# Makerspace Provision in Dublin

## Research Report

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## Contents

# 1   Executive Summary

This research report provides an overview of makerspace provision and relevant maker initiatives in Dublin City and County. The report was produced as part of the Dublin Regional Enterprise Plan to 2020[1], (DREP) specifically: to complete Action 4 under Strategic Objective 3.

> **Strategic Objective 3:**   Build a pipeline of sustainable and scalable start-ups in Dublin and provide quality support.
>
> **Action 4:**   Review existing 'Maker Space' provision in the Dublin Region

A brief literature review was initially carried out to clarify the context and concept of makerspaces. A desktop review was then conducted to identify relevant makerspaces and initiatives in Dublin and to determine their respective service provision, operating models and locations. Makerspaces and initiatives were identified in the context of generally accepted interpretations among practitioners and within the relevant literature. The term 'makerspace' used in this report is inclusive of Hackerspaces and Fab Labs.

A summary is provided below, regarding the report and makerspace provision in Dublin.

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[1] DEBI (2018) Dublin Regional Enterprise Plan to 2020

## The Maker Movement

The maker movement is a growing trend that seeks to empower, educate, inspire and encourage people to create, build, innovate and do it yourself. As part of it, diverse actors or makers interact and collaborate, share knowledge and expertise in order to produce objects or progress their projects. Typical activities within the movement include electronics, programming, robotics, 3D printing, fabrication, woodwork, metalwork, arts and crafts. The movement supports and contributes to inclusion, entrepreneurship, the broadening of research and development and ultimately to the democratisation of innovation by removing or lowering barriers to tools, equipment and knowledge.

## Makerspaces

Makerspaces are hubs and physical representations of the maker movement where makers converge to create, learn and work on projects using traditional crafts and / or new technologies while sharing ideas, resources, equipment and knowledge. Typical characteristics of makerspaces are that they are: physical spaces; self-supported and that they seek to foster and encourage: education, sharing – open access / open source approaches, engagement, inclusion, and innovation. There are an estimated 2,000 makerspaces around the world, 826 of which are located in European Union (EU) countries. Ireland ranks 13th of the 28 EU countries and below the EU average, regarding the number of makerspaces located across the country. However, Ireland ranks 7th of 28 regarding the number of makerspaces per one million inhabitants. In summary, Ireland ranks closely with similar EU countries.

## Makerspace Provision in Dublin

In Dublin, makerspaces, makerspace environments and maker initiatives are evident and manifested in various ways. (An overview of makerspace provision is provided in the table below). TOG Hackerspace is a quintessential example of a makerspace in Dublin. It is community led, funded and managed, and has a clear purpose to promote and foster innovation, making, sharing and education. The four universities in Dublin each have a type of makerspace or operate maker initiatives. University College Dublin (UCD) and Technological University Dublin (TU Dublin) both have future plans to further develop and utilise makerspaces as part of their respective campuses and facilities' offerings. All four Dublin Local Authorities support making, primarily through the provision or planned provision of makerspaces in public libraries or other relevant locations. Making is further supported by community-led initiatives such as Dublin Maker, via its annual large scale festival and various programmes.

In general, makerspace provision and support for making in Dublin appears to be relatively robust due to the many organisations and initiatives that are actively supporting and developing makerspaces and making. Furthermore, the various future initiatives planned by organisations, universities and local authorities to utilise maker approaches and create additional makerspaces serves to signal that makerspaces and making are poised to continue and develop as important elements within communities, society, education and within the innovation and entrepreneurship ecosystem. It is important to note, however, that TOG is the only independent, community led, funded and managed makerspace in Dublin, which was identified as part of this report.

Please Note: The desktop review was conducted during Quarter 2, 2021 when the makerspaces and relevant initiatives were identified. If a makerspace or relevant initiative was not featured in this report or has changed, please inform the Economic Development Office of Dublin City Council.

| Overview: Makerspace Provision in Dublin | | | |
|---|---|---|---|
| **General Makerspaces** | | | |
| Makerspace / Initiatives | Location (Dublin Postcode Area) | Operating model | Service Provision |
| TOG Hackerspace – The Dublin Hackerspace | D12 | Non-profit, community led | Workspace, events, outreach. Software, hardware, arts, craft equipment |
| **University / College Makerspaces** | | | |
| DCU Alpha Prototype / Makerspace | D11 | Commercial Innovation Campus | Private workspace, events, networking, access to DCU research community |
| M2M / IoT Maker-space for Satellite Communications | D11 | Temporary programme | Incubation programme, workspace, office, lab space, test environment |
| UCD Innovation Academy – Maker Space | D4 | Non-profit, under UCD CLG | Workspace, lab, events, programmes. Hardware and software tools and technologies. |
| Open Labs TU Dublin | D7 | Operates as part of TU Dublin CLG | Access to TU Dublin technologies, research community, advice. Labs: Food Innovation, Design, VR |
| Science Gallery (Trinity College Dublin TCD) | D2 | Non-profit, as part of TCD | Events, exhibitions, workshops, programmes |
| Trinity College Dublin – Makerspace (Dept. of M &M Engineering) | D2 | Internal space for students, as part of TCD | Workspace, 3D printing facility, prototype lab, hardware and software tools and technologies |
| **Local Authority Makerspaces** | | | |
| Dublin City Council: Makerspaces<br>- Ballyfermot Library,<br>- Coolock Library,<br>- Maker Van | - D10<br>- D17<br>- Various | Non-profit, public libraries | - Ballyfermot Library: Creative Studio (Digital Makerspace)<br>- Coolock Library: Events, workshop, equipment<br>- Maker Van: Workshops, equip. |
| Fingal County Council: Makerspaces:<br>- Blanchardstown Library,<br>- Digital Innovation / Makerspace | - D15<br><br>- Co. North (Balbriggan) | Non-profit, public libraries TBC | - TBC<br><br>- TBC |
| South Dublin County Council: Makerspace | D22 | Non-profit, public library | Creative Studio (Digital Makerspace) |
| Dun Laoghaire Rathdown (dlr) LexIcon | Co. South | Non-profit, public library | Events, workshops, programmes. Equipment |
| **Other Makerspace / Maker Initiatives** | | | |
| Dublin Maker | Various | Free annual event. Comm / vol. led | Annual showcase event. Also various initiatives: podcasts, meetings, competitions, articles |
| Science Hack Day Dublin | TOG / D8 | Free annual event. Comm. / vol. led. | Event and competition |
| Men's Sheds | Various | Vol. led | Workspace, events, equipment |

## 2   Context: The Maker Movement

Since the beginning of humankind, people have been *making*[2]. They have done so by engaging in: 'the act or process of forming, causing, doing, or coming into being'[3], regarding items and processes in order to achieve a goal, solve a problem or realize progress. Recently, making has become particularly popular as part of an overall and associated movement or trend that seeks to empower, educate, inspire and encourage people to create, build, innovate and do it for themselves. The movement is described as 'a growing community of individuals, representing different disciplines, experiences, skill levels, and backgrounds'[4]. Within the movement: diverse actors interact and collaborate through social exchange in knowledge creation and sharing spaces while using technological or other resources to produce material artefacts or progress projects[5].

Although subject to debate and constantly evolving, the maker movement generally involves and includes activities related to electronics, programming, robotics, 3D printing, fabrication, woodwork, metalwork, arts and crafts[5][6]. Creation, recreation and assembly of objects by using low cost and / or discarded items and / or raw materials as part of a do-it-yourself (DIY), collaborative, sharing and open source orientation, is typical[7].

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[2] Burke, J. (2014). Making Sense: Can Makerspaces Work in Academic Libraries?
[3] Merriam-Webster (2021) Definition of Making
[4] American Society for Engineering Education (2016) Envisioning the Future of the Maker Movement: Summit Report
[5] Browder, R. et al., (2019) The Emergence of the Maker Movement: Implications for Organisational and Entrepreneurship Research
[6] Rosa, P. et al., (2017) Overview of the Maker Movement in the European Union
[7] Rosa, P. et al., (2018) Futures of Work: Perspectives from the Maker Movement

## Maker Movement Origins

The origins of the modern day maker movement include the Mechanics Institutes in the 19th century which encouraged collaborative and public learning and innovation[4], the counterculture of the 1960s / 1970s which sought to empower people to do more themselves, the advent of the information age which saw computers and technology products become more available, and a growing interest in DIY and craft modes of production[5 6]. According to Browder et al.,[5] the main external enabling forces that contributed to the maker movement in the modern era include:

- A shift from analogue to digital designs and production
- Increased economic efficiencies achieved via a reduction in the time and costs required for the process of development and prototyping
- Trends toward collaboration in designing and producing artefacts
- Increased involvement of end-users in innovation and production processes

## Makers

Those involved in the movement, referred to as makers, include do it yourself (DIY) hobbyists, engineers, artists, designers, hackers, crafters, students, educators, self-employed small business owners, prototyping entrepreneurs, technology inventors, corporate innovators, manufactures, children etc. who seek to explore new ways to express themselves, innovate and customise or create objects[4 5 6 7]. By virtue of the movement, these makers benefit in various ways which include:

- Access to advanced technologies which would otherwise be out of reach or too expensive.
- Direct access to fabrication tools, programmes and processes which do not require specialist training or qualifications to operate. Makers can participate as long as they are prepared to learn and collaborate.
- Opportunity for enhanced social capital among the diverse community of makers.
- Access to knowledge and expertise via other makers[5 6 7].

## Impact

On account of these benefits and the associated activities, the maker movement subsequently supports and contributes to inclusion, entrepreneurship, the broadening of research and development and also ultimately to the democratisation of innovation[6 7]. It significantly lowers or removes barriers to innovation and invention as makers can much more easily and cheaply experiment and develop prototypes while leveraging the collective knowledge, support and expertise of other makers. Traditionally, such knowledge, expertise and the associated tools and technologies were primarily and sometimes exclusively available to corporate and well-resourced organisations. The movement opens up these resources to the masses.

Making activities combine diverse disciplines, people and perspectives, which typically would be separate otherwise[8]. When combined, this fusion is conducive to innovation, ideation and invention generation. Makers can directly, rapidly and openly access the supports, resources and networks needed to help them invent, innovate and develop prototypes. The movement thus enables new models and approaches to education, collaborative work and production or manufacturing[6 7]. In addition, the maker movement and associated makerspaces can play a wide role in public life and can support community development in various ways. These ways include provision of local social spaces

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[8] Vuorikari, R. et al., (2019) Makerspaces for Education and Training – Exploring future implications for Europe

for community members to meet, community well-being enhancement through serving community needs and social inclusion through reaching out to excluded groups[9].

Makerspaces and makers have been and are typically involved in responding to global challenges or emergency situations. For instance, Nepal Communitere, a makerspace in Kathmandu was established after the 2015 earthquake to help produce and repair essential items, while Glia, a maker project in Gaza has been producing 3D printed lifesaving tourniquets since 2016[10]. In regard to the COVID-19 pandemic, the maker movement, makerspaces and makers played a vital and innovative role. In response to the shortfall of essential items, an unprecedented number of makers utilised their skills to produce face masks, face shields and ventilators in their local makerspaces or indeed homes, in order to support hospitals, healthcare workers and people affected[11][12][13].

## Future

The movement looks certain to continue and develop as various events and initiatives such as the international series of Maker Faires[14] increasingly take place around the world, as making is promoted and supported at high policy levels such as the European Commission supported European Maker Week[15] and as more public and private organisations from academia, education, government and business seek to utilise and support making.

An extensive body of academic and policy research continues to highlight various benefits and positive impacts associated with the maker movement[2][4][5][6][7][16]. In regard to education, as the many benefits of making and makerspaces have become increasingly acknowledged, in particular to STEM subjects, schools, libraries and universities have sought to create and utilise makerspaces as a means to better support learning among students[2][4]. In 2014, Deloitte and Maker Media published an extensive report on the impact of the maker movement in which they highlighted key trends that will support the further development of the maker movement[12]. These trends include: 'collaborative production will define the future of work; the maker ecosystem will disrupt today's large enterprise; empowered demand drives supply and manufacturing and retail follow the customer; in education, practice trumps theory; with shared production and marketplaces in communities, agency trumps apathy'.

More recently in 2018, Rosa et al.,[7] produced a report considering the maker movement and the future of work. Their key conclusions were that makerspaces:

- Are part of the infrastructure for developing skills for the future and can provide alternative or complimentary education
- Have a 'central role in fostering innovation', ideation and prototyping
- Can inspire individuals to create their own job or business.

[9] Taylor, N. et al., (2016) Making Community: The Wider Role of Makerspaces in Public Life

[10] Corsini, L. and James, E. (2021) Makerspaces boost community resilience. [WE Forum]

[11] Corsini, L. et al., (2020) The Maker movement and its impact in the fight against COVID-19

[12] ProFuturo (2020) A solidarity-based Maker Movement in times of global pandemic

[13] Kieslinger, B. et al., (2021) Covid-19 Response From Global Makers

[14] Maker Faire (2021)

[15] European Maker Week (2021)

[16] Deloitte & Maker Media (2014) Impact of the Maker Movement

## 3   Concept: Makerspaces

As interest in making has grown, the demand for spaces where similarly minded individuals can cluster and share tools, ideas and knowledge has increased[17] [18] [19]. Various spaces acting as hubs and 'physical representations' of the maker movement have thus steadily increased around the world[6]. These spaces are essentially places where people with shared interests converge to create, learn and work on projects using traditional crafts or technology while sharing ideas, resources, equipment and knowledge[20]. They may exist within a school, university, innovation campus, industrial park, library, community centre or in a public or private facility where sharing, exploring, learning and creating can take place. Fundamentally these spaces provide infrastructure, equipment and networks so that makers can work on their projects and try to turn their ideas into prototypes and objects[4]. Makers gather at makerspaces to design, create and customise new devices and objects in a low risk and low cost setting while contributing to and benefiting from the collective knowledge, experience and expertise among other makers at the space.

The main terms used or types of spaces are Fab Labs, Hackerspaces or Makerspaces[6] [7].

-   Fab Labs short for Fabrication Laboratories or Fabulous Laboratories are typically workshops where makers collaborate via a common agenda to design and manufacture custom built objects.

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[17] Popular Science (2016) Number of Maker Spaces Worldwide
[18] FAB9 (2018) The Maker Movement
[19] Curiosity Commons (2021) A brief history of Makerspaces
[20] Makerspaces.com (2021) What is a Maker Space

- Hackerspaces are typically community led, funded and managed with a primary focus on technology, electronics and programming.
- Makerspaces are somewhat like a hybrid of Fab Labs and Hackerspaces. The term has ultimately become an overall term used to describe spaces as part of the maker movement including Fab Labs and Hackerspaces. It is commonly accepted and used by practitioners to describe a space that promotes 'active participation, knowledge sharing and collaboration among individuals through open exploration and creative use of tools and technology'[7].

Thus, in this report, makerspace is used as an overall term, inclusive of hackerspaces and Fab Labs.

Makerspaces vary in regard to their models, approaches and focuses. Different spaces may focus more so on social innovation, inclusion, education, technology, arts and culture, entrepreneurship, intrapreneurship or training, depending on their location, context, members, local or organisation needs[6][7]. Nonetheless some typical and relevant characteristics of makerspaces are featured below:

- Physical Space. Makerspaces are physical hubs where equipment is available and where events, workshops, training and general making activities by makers can take place.
- Education. Makerspaces seek to inspire and educate makers via training, events, equipment and general operations.
- Innovation. The direct and increased access to equipment, tools, technologies, networks and expertise, significantly contributes to and empowers individuals, entrepreneurs and enterprises to innovate. Current or potential inventors and entrepreneurs can rapidly prototype and customise products in a low risk and low cost setting.
- Self-support. Makerspaces are typically funded via grants, community support, sponsorship and or member fees. Money raised is used towards equipment, training, maintenance and the space rental or associated costs.
- Sharing. Central, is the aim to provide an environment that fosters sharing knowledge, space, skills, equipment and experience as part of open access and open source approaches.
- Engagement. Broad, multifaceted and inclusive engagement via training, workshops, events, fairs and promotion is typical. Makerspaces provide unique opportunities for makers and the general public to engage in different ways on diverse topics.
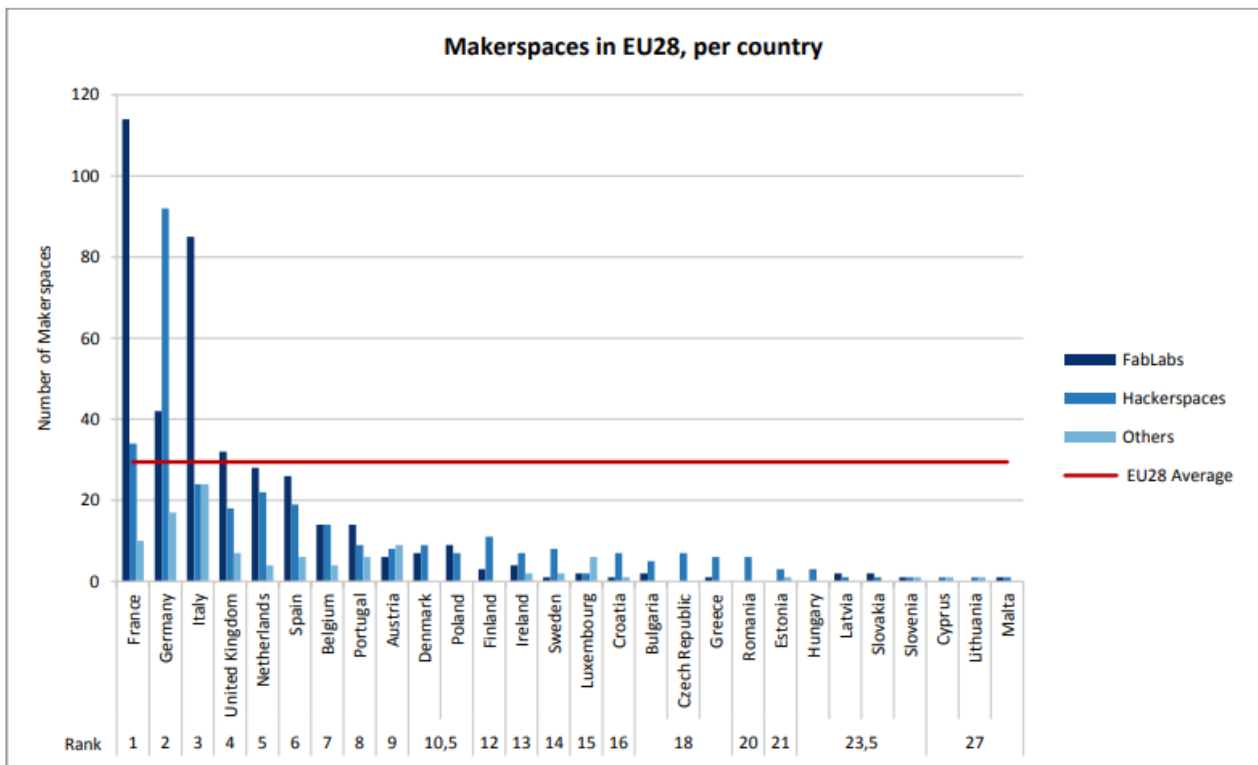
Currently, there are an estimated 2,000 makerspaces around the world[21][22]. As part of an extensive study on makerspaces in the EU, Rosa et al.,[6] identified and estimated that there were 826 across the EU, as of 2017. They also found that all major capital cities in the EU have at least one makerspace[6] and that Western European countries in particular France, Germany and Italy account for a significantly large proportion of makerspaces in the EU. The most common funding scheme used by makerspaces in the EU is a flat or varied membership fee and the most common thematic interests within makerspaces are: digital fabrication, programming, electronics, design, arts and education. The most common equipment and tools available within these makerspaces are 3D printers, circuit production tools, laser cutters, CNC milling machines, vinyl cutters and precision milling machines.

As part of the study by Rosa et al.,[6] Ireland ranked 13th among the 28 EU countries and below average regarding the number of makerspaces located across the country. However, regarding the number of makerspaces, per one million inhabitants, Ireland ranked 7th. In summary, among the various rankings in the report, Ireland ranked closely to similar EU countries such as Denmark, Finland and Sweden. Key figures from the report are displayed below:

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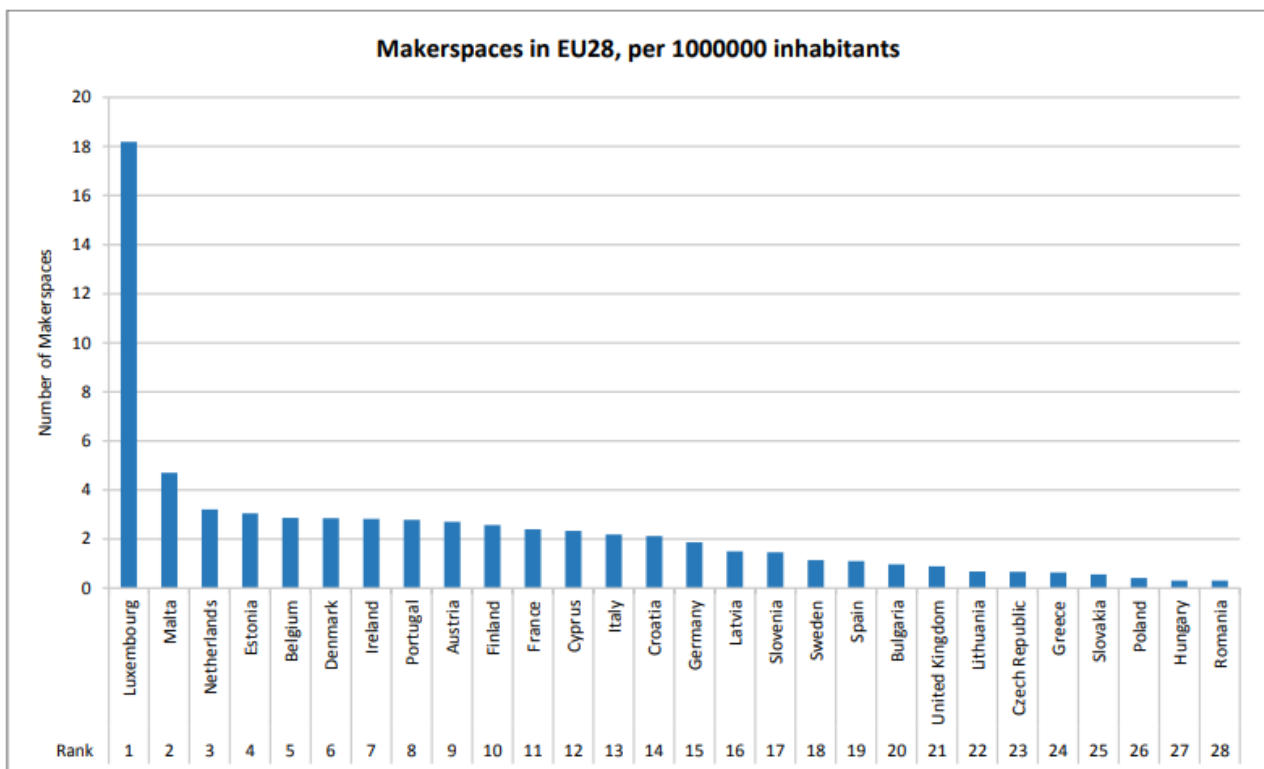[21] Affordable Colleges Online (2021) Makerspaces, Hackerspaces and FabLabs
[22] OEDb (2021) The 4 Flavours of Makerspaces

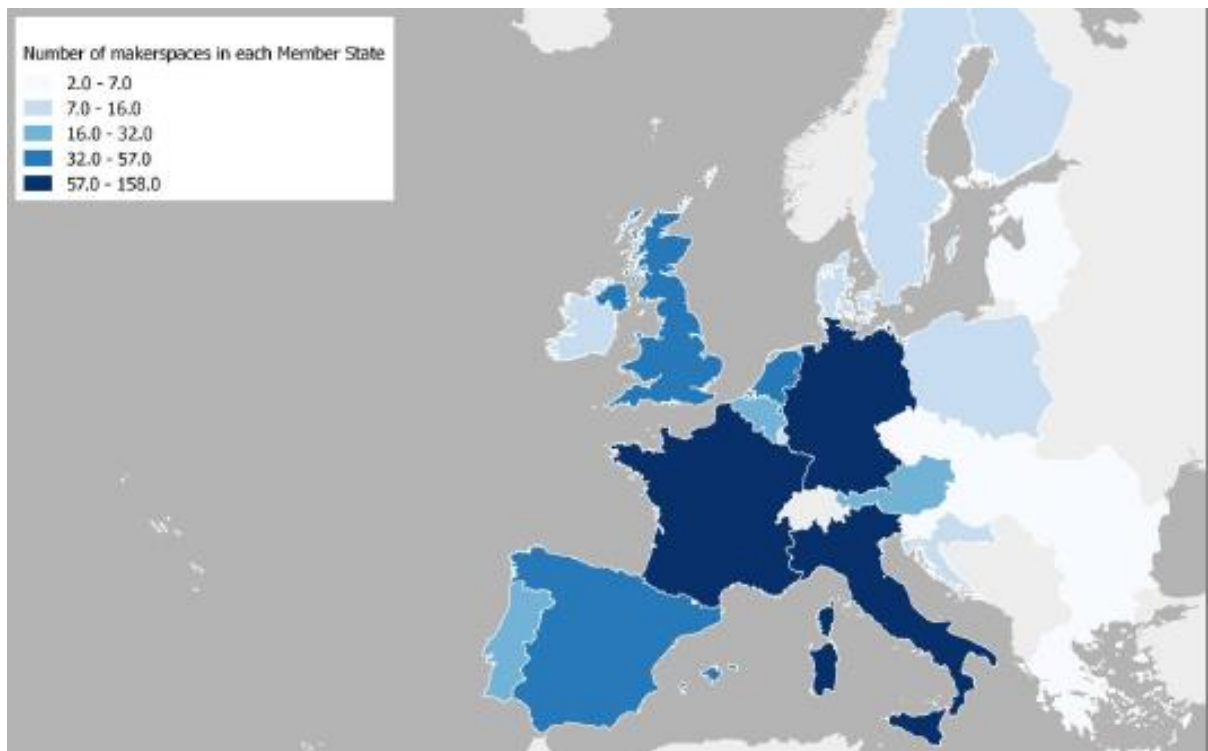Figure 1: Makerspaces in EU 28, per country



Rosa et al., (2017)[6] (pg. 17)

Figure 2: Makerspaces in EU28, per 1,000,000 inhabitants
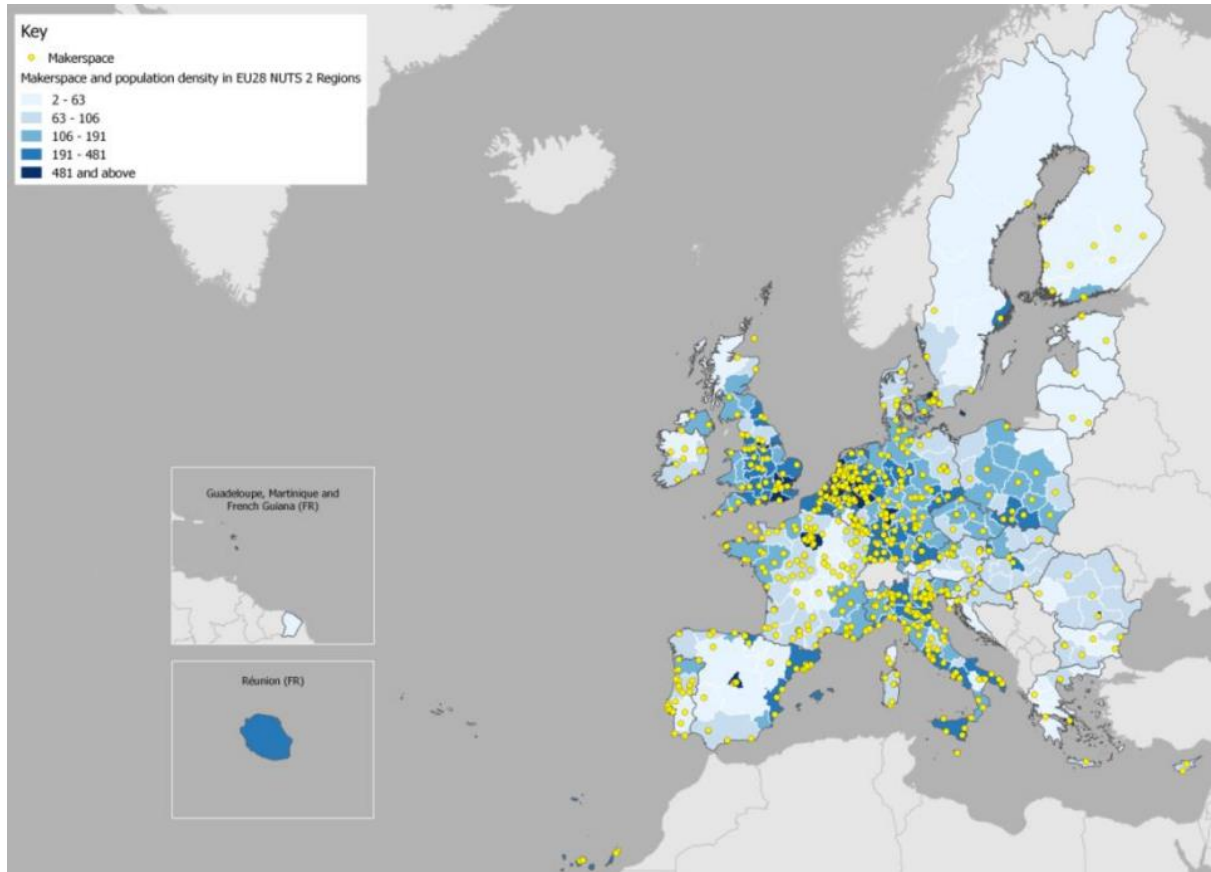


Rosa et al., (2017) [6] (pg. 19)

Figure 3: Number of makerspaces in EU28 countries



Rosa et al., (2017) [6] (pg. 15)

Figure 4: Location of makerspaces in EU28 and NUTS 2 Regions and population density



Rosa et al., (2017) [6] (pg. 20)

# 4  Review: Makerspace Provision in Dublin

Makerspace provision in Dublin is evident and manifested in various ways. Relevant makerspaces, makerspace environments and initiatives are profiled below:

| Makerspace Provision in Dublin | |
|---|---|
| **4.1   General Makerspaces** | |
| Name | TOG Hackerspace[23] – The Dublin Hackerspace |
| Location | Unit 1B, Kylemore Rd, Inchicore, Dublin 12, D12 KRW1 |
| Website | https://www.tog.ie/ |
| Description | TOG is self-described as a community hackerspace / makerspace which was first founded in Dublin in 2009. It is a place where people / members can learn new skills, access equipment and be creative to work on projects in an environment that is both inspiring and supportive of new and old technologies. Members range from students to retirees who collectively have skills in software, hardware, engineering, arts, design etc. TOG runs regular workshops, events and training initiatives. As part of its science outreach, it runs public events and participates in festivals including[24]: Dublin Maker[25], Coolest Projects[26], Cork Carnival of Science[27] and St. Patrick's Festival[28]. <br><br> As part of its constitution[29], the purposes of TOG are the promotion of innovation, science, technology, modern culture and creative arts. It thus seeks to: provide shared physical workspaces and resources; create safe, inviting and friendly environments where the community can meet and socialise; foster knowledge sharing and continued education in the community and / or the general public; promote and support the use and development of open technologies, standards and ideas by the community, the general public and other bodies with similar objectives; foster relations and work with other third parties with similar objectives. |
| Operating Model | Non-profit, non-commercial group funded by members who typically pay a monthly fee of €45. TOG is registered as a designated activity company limited by guarantee. (A private company limited by guarantee registered under Part 16 of the Companies Act 2014) |
| Service Provision | Workspace, events and networking. Public outreach. Software, hardware, engineering, arts, design: tools and equipment. |
| Note | |
| | |

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[23] TOG Hackerspace (2021)

[24] Dublin Maker (2021) Archives: Makerspace – TOG Hackerspace

[25] Dublin Maker (2021)

[26] Coolest Projects (2021)

[27] Cork Carnival of Science (2019)

[28] St. Patrick's Festival (2021)

[29] TOG Hackerspace (2021) Constitution

## 4.2 University / College Makerspaces

| | |
|---|---|
| Name | DCU Alpha Prototype / Makerspace[30] |
| Location | DCU Alpha, Innovation Campus, 11 Old Finglas Rd, Glasnevin, Dublin, D1 |
| Website | https://www.dcualpha.ie/facilities/ |
| Description | DCU Alpha provides flexible workspaces for member firms and partner businesses that can be adapted for in-house prototyping and experimenting. Some member firms conduct large scale mechanical prototyping, 3D printing, CNC machining and electronics making in their premises[26]. |
| Operating Model | Commercial Innovation Campus. Workspace rented to companies. A division of Invent DCU Designated Activity Company (limited by shares), registered office 6th Floor, South Bank House, Barrow Street[31]. |
| Service Provision | Private workspace, events, networking, access to DCU research community. |
| Note | DCU was previously in advanced talks with TechShop, the US based international chain of makerspaces, to establish a large scale and commercial makerspace on the DCU Alpha campus. TechShop filed for bankruptcy in 2017 and subsequently ceased operating amid significant losses on account of an alleged unsustainable business model[32]. |

| | |
|---|---|
| Name | M2M / IoT Maker-space for Satellite Communications (Temporary) |
| Location | DCU Alpha, Innovation Campus, 11 Old Finglas Rd, Glasnevin, Dublin, D11 |
| Website | https://www.dcu.ie/invent/news/2017/05/m2m-iot-maker-space-for-satellite-communications |
| Description | In 2017, the European Space Agency (ESA) and Dublin City University (DCU) collaborated to establish this temporary makerspace which was essentially a maker / incubation programme. The programme was the ESA's inaugural maker programme which DCU was contracted to deliver. DCU was responsible for providing the makerspace management and development fund disbursement[33]. The core aim was to engage newcomer SMEs, space tech entrepreneurs, industry and maker movement stakeholders who may not otherwise offer services or ideas to the ESA[34], and provide opportunities for rapid prototyping and validation of technologies[35]. The programme was designed to deliver proof of concept demonstrations and technology feasibility reports, to challenges developed and presented by ESA and DCU.<br><br>8 companies participated and worked on 10 different challenges with each project lasting between 4-5 months. These companies were provided with an office, lab space and test environments as well as other supports[28]. The programme was deemed as being much more successful than anticipated, 6 of the participating companies went on to tender for ESA contracts and it highlighted how such an approach can be used to encourage innovation[28][36]. |
| Operating Model | Temporary Programme. (DCU Contracted by ESA) |
| Service Provision | Incubation programme, workspace, office, lab space, test environment. |
| Note | The programme ended in December 2018[27] |

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[30] DCU Alpha (2021) Prototype / Makerspace
[31] DCU Alpha (2021) Home
[32] Forbes (2017) Report: TechShop Shuts Down
[33] DTEE (2019) Launch of Ireland's First National Space Strategy
[34] FORA (2018) DCU is in the running to house an ESA lab for 5G tech
[35] ESA (2017) Maker Space kicks off in Dublin
[36] Enterprise Ireland (2018) European Space Agency – Activities in Ireland

| | |
|---|---|
| Name | UCD Innovation Academy – Maker Space |
| Location | O'Brien Science Centre, Belfield Campus, University College Dublin, Dublin 4 |
| Website | https://www.innovators.ie/ |
| Description | The UCD Innovation Academy is part of University College Dublin. Its mission is 'to provide a transformational education experience for the betterment of society and the economy. We shape creative minds capable of launching new ventures'[37]. The academy provides accredited courses, bespoke programmes to organisations and engages in various collaborations with industry organisations.<br><br>The academy includes flexible learning spaces, a prototyping lab, collaborative workspaces, a makerspace and an extensive range of hardware (virtual reality headsets, video cameras, EEG headsets, drones, 3D printers, electronics kits, robotics) and software resources[32] [38]. |
| Operating Model | Non-profit, under UCD CLG (Company Limited by Guarantee). Fees charged for industry programmes and accredited courses. |
| Service Provision | Workspace, lab, events, programmes. Hardware and software tools and technologies. |
| Note | The academy has previously hosted and facilitated maker hackathons locally[39] and internationally[40] to encourage participants to engage in making and prototype development.<br><br>The academy recently invited applications for creative maker facilitators to help 'prepare learners for the challenges and opportunities of the Anthropocene and 4th Industrial Revolution by fostering Innovation Mindsets, with an emphasis on Creativity, Entrepreneurship and Leadership'[41]. The roles involve ensuring that current and emerging technologies are appropriately applied to improve the learning and work environment for students, staff and collaborative partners[36].<br><br>In 2018, UCD launched the Future Campus – University College Dublin International Design Competition which invited applications to realise the Entrance Precinct Masterplan and Centre for Creative Design project. The prospective centre was described as 'a making and learning lab', 'the University's home of design studios and laboratories and maker, project and fabrication spaces' and as 'a maker space that is a living learning lab – that will promote inter-disciplinary engagement' with 'creative workspaces… formal and informal spaces for gathering and engagement'[42]. After an objection to the original plans for the new centre, UCD recently received planning approval to proceed with the major development[43]. |

[37] UCD Innovation Academy (2021)

[38] Nevin, D. (2019) Can you turn Techno-fear into Techno-joy?

[39] Nevin, D. (2013) Announcing UCD's First Maker Challenge

[40] Nevin, D. (2018) UCD helps Malaysian students to find creative solutions at the global entrepreneurship community summit

[41] Irish Jobs.ie (2021) Creative Makers Facilitator, UCD

[42] Malcolm Reading Consultants (2018) University College Dublin – Future Campus International Design Competition – Search Statement

[43] Seán McCárthaigh (2021) An Bord Pleanála ruling clears way for €48m UCD building inspired by the Giant's Causeway

| | |
|---|---|
| Name | Open Labs TU Dublin |
| Location | Open Labs, TU Dublin Hothouse, Greenway Hub, Technological University Dublin, Grangegorman Lower, Dublin 7, D07 H6K8 |
| Website | https://www.dit.ie/hothouse/openlabs/ |
| Description | Open Labs is an initiative of TU Dublin which aims to lower the barrier for industry engagement and to make TU Dublin's facilities and expertise available to companies[44]. It assists companies that are involved in or seeking to be involved in food innovation, product prototyping, virtual reality, augmented reality, internet of things, data analysis for business and artificial intelligence, innovative surface coatings and sustainable infrastructure. |
| Operating Model | Operates as part of TU Dublin CLG (Company Limited by Guarantee). Fees charged to companies. |
| Service Provision | Access to TU Dublin technologies, research community, resources and funding advice. Labs: Food Innovation, Design, Virtual Reality[45]. |
| Note | In future, TU Dublin plans to develop a 'dedicated collaborative makerspace to support students taking the BSc in Design, Innovation & Technology' as part of the Department of Engineering (Blanchardstown Campus)[46]. |
| | In 2020, TU Dublin secured funding to coordinate an international research project which aims to enhance the spatial ability of children and to help close the gender gap in STEM[47]. As part of the project, researchers will develop methods to foster spatial ability among children through online learning, tactile activities, makerspace workshops and project-based learning[42][48]. |
| | As part of TU Dublin's Centre for Media and Electronics Arts, the creative media team established a specialist research centre in tandem with a Future Makers Collective to develop and enhance collaboration with various stakeholders including: TU Dublin Department of Electronic Engineering, DLIADT, Trinity College Dublin, University of Lancaster, University of the Arts, London, RUA RED Arts Centre, Riverbank Arts Centre[49]. |
| | |
| Name | Science Gallery (Trinity College Dublin) |
| Location | Science Gallery, Trinity College Dublin, Pearse Street, Dublin 2, Ireland |
| Website | https://dublin.sciencegallery.com/ |
| Description | Science Gallery Dublin is an initiative of Trinity College Dublin funded by the university, government, the Wellcome Trust and the private sector. It is a free entry space with a mission to 'ignite creativity and discovery where science and art collide'[50]. |
| | It provides a mix of events, exhibitions and programmes that are 'fuelled by the expertise of scientists, researchers, students, artists, designers, inventors, creative thinkers and entrepreneurs' and that focus on 'providing experiences that allow visitors to participate and facilitate social connections'. The Science |

[44] DIT.ie / TU Dublin (2021) Open Labs by TU Dublin
[45] Open Labs (2021) Brochure
[46] TU Dublin (2020) Annual Institutional Quality Assurance Report 2020
[47] TU Dublin (2020)b TU Dublin Project Secures Over €4m in Horizon 2020 Funding
[48] Education Matters (2020) TU Dublin project secures €4m+ in Horizon 2020 funding
[49] TU Dublin (2021) Centre for Media and Electronic Arts – Specialist Research Centre
[50] Science Gallery (2020) Science Gallery Dublin Annual Review

| | Gallery also operates programmes such as Rapid Residencies which aims to 'nurture art-science collaboration and support artists, scientists, researchers, explorers and makers to develop and nurture their ideas' and provides them with support, funding and mentorship from Science Gallery and Trinity College Dublin advisors[51]. |
|---|---|
| Operating Model | Non-profit, as part of Trinity College Dublin. Fees charged for space rental, events, tours etc. |
| Service Provision | Events, exhibitions, workshops, programmes. |
| Note | |

| Name | Trinity College Dublin – Makerspace (Department of Mechanical and Manufacturing Engineering) |
|---|---|
| Location | Department of Mechanical, Manufacturing & Biomedical Engineering, Parsons Building, Trinity College Dublin, Dublin 2, Ireland |
| Website | https://www.tcd.ie/mecheng/ |
| Description | Internal makerspace and 3D printing facility for students within the Department of Mechanical, Manufacturing & Biomedical Engineering[52]. |
| Operating Model | Internal space for students, as part of Trinity College Dublin. |
| Service Provision | Workspace, 3D printing facility, prototype lab, hardware and software tools and technologies[53] |
| Note | Public information about this makerspace was limited at the time of writing. |

## 4.3   Local Authority Makerspaces

| Name | Dublin City Council: Makerspaces |
|---|---|
| Location | - Ballyfermot Library, Ballyfermot Road, Dublin 10, D10 WV02<br>- Coolock Library, Barryscourt Road, Dublin 17, D17 C950<br>- Maker Van |
| Website | - Ballyfermot Library https://www.dublincity.ie/residential/libraries/using-your-library/creative-studio<br>- Coolock Library https://www.dublincity.ie/residential/libraries/find-library/coolock-library<br>- Maker Van |
| Description | - Ballyfermot library features creative studios, which are digital makerspaces that enable users to create recordings, podcasts, videos, digital stories etc. via a range of audio and visual recording equipment and software[54].<br>- Coolock Library features a dedicated makerspace with various equipment including laser cutter, 3D printer, embroidery and sewing machines, animation facilities, Arduino and Raspberry Pi kits, Lego etc.[55]. It has also provided courses, events and workshops on making[56].<br>- Maker Van was repurposed from a mobile library van in order to bring making activities to festivals, schools and other outreach events. It previously featured at Dublin Maker Faire and Startup Week Dublin 2019[57]. |

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[51] Science Gallery (2021) Announcing our new round of Rapid Residencies
[52] TCD (2020) News: Trinity Engineers use 3D printers at home in battle to tackle shortage of PPE
[53] TCD (2021) Module Description: Universal Design Innovation
[54] Ballyfermot Library (2021) Creative Studio
[55] Books Ireland (2021) Coolock library reopens
[56] Creative Ireland (2021) Coolock Library
[57] Twomey-Lee, V. (2021) Looking Back as Maker Advocate [Dublin Maker]

| | |
|---|---|
| Operating Model | Non-profit, free to use, public libraries as part of Dublin City Council. Users need to have a valid public library card. |
| Service Provision | - Ballyfermot Library: Creative Studio (Digital Makerspace featuring: audio and visual recording equipment and software)<br>- Coolock Library: Events and workshop. Tools and equipment: laser cutter, 3D printer, embroidery and sewing machines, animation facilities, Arduino and Raspberry Pi kits, Lego<br>- Maker Van: Demonstrations, workshops, events. Tools and equipment: laser cutter, 3D printer, computers, Lego. |
| Note | As part of Dublin City Libraries Strategy: Libraries Unlimited – A Strategic Direction for Dublin City Libraries 2019-2023, Focus Area 4 is 'Making at the Library'. It highlights that makerspaces in public libraries 'connect people to tools, technology and social connections that they might not otherwise have access to' and allow 'everyone to learn through direct experimentation and from each other while inspiring an interest in science, technology, design and life learning'[58]. The strategy committed to the development of a makerspace in Ballyfermot, Clondalkin Libraries and in a mobile van as well as hosting a number of digital maker residencies. |
| | |
| Name | Fingal County Council: Makerspaces (Planned, not currently in existence) |
| Location | - Blanchardstown Library, The Civic Centre, Blanchardstown Centre, Dublin 15, D15 RY73<br>- Digital Innovation / Makerspace, 2/4 Dublin Street, Balbriggan |
| Website | - Blanchardstown Library https://maps.fingalcoco.ie/community-and-leisure/libraries/find-a-library-and-check-opening-hours/blanchardstown-library/<br>- (Balbriggan) Digital Innovation / Makerspace https://maps.fingalcoco.ie/community-and-leisure/libraries/ |
| Description | Fingal County Council is seeking to develop the Fingal Community Maker Programme and is planning for the development of a community makerspace in Blanchardstown Library and to potentially identify a possible second makerspace. The programme seeks to 'build and support creative communities, encourage innovation, provide equal access (remove cost barriers) and support informal education. The council very recently ran a tender process for the provision of services to support the delivery of Creator/Maker in Residence Programme and the development of makerspace(s) in Fingal Libraries[59].<br><br>In March 2021, Fingal County Council was awarded €25.4m under the Urban Regeneration Development Fund for the delivery of 8 projects associated with the rejuvenation of Balbriggan. One of the projects is the development of a digital innovation / makerspace at 2/4 Dublin Street, Balbriggan[60]. |
| Operating Model | - Blanchardstown Library: Non-profit, free to use, public library as part of Fingal County Council.<br>- Digital Innovation / Makerspace: To be confirmed |
| Service Provision | To be confirmed |
| Note | |

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[58] Dublin City Council (2019) Libraries Unlimited – Focus Area 4 Making at the Library
[59] ETENDERS (2021) FCC/224/21
[60] Fingal Chamber (2021) Fingal County Council welcomes €25.4m in URDF funding for Balbriggan rejuvenation

| | |
|---|---|
| Name | South Dublin County Council : Makerspace |
| Location | North Clondalkin Library, Liscarne Close, Rowlagh, Dublin 22 |
| Website | https://www.sdcc.ie/en/services/sport-and-recreation/libraries/join-library-login/find-a-library/north-clondalkin/north-clondalkin-library.html |
| Description | The library features a Creative Studio (Digital Makerspace featuring: audio and visual recording equipment and software). The purpose of the studio is to facilitate the creation of recordings, podcasts, videos digital stories and oral histories and also to engage young people and upskill them regarding digital media in order to help expand their career opportunities[61]. |
| Operating Model | Non-profit, public library as part of South Dublin County Council |
| Service Provision | Creative Studio (Digital Makerspace featuring: audio and visual recording equipment and software) |
| Note | North Clondalkin Library is a purpose-built modern library[62]. It was officially opened in June 2021. |

| | |
|---|---|
| Name | Dun Laoghaire Rathdown (dlr) LexIcon Lab |
| Location | dlr LexIcon, Haigh Terrace, Moran Park, Dún Laoghaire, Co. Dublin, A96 H283 |
| Website | https://libraries.dlrcoco.ie/library-services/dlr-lexicon-lab |
| Description | dlr LexIcon Lab is a place for community members to work together to turn ideas into reality and to encourage each other to solve local challenges in innovative ways while having fun and learning[63]. <br><br> The Lab features software programmes and electronics (Arduino), Raspberry Pi), coding (Python, Scratch) and 3D Design and printing (CAD) and also provides events such as maker meetup evenings[64], workshops and programmes such as the dlr Teen Entrepreneur STEM Camp[65]. The camp is a collaborative initiative of dlr Libraries, Local Enterprise Office and Science Foundation Ireland, which seeks to inspire teenagers regarding STEM (Science, Technology, Engineering, Maths) subjects and encourage entrepreneurial skills development. |
| Operating Model | Non-profit, public library as part of Dun Laoghaire Rathdown County Council |
| Service Provision | Events, workshops, programmes. Software programmes and hardware equipment: 3D printer, Arduino and Raspberry Pi kits etc. |
| Note | |

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[61] SDCC (2021) South Dublin County's newest library opens in North Clondalkin
[62] SDCC (2021) North Clondalkin Library
[63] dlr Libraries (2021) dlr LexIcon Lab
[64] Meetup (2021) dlr LexIcon Library Maker Drop in evenings
[65] dlr Libraries (2021) Lab Projects

## 4.4 Other Makerspace / Maker Initiatives

| Name | Dublin Maker |
|---|---|
| Location | Online (Gather Town Platform) / Pre COVID (Various parks / venues) |
| Website | http://www.dublinmaker.ie/ |
| Description | Dublin Maker is a free to attend, family-friendly, community run event and 'show and tell' experience featuring inventors and makers who showcase their creations in a carnival atmosphere. It is a showcase of 'invention, creativity, resourcefulness and a celebration of [the] maker movement' which typically occurs as a one day event in June / July, each year. Prior to the pandemic, it was hosted as a physical event at places such as Merrion Square, Dublin City.<br><br>The mission of Dublin Maker is to 'entertain, inform and connect the makers of Ireland, while inspiring the next generation of Ireland's makers and inventors'[66]. In addition to the large scale annual event, it provides a range of initiatives to support the maker community including: podcasts, meetings, competitions, and blog articles. |
| Operating Model | Free to attend annual event. Community / volunteer-led. |
| Service Provision | Annual showcase event featuring workshops and exhibitions. Various initiatives: podcasts, meetings, competitions, articles. |
| Note | In December 2020, Dublin Maker announced its role as a partner alongside DCU on the Erasmus+ programme: ASSESSMAKE21[67]. The programme seeks to support the adoption and use of makerspaces and making in schools and non-formal education settings[68].<br><br>In May 2019, Dublin Maker announced a two year programme called MADE. The programme funded by Science Foundation Ireland and hosted by DCU 'seeks to knit together a currently fragmented regional maker scene' through initiatives including: festivals, public maker space roll out, mobile makerspaces, corporate engagement, training and dissemination.[69] The objective of MADE is: 'the better embedding of maker culture thinking at all levels in Irish society and making it available to all'. As part of the project, a maker advocate was appointed and a partnership was established with Dublin City Public Libraries to develop public maker facilities in libraries. |

| Name | Science Hack Day Dublin |
|---|---|
| Location | TOG Hackerspace, 22 Blackpitts, Dublin 8, D08 P3K4 |
| Website | http://sciencehackdaydublin.com/ |
| Description | Science Hack Day Dublin is an annual hardware and software hackathon and event which has taken place since 2012. The event brings together scientists, engineers, computer scientists, designers, artists and makers to find solutions (hacks) to real life problems and questions during an intense period of collaboration[70]. |
| Operating Model | Free to attend annual event. Community / volunteer-led. |
| Service Provision | Event and competition |
| Note | |

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[66] Dublin Maker (2021) What is Dublin Maker
[67] ASSESSMAKE21 (2021) Home
[68] Dublin Maker (2020) Dublin Maker Partners in Erasmus+ programme ASSESSMAKE21
[69] Dublin Maker (2019) Dublin Maker's MADE Programme
[70] Science Hack Day Dublin (2021) Science Hack Day Dublin

| | |
|---|---|
| Name | Men's Sheds |
| Location | Various across Dublin |
| Website | https://menssheds.ie/shed_county/leinster/co-dublin/ |
| Description | Men's sheds is a community based project which focuses on bringing men together to learn, share skills and make friendships. Although part of the Irish Men's Sheds Association, each shed is independent and self-autonomous. Typically sheds and their members engage in activities including woodwork, gardening, carpentry and community work. The sheds thus embody various characteristics of makerspaces and making activities, and can be categorised as a type of makerspace. There are currently 66 men's sheds located across the county of Dublin[71]. |
| Operating Model | Volunteer-led |
| Service Provision | Workspace, events, workshops. Tools and equipment (typically: woodwork / carpentry) |
| Note | |
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[71] Men's Sheds (2021) Leinster, Co. Dublin, Sheds

# Makerspace Provision in Dublin

Research  Report