional strategies and plans.

In this context, it was clear from the discussions **that there are important linkages across (all of) the knowledge exchange functions, and areas of overlap in delivery of activity that is funded/enabled by HEIF**. The workshops highlighted that it will be important when finalising the Logic Models and Theories of Change, and in the evaluation itself, to identify explicitly the key relationships between activities/outputs outcomes across the function areas. The feedback also indicated that the function-level Logic Models do need to be seen as a 'full-set', so that any observed gaps in individual functions are covered elsewhere.

Three themes emerged in relation to the development of Theories of Change for the functions:

- **The importance of the interactions between HEIF and other sources of funding** e.g. where institutions use HEIF to fund resource to manage ERDF-funded projects/activities. A common theme from across the workshops was that HEIF's role is often to provide the 'glue' between different funding sources for activities across functions. How this is realised practically will vary across institutions, depending on access to and use of other sources of funding, and institution priorities or strategies.
- **The importance of place and local and regional context, both to inform the use of HEIF, and in realising outputs and outcomes**. Ensuring that the Theories of Change recognise the importance of local and regional context was a key issue in discussions across all of the functions, including in relation to the role of institutions receiving HEIF as key 'anchor' economic development and strategic institutions in their local areas.
- **The responsive, dynamic use of HEIF**, which includes but is not limited to providing the resource to fund staff time (for knowledge exchange practitioners and academics). For example, practitioners highlighted how HEIF can be used to support pilot and innovative new activities, widen the reach and engagement in existing knowledge exchange activities, and support relationship development and new and enhanced partnerships across several knowledge exchange functions. The workshops indicated that it will be important for this characteristic of HEIF to be recognised in the Theories of Change, and subsequent evaluation.

Key messages from function-specific feedback

Commercialisation (Technology Transfer)

The feedback from the workshop suggested that the structure and content of the draft Logic Model was appropriate, and that it provided a reasonable depiction of the nature of inputs, activities, outputs and outcomes associated with HEIF in commercialisation (technology transfer). This said, it was highlighted that there is a need to recognise HEIF as a flexible source of funding, that enables a varied and wide range of activity in technology transfer support across institutions. Whilst it is not realistic for the Logic Model to record every specific activity supported, the Logic Model and Theory of Change will need to recognise this diversity within the broad activity areas identified.

Several gaps were identified in the draft Logic Model including: the need for a greater recognition in 'inputs' of the research pipeline (that is the starting point for technology transfer that is subsequently enabled by HEIF-supported activity/capacity) and the external actions that align with HEIF-supported activity/capacity; and in 'outcomes' the importance of enhanced reputation of the institution through supporting effective and impactful technology transfer activity.

The discussion on the Theory of Change highlighted the importance of institutional, sectoral, and spatial contexts. The 'context' was seen to be crucial in informing both pathways to outcomes in and the initial focus of institutions in their priorities, and the associated utilisation of HEIF. Further to this issue, three key points emerged from the discussion on the Theory of Change:

- notwithstanding the variation associated with technology transfer in different disciplines and sectors – and the practical issues with individual concepts/ideas – some of the pathways from activity to outputs and outcomes are in principle quite linear and traceable e.g. support on IP, leading to patents filed, leading to income
- linked to this, the importance of relationship development in technology transfer enabled by HEIF supported activity/capacity – which is not a 'transactional' process – was highlighted
- key external dependencies and barriers are evident at each end of the Logic Model (i.e. inputs and outcomes), for example, reflecting investor appetite, market trends, and other business influences, and these will need to be reflected in the depiction of the Theory of Change.

Exploiting the HEIs Physical Assets

The feedback from practitioners suggested that the structure and content of the draft Logic Model was an appropriate, generic description of the types of inputs, activities, outputs and

outcomes associated with HEIF in this function. This said, it was recognised that the way in which HEIF is used in this area – to facilitate the usage of physical assets, including crucially through providing the resource for staff time providing 'wrap around' and value-adding activity, rather than developing them directly – could be recognised more explicitly in the Logic Model. Further, there may be a need for a greater emphasis on the specialist nature of assets, and the staffing/resource funded by HEIF is required to maximise their potential.

Further to these overarching issues, the workshop indicated that the draft outcomes did not fully reflect the way in which HEIF enables physical assets to contribute to local and regional economic development, clustering, and the attraction of investment. The contribution of physical assets that are facilitated through HEIF to student outcomes, and delivery against (and role in informing) local/regional strategic priorities (including providing resource for the development of business cases and other scoping studies to inform investments in further physical assets) were also raised as areas that should be included in the Logic Model.

The discussion on the Theory of Change focused principally on the importance of 'context' which inform how HEIF is used in this function, and whether the anticipated outputs and outcomes are realised. Contextual factors identified included the rate/level of innovation activity within the local business community, local economic development policy and relationships of the institution to key local stakeholders (e.g. LEPs), and the sectors that are the focus of physical assets (e.g. in relation to specialist equipment, science park/innovation centres entry criteria and focus).

Community and Public Engagement

The feedback from practitioners indicated that the draft Logic Model provided a useful initial depiction of HEIF supported activity in the Community and Public Engagement function. However, the feedback suggested that some changes were needed to ensure it reflected accurately HEIF-supported activity. These changes are outlined in Section 3 in this report. The feedback gathered reflected the breadth of activity that is encompassed by this function. Activity was found to vary significantly by institution, with implications for the usage of HEIF. The key points and issues from the workshop included:

- Practitioners identified a wide range of ways in which HEIF is used in this function not covered in the draft Logic Model, including (amongst others): the development of community infrastructure and social capital e.g. by hosting participative arts projects and programmes, hackathons, providing work placements to at-risk social groups, contributions to local charitable groups and schools; the co-creation, co-production and co-delivery of research; and supporting community events including festivals.
    - In this context, the feedback was that HEIF-funded activity is often focussed on larger-scale community-based projects that address challenges in partnership with local actors. Smaller-scale activities (e.g. public lectures, school out-reach) are less likely to involve HEIF funding/knowledge exchange practitioner input and support; however,

some smaller-scale projects, for example, piloting innovative approaches to engagement are HEIF-funded.

- The relationship to the 'Knowledge Sharing and Diffusion' function was highlighted, for example, in relation to engagement in local networks/partnerships, and this will need to be considered in finalising the Logic Models. Other questions of definition and coverage (with implications for the outputs and outcomes) that will need to be considered included: the extent to which 'community' includes the business community; and whether widening participation should be included/given the level of priority as currently identified.
- Outcomes related to improved community cohesion including through the development of social enterprises, and reputational/brand-related outcomes to the HEI are missing.

The discussion on the Theory of Change identified important internal contextual factors influencing the use of HEIF in this function, including the relative priority placed on activities that do not lead to direct commercialisations outcomes (including income), and linked to this, the focus and emphasis of institutional civic missions. It was also noted that measuring/quantifying outputs/outcomes in this function will be challenging and may involve agreeing priority outputs/outcomes as the focus of evaluation, where data are available to test impact pathways.

Knowledge Sharing and Diffusion

The practitioner feedback suggested that this function had numerous relationships and overlaps with other functions, and was often the first stage in a journey of engagement with businesses, entrepreneurs and stakeholders that led on to other forms of HEIF-supported knowledge exchange. As such, the Logic Model was regarded as a helpful initial depiction, which could be further developed. Key points raised included:

- The development, facilitation and participation in a range of different types of networks is a central activity within this function. As well as alumni networks and knowledge exchange professional networks, institutions use HEIF to participate in (and often organise) a wide range of other networks including with businesses; local, regional and national stakeholders; and 'internal' networks with staff and students. One example raised was the use of HEIF to support stakeholder forums such as Innovation Councils or COVID-19 recovery planning groups.
- Whether the indirect outcomes in the draft Logic Models were, in fact, 'indirect'. It was noted that indirect outcomes listed relied on other activities to be realised, and therefore were not directly attributable. However, this will be considered in the next iteration of the Logic Model, with outcomes being recognised potentially as direct, drawing on the practitioner feedback. For example, it was raised that HEIs run events to engage with businesses, not just to network with them, making associated outcomes (such as consultancy contracts secured) arguably direct.

Several gaps were identified in the draft Logic Model, including: the role of HEIF in enabling more strategic, effective knowledge exchange activities in line with local strategies; activities around standardisation and hosting innovation-related events, and working with local stakeholders/authorities to support regional growth through knowledge diffusion as well as for staff/student development/employability; and outcomes around increased engagement between institutions and businesses leading to new opportunities.

The discussion on the Theory of Change highlighted the importance of the 'quality' of events and networking in realising effective knowledge diffusion: it was noted that HEIF is used both to fund specific activities (e.g. project management, training, and facilitation), and provide resource that enables their strategic oversight, ensuring they are effectively 'curated' (e.g. to attract the right partners/stakeholders). In this context, the nature of knowledge diffusion as a two-way process (both from and to institutions), and one that can often involve non-linear processes (as activities which are speculative and wide-ranging in nature lead to a range of subsequent activities, outcomes and outcomes) was highlighted; these will need to be recognised in the Theory of Change. Effective staff relationships with relevant external bodies and alignment of institutional agendas with those of stakeholders were identified as key enablers of outputs/outcomes in this function.

Annex B: Bibliography

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About us

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