Incubation and Innovation Theory and Practice

Working Paper

February 2014

This *Working Paper* provides a background note to inform the research on incubation and innovation support requirements in West Suffolk. The paper draws on academic literature and recent papers particularly commissioned by Nesta. It is structured in three parts:

- First, we set out the evidence on how SMEs and start-ups contribute to business growth and the potential implications for business support policy. This provides wider context on the role of start-ups.
- Second, we provide a summary of the theory and evidence on different forms of incubation and entrepreneurship support specifically.
- Third, drawing on the first two parts we identify the key issues and hypotheses that will form the focus of the remainder of the study.

Evidence on business growth and the role of business support

There have been a number of relevant pieces of work on business growth, and the contribution that SMEs can make to growth in recent years. This has centred particularly on the role of high growth firms. The first part of this section summarises what we know about high growth firms and their characteristics, and the contribution that new/recent business starts make to this group of firms and to growth more generally. The second part then summarises potential implications for business support policy in a local context.

High growth businesses

A seminal piece of work on high growth firms in the UK identified the importance of the vital 6% (Anyadike-Danes *et al.*, 2009[1]). Looking at ONS data in two periods 2002-05 and 2005-08, it found that high growth firms represented 6% of established firms[2], yet contributed to 54% of new jobs created by established firms. We also know from this study, and subsequent work, that high growth firms are a heterogeneous bunch of firms:

- They vary by age. Whilst young firms are more likely to be high growth firms than older firms, still well over one-half (70%) of high growth firms are older (i.e. over five years old). Indeed, looking at data on firms established in 1998 over a ten year period found that only a minority of firms (38%) survived 10 years, and a small minority (10% of those that survived) had grown to have more than 10 employees.
- They vary by sector, with high growth firms existing in both low-tech and high-tech sectors. In all major UK sectors between 4% and 10% of firms were high growth;

[1] Anyadike-Danes, M., Bonner, K., Hart, M. and Mason, C. (2009) *Measuring Business Growth: High-growth firms and their contribution to employment in the UK*, London: NESTA.
[2] I.e. employing 10 or more at the end of the period.

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this proportion was higher in business services and financial services than manufacturing.

- They vary spatially, though following the distribution of the business population there are more high growth firms in the Greater South East. That said, there is a distinctive geography of high growth, with patterns likely to reflect local and regional ecosystems. Recent research on the spatial distribution has found that within the Greater South East, the incidence of high growth firms is generally higher the closer you are to London (e.g. higher incidence in home counties such as Surrey and Berkshire) and in cities such as Cambridge, Oxford, Brighton and Norwich. However, incidence is relatively low in three notable counties that are relatively proximate to London, one of which is Suffolk with the other two being Kent and Essex (Anyadike-Danes *et al.*, 2013[3]).

This heterogeneity, along with variation in other factors such as business models, management styles and ownership structures, and mechanisms of growth (e.g. organic versus acquisition), makes it particularly difficult for policy makers to easily identify high growth firms and to design and target appropriate interventions (Brown *et al.*, 2014[4]).

The role of start-ups and micro businesses

As we have seen, young firms are more likely to be high growth, though a larger number of high growth firms are found amongst established firms (because of the high proportion of these in the economy). What is the contribution of micro businesses (i.e. those with 0-9 employees) to the economy generally? Two policy papers by Lord Young on small businesses advocate the need to increase the number of firms in the UK and the importance of driving the ambition of micro businesses to grow (Young, 2012[5]; Young, 2013[6]). In doing so, he points to the much greater rates of entrepreneurship of the United States, the significant prevalence of micro businesses in the economy (95% of all firms, with most sole traders), and the potential transformational impact that new starts and micro businesses could have, in particular on employment. Of course, many micro businesses are lifestyle businesses, and there are significant cultural challenges to overcome relating to confidence, ambition, attitudes to risk, and attitudes to taking strategic business advice.

Set against this, recent research by Nightingale and Coad (2011)[7] questions the value of policies that encourage new starts, because the vast majority make no net contribution to the economy once displacement effects have been taken into account. The argument follows that many firms created are of low productivity and are established in limited markets, and so even if they do survive they do so at the expense of other firms that already existed within those markets. The authors suggest that there are three types of market entry:

- Marginal undersized poor performance enterprises (or MUPPETs) – low productivity firms that form by far the largest proportion of businesses established.

[3] Anyadike-Danes, M., Bonner, K. and Hart, M. (2013) *Exploring the incidence and spatial distribution of high growth firms in the UK and their contribution to job creation*, London: NESTA
[4] Brown, R., Mason, C., and Mawson, S., (2014) *Increasing 'The Vital 6 Percent': Designing Effective Public Policy to Support High Growth Firms*, London: NESTA
[5] Young, D. (2012) *Make Business Your Business*
[6] Young, D. (2013) *Growing Your Business*
[7] Nightingale, P. and Coad, A. (2011) *MUPPETS and GAZELLES: Rooting Out Ideological and Methodological Biases in Entrepreneurship Research*, FINNOV Discussion Paper

- Gazelles, or high impact firms with the potential for growth that they go on to achieve.

- Firms that have growth potential, but do not achieve it.

The implications for policy are quite important. They raise questions about the constant attention given to increasing business birth rates in general, if the grounds for doing so are to achieve economic growth. An important rejoinder to this is that enterprise support is also a social response to unemployment. This provided the rationale for the Enterprise Allowance of the 1980s, the current New Enterprise Allowance, activities of agencies such as the Prince's Trust, and indeed the underpinning background to the establishment of enterprise agencies such as NWES (set up in response to large scale redundancies in the early 1980s). Equity issues are also part of the rationale for the current StartUp Loans Scheme.

Potential implications for local business support policy

Drawing on this evidence there are question marks over how far general assistance to start-ups and micro businesses can make a difference to economic growth (we consider the evaluation evidence in the next section of this paper), and the extent to which it is feasible to target those with high growth potential. Some evidence on effectiveness of public sector interventions in the field of business and innovation support also indicates that it is a minority of businesses that benefit that reap the majority of the rewards of public sector schemes (Cook *et al.*, 2013[8]).

Therefore, the main issue to contend with is how to target support, and how to ensure that there is an emphasis on quality and not simply quantity. Despite the practical difficulties in identifying firms with growth potential (given their heterogeneity), Brown *et al.* (2014) do offer some practical thoughts on targeting existing firms that may be at a trigger point before potential growth. These include identifying firms that: are going through organisational change (e.g. management buy-out); have stated growth ambition; have developed new products; have recently (or are) recruited new staff; have sought or are trying to seek growth capital (rather than working capital); and have experienced significant single year growth.

For targeting start-ups and micro-enterprises, the same principle of focussing on quality is equally relevant. This is potentially important for incubation support in the following ways:

- Targeting could include identifying firms/individuals with new/novel products, and early stage or micro businesses with stated ambition, that are seeking/have sought capital, and that have taken on staff quickly after establishment. This requires using well-developed local networks with intermediaries, agencies and providers (such as Chambers), and others (such as education institutions).

- High growth firms exist across sectors, though there are concentrations that do relate to particular ecosystems (e.g. life sciences in Cambridge, offshore engineering

[8] Cook, J., Macdonald, B. and Pates, R. (2013) *The Pareto Principle: The Importance of the Vital Few in Business Support Programmes*, SQW Insight Paper

in Aberdeen). Therefore targeting by sector may be inappropriate unless there is compelling evidence that there is a high concentration of activity in West Suffolk.

- Focusing on quality, which in terms of incubation support may establish appropriate criteria for those receiving support or, in the case of physical space, for those being given space.

A longer-term and more challenging issue is cultural and relates to whether and how the ambition of micro-businesses can be increased – which is logically where Lord Young's arguments centre.

As an aside, the 'long tail' of low productivity firms and firms experiencing limited growth are easy to reach, simply because they are plentiful. As a result, there is an argument that small low cost interventions can make small differences to these firms. In aggregate this might make a significant contribution, though the administrative costs of this support may be too large.

Theory and practice of incubation and entrepreneurship programmes

In this section we look at the models and evaluation evidence on business space (including incubation support) and evidence on wider types of entrepreneurship policy. The first part of this section provides a critical review of recent literature on incubation support theory, examining the evolution of incubation typologies to provide an overview of different models. The second part then summarises evaluation evidence on the effectiveness of entrepreneurship policy more broadly. In the context of this paper, particular reference will be made to models of incubation that may be of relevance for West Suffolk.

Incubation models

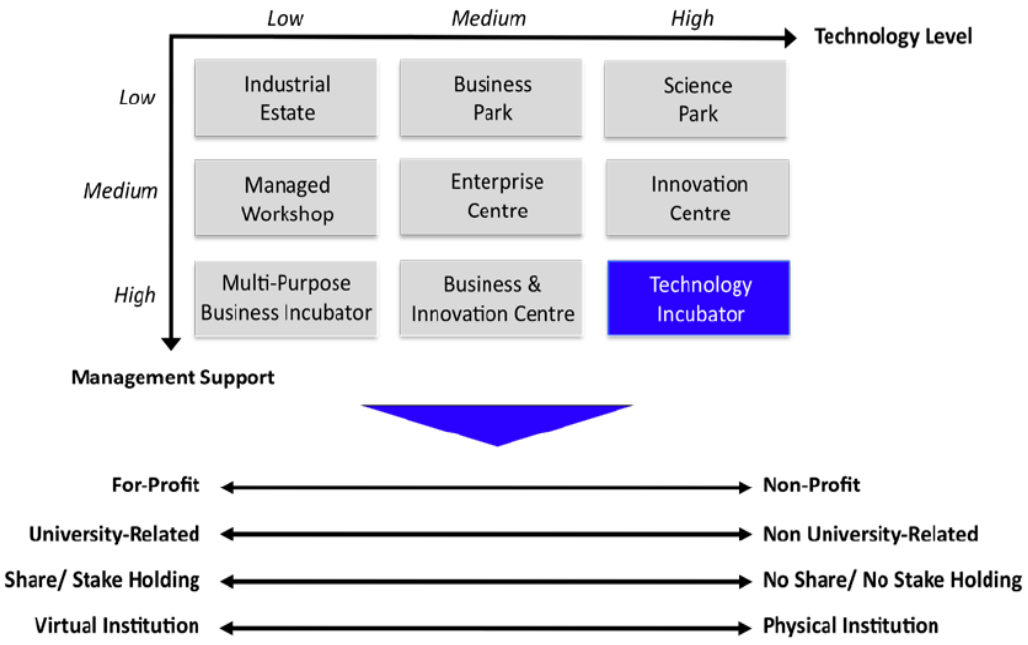
The number of 'business incubators' has grown exponentially over the last 50 years (Dee *et al.*, 2012). During this period incubator business support has evolved to include a wide range of practices such as science parks, technology centres, business and innovation centres, virtual incubators, business accelerators, venture accelerators and a variety of other models (Dee *et al.*, 2012). It is argued that business incubation can add 'critical value' to both the tenants, and the local business ecosystem more generally (Dee *et al.*, 2011). Various studies have attempted to show the effects of incubation support on the growth of start-ups (Hansen et al., 2000), and the subsequent 'multiplier effects' on the local economy (Lalkaka, 2001; Miller and Bond, 2011).

However, there is still much confusion concerning the definition and impact of incubation support (Phan *et al.*, 2005), due to both the complexities of activities involved – equity financing, professional support services, networking and knowledge diffusion – and the variance in objectives (e.g. for-profit versus non-profit). For example, the objectives of a venture capital incubation service will (typically) focus on a return on investment within a 3 to 5 year investment horizon as opposed to the nurturing of science-based industries more generally (Dee *et al.*, 2012).

Dee *et al.* (2012) seek to provide some clarity on this complexity by identifying different models across two key variable, namely the technology level and the degree of management support (see Figure 1). In relation to the technology level start-ups operating in science-intensive industries (e.g. biotechnology, semiconductors) will typically require more specialised facilities than start-ups engaged in web-based platforms and mobile applications. There is also divergence in management strategies between different incubators. Most incubators (usually) employ a selection criteria for future tenants. This, in combination with the heterogeneity of start-up firms and differences in the local context, has led many incubators to tailor their management strategies in order to target certain markets/sectors in line with existing local strengths (Dee *et al.*, 2012). This results in variety in the degree to which management support is provided through the incubator model.

Cutting across these two variables are other factors that affect the model applied, namely i) for profit versus non-profit, ii) university or non-university-related, iii) shareholding (i.e. in businesses supported) to non-shareholding, and iv) virtual versus physical models. Some of these have a spectrum, e.g. you could have a physical hub that also has a virtual offer.

Figure 1: Different incubator models with regard to their business support and technology level



Source: Dee et al., 2012

Drawing on this depiction of varying models, we understand that West Suffolk Councils are likely to be focussed on the medium or high levels of management support, though we will keep an open mind, and the degree of technology level is to be determined. In terms of the other four factors in the bottom part of Figure 1, we anticipate that non-shareholding (as opposed to the venture capital model) is likely to be the focus. For the other three factors we currently have an open mind.

The physical/virtual nature of any institution will need to be considered carefully given the settlement patterns and rural nature of the area. Indeed, specific location is likely to be a key issue. As identified by recent research, the location of an incubator heavily influences the

choice of strategy and its successful implementation (Dee, *et al.*, 2012). Location can be considered in terms of precise location (where the incubator is), proximity (what it is near) and connectivity (how integrated it is with its regional innovation system) (Asheim and Gertler 2005; Moodysson *et al.*, 2006; Huggins 2008). These are critical issues given the connectivity and existing links to Cambridge (e.g. at Haverhill Research Park), the proximity within the area, e.g. to existing assets such as the equine cluster, University Campus Suffolk and West Suffolk College, and West Suffolk Hospital.

In this regard, the characteristics of the local and wider regional innovation system will be important, and it is widely accepted that each region should utilise the strengths of the local business environment (Nesta, 2011). However, even within a region with a mature regional innovation system, such as the East of England, it can take time for incubators to become embedded within the local business environment and reach critical mass (Dee *et al.*, 2012). Therefore, a key communication issue for West Suffolk Councils with their partners will be on the timescales required to reach certain levels of performance.

In terms of performance against economic development objectives, an incubator that achieves a 100% occupancy rate may be undesirable – a primary function of the traditional incubator model is to provide flexible commercial space to accommodate a modicum of growth (Dee *et al.*, 2012). In measuring performance in relation to contribution to growth, Dee *et al.* (2012) identify varying approaches, including measures in terms of employment and job creation, agglomeration effects and firm survival rates. All are noted as having limitations, in particular in the context of assessing start-up performance.

Evidence on entrepreneurship policy

Entrepreneurial ability is a crucial factor for business success and so the 'entrepreneur' has become a key target of business and innovation support. This may be through cultural change, education, basic advice, more strategic advice through coaching/mentoring programmes, and through financial incentives (e.g. loans and grants). A recent working paper commissioned by Nesta provides a useful summary on the evidence of the effectiveness of different schemes for entrepreneurs and small firms, and we draw on this here (see Rigby and Ramlogan, 2013).

Entrepreneurial policy is inherently linked to SME support programmes and it is often difficult to disaggregate the two. Across both entrepreneurial policy and SME policy there are two broad economic objectives: (1) to improve the performance of economic actors, either through targeting key actors within the business (i.e. the entrepreneur), or by improving the overall competiveness of the firm; and (2) to increase the overall supply of economic actors, either by increasing the supply of entrepreneurs, or by increasing the number of competitive firms (Rigby and Ramlogan, 2013).

Within entrepreneurial policy support there are some important variations to consider for West Suffolk. Drawing on Rigby and Ramlogan (2013) and Rigby *et al.*, (2013), there are differences in support depending on the focus and nature of advice, e.g. as follows:

- Focus: firm level where target performance indicators are traditional economic outputs (e.g. sales, employment and firm survival) versus individual level where

targets may be on employment status and income until the 'firm' becomes established (if this does occur).

- Nature of advice: homogenous/standardised services (e.g. the former Business Link service) to more situational and specific sources of advice. For individuals, the former may simply be informational, whereas the latter may involve coaching/mentoring. At firm level, coaching may also be undertaken with teams.

Numerous studies have attempted to evaluate the impact of entrepreneurship policies. Some have tried to quantify the additionality by measuring the net effect (Storey, 2005; Centre for Strategy and Evaluation Services, 2011), others have used methods of causal inference to determine the indirect impacts of entrepreneurial policy initiatives through education (Henrekson and Stenkula, 2009; Cox and Rigby 2012).

Despite this, consolidating existing research remains a challenge (Rigby and Ramlogan, 2013). Broadly speaking, recent policy initiatives in this area have not been evaluated or examined in detail, and there is a distinct lack of longitudinal evidence on which to draw comparisons or consider the counterfactuals (Rigby and Ramlogan, 2013). Below is a summary table of existing evidence of the effectiveness of different schemes. Note that the evidence is less than conclusive. The evidence on basic advice echoes some of the issues raised earlier, namely risks of displacement and a lack of evidence to support the achievement of growth. Having said that, evidence on more specific and situational advice also has mixed results.

Table 1: Evidence of effectiveness of different schemes

Type of Scheme	Evaluation Stud	Evidence of Effectiveness
Schemes to promote cultural and behavioural change	Lepoutre, 2010; Oosterbeek 2010; von Gravenitz 2010; Lange 2011; Lorz 2011	Mixed results: Some studies find entrepreneurship education impacts positively on perceived attractiveness and feasibility of starting new business activities while others find evidence that such effects are negative.
Basic advice, i.e. schemes to provide Information	Wren and Storey, 2002; Roper and Hart, 2005; Lariviere, 2007; Mole, 2008; Rotger, 2012	Mixed Results: General implication is that assistance to very small firms may not be as effective a way of promoting growth as supporting larger SMEs. In some instances, significant effects (e.g. sales, turnover and employment) may induce displacement. Thus, positive impacts for some businesses may well result in lower turnover for others.
Schemes to provide more specific and situational advice	Lambrecht and Pirnay, 2005; Feldman and Lanku, 2005; Stober, 2008; Hawkins, 2008	Mixed Results: Initiatives such as coaching can include specific advice to new business owners whose background and experience may be limited.
Multi-instrument schemes	Marxt and Piekkola, 2007; EKOSGEN, 2010; Kuiper, 2011;	Mixed Results: Typically these are entrepreneurship polices for programmes of action that deal with market failures of information combined with instruments that provide access to finance. Such schemes are difficult to classify and compare as they use different combinations of measures.

Source: Rigby and Ramlogan, 2013

Issues and hypotheses to test

Although the evidence is inconclusive, some key themes resonate from the literature surveyed. First, if the objective is growth, incubation/innovation support ought to be focussed, particularly on entrepreneurs/early stage firms with growth ambition and potential. Second, growth firms are heterogeneous and so hard to identify – any sectoral focus should have a compelling case, and more widely business support for growth should not be restricted to start-ups alone. Third, whilst some basic information/advice may be appropriate, more specific and situational support such as coaching may be more effective – aligning with the existing support landscape will be important in this regard.

With this in mind, we now establish a series of issues and hypotheses to test as part of the study on incubation and innovation provision in West Suffolk.

Market context and demand-side

- In Suffolk more widely, there is evidence of a relatively low incidence of high growth firms. Are there particular barriers for firms to reach growth potential in West Suffolk?
- Is there compelling evidence to support sectoral or technology focus, i.e. high concentration of activity where growth and spillovers could be exploited? To test: what are the existing assets that could be built on, such as equine cluster, advanced manufacturing, links to College/UCS, links to hospital.
- How far could the connectivity to Cambridge be exploited? Is this specific to particular locations, e.g. Haverhill Research Park, or could this be replicated elsewhere?

Provision/supply-side

- What **generic** and **specialist** provision already exists in terms of incubation and wider support? Where are the gaps?
- Should the focus be on 'medium' or 'high' management support?
- How far should the focus be on providing specific/situational advice to entrepreneurs with high potential versus more standardised advice and support?

Policy/stakeholder context

- What capacity and networks are there in West Suffolk through which there could be identification and targeting of firms with growth potential and/or individual entrepreneurs worthy of backing? To test: intermediaries, business support agencies, West Suffolk College.
- What are the expectations in terms of acceptable levels of performance and the timescales in reaching them? What is the appetite for taking calculated risks?