

# REPAIR SKILLS TRAINING AND EDUCATION IN IRELAND

CIRCULAR INSIGHTS SERIES



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# Circular Insights

## Repair skills training and education in Ireland

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# Foreword

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The Environmental Protection Agency (EPA) leads the Circular Economy Programme, which is a statutory requirement under the Circular Economy and Miscellaneous Provisions Act 2022. The vision for the programme is an Ireland in which the circular economy ensures that everyone uses less resources and prevents waste to achieve sustainable economic growth.

The Circular Economy Programme has regulatory activities (authorisation of the waste sector, by-products and end-of-waste regulation), provides evidence (reporting of national statistics and delivering insights studies) and works with others (including providing funding supports for innovation and demonstration, and developing and implementing statutory programmes and plans such as national food waste prevention programmes and the National Hazardous Waste Management Plan).

The Circular Economy Programme is commissioning a series of 'Circular Insights' studies on emerging and priority topics to build evidence and fill knowledge gaps to support circular economy policy. Through analysis of data, literature review, stakeholder interviews, and assessment of best and emerging practices, it is intended that these studies will offer insights relevant to policy makers, business and other circular economy practitioners and contribute to national discussions on circular economy.

This Circular Insights study on repair skills training and education in Ireland has been carried out by Arup under contract to the EPA.



# Glossary

Term	Definition
<b>Business-to-consumer (B2C)</b>	The process of selling products and services directly between a business and consumers who are the end-users of its products or services. <sup>1</sup>
<b>Circular economy</b>	An economic model and the policies and practices which give effect to that model in which: <ul style="list-style-type: none"> <li>a - production and distribution processes in respect of goods, products and materials are designed so as to minimise the consumption of raw materials associated with the production and use of those goods, products and materials,</li> <li>b - the delivery of services is designed so as to reduce the consumption of raw materials,</li> <li>c - goods, products and materials are kept in use for as long as possible thereby further reducing the consumption of raw materials and impacts harmful to the environment,</li> <li>d - the maximum economic value is extracted from goods, products, and materials by the persons using them, and</li> <li>e - goods, products and materials are recovered and regenerated at the end of their useful life<sup>2</sup>.</li> </ul>
<b>Digital product passport</b>	A set of data specific to a product that includes the information specified in the applicable delegated act adopted pursuant to Article 4 [of Regulation (EU) 2024/1781] and that is accessible via electronic means through a data carrier in accordance with Chapter III [of Regulation (EU) 2024/1781]. <sup>3</sup>
<b>Ecodesign</b>	The integration of environmental sustainability considerations into the characteristics of a product and the processes taking place throughout the product's value chain. <sup>3</sup>
<b>Enterprise</b>	Any entity engaged in an economic activity, irrespective of its legal form. This includes, in particular, self-employed persons and family businesses engaged in craft or other activities, and partnerships or associations regularly engaged in an economic activity. <sup>4</sup>
<b>Maintenance</b>	One or more actions carried out to keep a product in a condition where it is able to fulfil its intended purpose. <sup>3</sup>
<b>Manufacturer</b>	Any natural or legal person that manufactures a product or that has a product designed or manufactured and markets that product under their name or trademark. <sup>3</sup>
<b>Preparing for reuse</b>	Preparing for reuse is defined as 'checking, cleaning or repairing recovery operations, by which products or components of products that have become waste are prepared so that they can be reused without any other pre-processing.' <sup>5</sup>

1 Kenton, W., Brock, T. & Jackson, A. (2023) *B2C: How Business-to-Consumer Sales Works, 5 Types and Examples*. Available at: <https://www.investopedia.com/terms/b/btoc.asp> (Accessed: 19 April 2024).

2 Government of Ireland (2022) *Circular Economy and Miscellaneous Provisions Act*. Dublin: Stationary Office.

3 Regulation (EU) 2024/1781 of the European Parliament and of the Council of 13 June 2024 establishing a framework for the setting of ecodesign requirements for sustainable products, amending Directive (EU) 2020/1828 and Regulation (EU) 2023/1542 and repealing Directive 2009/125/EC (2024), *Official Journal of the European Union*, L series, 28.6.2024.

4 Commission Recommendation 2003/361/EC of 6 May 2003 concerning the definition of micro, small and medium-sized enterprises, *Official Journal of the European Union*, L124/36.

Term	Definition
<b>Recovery</b>	Any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfil a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy. Annex II of Directive 2008/98/EC sets out a non-exhaustive list of recovery operations. <sup>5</sup>
<b>Recycling</b>	Any recovery operation by which waste materials are reprocessed into products, materials or substances whether for the original or other purposes. It includes the reprocessing of organic material but does not include energy recovery and the reprocessing into materials that are to be used as fuels or for backfilling operations. <sup>5</sup>
<b>Refurbishment</b>	Actions carried out to prepare, clean, test, service and, where necessary, repair a product or a discarded product in order to restore its performance or functionality within the intended use and range of performance originally conceived at the design stage at the time of the placing of the product on the market. <sup>3</sup>
<b>Remanufacturing</b>	Actions through which a new product is produced from objects that are waste, products or components and through which at least one change is made that substantially affects the safety, performance, purpose or type of the product. <sup>3</sup>
<b>Repair</b>	One or more actions carried out to return a defective product or waste to a condition where it fulfils its intended purpose. <sup>3</sup>
<b>Repair café</b>	Free community events that primarily rely on volunteers to carry out repair work alongside members of the public on a broad range of products brought to the café. <sup>6</sup>
<b>Repairer</b>	Any natural or legal person who, related to that person's trade, business, craft or profession, provides a repair service, including manufacturers and sellers that provide repair services and repair service providers whether independent or affiliated with such manufacturers or seller. <sup>7</sup>
<b>Repurpose</b>	Repurposing is the use of a product or a material for a different function than it was originally intended. It means taking an object, but using it for a totally different purpose, even though it remains the same object. Repurposing an item can be done by modifying it to fit a new use or by using the item in a new way.
<b>Reuse</b>	Reuse means any operation by which products or components that are not waste are used again for the same purpose for which they are conceived. <sup>5</sup>
<b>Social enterprise</b>	An enterprise whose objective is to achieve a social, societal or environmental impact, rather than maximising profit for its owners or shareholders; which pursues its objectives by trading on an ongoing basis through the provision of goods and/ or services, and by reinvesting surpluses into achieving social objectives; and which is governed in a fully accountable and transparent manner. <sup>8</sup>
<b>Upcycling</b>	A process in which used materials are converted into something of higher value and/or quality in their second life. <sup>9</sup>

5 Directive 2008/98/EC on waste and repealing certain Directives, *Official Journal of the European Union*, L312/3.

6 Rediscovery Centre (2023) *Removing Insurance Barriers to Repair – EPA Strategic Partnership 2023*. [Presentation slides].

7 Directive (EU) 2024/1799 of the European Parliament and of the Council of 13 June 2024 on common rules promoting the repair of goods and amending Regulation (EU) 2017/2394 and Directives (EU) 2019/771 and (EU) 2020/1828.

8 Government of Ireland (2019) *National Social Enterprise Policy for Ireland 2019 – 2022*.

9 Sung, K. (2015) 'A review on upcycling: Current body of literature, knowledge gaps and a way forward', *Proceedings of the 17th International Conference on Environmental, Cultural, Economic and Social Sustainability, Venice, Italy, 17(4), Part I*.

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Term	Definition
<b>Upgrading</b>	Actions carried out to enhance the functionality, performance, capacity, safety or aesthetics of a product. <sup>3</sup>
<b>Waste</b>	Any substance or object which the holder discards or intends or is required to discard. <sup>5</sup>
<b>Waste management</b>	The collection, transport, recovery and disposal of waste, including the supervision of such operations and the aftercare of disposal sites, and including actions taken as a dealer or broker. <sup>5</sup>
<b>White goods</b>	White goods are large electrical goods/ home appliances examples include such as refrigerators, ovens, washing machines, freezers, dishwashers and tumble driers etc. <sup>10</sup>

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<sup>10</sup> Market Business News (n.d.). *White goods – definition and meaning*. Available at: <https://marketbusinessnews.com/financial-glossary/white-goods-definition-meaning/> (Accessed: 19 April 2024).

# Acronyms

Acronym	Definition
<b>ATU</b>	Atlantic Technological University
<b>BTEC</b>	Business and Technology Education Council
<b>B2C</b>	Business-to-consumer
<b>BSI</b>	British Standards Institution
<b>CASD</b>	Climate Action and Sustainable Development
<b>CCAP</b>	Community Climate Action Programme
<b>CEDEFOP</b>	European Centre for the Development of Vocational Training
<b>CESI</b>	Circular Economy Skills Initiative
<b>CFA</b>	Creative Futures Academy
<b>CIS</b>	Circular Insights Series
<b>CMUR</b>	Circular Material Use Rate
<b>CRNI</b>	Community Resources Network Ireland
<b>CSCP</b>	Collaborating Centre on Sustainable Consumption and Production
<b>CSO</b>	Central Statistics Office
<b>CSP</b>	Community Services Programme
<b>DCCI</b>	Design & Crafts Council of Ireland
<b>DFHERIS</b>	Department of Further and Higher Education, Research, Innovation and Science
<b>DIY</b>	Do-it-yourself
<b>EC</b>	European Commission
<b>ECCO</b>	Empowering Communities with Circular Opportunities
<b>EEA</b>	European Environment Agency
<b>EEE</b>	Electrical and electronic equipment
<b>EMF</b>	Ellen MacArthur Foundation
<b>EPA</b>	Environmental Protection Agency
<b>ETC CE</b>	European Topic Centre – Circular Economy and Resource Use
<b>ETB</b>	Education and Training Board
<b>ETBI</b>	Education and Training Boards Ireland
<b>EU</b>	European Union
<b>FET</b>	Further education and training
<b>FETCH</b>	Further Education and Training Course Hub
<b>FIT</b>	Fastrack into Information Technology
<b>GRETb</b>	Galway and Roscommon Education and Training Board
<b>HEA</b>	Higher Education Authority
<b>HR</b>	Human resources
<b>H&amp;S</b>	Health and safety

Acronym	Definition
<b>ICT</b>	Information and communication technology
<b>LMETB</b>	Louth and Meath Education and Training Board
<b>MA</b>	Masters
<b>NACE</b>	Statistical Classification of Economic Activities in the European Community
<b>N</b>	Number
<b>NCAD</b>	National College of Art and Design
<b>NCCA</b>	National Council for Curriculum and Assessment
<b>NFQ</b>	National Framework of Qualifications
<b>NSC</b>	National Skills Council
<b>OECD</b>	Organisation for Economic Co-operation and Development
<b>PAT</b>	Portable Appliance Testing
<b>PIAB</b>	Personal Injuries Assessment Board
<b>PLC</b>	Post Leaving Certificate
<b>QQI</b>	Quality and Qualifications Ireland
<b>RWN</b>	Roscommon Women's Network
<b>SEEDS</b>	Sustainability Environmental Economics and Dynamics Studies
<b>TED</b>	Textiles Environment Design (research group at Chelsea College of Arts)
<b>UN</b>	United Nations
<b>VET</b>	Vocational education and training
<b>VITO</b>	Flemish Institute for Technological Research (in Dutch)
<b>VTOS</b>	Vocational Training Opportunities Scheme
<b>WECAN</b>	Women's Environmental Community Activation Network
<b>WEEE</b>	Waste electrical and electronic equipment
<b>WGA</b>	White Goods Association
<b>WRF</b>	World Resources Forum

# Executive Summary

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The circular economy offers an alternative to the prevailing linear, take-make-use-dispose model of resource use. In a circular economy, waste and pollution are eliminated, products and materials are circulated at their highest value, and nature is regenerated.

Repair is an enabler of the transition from a linear to a circular economy. The role of repair in the circular economy lies in keeping existing goods in circulation – in extending the life of goods and retaining their functional value. Repair as an alternative to buying new has the effect of reducing demand for new goods and the associated environmental and social impacts in the supply chain. Policies at national and European Union levels seek to promote repair as an enabler of the circular economy.

Repair is a labour-intensive process that requires specific knowledge and skills. In order to enable high quality repair services at scale in Ireland, education and training are needed to provide a skilled workforce of repair professionals, trained in a range of product categories, and to provide laypersons with the skills to repair their personal belongings, where desired. The Irish Whole of Government Circular Economy Strategy<sup>11</sup> identifies this need as a *“(re)training and upskilling opportunity for both young and older workers across all regions of the country”*.

This study on repair skills training and education in Ireland has been undertaken as part of the EPA Circular Economy Programme’s Circular Insights Series, a series of studies on emerging and priority topics to build evidence and fill knowledge gaps to support circular economy policy in Ireland. It aims to provide an evidence-based report providing information on what is known about available repair skills training and education in Ireland. This Circular Insights study is complemented by a second, parallel study on business-to-consumer repair enterprises in Ireland, that may be read in conjunction with this study. Please refer to the standalone Circular Insights Study, ‘Business-to-consumer repair enterprises in Ireland’ for further information.

Based on an extensive web-based search in Q4 2023, this study identified 159 repair skills training and education courses available for enrolment in Ireland. Courses identified offered training in the repair of a range of product categories. The most well represented product categories were bicycles (N=38; 23.9%), clothing and textiles (N=35; 22.0%), automotive (N=30; 18.9%) and furniture and upholstery (N=22; 13.8%).

The data highlighted a number of gaps in available repair skills training and education in Ireland. Few courses were available in the repair of electrical and electronic goods (other than white goods) (N= 7; 4.4%), and fewer were available specifically in white goods repair (N=4; 2.5%), while no available courses were identified in the repair of shoes and leather goods. The lack of specific training in smartphone repairs (N=1; <1%) is also noteworthy, given the large number of smartphone repair enterprises operating in Ireland.

The data also highlighted a lack of repair skills training specifically targeted at professionals (N=43; 27%), with the exception of the automotive sector. No professional repair skills training courses were identified for the clothing and textiles; shoes and leather goods; or jewellery, watches and clocks product categories.

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11 Government of Ireland (2022). *Whole of Government Circular Economy Strategy 2022 – 2023 – Living More, Using Less*.

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The repair courses identified were concentrated in a small number of Counties containing Cities, with Co. Dublin containing close to half of all courses identified (N=69; 43.4%). This is noteworthy given that the majority of courses identified (N=147; 92.5%) were offered in-person only, which has implications for the accessibility of repair skills training and education.

In particular, this study identified a need for vocational education and training for repair professionals, validated by Quality and Qualifications Ireland (QQI) and/or accredited by third parties. Stakeholders interviewed to inform this study identified the lack of formal, external training for repair professionals as a key challenge in terms of recruitment of skilled workers by repair enterprises.

As highlighted by previous research and the findings of a parallel Circular Insights study, 'Business-to-consumer Repair Enterprises in Ireland', the repair services sector in Ireland and more widely is highly labour-intensive.

There is an opportunity to build on the success of the Circular Economy Skills Initiative (CESI) training programme for white goods field service technicians, launched in 2021, to address other gaps in vocational education and training for repair professions.

There is also a need to integrate repair skills and design for repairability into existing training and education programmes, particularly design education at post-primary, further and higher educational levels to promote an awareness of repair professions and to cultivate a design for repairability mindset among future design and craft professionals. The School of Home Economics at Atlantic Technological University St Angela's is demonstrating leadership in this area, collaborating with the Rediscovery Centre and other stakeholders to integrate repair skills and circular design principles into its post-primary teacher training in Home Economics.

The study has also highlighted the valuable contribution of social enterprises to the provision of repair skills training and education in Ireland. Despite accounting for only a small minority (approx. 1%) of business-to-consumer repair enterprises nationally, social enterprises engaged in repair provide a range of repair skills training opportunities, including accredited training for repair professionals. Under the scope of Government funded labour activation schemes, they also provide repair skills training and employment opportunities to groups at risk of poverty and social exclusion, thereby supporting an inclusive and just transition to a circular economy.

This study also addresses the potential role of community repair initiatives, such as repair cafés, to support the development of self-repair skills among members of the public, by providing communities with free access to repair experts and facilities. The role of social enterprises engaged in repair and community repair initiatives can be supported to improve the provision of formal and informal repair skills training for professionals and non-professionals alike.

Based on analysis of data and stakeholder insights, and a review of relevant literature, recommendations have been identified in relation to repair skills training and education, to support the development of a thriving repair sector and the transition to a circular economy in Ireland (Table 1). In relation to each recommendation, potential intervention opportunities have been identified for further consideration.

Table 1: Recommendations and potential intervention opportunities

Recommendations	Potential Intervention Opportunities
 <p>Ensure the need for repair skills training is supported in national circular economy policy and other relevant policy areas (including training, education and skills development; social economy and employment)</p>	<ul style="list-style-type: none"> <li>Objectives to support provision of repair skills training and education in next iterations of <i>Whole of Government Circular Economy Strategy</i> and <i>National Further Education and Training Strategy</i></li> <li>Development and adoption of National Reuse and Repair Roadmap</li> </ul>
 <p>Collaborate with stakeholders, including repair enterprises, to develop and roll-out vocational education and training (VET) for repair professionals</p>	<ul style="list-style-type: none"> <li>New apprenticeships for occupations involving repair</li> <li>New traineeships for repair professionals</li> </ul>
 <p>Support the role of repair enterprises (including social enterprises) in the provision of repair skills training</p>	<ul style="list-style-type: none"> <li>Additional Community Services Programme (CSP) positions for social enterprises</li> <li>Targeted CSP funding strand for social enterprises engaged in repair</li> <li>Supports for repair enterprises in the development and delivery of QQI-validated and/or third-party accredited repair training programmes</li> </ul>
 <p>Promote public awareness of repair career pathways</p>	<ul style="list-style-type: none"> <li>Public awareness campaigns in tandem with new repair skills initiatives – repair professions as professions of the future/circular economy</li> </ul>
 <p>Integrate circular design and repair skills into existing training and education, particularly design education in post-primary, further and higher education</p>	<ul style="list-style-type: none"> <li>Further integration of repair skills into post-primary Home Economics syllabus at Junior and Senior Cycle</li> <li>Integration of circular design (including design for reparability) into post-primary technical subjects (e.g., Applied Technology, Engineering, Wood Technology, Construction Studies, Technology) at Junior and Senior Cycle</li> <li>Integration of repair and other circular economy strategies into proposed new post-primary Senior Cycle subject, 'Climate Action and Sustainable Development'</li> <li>Integration of circular design, design for reparability and/or repair skills, as appropriate, into design and trade/craft courses and programmes in further and higher education</li> </ul>
 <p>Support the role of community repair initiatives in repair skills development</p>	<ul style="list-style-type: none"> <li>Innovation funding for community repair initiatives (e.g., DIY repair hubs, repair cafés)</li> <li>Best practice guidelines for repair cafés, including measures to address public and product liability risk (e.g., use of health and safety protocols, portable appliance testing, waivers)</li> <li>Representation for community repair organisations (e.g., repair cafés)</li> <li>Continued insurance reform to promote reduced insurance premiums</li> <li>Provisions in national transposition of Right to Repair Directive to address insurance barriers to repair</li> </ul>
 <p>Ensure VET for repair professionals meets the skills needs of the self-employed and micro- and small enterprises, having regard to the high share of these groups in the sector</p>	<ul style="list-style-type: none"> <li>VET for repair professionals incorporates relevant soft skills for self-employed and small businesses (e.g., financial, human resources, legislative compliance, management, etc.)</li> </ul>



# 1. Introduction

This study on repair skills training and education in Ireland has been undertaken as part of the EPA Circular Economy Programme's Circular Insights Series, a series of studies on emerging and priority topics to build evidence and fill knowledge gaps to support circular economy policy in Ireland. It aims to provide an evidence-based report providing information on what is known about available repair skills training and education in Ireland.

The circular economy offers an alternative to the prevailing linear, take-make-use-dispose model of resource use. In a circular economy, waste and pollution are eliminated, products and materials are circulated at their highest value, and nature is regenerated.<sup>12</sup>

Ireland is at a turning point for the transition from a linear to a circular economy.<sup>13</sup> In recent years, several interventions including government-led waste prevention and circular economy initiatives, government-supported funding schemes, and the introduction of national circular economy policies and action plans have accelerated Ireland's transition to a circular economy.<sup>13</sup>

While Ireland has introduced legislation and policies to promote circularity in recent years, its circular material use rate (CMUR)<sup>14</sup> is low (1.8%) compared with the Netherlands (27.5%), Belgium (22.2%) and France (19.3%).<sup>15</sup> The Government has committed to significantly reducing Ireland's circularity gap, in both absolute terms and in relation to other EU Member States.<sup>11</sup> It should also be noted that the CMUR is a 'whole of economy' metric expressing recycling and recovery tonnage as a percentage of total materials/resources extracted and used in an economy, including imports. Ireland's low CMUR is partly explained by its open economy with a strong agricultural sector and high level of exports. For other circular economy indicators, Ireland is more closely aligned with other Member States (e.g., Ireland's municipal recycling rate is 41% compared with the EU average of 46%).<sup>16</sup>

There are a number of frameworks that seek to illustrate how a circular economy can work in practice. These include the 9R Framework that provides a hierarchy of nine strategies to enable the transition from a linear to a circular economy, as illustrated in Figure 1.<sup>17,18,19</sup> Among these is repair, which refers to "one or more actions carried out to return a defective product or waste to a condition where it fulfils its intended purpose".<sup>3</sup>

12 EMF (n.d.) *What is a circular economy*. Available at: <https://www.ellenmacarthurfoundation.org/topics/circular-economy-introduction/overview> (Accessed 19 April 2024).

13 OECD (2022) *The Circular Economy in Ireland*. Paris: OECD Publishing.

14 The CMUR reflects the proportion of materials that are reused, recycled, or remanufactured within the circular economy.

15 Eurostat (2023) *Material flows and resource productivity*. Available at: <https://ec.europa.eu/eurostat/web/environment/information-data/material-flows-resource-productivity> (Accessed 19 April 2024).

16 EPA (2023) *Municipal waste statistics for Ireland*. Available at: <https://www.epa.ie/our-services/monitoring--assessment/waste/national-waste-statistics/municipal/>. Accessed 12 September 2024.

17 Potting, J., Hekkert, M., Worrell, E. & Hanemaaijer, A. (2017) *Circular Economy: Measuring Innovation in the Product Chain – Policy Report*. [Report prepared for the Netherlands Environmental Assessment Agency].

18 Kirchherr, J., Reike, D. & Hekkert, M. (2017) 'Conceptualizing the circular economy: An analysis of 114 definitions', *Resources, Conservation & Recycling*, 127, pp. 221-232.

19 Manoochehri, S., Schluep, M., Dams, Y., Mehlhart, G., Lingås, D.B., Marin, G., Nicolau, M. & Colgan, S. (2022). *An overview of Europe's repair sector*, ETC/CE Report 6/2022. [Report prepared by WRF, VITO, PlanMiljø, SEEDS and CSCP for the EEA].

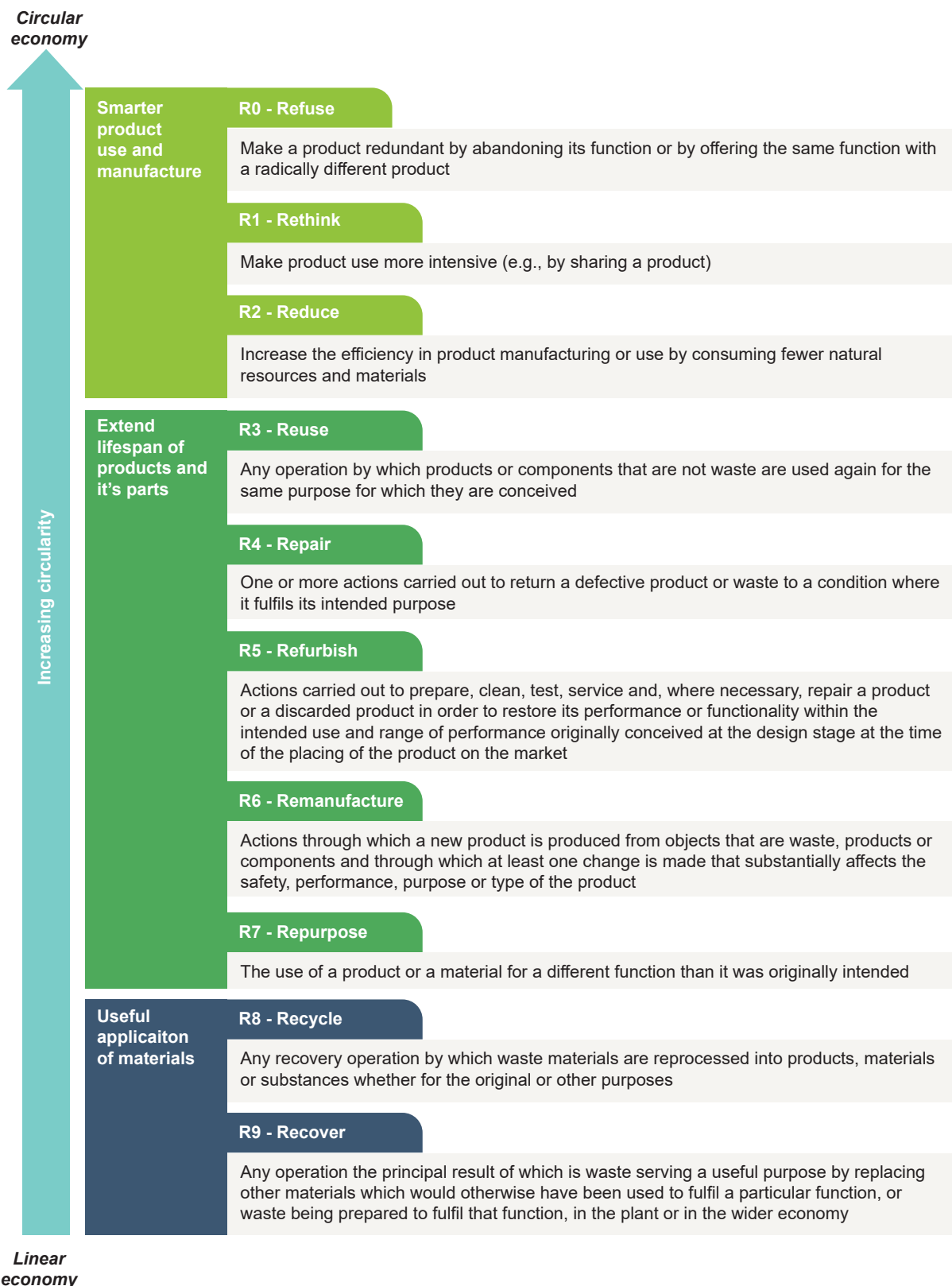


Figure 1: The 9R Framework<sup>20</sup>

20 Adapted from Potting, J., Hekkert, M., Worrell, E. & Hanemaaijer, A. (2017) *Circular Economy: Measuring Innovation in the Product Chain – Policy Report*. [Report prepared for the Netherlands Environmental Assessment Agency], and Kirchherr, J., Reike, D. & Hekkert, M. (2017) 'Conceptualizing the circular economy: An analysis of 114 definitions', *Resources, Conservation & Recycling*, 127, pp. 221-232.

Repair has an essential role to play as a driver of the transition to a circular economy. It is relatively high up in the hierarchy of strategies for a circular economy, in that it retains the functional value of products. This makes repair preferable from a circularity perspective to strategies such as recycling, for example, which destroys the functional value of the product, while keeping its constituent materials in circulation.

Repair has the effect of ‘slowing down’ resource loops,<sup>21</sup> reducing demand for resources and the associated environmental pressures. As an alternative to buying new, product repair avoids the embodied environmental impacts associated with the supply chain of new products and waste generated by prematurely discarded, defective products.

Repair is a labour-intensive process requiring specific knowledge and skills. In order to support the role of repair in the transition to a circular economy, there is a need for a workforce trained in the repair of a range of product categories. The Irish Whole of Government Circular Economy Strategy 2022-2023 identifies this need as a “(re)training and upskilling opportunity for both young and older workers across all regions of the country” and acknowledges the potential social co-benefits of repair skills training in creating jobs and safeguarding potential, thereby supporting the national just transition effort.<sup>11</sup> The Strategy sets out the Government’s commitment to support education and training for the circular economy.

## 1.1 The Education and Training System in Ireland

The Irish education and training system is divided into four sectors: primary, post-primary (or secondary), further education and training (FET) and higher (or third level) education.<sup>22</sup> The National Framework of Qualifications (NFQ) describes the main qualifications awarded at each level of education, from post-primary upwards.<sup>23</sup> It summarises the requirements for achieving each qualification, and outlines pathways for progression between levels. The NFQ can be used by individuals to define the level of education provided by a course and by employers to understand the competence and level of knowledge of employees and applicants. Each level is defined by award standards, which course participants must achieve in order to receive their qualification.

Vocational education and training (VET) in Ireland is mainly provided via the FET sector.<sup>22</sup> FET is available to persons aged 16 and over and includes a wide range of full- and part-time programmes, including apprenticeships,<sup>24</sup> traineeships, Post Leaving Certificate (PLC) and Vocational Training Opportunities Scheme (VTOS) courses, and community education.<sup>25</sup>

There are several authorities involved in the governance and delivery of education and training in Ireland, including the following:<sup>22</sup>

- The Department of Further and Higher Education, Research, Innovation and Science (DFHERIS), established in 2020, is responsible for policy and funding for the FET, higher education and research sectors, and oversight of the relevant agencies and institutions.

21 Bocken, N.M.P., de Pauw, I., Bakker, C. & van der Grinten, B. (2016) ‘Product design and business model strategies for a circular economy’, *Journal of Industrial and Production Engineering*, 33(5), pp. 308–320.

22 Walshe, A., Dunlop, S. & Georgiadis, N. (2022) *Vocational Education and Training in Europe: Ireland – System Description*. [Report prepared by ReferNet for CEDEFOP and SOLAS].

23 QQI (n.d.). *The National Framework of Qualifications*. Available at: <https://www.qqi.ie/national-framework-of-qualifications> (Accessed 19 April 2024).

24 Since 2016, apprenticeships are provided by both FET and higher education providers. A National Apprenticeship Office was set up jointly by SOLAS and the HEA in 2022

25 Citizens Information (2024). *Further education and training (FET) courses*. Available at: <https://www.citizensinformation.ie/en/education/further-education-and-training/training-courses/> (Accessed 19 April 2024).

- Quality and Qualifications Ireland (QQI) operates under the DFHERIS. It is an awarding body, and the authority responsible for the external quality assurance of further and higher education and training in Ireland. The NFQ was developed and is maintained by QQI.
- The National Skills Council (NSC) oversees the process of skills need identification in Ireland. It is comprised of representatives from a number of Government Departments, agencies, education and training providers and employers.
- SOLAS is the agency responsible for funding, planning and coordinating FET provision in Ireland. Under the Skills to Advance initiative, SOLAS has created a green skills range of FET 'micro-qualifications' that aim to equip workers with the skills to make a positive contribution to sustainability in the workplace.<sup>26</sup> This includes a QQI accredited Level 6 programme on 'The Circular Economy in the Workplace'<sup>27</sup> In 2024, SOLAS has published Green Skills 2030, the first national FET strategy for the green transition.
- The main providers of FET in Ireland are the Education and Training Boards (ETBs), of which there are 16, serving different Counties.
- The Higher Education Authority (HEA) is responsible for the governance and regulation of the higher education system and institutions. Since the 2016 reform of the apprenticeship model, the HEA plays a role in the oversight of VET programmes that are delivered in technological universities.
- The National Apprenticeship Office was set up jointly by SOLAS and HEA on behalf of government in 2022 and has responsibility for all aspects of the management, oversight and development of the apprenticeship system and for implementing the government's Action Plan for Apprenticeship 2021-2025.
- Skillnet Ireland is a business support agency of the Government that is responsible for advancing the competitiveness, productivity and innovation of businesses operating in Ireland through enterprise-led workforce development. It collaborates with enterprise and agencies to develop new programmes to address current and future skill needs.<sup>28</sup>

### 1.1.1 Apprenticeships

Apprenticeships are a type of vocational education and training (VET) that provide structured, practical education, combining on-the-job and off-the job training, leading to a formal qualification in a specific craft trade or other profession.<sup>29</sup> SOLAS, the Apprenticeship Council, HEA and QQI are the key authorities involved in the administration of the apprenticeship system in Ireland. Apprentices are employed and paid by an approved employer for the duration of their studies. Apprenticeships account for roughly half of all learners engaged in VET in Ireland. There are two types of apprenticeship programme in Ireland. The first is the traditional 'craft apprenticeship' which takes four years to complete and results in a QQI Level 6 Advanced Certificate (Craft). There are approximately 25 craft apprenticeships currently available in trades such as carpentry, plumbing, motor mechanics and electrical.

Following a review of the apprenticeship system published in 2013,<sup>30</sup> a new type of employer-led apprenticeship for other industries was introduced in 2016. These new apprenticeships generally take two to four years to complete and result in a QQI accredited Level 5-10 award in one of a range

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26 SOLAS (n.d.). *New Upskilling Programmes – Green Skills*. Available at: <https://www.solas.ie/programmes/skills-to-advance/Training-Programmes/> (Accessed 19 April 2024).

27 SOLAS (n.d.). *The Circular Economy in the Workplace*.

28 Skillnet Ireland (2021). *Transforming Business through Talent – Statement of Strategy 2021-2025*.

29 Citizens Information (2023). *Apprenticeships*. Available at: <https://www.citizensinformation.ie/en/education/further-education-and-training/apprenticeships/> (Accessed 19 April 2024).

30 Government of Ireland (2013). *Review of Apprenticeship Training in Ireland*.

of sectors, including but not limited to ICT, finance, hairdressing, hospitality, farming, logistics and accounting. They must provide participants with paid employment for the full duration of the programme, under a Contract of Apprenticeship with an employer approved by SOLAS. The new apprenticeships now outnumber the traditional craft apprenticeships, at approx. 35. In 2017, the Generation Apprenticeship scheme was launched to promote awareness of the new apprenticeship offering.

The apprenticeship system in Ireland is governed by legislation, including the Industrial Training Act 1967<sup>31</sup> and the Qualifications and Quality Assurance Act 2012, as supplemented by the QQI core<sup>32</sup> and topic-specific<sup>33</sup> Statutory Quality Assurance Guidelines for apprenticeship programmes. An additional publication from SOLAS provides guidance on developing new apprenticeship programmes in Ireland.<sup>34</sup> Key requirements in a proposal for creation of a new apprenticeship are to provide evidence of a substantial skills need within an industry sector(s) that will be met by a national apprenticeship, and support from employers for the apprenticeship.

### 1.1.2 Traineeships

Traineeships are short, structured training programmes that, like apprenticeships, combine on-the-job and off-the-job training in a trade or other profession. Unlike apprenticeships, traineeships are neither regulated by law nor paid – although social welfare supports are available. Completion of a traineeship takes 6-20 months (of which at least 30% is workplace-based) and leads to a QQI accredited Level 4-6 qualification. Over 75 fully funded traineeship programmes are currently available in a range of industries.<sup>70</sup>

## 1.2 Aims and Objectives

This study on repair skills training and education in Ireland has been undertaken as part of the EPA Circular Economy Programme's Circular Insights Series. It aims to provide an evidence-based report providing information on what is known about available repair skills training and education in Ireland, and in doing so, address a data gap on this subject, and provide a strong evidence base, analysis and recommendations to support circular economy policy and implementation. This constitutes the first study on this topic at the national level.

The objectives of this study are to:

- Describe the baseline scenario for repair skills training and education in Ireland, highlighting what is known about the nature and scale of the sector presently, and identifying knowledge gaps
- Identify key barriers and needs for the sector; and
- Identify opportunities and present recommendations to support the development of a thriving repair sector in Ireland, supporting the transition to a circular economy.

Chapter 2 sets out key statistics on repair skills training and education in Ireland today. These are based on the analysis of a dataset of repair skills training and education programmes and courses available in Ireland, informed by a number of information sources.

31 CEDEFOP (n.d.). Apprenticeships in Ireland, *Cedefop European database on apprenticeship schemes*. Available at: <https://www.cedefop.europa.eu/en/tools/apprenticeship-schemes/scheme-fiches/apprenticeships-ireland> (Accessed 19 April 2024).

32 QQI (2016). *Core Statutory Quality Assurance Guidelines developed by QQI for use by all Providers*.

33 QQI (2016). *Topic-specific Statutory Quality Assurance Guidelines developed by QQI for Providers of Statutory Apprenticeship Programmes*.

34 SOLAS, the Department of Education and Skills, HEA & QQI (2017). *Developing a National Apprenticeship – Handbook*.

Chapter 3 provides an economic analysis of the repair sector insofar as it relates to repair skills training and education, drawing on data from Eurostat and the Central Statistics Office (CSO).

Chapter 4 summarises the key insights identified in this study, based on data gathered and feedback received during a series of 13 workshops with key stakeholders engaged in the repair sector, repair skills training and education, and circular economy research and implementation more broadly. A list of these stakeholders is provided in Appendix A.

Chapter 5 identifies recommendations and potential intervention opportunities for further consideration.

Chapter 6 summarises the conclusions of this study.

## 1.3 Methodology

### 1.1.3 Data Collection and Analysis

To inform this study, a dataset of repair skills training education available for enrolment in Ireland in Q4 2023 was developed based on an extensive web-search, including the following sources:

- Further Education and Training Hub (FETCH) website
- Adult Education Ireland website
- Careers Portal website
- Community Resources Ireland (CRNI) Virtual Trade Fair of its members
- Curriculum Online website
- Courses.ie; and
- Google keyword searches to identify any additional courses and programmes not included in the aforementioned.

The scope of the dataset included accredited and unaccredited repair skills training and education available in Ireland; provided by public and private sector; available in-person or web-based, where the provider was based in Ireland; offered to professionals and non-professionals; and including second- and third-level education, and further education and training. The scope excluded web-based courses/programmes, where the provider was not based in Ireland; media-based education (e.g., social media tutorials, TV shows); autobody repair; engineering maintenance skills; repair cafés; Men's/Women's Sheds; and related vocational education and training (e.g., electrician, plumbing, fashion design, furniture making) not containing an explicit repair element.

The following variables were identified for each repair skills training and education opportunity in the dataset:

- Information source
- Title
- Location/Training Centre
- Awarding body
- Public/private sector
- Product Category/ies
- County

- City (Y/N)
- In-person/Web-based/both
- Duration
- Full-time/Part-time
- Frequency
- NFQ Level
- Education level; and
- Target Audience.

The statistics in Section 2 were calculated based on the analysis of the dataset of repair skills training and education opportunities collated. The list of courses identified and key variables for each is provided in Appendix B.

#### 1.1.4 Economic Analysis

Chapter 3 provides an economic analysis of the repair sector insofar as it relates to repair skills training and education. For the purposes of this analysis, Eurostat's Structural Business Statistics database was used to provide an overview of the current labour market features of Ireland's repair sector. This dataset provides a harmonised and comprehensive picture at a national and sectoral level of the private sector in the EU. Most of the Structural Business Statistics data is collected by National Statistical Institutes such as the CSO in Ireland by means of statistical surveys, business registers or from various administrative sources. Of primary interest in this report is the 'input related' variables and specifically, the labour input metrics including employment and hours worked.

#### 1.1.5 Stakeholder Engagement

To gather insights in relation to repair skills training and education from key stakeholders, 13 workshops were held with a range of stakeholders from across the repair sector in Ireland, including repair enterprises providing training, industry representative groups, state agencies and non-governmental organisations (refer to Appendix A for full list of stakeholders). The workshops facilitated discussion on the barriers, opportunities and needs in relation to repair skills training and education in Ireland. Workshops were recorded and transcribed and stakeholder insights collated and analysed thematically.

### 1.1.6 Limitations

The dataset of repair skills training and education in Ireland in Q4 2023 was based on an extensive web-based search and is considered to provide quite a comprehensive snapshot of the repair skills training and education available at the time.

The limitations of the scope of this dataset, as detailed above, are noted, particularly in relation to web-based resources available to members of the public in Ireland but from providers outside of Ireland. There is a large volume of repair skills training and education content available online, ranging from formal web-based training to social media-based tutorials, which were outside of the scope of this study but nevertheless provide skills development opportunities for people in Ireland. Noteworthy examples include iFixit (see case study, below) and the Fixing Fashion platform. It also noted that there are a number of web-based training platforms that have offices in Ireland, including Alison and Udemy. A number of repair training courses were noted on these platforms, but these were not from tutors based in Ireland and are, therefore, outside of the scope of this study.

### Case Study 1 iFixit

iFixit is a US-based company established in the early-2000s that, over the last 20 years, has created “the world’s largest online repair community”. On its website, it provides free step-by-step guides, and sells tools and spare parts to facilitate the repair of consumer electronics. It is known for its product ‘teardowns’, in which it disassembles and rates the repairability of electronic devices. In response to the emergence of manufacturer proprietary screws and tools, in 2011 iFixit began developing and selling specialised toolkits to enable consumers to disassemble their own devices. iFixit has been a pioneer of the ‘right to repair’ movement in the US and Europe. It has also worked directly with manufacturers to promote repair. iFixit has, for example, collaborated with Dutch smartphone brand, Fairphone, to help it design for repairability and develop self-repair manuals for its devices.<sup>35,36</sup>

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35 Goldheart, S. (2023). *iFixit Celebrates 20 Years of Fixing the World*. Available at: <https://www.ifixit.com/News/72076/ifixit-celebrates-20-years-of-fixing-the-world> (Accessed 19 April 2024).

36 TUDelft (2018). 3.2.7: *iFixit Case Study*. Available at: <https://ocw.tudelft.nl/course-lectures/3-2-7-ifixit-case-study/> (Accessed 19 April 2024).

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## 2. Repair Skills Training and Education in Ireland – Key Statistics

### 2.1 Number of Courses

Within the scope of this study, a total of 159 repair skills training and education classes, courses and programmes were identified as being available for enrolment in Q4 2023. Courses identified and key variables are listed in Appendix B.

### 2.2 Product Categories

The courses identified provided repair skills education and training across a range of product categories, as summarised in Table 2 and Figure 2. The most well represented product categories were bicycles (23.9%), clothing and textiles (22.0%), automotive (18.9%) and furniture and upholstery (13.8%). Subjects with <10% of the overall share of courses available were general home repairs/DIY (6.3%); electrical and electronic equipment (EEE) (other than white goods) (4.4%); musical instruments (2.5%); jewellery, watches and clocks (1.9%); and lawnmowers and agricultural machinery (0.6%).

A small number of the courses identified (2.5%) related to various/non-specific product categories – for example, broad-scope further education classes such as ‘Creative Craft’, which intends to “enable the learner to acquire the knowledge skill and competence to design, make, restore and or repair craft artefacts to a standard suitable in a work environment or to progress to further or higher education and training”. One course (0.6%) was identified that fell outside the above-listed product categories, on the subject of domestic gas boiler servicing and repair.

It is noteworthy that relatively few repair skills training courses were identified for key product categories such as EEE (not including white goods) and white goods; whereas other categories, such as bicycles, clothing and textiles, and furniture and upholstery are comparatively well represented. For one product category – shoes and leather goods – no repair skills training courses were identified as being available in Ireland during the study period. Another noteworthy gap identified is the small number of smart phone repair training courses available, give the relatively large number of business-to-consumer (B2C) repair enterprises offering smart phone repairs nationwide (refer to standalone Circular Insights Study, ‘Business-to-consumer Repair Enterprises in Ireland’). Only one course providing training specifically in smart phone repair was identified.

**Table 2:** Repair skills training – product categories

Product category	No. courses	Percentage (%)
Bicycles	38	23.9
Clothing and textiles	35	22.0
Automotive	30	18.9
Furniture and upholstery	22	13.8
General home repairs/DIY	10	6.3
Electrical and electronic equipment, excluding large appliances (white goods)	7	4.4

Product category	No. courses	Percentage (%)
Musical instruments	4	2.5
Large appliances (white goods)	4	2.5
Jewellery, watches and clocks	3	1.9
Lawnmowers and agricultural machinery	1	0.6
Various	4	2.5
Other	1	0.6
<b>Total</b>	<b>159</b>	

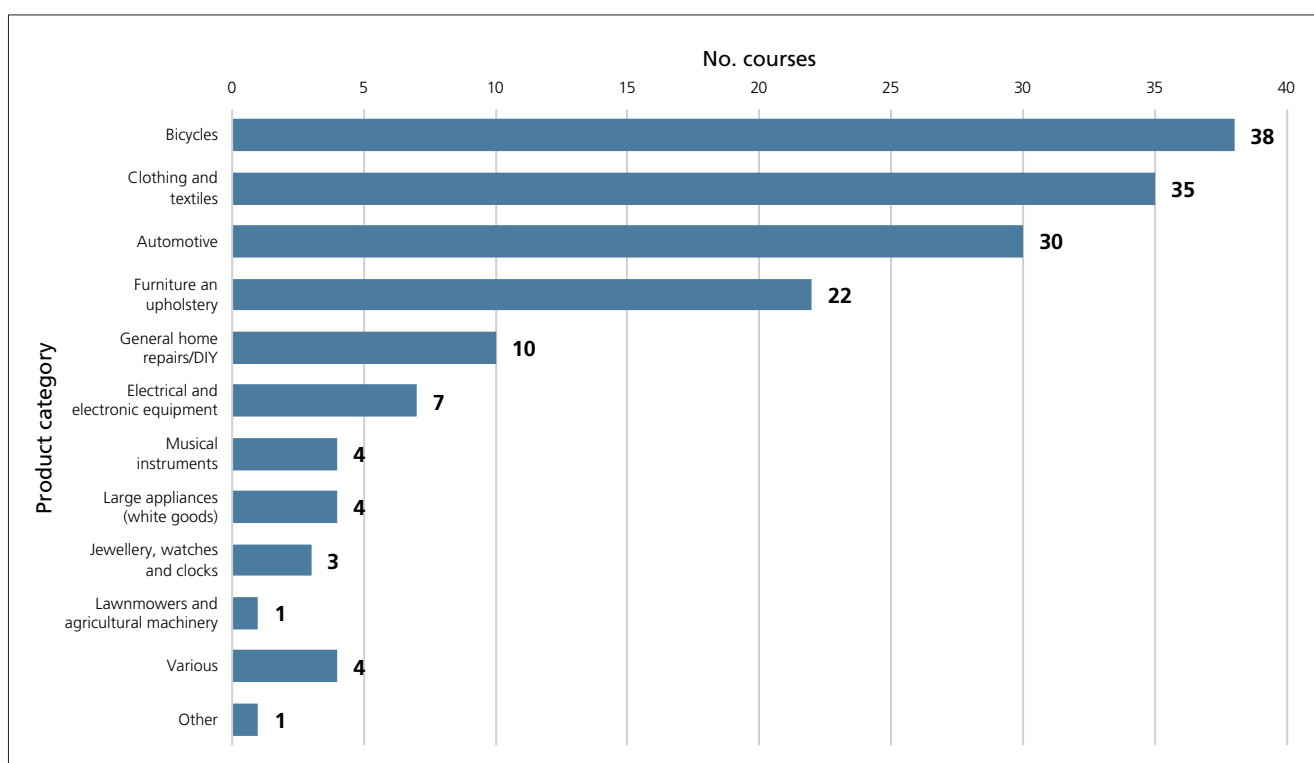


Figure 2 : Repair skills training – product categories

## 2.3 Educational Level

Courses identified were classed according to their level on the National Framework of Qualifications (NFQ). The results are summarised in Table 3, Table 4 and Figure 3. The majority of courses identified (61.6%) had no stated NFQ level in information provided. This cohort included informal repair workshops, non-accredited courses from private sector educators and adult education night classes, for example.

**Table 3:** Repair skills training – NFQ level

NFQ Level	No. courses	Percentage (%)
Level 1	4	2.5
Level 2	11	6.9
Level 3	13	8.2
Level 4	4	2.5
Level 5	17	10.7
Level 6	11	6.9
Level 7	1	0.6
Not applicable (none)	98	61.6
<b>Total</b>	<b>159</b>	

**Table 4:** Repair skills training – Educational level

Educational level	No. courses	Percentage (%)
Junior Certificate	1	0.6
Leaving Certificate	1	0.6
Level 1 Certificate	4	2.5
Level 2 Certificate	11	6.9
Level 3 Certificate	12	7.5
Level 4 Certificate	4	2.5
Level 5 Certificate	16	10.1
Advanced Certificate (incl. Apprenticeship)	11	6.9
Ordinary Bachelor's Degree	1	0.6
Other	98	61.6
<b>Grand Total</b>	<b>159</b>	

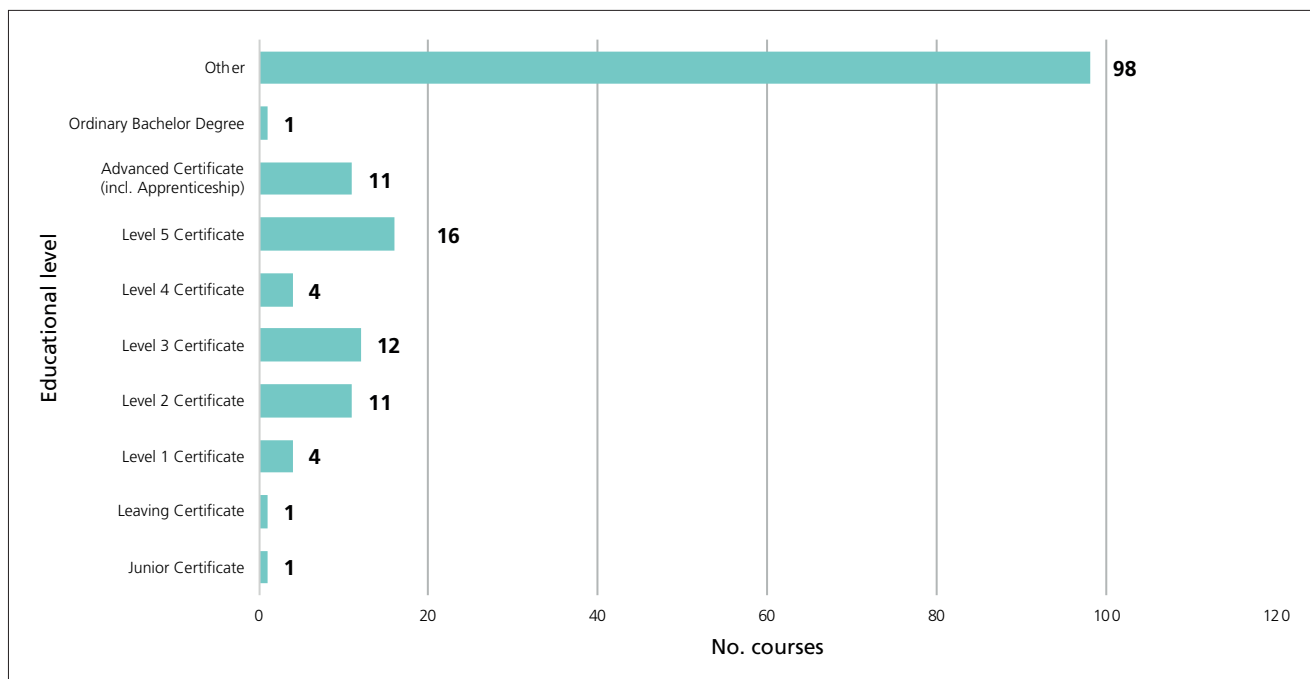


Figure 3: Repair skills training – Educational level

## 2.4 Training Providers

A total of 80 training providers were identified. Key categories of providers of repair skills training and education courses in Ireland include Colleges of Further Education and Training (N= 37 courses; 23.3%), private training organisations/colleges (N=28; 17.6%), adult education/night class centres at community/comprehensive schools (N=28; 17.6%), commercial repair enterprises providing repair training as an ancillary service (N=18; 11.3%), social enterprises engaged in repair (N=14; 8.8%), Community Training Centres (N=9; 5.7%), Technological Universities (N=6; 3.8%), post-primary schools (N=2; 1.3%), Institutes of Technology (N=1; 0.6%), and other providers not falling under these categories (N=16; 10.1%), which include private individuals offering informal classes.

## 2.5 Duration and Format of Courses

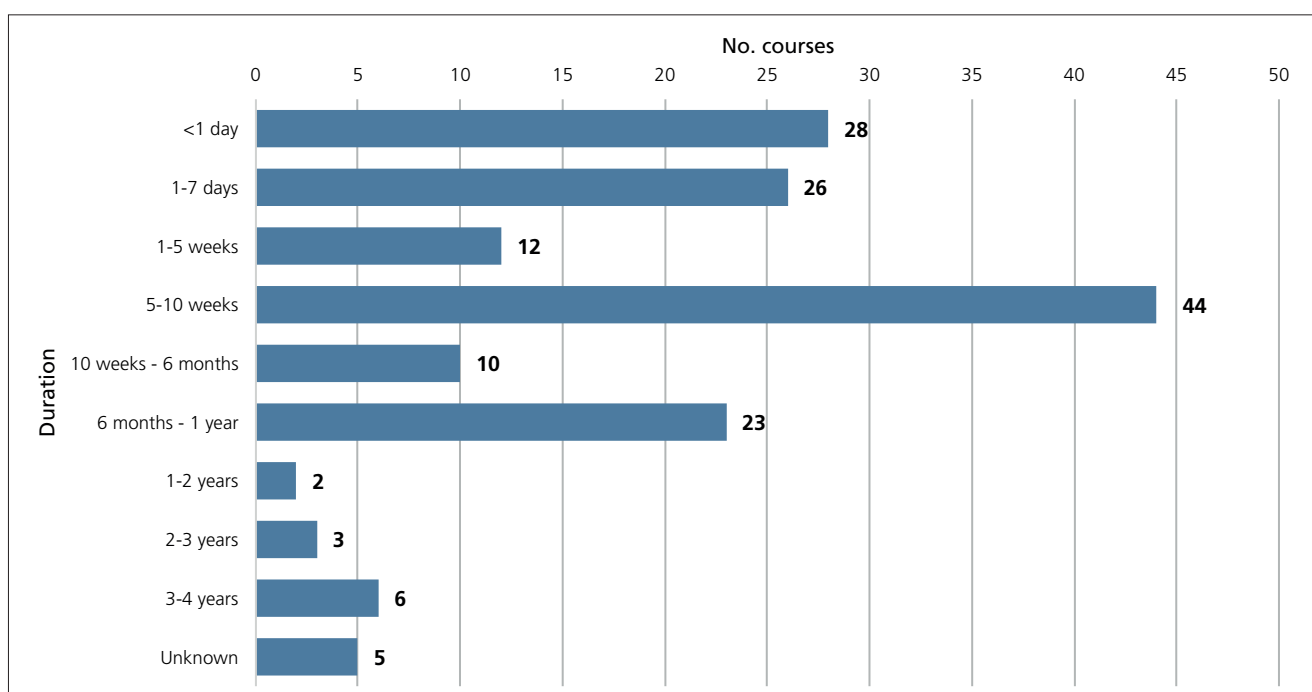
The duration of courses was identified and is summarised in Table 5 and Figure 4. The duration of these courses ranged from 1 hour to four years, with the majority of courses (69.2%) being relatively short format (fewer than ten weeks in duration). The majority of courses identified (92.5%) were offered in-person only, while a small proportion (1.3%) were web-based only, and the remainder (6.3%) a mix of the two, as detailed in Table 6. As detailed in Table 7, the greatest share of courses identified (44.7%) were offered on a part-time basis, while 30.8% were full-time (not including courses <1 day in duration). Six of the courses identified (3.8%) were apprenticeships.

Table 5: Repair skills training – Duration of courses<sup>37</sup>

Duration	No. courses	Percentage (%)
<1 day	28	17.6
1-7 days	26	16.4
1-5 weeks	12	7.5

<sup>37</sup> Marginal durations included in lower category (e.g., duration of five weeks included in '1-5 weeks' category)

Duration	No. courses	Percentage (%)
<b>5-10 weeks</b>	44	27.7
<b>10 weeks - 6 months</b>	10	6.3
<b>6 months - 1 year</b>	23	14.5
<b>1-2 years</b>	2	1.3
<b>2-3 years</b>	3	1.9
<b>3-4 years</b>	6	3.8
<b>Unknown</b>	5	3.1
<b>Total</b>	<b>159</b>	



**Figure 4:** Repair skills training – Duration of courses

**Table 6:** Repair skills training – Course format (in person, web-based or both)

Category	No. courses	Percentage (%)
<b>In-person</b>	147	92.5
<b>Web-based</b>	2	1.3
<b>Both</b>	10	6.3
<b>Total</b>	<b>159</b>	

Table 7 Repair skills training – Course format (full-time, part-time or apprenticeship)

Category	No. courses	Percentage (%)
Part-time	71	44.7
Full-time	49	30.8
Apprenticeship	6	3.8
Unknown	5	3.1
Not applicable (where <1 day)	28	17.6
<b>Total</b>	<b>159</b>	

## 2.6 Geographic Distribution

The geographic distribution of repair courses across the country was analysed. Results are presented in Table 8 and Figure 5. Of all Counties, Dublin had the greatest number of courses, with 43.4% of all courses identified. This was followed by Counties Limerick (11.9%), Cork (7.5%) and Galway (5.7%). Eight of the Counties – Donegal, Kilkenny, Leitrim, Offaly, Roscommon, Sligo, Tipperary and Wicklow – had no repair courses advertised. The remainder of the Counties each accounted for  $\leq 5\%$  of the courses identified, with somewhere between 1 – 8 courses on offer in each case. Overall, the data show that repair skills training and education in Ireland is concentrated in small number of Counties containing Cities, with County Dublin containing close to half of all courses identified.

Table 8: Repair skills training – Distribution of courses by County

County	No. courses	Percentage (%)
Dublin	69	43.4
Limerick	19	11.9
Cork	12	7.5
Galway	9	5.7
Kildare	8	5.0
Waterford	7	4.4
Cavan	6	3.8
Kerry	4	2.6
Meath	4	2.6
Clare	3	1.9
Wexford	3	1.9

County	No. courses	Percentage (%)
Carlow	2	1.3
Louth	2	1.3
Roscommon	2	1.3
Westmeath	2	1.3
Laois	1	0.6
Longford	1	0.6
Mayo	1	0.6
Monaghan	1	0.6
Donegal	0	-
Kilkenny	0	-
Leitrim	0	-
Offaly	0	-
Roscommon	0	-
Sligo	0	-
Tipperary	0	-
Wicklow	0	-
All Counties	3	1.9
<b>Total</b>	<b>156</b>	

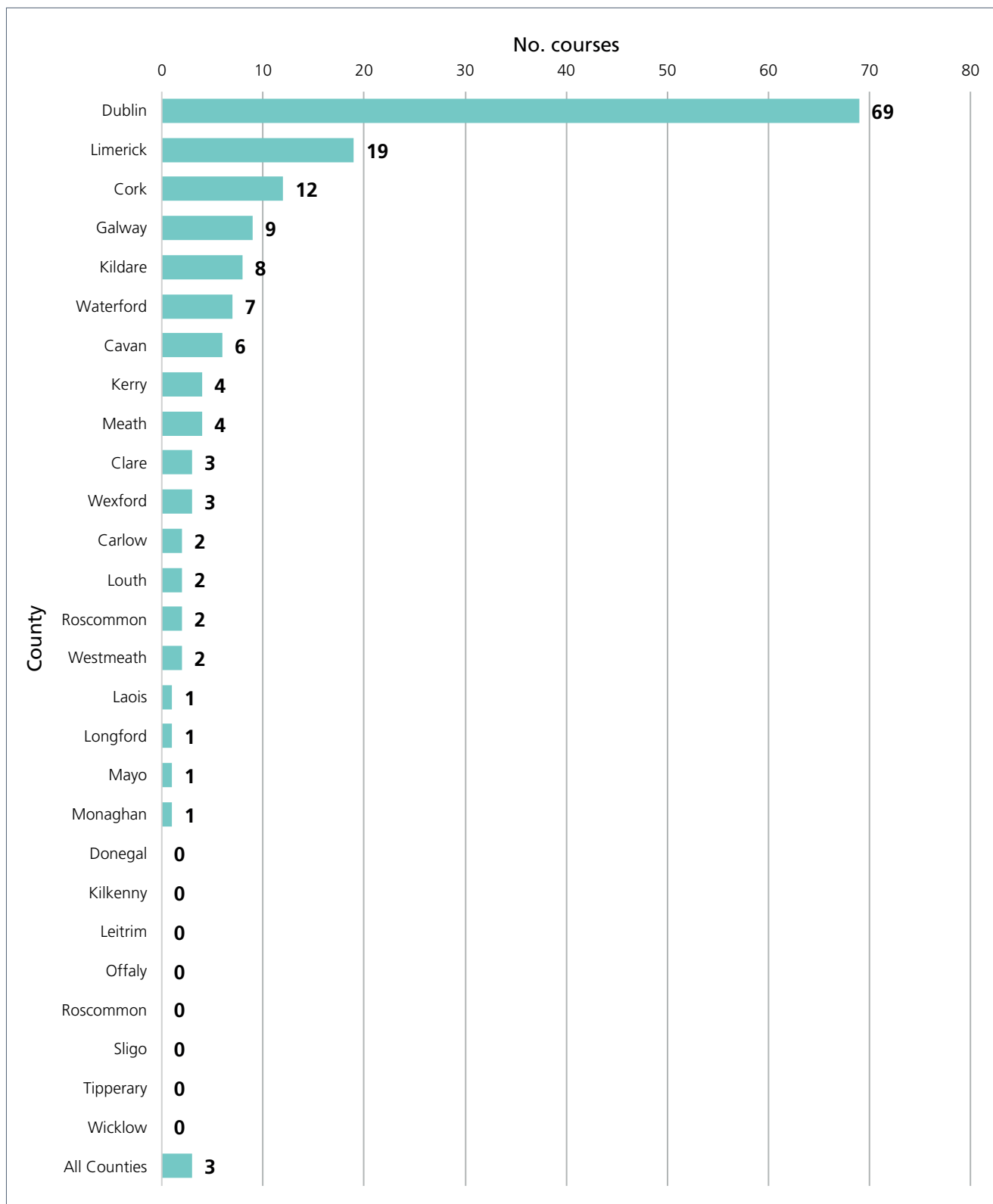


Figure 5: Repair skills training – Distribution of courses by County

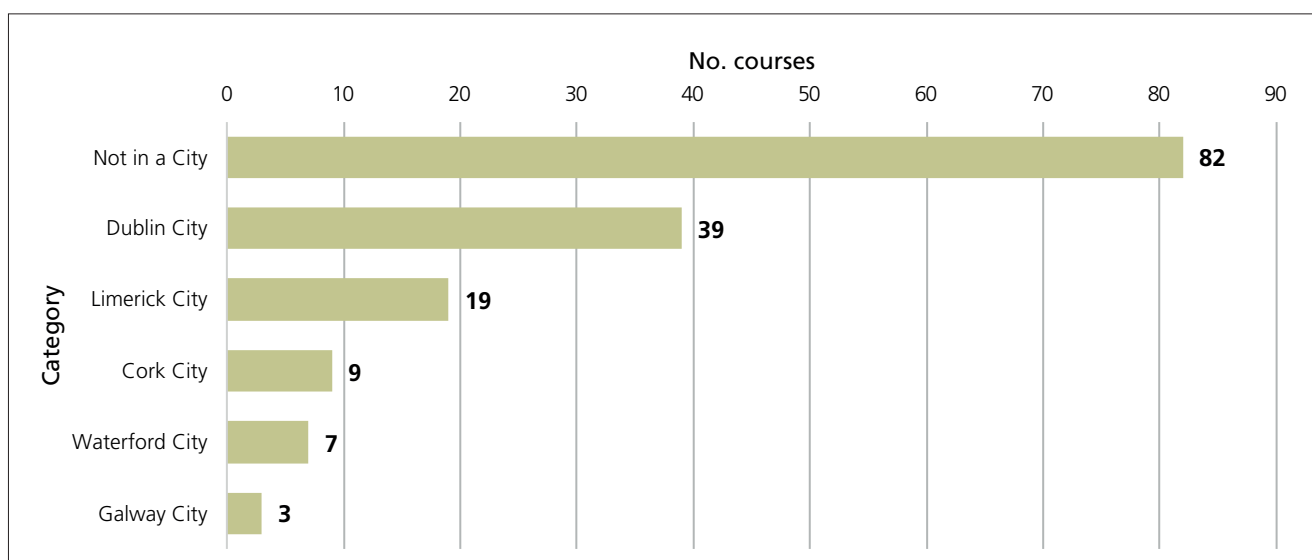
The distribution of courses inside and outside of the five Cities (Dublin, Cork, Limerick, Galway and Waterford), as delineated by Local Authority mapping,<sup>38</sup> was assessed, refer to Table 9 and Figure 6. It was determined that approximately half of the courses identified (48.4%) were offered in one of the Cities. Dublin City accounted for approximately a quarter (24.5%) of all courses identified. This was followed by Limerick (11.9%), Cork (5.7%), Waterford (4.4%) and Galway (1.9%) Cities.

<sup>38</sup> Note that this refers to Cities as opposed to Metropolitan Areas, which take in wider areas.



**Table 9 :** Repair skills training – Distribution of courses by City

Category		No. courses	Percentage (%)
Not in a City		82	51.6
In one of five Cities N = 77; 48.4%	Dublin City	39	24.5
	Limerick City	19	11.9
	Cork City	9	5.7
	Waterford City	7	4.4
	Galway City	3	1.9
Total		159	

**Figure 6:** Repair skills training – Distribution of courses by City

## 2.7 Awarding Bodies

A total of six awarding bodies were identified: Quality and Qualifications in Ireland (QQI), City & Guilds, the State Examinations Commission, the Institute of the Motor Industry, Munster Technological University, and the Business and Technology Education Council (BTEC). The majority of courses (59.1%) were not accredited by any external awarding body. The most well represented awarding bodies were QQI (24.5%) and City & Guilds (8.2%), as detailed in Table 10.

**Table 10:** Repair skills training – Awarding bodies

Awarding body	No. courses	Percentage (%)
None	94	59.1
QQI	39	24.5
City & Guilds	13	8.2
Unknown (information unavailable)	4	2.5
Institute of the Motor Industry	4	2.5
State Examinations Commission	2	1.3
Munster Technological University	1	0.6
QQI/City & Guilds	1	0.6
Business and Technology Education Council	1	0.6
<b>Total</b>	<b>159</b>	

Although it is outside the scope of the study (which considered repair skills training education available for enrolment in Ireland in Q4 2023), it is worth noting that, in April 2024, the Rediscovery Centre in Ballymun, Dublin City, launched Ireland's first bicycle repair technician training accredited by Cytech.<sup>39</sup> Cytech is an internationally recognised training and accreditation scheme for bicycle technicians. The programme was founded by the Association of Cycle Traders in the United Kingdom over 30 years ago. Today, it is established in over 50 countries globally. In-person training is available in the UK, South Africa, Canada, Australia, New Zealand – and now Ireland.<sup>40</sup> This study identified over 80 Cytech certified bicycle technicians providing bicycle repair services in Ireland in Q4 2023. Following the launch of the Rediscovery Centre's course, that number is expected to increase.

## 2.8 Target Audience

Based on descriptions of the courses provided, the target audiences of the various courses were identified as professional, non-professional or both. As shown in Table 11, below, the majority of courses were identified as being for a non-professional audience (52.2%), while just under a third (27.0%) were aimed primarily at repair professionals or those pursuing a career in repair. 20.8% of courses were identified as being suitable for both professional and non-professional audiences. The categorisation of target audience was based on descriptions provided online by the course providers and does not indicate whether a formal certification or accreditation is associated with the course/programme.

<sup>39</sup> Rediscovery Centre (2024) *Press Release: Rediscovery Centre Opens First Cytech Training Facility in Ireland*. Available at: <https://www.rediscoverycentre.ie/2024/04/15/press-release-rediscovery-centre-opens-first-cytech-training-facility-in-ireland/>. Accessed 12 September 2024.

<sup>40</sup> Cytech (n.d.) *Training providers*. Available at: <https://www.cytech.training/training-providers/>. Accessed 12 September 2024.

**Table 11:** Repair skills training – Target audience

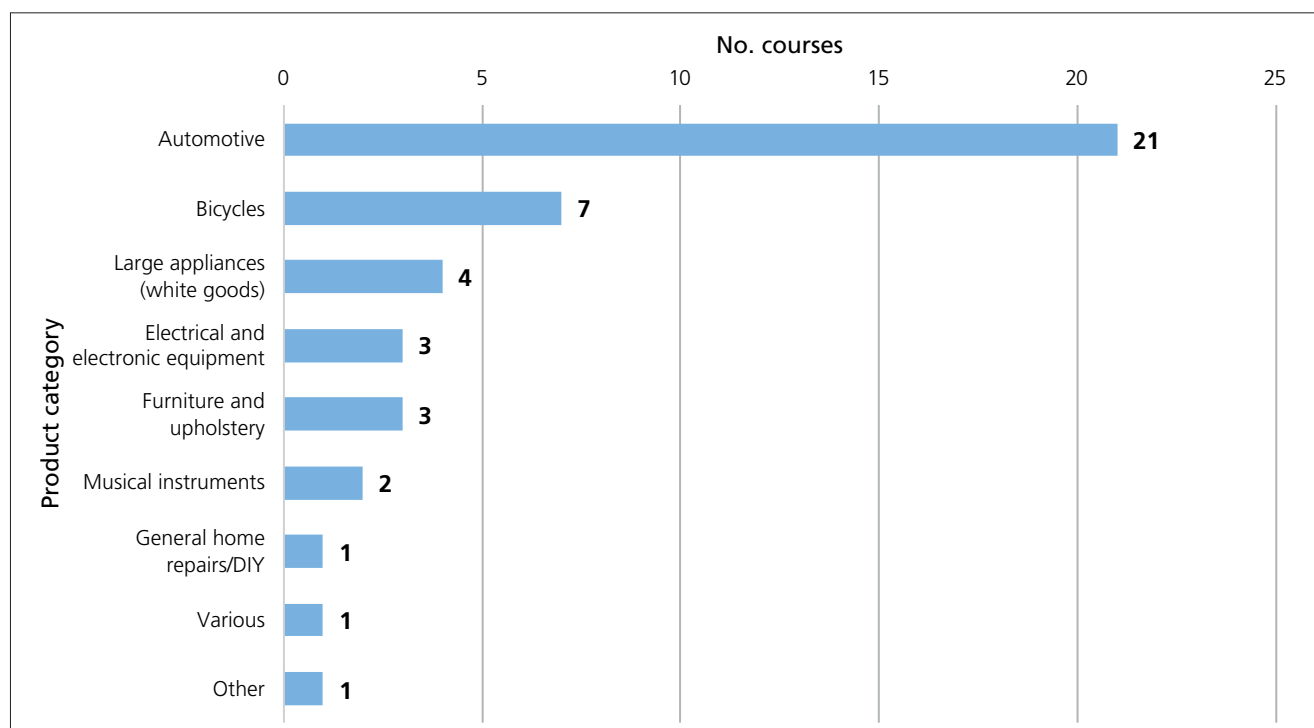
Category	No. courses	Percentage (%)
Non-professional	83	52.2
Professional	43	27.0
Both	33	20.8
<b>Total</b>	<b>159</b>	

The sub-set of courses identified by providers as being for the professional target audience only (N = 43; 27.0%) was analysed. Of these, the majority were for the automotive product category (N= 21; 48.8%), followed by bicycles (N=7; 16.3%) and large appliances (white goods) (N=4; 9.3%).

A detailed breakdown is provided in Figure 7. For the product categories of clothing and textiles; shoes and leather goods; and jewellery, watches and clocks, no courses were identified for the professional target audience only. These data highlight a dearth of vocational education and training for repair professions outside of the automotive sector.

The majority of courses identified by providers as being for the professional audience (N = 29; 67.4%) may be regarded as 'primary' courses intended to provide students with the full skillset to become repair professionals, while a smaller proportion (N= 12; 27.9%) are continuing professional development (CPD)-type courses aimed at upskilling those already working in the sector (e.g., electrical vehicle repair courses for working mechanics), and a minority (N= 2; 4.7%) may be appropriate for both groups.

The majority of professional courses identified were accredited by an external awarding body. The most well represented awarding bodies for professional repair courses were QQI (65.6% of accredited courses), City & Guilds (12.5%) and the Institute of the Motor Industry (12.5%).

**Figure 7:** Repair skills training for professional target audience – product categories

### 3. Economic Analysis

This Chapter presents the results on an analysis of the current labour market features of Ireland’s repair sector to ensure that they are adequately reflected in the design and implementation of future skills training and education within the sector.

The analysis is based on data from Eurostat’s Structural Business Statistics database, which provides both a harmonised and comprehensive picture of the private sector. This data is tagged at a national and aggregate EU level, as well as at a sectoral level for cross-cutting analysis purposes. It describes how output, employment and capital, amongst other indicators, are distributed at a sectoral level in the business economy.<sup>41</sup> Structural Business Statistics are published according to the *statistical classification of economic activities in the EU* referred to as NACE. Due to the limited data availability for the aggregate repair sector, the sector has been proxied by services within NACE category S95, ‘Repair of computers and personal and household goods’.

There are two sub-sectors within this category, namely, S95.1, ‘Repair of computers and communication equipment’ and S95.2, ‘Repair of personal and household goods’.<sup>42</sup> These sub-sectors are collectively referred to as the ‘repair sector’ in this Chapter.

From a labour market perspective, the repair sector differs somewhat to other sub-sectors of the business economy. These differences relate specifically to self-employment, firm size, labour share and labour productivity. Each of these characteristics are analysed below. An overview of labour market indicators for the repair sector, based upon Eurostat Structural Business Statistics data, is presented in Table 12, below.

**Table 12:** Self-employment, labour share and productivity within business sector, 2021<sup>43</sup>

Sector		Self-employment share (%)	Labour share (%)	Labour productivity (€000)
S95	Repair of computers and personal and household goods	44	49.5	56.7
	S95.1 Repair of computers and communication equipment	26	74.8	43.1
	S95.2 Repair of personal and household goods	56	32.6	71.8
Total business services sector		10	23.8	203.8

41 Defined as mining and quarrying, industry, supply and sewerage, construction, trade, and most of the service activities. Agriculture, public administration and non-market/public services such as education and health are excluded.

42 Use of NACE S95.1 and S95.2 is aligned with those used in the EEA report, ‘An overview of Europe’s repair sector’ (Manoochehri *et al.*, 2022).

43 Eurostat (n.d.) *Eurostat Structural Business Statistics Database*. Available at: <https://ec.europa.eu/eurostat/web/structural-business-statistics/database> (Accessed 19 April 2024).

### 3.1 Self-employment

The repair sector is characterised by high shares of self-employment, with approximately 44% of those employed within Ireland's repair sector self-employed in 2021. This contrasts sharply with a corresponding share of 10% for the business services sector<sup>44</sup> as a whole.

The concentration of self-employment within the repair sector becomes even more pronounced when split into its constituent sub-sectors – 56% of those employed within the repair of personal and household goods were self-employed. The computers and communications repair sector appears to be somewhat more consolidated, with a considerably lower self-employment share of 26%.

It is noteworthy that in the case of a sector such as repair that is characterised by a high degree of self-employment and most likely family-owned concerns, labour input can prove difficult to accurately measure. This is due to the highly flexible nature of the 'casual labour' supplied by family members and the general tendency for the self-employed to under-report actual working hours. Reskilling opportunities need to take account of this feature, with a need for broader skills enhancement targeted towards the self-employed within the repairs sector in addition to employees. For instance, enhanced financial management skills could lead to better strategic decision-making amongst the self-employed within the repairs sector. Managerial skills and practices could also be targeted to increase the coordination and effectiveness of employees, with associated productivity gains.

### 3.2 Firm Size

A further key distinguishing feature of the repair sector in Ireland is its highly fragmented nature, with a prevalence of micro- and small firms (i.e., firms with less than 10 employees). Such firms accounted for 99% of those within the repair sector<sup>45</sup> in Ireland in 2021.<sup>46</sup> Training and education programmes for smaller sized firms differ somewhat from those aimed at larger firms – for instance, smaller firms typically face challenges in accessing technology for online training while this proves less of an issue for larger firms. This underscores the importance of policies that ensure capacity is built in training and education programmes specifically targeted at small and micro-sized firms as the circular economy transition takes effect.

The cost of training could represent a particular challenge for the repair sector. Based on the CSO's Continuing Vocational Training survey, Table 13 presents training costs as a percentage of total labour costs faced by employers in 2020 for a selection of repair sub-sectors<sup>47</sup> as well as for the whole economy. It is noteworthy that these costs reflect both the direct cost of a training course and the indirect cost due to employee absence whilst attending training. There is considerable variation across the repair sub-sectors.

High training costs, both direct and indirect, may serve to prohibit smaller firms and the self-employed within the repair sector from implementing formal training for their employees. Publicly funded training and education programmes, specifically for circular economy skills, may serve to address this.

44 The business economy may be defined as mining and quarrying, industry, supply and sewerage, construction, trade, and most of the service activities; agriculture, public administration and non-market/public services such as education and health are excluded.

45 CSO (n.d.) *Business Demography NACE Rev 2*. Available at: <https://data.cso.ie/> (Accessed 19 April 2024).

46 The most recent year for which data was available.

47 CSO (n.d.) *Training course costs of total labour costs*. Available at: <https://data.cso.ie/> (Accessed 19 April 2024).

### 3.3 Labour Share

Output in an economy is the result of the combined contributions of both labour and capital. The labour share is the proportion of output attributed to labour in the form of wages, social benefits and self-employed income. The repair sector in Ireland is further distinguished by its high labour share, with the Irish repair sector considerably more labour intensive than the overall business sector, as highlighted in Table 13.

In view of this and given that the transition to a circular economy is likely to have a positive impact on employment levels within the repair sector, significant scaling up will be required in terms of the number of education and training programmes available.

**Table 13:** Training course costs as a % of total labour costs by selected repair sectors, 2020

Sector	Direct costs	Personal absence cost on training courses	All training course costs
Motor trade repair	0.3	0.3	0.6
Other repairs	0.2	0.2	0.4
Total	0.5	0.8	1.2

Future demand to build upon skills and knowledge within the repair sector in Ireland will be twofold. Firstly, training will be required for those currently employed in the repair sector to ensure that up-to-date repair capabilities and newly implemented circular processes and technologies are present where they are needed most. Secondly, job creation and training will be necessary where significant circular skills are lacking in the repair sectors. As a result, it is envisaged that a significant ramp up in training and education capacity will be required in Ireland to ensure necessary labour supply is diverted towards the repair sector.

### 3.4 Labour Productivity

Labour productivity captures the efficiency of labour input, measuring the average amount of output produced per labour input, with labour input defined as hours worked. It is, however, noteworthy that labour productivity is solely focused upon economic impact and, therefore, the broader environmental and social effects, key to sustainable growth and overall well-being, are not taken into consideration.

Consistent with the labour-intensive nature of output within the repair sector, repair firms display markedly lower productivity values relative to that of the business services sector. While the capital intensive foreign-owned multinational enterprises somewhat inflate labour productivity at the business services sector level, it is noteworthy that the lower sectoral labour productivity of the repair sector in relative terms implies that it is using its labour supply less efficiently to produce output. While skills development represents a key component of the transition towards a circular economy, there may be broader potential benefits to the repair sector in relation to the boosting of sectoral labour productivity and associated competitiveness gains.

## 4. Insights

This Chapter summarises the insights identified in this study under the headings of key themes. The insights presented herein are based on data analysis, literature review and feedback received during an extensive series of 13 workshops with key stakeholders from across the repair sector. The workshops facilitated discussions on the organisations, barriers, opportunities and needs in relation to repair skills training and education in Ireland, providing valuable insights into the perspectives of different repair professionals, state agencies and non-governmental organisations. Refer to Appendix A for a list of stakeholders engaged.

### 4.1 Repair Skills Training Gaps

Data from previous research and stakeholder insights from this study indicate a clear demand for repair skills training and education in Ireland. A survey of a representative sample of the Irish population undertaken on behalf of the EPA in 2022 (the 'National Repair Survey') found that 65% of people would like to acquire at least one new repair skill, while 78% of people who had undertaken repairs would like to improve at least one of their repair skills.<sup>48</sup> Among those who indicated that they would like to acquire new repair skills, the most desired repair skills were in EEE (44%), upholstery (23%), motor vehicle (22%) and carpentry (20%) repair. Stakeholders interviewed to inform this study identified a need for additional formal repair skills training to support repair enterprises, including in the footwear and leather goods, clothing and textiles and EEE (both consumer electronics and white goods) repair sectors.

Section 2.2 highlights gaps in the current repair skills education and training offering in Ireland, including the relatively low number of repair skills training courses available for electrical and electronic goods; the lack of training in shoes and leather goods repair; and the limited availability of smart phone repair training courses, relative to the large number of enterprises offering smartphone repairs nationwide.

Section 2.7 reveals that most repair skills training in Ireland is targeted towards the non-professional audience. Only around one-third of courses are targeted specifically towards repair professionals, and the remainder are identified as being suitable for both groups. For example, while a relatively high number of clothing and textiles repair training courses were identified, none of these were targeted solely towards professionals, and only a small minority were identified as being suitable for both professionals and non-professionals.

The analysis presented in Section 2.6 also reveals geographic gaps in the availability of repair skills training and education. Outside of Counties containing cities, there is little training and education available in repair for professionals or laypersons. The majority of courses identified were offered in County Dublin, followed by Counties Limerick and Cork. In eight Counties, no repair skills training courses were identified. Twelve counties had fewer than five courses available.

These gaps pose several potential negative implications for the repair sector. The availability of repair skills training for non-professionals in Ireland is positive from the perspective of self-repair. However, these data are not indicative of an educational and training provision that supports the professional repair sector.

A number of repair enterprises interviewed (including in the EEE and clothing and textiles sectors) have stated that they provide on-the-job training for employees due to a lack of availability of formal

<sup>48</sup> EPA (2022). *Repair: Attitudes & Behaviours National Survey 2022: Appetite to Advance the Repair Economy: Part 3 of 5 Series*.

training externally. This constitutes an additional cost for repair enterprises and does not result in formal certification of repair skills for the employees in question. Geographic gaps in the availability of repair skills training and education are also problematic in terms of the accessibility of these skills, and ensuring repair skills needs in rural areas are adequately met. The poor availability or lack of courses in numerous Counties is a potential obstacle in that it might require candidates to travel long distances to access training. Additionally, the limited availability or lack of repair skills training for certain product categories could potentially result in the loss of traditional repair skills.

## 4.2 Repair Skills in Existing Training and Education

In addition to increasing the provision of dedicated repair skills training and education programmes, a need has been identified to integrate design for repairability and repair skills into existing training and education programmes more broadly, particularly design education in post-primary, further and higher education.

A review was carried out of the curricula of the post-primary courses at Junior and Senior Cycle. The only course that contains explicit reference to repair skills is the Junior Cycle Home Economics course. The specification for this course explicitly identifies a learning outcome for students to “*demonstrate ways in which clothing and/or textile household items can be repaired, reused, re-purposed, recycled and upcycled*”<sup>49</sup>. The Senior Cycle syllabus for Home Economics does not make explicit reference to repair, although it does address “*textile care*”.<sup>50,51</sup> The School of Home Economics at ATU St Angela’s is collaborating with the Rediscovery Centre and other stakeholders to integrate repair skills and circular design principles into its post-primary teacher training in Home Economics (refer to case study below).

The syllabi for other post-primary technical courses, such as Applied Technology, Engineering and Wood Technology, do not contain explicit reference to repair. This imbalance in the integration of circular design and repair skills across the post-primary technical subjects in Ireland is a missed opportunity to promote design for repairability among students of technical subjects and has the potential to create a gender disparity in repair skills at post-primary level, as Home Economics, which is an elective subject, has consistently low uptake among boys.<sup>52,53</sup>

Some repair enterprises offer repair skills training for post-primary students under the scope of optional courses. For example, the Bike Hub in Dún Laoghaire offers bicycle safety and repair workshops for Transition Year students at local schools,<sup>54</sup> and the Rediscovery Centre in Ballymun offers a range of relevant workshops (e.g., on sustainable fashion) to schools nationwide.<sup>55</sup> These types of courses depend on voluntary uptake on the part of educators.

49 An Roinn Oideachais agus Scileana (2017). *Junior Cycle Home Economics*.

50 An Roinn Oideachais agus Eolaíochta (2001). *Leaving Certificate: Home Economics Scientific & Social Syllabus (Ordinary and Higher Level)*.

51 An Roinn Oideachais agus Eolaíochta (2002). *Home Economics – Ordinary Level and Higher Level: Guidelines for Teachers*.

52 CSO (n.d.). *Women and Men in Ireland 2019*. Available at: <https://www.cso.ie/en/releasesandpublications/ep/p-wamii/womenandmeninireland2019/education/> (Accessed 19 April 2024).

53 Athena Analytics (2020). *Leaving Certificate subjects with large Gender Discrepancy*. Available at: <https://athena.ie/most-popular-leaving-certificate-subject-with-significant-gender-discrepancy-is-home-economics/> (Accessed 19 April 2024).

54 The Bike Hub (n.d.) *Workshops for Schools*. Available at: <https://www.thebikehub.ie/workshops-for-schools> (Accessed 19 April 2024).

55 Rediscovery Centre (2023). *Secondary School Workshops*.



As part of broader reform of the Senior Cycle curriculum, a new specification for Climate Action and Sustainable Development (CASD) is being developed by the National Council for Curriculum and Assessment (NCCA). It is envisaged that CASD will be introduced to schools on a phased basis from September 2025.<sup>56</sup>

The draft specification for the CASD syllabus, published for consultation in February 2024,<sup>57</sup> identifies circular economy as one of a number of economic approaches to sustainable development that should be outlined in the subject, although specific circular strategies, such as repair, are not identified.

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56 NCCA (n.d.). *Climate Action and Sustainable Development*. Available at: <https://ncca.ie/en/senior-cycle/curriculum-developments/climate-action-and-sustainable-development/> (Accessed 19 April 2024).

57 NCCA (2024). *Draft Leaving Certificate Climate Action & Sustainable Development specification – For consultation*.

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## Case Study 2 Home Economics Teacher Training at ATU St Angela's

The School of Home Economics at Atlantic Technological University (ATU) St Angela's in Co. Sligo provides renowned post-primary teacher education in Home Economics that incorporates textiles repair skills and sustainability in the home more broadly. Textiles skills included in the teacher education programmes include hand and machine sewing skills, garment construction, knitting, crochet, felting and visible mending. The School has collaborated with the Rediscovery Centre to integrate circular economy into its teacher training programmes.

The educators at St Angela's have invited a number of guest speakers focussing on repair and resource efficiency to present to the trainee teachers, including representative of the studio repair acts project and The Useless Project. They encourage the trainee teachers to upcycle. For example, in the garment construction module, students are limited to using only second-life fabrics in their projects. The textiles education at St Angela's also incorporates circular design principles, using the 'TED TEN' developed by Professor Rebecca Earley, Kay Politowicz and the Textiles Environment Design (TED) research group at Chelsea College of Arts – ten strategies for sustainable textiles design, including 'design for cyclability' and 'design to reduce the need to consume'.<sup>58</sup> Educators at St Angela's have highlighted the benefits of textiles training, not just in terms of repair skills, but also in fostering an appreciation of the true value of textiles goods.

The degree to which circular design and design for repairability specifically have been integrated into design and craft education at third level in Ireland has not been quantified. Research from elsewhere indicates that the integration of circular design principles into design education is lacking,<sup>59,60</sup> although there is evidence of the concept of sustainability being incorporated into such programmes internationally<sup>61</sup>. Previous research<sup>59</sup> has noted that while many design education programme aim to incorporate sustainability and circular economy principles, few of these focus on repair and the competencies related to it.

As noted during the workshops to inform this study, the skills required to support repair are different to those typically taught in design education. Failure to integrate circular design principles and repair skills into design and craft education at post-primary and further educational levels is a missed opportunity to promote an awareness of repair professions and to cultivate a design for repairability mindset among future designers and craftspeople.

However, a number of third level institutions in Ireland and elsewhere have implemented initiatives to integrate circular economy and repair into design education, including the Design Masters programme at Linköping University in Sweden and the new 'Circular by Design' Masters programme at the National College of Art and Design in Dublin (refer to case studies below).

58 Becky Earley (n.d.). *The Ten*. Available at: <https://www.beckyearley.com/the-ten> (Accessed 19 April 2024).

59 Terzioğlu, N. & Wever, R. (2021) 'Integrating repair into product design education: Insights on repair, design and sustainability', *Sustainability*, 13, 10067.

60 Fishlock, A., Thompson, M. & Grewal, A. (2023) 'Sustainable engineering design in education: A pilot study of teaching right-to-repair principles through project-based learning', *Global Challenges*, 7, 2300158.

61 Ramirez, M. (2007) 'Sustainability integration in industrial design education: a worldwide survey', *ConnectED International Conference on Design Education*.

### Case Study 3 Linköping University Masters in Design – ‘Beautiful Repair’

The Design Masters programme at Linköping University in Sweden, provides an *“interdisciplinary design-based approach to tackling societal challenges through service design, sustainable design and visual media design”*. Renee Wever, Professor of Industrial Design Engineering at Linköping University, says that the programme is not about *“optimizing the near future”* but rather *“exploring preferable futures and exploring what design can do to make such transitions happen”*.<sup>62</sup>

The Masters programme is studio-based and consists of three assignments and an exhibition. One of these assignments, ‘Beautiful Repair’, aims to explore how repair can enhance the value, character and aesthetics of a product, and promote a systems thinking approach to design. Beautiful Repair is a compulsory, 10-week assignment for first-year students, to visibly repair one or more products in an aesthetically pleasing way, using different design perspectives. Students are free to choose the product and method for the repair. The assignment has three learning outcomes: to acknowledge design for repair as an effective strategy for product life extension; to understand the requirements of design for repairability; and to understand the terminology associated with product repair.

Students who participated in the assignment repaired a diverse range of products, including a bicycle, clothing, a clock and a motorcycle part. Through assignments such as ‘Beautiful Repair’ where students develop a design strategy to fix an existing broken product, rather than designing a new product for repairability, students can develop an understanding of the design requirements for repair through a process of reverse engineering.

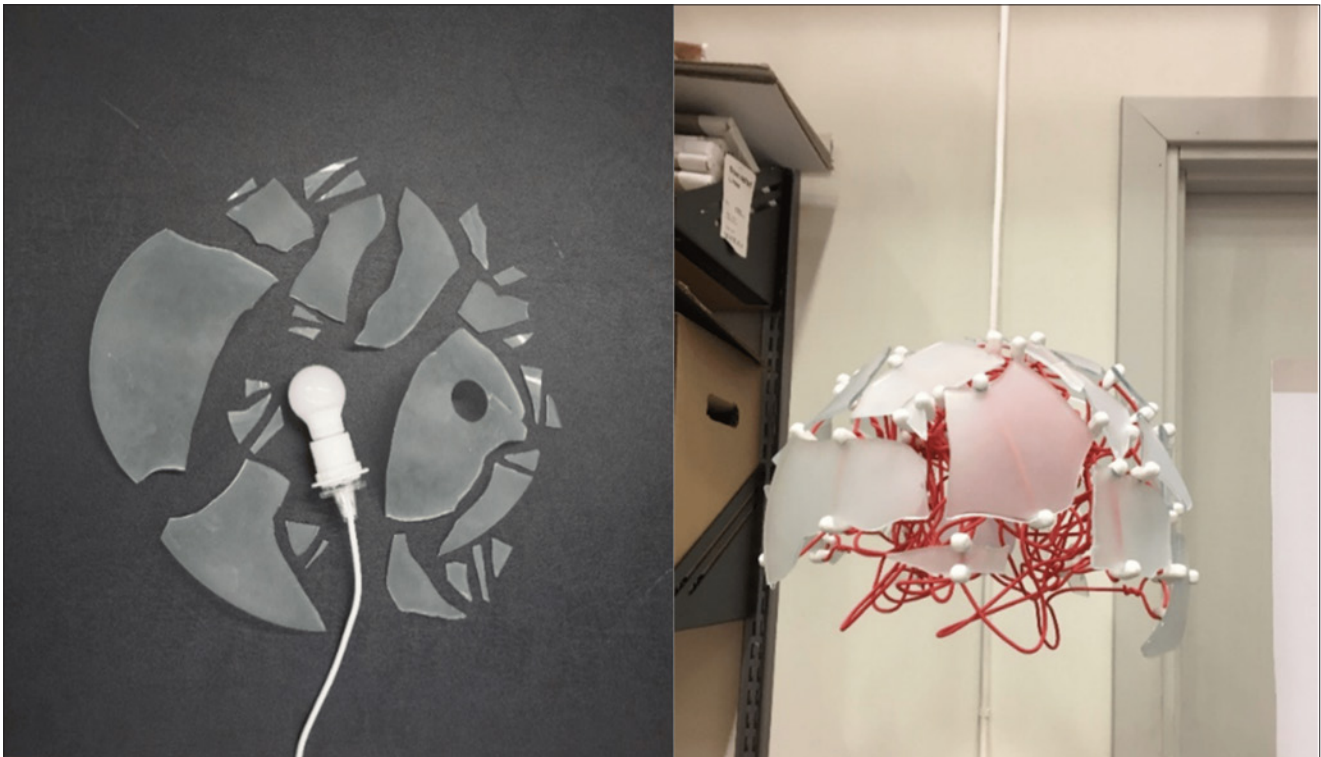


Figure 8: ‘Designed repair’ of a lampshade by a Design Masters student at Linköping University<sup>59</sup>

62 Linköping University (n.d.). *Design, Master’s Programme*. Available at: <https://liu.se/en/education/program/6mdes> (Accessed 19 April 2024).

## Case Study 4 National College of Art and Design Masters in ‘Circular by Design’

In 2022, the Design & Crafts Council of Ireland (DCCI), in partnership with the National College of Art and Design (NCAD) and the Creative Futures Academy (CFA), was awarded funding under CIRCULÉIRE’s Innovation Fund, to develop a training programme to support textiles and fashion designers to integrate circular design principles into their business models.<sup>63</sup> The ‘Circular by Design’ programme was piloted between March and November 2022, when 12 companies (Ceadogán Rugs, Arran Street East, Linen Shirt Company, Fiadh Woven Design, Liadáin Aiken Knitwear, Lily Maid, Mihai Mar Knitwear, Mise Tusa, McConnell Wollen Mills, Saturn Cottage Industries, Talú and The Upcycle Movement) were selected to participate.<sup>64</sup>

The learnings from the pilot have resulted in the development of a first-of-its-kind circular design Masters programme, Circular by Design MA. The part-time Masters programme will take on its first cohort of students at NCAD in September 2024. Through a combination of taught seminars and independent study, students will learn about circular strategies for fashion and textiles businesses.<sup>65</sup>

### 4.3 Recruitment Barrier – Need for Career Pathways for Repair Professionals

The lack of clear career pathways for repair professionals has been identified as a key barrier to the viability of the business-to-consumer repair sector in Ireland (refer to the standalone Circular Insights Study, ‘Business-to-consumer Repair Enterprises in Ireland’). As discussed in Section 4.1, there are training opportunities available in Ireland for the repair of different product categories, as well as some significant gaps in the provision of repair skills training for particular product categories. Enterprises struggle to recruit and retain skilled staff for repair services, with a number of stakeholders suggesting that this challenge stems from the lack of awareness regarding repair as a viable career option, which is compounded by negative perceptions of the sector as a whole.

A common view shared by stakeholders interviewed is that jobseekers and school-leavers are not aware of or interested in the training opportunities available in the repair sector, which may be attributed to a number of factors. Young people preparing to enter the workforce for the first time are likely to be influenced by parents, teachers, friends and family members, both in terms of their opinions of repair professions and their own career choices. Research indicates that people who do not have contact with trade professionals are less likely to consider such professions as a career.<sup>66</sup> Additionally, stakeholders outlined that some repair activities, including repair of large appliances and repair of textiles are still viewed as gender-specific careers. A career path cannot be established without first eliminating these misconceptions and establishing a clear demand from jobseekers and school-leavers for repair training opportunities.

The attractiveness of the repair sector is another key barrier reducing interest in repair careers, thus limiting establishment of a career pathway. Stakeholders outlined that repair professions may be unattractive for a number of reasons, including the lack of formal certification and recognition of repair skills, and real or perceived economic factors, such as lack of well-paid jobs and poor economic viability of commercial enterprises. It is noted that over half of the training opportunities available for repair

63 CIRCULÉIRE (n.d.) *Innovation Fund & Awardees*. Available at: <https://circuleire.ie/innovation-fund-awardees/> (Accessed 19 April 2024).

64 Kelly, S. (2022) *Launching ‘Circular by Design’*. Available at: <https://creativefuturesacademy.ie/news/launching-circular-by-design/> (Accessed 19 April 2024).

65 NCAD (n.d.). *MA in Circular by Design (Part Time)*. Available at: <https://www.ncad.ie/postgraduate/postgraduate-masters-information/ma-in-design-for-a-circular-economy-part-time/> (Accessed 19 April 2024).

66 Millward, L., Houston, D., Brown, D. & Barrett, M. (2006) *Young People’s Job Perceptions and Preferences*. Surrey, UK: Department of Psychology, School of Human Sciences.

activities are not certified (Section 2.7) and the majority of courses identified did not have an identified NFQ level (Section 2.3).

Establishment of a career pathway is dependent on job opportunities. According to stakeholders, job opportunities are currently limited within the sector largely due to insufficient funding. Collaborative efforts between government, industry and communities, as outlined in the Pathways to Work 2021 – 2025 strategy, offer avenues for overcoming this challenge.<sup>67</sup>

Initiatives such as the creation of an employer relations strategy to strengthen relationships between government and employers, the facilitation of job promotion events to advertise careers for unemployed people and increasing further education and training opportunities, amongst other strategies, may improve job prospects within the repair sector.<sup>67</sup>

In order to establish a clear career pathway, it is important to cultivate a skilled workforce, establish a robust demand for repair professionals, and allocate sufficient resources to support career development. Targeted educational campaigns and public awareness raising can be used to engage people who are unfamiliar with trade professions, thus increasing demand for the profession by highlighting the pivotal role that repair will play in Ireland's circular economy transition.

#### 4.4 Formal Certification of Vocational Education and Training in Repair

Several stakeholders interviewed for the purposes of this study have highlighted the lack of formal certification (i.e., QQI validation) or third-party accreditation of vocational education and training in repair skills as a challenge for the sector in Ireland. Views expressed by stakeholders interviewed as part of this study indicate that there are workers in the repair sector who are highly skilled in specific categories of repair through years of on-the-job learning, but who have no formal award for skills attained.

Because of a lack of skilled workers and relevant external training courses, many repair enterprises interviewed to inform this study have found it imperative to provide on-the-job training to new employees. But this training typically does not result in formal award for skills attained. It should also be noted that the need for on-the-job training creates an additional cost for some commercial repair enterprises, who are reluctant to sacrifice the time of experienced workers for the purposes of internal training, when margins may already be small.

Similarly, several social enterprises interviewed noted that they provide in-depth repair skills training to employees via labour activation schemes, but this training may not be validated by QQI or accredited by a third party, meaning these workers receive no formal award for skills attained. Other social enterprises provide QQI-validated and/or third-party accredited repair skills education and training, providing successful trainees with a formal award of skills attained that can be used to seek future work in the sector. The role of social enterprises in the provision of repair skills training and education is further discussed in Section 4.5.

Overall, there is a need for formal validation and/or accreditation of vocational education and training in repair. This could potentially be provided by supporting repair enterprises to provide on-the-job training to employees that is QQI-validated and/or accredited by relevant third parties, and/or through the development of new apprenticeships/traineeships for repair professions, as discussed below.

A number of the traditional craft apprenticeships involve some degree of repair skills – for example, apprenticeships in vehicle body repairs, plumbing, wood manufacturing and finishing, and electrical, among others. However, there are substantial gaps in the provision of repair skills for consumer goods

<sup>67</sup> Government of Ireland (2022) *Pathways to Work Strategy 2021 – 2025*.

among the current apprenticeship programmes. None of the new apprenticeships introduced since 2016 has a particular emphasis on repair.

The DFHERIS *Action Plan for Apprenticeship 2021-2025* notes that “the need to become sustainable and energy efficient”, among other factors, “will drive new apprenticeship development”.<sup>68</sup> This echoes the Programme for Government, which states that apprenticeships “need to be a much larger part of the education landscape in Ireland and play a role in [...] tackling climate action”. The Action Plan includes an objective to contribute to “sustainable growth”. The need to address diversity issues within the apprenticeship system are also highlighted, including low uptake among women.

In theory, it would be possible for a consortium to develop a proposal for a new apprenticeship programme to meet the training needs of a specific occupation of relevance to repair. However, in accordance with the legislation and guidelines pertaining to the apprenticeship system in Ireland (refer to Section 1.1), such a consortium would need to demonstrate a substantial skills need for a specific occupation, not already met by existing apprenticeship programmes; and sufficient demand for such an apprenticeship among employers over a sustained period of time.

Because traineeships are not governed by legislation, their development is less challenging than apprenticeships. Traineeships are developed and delivered by ETBs working in partnership with industry representatives and employers, responding to an identified industry skills need. It has been estimated that the development of a new traineeship usually takes in the region of 6-8 months. The first step in this process is the identification of a skills need in a particular industry sector at regional and/or national scales. Partner employers provide work-based learning opportunities and work with ETBs to identify skills needs.<sup>69</sup>

The traineeship model provides an opportunity to develop QQI accredited programmes for repair professionals in partnership with employers already providing uncertified on-the-job training. There is a precedent for this; the White Goods Field Service Technician programme, an initiative of the Circular Economy Skills Initiative.<sup>69, 70</sup>

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68 DFHERIS (2021). *Action Plan for Apprenticeship 2021-2025*.

69 SOLAS (2019). *The Five-step Guide to Traineeship in Ireland*.

70 SOLAS (n.d.). *Traineeship*. Available at: <https://www.solas.ie/programmes/traineeship/> (Accessed 19 April 2024).

## Case Study 5 Circular Economy Skills Initiative – White Goods Repair Course

The Circular Economy Skills Initiative (CESI) is a joint initiative of Fastrack into Information Technology (FIT), WEEE Ireland, the White Goods Association (WGA) and Louth and Meath Education and Training Board (LMETB), initially supported by €138,000 from CIRCULÉIRE's Innovation Fund.<sup>71</sup>

CESI was initiated in 2021, when FIT, WEEE Ireland and the WGA began to develop a curriculum and formal career pathway for white goods repair technicians. The course is targeted at new entrants to the sector and aims to address a nationwide shortage in white goods repair professionals operating in Ireland in recent years, partially due to insufficient training opportunities – with no dedicated course available for a decade.<sup>72</sup>

The QQI accredited Level 6 traineeship, 'White Goods Field Service Technician' was launched as a pilot in November 2021 and made available free of charge to applicants in receipt of Jobseekers Benefit or Jobseekers Allowance. The 36-week programme is run by FIT with the support of LMETB at a state-of-the-art training centre in Dunshaughlin, Co. Meath. The curriculum includes a module on circular economy, and a practical 12-week work placement facilitated by white goods manufacturers from the WGA. The first group of ten trainees to complete the programme had a 100% pass rate, with all gaining employment within the industry upon completion.<sup>73</sup>

The CESI white goods repair course is a significant flagship traineeship programme in the context of the circular economy. FIT intends to roll out further programmes to address circular economy skills gaps, such as consumer electronics repair, in collaboration with industry and ETBs.<sup>74, 75</sup>

### 4.5 Role of Social Enterprises

This study has found that social enterprises play an important role in the provision of repair skills training and education in Ireland today. Despite accounting for only a small minority (approx. 1%) of business-to-consumer repair enterprises nationally (refer to the standalone Circular Insights Study, 'Business-to-consumer Repair Enterprises in Ireland' for further information), this study has found that social enterprises provide 8.8% of the repair skills training courses identified. This echoes a number of publications at European and national levels that highlights the existing and potential future role of the social economy in supporting the transition to a circular economy by addressing skills gaps.<sup>11, 76, 77, 78, 79, 80</sup>

71 WEEE Ireland (n.d.). Initiatives and Case Studies: Circular Economy Skills Initiative (CESI). Available at: <https://www.weeeireland.ie/close-the-loop-initiatives/circular-economy-skills-initiative/> (Accessed 19 April 2024).

72 FIT (n.d.). *Circular Economy Skills Initiative*. Available at: <https://fit.ie/circular-economy-skills-initiative/> (Accessed 19 April 2024).

73 CIRCULÉIRE (n.d.). *Circular Economy Skills Initiative (CESI) Receives Ministerial Seal of Approval*. Available at: <https://circuleire.ie/circular-economy-skills-initiative-cesi-receives-ministerial-seal-of-approval/> (Accessed 19 April 2024).

74 WEEE Ireland (2021). *WEEE Ireland, Key Industry and Training Partners Launch New 'Circular Economy Skills Initiative' Electrical Repair Course*. Available at: <https://www.weeeireland.ie/2021/07/19/weee-ireland-key-industry-and-training-partners-launch-new-circular-economy-skills-initiative-electrical-repair-course/> (Accessed 19 April 2024).

75 FIT (n.d.). *White Goods Field Service Engineer*. Available at: <https://fit.ie/course/lmetb-white-goods-field-service-engineer-level-6/> (Accessed 19 April 2024).

76 EC (2022) *Transition Pathway for Proximity and Social Economy*. Luxembourg: Publications Office of the EU.

77 OECD (2022) *Policy Brief on Making the Most of the Social Economy's Contribution to the Circular Economy*. Luxembourg: Publications Office of the EU.

78 Government of Ireland (2023). *National Social Enterprise Policy for Ireland 2024 – 2027 – Public Consultation Document*.

79 NESI (2023). *Social Enterprise on the Island of Ireland*, Council Report No. 161.

80 Delivered by the Rediscovery Centre under the ARISE programme, funded by the Department of Rural and Community Development.

Social enterprises engaged in the provision of repair skills training include the Bike Hub in Dún Laoghaire and Crumlin, Dublin City; Deaf Enterprises in Cork City; Frontline Bikes in Bluebell and Inchicore, Dublin City; IRD Duhallow Revamp in Newmarket, Co. Cork; an Mheitheal Rothar in Galway City; Renew Enterprises in Waterford City; and the social enterprises at the Rediscovery Centre in Ballymun, Dublin City, which include Rediscover Furniture, Rediscover Fashion and Rediscover Cycling.

These social enterprises provide a mix of repair training that is open to the general public and/or on-the-job repair skills training as part of labour activation and other social schemes. Some of the courses on offer constitute formal training accredited by third parties (e.g., a QQI accredited Level 3 course in Four Stroke Engine Maintenance offered by Renew Enterprises). However, much of the training offered by social enterprises is unaccredited and does not culminate in any formal qualification of skills attained. For paid trainees at IRD Duhallow Revamp, for example, there is no formal accreditation or certification available for the valuable furniture repair and upholstery skills developed on the job. A number of social enterprises provide casual, drop-in repair workshops (e.g., DIY bicycle repair workshops at An Mheitheal Rothar) or one-off classes (e.g., occasional bicycle repair and upholstery classes at the Rediscovery Centre) that are open to the public.

Repair work, which is labour-intensive<sup>81</sup> and involves manual work that can be developed over time through on-the-job training, aligns well with labour market activation schemes for groups that might not otherwise have access to employment. Social enterprises providing repair skills training under the scope of labour activation schemes are reliant on government funding, e.g. through the Tús community work placement scheme<sup>82</sup> and/or Pobal's Community Services Programme (CSP).<sup>83,84</sup> Numerous social enterprises are providing repair skills training specifically to groups at risk of poverty and social exclusion under the scope of labour activation schemes. These include Frontline Bikes, which provides fully accredited training and employment in bicycle repair to people with a lived experience of addiction (refer to case study, below), and Deaf Enterprises in Cork City, which provides training and employment in furniture and bicycle repair to people in the deaf and hard of hearing community. The work of these and other social enterprises demonstrate the social co-benefits of investment in repair skills training and education.

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81 Llorente-González, L. & Vence, X. (2020) 'How labour-intensive is the circular economy? A policy-orientated structural analysis of the repair, reuse and recycling activities in the European Union', *Resources, Conservation and Recycling*, 162.

82 Citizens Information (2024) Tús. Available at: <https://www.citizensinformation.ie/en/employment/unemployment-and-redundancy/employment-support-schemes/tus/> (Accessed 19 April 2024).

83 Government of Ireland (2024) *Community Services Programme – Interim Programme Manual, Version 2*.

84 Pobal (n.d.) *New CSP Call 2023 (closed for applications)*. Available at: <https://www.pobal.ie/programmes/community-services-programme-csp/new-call-2023/> (Accessed 22 April 2024).

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## Case Study 6 Frontline Bikes

Frontline Makes Change is a full-service community Addiction Team serving the communities of Bluebell, Inchicore and Kilmainham in Dublin City.<sup>85</sup> Frontline's team of addiction, mental health and childcare professionals provides comprehensive support services to those in the local community who struggle with substance misuse issues, as well as their children and family members.<sup>86</sup> In 2020, Frontline launched its first social enterprise, Frontline Bikes. It has a bicycle shop in Inchicore selling refurbished bicycles to the public, and a training centre providing City & Guilds accredited Levels 1 and 2 Cycle Mechanics training courses to people with a lived experience of addiction or the criminal justice system. The shop takes in used bicycles donated by recycling centres, An Garda Síochána and the public, and refurbishes, repairs and upcycles them for re-sale at an affordable price point.<sup>87</sup>

Frontline Bikes bridges the gap between addiction recovery and employment, empowering people with the skills, experience and confidence to enter full-time employment, while providing the support services needed to maintain their addiction recovery. In 2022, Frontline Bikes carried out over 2,700 bicycle repairs, sold 196 refurbished bicycles and donated over 200 children's bicycles to the Mosney Direct Provision Centre. It employed two managers, four full-time employees and four part-time staff across two sites: the bicycle shop in Inchicore and a new training and upcycling unit in Bluebell, opened in 2022 by Minister of State at the Department of Rural and Community Development, Joe O'Brien.<sup>88</sup>

With support from CSP and the Department of Justice, Frontline Bikes is increasing its traineeship capacity. In 2022, it was awarded €548,000 in state funding – the largest amount awarded to a single social enterprise in the history of the State. It also intends to introduce training accredited by Cytech, an internationally recognised training and accreditation scheme for bicycle technicians.<sup>89</sup>

85 Cunningham, R. (2022) *Upcycled bikes push the circular economy into gear*. Available at: <https://dublingazette.com/dublinlocalmatters/upcycled-bikes-33342/> (Accessed 22 April 2024).

86 Frontline (2022) *Recovery in Partnership – Make Change: Strategic Plan 2022 – 2025*.

87 Corrigan, D. (2020) *A New Bike Store Helps Former Drug Users Beat the Cycle of Addiction*. Available at: <https://dublininquirer.com/2020/08/05/a-new-bike-store-helps-former-drug-users-beat-the-cycle-of-addiction/> (Accessed 22 April 2024).

88 Frontline (2023) *Annual Report*.

89 Quann, J. (2022) *'I was worn out, wasted' – Dublin bike repair initiative giving people hope*. Available at: <https://www.newstalk.com/news/i-was-worn-out-wasted-dublin-bike-repair-initiative-giving-people-hope-1345705> (Accessed 22 April 2024).

## Case Study 7 Roscommon Women's Network – CycleUp Textiles

The Women's Environmental Community Activation Network (WECAN) is a social enterprise established by Roscommon Woman's Network (RWN), also known by its trading name, 'CycleUp Textiles'. RWN is a local charity dedicated to supporting women and families throughout Co. Roscommon. Its CycleUp Textiles initiative was funded by the EPA's Green Enterprise programme and aims to address the environmental issue of textile waste through a community development approach.

CycleUp Textiles trains individuals and groups in the repair and reuse of materials, through the production of upcycled items. Unwanted textiles and other materials from the RWN charity shop are used to produce upcycled products, such as tote bags, that are sold on the CycleUp.ie website. The project raises awareness of the circular economy, while training and promoting social inclusion for women locally through flexible employment. The project also hosts textiles upcycling workshops where trained upcycling tutors design and deliver practical, informative, and entertaining workshops for community groups, workplaces, and schools. Participants are educated on the environmental impacts of textile waste in an informal, social setting and are taught to make simple but useful items from unwanted textiles. The project delivers training in textiles repair skills such as garment deconstruction, cutting and pattern making skills, and basic machine sewing techniques.

Eight-week textile upcycling training courses are also facilitated in Monksland and Roscommon Town by CycleUp Textiles, in conjunction with Galway and Roscommon Education and Training Board (GRETB). These trainings are inspired by the Great British Sewing Bee and are available to all women who are interested in learning how to upcycle textiles.

Since September 2022, CycleUp Textiles is collaborating with the Rediscovery Centre, Táit House Community Enterprise Centre and EDI Longford to deliver the 'Empowering Communities with Circular Opportunities' (ECCO) project, with support from the Community Climate Action Program (CCAP), supporting communities at disadvantage to develop new reuse or repair projects based on their needs, while creating training and job opportunities.

In 2022, CycleUp Textiles was awarded Rethink Ireland Social Enterprise start-up funding. In 2023, it was supported by the Ireland Funds' 'Heart of the Community Fund'. Recently, the social enterprise became part of Pobal's Community Services Programme (CSP), enabling it to employ a full-time manager and four part-time product creators.<sup>90</sup>

### 4.6 Role of Community Repair

Community repair refers to repair activities in a community setting, often carried out by laypersons with the support of skilled volunteers. Initiatives include repair cafés – free community workshops where members of the public meet with expert volunteers to learn how to repair their personal belongings – as well as initiatives like the 'fixotekets' in Gothenburg, Sweden – community reuse and repair hubs in residential areas that provide tools and workshop space for self-repairs, accessible to residents during fixed opening hours.<sup>6, 91</sup>

90 Roscommon Women's Network (2020) *Women's Environmental Community Activation Network*. Available at: <https://rwn.ie/projects/womens-environmental-community-activation-network/> (Accessed 22 April 2024).

91 Bradley, K. & Persson, O. (2022) 'Community repair in the circular economy – fixing more than stuff', *Local Environment*, 27(10-11), pp. 1321-1337.

By providing citizens with free access to repair experts and facilities in their communities, community repair initiatives have a potential direct role to play in the development of self-repair skills, while promoting an awareness of formal repair skills training and employment opportunities. Community repair also promotes a range of other social co-benefits, including improving access to affordable repair services, promoting social inclusion and integration, and promoting a discourse regarding repair.<sup>92, 93</sup>

In Ireland, the concept of the repair café has been embraced nationwide. Events have been organised by local community groups, various organisations (e.g., Tog Hackspace<sup>94</sup>), social enterprises (e.g., the Rediscovery Centre<sup>95</sup>) and Local Authorities, using funding from a variety of sources, including Horizon 2020. The EPA's 2022 National Repair Survey found that awareness of repair cafés among Irish citizens was low (12%) and only 5% of people had attended a repair café. However, interest was high, with 61% of respondents expressing an interest in attending a repair café.<sup>48</sup>



**Figure 9:** Tog Hackspace repair café at Fingal Makerspace, October 2023<sup>96</sup>

However, the feasibility of repair cafés in Ireland is significantly challenged by insurance barriers,

- 92 Van der Velden, M. (2021) "Fixing the World One Thing at a Time": Community repair and a sustainable circular economy', *Journal of Cleaner Production*, 304(1), 127151.
- 93 Gigkeitner, C. (2021) *Lebensbegleitendes Lernen für ein gutes, achtsames, nachhaltiges Leben Qualitative Forschung im Kontext Repaircafé*. [DISSERTATION zur Erlangung des akademischen Grades Doktorin der Philosophie Alpen-Adria-Universität Klagenfurt Interdisziplinäre Forschung und Fortbildung].
- 94 Tog Hackspace (n.d.). *Repair*. Available at: <https://www.tog.ie/repair/> (Accessed 22 April 2024).
- 95 Rediscovery Centre (2023). *Repair Café*. Available at: <https://www.rediscoverycentre.ie/2023/05/20/repair-cafe/> (Accessed 22 April 2024).
- 96 Source: Tog Hackspace

particularly where repairs of higher risk product categories are concerned (i.e., EEE and, to a lesser degree, bicycles and furniture). According to a stakeholder survey undertaken by the Rediscovery Centre with EPA grant-aid funding, obtaining insurance is regarded as the most significant obstacle to setting up a repair café in Ireland.<sup>6</sup> This is despite there being no known case of a claim being made against a repair café. A key challenge is the lack of critical mass and/or representation for organisers, which may make insurers reluctant to develop bespoke policies for one-off customers that are potentially high risk in terms of product liability.

This presents an obstacle to community-based sharing of repair skills and could potentially undermine other types of community repair that have been possible elsewhere. For example, stakeholders interviewed to inform this study expressed doubts regarding the feasibility in Ireland of community repair hubs like the Swedish ‘fixotekets’, due to insurance barriers.

While there are a number of steps that community repair organisers may take to potentially mitigate the challenge of high insurance premiums, such as use of liability waivers, implementation of formal health and safety protocols and/or Portable Appliance Testing (PAT) for repaired EEE, these do not address the underlying problem of high insurance premiums and are likely to increase administrative burden and costs.<sup>6</sup>

Ongoing insurance reforms at national and EU levels indicate a positive shift in this regard<sup>97, 98, 99, 100, 101</sup>, however ongoing reforms are needed to ensure that decreases in the number and average values of personal injury awards are reflected in reduced premiums for community repair initiatives.

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97 Government of Ireland (2020). *Action Plan for Insurance Reform*.

98 The Judicial Council (2021). *Personal Injuries Guidelines*.

99 PIAB (2023). *PIAB Personal Injuries Award Values 2022 – Average Awards Report No. 4*.

100 Government of Ireland (2023). *Courts and Civil Law (Miscellaneous Provisions) Act 2023, No. 18 of 2023*.

101 European Parliament (2023). *Briefing – EU Legislation in Progress: New Product Liability Directive*. The new Product Liability Directive entered into force on Sunday, 8 December 2024.

## 5. Recommendations and Intervention Opportunities

Based on analysis of data and stakeholder insights, and a review of relevant literature, recommendations have been identified in relation to repair skills training and education, to support the development of a thriving repair sector and the transition to a circular economy in Ireland (Table 14). In relation to each recommendation, potential intervention opportunities have been identified for further consideration.

This Circular Insights study is complemented by a second, parallel study focussing on business-to-consumer repair enterprises in Ireland. The recommendations of this study are important to meet the skills and recruitment needs of business-to-consumer repair enterprises. Please refer to standalone Circular Insights Study, 'Business-to-consumer Repair Enterprises in Ireland' for further information.

**Table 14:** Recommendations and potential intervention opportunities

Recommendations	Potential Intervention Opportunities
 <p>Ensure the need for repair skills training is supported in national circular economy policy and other relevant policy areas (including training, education and skills development; social economy and employment)</p>	<ul style="list-style-type: none"> <li>Objectives to support provision of repair skills training and education in next iterations of <i>Whole of Government Circular Economy Strategy</i> and <i>National Further Education and Training Strategy</i></li> <li>Development and adoption of National Reuse and Repair Roadmap</li> </ul>
 <p>Collaborate with stakeholders, including repair enterprises, to develop and roll-out vocational education and training (VET) for repair professionals</p>	<ul style="list-style-type: none"> <li>New apprenticeships for occupations involving repair</li> <li>New traineeships for repair professionals</li> </ul>
 <p>Support the role of repair enterprises (including social enterprises) in the provision of repair skills training</p>	<ul style="list-style-type: none"> <li>Additional Community Services Programme (CSP) positions for social enterprises</li> <li>Targeted CSP funding strand for social enterprises engaged in repair</li> <li>Supports for repair enterprises in the development and delivery of QQI-validated and/or third-party accredited repair training programmes</li> </ul>
 <p>Promote public awareness of repair career pathways</p>	<ul style="list-style-type: none"> <li>Public awareness campaigns in tandem with new repair skills initiatives – repair professions as professions of the future/circular economy</li> </ul>
 <p>Integrate circular design and repair skills into existing training and education, particularly design education in post-primary, further and higher education</p>	<ul style="list-style-type: none"> <li>Further integration of repair skills into post-primary Home Economics syllabus at Junior and Senior Cycle</li> <li>Integration of circular design (including design for repairability) into post-primary technical subjects (e.g., Applied Technology, Engineering, Wood Technology, Construction Studies, Technology) at Junior and Senior Cycle</li> <li>Integration of repair and other circular economy strategies into proposed new post-primary Senior Cycle subject, 'Climate Action and Sustainable Development'</li> <li>Integration of circular design, design for repairability and/or repair skills, as appropriate, into design and trade/craft courses and programmes in further and higher education</li> </ul>



**Support the role of community repair initiatives in repair skills development**

- Innovation funding for community repair initiatives (e.g., DIY repair hubs, repair cafés)
- Best practice guidelines for repair cafés, including measures to address public and product liability risk (e.g., use of health and safety protocols, portable appliance testing, waivers)
- Representation for community repair organisations (e.g., repair cafés)
- Continued insurance reform to promote reduced insurance premiums
- Provisions in national transposition of Right to Repair Directive to address insurance barriers to repair



**Ensure VET for repair professionals meets the skills needs of the self-employed and micro- and small enterprises, having regard to the high share of these groups in the sector**

- VET for repair professionals incorporates relevant soft skills for self-employed and small businesses (e.g., financial, human resources, legislative compliance, management, etc.)

## 6. Conclusions

### 6.1 Key Statistics

This Circular Insights study has analysed the current repair skills training and education offering in Ireland. Based on an extensive web-based search, a dataset of repair skills training and education available for enrolment in Ireland in Q4 2023 was developed. A total of 159 repair skills training and education courses were identified. Courses identified were targeted at both laypersons and professionals, and related to a range of product categories, with bicycles (23.9%), clothing and textiles (22.0%), automotive (18.9%) and furniture and upholstery (13.8%) repairs being most well represented.

The data highlighted some key gaps in the repair skills training and education offering in Ireland. For example, few courses were identified in repair of key product categories, including EEE other than white goods (N=7; 4.4% of courses) and white goods (N= 4; 2.5% of courses). No courses were identified on the repair of shoes or leather goods. Additionally, the lack of specific training in smartphone repairs (N=1; 0.6%) is noteworthy when considered in the context of the large number of B2C repair enterprises in Ireland offering smartphone repairs (refer to standalone Circular Insights Study, 'Business-to-consumer Repair Enterprises in Ireland'). The data also highlight a lack of repair skills training and education targeted specifically at professionals, with the exception of the automotive sector. None of the courses identified in the clothing and textiles; shoes and leather goods; or jewellery, watches and clocks product categories were identified as being specifically for the professional target audience.

Key providers of repair skills training and education in Ireland include Colleges of Further Education and Training (23.3% of courses), private training organisations/colleges (17.6%), adult education/night class centres at community/comprehensive schools (17.6%), commercial repair enterprises providing repair training as an ancillary service (11.3%) and social enterprises engaged in repair (8.8%). Six awarding bodies providing accredited repair training were identified, the most well represented of which were QQI (24.5% of courses) and City & Guilds (8.2%).

Repair skills training and education in Ireland is concentrated in a small number of Counties containing Cities, with Co. Dublin containing close to half of all courses identified. This is noteworthy when considered in light of the fact that the majority of courses identified (92.5%) were offered in-person only. However, it is noted that web-based training from providers outside of Ireland (e.g., iFixit) was not included in the scope of the dataset.

### 6.2 The Need for Repair Skills Training and Education

Repair has a key role to play in the transition from a linear to circular economy. Repair is a labour-intensive process that requires specific knowledge and skills. In order to enable high quality repair services at scale in Ireland, education and training is needed to provide a skilled workforce of repair professionals, trained in a range of product categories. Training is also needed to provide laypersons with the skills to repair their personal belongings, where desired. The EPA's 2022 National Repair Survey and stakeholder insights from this study highlight the demand in Ireland for repair skills from professionals and laypersons alike, and the lack of external training for repair professionals has been highlighted as a key challenge for repair enterprises in terms of recruitment of skilled workers (refer to standalone Circular Insights Study, 'Business-to-consumer Repair Enterprises in Ireland').

In addition to addressing the repair skills needs for the transition to a circular economy, promoting the provision of repair skills training in Ireland is expected to support a range of social co-benefits, including the creation of skilled local jobs, concentrated in small and social enterprises; provision of training and employment opportunities for groups at risk of poverty and social exclusion; and conservation of

traditional/heritage crafts and trades (for further details, refer to standalone Circular Insights Study, 'Business-to-consumer Repair Enterprises in Ireland'). Thus, promoting repair skills training can support an inclusive and just transition to a circular economy.

### 6.3 Key Challenges and Needs

This study has highlighted key challenges and needs in relation to the repair skills training and education offering in Ireland. As discussed above, there are significant gaps for certain product categories, including EEE and shoes/leather goods. In particular, there is a need for validated and/or accredited vocational education and training for repair professionals, and to support the development of clear career pathways for repair professionals in Ireland.

There is also a need to integrate repair skills and design for repairability into existing training and education programmes, particularly design education at post-primary, further and higher educational levels to promote an awareness of repair professions and to cultivate a design for repairability mindset among future design and craft professionals. In order to support this, there is a need for policies and national plans and strategies in relation to skills development, training and education to acknowledge the significant employment potential and skills needs of the transition to a circular economy, including the repair sector.

This study also highlights the role of social enterprises engaged in repair and community repair initiatives in the provision of repair skills training and education in Ireland, and the opportunity to support these aspects of the sector to optimise their contribution to repair skills development for professionals and the general public.

This study (Section 5) identifies recommendations and potential intervention opportunities for further consideration with a view to addressing these key challenges, supporting the provision of repair skills training and education, the development of a thriving repair sector and the transition to a circular economy in Ireland.



## APPENDIX 1 STAKEHOLDER ENGAGEMENT

Stakeholder	Type of Engagement
Ellen MacArthur Foundation	Workshop
Studio repair acts	Workshop
WEEE Ireland	Workshop
ERP Recycling	Workshop
FIT	Workshop
BSHG	Workshop
Glen Dimplex	Workshop
Louth & Meath Education and Training Board	Workshop, Information Request
Ibec	Workshop
CESI	Workshop
Rediscovery Centre	Workshop, Information Request
Fónfix	Workshop
An Mheitheal Rothar	Workshop
The Bike Hub	Workshop
Frontline Bikes	Workshop
Rothar	Workshop
CIRCULÉIRE	Workshop, Information Request
SOLAS	Workshop, Information Request
St. Angela's ATU	Workshop
Monaghan County Council	Workshop, Information Request
Zipyard	Workshop
Isaac Jackman Shoe Repair	Workshop
IRD Duhallow Revamp	Workshop
CRNI	Workshop, Information Request
Mayo, Sligo and Leitrim Education and Training Board	Information Request
Regional Skills Fora – Dublin, Mid East, Mid West, Midlands, North East, North West, South East, South West, West.	Information Request

Stakeholder	Type of Engagement
Tipperary Education and Training Board	Information Request
Waterford and Wexford Education and Training Board	Information Request
Local Authority LEOs (29 no.)	Information Request
Central Statistics Office	Information Request
Dept of Enterprise, Trade and Employment	Information Request
Dept of Education	Information Request
Dept of Further and Higher Education	Information Request
ETBI	Information Request
Skillnet Ireland	Information Request
City & Guilds in Ireland	Information Request
Local Authority EAOs (31 no.)	Information Request
Regional ETBs (12 no.)	Information Request

## APPENDIX 2 REPAIR SKILLS TRAINING AND EDUCATION COURSES

Product Category	Title	Provider	County	NFQ Level	Awarding Body
Automotive	Electric/Hybrid Vehicle System Repair & Replace	Baldoyle Training Centre	Dublin	Level 3	Institute of the Motor Industry
Automotive	Electric/Hybrid Vehicle System Repair & Replace (ESB Employees Only)	Baldoyle Training Centre	Dublin	Level 3	Institute of the Motor Industry
Automotive	Basic Car Maintenance (BTEI)	Plunket College of Further Education	Dublin	Level 4	QQI
Automotive	Motor Vehicle Maintenance (Motor Technology)	Cavan Institute	Cavan	Level 5	QQI
Automotive	Motor Vehicle Maintenance (Motor Technology)	Plunket College of Further Education	Dublin	Level 5	QQI
Automotive	Motor Technology	College of FET - Raheen Campus	Limerick	Level 5	QQI
Automotive	Motor Vehicle Technology	College of FET - Raheen Campus	Limerick	Level 5	QQI
Automotive	Basic Car Maintenance Evening Course	Athlone Training Centre	Westmeath	Not applicable/ none	Unknown
Automotive	Heavy Vehicle Mechanic - Apprenticeship	TU Dublin - Bolton Street	Dublin	Level 6	QQI
Automotive	Motor Mechanic - Apprenticeship	Dundalk Institute of Technology - DKIT	Louth	Level 6	QQI
Automotive	Motor Mechanic - Apprenticeship	TU Dublin - Bolton Street	Dublin	Level 6	QQI
Automotive	Motor Mechanic - Apprenticeship	Kerry College	Kerry	Level 6	QQI
Automotive	Car Maintenance	Cabinteely Adult Education	Dublin	Not applicable/ none	None

Product Category	Title	Provider	County	NFQ Level	Awarding Body
Automotive	Supplementary Restraint System (SRS) Diagnostics and Repair - Air Bag Removal / Installation	ARM Academy	Roscommon	Not applicable/ none	None
Automotive	Hybrid and Electric Vehicle Systems Level 2/3 Combined	ARM Academy	Roscommon	Level 3	Institute of the Motor Industry
Automotive	Marine Engine Maintenance	Cabinteely Adult Education	Dublin	Not applicable/ none	None
Automotive	Car Maintenance (Beginners)	Colaiste Chiaran Adult Education	Kildare	Not applicable/ none	None
Automotive	Car / Vehicle Maintenance	Hartstown Community School Adult Education	Dublin	Not applicable/ none	None
Automotive	Motor Vehicle Maintenance (Motor Technology)	Plunkett College of Further Education	Dublin	Level 5	QQI
Automotive	Motor Maintenance & Light Engineering (Motor Technology)	Cork College of FET - Douglas Street Campus	Cork	Level 5	QQI
Automotive	Motorcycle & Small Engine Maintenance	Cork College of FET - Douglas Street Campus	Cork	Level 5	QQI
Automotive	Specialist Electric Vehicle Training	Harris Group Training Academy	Dublin	Not applicable/ none	None
Automotive	Car Care for Beginners	Pobalscoil Neasáin Adult Education	Dublin	Not applicable/ none	None
Automotive	Brake Service and Maintenance	Woodford Automotive Training Services	Cavan	Not applicable/ none	None
Automotive	Hybrid and Electric Vehicle Technology	Woodford Automotive Training Services	Cavan	Not applicable/ none	None

Product Category	Title	Provider	County	NFQ Level	Awarding Body
Automotive	Diesel Engine Management	Woodford Automotive Training Services	Cavan	Not applicable/ none	None
Automotive	SRS Supplementary Restraint Systems	Woodford Automotive Training Services	Cavan	Not applicable/ none	None
Automotive	Automotive Technology	Carlow Institute of Further Education and Training	Carlow	Level 5	QQI
Automotive	Hybrid & Electric Vehicle Systems Combined	SIMI Skillnet	Dublin	Level 3	Institute of the Motor Industry
Automotive	Bachelor of Science in Automotive Technology and Management	Munster Technological University	Cork	Level 7	Munster Technological University
Bicycles	Bicycle Maintenance and Repair/Certificate in Cycle Mechanics	GRETB Training Centre	Galway	Level 2	City & Guilds
Bicycles	Bicycle Mechanic Technician	Waterford Training Centre	Waterford	Level 2	City & Guilds
Bicycles	Advanced Bicycle Mechanic Technician	Athlone Training Centre	Westmeath	Level 1	City & Guilds
Bicycles	Advanced Bicycle Mechanic Technician (Employed)	Baldoyle Training Centre	Dublin	Level 1	City & Guilds
Bicycles	Bicycle Mechanic Technician (Employed)	Baldoyle Training Centre	Dublin	Level 2	City & Guilds
Bicycles	Bicycle Engineer Traineeship Foundation/ Certificate in Engineering	College of FET - Raheen Campus	Limerick	Level 1	City & Guilds
Bicycles	Fix Your Bike Sessions	Cork Community Bikes	Cork	Not applicable/ none	None
Bicycles	Intro to Bike Mechanics - Sallynoggin Integration Class	The Bike Hub	Dublin	Not applicable/ none	None

Product Category	Title	Provider	County	NFQ Level	Awarding Body
Bicycles	Bike Maintenance & Safe Cycling Workshop for Transition Year Students	The Bike Hub	Dublin	Not applicable/ none	None
Bicycles	Cycle Mechanic Level 1	Frontline Bikes	Dublin	Level 1	City & Guilds
Bicycles	Cycle Mechanic Level 2	Frontline Bikes	Dublin	Level 2	City & Guilds
Bicycles	DIY Bike Workshops	An Mheitheal Rother	Galway	Not applicable/ none	None
Bicycles	One Day Basic Introduction to Bicycle Mechanics	Renew Enterprises	Waterford	Not applicable/ none	None
Bicycles	Certificate in Cycle Mechanics	Renew Enterprises	Waterford	Level 2	City & Guilds
Bicycles	Bike Maintenance Workshop	Rediscovery Centre	Dublin	Not applicable/ none	None
Bicycles	Bicycle Maintenance / Repair	Cork College of FET - Douglas Street Campus	Cork	Not applicable/ none	None
Bicycles	Bicycle/eBike Maintenance	Newpark Nightschool	Dublin	Not applicable/ none	None
Bicycles	Bicycle Mechanic Engineering Foundation Programme	Bicycle Engineering Academy	Limerick	Level 3	QQI
Bicycles	Bicycle Technician Engineering Advanced Programme	Bicycle Engineering Academy	Limerick	Level 3	QQI
Bicycles	E-Bicycle Technician Engineering Programme	Bicycle Engineering Academy	Limerick	Level 3	QQI
Bicycles	360 Academy Grade 1 - Bike Maintenance Class Starter Module	360 Cycles	Dublin	Not applicable/ none	None
Bicycles	360 Academy Grade 2 - Bike Maintenance Class Learner Module	360 Cycles	Dublin	Not applicable/ none	None
Bicycles	360 Academy Grade 3 - Bike Maintenance Class Expert Module	360 Cycles	Dublin	Not applicable/ none	None

Product Category	Title	Provider	County	NFQ Level	Awarding Body
Bicycles	360 Academy Grade 4 - Bike Maintenance Class Professional Module	360 Cycles	Dublin	Not applicable/ none	None
Bicycles	Intensive Maintenance Course	Evolution Cycles	Limerick	Not applicable/ none	None
Bicycles	Advanced Maintenance Course	Evolution Cycles	Limerick	Not applicable/ none	None
Bicycles	1 To 1 Intensive Bicycle Maintenance Course	Evolution Cycles	Limerick	Not applicable/ none	None
Bicycles	Mechanics Programme	Evolution Cycles	Limerick	Not applicable/ none	None
Bicycles	Geared Up Course	Evolution Cycles	Limerick	Not applicable/ none	None
Bicycles	Dead Stop Course	Evolution Cycles	Limerick	Not applicable/ none	None
Bicycles	Tune Up Course	Evolution Cycles	Limerick	Not applicable/ none	None
Bicycles	Straighten Up Course	Evolution Cycles	Limerick	Not applicable/ none	None
Bicycles	Bike Maintenance 1: Puncture Repair	The Cycle Hub	Dublin	Not applicable/ none	None
Bicycles	Bike Maintenance 2: Fixing Gears	The Cycle Hub	Dublin	Not applicable/ none	None
Bicycles	Bike Maintenance 3: A Stitch in Time Saves Nine!	The Cycle Hub	Dublin	Not applicable/ none	None
Bicycles	Bike Maintenance Course	Blackrock Further Education Institute	Dublin	Not applicable/ none	None

Product Category	Title	Provider	County	NFQ Level	Awarding Body
Bicycles	Bicycle Maintenance for Beginners (ART50)	Dun Laoghaire Further Education Institute	Dublin	Not applicable/ none	None
Bicycles	Bicycle Maintenance	Drogheda Institute of Further Education	Louth	Not applicable/ none	None
Clothing and textiles	Mend, Upcycle, Remodel Your Textiles	Tech Amergin Further Education and Training Centre	Kerry	Not applicable/ none	Unknown
Clothing and textiles	Sewing for Improvers, Ballinasloe	East Galway Adult Learning Centre	Galway	Level 3	QQI
Clothing and textiles	Sewing for Beginners, Ballinasloe	East Galway Adult Learning Centre	Galway	Level 2	QQI
Clothing and textiles	Sewing for Beginners, Loughrea	East Galway Adult Learning Centre	Galway	Level 2	QQI
Clothing and textiles	Sewing for Improvers, Loughrea	East Galway Adult Learning Centre	Galway	Level 3	QQI
Clothing and textiles	Fiddling with Fabric	Tech Amergin Further Education and Training Centre	Kerry	Not applicable/ none	None
Clothing and textiles	Beara Introduction to Sewing	Adult Literary Service West Cork, Castletownbere	Cork	Level 3	QQI
Clothing and textiles	Junior Cycle Subject: Home Economics	Post-primary Schools	All	Level 3	State Examinations Commission
Clothing and textiles	Repair Workshops - Liffey Valley, Dublin	Penney's (Primark)	Dublin	Not applicable/ none	None
Clothing and textiles	Repair Workshops - Galway	Penney's (Primark)	Galway	Not applicable/ none	None



Product Category	Title	Provider	County	NFQ Level	Awarding Body
Clothing and textiles	Repair Workshops - Waterford	Penney's (Primark)	Waterford	Not applicable/ none	None
Clothing and textiles	Repair Workshops - Limerick	Penney's (Primark)	Limerick	Not applicable/ none	None
Clothing and textiles	Repair Workshops - Cork	Penney's (Primark)	Cork	Not applicable/ none	None
Clothing and textiles	Repair Workshops - Tallaght, Dublin	Penney's (Primark)	Dublin	Not applicable/ none	None
Clothing and textiles	Get to Know Your Sewing Machine - Beginners Sewing Workshop	Rediscovery Centre	Dublin	Not applicable/ none	None
Clothing and textiles	Textiles - Heritage, Craft, Revival and Renewal	Liberties College	Dublin	Level 5	QQI
Clothing and textiles	Sewing: Machine Sewing for Beginners	Malahide Community School Adult Education	Dublin	Not applicable/ none	None
Clothing and textiles	Clothing Alterations Sewing Course	Stitch and Style	Cork	Not applicable/ none	None
Clothing and textiles	Alterations and Upcycling Workshop	Sew Fun Studios	Wexford	Not applicable/ none	None
Clothing and textiles	Dressmaking Beginners (Thursday)	Crumlin College of Further Education	Dublin	Not applicable/ none	None
Clothing and textiles	Fashion Design Dressmaking: Beginners	Limerick College of Further Education	Limerick	Not applicable/ none	None
Clothing and textiles	Fashion Design: Dressmaking	Limerick College of Further Education	Limerick	Not applicable/ none	None
Clothing and textiles	Fashion Design: Dressmaking: Continuation	Limerick College of Further Education	Limerick	Not applicable/ none	None

Product Category	Title	Provider	County	NFQ Level	Awarding Body
Clothing and textiles	Improvers Dressmaking	Crumlin College of Further Education	Dublin	Not applicable/ none	None
Clothing and textiles	Upcycling Dressmaking (UPC)	Crumlin College of Further Education	Dublin	Not applicable/ none	None
Clothing and textiles	Stitch and Mend Course	Old Bawn Adult Education	Dublin	Not applicable/ none	None
Clothing and textiles	Continuing Sewing (Tuesdays)	The City Seamstress	Dublin	Not applicable/ none	None
Clothing and textiles	Intro to Sewing & Basic Alterations	When Poppy Met Daisy	Dublin	Not applicable/ none	None
Clothing and textiles	Dressmaking Course	When Poppy Met Daisy	Dublin	Not applicable/ none	None
Clothing and textiles	Upcycle Your Wardrobe Workshop	When Poppy Met Daisy	Dublin	Not applicable/ none	None
Clothing and textiles	Clothing Alterations & Repairs Workshop	Sew Great	Dublin	Not applicable/ none	None
Clothing and textiles	Alterations and Repairs Workshop	The Art of Sewing & Design	Wexford	Not applicable/ none	None
Clothing and textiles	Waterford Clothes Repair and Upcycling Workshop	The Walton Institute, SETU / Central Library, Waterford	Waterford	Not applicable/ none	None
Clothing and textiles	Introduction to Alterations and Clothes Upcycling	Henrietta Adult & Community Education	Dublin	Not applicable/ none	None
Clothing and textiles	Senior Cycle Subject: Home Economics	Post-primary Schools	All	Level 5	State Examinations Commission
EEE	PC Maintenance (Computer Systems & Networks)	Kells Further Education and Training Centre	Meath	Level 5	QQI
EEE	Computer Maintenance and Repair	Hi-Tech Training Dublin	Dublin	Level 2	City & Guilds

Product Category	Title	Provider	County	NFQ Level	Awarding Body
EEE	Electronics Equipment Repair 1	Hi-Tech Training Dublin	Dublin	Level 2	City & Guilds
EEE	Electronics Equipment Repair 2	Hi-Tech Training Dublin	Dublin	Level 2	City & Guilds
EEE	Digital Electronics	Hi-Tech Training Dublin	Dublin	Level 2	City & Guilds
EEE	PC Repair & Upgrading	Kilroy's College	Dublin	Not applicable/ none	None
EEE	Smart Phone Repair	The Knowledge Academy	Dublin	Not applicable/ none	None
Furniture and upholstery	Interior Design with Upcycling and Refurbishment Skills	Waterford VTOS	Waterford	Level 5	QQI
Furniture and upholstery	Wood Manufacturing & Finishing - Apprenticeship	TU Dublin - Bolton Street	Dublin	Level 6	QQI
Furniture and upholstery	Furniture Restoration	Scoil Mhuire Clane Adult Education	Kildare	Not applicable/ none	None
Furniture and upholstery	Furniture Restoration and Upholstery	Malahide Community School Adult Education	Dublin	Not applicable/ none	None
Furniture and upholstery	Upcycling Furniture (HL031)	Limerick College of Further Education	Limerick	Not applicable/ none	None
Furniture and upholstery	Furniture Restoration and French Polishing	Ashton School Adult Education	Cork	Not applicable/ none	None
Furniture and upholstery	Furniture Restoration	Gorey Adult Education	Wexford	Not applicable/ none	None
Furniture and upholstery	Furniture Restoration and Upholstery	St Tiernan's Community School Adult Education Programme	Dublin	Not applicable/ none	None
Furniture and upholstery	Demonstration: Introduction to Furniture Upholstery	Rediscovery Centre	Dublin	Not applicable/ none	None

Product Category	Title	Provider	County	NFQ Level	Awarding Body
Furniture and upholstery	Demonstration: Introduction to Furniture Restoration	Rediscovery Centre	Dublin	Not applicable/ none	None
Furniture and upholstery	Furniture Restoration	Colaiste Chiaran Adult Education	Kildare	Not applicable/ none	None
Furniture and upholstery	Antique Furniture Restoration	Newpark Nightschool	Dublin	Not applicable/ none	None
Furniture and upholstery	Upholstery	Newpark Nightschool	Dublin	Not applicable/ none	None
Furniture and upholstery	Furniture Conservation/ Restoration	St Tiernan's Community School Adult Education Programme	Dublin	Not applicable/ none	None
Furniture and upholstery	Upholstery (Beginners)	St Tiernan's Community School Adult Education Programme	Dublin	Not applicable/ none	None
Furniture and upholstery	Upholstery (Continuation)	St Tiernan's Community School Adult Education Programme	Dublin	Not applicable/ none	None
Furniture and upholstery	Furniture Making & Restoration Skills (Furniture Design and Making)	Cork College of FET - Douglas Street Campus	Cork	Level 5	QQI
Furniture and upholstery	Beginner's Upholstery Course & Antique Restoration	Oldchairs.ie	Clare	Not applicable/ none	None
Furniture and upholstery	Traditional Upholstery	Clane Community School	Kildare	Not applicable/ none	None
Furniture and upholstery	Furniture Design and Making	Dun Laoghaire Further Education Institute	Dublin	Level 6	QQI
Furniture and upholstery	Antique Furniture Restoration	George Williams Antiques	Meath	Not applicable/ none	None

Product Category	Title	Provider	County	NFQ Level	Awarding Body
Furniture and upholstery	Upholstering the Antique Chair	George Williams Antiques	Meath	Not applicable/ none	None
General home repairs/ DIY	Home Repairs and Maintenance	BTEI Monaghan	Monaghan	Level 4	QQI
General home repairs/ DIY	Employability Skills Level 3 (with Options Childcare, Catering, Home Maintenance)	Carlow Youth Employment Co. Ltd.	Carlow	Level 3	QQI/City & Guilds
General home repairs/ DIY	D.I.Y.	Cabinteely Adult Education	Dublin	Not applicable/ none	None
General home repairs/ DIY	DIY about the House (Beginners)	Colaiste Chiaran Adult Education	Kildare	Not applicable/ none	None
General home repairs/ DIY	DIY about the House (Improvers)	Colaiste Chiaran Adult Education	Kildare	Not applicable/ none	None
General home repairs/ DIY	DIY / Home Maintenance	Hartstown Community School Adult Education	Dublin	Not applicable/ none	None
General home repairs/ DIY	DIY	Scoil Mhuire Clane Adult Education	Kildare	Not applicable/ none	None
General home repairs/ DIY	DIY - Improvers	Scoil Mhuire Clane Adult Education	Kildare	Not applicable/ none	None
General home repairs/ DIY	Home Repairs and Maintenance	FRS Training / Mayo Abbey Resource Centre	Mayo	Level 4	QQI
General home repairs/ DIY	Home Repairs and Maintenance	Pearse College of Further Education	Dublin	Level 4	QQI
Jewellery, watches and clocks	Jewellery Revival and Renewal	Dingle Further Education and Training Centre	Kerry	Not applicable/ none	Unknown
Jewellery, watches and clocks	Clock Repair Course	Oldchairs.ie	Clare	Not applicable/ none	None

Product Category	Title	Provider	County	NFQ Level	Awarding Body
Jewellery, watches and clocks	Online Clock Repair Course	Oldchairs.ie	Clare	Not applicable/ none	None
Large appliances (white goods)	White Goods Service Engineering	EDI Centre Longford	Longford	Level 6	QQI
Large appliances (white goods)	Refrigeration & Air Conditioning - Apprenticeship	TU Dublin - Bolton Street	Dublin	Level 6	QQI
Large appliances (white goods)	Appliance Maintenance & Repair Course	St Tiernan's Community School Adult Education Programme	Dublin	Not applicable/ none	None
Large appliances (white goods)	White Goods Field Service Engineer	LMETB FIT Gizmo Labs, Dunshaughlin	Meath	Level 6	QQI
Lawnmowers and agricultural machinery	Small Engines and Garden Machinery	KMG Training	Cavan	Not applicable/ none	None
Musical instruments	Higher National Diploma Traineeship in Instrument Making, Repair and Maintenance	Ballyfermot College of Further Education	Dublin	Level 6	Business and Technology Education Council
Musical instruments	Musical Instrument Making & Repair	Cork College of FET - Douglas Street Campus	Cork	Level 5	QQI
Musical instruments	Musical Instrument Making & Repair	Dun Laoghaire Further Education Institute	Dublin	Level 5	QQI
Musical instruments	Musical Instrument Making & Repair - Advanced	Cork College of FET - Douglas Street Campus	Cork	Level 6	QQI
Other	Domestic Gas Boiler Service & Repair	METAC Training	Laois	Not applicable/ none	None
Various	Creative Craft	Oughterard FET Centre	Galway	Level 5	QQI

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Product Category	Title	Provider	County	NFQ Level	Awarding Body
Various	Creative Craft	St Benins FET Centre, Tuam	Galway	Level 5	QQI
Various	Four Stroke Engine Maintenance	Renew Enterprises	Waterford	Level 3	QQI
Various	Secondary School Workshop: Waste Workshop	Rediscovery Centre	All	Not applicable/ none	None

## TO FIND OUT MORE:

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