

Fostering a local retrofit workforce

Authors: [Sophie Whinney](#), Senior Energy Analyst, Regen
[Rebecca Ford](#), Associate, Regen

Purpose of this briefing note

Around 500,000 new professionals and tradespeople are needed to retrofit of our homes and businesses for net zero. [1] This is an exciting opportunity to create new ‘green jobs’ and to improve diversity in the construction industry.

However, despite the potential career benefits, the sector confronts notable challenges. Current demand for retrofit and clean heat is inadequate to drive business development, while those customers interested in retrofit struggle to find qualified installers.

Although national policy and regulation are critically important to drive strategic direction, it is clear that local mechanisms can have significant impact. Indeed, retrofit supply chains are inherently local, with installers serving within a reasonable travel radius.

This briefing note outlines approaches for improving supply chain connectivity and coordination at a local level to enable the sector to grow within the current policy and regulatory paradigm. The research underpinning this briefing note was conducted by Regen, for the MCS Foundation and UKGBC to inform the inception of the new [Local Area Retrofit Accelerator](#) programme.

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1. Key takeaways

- ▶ In the short term, it is crucial to adopt a more strategic approach at the local level to actively foster supply chain growth. Achieving sustained growth in today's retrofit market requires systemic solutions. Effective local interventions must address both market demand and supply, gradually building the sector through iterative processes.
- ▶ Improved connectivity within supply chains is required so that the industry has the confidence to grow in a local area. More integrated supply chain structures are necessary and emerging.
- ▶ Local areas will require a 'supply chain manager', who will facilitate a supply chain community or network, to build trust and improve connectivity throughout.
- ▶ To grow supply chains strategically, understanding the baseline of local activity is important, yet current approaches to retrofit supply chain assessments often overlook crucial nuances. A deep understanding of the local retrofit sector is imperative for informative assessment. It is also important that a consistent data analysis methodology is developed to avoid duplication.
- ▶ There is a lack of clear and structured career progression routes within the retrofit industry. Educators, industry, local authorities and community groups need to form partnerships to co-design career pathways and ensure a cohesive approach from training through to application.
- ▶ School pupils need to be actively exposed to retrofit careers and diverse representation should be ensured. This will support a more equitable approach, leading to a larger and more diverse pool of new entrants.
- ▶ Area-based retrofit approaches – coordinated retrofit projects of a large number of homes in one local area – have the potential to play a crucial role in strengthening career pathways by bolstering and consolidating demand. Additionally, these projects could serve as valuable opportunities for trainees to gain practical experience.

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2. How is the retrofit supply chain organised?

Much of the retrofit market in the UK is geared towards single-measure installations by sole traders. This approach *alone* is inadequate to meet the UK's climate goals and risks not meeting customer needs. Instead, it is important that multiple types of service providers work together to deliver a more complete package of support for customers.

[PAS 2035](#) is the British Standard for retrofitting domestic buildings, which defines a 'technically robust' process across key types of service providers. The standard is often a requirement for government-funded retrofit and promotes a 'whole-dwelling' approach, which "considers the building as a system of elements, interfaces and occupants that interact". The standard defines six specialist skillsets needed:

1. **Adviser** – provides accessible advice to occupants on initial engagement and throughout the project.
2. **Coordinator** – coordinates all work and agrees intended outcomes with client.
3. **Assessor** – conducts a building survey, reporting all necessary information for retrofit design to be carried out.
4. **Designer** – translates the building survey and client's intended outcome into one or more retrofit designs with the level of detail required for installers to carry out work.
5. **Installer(s)** – carries out physical installation of retrofit measures. Installers can be generalists or specialists in specific measures.
6. **Evaluator** – monitors and evaluates the property post-install to verify quality of work and intended incomes.

Some of these roles are less prolific than others. However, there is consensus that they are all critical. Indeed, the CCC is tracking the number of retrofit coordinators as key assessment metric in the UK's progress toward net zero. [3]

Despite the importance of these roles in delivering net zero, there are no consistent approaches to defining what a healthy supply chain looks like and what metrics can be used to quantify this.

Five previous UK studies have explored retrofit supply chain assessments. [4] [5] [6] [7] [8] These studies typically involve identifying businesses engaged in retrofit activities within a specific area and analysing their operations. Common quantitative metrics such as company turnover and employee numbers are often employed, but they may inadvertently include non-retrofit activities. Many studies heavily rely on interviews with businesses as a primary assessment method.

However, there are a range of 'health indicators' that are widely accepted to be important to any healthy supply chain, but which are not yet incorporated into retrofit supply chain assessments. We put forward these indicators in the Appendix – [Retrofit supply chain 'health indicators'](#).

Supply chain integration models

In addition to understanding the health of the supply chain across the different key roles outlined in PAS2035, it is also important to explore how these are integrated to deliver a ‘whole-dwelling’ approach. Exactly how these roles are shared and split across organisations or individuals is not defined by the PAS 2035 standard and we see different approaches emerging.

Organisations can be sole trader installers, or large organisations encompassing stretches of the supply chain. Individuals can also take on multiple roles within the retrofit process, provided they have the appropriate qualifications. For instance, someone trained in retrofit assessments and evaluation could survey buildings before and after installations, potentially increasing efficiency by streamlining the process.

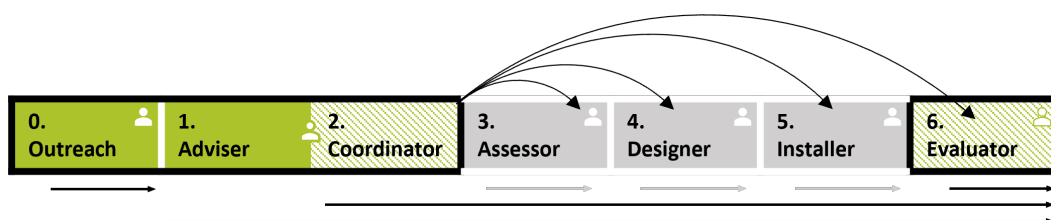
We conceive three different broad models, which categorise methods for supply chain integration; (A) the status quo, (B) hub-and-spoke or wraparound services, and (C) multi-skilled retrofit delivery teams (see Figure 1). In practise, this is an over-simplification, but these are put forward to discuss the benefits and risks of different approaches.

Figure 1
Three retrofit workforce supply chain models
 Based on roles defined by PAS 2035 BSI standard

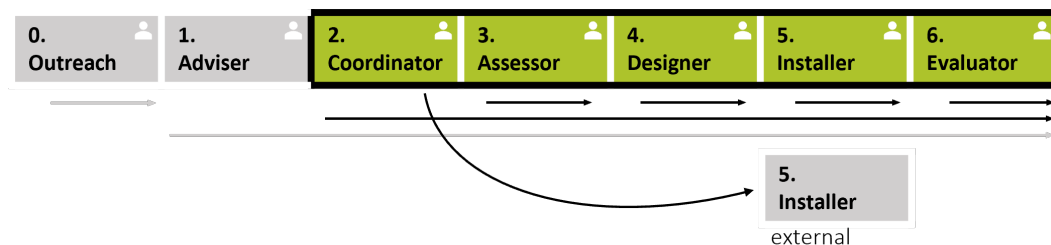
A: The status quo



B: Hub-and-spoke or wraparound services



C: Multi-skilled retrofit delivery teams



Note: In addition to the roles needed for ‘technically robust’ retrofit, an ‘outreach’ role has been added to acknowledge the importance of roles and skills which explicitly and actively help bring in demand for retrofit.

A: The status quo

The status quo model represents an uncoordinated supply chain, focused on installing single measures rather than following a ‘whole-dwelling’ approach. In this scenario, comprehensive heat assessments are not conducted, and installers design and install systems based on energy performance certificate (EPC) assessments.

Advice is available at a national level, but does not connect to the installer workforce; today’s energy advice industry has grown with public sector support, and largely third-sector delivery, and is built on the concept of commercially independent advice. [9] While these structures are still critical and require continuous improvement, there is a need for more specialist advisers, who can offer specific house-by-house advice services and be a conduit to activity conducted by the rest of the supply chain, e.g. retrofit design plans.

Key issues with this model are that it suffers from a lack of trust from customers [10] and organisations have little confidence to scale. According to the PAS 2035 standard, it also increases the risk of poor installations.

B: Hub-and-spoke or wraparound services

This model represents a group which primarily focuses on outreach and advice and is expanding to take on coordination and evaluation roles to provide a wraparound service. This means they are the homeowner’s primary point of contact throughout the whole retrofit journey.

Many community groups across the UK have started doing this work. Their impartiality can help build trust and bring in customers. This is key as coordinators and evaluators need to manage expectations, ensure outcomes are met and address quality assurance concerns. [11] [12] [13]

It also taps into the potential of motivated volunteers for the roles in which people can more quickly upskill. This group does not need to have professional building design or construction expertise. Instead, this ‘hub’ has strong relationships with ‘spokes’ – i.e. architectural design firms and installers, who benefit from the partnership via a steady stream of work.

A key uncertainty with this model is that, while volunteers are clearly well placed to deliver outreach and advice, this may not be appropriate for coordinators or evaluators at scale.

There is also a question about whether the coordinator role is appropriate for community groups; coordinators need to be confident in building relationships with the whole supply chain and engage well with designers and installers. As such, coordinators may sit better within organisations that hold buildings/construction expertise.

C: Multi-skilled retrofit delivery teams

This model represents an installer/contractor business specialised in delivering multiple measure retrofit solutions following a ‘whole-dwelling’ approach. The business is made of a core group of coordinators, assessors, designers and installers. This helps manage on-site teams and tackle issues related to fragmented working practices. It also supports better links between the client, the work being carried out and energy targets. [14]

A key benefit for supply chain growth is that they can make strategic decisions about training and bringing skills in-house where they identify gaps and opportunities. Project information at each

stage is also passed down the chain more effectively, as they are working as a team, and if the project hits any problems, they are motivated to resolve them.

Operating within a one-hour drive radius, they can become experts in measures which are popular or challenges which are more common in their patch. Their localised nature benefits from social marketing, but is still somewhat reliant on external advice and outreach actors to bring in consistent demand. Homeowners also have greater trust than with sole traders, as they have an established brand, and know who to call for servicing.

Nevertheless, this organisation works with sole traders, as they need to be agile to local market fluctuations, and may not have some specialised skills. For example, a property may have particular ventilation challenge they are not equipped to assess, design or install solutions for.

A key risk of this model is that they may be ‘marking their own homework’ and could be biased to install measures which are most profitable for their installation department, rather than those best in the interests of the homeowner. Indeed, PAS 2035 outlines that a key responsibility of the coordinator is to protect the customers interest, and as such, if the coordinator works for the same organisation conducting assessment, design, installation or evaluation, they must declare this to the customer.

Conclusion – impact of integration on growth

There is a pressing need for improved connectivity within supply chains so that the industry has the confidence to grow in a local area. More integrated supply chain structures are emerging. These methods do not supersede the sole trader market, but work in tandem with it.

Supply chain connectivity could be achieved by bringing multiple stages within an organisation, like model (B) and (C) above. However, there are also risks with such approaches regarding customer trust and bias. Furthermore, given the current low uptake of retrofit, growing a large business is nevertheless challenging without guaranteed customer demand.

In the next section, we explore further ways that connectivity could be improved and how this can support supply and demand to grow in tandem.

3. How can supply and demand grow in tandem?

Without demand for retrofit measures, the sector is unlikely to see value in growing retrofit capacity when it is already very busy with non-retrofit-related activities. [15] This is true for both specific skills necessary to deliver certain retrofit projects – e.g. installing insulation or heat pumps, as well as more generalist skills, such as ensuring airtightness of new windows.

However, the market is caught in a reinforcing feedback loop, whereby householders are discouraged from retrofit because finding an installer is challenging and businesses are discouraged from offering installation because there's not enough perceived demand.

Sustained growth in today's retrofit market is a systemic challenge. Successful local interventions to grow the supply chain must address both the market push and pull. Demand and supply must be built gradually and iteratively. Negative consequences arise from short-term influx of demand to which the supply chain struggles to respond and vice versa, (e.g. from advertising campaigns or short-term funding). See Figure 2.

One challenge to this is that the retrofit sector is highly diverse, encompassing many unique trades, and, as discussed in the previous section, fragmented. Building a robust supply chain therefore resembles piecing together a complex puzzle that necessitates the alignment of process innovation, financial strategies and societal acceptance. [1]

In this section we look at local mechanisms for improving supply chain connectivity to help overcome the systemic challenge of growth. First, we look at methods used to improve supply chain coordination and community. Second, we look more closely at the skills pipeline, including ideas to ensure individual investment in training leads to job opportunities.

Figure 2
Significant demand fluctuations deter investment in long-term growth
ECO measures installed by obligation, by month, to end Quarter 1, 2023

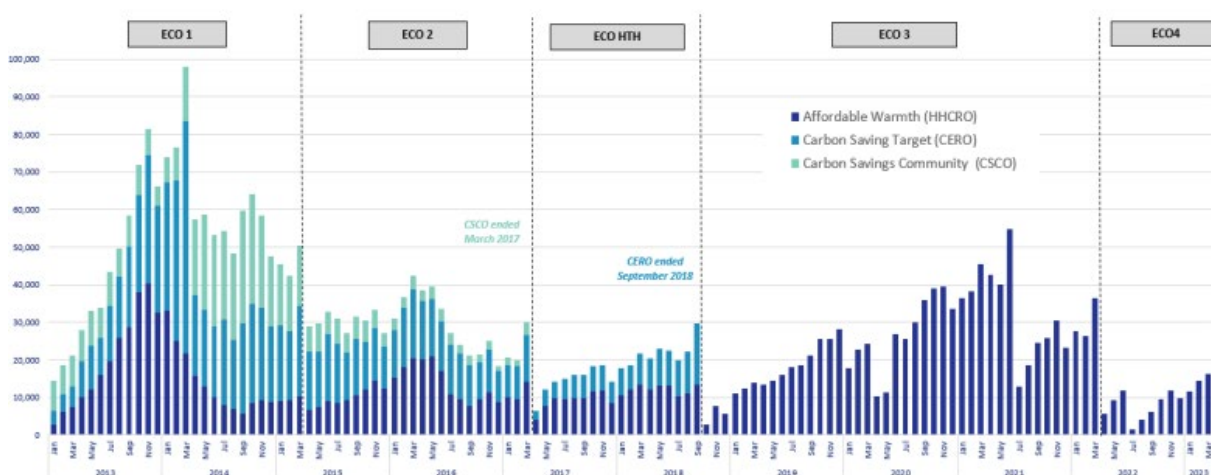


Image taken from Household Energy Efficiency, Statistical Release 25 May 2023

Supply chain coordination and community

Creating connections between different parts of the supply chain and supporting stronger coordination across the sector is needed to support retrofit for net zero. [16] This is needed for critical activities such as heat pump installations, but also to improve the customer journey and stimulate further customer demand.

Retrofit workforce community/network – dedicated resource is needed

Building a network or community within a supply chain brings about several key advantages for achieving better coordination among its members. For example, structured forums are crucial for sharing information, addressing issues and allowing members to exchange best practices.

Critically, for the growth of the workforce, active networks foster the development of strong interpersonal relationships, leading to greater trust and mutual understanding among participants. This trust is essential for effective coordination and even plays a role in resource utilisation; allowing members to identify opportunities for resource sharing or pooling. This can enhance overall supply chain efficiency by reducing bottlenecks and delays.

Some community groups are already building localised networks, and past research found that such community-led retrofit “can contribute to local supply chain development”. [17]

However, to the best of our knowledge, no best practice on supply chain engagement has been published in the UK. While some groups have done well and consistently sell out events, many organisations have found this challenging.

Supply chain manager – dedicated resource is needed

Research and guidance published by the [European Commission](#) on effective ‘communities of practice’ shows public organisations can foster collaboration and overcome silo mentalities. This research highlights the need for a dedicated resource to facilitate the community or network: “The prerequisite here is that the community has a credible community manager in place, who has dedicated time and support to carry out the role effectively. Community managers have a mandate, and their roles and tasks are officially recognised as being part of their job description.”

Some regions already have such a role in place, but there is not yet a consistent name for it. Titles include names from ‘project manager’ to ‘membership development manager’. Note the role is not to be confused with the retrofit coordinator – their work is more strategic and long term, supporting the *development* and *connectivity* of the supply chain. Our engagement with experts found consensus that one or two full-time equivalent staff should be appointed per locality as a ‘supply chain manager’. They must be confident in their ability to build supply chain relationships and rapport and facilitate a supply chain community/network.

Attracting the workforce

Given the lack of direction from government on clean heating, UK policy flip-flops and wider political uncertainty towards net zero, many perceive there to be too much risk to invest time or money in retrofit training. (Refer back to Figure 2.)

To build any skilled workforce, people must be incentivised to work in the sector through the presence of well-paid, attractive, secure job opportunities. A career in retrofit has the potential for all of these – job satisfaction from a perspective of doing ‘hands-on’ work to deliver a good cause, and long-term job security (i.e. the work *cannot* be outsourced out of the UK or to AI).

It is also important to acknowledge that careers in the retrofit sector call for a variety of skill sets - not just technical - from understanding of local architecture to business acumen to interpersonal skills and more.

In this subsection, we propose where the sector should be focusing its efforts to attract the workforce. However, raising awareness and even providing free training won't address the underlying issues; the biggest cost for training is not the course, but the time away from work. We therefore discuss the concept of ‘closing the loop’ - ensuring individual investment in training leads to job opportunities.

Who should be targeted? Engage a diverse group of young people

Experts we spoke to agree that more focus is needed on attracting new entrants to the industry. Retraining is not appealing enough to those involved in traditional repair, maintenance and improvement (RMI) or with other relevant construction skills; they are very sought after in their current roles so there is little motivation to go through timely and costly training and certification schemes.

Indeed, the entire construction sector has a labour shortage: “Trade vacancies are now at record highs, with widespread shortages particularly prevalent among plumbers, bricklayers, carpenters and electricians... The Trade Skills Index highlights a catastrophic skills gap engulfing the construction sector over the coming 10 years.” [18] This is “set to cost the UK £98bn in missed economic growth by 2030”. [2]

New entrants may include individuals who have faced challenges entering existing sectors, those seeking to transition from desk jobs, and recent school leavers.

Particularly for young people, it is also an opportunity to fulfil the growing desire for ‘green’ jobs. Recent market research found that “there is an untapped audience of young people with a desire for good, well-paid jobs that they enjoy, and feel are making a positive contribution to the environment”. [28]

Awareness of jobs in clean heat is especially low among non-STEM women. [28] As a relatively small industry today, there is limited sharing of success stories, particularly with diverse representation. Retrofit installer organisation [Your Energy Your Way](#) is passionate about promoting increased diversity in the sector and has recruited five local women into its apprenticeship scheme.

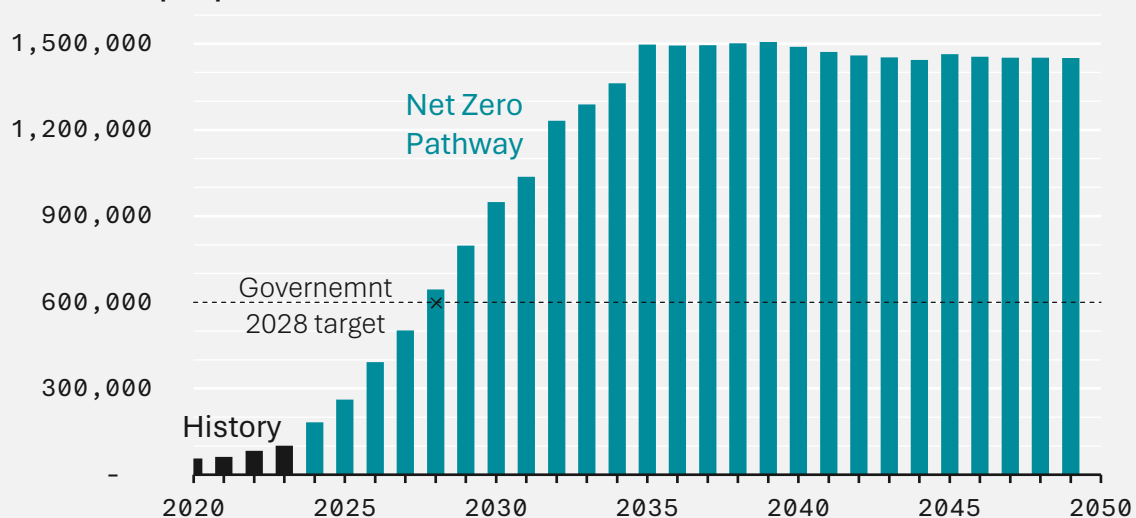
Given the increase in annual heat pump installations needed over the next decade (see Figure 3 overleaf), we will need an influx of young talent who are inspired to pursue a career in clean heat. To do this, it is crucial to engage young people now - the window of opportunity for this is closing.

Figure 3

Supply chain growth needs to match significant increase in heat pump installations over the next decade

Regen analysis of Future Energy Scenarios Data Workbook 2024 (Holistic Transition Pathway)

Annual heat pump installations



Area-based retrofit projects to pool demand

Area-based approaches refers to the proactive planning and delivery of retrofit to many homes in a neighbourhood.

While national-scale policies and programmes are important, area-based approaches can better connect demand to supply, supply chain actors to each other, and customers to financial support mechanisms. [19] [20]

In theory, uptake under area-based projects is also more likely to have a cascading effect. Firstly, because it amplifies social marketing [21]. Secondly, because the economies of scale mean that local actors, such as community groups, can play the crucial role of trusted intermediary. This not only helps foster significant local trust and therefore uptake, but also broadens participation by engaging harder-to-reach groups. [22] [23]

Some established community groups identify their next project via applications and competitions. BHESCo is currently running a **Carbon Neutral Communities Competition**, where the winning streets will receive free retrofit advice and assessments. One home will also receive free design and coordination support to act as 'demonstrator'.

One of the motivations for this approach is that it pools demand. The competitive, gamification element of the project means local champions are motivated to drum up support at street-level scale, identifying a number of dedicated customers. This pooling of demand could be effective in fostering supply chain growth, providing more reliable pipeline of work. This is akin to projects retrofitting social housing, where multiple similar houses are retrofitted over a period of time.

To take advantage of service-based income streams, community groups must invest in their own technical expertise – for example, **People Powered Retrofit**. [13] It is, however, essential to recognise the challenges faced by councils and community groups, particularly in terms of short-

term and competitive funding. Acknowledging their vital role in the just transition, there is a need to allocate more resources to this. [24]

A partnership approach to education and careers

The NetZero Training hub in Portsmouth received grant funding from Portsmouth City Council's Community Renewal Fund and is a partnership between skills provider NetZero and Portsmouth City College. [25] [26]. The training hub plans to 'close the loop' by partnering with a retrofit pilot project aiming to upgrade up to 30 charity-owned homes which will provide a foundation for practical learning. Future training hubs could partner with area-based retrofit projects to ensure that the skills to deliver work are developed, and a demand pipeline is established for graduates.

Portsmouth City Council actively collaborates with local job centres and community groups supporting NEETs, and works with schools to incorporate green skills into their teaching. In order to bridge the existing skills gap and establish a resilient skills pipeline, [collaboration between industry, colleges and local authorities is needed](#). Key actions to this include:

- **Co-defining career pathways.** Clear and structured career progression routes within the retrofit industry are currently lacking. Roadmaps for skill development and advancement should be co-designed by industry, educators and local authorities. London-based start-up [Greenworkx](#) is developing a software solution which could support this. [27]
- **Industry partnerships.** Colleges, private companies and local authorities should work in partnership to facilitate entry into the retrofit sector at a local level.
- **Modular and flexible approach.** Ensure that training programmes are modular and adaptable, allowing individuals to tailor their learning to their specific needs and circumstances.
- **Integrating into the training of mainstream trades.** Ensure that more established routes into construction and RMI include relevant modules on retrofit.
- **Education and training initiatives.** Establish educational and training centres dedicated to retrofit. Additionally, encourage peer-to-peer learning and practical experiences, not limited to traditional classroom settings. Leveraging the [Supply-Chain Sustainability School](#) can be particularly beneficial in this regard.

4. What could local authorities do?



In the short term, a more local, proactive and strategic approach is needed to foster the environment for supply chain growth.

1. Nurture a local retrofit community. Improved trust and connectivity across the supply chain are crucial if we are to move towards the ‘whole-dwelling’ approach to retrofit. Providing structured forums not only facilitates knowledge exchange, but can help build trust, enabling more effective resource sharing. No best practice on supply chain engagement has yet been published in the UK, however, evidence suggests dedicated resource is needed to nurture such a network/community – a retrofit supply chain manager.

2. Assess supply chain health holistically. A deep understanding of, and connection with, the local retrofit sector is imperative for informative assessments that account for qualitative indicators of health and context-specific nuances. Assessing supply chain health therefore should fall under the remit of the supply chain manager, mentioned above. It is also important that a consistent data analysis methodology is developed to avoid duplication across local authorities.

3. Support schools to inspire the next generation. Retrofit careers span diverse skillsets, catering to all interests. Yet, awareness remains low, especially among non-STEM women. [28] The retrofit workforce of the 2030s are currently in school. Schools must actively showcase diverse retrofit workers' stories to inspire ‘an untapped audience’ of young people.

4. Adopt a partnership approach to training. To cultivate a workforce capable of meeting the dynamic demands of retrofit, local authorities should partner with framework contractors, local colleges, community groups, and job centres. Career pathways need to be codesigned and courses should tie to area-based retrofit projects for practical experience and careers.

5. Bolster and consolidate demand through area-based projects. Coordinated retrofit projects of a large number of homes in one local area, street or neighbourhood can help pool demand and provide confidence to the supply chain to grow in the near term. Local authorities should leverage trusted intermediaries to help bring broaden participation and attract dedicated customers.

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Appendix

Retrofit supply chain ‘health indicators’

The following metrics, or ‘health indicators’, were identified from a literature and data review, and provide insight into the state of a supply chain at a local level. This ‘checklist approach’, moves past simply assessing the supply chain via a headcount and aims to identify specific gaps or weakness. Each measure provides a slightly different perspective on the health of the supply chain; together, they provide a more complete picture, despite the lack of good data.

The tables below details how measurable the indicators are today via a red, amber, green rating. The methodology or approach to measuring them, and how this measurement methodology could be improved with additional work is detailed.

The ‘health indicators’ have been split into categories of direct and indirect.

- Direct supply chain health indicators encompass metrics that have a clear, established impact on the ability of the supply chain to deliver retrofit. Not all of these measures are easily measurable with the data currently available and take time to calculate. For each health indicator, there is a general guide to how to find relevant data, as well as suggestions for how to improve this methodology.
- Indirect health indicators include metrics that were identified from the literature as being important factors to the health of a retrofit supply chain what are more nuanced, but nevertheless impact on successful retrofit delivery.

Table 1
List of health indicators and methodology for measuring

Health indicator	Methodology for measurement	How to improve measurement
Direct indicators		
Number of retrofit coordinators	Found through databases including Trustmark and Elmhurst Energy, both of which are postcode-based searches.	Greater clarity around how often the search directories used for measurement are updated and a concerted community effort to ensure relevant businesses are input into the database.
Number of retrofit advisers	Found through the Greener Solution Group database.	Pushing for the addition of the retrofit adviser role to some of the larger databases, including Trustmark.
Number of retrofit assessors	Found through postcode search-based databases, including Trustmark, Elmhurst Energy and myConstructor.	Greater clarity around how often the search directories used for measurement are updated and a concerted community effort to ensure relevant businesses are input into the database.
Number of certified installers	Depending on the technology, it can be found across a wide range of sources, including MCS, BESA and NAPIT.	Some of these schemes are “self-assessing” and it isn’t always clear what the criteria for the certification are. Pushing for more transparency on this is important for understanding who is in these databases.

Health indicator	Methodology for measurement	How to improve measurement
Number of specialist installers	Depending on the technology, it can be found across a wide range of sources, including FENSA, GGF and NAPIT. Some installers might fall into both the Certifiable and the Specialist categories, so some data cleaning might need to be done at this stage.	Some of these schemes are “self-assessing” and it isn’t always clear what the criteria for the certification are. Pushing for more transparency on this is important for understanding who is in these databases.
Number of installers providing generalist retrofit measures	Can be found through Trustmark, RMI Index and NFRC.. A considerable number of generalist installers will be difficult to identify purely through online searches and will likely need engagement with local stakeholders. The studies that captured this number often did so through email and telephone engagement, analysis of Thomson or SIC codes to establish which businesses appeared to be engaged in retrofit and then a manual data clean to establish those that actually were relevant.	Given that a considerable number of generalist installers operate hyper-locally, having local organisations add active installers to existing databases can help give a better view of their number. With the fragmentation of the construction industry as it is, this will always be a difficult number to quantify. The methodology is resource-heavy and, in some studies required the assistance of an external organisation. This is likely to be the case for any attempt to assess the number of generalist companies.
Cumulative company turnover	No retrofit-specific datasets include information on company turnover.	Additional research would be required to review identified retrofit installers against Companies House data. This can be done directly or through contracting organisations specialising in company data, who would charge for their expertise.
Number and type of retrofit measure being installed	Based on the breakdown of measures. It can be measured through governmental statistical releases for government grant-funded projects and changes in EPC data over time. Sources such as the MCS Data Dashboard for low carbon generation also give a good idea.	A number of measures may be being installed through informal networks or not being picked up by out-of-date EPC data. Stronger local regulation on EPCs would improve the data quality in this area.
Existing level of retrofit in regional housing stock	Most of the data available is EPC data, the flaws of which have been addressed in Section 4 . Platforms such as Priority Places from Which? give a general idea of the level of retrofit in the area, again based upon EPC data.	Stronger local regulation on EPCs would improve the data quality in this area.
Indirect indicators		
Company diversity:	<i>Age, Gender, BAME</i> : Measurable through direct surveys and interviews with relevant stakeholders. Would need to engage with the local companies and stakeholders known to be involved in the retrofit supply chain.	If these surveys are already done at a local authority level, publishing them would be insightful for other authorities. If they’re not done, starting regular surveys would help capture this information.

Health indicator	Methodology for measurement	How to improve measurement
Customer type (region housing stock demographic):	<p><i>Regional housing stock demographic, fuel poverty, median household income:</i> Measurable through census data, sub-regional fuel poverty data and median household income data from the ONS.</p>	<p>Difficult to improve, as this data is often reliant upon wider national governmental data collection.</p>
Local policy support for retrofit:	<p><i>Presence of local heat and decarbonisation policy. Presence of local eat decarbonisation incentives:</i> Easy to measure the presence of a policy or incentive, but much harder to measure its impact. It would likely require a dedicated study.</p>	<p>The nuance of policy is always going to make quantifying its impact tough. Difficult to improve.</p>
Local training courses:	<p><i>Course availability. Course completion rate No. Apprentices::</i> It would require a survey of courses available at local education institutions as well as the completion rate of the course. On-the-job training would be harder to track due to its more ad hoc nature.</p>	<p>Building a relationship with local colleges and universities offering retrofit courses could enable greater data collection around passing rates and the trade/region the graduates end up working in.</p>
Number of active community organisations in the area	<p>Easy to find information on community energy groups from central resources such as Community Energy England, which stores all of their members on a database, as well as having a map that shows installation sites and live projects.</p>	<p>Understanding how community energy groups are supporting the uptake of energy-efficient measures would require further research, such as reviews of community energy group websites or interviews with those involved.</p>