Skills, Innovation, and Productivity

The Role of Further Education Colleges in Local and Regional Ecosystems

SUMMARY REPORT I MARCH 2023

About The Productivity Institute

The Productivity Institute is a £32 million investment, made possible by a grant of £26 million from the Economic and Social Research Council (ESRC) and an additional £6 million from our partners.
Based on the premise that the long-term underperformance of productivity in the United Kingdom threatens a future of global excellence in economic performance and shared prosperity across the nation, The Productivity Institute's mission is to lay the foundations for an era of sustained and inclusive productivity growth. Our broad-based interdisciplinary research programme focuses on identifying the causes of the stagnation in UK productivity and making proposals for solutions and with strong regional engagement with stakeholders across the whole country.

About the Innovation Caucus

The Innovation Caucus supports sustainable innovation-led growth by promoting engagement between the social sciences and the innovation ecosystem. Our members are leading academics from across the social science community, who are engaged in different aspects of innovation research. We connect the social sciences, Innovate UK and the Economic and Social Research Council (ESRC), by providing research insights to inform policy and practice. Professor Tim Vorley is the Academic Lead. The initiative is funded and co-developed by the ESRC and Innovate UK, part of UK Research and Innovation (UKRI). The support of the funders is acknowledged. The views expressed in this piece are those of the authors and do not necessarily represent those of the funders.

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CONTEXT

This report is the second in a series that focuses on the question of the role of Further Education in fuelling and sustaining innovation. This work builds on the observation that skills are central to narratives of productivity, innovation, and economic development and are often seen as the key to attracting and retaining industry and to reducing inequalities between places.

The Productivity Institute has hypothesised that the lack of sustained interaction between Further Education Colleges (FECs), business, and government on demand and supply of skills, and the failure to embed the assessment of skills needs and the solutions to meet those in a regional/ local context, are important reasons for the underperformance of places in terms of innovation and productivity. This thesis further holds that a stronger connection between innovation at the regional level and the skills required flowing from it may therefore be key to enhancing place-based productivity.

Deepening local and regional collaboration of FECs with employers and other education institutions (including HE institutions) is seen as vitally important to strengthening that connection and plugging skills gaps. However, this critique of the status quo of FEC engagement is largely based on a relatively fragmented literature. Our previous work (Nelles et al. 2022) highlighted a gap in our understanding of how FECs function within their ecosystems and how partnerships and collaboration can enhance their contributions.

In an effort to fill this gap, we undertook a series of interviews with further education colleges (FECs) to understand how they perceive their roles in their local and regional ecosystems. This project focused on characterising the ecosystem and the types of actors with which FECs interact:

» understanding how FECs assess and respond to employer needs;
» understanding the drivers of FEC engagement with their ecosystems and their clarity of purpose in doing so;
» establishing their perceptions about contribution to their ecosystems (with a focus on innovation and growth); and
» highlighting what works well, as well as barriers to realising their ambitions.

Note that this study specifically adopts the lens of the colleges - to understand their perspectives, objectives, and forms of interaction. To get a clearer picture of their role in their ecosystems will require expanding the study to include the perspectives of other stakeholders across the ecosystem, including and especially employers.

Our research both confirms and contrasts with previous work on the nature of FEC engagement with their ecosystems. It reveals FECs to be highly embedded in their communities and deeply committed to shaping and growing their ecosystems. The colleges in our sample regularly sustain hundreds, and in some cases thousands, of relationships with employers and stakeholders in their areas through a wide variety of mechanisms. Their reasons for engagement are nuanced and varied, but all serve the FECs' core strategic objectives to deliver skills, improve the prospects of their students, and contribute to the growth of their communities.

That said, for all of the evidence of strategic engagement, FECs continue to struggle to meet skills demand. What we discovered was that for the colleges in our sample this was not for lack of engagement - although questions remain as to whether the relationships that exist are as effective as they can be - nor because they are failing to interpret labour market signals correctly.

Rather, a complex array of factors challenge their ability to effectively respond to shifting skills demand. While there is always potential for FECs to improve their capacity, this research clearly demonstrates that filling skills gaps and catalysing innovation in ecosystems would benefit from an approach that recognises further education is part of a system that is also shaped by institutional, policy, and market forces beyond FEC control. The report concludes with a series of reflections and recommendations that present options for intervention and topics for future study.

SUMMARY OF FINDINGS

Ecosystem

All respondents were highly engaged with a variety of actors across their ecosystems and saw this engagement as fundamental to their roles in those ecosystems. FECs think about their ecosystems in unique ways, but tend to categorise the types of actors they interact with similarly to include:

- Employers and employer representative bodies
- Local or regional authorities
- Further education and higher education partners and/or competitors
- Schools

- Funding agencies/bidding targets and strategic advisors
- Regulatory bodies
- Community groups, charities and other civic institutions.

Rationales for ecosystem engagement

Respondents universally consider their colleges or groups as anchor institutions and civic assets, the mission of which extends far beyond supporting business interests or an ecosystem geared purely towards innovation. Education is the core product but the mission is broader: one that commonly involves significant engagement with community and third sector groups.

Every FEC interviewed described employer engagement as central and also reported working with a wider variety of partners across the ecosystem. The breadth of support and engagement extends far beyond the transactional provision or 'sale' of qualifications.

While the length and depth of employer and college relationships vary greatly they are typically organised according to a strategic imperative - whether that be a national, regional or local skills need or college curriculum or resource need.

In some cases, FECs are opportunistic about which businesses they engage with - to the extent that they will often develop partnership opportunities that are easier to access or that come to them without necessarily focusing on whether those are best for the local ecosystem, but these relationships were always described as filling a strategic need for the colleges themselves.

In most cases, the rationales for "employer" and "ecosystem" engagement overlapped.

Rationales for ecosystem engagement

- To gather information and feedback to help inform their own strategies.

- To shape and influence their own ecosystem – as part of their perception that they have insights that are valuable to this process. and because they see part of their function as contributing positively to ecosystem development.

- To fulfil goals of positive contribution to community wellbeing.

Rationales for employer engagement

- To support student progression into employability.

- To tailor offerings to employer needs.

- To offer work experience/apprenticeships.

- To support the growth of economic. opportunities (and more rarely explicitly discussed, innovation and productivity) in their economies.

- Because they see themselves as key stakeholders in the industries they're involved in.

Crucially, none of the FECs interviewed saw employer engagement as an end in itself, but regarded these partnerships as a means to all sorts of other outcomes that are not exclusively economic (e.g., the wellbeing and fulfilment of their learners and the health of the community).

These findings are consistent with literature - predominantly focused on higher education - that casts educational institutions as anchor institutions (Goddard et al. 2016, Riviezzo et al. 2020, Parilla & Haskins 2023). This literature tends to focus on the economic contributions of (higher and further) education to place as employers, talent attractors, and local spenders.

However, the more nuanced responses collected from FECs about their role in the community make it clear that, although they too will invoke the language of community anchors and assets, they also see themselves as part of the local social infrastructure.

While there are many definitions of social infrastructure, it is broadly as the physical spaces that enable people to come together and build connections with one another and/or that provide services or facilities that contribute to constructing and maintaining senses of community, identity, and quality of life in their places (see Kelsey & Kenney 2021, Klinenberg 2018, Slocock 2018, Coyle 2022).

FECs see themselves as part of the local social infrastructure in a wide range of forms, such as a provider of facilities to community groups, charitable fundraising activity within the college community, practical outreach in the form of student involvement in community improvement projects, specialist support for student groups that extends far beyond the pedagogical, providing courses on basic skills to improve wellbeing (e.g., household accounting, home economics, recreational arts, etc.) and create communities for deprived individuals, among many others.

To many of the FECs we interviewed, the economic and social missions are inextricably linked.

*I see the Group as a **community resource.** Physically as in buildings and premises, but also in terms of the staff and the students in terms of engagement with the local community. So we engage on lots of different levels.*

***There is a level of community engagement that is beyond skills**, per se….It's about serving the place where you are based.*

*We're very much about **supporting our local communities**. And it is communities because of the multiple-campus set up. And so we've got **strategic ambitions to deliver outstanding learner success to impact positively on local social and economic prosperity.** And it's probably that second ambition that is that directly relevant one to the research that you're doing.*

*One of the main drivers is **meeting employer needs and meeting community needs**, which, you know, what we see as fundamental to what we do, **we are an anchor institution,** in the communities that we serve, we have to respond to what employers need right now. And what employers will need in the future.*

*We are here for the **economic prosperity and for the social good of the community**.*

Box 1: Selected quotes about FEC perceptions of their role in their local and regional ecosystems

Employer engagement practices

For all FECs surveyed, employer engagement involves a mix of delivering services (with business as clients), collaborating on learning (curriculum co-design, training, and placements), and co-involvement in governance forums (civic activity, such as LSIPs and economic development organisations).

FECs often have multifaceted relationships with firms that span many of these roles simultaneously. FECs maintain relationships with hundreds or thousands of individual firms. While large employers play an important role in some ecosystems, these relationships are predominantly with SMEs. Each relationship is handled individually and has different challenges and advantages.

The employer offer of respondent colleges and groups includes:

- Training of future and current staff through funded qualifications
- Bespoke/short/full cost recovery off and on the job training delivery
- Recruitment consultancy services, including research and recruitment marketing
- Business incubation/Facilities rental
- Training needs analysis
- Job fair hosting

Business development consultancy services. FECs and employers work together for student and curriculum development:

- Work placements
- Work-based projects/briefs
- Curriculum design and development/ Industrial insight
- Industry exchanges/Lecturer training and development
- Masterclasses/guest lecturers
- Joint community/volunteering projects
- IoT governance
- Student conferences
- Co-delivery.

Determining and responding to employer (and ecosystem) needs

Labour market intelligence typically forms just one piece of evidence that needs to be calibrated against others within an (often complex) curriculum planning cycle that needs to include an element of forecasting.

Many respondents reported working to push governments and employers to plan for future skills needs rather than just responding to existing gaps. Their abilities to do this effectively vary – and most admit that they don't always get it right. Getting the timing right is important, as there is a need to gear up to be ready for demand but also not be too early. Consequently, investment in future skills was sometimes referred to as a gamble. Core challenges for FECs aiming to accurately gauge and respond to employer needs include:

Reconciling employer needs and applicant ambitions and the need for portable skills

- Strategy built around offering variety, opportunities for progression, and concentrating on hard and soft skills was preferred to pure "needs" responses.

Inconsistent/variable employer needs, complicated by

- Turnover in employers that mean that FECs have to rebuild relationships/resell the relationship
- Multiple points of contact in employers creating complexity in managing relationships
- Variability in expressed employer needs depending on contact point, point in time, immediate challenges, etc.
- Staffing/resource constraints in businesses that complicate the articulation of need and creating challenges for student experiences in work placements, etc. (e.g., lack of available staff to mentor, etc.).

The short-term nature of employer need

- The nature of business and its focus on profit, some respondents suggested, can lead to a lack of focus by employers and a tactical, rather than strategic, view of training and skills and this can impact investment in the medium to longer term.

Lack of specificity in articulating skills needs

- Gaps like "digital skills" mean different things in different industries and what that means in practice is often not clearly articulated in framework documents (e.g., LSIPs).

Forecasting challenges

- Employers and policy makers don't always have the same interpretation of trends and timing risk is tricky.

Structural biases in feedback about labour market needs

- Respondents noted that the qualitative labour market information collected by Government sometimes suffers from poorly weighted samples – with a bias in favour of larger employers due to their greater capacity to respond to calls for evidence and intelligence. This is particularly problematic as most employers in local ecosystems (and nationally) are SMEs.
- Larger employers having a louder voice is not a problem unique to building a national picture of the labour market. Respondents also described how consultations with local SMEs to develop curriculum could be derailed by a larger employer introducing different and/or contradictory needs.
- Understanding and balancing the different needs of different employers is a central challenge for FECs and policy alike. Others reported that they felt that areas of focus prioritised in policy and data can be distorted by Government priorities that are not reflective of local conditions.

Qualifications are a poor proxy for need

- Employers often ask for/require sets of skills rather than qualifications.

Employer reluctance to engage with training providers on the grounds of competitive advantage

- Respondents suggested that some employers are wary of investing in training because they are worried that staff will be 'poached' by competitors and/or the training provider. Others declined to support their colleges with co-delivery in a particular subject area, despite the fact that they themselves suffer significant skills shortages, because they did not want competitors to benefit from that curriculum.

What works well

Most of the FECs we spoke with had considerable pride in both their processes of employer engagement and their impacts on students and economies. What works varied a lot, with FECs often pointing to specific relationships or initiatives. But some trends emerged:

One on one, long term relationships with individual businesses are the gold standard and the kind of partnerships that FECs aspire to (see Box 2). These colleges and groups consider that in-depth, sustained, one-to-one relationships with individual employers are crucial to successful engagement because they generate employer interest and investment in training in a landscape suffering from a marked decline in both. These kinds of relationships, stressed several respondents, take time to foster.

> *But what we're finding with a different approach to our business engagement is actually we're attaching one person to them. So they can develop that relationship. And then talk to us about what other needs have you got, and then we will go in.*

> *So I suppose what I'm trying to paint is a picture of, we don't just do lip service to employer engagement, we do really, really impactful employer engagement. And the final point is we work very closely on what I call Win Win relationships. So if we're gonna have a long term partnership, it only becomes long term if it's a win for the business. And it's a win for the college.*

Box 2: Selected quotes about building log-term relationships with business partners

Colleges were encouraged by Ofsted interest in employer engagement, although several FECs noted that they would continue to engage with their ecosystems in the absence of these incentives. Merged colleges and FE groups are common in our sample, and some respondents reported that they felt like they had greater reach and ability to support student progress and development as a result of a merger. However, mergers also created governance and bureaucracy issues - particularly where they resulted in campuses in several different administrative regions. Similarly, FEC leadership all devoted time and resources to arrangements that encourage and sustain collaboration and partnership and multiply FEC opportunities to learn from, shape, and seize opportunities within their ecosystems. These include IoTs, HE partnerships with FE, LSIPs and initiatives enabled or convened by a Combined Authority.

Indeed, while respondents are agnostic, at best, about a number of policy initiatives intended to support further education engagement with business, they are markedly positive about:

Local Skills Improvement Plans and the role of Chambers of Commerce

- Respondents generally spoke positively about the role of Chambers of Commerce in convening businesses, training providers, funders and a wide range of local stakeholders through the Local Skills Improvement Plan structure, while commonly recognising the groundwork of Local Enterprise Partnerships. LSIPs, suggested respondents, are of particular value because of the independence of their convening Chambers.

- The approach of LSIPs - focusing on particular industrial sectors and asking providers to 'play to their strengths' in addressing skills needs in those sectors - had commonly resulted in successful collaboration between (sometimes competitor) institutions. Colleges are unsurprisingly positive about the attendant Skills Development Fund support but, according to these responses, are as interested in the collaborative opportunities of the structure as in the financial support.

Devolution and empowered Combined Authorities

- Where Combined Authorities are commissioning flexible, short-course training that, according to respondents, much better meets the needs of employers than long 'full fat' qualifications. Where Combined Authorities allow flexibility of provision, this was commonly perceived to be working well on behalf of innovation ecosystems.

Barriers to supporting ecosystem development and narrowing skills gaps

We asked FECs to discuss what barriers currently prevent them from engaging as effectively as they wished in their ecosystems to realise their ambitions and, specifically, in contributing to narrowing skills gaps. We had expected that resource constraints would top the list of challenges but our results demonstrated considerable nuance as well as a variety of other impediments. The key message is that, while greater resources would always be welcome - respondents almost universally noted how much better resourced higher education was, in some cases to deliver similar programmes - some features of the policy environment also have significant impacts on FEC autonomy to deliver. Furthermore, exogenous factors also limit FEC impact and can limit the effectiveness of FEC skills delivery.

Resources

The vicious circle of staffing for skills shortages

Particularly in vocational areas where industrial wages far outstrip those of education, FECs struggle to staff the programmes that are experiencing the greatest near term demand. According to respondents, vacancies pose a considerable threat to colleges' capacity to deliver against their missions and, in parallel, to the national skills agenda.

In this 'vicious circle', vacancies and skills shortages in industry generate a rise in wages which education cannot match, in turn leading to the movement of teaching staff back into industry, and significant challenges in recruiting to lecturer posts, in particular in subject areas supporting 'key' industries (as identified by Government and LSIPS) such as engineering, construction, digital, green energy and advanced manufacturing.

In turn, the college's recruitment and retention challenges exacerbate the industrial skills shortage, and so on.

Staffing the ecosystem interface

Respondents affirmed that their engagement activities were not supported by any dedicated funding streams. This, paired with the fact that most colleges connect with hundreds or thousands of businesses bilaterally, places enormous pressures on staffing resources to prospect, onboard, manage, and sustain their portfolio of relationships. Engagement is therefore one of several activities that needs to be cross-subsidised by other programmes, even though it is vital to all of them. To the extent that engagement is seen as a crucial FEC mission and contribution (ICCF 2020), the lack of permanent and predictable funding streams for staffing is currently a barrier.

Exogeneous factors

SME challenges

Those providers serving areas with a high concentration of micro, small and medium enterprises (almost all) spoke about how the configuration of their ecosystem was in itself a challenge to engagement and to their support for innovation ecosystems. Among other things, SMEs struggle with the commitments required for an apprenticeship and the impact this is having on delivery and progression.

Data and insight challenges

FECs face some challenges in accessing robust labour market intelligence and associated data sets, as set out elsewhere..

Employer resistance to investment and collaboration

Ensuring business has 'skin in the game' is a considerable challenge for the further education system, particularly in relation to smaller enterprises with comparatively little time and resource to invest in training and development. Respondents commonly referred to the tensions between business short-term interests and the need to invest in skills and training as barriers to engagement.

Ad hoc approaches, underinvestment, and expectations of short-term outcomes

More generally, comparatively low levels of investment in further education by the Government affects a college or group's capacity to support industrial innovation. Under-funding constrains intelligence-gathering and relationship building (in fact, these things are not supported by any dedicated funding stream).

A piecemeal approach to commissioning and funding by the Government and its agencies negatively impacts employer confidence and investment in training and skills, according to respondents. This is particularly prevalent in emerging industries.

Challenges in securing medium to longer-term funding constrains a college or group's ability to invest in its own capacity, suggest respondents. Short-term funding can lead to unrealistic deadlines and reduce the institution's capacity to plan.

Systematic overcomplexity

Respondents commonly complain of overregulation, with too many different initiatives (and a lack of follow-through in phasing out old ones), a lack of flexibility in use of funding streams and too many reporting structures (particularly for merged colleges in multiple jurisdictions).

The Apprenticeship system is considered clunky and problematic in places, making it difficult to generate skills in sectors that need them. It's definitionally difficult to secure places in industries with skills shortages. Structures support industries that are thriving, not ones that are struggling.

Several respondents suggested that the restrictive nature of regulations that determine which individuals can access funding through the adult education budget are having a detrimental effect on UK growth.

Monolithic approaches to learning units

Respondents commonly suggested that the lack of progress towards modularisation significantly hampers their institution's capacity to support innovation ecosystems. Qualifications, they propose, are a poor proxy for employer needs. 'In a conversation with businesses and employers, problems have never been solved through qualifications'.

Policy churn

The 'merry go round' of the political system causes turbulence, further reducing the likelihood that providers will have sufficient time to embed changes, that stakeholders will develop the required familiarity to make the most of the system and that policy supports long-standing relationships between educators and employers. Variability in devolution approaches

According to responses, there appears to be considerable variety between the approaches taken by Combined Authorities in supporting adult education and skills, in particular in flexibility. While some SDF pilot respondents in devolved areas were very positive about the relationship with their Combined Authority, others described CA's as inflexible, unnecessarily bureaucratic, over simplistic in their approach and insufficiently familiar with the contours of the further education landscape.

Restrictive planning environment

Building facilities to accommodate students, specialised equipment and programmes, and business facing spaces is often hampered by planning environments that add restrictions and more time to the delivery of ambitions.

Reflections

This research generated a number of findings that added some empirical context to the conclusions of the literature review. In particular, our interviews contributed some new perspectives to FECs' practices of engagement, the interdependencies between types of engagement and their implications for policy and metrics. It also suggests that the framework presented in the literature review (and used to structure our case selection for this study) has some merit in demonstrating that differences in FEC strategic engagement with their ecosystems are linked with the structure and nature of those ecosystems. Finally, while acknowledging that skills gaps remain, this research also found that these are not solely on the supply side or due to lack of FEC capacity or misinterpretation of employment demand.

Degree of Engagement

Our literature review showed that FEC engagement with employers was "variable" - suggesting that it was inconsistent across colleges, sometimes infrequent, often ad hoc, and structured around lowest common denominators.

This study provides a slight contrast to this view. All of the FECs interviewed engage frequently with employers and view it as vital to their core missions and part of their strategic planning (although the degree to which this was framed in terms of economic benefit varied).

Furthermore, engagement across the ecosystem - whether through civic activities, governance initiatives, community work, or with FE/HE partners, etc. - was very common. Because embeddedness within their communities is universally important to FECs, it appears as though engagement is often happening despite policy rather than because of it.

However, it is clear that engagement can be enabled or impeded by the policy environment. This engagement could still be described as somewhat ad hoc to the degree that each institution has its own engagement practices and protocols and none reported confidence that they had reached all of the significant employers in their areas.

FECs do not just respond to the needs of employers, they have the ambition to shape their ecosystems.

While the degree of engagement in our sample was high we did not attempt to measure effectiveness or reach. Are some pathways or programmes of engagement better than others? Why? Are some FECs able to reach more employers than others? Does more reach result in better outcomes for employers, for students, and/or for the ecosystem?

We also did not explore the effectiveness of the relationships from the perspective of businesses. Future work should triangulate what employers think about the college and seek the experiences and insights of both those who have and don't have a relationship with the college.

The fuzzy link between engagement, measurement and outcomes

This study largely confirms the findings of the literature review, which identified several different vectors of FE engagement with their ecosystems.

· **Partnering for skills delivery** Broadly, this consists of courses for students and training programmes. This includes apprenticeships, work placements, partnering with industry to design and deliver specialised courses, and other forms of skills-based engagement.

· **Offerings for business development** These are programmes and services offered to businesses to assist with growth and innovation. They typically include services such as consulting or incubation, access to specialised equipment, and bespoke training programmes.

• **Collaborating to shape ecosystem development policy and governance** This includes involvement in economic development partnerships and initiatives, such as Local Skills Improvement Plans (LSIPs), on LEP boards and working groups, and in local civic associations.

However, in practice, these categories are not as distinctive as they appear. Relationships with a business to host a student work placement, for instance, often involve elements of business development and consulting. Business development relationships can yield partnerships for curriculum development and valuable market intelligence. Involvement in myriad civic groups and governance organisations builds networks and generates prospects for business development or student experience.

While employer engagement was central to the conversations we had, FECs viewed the portfolio of relationships with actors in their ecosystems more organically. This is perhaps related to their propensity to perceive themselves as anchor assets in their ecosystems - more frequently described as their communities - and their role to serve the wellbeing and growth of those communities not exclusively seen in economic terms.

The impacts of engagement on business development, skills delivery, and ecosystem development can be linked and hard to distinguish. Appreciating the multifaceted nature of FEC contributions to their ecosystem and positive feedback that these engagements likely have for skills provision and innovation requires thinking differently about what FECs do. However, under this conceptualisation of FEC engagement, impact is difficult to measure.

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[4] While our work was not designed to robustly quantify institutions' different degrees of focus and investment in different types of engagement; anecdotally, the provision of services directly to business was mentioned less frequently and given less prominence than other types of employer engagement in our interviews.

Here, conceptualising FECs as a component of social infrastructure - as they see themselves - can deepen these insights. Coyle (2022) notes that social infrastructure is also distinguished by large indirect effects through social spillovers and that "directly measured return to the specific investment [...] is an understatement of the total social return" [4].

Time lags in effects and the fact that, in the case of FECs, labour is mobile, means that impacts on place can also be difficult to pin down. These observations reinforce the idea that FE does not simply provide an input into an innovation ecosystem, but through its varied forms of engagement, output, and leadership can change and shape economic and social conditions in places.

These broader and temporally diffuse impacts suggest that FE policies that prioritise place first may be more appropriate than those shaped by the calculus of fiscal efficiency (Coyle & Westwood 2022).

Can we (and should we) measure the impact of different types of engagement - on ecosystem skills profiles, or other, broader social outcomes such as wellbeing? How can policies be designed to multiply positive feedback? We may also need more work to conceptualise how to avoid linear thinking and expectations in evaluating outcomes.

In his work on public sector productivity, van Ark (2022) warns that concentrating on output targets and measurements (in this case, number of apprenticeships, students trained, employer relationships, etc.) without considering the desired outcome risks creating conditions where stakeholders focus on the target but miss the point.

Here we have used the term "stakeholders", instead of FECs, deliberately as the latter appear to have a clear sense of the outcomes that they are seeking to achieve for their communities while policies are sometimes more narrowly focused on outputs.

Different types of engagement are interdependent, mutually reinforcing, nonlinear, and yield impact at different (time)scales than other kinds of investment.

Link between FEC responses and ecosystems

The framework we proposed in the literature review was a first attempt to conceptualise how the way that FECs perceive and structure their engagement strategies might be shaped by the characteristics of their ecosystems.

While this study did not measure differences between FECs in different categories rigorously, we did find clear evidence that FECs have different approaches to strategic engagement in different contexts. In part, this is shaped by the presence or absence of large, well-resourced, and engaged employers (more numerous in denser urban places) and the balance of small and micro enterprises.

It was also shaped by the structure of educational infrastructure in their ecosystems, which affected relationships with higher education for curriculum accreditation and pathways for progression as well as more strategic partnerships for economic development.

These factors also affect how FECs approach

governance engagement (e.g., as leaders or partners). One size fits all approaches (and expectations) to FECs do not recognise the importance of context in shaping FEC opportunities and challenges associated with ecosystem engagement.

Devolution may be part of the answer here, but creating a policy environment that recognises and enables broad engagement across different contexts is also critical.

Context matters and FECs in different contexts have evolved different approaches to engagement.

Future research might explore whether there are typologies or frameworks, such as the one proposed, that can help structure analysis and policy thinking. Pursuing this thread will involve exploring which variations in ecosystems may be the most important. There are also questions remaining about what geographies and scales we should be using.

FECs, labour market signals, and skills delivery

Respondents frequently complained that they were being held responsible for a failure to provide relevant skills in sufficient quantities for reasons that were out of their control.

In some cases, their capacity to respond to local/regional labour market demands - to provide supply - was constrained by regulations that limited their ability to provide subsidised training courses for employers or lack of qualified staff to teach in high demand programmes, for example (see the previous section for more details).

However, in other cases, the FEC felt that it was producing high numbers of students with the skills demanded, but that employers were not paying enough to retain them in the region or not willing to invest in training/retraining.

Employers and policy makers often had unrealistic expectations about the time required to create programmes or created conditions where FE and HE were competing to deliver skills rather than collaborating.

Often regulations prohibited or constrained FECs from offering shorter duration courses to fill specific skills demands. Skills gaps are the result of the complex interplay of many factors and FE is one (albeit) important lever in addressing those shortfalls.

The problem is not that FECs are not receiving the right signals from the labour market, as is sometimes assumed in the literature, but that they are constrained in their abilities to respond in an effective and timely manner.

FECs require a policy environment that enables them to respond more flexibly to demands and recognises the influence of structural and market forces.

Skills gaps are not necessarily a signal of lack of FEC ambition but a combination of constrained ability to respond (supply) and external (demand) factors.

Future research could aim to discover the relative contribution of FEC capacity issues and other factors to skills gaps. Specifically, it would be useful to focus on what kinds of policies are supportive or constraining the tradeoffs involved in adjusting them to enable engagement. The following section outlines some options and actionable insights to begin these discussions.

ACTIONABLE INSIGHTS

Taken together, our findings present fertile ground for further research but also for policy action. Here we highlight some of the most pressing actionable insights.

The capacity of further education colleges to meet the needs of industry is, according to respondents, increasingly constrained by a shortage of lecturers in key areas of vocational education, exacerbated by (sometimes egregious) gaps between industrial and education wages.

The challenge of recruiting to fill vacancies in education due to wage disparity with industry is pernicious, longstanding and international. Nevertheless, Government might address the problem by supporting institutions with:

1. (Further) additional funding in targeted areas so that colleges can narrow the gap between education and industrial salaries in the case of hard to fill key lecturer vacancies.

2. The development of job specifications in relation to benefits, pensions, professional benefits and flexibility to make these posts as attractive as possible.

3. Encouraging creative approaches to filling gaps such as secondment from industry into key lecturing posts at a greater scale within the FE sector.

4. A sustainable targeted communication campaign promoting teaching careers within the sector within relevant industries, alongside direct assistance to institutions in hard to fill vacancy recruitment practice.

Policy churn and systemic overcomplexity place barriers between providers and industries in meeting skills needs.

· Overregulation and intervention often come at the expense of the flexibility and clarity required by employers, as well as diverting resources away from front-line teaching. Twenty years after the publication of the Sweeney report, its recommendation that a contractual culture be replaced by one of professional trust still applies (Kingston 2002).

The current policy environment places an emphasis on long-form qualification, whereas skills needs are, according to respondents, often better addressed through flexible, shorter or modularised training.

· While there is progress in the HE space via the Lifelong Learning Bill, respondents in this study complain of significant challenges in interesting employers in 'full fat' Level 3 qualifications, even where they are fully funded as through the National Skills Fund. Progress towards modularisation should be accelerated.

The decline in employer investment in training and skills poses a significant challenge.

- Employer propensity to engage with providers is contingent on 'skin in the game' and the apprenticeship levy is too blunt an instrument in this regard, according to respondents. Improved productivity requires reinvigorated efforts to stimulate employer investment in training and development. The convening role of Chambers of Commerce through Local Skills Improvement Plans is a positive move in this regard, according to the majority of respondents.

Ecosystem engagement is so heavily shaped by the nature of that ecosystem - including considerations of industrial heritage and specialism, transport, competition and economic configurations - and by a civic mission that extends beyond the provision of education and training, that the policy environment would better serve innovation and allow ecosystems to flourish if it:

- understood FECs as social infrastructure

- took account of this civic mission and the variations in engagement - through more devolved decision-making, for instance, more long-term commitment in funding and policy terms, and more room for scaling up.

FEC engagement in their ecosystems and contribution to filling skills gaps are goals that are shared between both education and innovation policy streams.

- However, respondents have clearly identified areas where education policy works against broader innovation goals and there needs to be a reconciliation.

- This is, historically, expressed by FECs and their representatives calling for closer alignment between the Department for Education and BEIS and/or Innovate UK. Recent steps to split BEIS into different departments seem unlikely, in and of itself, to help bridge the gap between policy streams. However, it may also present an opportunity to eliminate tensions and reconcile objectives across Government portfolios.

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APPENDIX
METHODOLOGY

We interviewed sixteen FECs: the eight colleges participating in the Local Skills Improvement Plan (LSIP) Trailblazers programme as linked strategic development fund pilots and eight counterpart colleges selected from the FEC population in England (see Association of Colleges 2023b).

We selected the counterpart FEC cases purposively using two defining features (Eisenhardt, 1989; 2021) of the environment in which these two groups of FECs operate. These features are the degree of specialisation of the economy in which the FEC is located, and the diversity of further and tertiary education supply in that environment (see Figure 2). We chose these to maximise the diversity of experiences linked to the natures of the ecosystems within which colleges are embedded. It is important to note that the purpose of this research was not to rigorously test the validity of the framework but to use these two features to ensure that we were not only sampling FECs from dense urban areas or specialised economies.

We located each candidate FEC on the matrix as follows:

Trailblazer FECs	Counterpart Colleges
Weston College	LTE Group
Lakes College Cumbria	Kirklees College
Barnsley College	West Suffolk College
Loughborough College	Inspire Education Group
MidKent College	Exeter College
The Education Training Collective	Capital City College Group
Myerscough College	Heart of Worcestershire College
Chichester College Group	College of West Anglia

Table 1: Trailblazer FECs and Counterpart Colleges

Economic specialisation

Using the latest available industry data (ONS 2019), specialisation was measured with the Herfindahl-Hirschman Index (HHI), calculated as the sum of the squared regional proportion of employment for each industry (see Chen, 2020) at the NUTS 3 level, appropriately "small regions for specific diagnoses".

Higher values for HHI indicate greater economic specialisation in the region and lower values indicate greater industry diversity. This feature is considered important because we anticipate that economic specialisation in a region may influence the degree to which industry related courses are emphasised to meet local employer needs, resulting in a more general or tailored curriculum.

Diversity of further and tertiary education

FECs (Association of Colleges 2023a) and universities were geocoded using Google Maps to calculate the number of education neighbours for each FEC.

Geocoding was based on head office location for multi campus universities and college groups where the data listed these together (e.g. Buckinghamshire College Group consists of campuses in Wycombe, Amersham and Aylesbury, with Aylesbury listed as the key contact for Admissions) .[1]

The diversity of Education supply was calculated for each FEC by counting the number of universities and FECs in the zone that students would consider when selecting a potential competitor education provider. The average college student travels 15 miles from home (Association of Colleges, 2023), creating a zone of potential competition within 30 miles of each FEC (see Figure 1). [2]
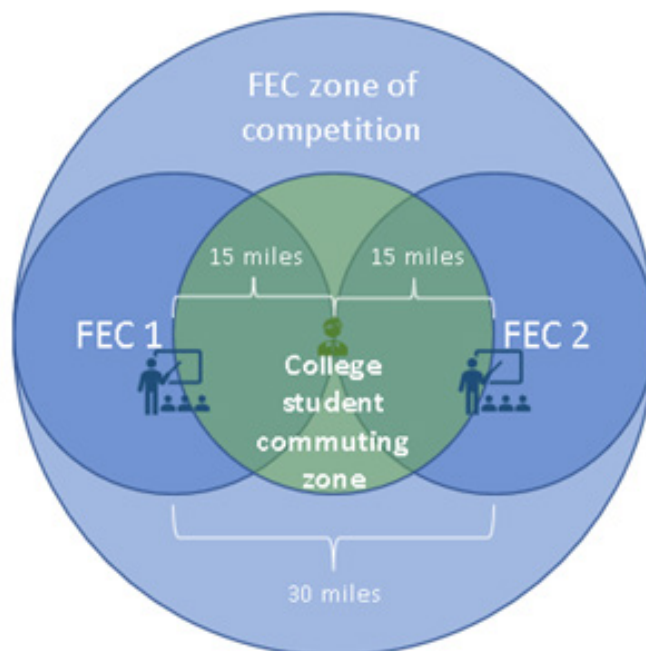

Figure 1: Determination of 30 mile radius of FEC zone of competition

[1] Future calculations for Education supply diversity could improve to consider the location of each campus of universities and FEC groups. This research aims to identify whether these FECs are best analysed at group or campus level. [2] The education supply diversity calculation could further improve to consider differing transport infrastructure within each region by calculating FEC neighbours within a specified commute time rather than distance, however this is computationally expensive for our purpose of case selection.

We anticipate that those FECs with many competitors face pressure to emphasise a specialist offering within a wider ecosystem of education provision (ie. a Network Participant), while those with fewer competitors are likely to take on a leadership role within the region (ie. Ecosystem Developer or Regional Skills Provider).

It is important to note that this conceptual framework was initially designed to develop hypotheses about the kinds of strategies that are likely to be successful and should be encouraged in each context. [3]

While we broadly expected that the position of FECs on this matrix could potentially translate into different approaches to engagement with their ecosystems - both in terms of their ability
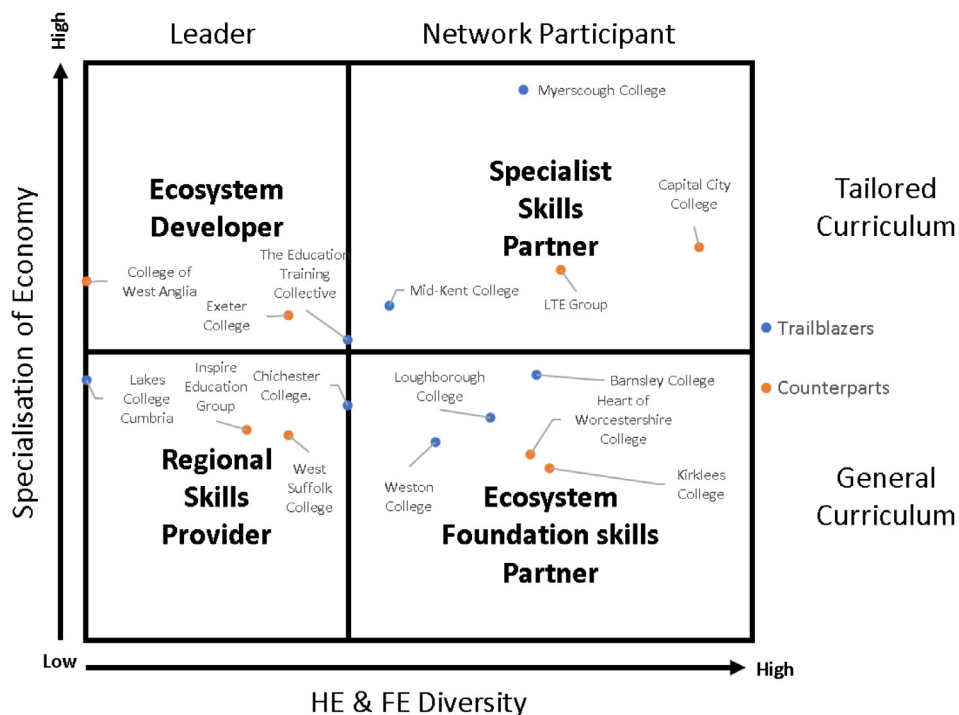

Figure 2: FECs interviewed by quadrant of ecosystem framework

and propensity to participate in governance networks and in the types of employers with whom they build relationships - *we did not test for these explicitly in this study.*
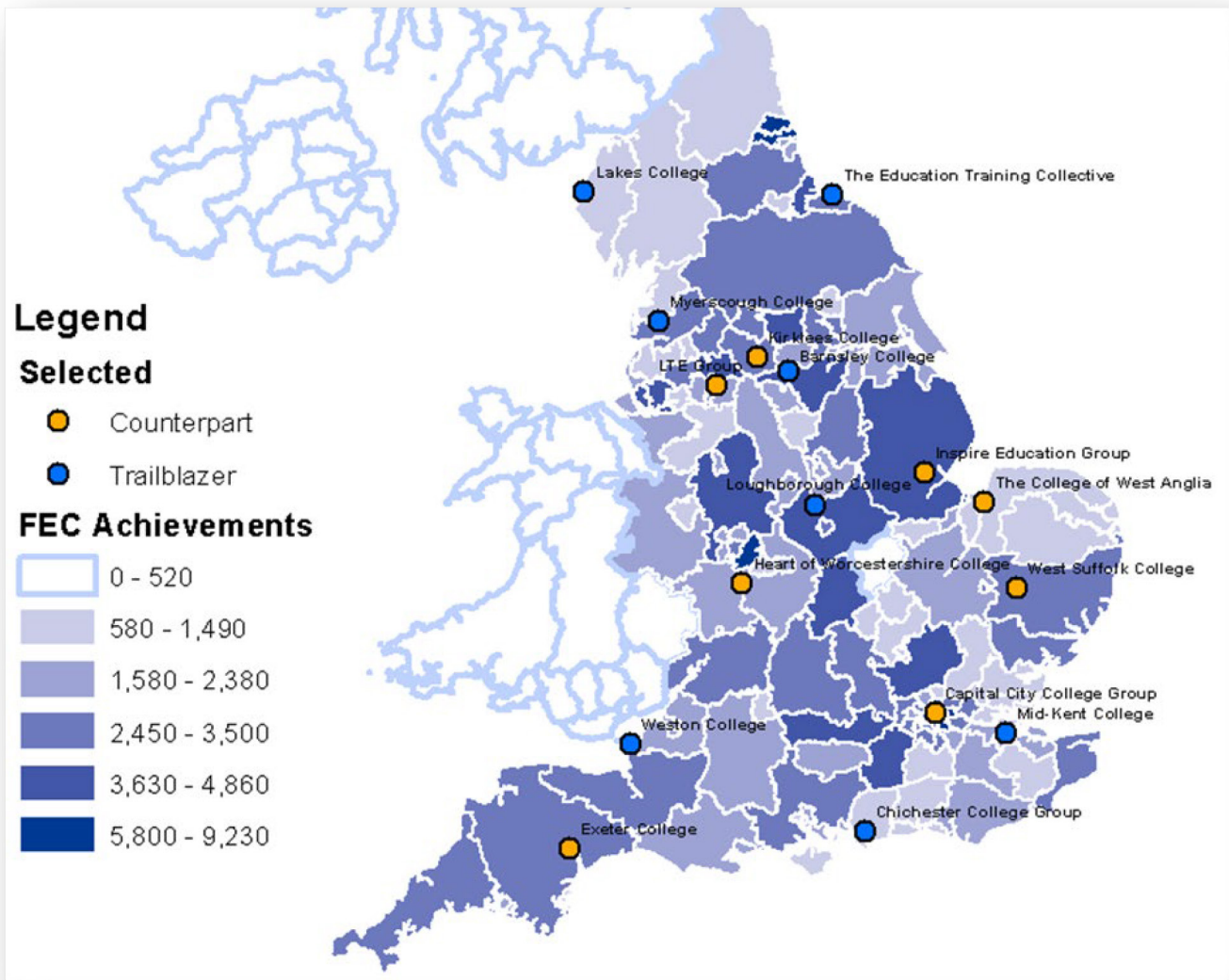
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Figure 3: Map of FECs interviewed by type (trailblazer or counterpart)

This framework is still in development, and so it is important to reiterate that in this context it was used simply as a tool to ensure diversity in the sample and the relative placement of each FEC should not be interpreted as definitive or final.

Finally, we also aimed for geographical diversity in this sample to ensure representation of FECs from different regions around England. The geographical distribution of cases is depicted in Figure 3.

In summary, the sample carefully selects for FECs that are geographically diverse, facing differing institutional pressure and resource availability in both dense and sparse ecosystems with differing employment landscapes. This enabled interviews to both unpack the "black box" of the role of FECs in their ecosystems as well as identify those characteristics that are universal (Eisenhardt, 2021).

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[3] Where FECs might be potential Ecosystem Developers or Regional Skills Providers, policies might seek to support that leadership potential to coordinate industry strategies (in the former) or local development coalitions (in the latter). Where FECs might have the potential to function as Specialised Skills Providers, they should be encouraged to seek partnerships with local HEIs and other FECs to coordinate their roles to refine their skills contribution to fill important gaps and to participate in ecosystem governance structures where appropriate. Technical Skills Providers should also be encouraged to participate in local networks and coordinate with their peers to either develop complementary foundational skills or to create shared infrastructure to manage partnerships with the private sector, administer work placements and infrastructure, and to advocate for FEC interests in broader networks.