

Research Report

VC Catalyst – Early Assessment

Ipsos MORI and George Barrett

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Executive Summary

VC Catalyst Early Assessment Results

The Early Assessment of the Venture Capital (VC) Catalyst programme undertaken by Ipsos MORI¹ has generated the following key research findings:

- The original rationale for the VC Catalyst programme in helping funds to close was valid in 2013 and remains part of the rationale. However, the VC market has changed over time and the VC Catalyst has evolved with this to encompass a wider rationale.
- There is evidence of the programme enabling funds to close sooner and at a larger scale than they otherwise would have done, suggesting good partial finance additionality at the fund level.
- The VC funds supported by the VC Catalyst programme are largely investing in highly innovative and R&D intensive businesses that have the potential to scale-up rapidly.

Policy Context

The original rationale for the VC Catalyst programme in helping funds to close was valid in 2013 and remains part of the rationale. However, the VC market has changed over time and the VC Catalyst has evolved with this to encompass a wider rationale.

The assessment validates the rationale for the VC Catalyst's introduction in 2013. The UK VC market exhibited limited investor liquidity and low historic returns, especially in the period following the financial crisis, making fund raising conditions difficult for fund managers. The supply of VC finance available to smaller businesses and average fund raising amounts have increased since 2015, although the number of European funds that have closed has decreased since 2013, suggesting larger fund sizes.

To some extent, this reduces the ongoing cyclical case for the VC Catalyst in helping funds to close. However, the evidence points to material challenges remaining in the market and the requirements shifting towards the need for greater patient and scale-up capital, an increased supply of high-skilled fund managers and more clarity around the role of the European Investment Fund (EIF) once the UK has left the European Union.

¹ In association with George Barrett.

These market challenges align well with the overall aims and objectives of the revised VC Catalyst introduced in 2016 to target later stage VC, with the ability to provide larger funding amounts and to cornerstone funds.²

Fundraising (Closure of Funds)

The majority of supported funds reported they were likely to have reached a first close without the VC Catalyst, but there is strong evidence of the programme enabling funds to close sooner and at a larger scale than they otherwise would have done. This should have led to time saved and improved investment strategies, suggesting good partial finance additionality at the fund level.

Fund managers reported that securing Limited Partner (LP) investment with increasing momentum was crucial when attempting to reach a first close and the ability of the British Business Bank to become an LP quickly was a useful feature of the programme. The self-reported counterfactual evidence suggests that the majority of funds would still have been able to reach a first close without investment from the VC Catalyst at some point, implying minimal pure finance additionality at the fund level. However, investment fund managers reported that, without VC Catalyst investment, additional time would have been required to reach a first close which would have delayed funds from closing and involved an opportunity cost for fund managers. This lends support to the view that the programme provides partial finance additionality at the fund level.

VC Catalyst fund managers interviewed reported that they had taken between 12-18 months to reach a first close whereas Preqin data indicates that the average time taken to reach a first close is nine months, suggesting the VC Catalyst has helped funds to close sooner than they might have otherwise have done. The larger the amount of time taken to seek and secure LP investments to support fund closure, the less time and resources potentially available to support deal origination activities.

VC Catalyst investment also appears to have enabled funds to implement their planned optimal investment strategies, invest in a larger number of businesses and provide non-pecuniary support to portfolio companies, such as individual coaching or guidance on recruitment.

The evidence is inconclusive on the net effect of the programme in realising additional investment from LPs by signalling the quality of the funds invested in. The VC Catalyst appears to have a particular focus on funds with limited track records, with five of the eight funds receiving British Business Bank investment for fund III or less. These

² In June 2017, it was announced that the [VC Catalyst](#) would be raising the limits on the amount it can invest in venture capital funds from 33 Percent to 50 percent.

funds were likely to have found fund raising especially difficult in 2013, which offers confidence that the VC Catalyst is unlocking additional funding.

Investment in Businesses

Businesses receiving investment from VC Catalyst supported funds are typically highly innovative and actively engaged in R&D activities, with the potential to rapidly scale-up.

Businesses that received investment from funds supported by the VC Catalyst reported increased levels of late stage R&D and scale-up activity since receiving funding. Many were developing disruptive innovations, offering scope for generating positive externalities from innovation spill-overs and creation of new markets. At the time of reporting, these businesses were typically early stage but generating some revenue. The majority were not yet focused on making profits in the short-term, instead focusing on investing in key business functions in order to scale up.

The assessment indicates that these investments will lead to positive business commercial performance, evidenced through increases in actual and expected turnover and employment over time. The non-pecuniary business support provided by the fund managers was also highly valued by the businesses.

Businesses reported they would have found other sources of investment had funding through this route not been available. This limits the extent to which the finance provided by the VC Catalyst is likely to be directly financially additional at the business level.³ This confirms that VC Catalyst fund managers are looking to make commercial investments, not identifying 'marginal businesses' that are unlikely to receive investment from other sources. In an environment where the supply of VC finance is lower than the demand for finance, there may still be associated increases in the overall supply of equity finance. Even if the businesses directly funded by the programme may have got finance elsewhere, it frees up funding for other businesses.

VC Catalyst Processes

Fund assessment processes are generally efficient but there are several areas for consideration, including the geographic requirements on funds to invest in the UK.

In line with the objectives of the programme and its delivery by BBBI, the commercial subsidiary of the British Business Bank, the VC Catalyst operates on a commercial basis in its selection of fund managers. This means the selection criteria appear to favour maximising commercial returns, rather than maximising fund finance

³ Although it is widely acknowledged that business owners may be optimistic in their ability to obtain equity finance.

additionality (which would be secured through selecting 'marginal case' funds that would not have closed without investment from the bank).

While the effectiveness and efficiency of all VC Catalyst process were applauded, the assessment raised two concerns: first, stakeholders challenged the ability of the programme to account for strategic behaviour by fund managers in downplaying the likelihood that they could close without public support; second, the extent to which the contracting process is able to enforce geographical investment requirements was also raised.

Research Methodology

Ipsos MORI, in association with George Barrett (an Associate of Ipsos MORI and former Chief Economist and Research Director of the Ecorys Group), was commissioned by the British Business Bank to undertake an Early Assessment of the VC Catalyst Programme in November 2016.

It is too early in the life of the VC Catalyst programme to observe the full economic impact of the programme. This Early Assessment is designed to provide an initial view of likely programme performance in the future. The study adopted a theory based evaluation approach and a contribution analysis was undertaken to identify and explore a set of plausible performance stories for the VC Catalyst. Evidence was used to test and substantiate these stories including: a review of the programme context, an analysis of management and monitoring information at the fund and firm level, interviews with fund managers and businesses that received VC Catalyst investment and interviews with key stakeholders.

VC Catalyst Programme Background

The VC Catalyst was established in 2013, in response to a perceived cyclical weakness in the UK VC market. It was designed to invest in VC funds which were considered to be commercially viable but which would struggle to achieve a first closure in their fund raising without public support. These funds had typically been successful in securing some investor commitments but had not yet reached their target fund size. As such, they were not in a position to start making investments into businesses.

The VC Catalyst programme aimed to support innovative, high-growth potential businesses in the UK by increasing the number of VC funds reaching a first close. This has in turn been intended to increase the supply of VC to meet the funding needs of high-growth potential businesses in the UK.

The VC Catalyst is delivered by the commercial subsidiary of the British Business Bank (British Business Bank Investments- BBBI), and invests into funds on terms that are identical or better to those of other private sector investors. There is no public subsidy and the Bank expects a financial return in line with VC market investments of this

type. The VC Catalyst programme is distinct from the Bank's other VC programmes which are targeted at smaller and earlier stage deals.

In the 2016 Autumn Statement, the Chancellor announced an additional £400m for the British Business Bank to facilitate VC investment in innovative and high-growth businesses. In addition to addressing the structural weaknesses in the UK VC market for smaller businesses, the British Business Bank will use this investment to broaden the VC Catalyst's mandate to target later stage VC and growth stage investments, where there is thought to be an increasing funding gap for SME scale-up activity.⁴ In June 2017, the Chancellor of the Exchequer announced that the VC Catalyst would be raising the limits on the amount it can invest in VC funds from 33 percent to 50 percent, enabling the programme to be able to make cornerstone investment into funds.

This Early Assessment is focused on the VC Catalyst programme as originally developed in 2013. As of January 2017, the VC Catalyst programme had committed £83.8m into 9 VC funds.

⁴ British Business Bank analysis in Small Business Finance Markets 2016/17 showed that UK VC backed companies are less likely to receive later stage follow on funding rounds compared US companies. Only 62 percent of UK companies that received a series A/ seed deal between 2008 and 2010 received a follow-on round of finance compared to 68 percent in the US.

1 Introduction

Ipsos MORI, in association with George Barrett (an Associate of Ipsos MORI and former Chief Economist and Research Director of the Ecorys Group), was commissioned by the British Business Bank to undertake a process and impact evaluation of the VC Catalyst Fund in November 2016. This report sets out the results of the evaluation.

1.1 Evaluation Aims and Objectives

This Early Assessment of the VC Catalyst Programme was required in order to provide:

- An understanding of fund managers and other market participants' perspectives on the extent to which the VC Catalyst has enabled VC funds to raise funding and close, and the impact on the wider VC market, including market capacity and development.
- An in-depth Early Assessment of the actual and expected future impacts on businesses obtaining equity finance from funds supported by the VC Catalyst.
- Evidence of early indications that the programme is addressing cyclical factors or market failures and will contribute to productivity growth over the longer term.
- Case studies illustrating the characteristics of businesses obtaining funding, their sectors, their experiences in obtaining finance before receiving funding and their perceptions of the extent to which the funding supported through the programme has been 'additional' to what could otherwise have been obtained from the market.
- Emerging views of the impact of the funding or any mentoring support provided by fund managers, for example in terms of facilitating innovation, turnover, or employment growth, covering effects that have already occurred as well as expectations about the future.
- An overview of recent trends in UK and European VC markets in order to provide context to the qualitative research by summarising relevant secondary data sources.

1.2 VC Catalyst Aims and Objectives

From its inception in 2013, the overall objective of the VC Catalyst has been to contribute to economic growth by ensuring a healthy supply of equity finance for UK businesses. The specific programme objectives are to⁵:

- Increase the supply of equity finance to UK early stage, innovative businesses with high growth potential, particularly but not exclusively high tech, capital-intensive businesses.
- Sustain and build the capacity of the early stage VC market to address the equity financing needs of early stage businesses.
- Increase the economic performance of recipient businesses.

The VC Catalyst is delivered by the commercial subsidiary of the British Business Bank (British Business Bank Investments- BBBI) and invests into funds on terms that are at least identical or more favourable to those of other private sector investors. There is no public subsidy and the Bank therefore expects a financial return in line with VC market investments of this type.

In the 2016 Autumn Statement, an additional £400m was committed to the British Business Bank to facilitate VC investment in high-growth and innovative businesses. The British Business Bank will use this funding to address structural weaknesses in the UK VC market for businesses, and proposes to broaden the VC Catalyst's mandate to target later stage VC and growth stage investments where there is said to be a growing funding gap for business scale-up activity. In June 2017, the Chancellor of the Exchequer announced that the VC Catalyst would be raising the limits on the amount it can invest in VC funds from 33 percent to 50 percent, enabling the programme to be able to make cornerstone investment into funds. This Early Assessment is focused on the VC Catalyst as originally developed in 2013. The changes referred to above have been noted in the report at relevant points.

1.3 Research Methodology

The analytical findings presented in this evaluation report are based on the following research activities:

Analysis of Monitoring Information: An analysis of monitoring information held by the British Business Bank relating to the performance of the VC Catalyst was completed. Descriptive analysis was undertaken to provide an understanding of the

⁵ British Business Bank (2013) 'VC Catalyst Fund ROAMEF' paper.

funds receiving investment and the characteristics of the businesses that have secured investment from the funds involved.

Analysis of Secondary Data: An assessment of secondary data sources was undertaken to provide an overview of the UK VC market and to understand the extent to which the rationale for the VC Catalyst was valid, both at its inception and at the time of the evaluation. Data sources examined included Beauhurst, BVCA, Invest Europe and Preqin.

Interviews with Fund Managers: Interviews were held with the managers of the eight of the nine funds (at the time of the fieldwork) supported by the VC Catalyst to support the assessment of the impact of the VC Catalyst Fund on the VC industry in enabling funds to close earlier, supporting increased leverage, or in generating other wider market impacts. The interviews also provided evidence relating to the experiences of funds in interacting with the British Business Bank VC Catalyst processes, their operations since securing Catalyst funding and an understanding of the extent to which these activities would have gone ahead without support.

Interviews with Stakeholders: Eight Interviews with market experts, wider stakeholders and a set of market participants who have not received support from the VC Catalyst provided an external perspective for the evaluation. These interviews were used to validate and refine the initial assessment of the position of the VC market and the underlying case for the VC Catalyst. In particular, they offered expert opinion on the extent to which the programme has supported the fund raising closure of funds in an appropriate timeframe that would not otherwise have been possible or whether the support for the selected funds may have displaced other funding.

Interviews with Businesses: Interviews were completed with eight businesses that have received investment from VC Catalyst supported funds.⁶ These interviews explored the characteristics, activities and aspirations of the businesses. They also provided an understanding of business experiences in accessing finance, noting any barriers faced and whether the drawdown of funds has supported – or is likely to support – the realisation of the outcomes of interest.

1.4 Structure of this Report

The remainder of this report is structured as follows:

- **Section 2** provides an overview of the VC Catalyst and its intended effects.

⁶ Note that the original intention was to undertake 15 interviews but fieldwork was ended early in response to the June 2017 General Election and resulting Cabinet Office restrictions around undertaking surveys in the run up to an Election.

- **Section 3** provides a contextual review of the VC Catalyst programme and makes an assessment of the validity of the rationale for the VC Catalyst over time.
- **Section 4** focuses on an assessment of the effectiveness of the processes of the programme.
- **Section 5** examines the outcomes and expected impacts associated with the VC Catalyst.
- **Section 6** concludes and identifies a set of lessons from the delivery of the VC Catalyst and provides a set of considerations for the Interim Evaluation.

2 VC Catalyst Overview

This section provides an outline of the causal pathways by which the VC Catalyst was expected to deliver its intended outputs, outcomes and subsequent impacts. This is presented here as a set of hypotheses that have been tested through the Early Assessment.

2.1 VC Catalyst

Established in 2013, the VC Catalyst was intended to respond to an identified cyclical weakness in the provision of capital to VC funds. The VC Catalyst was designed to invest in VC funds which were considered to be commercially viable but which would struggle to achieve their first close without support.⁷ These are funds that have been marketed and have successfully raised some funding, but have not hit their stated target size and so are not in a position to start investing in businesses. To target such funds, the VC Catalyst only invests where a number of criteria relating to the funds' strategy, management and overall structure are met, as detailed below⁸:

- The fund must have a strong, stable management team with a verifiable track record and relevant sector and stage experience;
- Significant private sector investment already committed;
- Be investing predominantly within the UK or likely to invest significantly more than the VC Catalyst Fund investment in the UK;
- Targeting VC investments;
- The VC Catalyst investment must be no more than 20 percent of the total fund size;
- The fund will typically require an investment of between £5m and £10m;

⁷ A first close signifies the point at which a VC fund has secured a sufficient number of Limited Partner (LP) investments to enable it to start making deals in a financially viable manner.

⁸ These are published on the British Business Bank website. There has been changes to the design of the programme over time. For instance, as a result of funding received at Autumn Budget 2016, the programme was retargeted at later stage VC. In June 2017 it was announced that the VC Catalyst would be raising the limits on the amount it can invest in VC funds from 33 percent to 50 percent, enabling the programme to make cornerstone investments.

- Be targeting at least £50m at first close (no max size);
- Investment from the VC Catalyst programme must be material in helping the fund to reach a close;
- Not investing in funds that receive any form of subsidised or subordinated UK Government support⁹; and,
- Agreed fund terms are acceptable to the British Business Bank and are at least as good as those given to private investors.

In this way, the VC Catalyst aims to support innovative, high-growth potential businesses in the UK by increasing the number of VC funds reaching a first close. This is in turn intended to increase the supply of capital that is important to the funding needs of high-growth potential small businesses in the UK. It is also intended to have an acceleration effect, bringing forward the date of a fund's first close and therefore its subsequent investments into businesses.

The VC Catalyst is delivered by the commercial subsidiary of the British Business Bank (British Business Bank Investments- BBBI), and invests into funds on terms that are at least identical or more favourable to those of other private sector investors. There is no public subsidy and the Bank therefore expects a financial return in line with VC market investments of this type. This helps to demonstrate to the wider market the financial returns that are available from investing in this asset class.

2.2 Rationale

This section presents the case for public intervention through a discussion of the strategic and economic case for the VC Catalyst. Overall, the introduction of the VC Catalyst was intended to provide a mechanism for the UK Government to meet the financing needs of early stage, high-growth potential businesses based in the UK. The principle was that by helping a larger number of VC funds to close, this would increase the level of equity investment available to businesses. This support was seen as necessary because of the weak financial performance exhibited by the UK VC market in the aftermath of the financial crisis. In addition, a set of structural issues associated with the provision of equity funding were seen as having been exacerbated by these cyclical conditions.

2.2.1 Strategic Case

The provision of timely and appropriate levels of finance to businesses is seen as vital in maximising their contribution to UK economic growth. This is especially true for the

⁹ For instance, tax relief under EIS and VCT programmes.

small number of businesses that have high growth intentions. Research¹⁰ indicates that just six percent of businesses with at least 10 employees accounted for half of the net employment growth in the UK between 2002 and 2008.¹¹ A variety of funding instruments, including both institutional and Private Equity, are used to support the development of high growth businesses and equity is cited as an important instrument to support their investment needs.¹²

However, longstanding concerns about the weak UK VC market and liquidity constraints in the aftermath of the 2008 financial crises were seen as making it challenging for UK SMEs to access equity finance at the right levels to support business growth. It was widely accepted that the UK VC market lagged behind its US equivalent, even after taking into account differences in the size of the two economies. For example, in 2012, there was \$2.9bn of VC investment whereas in the US there was nearly \$41bn.¹³ In addition, UK VC offered lower rates of return than other Private Equity markets to LP investors. For example, the 10 year IRR return for VC is estimated to be 5.1 percent which is slightly lower than the 5.6 percent return from investing in public equity markets.¹⁴

The relatively unattractive risk-reward profile was thought to deter investors from entering the UK VC market and, as a result, make it more challenging for fundraising managers to secure a sufficient number of commitments to close their fund at an optimal level. Given the fixed and variable costs involved in setting up and managing a fund, the policy reflected the evidence that there tends to be a minimum size at which funds are likely to be commercially viable. As such, the opportunity for the VC Catalyst was seen as providing commitments to help funds achieve a first close in unfavourable market conditions, thus making additional VC funding available to businesses.

2.2.2 Economic Case

The economic rationale for the VC Catalyst drew on the identification of a set of structural issues with the provision of equity funding that have been exacerbated by the cyclical conditions since the financial crisis. These structural issues reflect broader issues around the availability of funding for private sector growth orientated

¹⁰ Nesta (2009) 'The Vital 6%'.

¹¹ More recent [analysis](#) from the Enterprise Research Centre (ERC) indicates that the rate of high growth businesses in the UK has remained relatively stable over the past decade. They also find that despite high growth businesses representing less than 1 percent of established businesses, they generate 20 percent of all job growth amongst established businesses that grow.

¹² Coutu (2014) 'The Scale-Up Report' The Scale Up Institute.

¹³ Nesta (2013). 'Unchaining Investment: Barriers to US venture investment in UK digital businesses'.

¹⁴ BVCA (2016) 'Performance Measurement Survey 2015'.

businesses, and relate to a set of market failures that underpin public intervention to support equity investments:

- **Imperfect information between finance providers and small businesses:** Assessing the quality of business proposals as well as executive management teams¹⁵ is difficult, especially in relation to early stage businesses, which creates substantial transaction and due diligence costs.¹⁶ These transaction costs are largely fixed and do not vary greatly by investment size. This means it becomes commercially unviable to undertake small investments, where transaction costs represent a large proportion of the sum to be invested. Due to the difficulties in valuing early stage businesses and assessing their commercial potential, equity investors will place a lower value on such propositions and invest less resources than would be optimal in the first best case where information is freely available.
- **Misalignment of interests:** Whilst equity investors take ownership rights alongside existing investors and the founding owners, individual interests between the different investors and owners may be misaligned, for instance in relation to their preference for specific exit routes and time frames. This creates the need for additional monitoring activities on the part of the external investor, adding to transactions costs and the barriers to undertaking investment in owner managed businesses.
- **Positive externalities:** The focus of the VC Catalyst on supporting VC funds that will invest in high growth potential businesses implies a focus on support for businesses that are pursuing innovation activities (a key assumption to be tested in the research). The returns to investment in undertaking innovation activities may not be fully captured by the businesses concerned or their investors. Successful pursuit of R&D projects, and the scaling up of existing innovations may be associated with knowledge spill-overs as others are able to learn from the advances made and other wider market impacts.¹⁷ Benefits are also likely to accrue to suppliers of high growth potential businesses that may experience growth in their own businesses as a result. There could also be education and skill spillover effects, as well as an overall strengthening of the innovation and funding eco-system as the

¹⁵ Issue discussed in depth in BIS (2009) 'The Supply of Equity Finance to SMEs: Revisiting the Equity Gap'.

¹⁶ See for example Bravo-Biosca (2014) 'Access to finance for innovation: Rationales and risks of public intervention'.

¹⁷ VC activity has been linked to higher patent counts or greater / accelerated commercialisation – see for example Ueda and Hirukawa (2008) 'Venture Capital and Industrial Innovation' or Engel and Keilbach (2007) 'Firm level implications of Early Stage Venture Capital Investment – An Empirical Investigation'.

market develops. This creates a case for public intervention to prevent (or correct for) a sub-optimal allocation of resources to innovative businesses.¹⁸

- **Thin markets:** The limited number of investors and entrepreneurial growth businesses within the economy has been identified as creating a structural market failure for VC markets. It has been argued that the high levels of repeated interaction between market participants necessary to build relationships and an effective ecosystem of intermediary institutions are not present in the UK VC sector, creating a matching or co-ordination failure.¹⁹ This creates a case for action to strengthen markets or to compensate for their weakness through the provision of public support (the strength of this case has been considered as part of the research).
- **Demand side issues:** A further set of market failures act to hold back demand for equity finance. In particular, some business owners indicate they are unwilling to cede ownership of their businesses²⁰, despite it being rational to do so. Businesses may also lack information on how equity funding works and who to approach for funding.

As noted, the VC Catalyst was established as a policy instrument to target an identified cyclical deterioration in the availability for funding that was seen as exacerbating these long-standing market failures. The 2009 Rowlands Review mapped out the worsening position at the start of the financial crisis²¹, and there were strong indications that this position had continued to worsen between 2009 and 2013. It also appeared that historically low interest rates²² had not acted to spur greater interest in equity investment among institutional investors. While it was difficult to establish a trend in the number of institutional investors investing in VC, data from Invest Europe and Pitchbook showed a declining number of funds in the UK between 2007 and 2013. With regards to corporate venturing, businesses appeared to have expressed a preference for holding cash reserves in the period after the financial crisis rather than investment, although investment appetite from corporations was increasing, suggesting a significant time lag since the decrease in the Bank of England interest rate.²³

¹⁸ See for example: Bravo-Biosca (2014) 'Access to finance for innovation: Rationales and risks of public intervention'.

¹⁹ See Nightingale et al (2009) 'From funding gaps to thin markets: UK Government support for early-stage venture capital'. NESTA & BVCA Research Report.

²⁰ While 20 percent of SMEs say they would consider using equity finance, only 1 percent do so (BIS Small Business Survey 2010).

²¹ BIS (2009) 'The Provision of Growth Capital to UK SMEs'.

²² BoE (2016). 'Agents' summary of business conditions'.

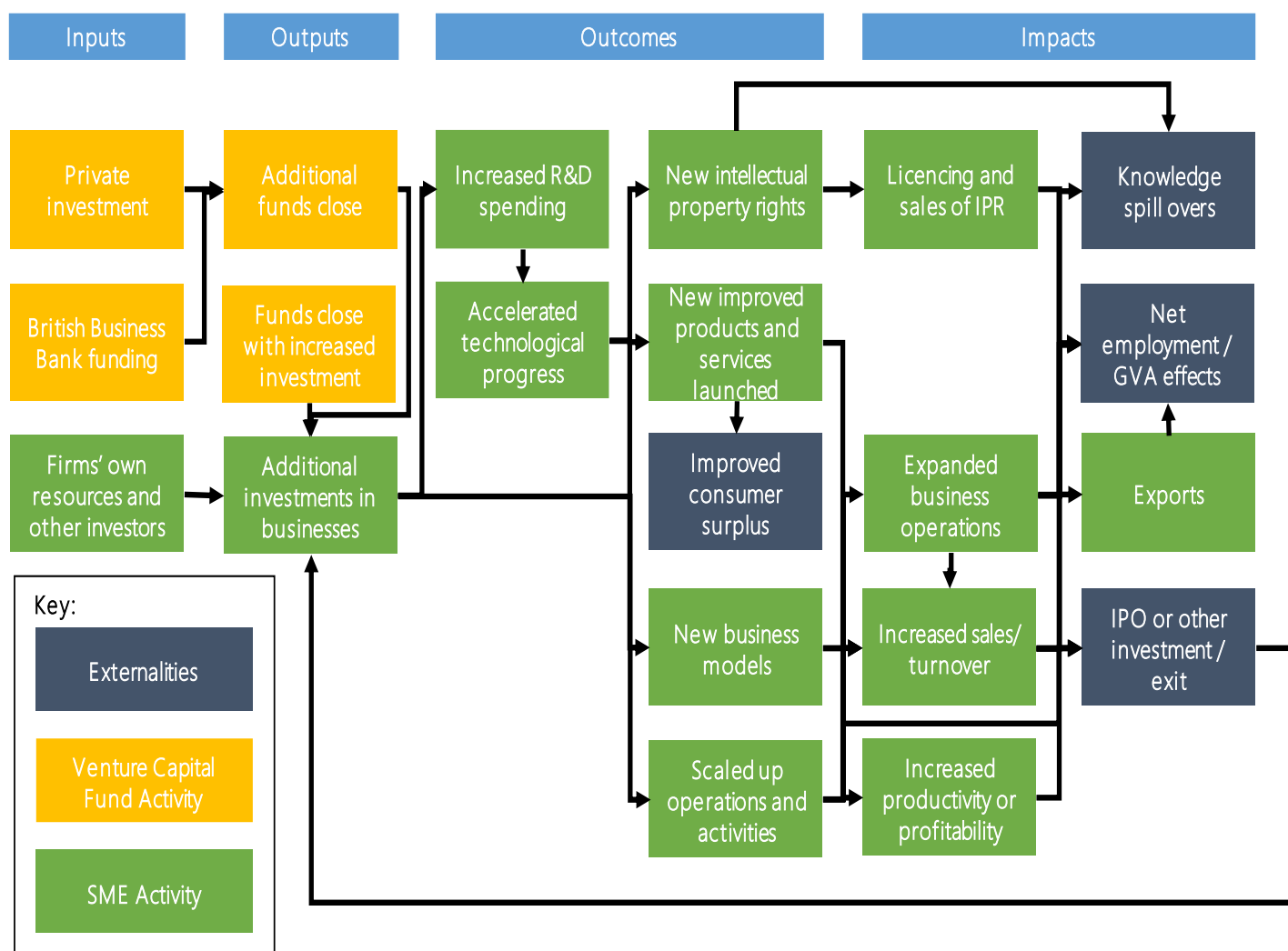
²³ URL: <https://www.cbinsights.com/research-cvc-trends-mar2016>. Accessed Nov 16.

The specific programme design adopted by the VC Catalyst was a response to the perceived co-ordination failure apparent in the VC market. A minimum fund size of around \$100m is considered to be the lowest level for a VC fund to operate efficiently.²⁴ Smaller funds are thought to be less able to cover their costs due to the fixed nature of the costs of operating a fund office and smaller funds are characterised by a higher level of risk due to their narrower portfolio of investments. This is seen to create a potential co-ordination failure relating to the need to bring together sufficient investors to achieve this minimum efficient size.

2.3 Theory of Change

This section sets out the Theory of Change for the VC Catalyst. It identifies the causal links and processes through which the funding is intended to result in its expected outputs, outcomes and subsequent impacts. This is framed as a set of hypotheses to be tested through the evaluation. This is summarised in a logic model and the definition of a set of key outcomes which have been explored as part of the evaluation. The section concludes with a discussion of the key contextual considerations for the fund. The logic model, as shown below, summarises the theory of change, identifying the key causal links that can be expected to occur as part of the programme.

²⁴ See for example Bannock (2001) 'Innovative Instruments for Raising Equity for SMEs in Europe', DG Enterprise. This issue is also discussed in more depth in subsection 3.1.2.

Figure 2.1: VC Catalyst Logic Model

Source: Ipsos MORI (2016)

2.3.1 Inputs

The VC Catalyst draws on the following inputs into its delivery:

- Private investment:** Investment from private LPs (e.g. pension funds, insurance businesses) contributes at least two-thirds of the investment into funds which are invested in by the VC Catalyst. Private investment is provided in stages with initial commitments (obligations to provide a level of capital over a specific period) followed by transfers to the funds involved.
- British Business Bank funding:** Investments of typically between £5-10m per fund are committed by the British Business Bank to help selected funds to reach a first close. A proportion of this funding is drawn down by the fund alongside private investment to invest in individual businesses.

- **Portfolio businesses' own resources and other sources of investment:** Investment from the funds supported by the VC Catalyst may help to leverage in other investment at the business level. Depending on their corporate structure and other factors, investee businesses may have access to internal funding streams, additional investment from previous or other investors or grant funding sources that together support the development and growth of the business.

2.3.2 Activities

These inputs will support delivery of the following activities:

- **Selecting funds to invest in:** The British Business Bank's VC Catalyst management team undertakes a set of activities to identify appropriate private sector funds for potential support. For each prospective fund, this process involves: a set of introductory meetings, followed by a two stage due diligence process; the completion of a summary document describing the strategy and team behind the fund generally; and, a more detailed questionnaire relating to past and current professional performance. A final assessment is prepared by the VC investment team which also develops a Limited Partnership Agreement (LPA) document. The assessment sets out the findings of the procedure and is presented to the management team. The latter also has access to a 'data room' of documentation for review and decision on the final outcome of the fund application.
- **Securing other investments:** It is typically the case that funds looking to close seek out multiple potential investors simultaneously given that funds are often made up of investments provided by a number of Limited Partners with actual investment confirmed or a commitment to investment in place subject to conditions being met.
- **Selecting businesses to invest in:** Fund management teams complete the assessment and selection of businesses to become a part of their respective portfolios. This typically involves a set of initial scoping activities followed by a lengthy due diligence procedure for each prospective business.

2.3.3 Outputs

These activities could be expected to be associated with the following outputs:

- **Enabling additional funds to close:** By providing additional finance, the VC Catalyst allows the funds in which it invests to progress beyond the fundraising stage where this would not otherwise have been possible. However, there is a potential risk that investment is allocated to funds which would have closed even without public support or that the investment exceeds the amount which would be necessary to secure closure, creating the possibility of deadweight effects. Where this is the case, funding may still enable funds to close sooner than they would

have otherwise done so, which helps reduce the opportunity costs associated with the managers raising a new fund. There is a risk that the VC Catalyst may affect other funds if it leads to displacement of private investment away from other funds, adversely affecting the likelihood of other VC funds in the market achieving closure. Accessing funding from the British Business Bank may also have an impact on fund behaviour if there are any perceived differences between commercial investors and the British Business Bank in terms of patience for returns or appetite for risk. Receiving funding from the VC Catalyst programme may attract other investors or, equally, it could raise doubts amongst other LPs about why British Business Bank funding is required.

- **Enabling funds to close with an expanded investment strategy:** In addition to helping funds to close in a timely manner, providing additional investment may act to increase the scale at which funds close. This has the potential to result in an increase in the number of businesses targeted in the fund's investment strategy, or in the scale of each planned investment. This may also have an effect on the risk appetite of the fund.
- **Additional investment into business:** Where the VC Catalyst helps additional funds to close, or to close at a larger fund size, these effects can be expected to lead to additional equity investments to support the development of businesses. However, it is, of course, possible for the supported funds to invest in businesses that would have secured equity finance elsewhere, or utilised alternative forms of finance (e.g. debt), again creating the possibility of deadweight effects. However, if the supply of finance is lower than the potential demand for finance, these sources of funding may now become available to other businesses. Similarly, it is possible that the businesses would continue to develop just as quickly in the absence of external funding.

2.3.4 Outcomes

This subsection provides an overview of the expected outcomes:

- **R&D spending:** Given the key focus on technology intensive sectors, recipient businesses receiving funding may increase their level of R&D spending to complete further validation of their technology.
- **Technological progress:** Increased R&D activity is likely to result in accelerated technological progress within recipient businesses. This is typically observable through an assessment of progression through Technology Readiness Levels (TRLs), improved manufacturing readiness (MRL) and/or the registration of Intellectual Property.
- **New products, services and processes:** The commercialisation of new products, services or processes a result of investment in portfolio businesses will result in new revenues for the businesses concerned, and potentially a higher level

of consumer surplus through greater consumer choice, higher quality or lower prices.

- **New business models:** The provision of funding into portfolio businesses may result in the development of new business models that accommodate faster or more efficient business growth with improvements in cost structures, core customer segments, relationships and channels to market, and ultimately higher anticipated revenues.
- **Scaling-up:** Funding may enable portfolio businesses to accelerate the pace at which they scale up their business operations. This is likely to result in increasing the scale and scope of all or some facets of their business operations including: the implementation of formal processes or IT systems, the recruitment of staff with specific technical, managerial or operational expertise, the relocation of business activities or the use of new premises for operations.²⁵

2.3.5 Impacts

Where funding helps to accelerate business development there is scope for a set of downstream effects associated with the commercial outcomes and the scaling up of operations:

- **Employment:** One potential indirect outcome of the programme is helping to sustain and/or create jobs as a result of investment that supports the growth strategies of portfolio businesses. Given the focus on innovative high growth potential businesses, it is likely that much of this job growth will occur in the short and medium term and predominantly be located in technology intensive sectors.
- **Turnover and GVA:** Portfolio businesses may experience increased turnover from the introduction of new products or services or the accumulation of licensing income, but this could be at the expense of displacing the sales of competitors (leading to offsetting displacement effects to the extent that competitors are based in the UK). However, such displacement effects could still lead to social welfare improvements if they involve a transfer of output from less to more productive producers (or if the consumer of the technology is able to realise efficiency gains - or attain higher utility where the product is sold directly to consumers).
- **Exports:** The programme may result in additional sales of new and/or improved products, services or processes on international markets as a result of receiving investment and its effects in enhancing the competitive advantage of businesses.

²⁵ Sherry Coutu (2016). 'The Scale Up Report'. URL: <http://www.scaleupreport.org/scaleup-report.pdf>. Date accessed: 29/11/16.

- **IPO/ exit:** Enabling funds to close and invest in businesses can generate positive financial outcomes if investors are able to exit their investments. Businesses may scale up sufficiently to warrant floating on a public stock market for the first time.
- **Spill overs:** There is potential for other businesses that have not received funding from the VC Catalyst programme to adopt, adapt, or learn from and build on any innovations or advancements that arise as a result of funding from the VC Catalyst programme. For example, the introduction of a new business model could be imitated and implemented by other businesses in the same sector or other sectors to the same effect, or there could be an increased number of collaborative or contract research opportunities resulting in the potential upskilling of employees from other organisations and sharing of ideas.

Identifying net effects in these areas will necessitate consideration of:

- **Displacement:** As noted, there is a potential risk that the additional sales of the businesses which secure finance will displace those of other UK businesses – in which case, the net effect will be limited to the extent to which the funded business is more productive than those with which it competes. Market displacement for UK businesses will tend to be lower where the supported businesses are primarily focused on export markets.
- **Potential for leakage:** There are several mechanisms through which it is possible for leakage to occur and for benefits to accrue outside of the UK:
 - Investments in funds that are based outside of the UK (i.e., located overseas)
 - Scope for supported funds to make investments outside of the UK – in order to receive VC Catalyst funding, funds were asked to demonstrate they were likely to invest significantly more than the VC Catalyst investment into the UK. Even so, as detailed in Section 2.4, a large amount of investment occurred in non-UK businesses.
 - Where investments are made in UK businesses leakage may occur, for example where funding results in increased use of foreign subsidiaries or increased imports of components.
- **Multiplier effects:** Where projects generate net economic effects, the potential for multiplier effects arises where additional economic activity can generate additional spending in the UK economy. A supply linkage multiplier (also known as an indirect multiplier) effect will arise where the additional production and sale of products results in additional spending with suppliers based in the UK, generating a second round (and potential further rounds of effects). A second type of multiplier effect would be an income (or induced) multiplier - where additional production is associated with increased employment this can be expected to generate additional spending in an economy by workers. However, because this

additional spending (either with suppliers or on labour) will generate additional demand, the price of this input can be expected to increase, reducing demand in other parts of the economy. The implication is that, while there may be a short run multiplier effect²⁶, in the long run the net multiplier effect may be negligible²⁷ and the lasting economic effects of the programme are likely to relate to the extent to which it supports an increase in productivity.

2.3.6 Assumptions and Risks

The following factors should be taken into account when considering the above Theory of Change model:

- **Timescales to impact:** The time horizon over which the expected outcomes and impacts could be expected to materialise:
 - **Realised immediately:** It is generally expected that upon confirmation of funding from the Catalyst programme, funds are able to close with the required LP investment commitment. It may also be the case that this commitment enables additional investment into businesses to commence.
 - **Medium to long term:** It is expected that the realisation of the outcomes and impacts, which are largely at the business level, will coincide with the typical 10-year life cycle of a VC fund, whereby the first five years of activity mainly relates to making new investments in portfolio businesses and the latter five years managing and developing the portfolio businesses in order to achieve profitable exits.
- **Opportunity cost of public funding:** Once the programme makes investments into funds, the public resources invested into the funds become illiquid and are not available to be utilised elsewhere, at least in the short term.

2.4 Fund and Business Characteristics

This section provides a brief account of the characteristics of the funds invested in by the VC Catalyst and of the businesses in which these funds have invested.

2.4.1 Funds

- **Total Commitment:** As of March 2017, a total of £83.7m had been committed by the VC Catalyst programme to nine VC funds. The VC funds invested in were small

²⁶ Or until inflationary pressures are felt, a potentially slow process in a period of excess spare capacity often associated with recessions.

²⁷ See for a discussion of this issue HCA (2014) 'Additionality Guide', Fourth Edition 2014.

in size²⁸, and the value of their final close (or latest close if a final close had not yet been achieved) was £60m-£260m. The median and mean figures for the size of the funds at each stage are provided below.

Table 2.1: Mean and Median Fund Stages

	Fund No.	Minimum Fund Size (£Ms)	Target Fund Size (£Ms)	First Close (£Ms)	Final Close (£Ms)
Mean	-	100	129	94	145
Median	III	90	113	89	150

Source: Fund Manager Interviews.

As at January 2017, the VC Catalyst programme has invested into the funds shown in the table below.

Table 2.2 VC Catalyst Funds

Fund name	Investment Stage Focus	Sectoral Focus
Dawn Capital II	A	Software
Alpina Partners Fund LP	C/Growth	Clean Tech
MVM IV LP	C/Growth	Lifescience
Frog Capital II	B	Generalist Tech
Notion Capital III LP	A	Enterprise Software
Nauta Capital IV	A	Software
Atlantic Bridge III LP	B	Deep Tech
Panoramic Growth Equity II	C/Growth	Generalist
SEP V LP	C/Growth	Generalist Tech

Source: Fund Manager Interviews; British Business Bank Monitoring Records (2017).

- **Investment Strategy:** While the investment strategy of funds varied, they were all designed with the following over-arching characteristics: a typical funding cycle of 3-5 years to realise a return on investment, with a focus on specific sectors, or subsectors in some cases, aligned with the expertise of the VC fund and its managers. Fund strategies typically differed in the type of business they supported and the type of support they provided. For example, one fund only supported healthcare and biotechnology businesses and another only supported technology enabled businesses to support growth or management buyouts. In addition, all funds had a specific investment strategy in terms of the number and size of investments that they intended to make. This was typically driven by the size of the

²⁸ Stakeholders typically reported that funds of £100m or less were small for the sector.

fund and its minimum viable fund size: the lowest possible fund size that would permit the fund to operate in a commercially viable manner.

- **Geography:** The majority of funds interviewed are headquartered from London (5 of the eight) and all of the funds have a regional office in London. Some funds have an office in the US (Palo Alto and Boston) and/or elsewhere in Europe (Glasgow, Edinburgh, Dublin).
- **Managing History:** All fund managers had successfully managed at least one previous fund and reported that they had successfully followed their investment strategies when delivering these funds.
- **Limited Partner Base:** A variety of other Limited Partners (LPs) have invested in these funds: the European Investment Fund (EIF), sovereign funds, local authority and other pension funds, financial institutions, family offices and high net-worth individuals, corporates and other strategic investors. LPs are based in Europe, the US and the Middle East.
- **Deal Origination:** Fund managers reported that they source new deals through three key mechanisms: personal networks (the most valuable source of deals for all fund managers interviewed), attending investment days and the assessment of other fund investments. Larger fund management businesses report that their organisation has a dedicated team that has the sole objective of originating deals.

2.4.2 Businesses

As of the 31st December 2016, 60 businesses had received investment from funds invested in by the VC Catalyst. This subsection summarises the key characteristics of these businesses using monitoring information. An analysis of the business qualitative research is provided in section 5:

- **Sector:** Out of the businesses based in the UK, the majority were technology enabled businesses (59 percent) and industrial/manufacturing businesses (14 percent). Other sectors that featured included basic materials, consumer services, financial services and telecommunications (all less than 5 percent).
- **Stage of business development:** Sixty-four percent of UK businesses gained seed or start-up investment and just under 30 percent received growth capital investment to support scale up activities. One investee was being supported through a management buyout.
- **Gross investment:** The average gross investment received by UK based businesses was £2.8m, with a standard deviation of £2.7m. The average gross investment for businesses based outside the UK was £4.4m with a standard deviation of £2.9m. Funding amounts are likely to be higher in the future as successful portfolio businesses will receive follow-on funding.

- **Geography:** Sixty-three percent of businesses have their head office located outside of the UK. The UK regions with the largest number are London (22 percent) and the South East (7 percent). Less than 5 percent have their main operations in the East, South West and the West Midlands.

3 Context

This section assesses the rationale for public investment in the VC Catalyst (as set out in Section 2.2) in the context of the UK VC market conditions. The assessment draws on data from industry sources (including Preqin, Invest Europe, Beauhurst and the BVCA), as well as qualitative evidence from interviews with fund managers and stakeholders to consider the market position at the inception of the VC Catalyst in 2013, and how this has changed subsequently.

3.0 Headline Findings

- **Barriers facing the UK VC market in 2013:** Evidence about the context of the VC market in 2013 goes some way to validating the rationale for the VC Catalyst's introduction in 2013 in response to specific market and fund level factors. The UK VC market exhibited limited liquidity and low historic returns, especially in the period following the financial crisis. In 2013, it appears that funds faced a set of coordination issues relating to securing LP commitments, especially those that found it difficult to prove they had a strong track record in delivering VC fund investment strategies successfully.
- **Recent improvements in the UK VC market raises new challenges:** More recently, the UK VC market has experienced some growth with respect to the number and size of VC deals made. This appears to be a result of the improved performance of the wider European VC market and a general strengthening of the UK 'start-up ecosystem', particularly for IP-based and technology-enabled businesses. To some extent, this reduces the ongoing case for the VC Catalyst in addressing cyclical issues around helping funds to close. However, a number of outstanding issues remain. First, the number of European funds being able to close has decreased since 2013. In addition, funding requirements are shifting towards patient and scale-up capital to support early stage businesses whilst uncertainty about future access to funding from the European Investment Fund (EIF) is a concern.

3.1 The Market Context in 2013

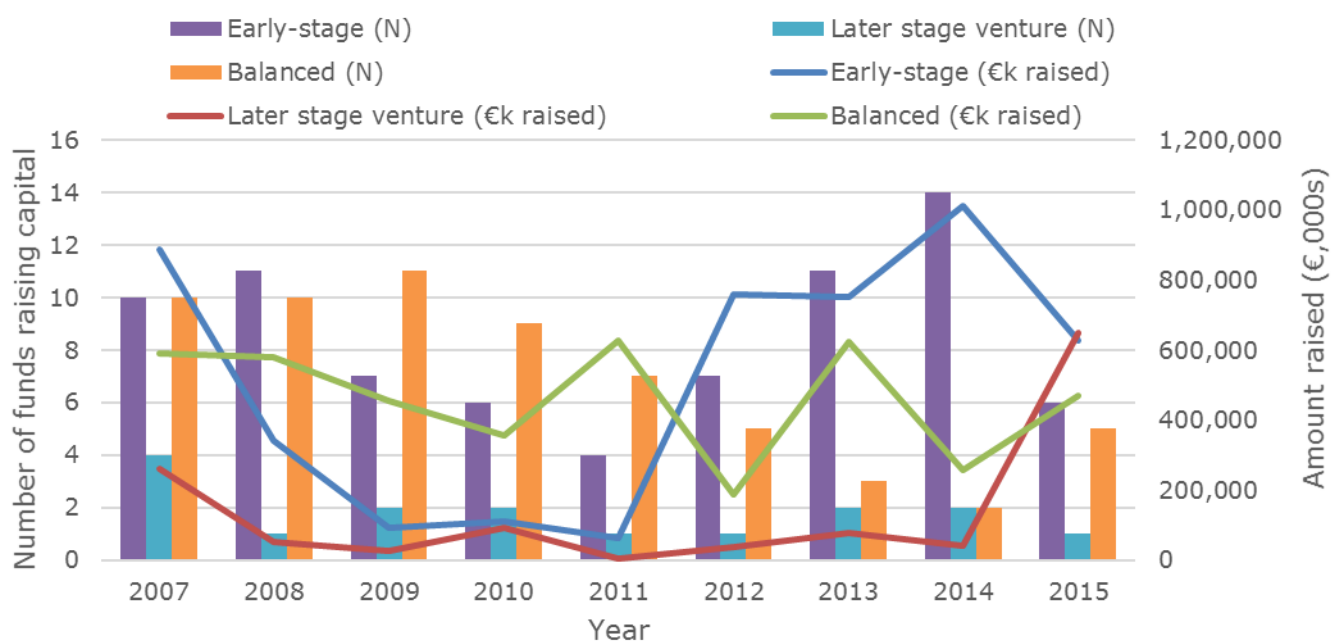
This section explores the market context at the inception of the VC Catalyst, and finds a generally close alignment between the case for funding outlined in Section 2 above, and the key features of the market in 2013.

3.1.1 Low Historic Returns and Limited Liquidity

In 2013, the UK VC market appears to have been characterised by low historic returns and limited investor liquidity. As a consequence, many UK based businesses were

unable to obtain finance at the level that they were seeking. Figure 3.1 provides an overview of the UK VC market using Invest Europe data and illustrates the decrease in the amount of early stage VC raised and the number of active funds between 2007 and 2011.

Figure 3.1: UK VC Fundraising



Source: Invest Europe Data (2016) adapted by Ipsos MORI.

The low number of funds successfully fundraising is thought to be linked to the historical poor financial performance of the UK VC market identified by the majority of stakeholders interviewed, who reported that better financial returns could be made in other Private Equity markets. The UK VC investment market achieves relatively limited returns on investment when compared to the performance of US VC funds.²⁹ This has the potential to deter LPs from committing their capital into UK based VC funds. Research from NESTA indicated that, despite UK returns catching up briefly in the mid-2000s, they dropped behind again in 2013. This was partly a consequence of slower and less profitable exit opportunities in the UK. NESTA's research also highlights the poor performance of VC funds in general since the late 90s. Globally since 2002/03, the median and mean of the Internal Rate of Return³⁰ has been negative and VC funds have consistently achieved weaker returns than other classes

²⁹ Nesta (2013). 'Unchaining Investment'.

³⁰ The associated discount rate that makes the net present value of investment cash flows equal to zero; attractive opportunities are linked with positive IRR and investment opportunities are often prioritised by ranking their expected IRR.

of investment such as Private Equity.³¹ Recent BVCA data for the UK does show financial returns to be improving (and moving into positive territory), but venture returns still lag those of other asset classes. For instance, BVCA figures show the 10 year IRR return for venture is 5.1 percent which is slightly lower than the 5.6 percent return from investing in public equity markets which are lower risk.³²

Box 3.1 Complementary schemes that support the UK VC market

There are a number of other VC programmes that are complementary to the VC Catalyst programme and aim to target specific market gaps:

- **Enterprise Capital Funds (ECFs)** are funds targeted at addressing the identified 'Equity gap' affecting businesses raising smaller amounts of equity finance which also lower the barriers to entry for new fund manager teams. The British Business Bank invests alongside private sector investors into VC funds. The ECF programme differs from the VC Catalyst programme in two main ways. First, deal sizes under the ECF programme are limited up to £5m to ensure funding is targeted at businesses affected by the equity gap. In addition, financial returns are subordinated on the upside under the ECF programme, in order to increase the financial returns available to other LP investors and to encourage them into this part of the market. In contrast, the VC Catalyst operates on commercial Pari Passu terms where the British Business Bank receives equal or better returns to other investors in the fund. The British Business Bank believes subordination is not required for the types of funds receiving VC Catalyst funding.
- **The UK Innovation Investment Fund (UKIIF)** invests VC funds via two underlying funds of funds, the UK Future Technology Fund and the Hermes Environmental Impact Fund. These are targeted at underlying VC funds which make investments in strategically important sectors such as digital technologies, life sciences, clean technology and advanced manufacturing. It was established in 2009 to address the decline in equity finance during the financial crisis.
- **The Aspire Fund** was set-up in 2008 to support high growth potential women-led businesses to access capital for growth. It is able to co-invest up to £12.5m of public funding alongside private sector investors with single investments between £100,000 to £2,000,000.

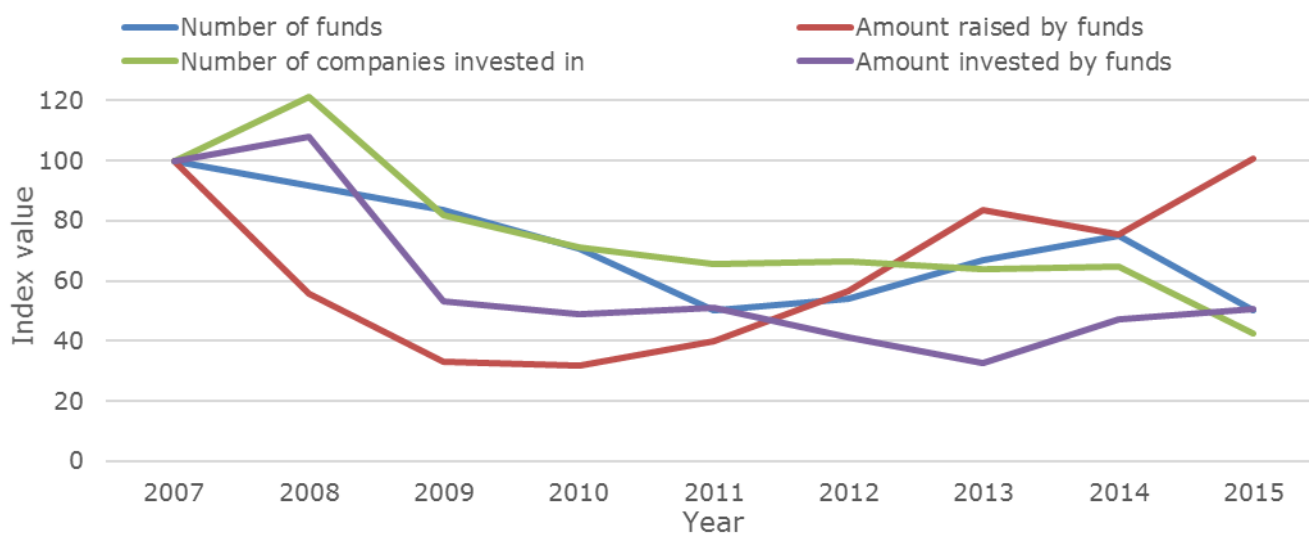
There was an unanimous agreement from stakeholders that the UK VC market also experienced periods of limited liquidity, especially during the dotcom crash and the financial crisis, which may have exacerbated the weak performance described above. Such problems arise because institutional investors become more risk adverse in times of economic uncertainty. Investors that alter their risk profile in response to

³¹ British Business Bank (2016) 'Equity Tracker'.

³² BVCA (2016) 'Performance Measurement Survey 2015'.

macroeconomic conditions leave the market in search of prospects with less risk, invest less in the market or prefer to increase their own liquidity, at least in the short term. A number of complementary programmes to the VC Catalyst have been implemented over recent years by the British Business Bank to address market weaknesses and Box 3.1 highlights a subset of these. Data from Invest Europe indicates the impact of the financial crash on UK VC fund raising, with both the number of funds and the amount raised for new funds declining between 2007 and 2010. As shown in Figure 3.2, the total amount of LP capital raised by funds increased again in 2011 and this trend has continued. However, the number of funds raising capital each year has not recovered as rapidly during this period, after reaching its nadir in 2011.

Figure 3.2 Recent Trends in UK VC Markets (2007 = 100)



Source: Invest Europe (2015) data adapted by Ipsos MORI; **Note:** Number of funds is the number of closed funds that raised capital.

The losses experienced by institutional investors during periods of economic downturn may have deterred them from committing capital or from investing further in high risk assets. Stakeholders reported that, as a result of the crisis, institutional investors may have been forced to re-evaluate the risk associated with the investments they had made previously. This may have encouraged the refocusing of their investment to prioritise liquidity, as well as to lower their exposure to high risk assets like VC, further depressing the amounts which funds have been able to raise. This is validated by the qualitative research, with interviewees reporting that a number of institutions that suffered significant losses in the UK VC market during both the dotcom crash and the financial crisis never re-joined the market in the same capacity. Institutions that still had capital to invest were reported to have moved into alternative investments, for example through pooling their capital with other investors and investing into middle-market funds. Figure 3.2 also indicates a clear downward trend in the overall volume of VC investments in businesses. Despite economic conditions stabilising, the number of businesses receiving investment has continued to decline following the financial crash and has recently decreased further. Invest Europe data shows that the

amount of investment has remained stable since 2009 but at well below pre-crisis levels.

This increasing preference for liquidity and savings over investment is seemingly counterintuitive given the historically low interest rates set by the Bank of England and other central banks since the financial crisis. However, a range of factors such as ongoing uncertainty are likely to be dampening the associated effects on levels of borrowing and investment. In addition, lower interest rates may not be being fully passed on by lenders, who have needed to replenish their own reserves rather than encourage more lending activity and who may have increased the risk premium which they require before undertaking many types of lending³³. In addition, stakeholder evidence suggested that active fund managers (that had not already left the market due to risk uncertainty or significant financial losses) decreased their investment activity in favour of focusing on managing their existing portfolio rather than raising a new fund or originating new deals.

'At that time, managers were often more often focused on ensuring survival of their portfolio than fund raising but [it] was clearly a brutal time for fund raising.'

Stakeholder

3.1.2 Other Issues Faced by Fund Managers in 2013

In addition to the two major issues discussed above, the evidence also highlighted the existence of a set of minor barriers that made it difficult for fund managers seeking LP commitments to launch a new fund, and align with the case for the VC Catalyst. These issues reflected the professional experience of fund managers, the size of funds and a set of coordination issues that fund managers faced when attempting to reach first close at the time the VC Catalyst was introduced. This context aligns well with the strategic rationale for the policy.

Track Record

Fund managers unanimously agreed that the presence of a strong track record was the key to successfully securing investment for a fund. A manager's strong track record was defined as having successfully closed previous funds at or above the target ROI/IRR. A proven track record was said to be a key determinant of decisions by all types of LP looking to invest in a fund. Fund managers that are raising investment for their first or second fund were said to find it extremely difficult without the ability to pitch their previous record to potential LPs. In the absence of a good track record, fund managers stated that the ability to deliver a strong and credible narrative that justifies and explains an investment strategy was essential. If funds were unable to provide these requirements, they were likely to be viewed as being of poor quality.

³³ For an extended discussion of this position see Banerjee, Kearns and Lombardi (2015) '(Why) Is investment weak?' Bank for International Settlements.

'There is loads of money available for VC and equity but it tends to go to people with fund VI or VII.'

Fund Manager

Optimal Fund Size

In 2013, it was perceived by the British Business Bank (then CfEL) from its on-going engagement in the market that a number of funds had secured some funding but could not achieve their target fund size. As a consequence, funds were not actively making investments in businesses.³⁴ The standard approach for a VC fund is to set a fundraising target and not to commence investment activities until that volume of funding has been secured. This target derives from the required management fee, typically around 16 percent of the total fund size over the life of the fund, and other costs compared with the expected investment returns. In addition, funds often face issues in attracting institutional investors to commit investment with a fund size of less than \$100m and have been known to offer investment contingent on funds reaching a designated size. Qualitative evidence suggested that raising for a £50m fund restricts the supply of able and willing investors. This size was suggested to be too large for individual High Net Worth (HNW) investors but too small for fund of fund investors and other institutional investors e.g. pension funds. As such, the number of investors looking to invest between £5-20m in businesses was said to be small and this issue becomes more pronounced when coupled with specific LP requirements as discussed above.

Coordination Issues

Finally, the evaluation gathered evidence and perspectives indicating that, in line with the rationale for the VC Catalyst, the VC market was affected by a series of coordination issues that delay or restrict fund raising attempts. The following coordination issues were raised by interviewees:

- **Repeated interactions when fund raising:** A new LP may provide a soft commitment to invest in a fund, providing the fund receives total commitments of a certain value. Clearly, if all LPs operate in this way the fund raising process becomes compromised. This issue was stated to be more prevalent amongst private LPs that invest smaller amounts (anecdotally £5m or less) in comparison with larger institutional investors. Stakeholders and fund managers reported that smaller LPs typically wait for cornerstone investment to be in place or for a fund to be close to reaching a first close before signalling their intention to invest.
- **Managing LP requirements:** Fund managers reported that LPs often had a range of terms and conditions that they must adhere to in order to receive investment. These terms can prolong fund raising efforts, given the costs involved in negotiating terms and the legalities required to approve them. This process can become more

³⁴ British Business Bank (2013). 'VC Catalyst Evidence Paper'.

problematic if LPs do not have complementary comparable terms. The evidence highlighted that terms were often regional or proportional in nature. LPs, particularly state-owned investment funds (sovereign funds), require that a certain amount of the fund is invested into businesses within a specified geographic area or that are active in a certain geographic area. This amount could reflect a percentage of the fund or be a multiple of the amount invested. It was suggested that statutory investors place too much emphasis on regional investments, especially given the global nature of a number of sectors, including life sciences and high technology. Businesses that perform well currently are said to operate at a global scale and as such investment activity should reflect this. It was suggested that sovereign funds would receive greater financial returns if they allowed funds in which they invest in to make investments in businesses that operate globally. In addition, many LPs, including both institutions and pensions funds, are required to sufficiently diversify their investments. This may mean that they are only able to invest a proportion of the total fund size or that they are only able to invest a certain percentage of their total portfolio in VC.

- **Dependency on funds supporting previous LPs:** While fund managers reported that the ability to access a set of LP investors with which they had a relationship (often through investments in previous funds), is crucial, it was suggested that an increasing reliance on an existing LP base without new additions may create difficulties in the future with regards to bargaining over specific terms. In addition, existing LPs were indicated to have become less responsive to requests to invest in some instances which can prolong the fund raising process.

3.2 Market Developments Since the Introduction of the VC Catalyst

This section explores the extent to which changes in the VC market since 2013 can be considered to have strengthened or weakened the case for continuing the VC Catalyst programme. The strengthening of the UK VC market to some extent undermines the historic case for the VC Catalyst. Evidence gathered through the Early Assessment does, however, identify a set of continuing market issues that align well with the objectives of the revised VC Catalyst programme.

3.2.1 Strengthening of the UK VC Market

As illustrated in Figures 3.1 and 3.2, in the period between 2012 and 2015 the UK VC market grew with respect to the number and size of investments made. This increase in activity was reported by stakeholders and fund managers to have been experienced mostly in IT and technology enabled sectors. The market also performed well when compared with the rest of Europe but continued to lag behind the US. More recently, the size and number of VC investments since late 2015 has decreased as a result of a downturn in a number of closely interlinked technology markets, a trend which partly

reflects a small number of high value deals which were completed in the third quarter of 2015.³⁵

Analysis of the evidence collected in this Early Assessment indicates that the strengthening of the UK VC market since 2013 was linked to a number of key developments: the increasing role of the European Investment Bank (EIF), increased financial returns generated from European VC markets, the development of a strong UK start-up ecosystem and the emergence of new financial instruments and tax incentives.

Increasing Role of the EIF

There was a unanimous agreement amongst stakeholders and fund managers that the increasing role the EIF took in supporting UK VC funds through 'cornerstone' investments was a key factor in supporting the growth of the UK VC market since its inception in 1994. To illustrate this point, an analysis completed by the EIF highlighted that the EIF support of European venture fundraising between 2008 and 2014 increased substantially in response to a drop and a subsequent stagnation of European VC investment levels.³⁶ Between 2014 and 2016, the percentage of early stage VC investments involving EIF-backed funds by value was 14 percent (in comparison with 6 percent involving British Business Bank backed funds). This percentage increased to 34 percent for later stage VC investments made in the UK (in comparison with 14 percent of investment involving British Business Bank backed funds).³⁷

Improving European VC Offer

At the time of the inception of the VC Catalyst, European VC was not seen as an attractive investment opportunity in comparison to the US or Asian markets, based on its historic financial returns. However, since the financial crisis the European VC market, or investor 'offer' has become significantly more attractive to investors. This was reported by stakeholders to be a result of the previous point and the high performance of a subset of business investees; it was reported to be evidenced by an increase in the number of high quality businesses, exits and observed returns on capital; a number of European hubs performed well including the UK, Berlin, Paris and Stockholm. Consequently, a number of VC funds have been set up (especially in London based life sciences and high tech funds), resulting in an increased level of VC investment becoming available, especially at later stages of the funding cycle (Series B and above).

³⁵ British Business Bank (2016). 'Small Business Finance Markets Report 2016/17'.

³⁶ EIF (2016). 'The European Venture capital landscape: an EIF perspective – Vol. 1: The Impact of EIF on the VC ecosystem.'

³⁷ HMT (2017). 'Financing growth in innovative firms: consultation'.

'[In] 2002, there were two to three life science funds in each of the major European countries: London, France (Paris), Germany, Ben/Lux [Belgium and Luxembourg]. Now, all of that capital is in London. You've got: Abbingworth, Advent, Shrooders, Syncona, Index, Fidelity, IP group, Imperial Innovations, Novo, Lundbeck, Oxford Cancer Partners and Arrex.'

Fund Manager

UK Start-up Ecosystem: Market developments

The development of a strong UK start-up ecosystem was reported to be closely interlinked with the performance of the UK VC market. The development of a strong set of technology clusters, since the financial crisis, with a complementary supportive infrastructure including co-working spaces, incubators/accelerator programmes³⁸, financial institutions as well as the development of a strong policy and research interest in supporting entrepreneurship in high growth areas (i.e. focus on broadband penetration rates, entrepreneurship visas), was said to have directly facilitated an increase in the number of commercial viable innovative businesses ready for VC investment, helping produce growth in seed stage investment.³⁹

Box 3.1: Qualitative Evidence - Dominance of the high tech sector in UK VC market

Fund managers reported that the UK VC market concentrated on funding high technology or 'technology enabled businesses'. As a result of a burgeoning technology start-up ecosystem since the late 2000s, competition in the UK technology VC market has increased, especially in later VC rounds.⁴⁰

Funding instruments and tax incentives

The emergence of a new set of funding instruments and tax incentive schemes was reported to have positively complemented the UK VC market by increasing the supply of investment capital available to businesses. This has however, been mostly targeted towards smaller investments than those of a size that VC Catalyst supported funds would make.

The rapid emergence of equity based crowd funding and the professionalization of UK angel investment are two key market developments that have occurred since 2013, when the VC Catalyst was established. Total crowdfunding involvement in all equity deals increased from one percent in the first quarter of 2011 to 29 percent in the second quarter of 2016.⁴¹ In addition, a recent Nesta report showed that equity based crowdfunding was the second fastest growing alternative finance model in the UK

³⁸ Nesta. (2011). 'The Startup Factories'.

³⁹ BVCA (2014). 'VC Evolved'.

⁴⁰ Pitchbook (2017). 'European Venture Report 2017 1Q'.

⁴¹ British Business Bank (2016). 'Small Business Finance Markets Report 2016/17'.

between 2014 and 2015, with the amount raised in the period increasing from £84m to £332m (an increase of 295 percent).⁴² The UK angel market has also changed, moving away from established pre-existing personal and professional business angel networks towards online platforms coordinating investors and greater formation of syndicates which allow groups of investors to source deals and invest in businesses.

To illustrate this point, the Angel Cofund that launched in 2011 is a private sector business (limited by guarantee) that is supported by the British Business Bank to increase the availability of funding to UK businesses by supporting the development of the UK business angel market. It makes investments of between £100k and £1m alongside syndicates of business angel investors.

Increasing use of VC tax relief schemes in the UK was also reported to have increased the supply of investment available to early stage ventures:

- **Enterprise Investment Scheme (EIS)⁴³ & Seed Enterprise Investment Scheme (SEIS)⁴⁴:** These schemes were designed to help smaller higher-risk businesses to raise finance by offering a range of tax reliefs to investors who purchase new shares in these businesses. The EIS provides tax relief at 30 percent and can be claimed up to a maximum of £1m invested in business shares and the investee can raise no more than £5m in the round in question (for the SEIS relief is at 50 percent, and the business can raise no more than £150,000). The scheme does not support investors that would own a majority share (more than 30 percent) or that are connected to the business through employment. HMRC data shows that 3,265 businesses raised a total of £1.8bn of funding under the EIS scheme in 2014-15. This is three times higher than the average EIS investment level between 2001 and 2010, showing EIS is supporting a large number of businesses. An additional 2,290 businesses also received investment through the Seed Enterprise Investment Scheme (SEIS) in 2014-15, raising £175m of funding.
- **VC Trusts (VCTs):** These trusts are publicly traded entities investing in non-traded, small businesses providing investors with tax relief on returns. The total funding raised by VC Trusts between 2010-11 to 2015-16 increased in absolute terms from £350m to £435m, a percentage increase of 24 percent.⁴⁵

⁴² Nesta (2016). 'Pushing Boundaries – The 2015 UK Alternative Finance Industry Report'.

⁴³ URL: <https://www.gov.uk/government/publications/the-enterprise-investment-scheme-introduction/enterprise-investment-scheme>. Date accessed: Dec 2016.

⁴⁴ URL: <http://www.seis.co.uk/about-seis>. Date accessed: Dec 2016.

⁴⁵ HMRC (2016). 'Venture Capital Trusts: number of trusts and amount of funds raised' (October 2016).

3.3.2 Other Emerging Issues in the UK VC Market

The discussion above provides some indication of an overall improvement in the availability of equity finance for UK businesses since 2013. The original rationale for the VC Catalyst at targeting cyclical factors in fund raising does not directly align with these market improvements, raising questions on its continued need in the market. Evidence from qualitative interviews and secondary data sources does, however, highlight a set of key structural issues that still persist in the UK VC market and have worsened in the last 12 months: the lack of patient capital and scale-up finance, a continued shortage of institutional investors and high-skilled fund managers, as well as increased macroeconomic and political uncertainty.

Decrease in the closure of New Funds

Industry data indicates that the number of first time funds closing has decreased since 2013 from over 100 to 58 in 2016, despite the increase in the value of total VC investment made.⁴⁶ The Early Assessment highlighted two possible supply side effects that explain this result. First, the incumbent fund managers interviewed highlighted a number of barriers to entry, including initial set-up and legal costs and the necessity for a previous track record, as discussed earlier. Second, stakeholders suggested that the market suffered from a shortage of skilled and experienced fund managers. For example, 3i (currently an international investment management business focused on mid-market Private Equity and infrastructure) was said to have historically acted as a 'training ground for UK fund managers' through its origins as ICFC.⁴⁷ However, since this function closed, the pipeline of new fund managers entering the UK VC market was reported to have diminished. In addition, as existing managers demonstrate their competence in the management of VC funds, they move onto funds that are larger in size and, as such, it is thought that there is a need for alternative mechanisms to support the introduction and development of new fund managers.

Shortage of Patient Capital

Early stage businesses in specific sectors, such as IP backed and/or life science business that required significant development time before market or development capital (in the form of translational R&D, trials, purchase of machinery, acquisition of IPRs or plant construction), were reported to suffer greater difficulties in securing investment from the UK VC market.⁴⁸ An example of these was reported to be the

⁴⁶ British Business Bank (2017). 'Small Business Equity Tracker'.

⁴⁷ The organisation was formed in 1945 as the Industrial and Commercial Finance Corporation (ICFC), by the Bank of England and major British banks to provide long term investment funding for smaller businesses to address concerns raised by the Macmillan Committee. ICFC expanded in the 1950's and 1960's to become the largest provider of growth capital for UK businesses. In the 1980s, the organisation became a leading provider of finance for management buyouts, and expanded internationally, but by the time 3i floated in the early 1990's, it no longer provided growth capital to smaller businesses.

⁴⁸ This is an issue being explored further as part of the HMT's Patient Capital Review; a [consultation](#) on Financing growth in innovative businesses has now been published.

'clean technology' sector. From 2010 onwards VC funds took an interest in raising finance specifically to support investment in early stage clean technology ventures. However, since then, many of these funds have altered their investment strategy because of larger market returns and shorter payback periods offered elsewhere, notably in the digital/IT sector. Stakeholders reported that a shortage of patient capital may incentivise an increase in R&D supporting incremental innovation rather than supporting disruptive innovation.

'For example, a renewable marine initiative will take £100m and take 10 years rather than a consumer facing app that can get to global market with a team of 3 for £5m over three years. Issue of tapping into world class UK research base without patient capital.'

Stakeholder

Box 3.3: Qualitative Evidence - Decline in investment in UK capital intensive sectors

After the initial interest in investing in capital intensive sectors, such as clean tech, the UK VC market decreased the level of investment provided to businesses in these sectors since 2008. This decline was linked to the supposed incompatibility of the traditional VC model and the development of capital intensive businesses. For example, a VC fund commonly looks to make a return on its investment within 3-5 years but a clean technology investment is likely only to produce a financial return on investment over 10-15 years. However, clean technology investments may provide a larger social measure of return on investment (i.e. including reducing carbon emissions, sustainable by-product use, etc.).

Shortage of Scale-up Finance

A shortage of scale up finance at the appropriate level was reported by interviewees, which was also said to hamper businesses with high growth aspirations (i.e. expand internationally, compete with US businesses). It was indicated that there is a risk that these businesses will not perform at their full potential if they are not provided with an appropriate amount of growth capital. Stakeholders reported that the small value of investment commitment by the VC Catalyst may contribute towards this issue. The persistence of this challenge provides support for continued intervention in this area⁴⁹.

'For example, we invested into [company] and the round was [just under \$300m] for one company – they are growing quickly in a competitive space and that is the level of money required to support that business.'

Stakeholder

⁴⁹ It is important to note that helping to grow bigger funds is an explicit objective of the VC Catalyst following the additional investment in November 2016, which appears to align well with this issue – a point to be explored further in the Interim Assessment.

Shortage of Institutional Investors

A shortage of suitable LP investors that actively invest in the European VC market at the time of the research was reported to be an issue by interview respondents. The reasons provided for this were the same as described above: the set of institutional investors that left the UK VC industry never re-entered or focused on managing the performance of their existing portfolio; this was reported to be especially true for high technology sectors. In addition, US or Asian institutions were said not to have the appropriate need or incentives to invest in Europe when they could deliver an investment strategy in their domestic markets which would offer similar levels of risk and uncertainty (i.e. relative returns in Europe are perceived to have been unattractive in recent years, as discussed above). Furthermore, fund managers reported that there was an excess supply of investors that are only able to provide small levels of investment (anecdotally, less than £5m). For example, investment available from small local authority pension funds that have diversification obligations was reported to fit into this category; these types of investor were said to be costly to secure and manage given the relatively high fixed costs associated with securing LPs in relation to the total investment offered.

'[This year] \$5-6bn in VC [was] raised, but \$40bn raised in entire [PE] industry. This is mostly invested in more mature companies.'

Stakeholder

Macroeconomic and Political Instability

Increased macroeconomic and political instability in the UK caused by the result of the referendum decision to leave the European Union and the subsequent triggering of Article 50 was reported to have caused uncertainty in three key areas:

- **Access to the European Investment Fund (EIF):** There was unanimous agreement among fund managers that the potential for the European Investment Fund to limit its activities in the UK in the future is creating uncertainty in the UK VC market at the moment. All the fund managers interviewed reported that they have received some investment from the European Investment Fund for previous or current funds. In addition, access to new supporting instruments, such as the European Fund of Funds as summarised in Box 3.3 below, may limit the amount of investment available to UK businesses.

Box 3.3 European Fund of Funds

Financed by Horizon 2020 and COSME as well as the European Fund for Strategic Investment, the fund seeks to increase the size of VC funds in Europe, increase private investment in European VC funds and to develop more cross country links within the European VC market. As such, the scheme seeks to provide "cornerstone investments of up to €300 million in one or more independently managed VC Fund-of-Funds, up to a maximum budget of €400 million for all Fund-of-funds". The scheme is expected to raise €1.6 billion of additional investment into the European VC industry. At the time of writing,

the scheme was currently seeking a suitable fund manager to appoint to lead its activities. Increased uncertainty about UK access to EU offerings raises doubts over whether schemes such as this will be able to support the growth of UK small businesses.

- **European trade:** Fund managers reported that trade and collaboration with European partners may suffer as a result of Brexit negotiations. This may have an effect on the investee business performance and the ability of UK-based funds to originate deals sourced from other European countries.
- **Labour markets:** Increased uncertainty relating to the regulation of the migration of labour was said to potentially impact on the performance of funds and their investee businesses. This is apparent given that fund managers reported that the UK experiences thin labour markets in some professions, especially programming.

4 Assessment of Processes

This section provides an overview of the key processes involved in the delivery of the VC Catalyst, and their role in contributing to the objectives of the programme. Each sub-section describes a stage or block of processes and their objectives, providing evidence on the effectiveness of these processes and the extent to which they have been implemented in a cost-efficient and timely manner.

4.0 Headline Findings

- **Marketing and communication:** The UK VC community has a high level of awareness of the VC Catalyst programme. However, awareness of the programme outside of the UK is thought to be low among investors with an interest in the UK VC market. In addition, there may be scope to further increase awareness through attending and curating events focused on VC investing and high growth small to medium sized business support mechanisms.
- **Fund Assessment Suitability:** The fund assessment process is seen to be completed efficiently and to be reasonably effective in identifying commercially viable investment propositions. However, the extent to which the assessment process can account for strategic behaviour on the part of fund managers, assess the extent to which investing in proposed funds would be additional and the 'distance' between the investment committee and the fund managers themselves were raised as issues by a majority of stakeholders.
- **Contracting and Due Diligence:** Due diligence and contracting completed by the British Business Bank appears to be broadly effective and efficient, and comparable to the standards of private sector LPs in the UK VC market. However, a small number of stakeholders raised questions about the ability of the contracting process to appropriately enforce geographical investment requirements and the clarity of some of the contractual terms set out by the British Business Bank.
- **Monitoring:** The requirement to provide quarterly monitoring reports to the British Business Bank has not generally created any additional resource costs for fund managers as these reports are said to be similar in format to those requested by private sector LPs. A risk for any public sector market intervention is that monitoring arrangements and other engagement will influence the fund, moving it away from an optimal investment strategy. There is, however, no indication that the provision of monitoring reports or other engagement have resulted in the British Business Bank influencing the overall investment strategy implemented by funds.

4.1 Process Map

Figure 4.1 below provides a summary of the processes of the VC Catalyst and provides a visual illustration of the key areas investigated by the process evaluation.

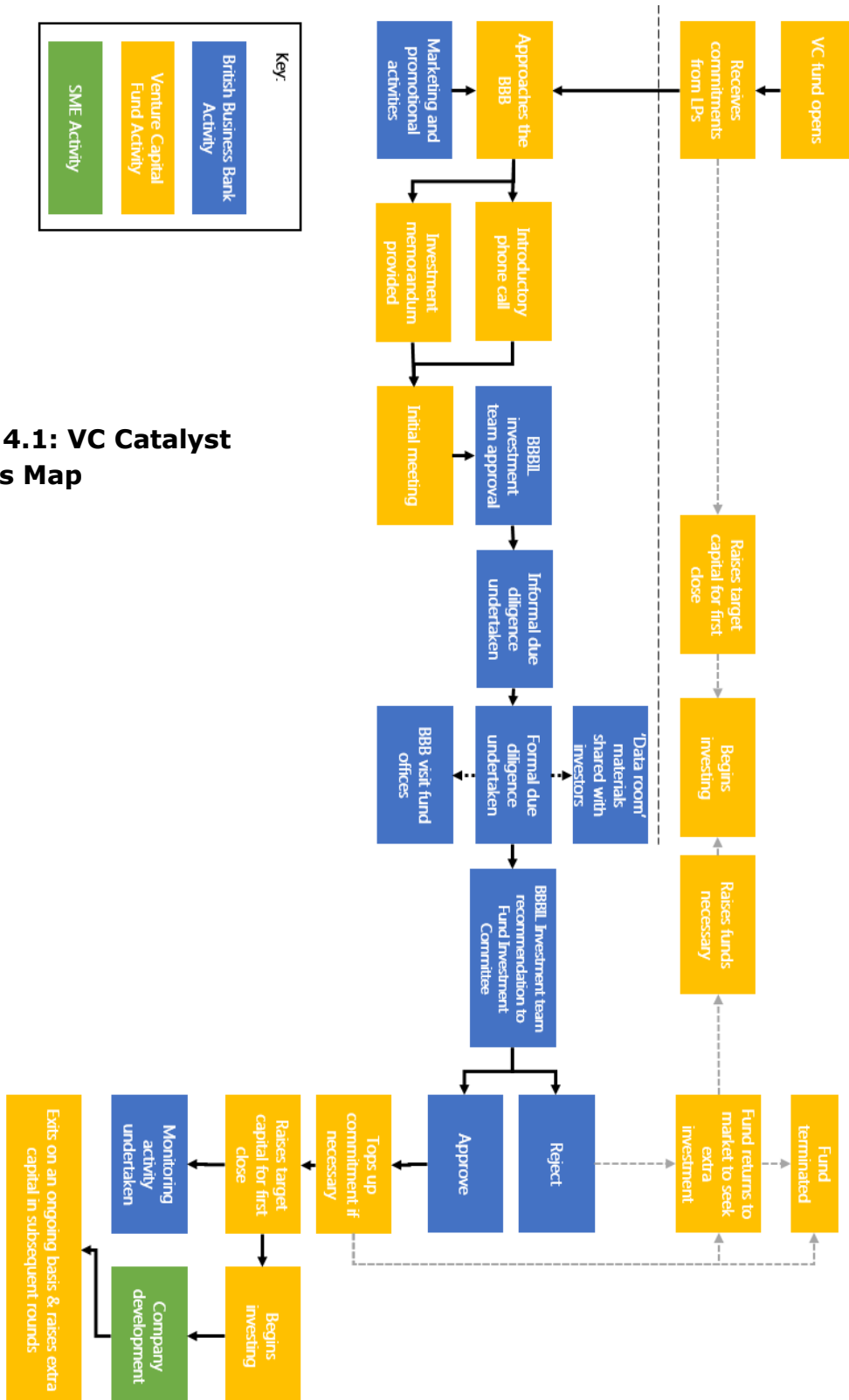


Figure 4.1: VC Catalyst Process Map

4.2 Marketing and Communications

4.2.1 Process Overview

The British Business Bank has undertaken communication activities promoting VC Catalyst in order to:

- Raise awareness of the VC Catalyst amongst the UK investor community and potentially suitable funds.
- Communicate the criteria and steps required by funds to access VC Catalyst funding, in order to minimise the time spent discussing and assessing unsuitable funds.
- Support the development of a pipeline of high quality proposals suitable for investments by the funds that have received support.

Marketing activities were primarily targeted at existing VC funds and potential co-investors. They included an initial launch event, the creation of web pages on the British Business Bank website, the publication of applicant guidance and the distribution of press releases by funds that have received investment from the VC Catalyst. The British Business Bank is not currently marketing the scheme, reflecting a belief that there is a sufficiently high level of awareness amongst the target community.

4.2.2 Assessment of Marketing and Communications

Overall, the British Business Bank appears to have been highly effective in raising awareness of the availability of VC Catalyst funding. However, triangulation of evidence indicates that communication of the terms of the scheme may not have been entirely effective. Fund managers and stakeholders reported that the British Business Bank was well known in what is a relatively small and well networked UK VC community. However, two potential issues were reported which suggests that knowledge of the scheme in specific sectors or among overseas investors may be limited and that the operation and timing of the various processes of the VC Catalyst may have been unclear to some funds.

Box 4.1 Recommendations to improve awareness of the VC Catalyst

Two improvements emerged from the research that were thought to increase the awareness of the scheme among the UK and wider VC community:

- **Increase the level of promotion activity completed:** A key improvement would be to allocate human resource to promoting the VC Catalyst at investment events in European, US and Asian markets. This was said to be needed to increase the ability of

the VC catalyst to reach UK investors based overseas. An alternative way to broaden this reach would be developing activity that is specifically targeted at raising awareness amongst UK offices of overseas based funds. Implementation of the recommendation would require joint consideration of the point raised in Subsection 4.2.2 on enforcing UK fund commitments.

- **Develop a role beyond only investment:** Stakeholders recommended that investors provide additional value beyond financial investment to support the development of investments and the sector more widely. Curating a programme of activity that enables cross-learning and develops cross fund relationships was indicated to be desirable to support an increased awareness of European venture activity and reach overseas investors that may have an interest in the UK VC market.

'Providing money is small part of process, [funds] need to forge relationships [with each other] and the British Business Bank can play a role in that.'

Stakeholder

The guidance offered to successful applicants for funding appears to have been clear and effective in communicating the criteria for accessing VC Catalyst funding. These funds reported they had accessed 'instructive' material provided online by the British Business Bank, and there was unanimous agreement that the requirements of the scheme were clear at the point of engagement. Evidence from stakeholders suggests that this communication produced 'good traction' for the VC Catalyst with regards to the number of funds that had expressed their interest in the programme with the British Business Bank.

However, this assessment is limited by the fact that unsuccessful fund managers were not interviewed as part of the Early Assessment. Additionally, British Business Bank records show that, while nine funds have received investment to date, ten times the number of applications were received for review by the bank and did not progress further. Consultations with stakeholders suggested that a large number of these enquiries were rejected at an early stage because they did not comply with the core criteria, especially concerning the fund management fee (which in some case was considered by the Bank to be too high, relative to the proposed fund size) and the primary location of the fund headquarters (which is required to be in the UK). This may suggest that many funds were unsuitable but had not fully understood the criteria before applying. The VC Catalyst programme is operated by the British Business Bank on a commercial basis, and so discussions between the Bank and potential fund managers on fees and other fund terms are part of the fund selection and contracting process. Alternatively, this situation may also reflect a perception that fund managers seeking to secure LP commitments will explore every possible opportunity, regardless of whether they initially appear to be directly aligned to their fund. This is something that could be explored quantitatively and in greater depth in

the Interim Evaluation – a more detailed discussion of these considerations is included in Section 6.3.

The Early Assessment identified a possible risk associated with the perception of the programme by the wider market amongst fund managers receiving investment. Receiving investment from the VC Catalyst could send a negative signal to the wider market that the fund manager is not able to reach a first close without public support. However, evidence suggests that fund managers believe the majority of VC funds in the UK receive public support in some way. As a result, investment from the VC Catalyst is not interpreted negatively by the market, but accepted as a typical characteristic of the way the UK VC market operates. It is important to note that different public funding schemes may be viewed differently by different prospective investors – this issue is discussed in greater depth in Section 5.

Finally, there may be an issue relating to the way in which the contractual requirements of the VC Catalyst are communicated to fund managers. Within the published programme guidance, the British Business Bank states its right to negotiate improvements to fund terms. Some fund managers reported additional terms being added at the request of the bank, often at a late stage of the overall fund raising process, that were sufficiently significant to change the economics of the fund. This is because the Bank is investing in the fund at a relatively late stage of the overall fund raising process for the fund, and these additional terms would need to be agreed with existing LPs. For example, one fund manager had not appreciated that the VC Catalyst would introduce its own terms and expected the British Business Bank to accept those adopted by existing LPs. While these additional requirements were minor and did not have any significant knock-on effects, it was suggested that if they were made clear earlier in the process there would not have been any delay. Offering greater clarity about what terms the British Business Bank expects at the outset was indicated to be beneficial for funds approaching the VC Catalyst in the future.

'The British Business Bank needs to either fall into either: We have a certain amount of legal requirements so we should be involved further up [in the process], which goes against the mandate of being an add on, or just come in at the end and accept terms set [by the fund].'

Fund Manager

4.3 Assessment Fund Suitability

4.3.1 Process overview

The assessment of fund suitability is comprised of two key components. First, a fund's commercial viability is tested i.e. is it likely to generate a return for the Bank? Second, the additionality of the public investment is judged i.e. to what extent would investment have been provided privately, in the absence of the Catalyst?

To answer these questions, the Bank Investment Team undertakes a set of checks on prospective funds using a set of publicly available criteria.⁵⁰ The following activities are undertaken in sequence to build up an understanding of the suitability of applicant funds against these criteria:

- **Introductory communication and provision of investment memorandum:** Prospective fund managers are invited to take part in an informal telephone call or email exchange. This provides the Bank with an indication of the fund's strengths and management capabilities. An investment memorandum is provided to the Bank that summarises the prospective fund manager's previous performance, the strategy of the proposed fund and an indicative cost structure and management fee under which the fund would operate. The Early Assessment found that the most common reasons for funds not proceeding to the next stage were that they are located outside of the EU or offered unfavourable terms.
- **Initial meeting:** If the Bank is satisfied with the fund's suitability, representatives from the fund are invited to meet with the Bank's Investment Team in person to discuss the investment in more depth.
- **Investment Team assessment:** The Bank's Investment Team then discuss their assessment of the fund proposition. In these discussions the following factors tend to support the progression of the fund:
 - The general partners have a strong history of managing similar funds and delivering positive commercial performance;
 - The operation of the back office team of associates and investment managers has been presented clearly; and,
 - The fund has a strong deal pipeline, offering confidence in its investment strategy.

After the assessment is discussed, a decision is made by the Investment Team on whether to progress the proposal into light due diligence or not to proceed further.

4.3.2 Assessment of Fund Suitability

The evidence collected provides strong support for the ability of the Bank to select commercially viable investment prospects. However, stakeholders expressed some doubts around the ability of this process to focus the Bank's investment on funds where this would secure genuine financial additionality.

⁵⁰ URL: <http://british-business-bank.co.uk/wp-content/uploads/2014/04/ECF-VC-Catalyst-Fund-Guidance-April-14.pdf>. Date accessed: Nov 16.

Overall, the Fund Assessment process is thought to be effective and efficient in identifying viable commercial prospects by all of the fund managers which were interviewed. This was suggested to be because the Bank was thorough in the questions they asked and the information they requested, responded quickly to the submission of documentation or new requests and were knowledgeable about the UK VC market. For example, one fund manager reported that the Bank behaved as any prospective private sector LP seeking to invest in a UK VC fund would.

However, two areas of potential concern were identified through the interviews:

- **Assessing overall finance additionality:** Stakeholders reported that the extent to which the Bank was able to assess additionality requires attention in future analysis. A minor concern raised by stakeholders was that the fund assessments that adopt similar approaches to the private sector may not fully challenge the reasons why a fund cannot close without public support. This was suggested to limit the scope for fund level finance additionality. Building on this point, one stakeholder suggested that the programme could be refocused towards maximising fund additionality, for instance by investing in more marginal funds whereby a Return On Investment (ROI) is achievable but would be unlikely to be as high as the returns made by equivalent funds that do not require public support.
- **Managing strategic responses:** Stakeholders and fund managers reported that some fund managers could have a strategic incentive to downplay the likelihood that they could close without Catalyst investment when engaging with the Bank. They suggested that it was likely that fund managers are actively considering a strategic approach to the VC Catalyst, in a similar manner in which they also approaching the private sector to secure funding in order to maximise their chances of receiving investment. However, the Catalyst does attempt to mitigate responses of this kind through the due diligence which is undertaken, as discussed in subsection 4.4 below.

The fund manager and stakeholder evidence also gave some indication that the suitability assessment has showed a preference towards fund managers without a fully established positive track record in delivering successful VC fund investment strategies. In addition, it was suggested that these fund managers are typically looking to shift the composition of their LP investor base away from high net worth individuals and family houses towards an increasingly large number of institutional investors. Stakeholders indicated that focusing on this type of fund manager can increase their experience and potentially increase the supply of UK fund managers that are capable of managing growth funds. This is a positive finding as it implies that these assessment processes are working in a different way to what could be expected from a private sector fund – creating additional scope for positive outcomes from the programme.

Finally, one minor consideration was identified regarding the distance between the Bank's investment committee and fund managers. Stakeholder evidence raised a clear distinction between the manner in which a fund assessment is completed by private sector investors and the VC Catalyst programme. Officials completing assessments for the VC Catalyst, who were indicated to be very capable, present recommendations to a board with outside representation which then effectively generates all or nothing decisions. Within an institutional private LP, decisions are taken by an internal investment committee who can engage directly with the prospective fund manager, potentially producing a more tailored 'deal'.

Box 4.2: Recommendation to improve Fund Suitability Assessment

Improving the contact between the prospective fund manager and the Bank's investment committee could enable the programme to establish more nuanced and dynamic relationships with potential portfolio business managers.

4.4 Due Diligence and Contracting

4.4.1 Process Overview

The next set of processes relate to the due diligence activities completed by the investment team. The key objective of due diligence is to examine all previous, current and intended fund activity of a prospective applicant in order to protect the allocation of public money from risks before and after the contracting phase of the VC Catalyst whilst maximising the efficiency of the overall process. Due diligence is split into two stages, both of which are led internally by the Bank and precede the contracting processes:

- **Informal Due Diligence:** This stage involves a general review of all activity associated with the fund and its management staff, to gain an understanding of their capabilities and experience. It typically looks to scope out the specific individuals who would manage the fund and oversee deal organisation. The Bank investment team also consults with individuals in the industry to receive external views on the fund managers' suitability and to confirm that the evidence which has been generated is valid. The output from this stage is a draft pre-due diligence evidence paper which is a more detailed version of the five-page standardised document completed by funds during the first assessment phase of the overall process. It was suggested in familiarisation interviews that this process typically takes four to six weeks.
- **Formal Due Diligence:** Fund managers are then sent much more detailed information requests in the form of an extended due diligence questionnaire which includes questions relating to operator histories for public and private investments, net worth statements, FCA records of operating backgrounds and other assurance

checks on individual team members such as criminal record checks. Responses to this questionnaire are typically enriched with several face-to-face visits to fund offices by members of the investment team. All information is exchanged and stored in a 'data room', a secure online shared drive which can only be accessed by selected individuals supporting the bid's development. It was suggested in familiarisation interviews that this process typically takes six months and is the most time consuming element of the overall process.

- **Draft Due Diligence Report:** The production of evidence as part of the due diligence process culminates in the development of a Due Diligence Report. This document specifies the intentions of the fund, how it is managed, by whom and the level of fees. This is presented, together with a note stating the points in favour and against the Bank supporting the fund through the VC Catalyst programme and providing a recommendation as to whether support should be granted, to the Bank's Fund Investment Committee.
- **Fund Investment Committee:** A final presentation of findings is made by British Business Bank officials and all aforementioned documentation is made available to the senior officials who sit on the Investment Fund Committee for British Business Bank Investments Ltd. The committee includes the executive officers of the Bank for decisions up to £10m and also one additional independent member for decisions in excess of £10m. It meets once per month. After all members have examined the evidence, a decision on the outcome of the application is taken with the decision then communicated to the applicant fund.
- **Contracting:** At this point, the internal risk department and an external legal team review all contractual documentation and support the specification of terms and conditions.

4.4.2 Assessment of Due Diligence and Contracting

The assessment did not identify any issues with the extent to which the due diligence and contracting process is effective in protecting the public sector from unacceptable risks. The processes were reported to be identical to those adopted by private sector LPs for practical purposes, suggesting that they should be just as effective and efficient as the market norm and will not alter the investment strategy of other LPs. However, the study team have been unable to validate this evidence through an assessment of the content and timing of completed due diligence questionnaires and Limited Partner Agreements.

Overall, views on the contracting and due diligence processes were positive. Fund managers commented that, in comparison with private LPs, this process was in fact completed more thoroughly, efficiently and quickly than the market norm. Fund managers expressed the view that the personnel who they dealt with at the Bank were responsive and supportive of applications to the fund.

'They did more work, more sensibly and faster than the very best names in LP investment.'

Fund Manager

'A very helpful LP. By example, they had set a minimum target of £150m, I wasn't sure at that stage if [another potential LP] were going to invest, I went to the British Business Bank indicating that [the other LP] discussions are ongoing – the British Business Bank came back within 24 hours indicating that they would change the min size to accommodate.'

Fund Manager

Furthermore, there was unanimous agreement from fund managers that the inclusion of the contractual obligations of the British Business Bank investing as an LP in their funds did not in any way alter their investment strategy. The requirements of the VC Catalyst programme, such as the required monitoring and UK investment obligations, were said to be complementary to their investment strategies. This is relevant because the British Business Bank is clear that the provision of public support should only act to correct the market failures present in the UK VC market rather than displace the flow of commercial investment into businesses.

However, a set of issues relating to the effectiveness and efficiency of these processes were identified through discussions with fund managers and stakeholders, relating to the terms of public investment:

- **Ability to enforce UK commitments:** Stakeholders raised concerns about the effectiveness of arrangements to focus investment in the UK and it was suggested that the terms applied do not appropriately ensure that a sufficient level of investment is committed to the UK; the perception is that control is also too loose. However, requirements to invest in the UK raise issues, especially for large funds. As the number or size of deals increases, fund managers indicated the need to search globally to source the most promising investments, as technology and product markets are global in nature. Restricting the focus to the UK was said to involve an opportunity cost whereby financial returns accrued by the UK government are exchanged for local economy benefits and decreased portfolio diversification. Specifying a high percentage of UK deals may also reduce the attractiveness of the VC Catalyst programme to fund managers, restricting the pool of quality managers the British Business Bank can select from.
- **Legality clause:** A minor concern from the fund manager evidence related to the legal restrictions on the use of the British Business Bank name. The clause in question indicates that improper or inappropriate use of the Bank's name would result in a fine taken from the management fee of a fund business; it was suggested that further clarity should be given to what would constitute inappropriate use of the Bank's name.

4.5 Monitoring

4.5.1 Process Overview

The Bank maintains an ongoing relationship with the supported funds in order to identify the emergence of any undue investment risks without seeking to alter the risk appetite of the funds' deals. The Bank does not take an active role in the operation of the funds, a requirement of maintaining its limited liability status. The Bank's engagement is limited to:

- Quarterly reports on fund performance detailing new investments made, the value of previous investments and the financial and operational position of the fund.
- Annual reports covering performance in greater depth and audited financials.
- An annual investor meeting.
- Ad-hoc contact from the fund to notify the Bank of key issues (such as investments that have 'gone bad') or changes (such as the departure of a General Partner).

4.5.1 Assessment of Monitoring Objectives

Analysis of the evidence suggests that ongoing monitoring undertaken by the British Business Bank does not influence the risk appetite of the funds in which it invests. No evidence was provided to enable an assessment of whether the monitoring is effective in protecting the public sector from unacceptable project delivery risks to value for money. It is, however, worth noting that the bank appears to be adopting the same monitoring practices as private LPs, which offers some confidence that this protection is no worse than that for a private sector investor.

The completion of monitoring reports for the British Business Bank was indicated not to have had any effect on the investment the strategy of the funds securing investment from the VC Catalyst - the British Business Bank has been clear that public investment should not distort private investment decision making. No fund managers reported that monitoring arrangements resulted in the bank offering investment guidance or advice. In addition, there was unanimous agreement from fund managers that the monitoring requirements of the British Business Bank were acceptable, in terms of the time and cost taken to deliver monitoring reports, and 'in-line' with the monitoring requirements of private sector LPs. This indicates that the monitoring requirements implemented by the bank follow accepted industry best practice.

5 Outcomes and Expected Impacts

This section presents an analysis of whether the VC Catalyst has achieved its intended objectives and increased the supply of equity finance available to UK high growth businesses through the mechanisms outlined in the Theory of Change in Section 2 above.

5.0 Headline Findings

- **Closure of funds:** Overall, the VC Catalyst appears to have supported the timely closure of a number of funds that would have either found it difficult to close in the absence of funding, or would have taken longer to close. Where they would have taken a significant time to close, it seems likely that this would have generated an opportunity cost as fund manager resources would have been tied up with fund raising activities rather than making investments into businesses. Investment from the VC Catalyst programme also appears to have enabled funds to implement an enhanced investment strategy, i.e. investing in a larger number of businesses and helping ensure that a sufficient level of diversification and non-pecuniary support is achieved (through the ability of funds to allocate resources to planned non-pecuniary functions). Finally, the evidence is inconclusive on the net effect of the VC Catalyst on generating additional investment from LPs by signalling the quality of the funds invested in.
- **Investment in businesses:** Supported businesses received an average of £2.8m in Bank investment and 64 percent were seeking seed or startup investment. These businesses reported increases in R&D and scale-up activity, in line with the objectives of the programme, and increases in annual turnover and employment. A majority were based outside the UK (63 percent) and of those based in the UK, the majority were based in London and the South East. While the non-pecuniary business support provided by funds is highly valued, the businesses concerned reported they would have found other sources of investment had investment from a VC Catalyst supported fund not been available. This limits the extent to which the finance provided by the VC Catalyst is likely to be directly finance additional, although business owners may, of course, overestimate their ability to obtain alternative equity funding.

5.1 Approach to Assessing Impact

A key challenge for the evaluation is the construction of a counterfactual of what could be expected to have happened in the absence of the policy. The complicating factor is that there is scope for effects both at the level of the fund (additional funds closing)

and the level of the business (additional investment in businesses). This creates a need for counterfactuals covering both of these aspects. The notion of a counterfactual is further complicated by the scope for interaction effects to operate between the fund and business levels. As discussed above in Section 2, in supporting one fund to close, the VC Catalyst may have had a knock-on effect on the ability of other funds to close, which would have an effect on the overall amount of VC funding available to businesses. Therefore, a true counterfactual for the intervention might relate to a completely different set of funds and a group of businesses that have not had any contact with the funds supported by the VC Catalyst.

For these reasons, it has been difficult to design an impact evaluation that meets the level 3+ standard on the Maryland Scale which is often seen as a key benchmark for the use of evaluation evidence in government. Reflecting this challenge, the study team adopted broad realist evaluation principles, a form of theory-driven evaluation that permitted the exploration of causality in the absence of a counterfactual group. Realist evaluation approaches build from a Context-Mechanism-Outcome (CMO) assessment to make a set of hypotheses and predictions about the likely outcomes emerging from the policy under different contexts, and then pursue a set of tests for each of these⁵¹ (this framework is summarised in Section 2).

The study team have also pursued a contribution analysis approach to assess the extent to which the observed outcomes are specifically due to the VC Catalyst as opposed to other factors. Contribution analysis approaches follow a common set of steps:

- **Setting out the attribution problem to be addressed and developing the Theory of Change:** The Theory of Change presented in Section 2 provides an overarching 'performance model' for the evaluation, detailing the expected route to impact.
- **Description of theoretical assumptions and contextual factors:** Section 2 also details the key assumptions and risks on which the Theory of Change is based, as well as the wider contextual factors that are not in the control of the programme. Together these provide a set of alternative explanations for the effects observed, to be tested and explored through the contribution analysis.
- **Populating the model with data and evidence:** Evidence from the fund manager, stakeholder and business interviews, secondary data and contextual analysis has been used to operationalise the approach for each anticipated outcome. A self-reported counterfactual (SMS level1) approach was taken whereby

⁵¹ Note that the basis for this framework is provided in Section 2, and the findings from the Early Assessment could be further built on and specified in greater detail in line with realist evaluation principles when preparing for the Interim Assessment.

a set of fictitious scenarios were developed for those in the treatment group so as to generate a descriptive account of what might have happened in the absence of the VC Catalyst.⁵² The study team attempted to mitigate biased responses through the completion of complementary in-depth research prior to interviews and the triangulation of evidence from different sources.

- **Assemble and assess the contribution or performance story:** The development of an initial 'performance story' for the VC Catalyst is provided below, which includes a set of refined hypotheses for how external factors can be controlled for and discounted as explanations for outcomes in future research. It also identifies weaknesses in the results chain (i.e. where the story is least well supported), specifying where further data collection from future research could help plug these gaps.

While the adoption of this approach has ensured that the research is transparent about the assumptions underpinning the conclusions drawn, it does not necessarily increase the fundamental robustness of the design in the way that a more robust counterfactual would. It is also important to note that both realist and contribution analysis approaches are generally iterative – hypotheses explored through the Early Assessment will need to be refined and tested at the Interim Assessment stage.

5.2 Fund Level Effects

This subsection focuses on the effects of the VC Catalyst against its broad objective of unlocking additional investment from UK VC funds. As noted, at the time of this Early Assessment (Spring 2017), the VC Catalyst had invested in a total of nine funds. These had all reached a first close and had started investing in businesses. This subsection provides an analysis of the contribution of the VC Catalyst towards these outcomes and focuses on three key ways through which VC Catalyst investment may have contributed to the closure of investee funds:

- Support to achieve a first close – helping funds to get over a threshold that allowed them to draw on soft commitments from other potential LPs and start investing in businesses.
- Influencing the investment undertaken – either increasing the level of investment from the funds supported, or generating other positive effects.

⁵² SMS Level 1: Either (a) a cross-sectional comparison of treated groups with untreated groups, or (b) a before-and-after comparison of treated group, without an untreated comparison group. No use of control variables in statistical analysis to adjust for differences between treated and untreated groups or periods.

- The creation of a set of market signals with positive knock-on effects in relation to the attraction of additional LP investment in funds.

Box 5.1 summarises the alternative performance stories reported by fund managers about the effect of this investment. The remainder of this section critically assesses these narratives against the three potential causal pathways described above. This consideration is of particular importance, given the limitations on the extent to which the VC Catalyst's assessment processes can directly target the 'marginal case' of a fund in need of public support in order to close as discussed in Section 4.

Box 5.1 Fund Manager Self-Reported Counterfactuals

This box summarises the hypothetical scenarios constructed by fund managers when considering the realisation of outcomes without VC Catalyst investment:

- **Unable to reach a first close (two funds reported this view):** This group of fund managers indicated that they would have been unable to reach a first close at the time that they were raising and as such would have had to cease operations as a result of not being able to reach minimum viable fund size. These funds indicated that they had already held a fund raising period for a significant period (12 to 18 months) and closing earlier or continuing to seek additional commitments would have risked them losing interest from LPs with soft commitments.
- **Held a first close with a smaller fund size and an altered investment strategy (four funds recorded this view):** These fund managers reported that in the absence of VC Catalyst investment it is likely that they would have closed their funds at a similar date, but at a reduced scale. While broadly feasible, it was reported that closing at a lower level would have adversely affected the investment strategy by reducing the number of businesses that the fund could have invested in. This in turn was reported to run the risk of damaging fund performance by reducing the ability of fund managers to diversify their portfolio. Alternatively, in some cases it was suggested that the same number of businesses would have been targeted, but the fund might not have been able to provide them with the optimal level of support required to help them scale-up. A further issue from closing at a lower level was reported in the area of recruitment. There was a perception that closing a fund early might affect the ability of fund management teams to recruit the right level of support needed to deliver their investment strategy effectively. It is important to note that these fund managers noted that they would have had the option to continue to fundraise rather than close at this smaller scale, but continuing to fundraise would have had an opportunity cost– i.e. additional fundraising would have been at the expense of effectively implementing the fund's investment strategy and was therefore unlikely to have been pursued.
- **Continued and reached a first close at the desired level at a later date (two funds recorded this view):** This group of fund managers reported that while they would have likely secured a sufficient number of investments to reach a first close if their VC Catalyst application had been declined, this would have taken between 3-6 months to secure sufficient commitments. As with the previous group, these managers noted the opportunity cost of this activity but felt they would have been

unable to have closed at the lower level.

5.2.1 Support to Achieve a Fundraising First Close

The market context discussed in Section 3 suggests that public intervention in the UK VC market has a potential role in correcting structural and cyclical weaknesses that prevented funds from reaching a first close. The analysis also confirmed the importance of the concept of a minimum optimum efficient size for a VC fund. For example, a fund size of £50m is generally considered by investors to be too small to support a portfolio of investments in the £5m-£20m range as it cannot offer what would be considered to be a sufficiently diversified portfolio. Therefore, it is typical that when fund raising, potential LPs will offer soft commitments of investment that are contingent on the fund manager securing a specific minimum amount of other investment. A core hypothesis underpinning the VC Catalyst is the idea that it helps to unlock funding commitments by helping funds to achieve a first close.

While it is difficult to define this minimum size of a fund as it is dependent on expected investment strategy e.g. targeted range of deal sizes and investment stages, the evaluation has found strong evidence that the VC Catalyst has played a role in helping several of the VC Funds invested in to close at an efficient size in a timely manner. Fund managers and stakeholders alike confirmed this process of working with potential LPs to secure conditional investment commitments before moving towards a close once a sufficient number of commitments had been made and it was expected that the fund had reached a particular minimum efficient size. As could be expected from the discussion in Section 3, without reaching this minimum size, a fund manager cannot make investments in businesses which are the ultimate beneficiary of the intervention.

The self-reported counterfactual evidence collected from fund managers suggested that the majority of funds would have been able to reach a first close without investment from the VC Catalyst at some point, suggesting only limited pure finance additionality at the fund level.⁵³ However, additional time to reach a first close without VC Catalyst support was predicted to have both delayed funds from closing and introduced an opportunity cost for fund managers leading to support for partial finance additionality at the fund level. The larger the amount of time taken to seek and secure LP investments to support fund closure, the less time and resources available to support deal origination activities. In addition, all fund managers reported that securing LPs with increasing momentum was crucial when attempting to reach a

⁵³ It is worth noting that LP commitments provided at a later stage are expected to produce smaller levels of additionality in comparison with a cornerstone LP investor, the provision of which is thought to be well suited to overcoming coordination failures.

first close and the ability of the British Business Bank to become an LP quickly was a useful trait of the programme. For example, fund managers and stakeholders reported that, if fund raising remained challenging, LPs that provided 'soft investment commitments' early on may have withdrawn their investment offer in search of an alternative. This creates scope for some form of leveraging effects on other private sector commitments across the VC Catalyst programme.

As noted, fund managers could have a strategic incentive to downplay the likelihood that they could close without support when engaging with the Bank which may have also influenced their engagement in this evaluation. Nevertheless, this contribution finding seems credible when comparing the time taken for funds to reach a first close. VC Catalyst fund managers interviewed reported that they had taken between 12-18 months to reach a first close whereas Preqin data indicates that the average time taken for VC funds to reach a first close is nine months. The fact that, as discussed in Section 4, the VC Catalyst appears to have a particular focus on funds with limited track records which might have found fund raising particularly challenging in 2013, offers additional confidence here that the VC Catalyst is unlocking additional funding.

When looking at these funds it is important to also consider the counterfactual at the LP level. It is plausible that, had these particular funds not closed, LP investors would have invested in other similar VC funds. This has proved a difficult aspect to research as the study team have only had limited contact with co-investors (who found this a difficult question to answer). Several fund managers reported that they would have expected their potential LPs to have withdrawn their soft commitments if they saw limited likelihood of the fund closing in the medium term (perhaps six months). This creates some scope for the funding to be recirculated, but with a significant delay. This is an issue that could be further explored through the interim evaluation through a broader range of discussions with other LPs of the supported funds.

Finally, there is a need to consider the scale of the funds that the VC Catalyst may have helped to reach a close. The original investments of the VC Catalyst were reported to have positively contributed to the closure of funds in particular that were relatively small in size (£100-£150m) in the UK VC market – this is likely because the sums available could materially influence the economics of such a fund. However, while analysis of the evidence highlights the likely positive contribution of the VC Catalyst in supporting fund closure at this level, there is a broader question about whether funds of this size can be considered optimal. In the absence of government funding programmes, such as the VC Catalyst, fund managers highlighted that raising a small VC fund was challenging because of the small number of LPs willing and able to write a cheque for £5-20m, given their own portfolio diversification and geographic requirements (i.e. local authority pension funds). This is validated to some extent through the stakeholder evidence which highlighted that larger funds (£250-£400m) are not as dependent on government funding because they can draw on a larger investor base comprised of a more diverse LP base (e.g. pension funds, insurance providers). While supporting the closure of these smaller funds was perceived as a

positive, there was also a perception that supporting funds of a small size was not conducive to securing the optimal level of small business investment to effectively support their growth in global markets, and in particular does not address the current market gap observed for larger funding requirements, as discussed in Section 3. The revised approach of the expanded VC Catalyst following funding allocated to the British Business Bank in Autumn Statement 2016, may better enable funds to increase in size in order to provide scale-up funding to growing businesses – a point to be explored through the interim evaluation.

5.2.2 Influence on Investment Strategy

Separate from the effect of the VC Catalyst on the ability of a fund to achieve a first close, there is scope for its impact on influencing either the amount of funding available, or affecting the detail of their investment strategies. Investment strategies are usually developed by fund managers before fund raising begins, as discussed in Section 4. The strategy identifies the number, type and size of proposed investments, as well the management and cost structure of the fund and any additional, non-pecuniary, support which is to be provided.

There was unanimous agreement from fund managers that VC Catalyst investment enabled them to invest in more businesses than they would have done in the absence of support⁵⁴. This creates scope for the programme to have unlocked the business level effects discussed below in section 5.2 without necessarily enabling more funds to close or leveraging in other investment. Evidence from stakeholders validated this point. This represents a highly credible claim, as it appears highly unlikely that receiving VC Catalyst funding will have displaced private sector investment into the fund.

One potential issue is whether British Business Bank investment has in some way acted to 'put off' or deter investment from other LPs. This does not appear to have been the case. Fund Managers reported that because the VC Catalyst invested a proportionately small amount into funds (generally in the range of between 5-20 percent of total fund size) reiterating that it does not provide cornerstone investment so that the extent to which the British Business Bank could have crowded out private LP investment is limited; no evidence was provided that suggested the VC Catalyst has crowded out private investment - though it is important to note that the study team did not conduct research with prospective investors who did not finally invest in the funds concerned.

⁵⁴ As discussed in Section 2, funds that had received investment from the VC Catalyst had invested in 60 businesses in total as of December 2016 with an average gross investment of just under £3m.

As discussed in Section 5.1.1, the majority of funds reported that the VC Catalyst permitted them to close at an optimal level and at an earlier time than would otherwise have been the case. In the absence of VC Catalyst investment, fund managers reported that their investment strategy may have been altered in two further subtler ways:

- **Provision of additional small business support:** Without sufficient investment, one fund manager reported that they would have been unable to support their portfolio beyond financial investment, such as through the provision of mentoring or business model. This is because the fund would not have been able to recruit the personnel needed to implement and deliver these functions.
- **Risk profile:** It was reported that closing at a lower level of funding would have potentially led to a sub-optimal number of deals being made at an appropriate scale. It was indicated that this would have been damaging to fund performance through reducing the ability of managers to diversify their investments. Stakeholders and fund managers suggested that faced with limited opportunities to diversify, fund managers might have been deterred from making investments that appeared to be higher risk.

5.2.3 Market Signals

As discussed briefly in Section 4, the presence of the VC Catalyst as an LP investor in a fund may have sent positive or negative signals to the market. The Early Assessment evidence is inconclusive on the net effect of these signals. On the one hand, the VC Catalyst was reported to have produced a 'halo effect' at the fund level, which catalysed the involvement of new LPs. The presence of the British Business Bank as an LP investor was suggested to indicate to the market that the fund in question had undergone and passed a high degree of due diligence, and as such, was a suitable candidate for investment. This positive signal was reported to be important for smaller private LPs who often wait until a fund has secured a set amount of commitments, before committing themselves. Having a commitment from the British Business Bank was instrumental in this. While stakeholder evidence suggested that this positive halo effect was produced predominately by cornerstone investors, fund managers were able to provide anecdotal examples of occasions where VC Catalyst investment had directly supported the realisation of additional private LP commitments.

However, two points of stakeholder feedback suggested the inclusion of VC Catalyst investment can send out negative signals to the market in relation to the fund. Firstly, the inclusion of the British Business Bank as LP could potentially 'taint' the fund, highlighting the fact that it has been unable to secure a sufficient number of LP commitments in the market. This inability to reach fund closure without public support was reported to be seen by some as a sign of a low quality fund.

Fund managers also reported a concern about the misalignment with standard private sector LP practice with regards to reinvestment in future funds. Fund managers that had successfully raised more than one fund, reported that it was 'common practice' for returning LPs to invest a larger amount in the next fund. This progression in investment amount was said to signal a positive level of commitment and trust in the fund from the LP in question. One view indicated that there may be a future issue because the VC Catalyst does not follow this pattern, even when investment was a follow on from another Bank programme such as the Enterprise Capital Finance (ECF) programme. As such, any decreases in the level British Business Bank investment into a future fund were reported to potentially be perceived by the wider market as a decrease in the degree of confidence in the fund's likely success.

'[Private] LPs in funds are indicators of performance, so if they come into the next fund they tend to invest more if the fund performed well.'

Fund Manager

5.3 Business Level Effects

This subsection provides evidence on the extent to which the VC Catalyst has supported the growth of high technology businesses, in line with the Theory of Change model developed. Firstly, it provides an analysis of the gross outcomes and impacts realised by businesses that received investment from VC Catalyst supported funds. It then sets out an analysis of the VC Catalyst contribution in generating those outcomes. This subsection mostly draws on evidence provided by interviews with investees and makes use of other evidence to substantiate points where appropriate. Given the recent nature of many of the investments made by VC Catalyst supported funds, the evidence presented here largely provides only very early indications of the impacts involved. It is also important to note the limited sample size of eight interviews across the 22 recipient businesses based in the UK.

5.3.1 Outcomes

Innovation and Technological Progress

The central aim of the VC Catalyst has been to increase the supply of VC finance available to high growth potential businesses, in part to fund the completion of R&D activity to support innovation. The evidence produced as part of this Early Assessment strongly supports the view that businesses invested in by VC Catalyst funds were innovative and have been actively undertaking R&D since receiving investment.

The VC Catalyst has invested in funds that have invested in businesses pursuing both incremental and disruptive innovation activities⁵⁵. Many of the businesses interviewed were technology enabled businesses and all those pursuing incremental innovations are now producing manufactured goods in the communications, engineering or medical device sectors. Businesses developing products and services enabled by internet/software applications were all developing innovations that can be considered to be disruptive. A focus on innovation and disruptive technology is advantageous as these are most likely to generate positive externality effects. This increases the likelihood that the products and services supported by the VC Catalyst will not directly displace existing market offers but create new markets. The qualitative evidence highlighted one case where a disruptive innovation was developed by a manufacturing business – see box 5.2.

Box 5.2 Case Study Evidence: Disruptive Manufacturing

One business that received investment from a VC Catalyst supported fund develops and markets products made from an environmentally friendly splinting material for orthopaedic and traumatology applications. The product represents the first significant development in this market since the plaster cast, which was invented by the Ancient Egyptians, and the fibreglass cast, which was developed during the Vietnam War. The product is a mixture of a UK made polymer and wood chips from Finland. It is differentiated from what is currently offered in the market in a few key ways. It is the only product in the market that is biodegradable, that can get wet, is x-ray radio transparent and non-toxic. This last factor is of particular interest given the occupational risk to a practitioner from working in a low level toxic environment for long periods of time. This provides a strong signal that the innovation is potentially disruptive.

All interviewed businesses indicated that R&D activity was completed immediately after receiving investment. This activity was typically implemented to support the validation and launch of an expanding product or service portfolio. As such, most of the R&D activity was supporting innovations that were close to market, which is often associated with an increase in R&D employment. There were only a few instances of R&D activity that were not close to market – in one case increased R&D activity to support the progression towards accreditations in the nuclear industry, which was cited to take five to seven years to complete.

⁵⁵ In this context, 'incremental innovation' refers to marginal improvements to a good, service, process or business model in a cost of differentiation dimension and 'disruptive innovation' refers to the introduction of new markets or the drastic reorganisation of existing markets.

Box. 5.3 Case Study Evidence: R&D to support technological progress

A business that designs, tests and validates semiconductors for the communications industry. The business was launched to support the next generation of semiconductors. A package of translational R&D had previously been funded by a Horizon 2020 grant and the equity investment received was used to support additional R&D that aimed to understand what the optimal manufacturing process would be for the product. Since receiving investment a new lab in Bristol has been equipped to support R&D activity with the development team increased in size from four to eight.

There was no evidence to suggest that new IP rights had been secured by businesses since receiving investment from VC Catalyst funds. While they reported that they had completed R&D activity, they had either already secured IP rights or had plans to do so in the near future.

Introduction of new products, services, processes or business models

The Early Assessment has produced strong evidence to suggest that businesses receiving investment from VC Catalyst supported funds have subsequently introduced either a product, service, process or business model to market. Businesses indicated that investment has supported this new introduction in two key ways:

- **Scale up of development and manufacturing:** Investment enabled a number of businesses to scale up their R&D, manufacturing, and sales and marketing functions, as discussed below. This accelerated the introduction of new innovations to market through taking advantage of scale economies and cost efficiencies through the implementation of insights from completed R&D.

Box 5.4 Case Study Evidence: Introduction of new mixed media content

An early-stage web and mobile platform that provides close to real-time sports news and analysis creates and distributes fan content globally. This is facilitated through the venture's multi-media content creation and distribution system, developed through the application of IP held by the business. Since investment, the business has enhanced its technical product offering through the integration of alternative media onto the platform such as video and gaming and improved translation and distribution of quality assured content around the world.

- **Provision of technical expertise by the fund manager:** Investment and additional non-financial business support provided by fund managers is reported to have facilitated the introduction of new processes and business models. In one case, investment was used to complete a package of R&D to better understand how a novel manufacturing process might be used to mass produce semiconductors used for communications devices. In another case, the investment enabled the hire

of an experienced CEO who introduced an entirely new sales model into the business's operations.

Box 5.5 Case Study Evidence: Implementation of a new sales model

One business was initially using distribution teams to market and sell a product to hospitals, an approach often used by pharmaceutical businesses. However, this sales model was not effective in this context because of the high fixed cost of a required ancillary system and the inability to monitor the sales activity of individual distributors. The new management team abandoned this approach and instead employed a set of regional sales reps in the UK and the Nordic region to focus solely on selling the product. To ease the procurement issues faced by hospitals, these reps were tasked with loaning the heating units to hospitals and focusing on making product sales.

A recurring theme through the research with investee businesses was a strong indication that the introduction of new innovations to market would be an ongoing effect. Rather, the evidence suggested that businesses hope to continually introduce new offerings in order to realise their projected growth ambitions. It should be noted that it has not been possible to triangulate this optimism about future market prospects with other research and as such this expectation should be taken with some caution.

Scale-up activity

Section 3 highlights the importance of supporting high growth businesses scale-up. This tends to refer to a rapid expansion of commercial activities, covering but not limited to the:

- Implementation of formal processes (i.e. HR, Sales/marketing) or IT systems.
- Recruitment of staff with specific technical, managerial or operational expertise.
- Relocation of business activities or the use of new premises for operations.
- Commencement or increase in export activity; and,
- Entry into markets.

This assessment provides a strong indication that businesses receiving investment from a fund supported by the VC Catalyst programme have been engaging in scale-up activity since receiving the investment, especially in the case of technical recruitment, and opening up new locations. Analysis of all the interview evidence suggests that this is likely to reflect the innovative nature of these businesses, their intention to enter global markets and the short funding cycles preferred by the investment strategies developed by fund managers who received VC Catalyst investment. There was unanimous agreement that all businesses supported were not looking to support business growth through domestic sales strategies. Instead, businesses were concerned with increasing their global market share in their respective markets. Fund

Managers indicated that implementing business plans that had a solely domestic focus would not be conducive to rapid and sustained business growth because, ultimately, businesses would be competing against global players who would be better placed to take advantage of scale economies and a larger pool of human and physical capital.

Box 5.6 Case Study Evidence: Scale-up of a knowledge exchange platform in the midst of global competition

One business provides an online platform for sharing e-learning content specifically for entrepreneurs and businesses. The platform is designed to engage audiences with bite size pieces of information and encourage local community interaction. While the business' management team is based in London, global competition, especially from US businesses has incentivised it to set up operations in the US and South East Asia to cater for regional markets and in Eastern Europe to take advantage of relatively low cost and skilled labour.

5.3.2 Commercial Performance

In addition to answering questions on the array of activities implemented as part of their business plan, businesses were also asked to provide information on their commercial performance in relation to annual turnover, employment, profitability and export activity. A summary of key performance metrics, including expected future performance, is provided in Table 5.2.

Table 5.2 Average Business Commercial Performance

Time	Average turnover (£ms)	Average Employment	Average Exports (percent)
At investment	1.6	35	30%
Interview (Q1 2017)	5.3	73	50%
12 months	8.6	90	40%
36 months	17.9	115	60%

Source: Ipsos MORI (2017).

Turnover

Table 5.2 illustrates an increase in the realised average annual turnover for businesses between the time of investment and Q1 2017 of just under £4m. Businesses and fund managers expect this figure to increase by 60 percent in the 12 months and 100 percent in the next three years on average.

Employment

Average employment also experienced positive average growth between the time of investment and the time of interview, with average employment increasing from 35 to 73 FTE personnel. It is interesting to note that this suggests that businesses have

increased from small to medium on average, as per the official European Commission definition of an businesses.⁵⁶

Box 5.7 Case Study Evidence: Employment growth for online/mobile remittances business

A money transfer service, primarily used for remittances, operates exclusively through an online platform. The service ensures that there is no cash involvement at the point of use, meaning a lower cost is charged than market competitors. Since 2015, the business experienced employment growth of 57 percent and this is predicted to grow by an additional 10 percent by Q1 2018.

Exports

The percentage of sales made by businesses that are classified as exports increased on average from 30 to 50 percent. This growth is expected to increase to 60 percent on average in Q1 2020.

Profitability

An analysis of the profitability of businesses at a stage so early on in the funding cycle is likely to provide a misleading picture of their commercial performance. None of the businesses interviewed at the time of interview were making a profit and only a minority had any expectation of becoming profitable within the next 12 months. The key reason for this was that they were opting to invest in the development of key business functions with a view to realising profits in the longer term. This is in line with VC investments of this type.⁵⁷

Displacement/Leakages

The monitoring information provides strong evidence to suggest increased investment in business activity outside the UK has occurred as a result of the programme; 64 percent of businesses receiving investment were based outside of the UK. In addition, the qualitative evidence indicates that businesses that have their management function base in the UK also have operations overseas to support engineering and manufacturing functions or to cater to regional markets. However, in one case a non-UK business relocated its management team to take advantage of regional expertise based in the North East of England and the relatively lower costs of doing business with key trading partners in comparison to being located in Northern Europe.

⁵⁶ URL: http://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition_en.
Date accessed: 24/05/17.

⁵⁷ See page 57 of British Business Bank (2017) 'Small Business Finance Markets 2016/17' which finds only 4 percent of businesses receiving later stage VC investment in 2013-14 were profitable at the time of investment.

Additional Follow-on Investment

The Early Assessment provides some evidence that businesses have been successful in leveraging the initial investment to unlock additional funding to support their business growth, although follow-on investment has only been secured in a minority of cases. Many of businesses interviewed have not yet started seeking additional funding but intend to do so in the medium term. As such, the assessment of additional investment leveraged will be better judged as part of the interim evaluation of the VC Catalyst, as discussed in Section 6.

IPOs/Exits

No evidence of investor exits was collected as part of this Early Assessment of the VC Catalyst.

5.3.3 Role of the VC Catalyst

The assessment of the performance of the businesses funded by the VC Catalyst programme provides a positive picture with regards to business growth, especially in the case of scale up activity and employment and annual turnover growth. However, it is important to note that these are gross outcomes, and an assessment of the role of VC Catalyst funding in realising these outcomes is required to establish the net impact. Section 5.1 above considers this at the level of the fund, and this section explores the extent to which these outcomes could have been expected in the absence of the investment from the funds into the businesses. The qualitative evidence below provides some indication that the financial additionality of the VC Catalyst has been limited. That said, the programme is likely to have contributed to project additionality outcomes as the non-pecuniary support provided by businesses is thought to have accelerated the rate of commercial growth experienced by businesses. This was because the VC funds were able to provide specialised support to businesses to increase the efficiency and effectiveness of decision making and business processes.

Business interviewees stressed that they were exploring a number of alternative financing options to support the delivery of their business plan when they received investment from the VC Catalyst supported fund. In addition, businesses reported that they would have been able to secure alternative finance elsewhere to deliver their business plan (without altering it in any way) in the absence of a VC Catalyst supported fund. The confidence of this finding is thought to reflect the high degree of innovation activity exhibited by businesses and an optimism bias often experienced by business management teams, who anecdotally tend to hold positive beliefs about the likely future commercial performance of their ventures.

This finding confirms the idea that the fund managers who have received investment from the VC Catalyst are not looking to identify a 'marginal business' that has growth potential, but would be unlikely to receive investment from other sources. This position is in contrast to many public schemes for investment in businesses, and increases the risk of deadweight – that public funding has been used to realise an outcome that would have occurred even in its absence. In an environment where the

supply of VC finance is lower than the demand of finance, there may still be increases in the overall supply of equity finance, even if the businesses directly funded by the programme are not additional if it frees up funding available for other businesses.

There does appear to be scope however, for the programme to have acted to improve the functioning of the UK VC market by improving competition. Section 3 sets out the level of market concentration, and stakeholders reported a perception that the level of competition for business investments described above may be an indicator that the programme is acting to reduce the risk of imperfect competition and oligopolistic interactions in the VC market. This benefit may be partially or fully offset if the additional funding acts to 'crowd out' private sector VC investment by inflating the terms that businesses can command in the market. Given the position of the UK VC market at the time of the inception of the VC Catalyst (as described in Section 3), the scope for this was initially quite limited. The balance between these effects may however have changed with the development of the VC market since 2013.

While the evidence does not provide strong support for finance additionality at this level, as noted above, it does indicate that non-financial business support provided by VC Catalyst supported funds was of a high value to businesses. Moreover, the evidence goes further and suggests that this non-financial business support was instrumental in catalysing scale-up activity, and consequently, business growth. In particular, businesses commented that the advice and guidance provided was valuable in relation to their business model, business strategy, recruitment, the implementation of processes and new market entry. The provision of contacts and access to business networks were also reported to have had a positive impact on business growth.

Box 5.8 Case Study Evidence: Provision of non-financial business support from Funds

One business is a fin-tech start up that provides contract financing services to the recruitment industry through a digital platform. Its solution aims to address cash flow and administrative burden issues that are common among executive search. They reported that the fund that provided investment was able to provide a range of industry contacts to support business development. Furthermore, the fund manager, as an ex-serial entrepreneur, was able to provide technical assistance with regards to the development of the businesses' operating model.

A final business-level effect to be considered is displacement. There is a risk that as businesses grow as a result of the VC Catalyst they will create additional pressures in factor markets (such as for skilled labour) which will increase prices faced by other businesses, creating a countervailing effect. In addition, there is a risk that as businesses grow, with investment unlocked by the VC Catalyst, they displace sales from existing market participants. While there are no processes in place to minimise

this risk in the selection of businesses, (as noted above) the focus on highly innovative businesses may mitigate the risk of direct displacement as there is scope for the new products and services offered to create entirely new markets.

6 Conclusions and Implications

6.1 Conclusions

The following conclusions are drawn from this Early Assessment of the VC Catalyst programme:

- **Contextual support for the intervention:** The Assessment strongly supports the intervention logic of the VC Catalyst (set out in Section 2) in 2013, the year of its inception and has highlighted that the UK VC market suffered from limited LP investor liquidity following on from the 2008/2009 financial crises and historic low financial returns in comparison with other Private Equity markets and the US VC market. While the UK VC market has strengthened in recent years as a result of an improved early stage funding and ecosystem for high-technology and technology-enabled businesses, a number of challenges remain: the need for patient and scale-up capital, the need for an increased supply of high-skilled fund managers and the importance of clarity around continued access to funding from the European Investment Fund. Looking forward, it will be of great importance for the British Business Bank to continually monitor the policy and economic context of the VC Catalyst. The significant market changes that occurred between 2013 and Q1 2017 indicate that the market needs and gaps are constantly evolving, partly reflecting technological innovation.
- **Fund level effects:** Overall, the VC Catalyst appears to have supported the timely closure of a number of funds that would have either found it difficult to close in the absence of support, or would have taken longer to close. Where they would have taken long to close, it seems likely that this would have generated an opportunity cost as fund manager resources would have been diverted from the investment strategy towards fund raising. VC Catalyst investment also appears to have enabled funds to implement an enhanced investment strategy, investing in a larger number of businesses and ensuring that a sufficient level of diversification and non-financial business support for businesses was achieved. Finally, the evidence is inconclusive on the net effect of the VC Catalyst on realising additional investment from LPs by signalling the quality of the funds invested in.
- **Business level effects:** The businesses invested in by the supported funds broadly align with the aims of the VC Catalyst to invest in high growth prospects which report that they have since engaged in R&D and scale-up activity. The performance model set out in Section 2 indicates that this should result in

improved commercial performance by the businesses. This positive progression is evidenced by increased business annual turnover and employment. However, while the non-financial business support provided by funds is highly valued, some concerns were raised of the extent to which the finance provided by the VC Catalyst has been additional.

- **Process effectiveness:** An assessment of the four key groups of processes was undertaken as part of the assessment (marketing and communication, fund assessment suitability, contracting and due diligence and monitoring). The market typically considers that the processes are as efficient as, and no more onerous than, their private sector LP counterparts. In addition, the ability of the processes to identify emerging fund managers and provide them the opportunity to develop a track record can help to generate a pipeline of experienced fund managers to manage growth stage funds in the medium to long term. However, some stakeholders expressed preferences for the programme's assessment criteria to increase the weighting towards investing in more marginal funds, where public support could produce additional economic benefits, whilst meeting the requirements for financial returns.

6.2 Implications for Interim Assessment

The following considerations require reflection before the initiation of Interim Assessment:

- **Refining the evaluation methodology:** There will be scope to build on the material contained in this report to further refine and specify the underpinning hypotheses and research questions set out in the appendices around the realist and contribution analysis principles set out in Section 5.
- **Counterfactual selection:** It is important to note that, without the development of a suitable counterfactual, there is a limit to the extent it is possible to confirm the scale of additional effects. While a descriptive overview provides a useful guide to the gross outcomes achieved, it does little to support an understanding of the additionality of the VC Catalyst. A suitable examination of the extent to which unsuccessful funds could be used to fulfil this function is recommended for the interim evaluation. This will require, inter alia, a full set of monitoring records that provide information on funds that have applied for VC Catalyst funding and the reason(s) why they were unsuccessful.
- **Evolving policy:** As commented in Section 1, the aims and objective of the VC Catalyst have altered since its inception. As a consequence, comparison between fund and business activity from before and after this policy change becomes compromised.

- **Exploring the contribution of different funding elements:** Research with businesses provides a strong indication that financial investment has only been a part of a package of support received by businesses. It will be important for the Interim Evaluation to provide an in-depth analysis of which types of nonpecuniary support contribute most to the performance of the VC Catalyst.
- **Research Tool Design:** The evidence collected as part of this Early Assessment will be a useful validation tool when completing new research with businesses and fund managers, especially for the assessment of the possible presence of strategic responses - although, the previously noted concern regarding the change in the VC Catalyst's focus is relevant here.

Appendix A: Case Studies

Precision Technologies International

Precision Technologies is a high precision component manufacturer based in the West Midlands. They provide splines, threads and gauges for application in motorsport, automotive, oil and gas, and aerospace sectors. First established in the 1960s to provide parts for the local automotive industry, the business expanded into new markets since beginning gear and spline production in 1987. The business' core innovation is the investment in measuring and manufacturing plant equipment used to produce and measure very high precision components.

Precision Technologies sought funding to support a buy-in management buyout in late 2015. Panoramic Growth Equity invested £2.2m from their second fund and joined Finance Birmingham and Santander Invoice Finance in contributing capital. Since receiving funding linked to the VC Catalyst in 2015, Precision Technologies have completed the following activities:

- **Worked towards industry accreditations:** The business made progress in maintaining and gaining accreditations for under exploited sectors including aerospace, nuclear and oil and gas. Acquiring these can take between 5 and 7 years and the business expects to secure them within three years.
- **Expanded presence in existing markets:** The business has expanded their activity in existing under exploited markets. Investment was used to enter new overseas markets because of the decreasing number of relevant commercial opportunities in the traditional UK automotive industry. In particular, the business expanded its commercial activities in the motorsport market. It built relationships with new race winning motorsport teams (including Formula 1) and exhibited at a number of industry exhibitions, predominantly in the UK and Europe.
- **Expanded staff capability and size:** Significant activity to develop skills across the workforce to deliver work in expanding markets was carried out. Investment was made to support the recruitment at a number of skill levels, including apprenticeship positions.

In the year since receiving investment from Panoramic Growth Equity in 2016, the business has increased its revenue by approximately ten percent, with a small increase in this proportion of income from exports. The business reported that funding has created 14 additional jobs. Precision Technologies stated that Panoramic Growth Equity added value through non-financial means in addition to the finance, such as through the strategic advice they provide through their position on the board.

While the positive commercial outcomes noted above are, in part, as a result of PGE investment, Precision Technologies reported that it would have otherwise been able to fund the buy-in management buyout in the absence of this investment. They had generated an encouraging amount of interest from other private sector investors and it was believed that alternative VC funding could have been found over a similar timescale.

StatusToday

StatusToday is a London based software business that provides a cloud-based workplace analytics platform. The business develops software that makes use of artificial intelligence and machine learning systems to analyse large volumes of data relating to human interactions. It aims to support corporate system security, productivity and workplace communications. The business operates using a Software-as-a-Service (SaaS) business model, whereby customers licence the use of the software which is centrally held by the business.

StatusToday was founded in London in 2015. Initially, the two founders, Ankur Modi, who had previously been asked to contribute to the Parliamentary Select Committee hearings on AI and was listed as one of Forbes' 30 under 30, and Mircea Danila Dumitrescu self-funded the business until they secured £800,000 in Seed investment. The third VC fund managed by Notion Capital provided £350,000 of this investment, alongside other VC funds and Angel investors. This investment was used primarily for business and technology development activities:

- **Expanded market and technological scope:** Targeted markets were expanded to additionally include financial services. Three patents have also been registered by the business that support the identification of emerging trends.
- **Demonstrated and validated product:** As of September 2017, the technology has analysed over 350 million human interactions for clients and the artificial intelligence has been validated in a number of businesses.
- **Established and developed the team:** A team was established to support the co-founders. In particular, a technical team was enlisted to lead on further technology development.

Since receiving investment from Notion Capital, StatusToday secured a place on the GCHQ and Wayra accelerator. This opportunity provided £5,000 in funding and the opportunity to work within GCHQ (which has now been completed). The business was also awarded the "Best Artificial Intelligence Start-up for 2017" by the AI Summit as a result of its work at scale with activity data analysed from 165,000 employees.

The business remains in a pre-revenue position and this was reported to be as a result of the long lead in times that exist in 'deep tech' markets such as machine learning. However, expectations of double to triple digit turnover growth were expected over the next 12 months at the time of interview (April 2017).

StatusToday reported that it did have access to a similar level of funding from alternative VC sources and from other investors in the round it secured investment. However, the business sought to secure Notion Capital as the lead investor because of their enterprise eco-system expertise, suggested to be key in supporting the completion of market development activities at a sufficient pace.

90 Min

90min is an early-stage web and mobile platform that provides close to real-time football news and analysis. Since its launch in 2011, the platform has over 4000 contributors that provide coverage of 13 leagues across four continents. The application's core innovation is that content is created by fans with local insight and opinion, and then automatically translated into 11 languages and shared globally. This is facilitated through the business' multi-media content creation and distribution system, developed through the application of IP held by the business.

By 2013, 90min had secured \$12m in funding from angel and seed investors as well as completing two VC fund raising rounds. In 2013, Dawn Capital, a fund that received just under £8m in VC catalyst funding, joined 90min's third \$15m fundraising round. Since then, 90min have completed two further rounds, bringing the total amount raised in May 2017 to \$60m. Since receiving investment from Dawn Capital, the business has completed the following activities:

- **Enhanced their technical product offering:** Covering the integration of alternative media such as video and gaming and improved translation and distribution of quality assured content around the world. The business invested in the development of their product infrastructure and development team to support this.
- **Entered new markets:** The business was keen to cover more leagues within their football brand and also develop new brands to cover additional sports, with the intention of taking advantage of strong local sports fan contingents where possible. To do this, the team invested in a number of business development activities and set up a London office.
- **Implemented an advertising revenue stream:** Given that their business focus until early 2017 had been on customer generation (meaning the business is not currently generating profits), the team started to assess options for an optimal monetisation strategy, whilst maintaining user base growth. Support from Dawn Capital, which is experienced in the implementation of website monetisation strategies, was provided here.

Since their first investment round featuring Dawn Capital, 90min increased their annual revenues to \$20m from zero and increased total employment to 140 from 40. 90min reported that Dawn Capital were a useful asset for developing the business because of the additional support provided beyond financial advice, especially with regard to recruitment and business development activities. For example, the provision of strategic advice when looking to launch a new brand or develop a new product line.

90min reported that they strongly believed that they would have been able to raise a similar level of investment if funding from Dawn Capital (the fund receiving investment from the VC Catalyst) had not been available, and that they would have been able to implement their business plan without any change in scope. 90min reported that while raising for their third round, they were courting a number of other

investors and had not experienced any issues relating to the lack of available investment from other equity investors. However, 90min did report that without the support of Dawn Capital their business growth would not have been as rapid because of the value of the non-pecuniary 'soft' support offered by the VC.

Onbone

Onbone is an early stage medical technology business founded in Finland and now based in Sunderland UK that develops and markets products made from an environmentally friendly splinting material branded Woodcast. The business is focused on healthcare (e.g. orthopaedics and traumatology), woundcare (diabetic foot ulcers) and sports sector (e.g. protective clothing) applications. The product is thought to represent the first market development since the plaster cast, developed in Ancient Egypt, and the fibreglass cast, which was developed during the Vietnam War. The product is made from a mixture of a UK made polymer and wood chips from Finland. It is differentiated from what is currently offered in the market in a few key ways: It is the only product in the market that is biodegradable, that can get wet, is x-ray radio transparent and non-toxic. This low toxicity is of particular interest given the occupational risk of a healthcare practitioner working in a low level toxic environment for long periods of time. This provides a strong signal that the innovation is potentially disruptive.

Onbone secured just over €10m in its first international VC round in 2015, led by MVM Partners LLP, a life science VC that had received just under £10m in investment from the VC Catalyst for its fourth fund. The inventors behind the material that is used to make the product had minimal experience in launching products into highly competitive market and were seeking financial, strategic and marketing support. Immediately after receiving investment, four key activities were implemented:

- **Recruitment of a CEO:** A new CEO was employed who had significant experience in the global marketing of splinting products, who had supported the initial business plan development during the lead investors due diligence processes.
- **Development of a new sales and marketing strategy:** Prior to the investment, the business was initially using distribution teams to market and sell the product to hospitals, an approach often used by pharmaceutical companies. However, this sales model was thought to not be effective in this context because of the high fixed cost of a required heating unit and the inability to monitor the sales activity of individual distributors. The management team instead used the equity investment to employ a set of regional sales reps in the UK and the Nordics to focus solely on selling the product. These reps were tasked with loaning heating units to hospitals and focus on making product sales, so as to ease the procurement issues faced by hospitals.
- **Relocated business function:** The new CEO and the lead investor identified regional expertise in the production and marketing of splinting technologies in the North East of England. To support business growth, Onbone relocated the

majority of its operation there and hired a head of finance and a head of sales to take advantage of the local skills base.

- **Clinical development of a new Woundcare product:** Through collaborations with several clinical sites in the UK, the Company's product has been shown to be highly effective in the treatment of diabetic foot ulcers. Onbone has one study ongoing at Northumberland Hospital and another planned at the Welsh Wound Care Innovation Centre in Cardiff.

Between receiving investment in 2015 and November 2017, Onbone increased their annual turnover from £0.25m to £1.8m and increased their employment from 15 to just over 20. In addition, exports increased significantly from 10 to 80 percent of total sales. In the absence of investment from the VC Catalyst supported fund, MVM Partners LLP, the business reported that it would have been unlikely to generate the sales needed to ensure the commercial viability of the business. In addition, the business stated that it was exploring other investment opportunities and was confident it would be able to secure investment in the absence of MVM Partners LLP. However, it was suggested that the fast pace of realised and expected growth would not have been achieved without 'soft' support provided by the VC. For example, the VC firm was able to provide specialised expertise in the areas of medical technology and business finance in a manner that did not pressurise the team to realise investment milestones prematurely.

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Any enquiries regarding this publication should be sent to:

British Business Bank plc
Steel City House
West Street
Sheffield
S1 2GQ

