KTI
Knowledge Transfer Ireland
Where Research & Business Connect

Review of the outcomes reported in the **KTI AKTS 2015**

Contents

Executive Summary

Knowledge Transfer Ireland (KTI), in conjunction with the HEA, publishes the Annual Knowledge Transfer Survey (AKTS)[1]. The AKTS is the review of business engagement and commercialisation (knowledge transfer) by the research performing organisations[2] (RPOs) within Ireland. It has been published by KTI for the past three years (2013-2015). KTI commissioned a study, undertaken by Technopolis[3], into the outcomes reported in the Annual Knowledge Transfer Survey 2015[4] (AKTS2015), This report summarises those findings.

The main objectives of the study were twofold: (1) to collect in-depth information on the new products and services launched to market in 2015 based on RPO licences and (2) to collect information on those spin-out companies that were reported as "active" at year end 2015.

Both the number of products and services launched and the number of Active Spin-outs are growing steadily each year. Where 26 products and services arising from licences from RPOs were brought to market in 2013, 36 launched in 2015. Active Spin-outs, that is those in existence for at least three years and with turnover and/or investment and at least one full time equivalent (FTE), totalled 78 in 2013. Just three years later, there are 109.

ICT is the dominant sector for commercialisation, with over one-third of products and services launched and one-third of Active Spin-outs in the past three years being categorised in this sector. Software is the most commonly licensed intellectual property (IP) underpinning products and services whilst access to patent-related IP is most prevalent for Active Spin-outs.

The majority of licensees (81%) launching products and services to market in the past three years have been Irish based. All bar one Active Spin-out company are based in Ireland and a fifth have an overseas presence.

The study looked into the State funding supports that directly lead to these outcomes. It revealed that the Enterprise Ireland Commercialisation Fund has played a key role in supporting the development of technology and IP that led to products and services being launched to market and in the creation of spin-outs that achieved "active" status. This does not take into account the other investments made by the State that underpinned the research and infrastructure within the RPOs from which these commercialisation outcomes stem. This will be explored further next year by KTI, working with the main research funding agencies.

1 http://www.knowledgetransferireland.com/About_KTI/Reports-Publications/KTI-Annual-Review-and-Annual-Knowledge-Transfer-Survey-2015.pdf

2 Irish Higher Education Institutions and State research organisations

3 www.technopolis-group.com

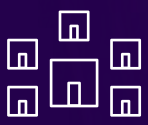
4 http://www.knowledgetransferireland.com/About_KTI/Reports-Publications/KTI-Annual-Review-and-Annual-Knowledge-Transfer-Survey-2015.pdf

2013-2015
Highlights

New Products

36

new products and services launched to market by 35 companies based on RPO licences in 2015.



Active Spin-outs

109

Active Spin-outs based on RPO intellectual property as of the 31st December 2015.

Products & Services Launched

92

new products and services launched to market by 81 companies based on RPO licences between 2013-2015.

Jobs in Active Spin-outs

1,080

The 109 Active Spin-outs are estimated to support in total 1,080 jobs (headcount).

Products and Services Launched

81%

of the 81 companies bringing RPO-related products and services to market over 2013-2015 are based in Ireland.

Company Locations

108

Active Spin-out companies are based in Ireland.

Funding

The Enterprise Ireland Commercialisation Fund plays a key role in supporting the opportunities that result in products and services launched to market and in the creation of companies that mature into Active Spin-outs.

1
Introduction

The Annual Knowledge Transfer Survey (AKTS) provides data and case studies to convey the range of activities, outcomes and benefits to enterprise that come from knowledge transfer and the commercialisation process with the Irish research base. The AKTS covers a range of topics from invention disclosures, IP activity and licensing to collaborative research with enterprise and the formation of new spin-out companies. The survey measures these activities over a calendar year (January to December). The data for the AKTS are provided primarily by the Technology Transfer Offices (TTOs) of the RPOs.

The 26 state-funded RPOs submitting data are:

- Seven Universities
- 14 Institutes of Technology
- Three specialist institutes: The Royal College of Surgeons, the National College of Art & Design, and the National College of Ireland
- Two state research bodies: The Marine Institute and Teagasc (the national Agriculture and Food Development Authority)

This report provides more information on two areas covered in the AKTS 2015: (i) licensed products and services coming to market in-year and (ii) Active Spin-outs at year end. The report also highlights trends and changes over the past three years.

2
Products and services launched to market based on licences from RPOs

The AKTS 2015 reported 38 new products and services launched to market in that year as the result of a licence from an RPO. After validation by the study team, two of these products were excluded. The 36 validated new products and services flowed from licences executed by ten Research Performing Organisations.

Over the past three years of AKTS reporting, there has been an annual increase in the number of products and services launched to market each year, bringing the three year total to 92. These emanate from 14 different RPOs. While there are some slight changes in the exact reporting organisations, there are nine to ten institutions annually that report results in this category. The seven universities account for 68% of the RPO licence-based products and services launched during the 2013-2015 period.

2.1 Pathways to licensing

The study team explored the background to the licences that led to products and services being launched. They found that the majority of licences either arise as a result of pre-existing work with a company (research or contracted service) or are issued to an RPO spin-out.

2.2 Types of intellectual property

Products and services launched to market may build on multiple types of IP. As reported in the AKTS 2015, the most frequently licensed type of intellectual property rights that resulted in products and services being launched to market was Software, followed by Patents and Know-how. The 36 products and services were based on licences to 40 different pieces of intellectual property.

The pie chart on the right shows the breakdown of these underpinning IP types. Where different types of IP were involved in the product or service these are presented individually. Where multiple IP of the same type, e.g. a product or service that was built on more than one patent application, underpins the product or service it is counted only once.

Figure 1 Number of products and services launched to market based on RPO licences by type of institution and year of reporting

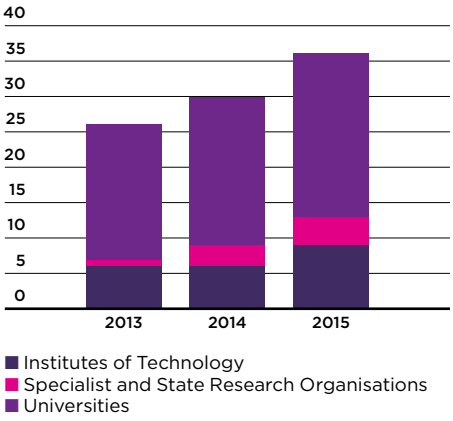
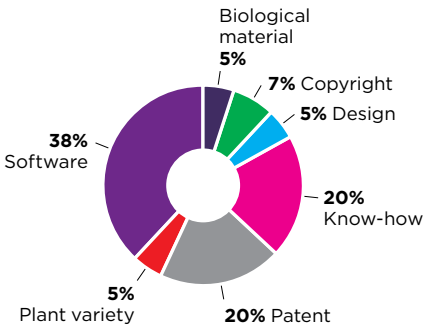


Figure 2 Types of intellectual property rights licensed from RPOs resulting in product or service launches in 2015



CASE STUDY

Contract services project leads to licence and assignment of novel open space toolkit for dementia-friendly living.

Newtown Saunders, a company that specialises in garden design, landscaping, maintenance and spaces for dementia-friendly living commissioned work from Trinity College Dublin. Part-funded by two EI Innovation Vouchers, the work was originally intended to develop a report on the design of landscaped spaces for individuals with dementia. Results of the project led the company to consider an alternative business direction in developing a range of dementia-friendly components (i.e. wheelchair accessible planting troughs, potting tables and activity products) to be used either as part of the build process or marketed as a stand-alone dementia-friendly product. Based on these initial results, Newtown Saunders decided to continue the collaboration.

In addition to the initial report and set of recommendations, the Trinity researcher also developed a toolkit, which was subsequently copyrighted and the IPR formally assigned to the company to allow Newtown Saunders to implement proof of concept installations in a number of care homes across Ireland.

As a direct result of the work with Trinity, the company took on one new part time employee. Four installations have been designed for care homes across the country, with additional opportunities for commercial applications beginning to emerge. Newtown Saunders and Trinity have been invited to exhibit at the Bloom exhibition to display this work on the national stage and hope to secure the funding required to do so for 2017.

Research Prioritisation Area:
Other

2.2.1 Trends over time

The three-year trends confirm that the majority (60%) of IP underpinning product and services from RPO licences are software or patent related. The chart in Figure 3 summarises data for 87 of the reported products and services over the 2013-2015 period. (There is no information available for five of the products or services launched in 2013-2014). These 87 licences included 123 different intellectual property rights. Plant Variety represents a category introduced for the first time in 2015. In previous years, plant varieties were included in the category of biological materials.

2.3 Research Prioritisation Areas

Using a process of desk research and discussion with the TTOs, the study team mapped the product and service launches against the 14 national Research Prioritisation Areas and six high level Research Prioritisation Themes. The team allocated each product or service to one best-fit Research Prioritisation Area only. Where the interdisciplinary nature of a licensed technology could have allowed multiple categories, the most relevant area was selected.

Assigning the 2015 launches to one of the six high-level Research Prioritisation Themes, or to "other", shows that the majority (42%, 15 launches) were categorised in the field of ICT, with 14% (5 launches) each in Health & Medical Technologies and Sustainable Food.

The 15 ICT products and services resulted from licences from seven HEIs.

Drilling into the 14 Research Prioritisation Areas, a significant percentage of launches (28%) fell within the area of Digital Platforms, Content and Applications with the next highest areas being Analytics, Management Security and Privacy; Processing Technologies and Novel Materials and Sustainable Food Production and Processing. 8% fell outside of the Research Prioritisation Areas and are classified as "Other".

Figure 3 Types of intellectual property rights licensed from RPOs that resulted in product and/or service launches to market between 2013-2015

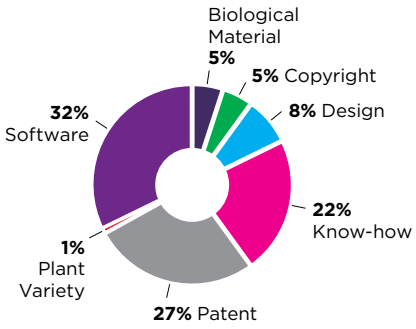
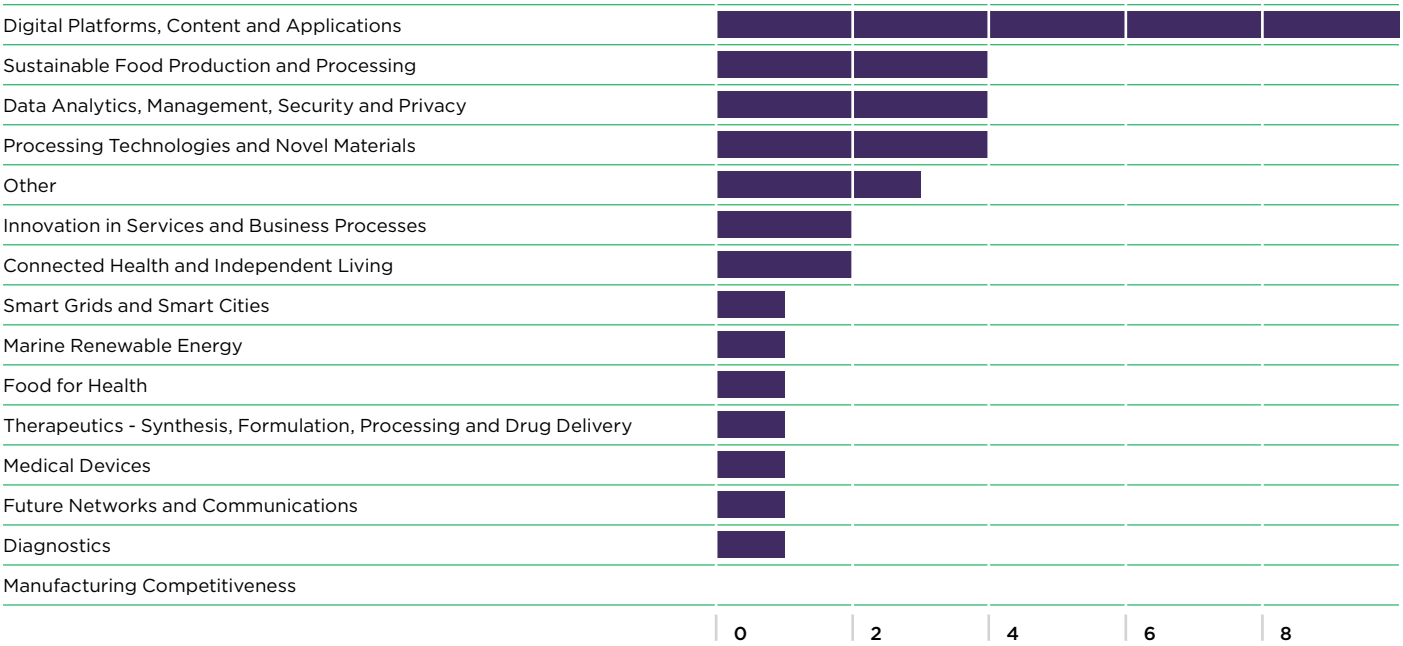


Figure 4 Distribution of the products and services launched to market based on RPO licences in 2015 by Research Prioritisation Area (n=36)



CASE STUDY

Strategic licensing partnership delivers new grassland cultivars to market.

The licensing arrangement between the State research organisation, Teagasc, and Goldcorp is a unique example of a strategic partnership designed to deliver new products to a specific market. On the back of a competitive process, Teagasc selected Cork-based Goldcrop as its partner for marketing, propagation and sale of all forage materials resulting from Teagasc's Grass and Clover Breeding programme. The aim of the exclusive multi-year licensing agreement, signed in 2013, is to benefit and foster the competitiveness of the Irish grassland farming and livestock sector. It is also aimed at providing the opportunity for wholesale distribution of Teagasc-bred cultivars abroad. As a result of this licence, three new varieties were introduced to the market in 2015.

Research Prioritisation Area: **Sustainable Food Production and Processing.**

2.3.1 Trends over time

Categorisation of product and service launches over the past three years into the six high-level Research Prioritisation Themes shows the dominance in the ICT sector (38%). Health & Medical Technologies and Manufacturing & Materials are also key Themes with 19.5% and 14% respectively.

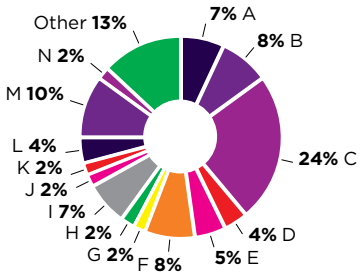
Breaking this down into Research Prioritisation Areas, around a quarter of all products and services launched over the three years are related to Digital Platforms, Content and Applications. The study team found that 13% of three-year products and services could not be categorised into a Research Prioritisation Area.

2.4 Characteristics of licensee companies

The study team investigated the ownership and approximate size of licensee companies launching RPO-based products and services. To source data on employment size, they used desk research, examining company websites and reports. They drew a large amount of employment data from company LinkedIn profiles. As LinkedIn uses a less common employment banding (rather than the more common 0-9, 10-49, 50-249), and as there are several instances where this band is the only information available for a company's employment, the study team chose to aggregate the other, more precise employment figures available into the same banding structure for analysis.

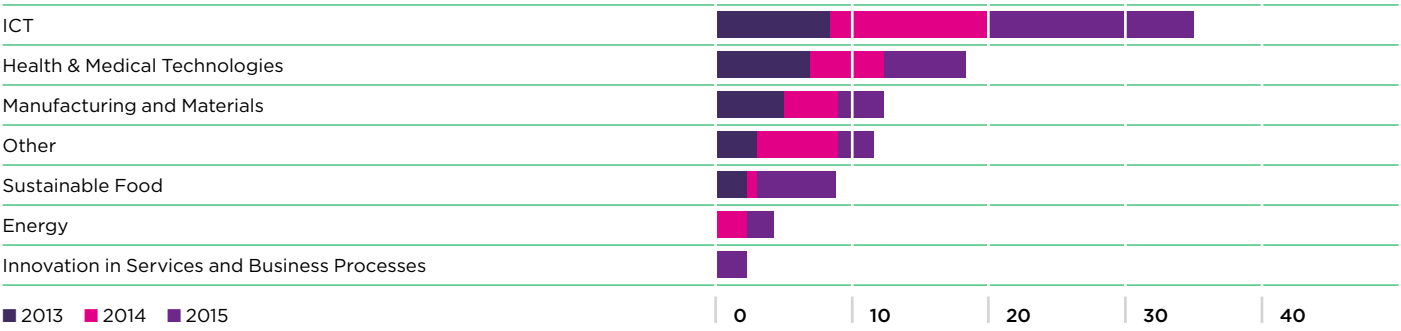
Of the 35 companies reported to have had launches from RPO IP in 2015, there are 29 (83%) Irish owned companies and six (17%) internationally owned. Over half of the companies (21, 58%) that launched the 36 products and services that came to market in 2015 were spin-outs from an RPO. There is a suggestion that these 21 spin-out companies move technologies or services quickly to market, as 17 of these were established just three years ago. The majority (16) of these spin-out licensees are micro companies.

Figure 5 Products and Services launched to market between 2013 -2015, based on RPO licensed technologies mapped against the Research Prioritisation Areas (n=92)



A Future Networks & Communications
B Data Analytics, Management, Security and Privacy
C Digital Platforms, Content and Applications
D Connected Health and Independent Living
E Medical Devices
F Diagnostics
G Therapeutics – Synthesis, Formulation, Processing and Drug Delivery
H Food for Health
I Sustainable Food Production and Processing
J Marine Renewable Energy
K Smart Grids and Smart Cities
L Manufacturing Competitiveness
M Processing Technologies and Novel Materials
N Innovation in Services and Business
- Other

Figure 6 Products and services launched to market in 2015 by Research Themes as reported by RPO (n=36)



CASE STUDY

Anti-counterfeit detection technology adopted in two different business sectors

IP developed and commercialised within **DIT** allows for mass-produced individualised and pressure-sensitive holograms, providing companies with a cost-effective means of combating the production of counterfeit products. The holograms have been successfully launched onto the market with clients in the pharmaceutical and fashion sectors by DIT spin-out, Optrace. The company was formed as part of the commercialisation strategy for the technology and has an exclusive licence to the patented technology and secret know-how.

The technology provides a key competitive advantage over traditional holograms. Achieving label production capacities of up to 30,000 holograms per hour, Optrace has overcome the challenges associated with the mass production of holograms that are holographically serialised. The technology development was supported by an Enterprise Ireland Commercialisation Fund award. The DIT Hothouse TTO played an instrumental role in helping the research team to outline the project, to attract funding and to push the technology through the licensing and commercialisation phases, making an already strong commercial case stronger.

Research Prioritisation Area: **Other**

2.4.1 Trends over time

Over the three years, 2013-2015, 46 (57%) of the 81 licensee companies between 2013 – 15 were spin-outs. In total, ten companies launched either two or three products and/or services.

The majority (66 companies, 81%) of the 81 licensee companies are Irish owned. Over one-fifth of these have an international presence through offices or branches established abroad or through trading internationally. Of the Irish based companies, half (50%, 33 companies) are located in the Greater Dublin area, 18% are in County Cork and 9% are in County Galway.

Figure 7 Ownership of the licensee companies with products and services launched to market based on RPO licence in 2015 (n=35)

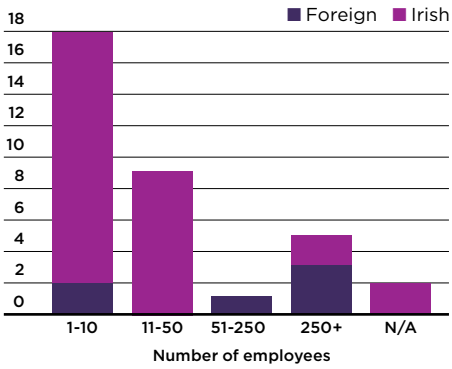
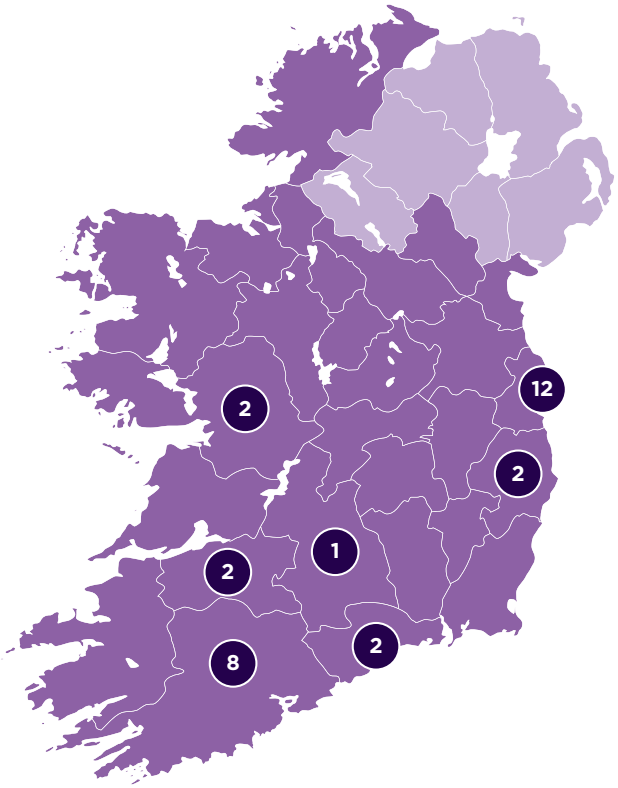


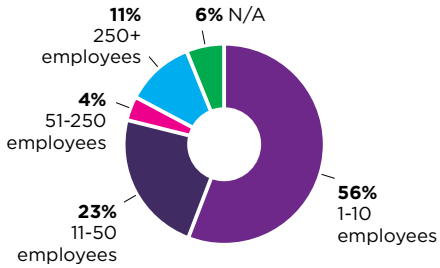
Figure 8 Location of Irish licensee companies bringing products or services coming to market in 2015 based on RPO licences (n=29)



Source: Technopolis, based on desk research.

Figure 9 Size of the licensee companies that launched products and services to market based on RPO licences during 2013-2015

All licensee companies (n=81)



3
Active Spin-outs

This study investigated those spin-outs with an "active" status at the time of census, i.e. at 31st December 2015. There were 110 Active Spin-outs reported, one of which was reported by both Dublin City University and University College Cork due to input and IP from both institutions.

To avoid double counting, this company has been included only once in this report and has been assigned to DCU as this is where the company based itself upon formation. As a result, this outcomes study reports on 109 Active Spin-outs. This is the same approach, as in the previous year's "AKTS 2014 Impact Study"[6].

The number of validated Active Spin-outs at year end 2015 comprise:

- 102 companies that are a specific legal entity (regardless of the current stage of development)
- 7 companies that have been acquired by another company. This includes those that, post-acquisition, are trading as a subsidiary (5 companies) or those that are no longer operating independently (2 companies).

Of the Active Spin-outs reported over the years 2013-2015, six companies are no longer active and have been dissolved or are in liquidation.

3.1 Research Performing Organisations reporting Active Spin-outs

In 2015 the number of spin-outs achieving three-year "active" status from the Institutes of Technology increased to five and a first Active Spin-out was recorded for the Royal College of Surgeons Ireland.

Universities account for 84% (92 spin-out companies) of all Active Spin-out companies and Institutes of Technology have produced 15% (16 spin-out companies). Trinity College Dublin and University College Dublin have generated 48% of all the reported Active Spin-outs. These are followed by University College Cork (10%) and by Dublin Institute of Technology and University of Limerick which each reported 8% of the Active Spin-outs.

3.2 Pathways to spin-out

Through interviews with TTO staff and a small number of PIs, the study team looked at the creation and development of a sub-set of Active Spin-outs that were reported for the first time in 2015 (i.e. established three years previously.) This revealed a set of services common across all TTOs, such as advice, negotiation, business model assessment and business planning which are important to setting up spin-out companies. In many cases, the TTO worked beyond the formal establishment phase. For example, the TTO helped to identify and broker meetings with potential funders (including State support and private funders e.g. venture capital firms) and assisted with scouting for potential company leadership such as CEOs.

The study team found that the Enterprise Ireland Technology Transfer Strengthening Initiative (TTSI) programme is adding value more generally to the process of spin-out company creation, particularly through the support offered amongst TTO consortia partners. One example of this is the support given by consortium lead DIT to Dun Laoghaire Institute of Art, Design and Technology (IADT). This included assistance with patent activity when spinning out the company SeeSearch.

3.3 Types of intellectual property

Nearly half (45%) of the reported intellectual property licensed from the RPOs by the Active Spin-outs is Patent-related IP. A further 49% of IP related to Software (25%) or to Know-how (24%).

More than one type of IP may be used by a company and the chart in Figure 11 shows the range of RPO licensed IP underpinning Active Spin-outs. There are 16 Active Spin-outs excluded from this chart due to lack of availability of information on the types of IP that was used for the creation of these companies from previous years' studies.

Figure 10 Share of Active Spin-outs by type of institution reporting, 2015 (n=109)

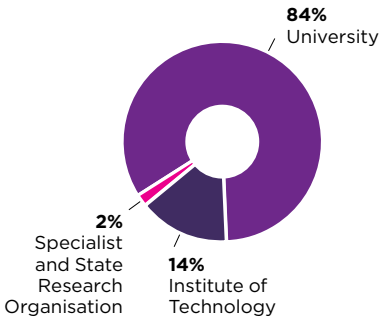


Figure 11 Proportion of RPO intellectual property used (n=123), by type, among Active Spin-outs, 2015

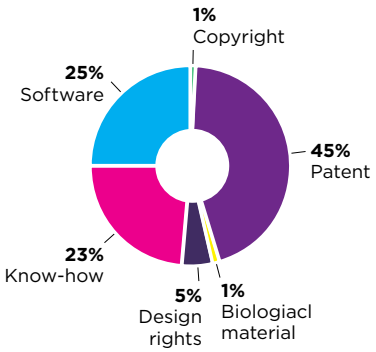
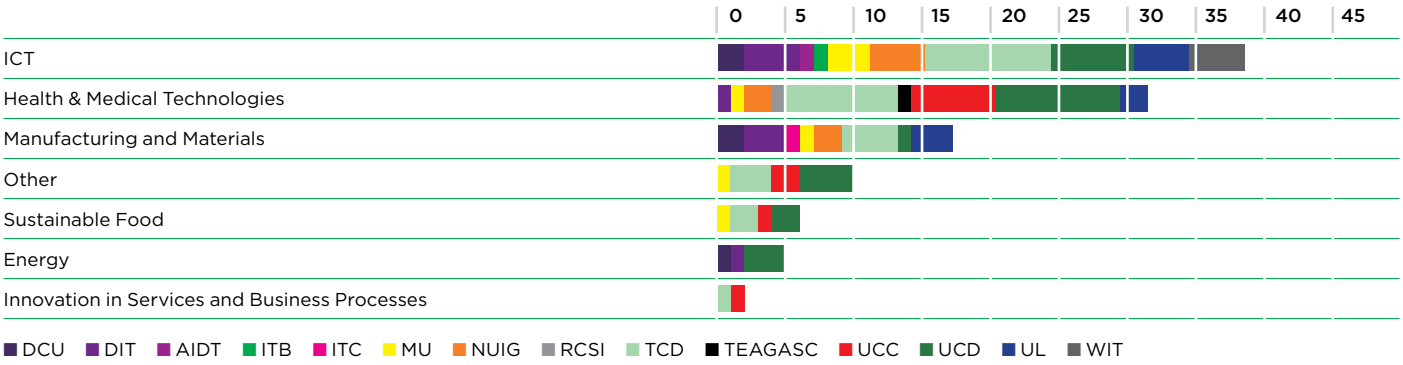


Figure 12 Active Spin-outs by HEI and by Research Prioritisation Theme, 2015 (n=109)



3.4 Research Prioritisation Areas

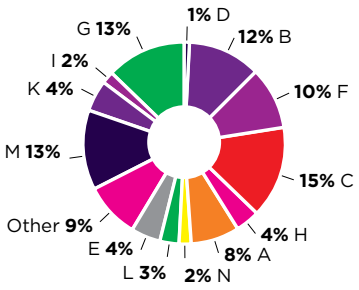
The study team assigned Active Spin-outs to the various national Research Prioritisation Areas and over-arching Research Prioritisation Themes. The two dominant Research Themes are ICT (38 companies) and Health and Medical Technologies (31 companies). The Manufacturing and Materials Theme is the next most prevalent with 17 companies assigned.

Assigning to Research Prioritisation Areas, the team placed 15% of all Active Spin-outs in the 'Digital Platforms, Content and Applications' category and 10% into 'Data Analytics, Management, Security and Privacy', both of which sit in the ICT Theme. Of all Active Spin-outs, 13% are assigned to 'Therapeutics - Synthesis, Formulation, Processing and Drug Delivery' and 10% to 'Diagnostics' Areas which fall under the Health and Medical Technologies Theme. There are 9% of Active Spin-outs that the team were unable to classify within one of the 14 Research Prioritisation Areas and these are categorised as "other".

3.5 Company maturity

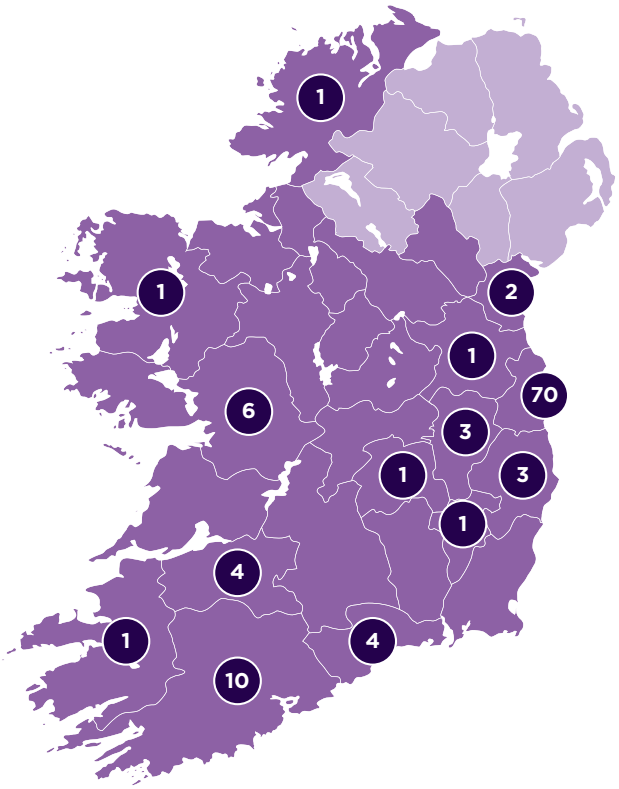
Examining the year of registration of each of the 109 Active Spin-outs shows that the majority of companies are less than five years old (44%, 48 companies.) Almost one-third (31%, 34 companies) are between six and ten years old. The oldest-recorded Active Spin-out is Cylon Controls, a company that develops smart energy management systems for buildings, which was formed in 1985 from UCD. The chart in Figure 14 summarises the age of all Active Spin-outs by five-year bands.

Figure 13 Proportion of all Active Spin-outs by Research Prioritisation Area, 2015 (n=109)



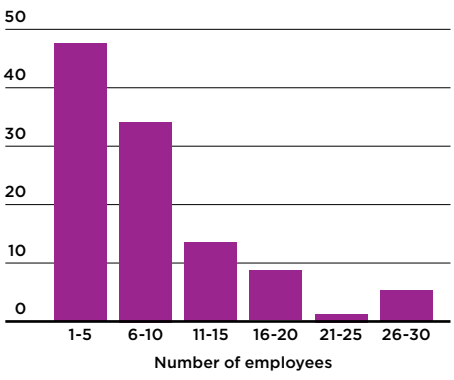
- **A** Future Networks & Communications
- **B** Data Analytics, Management, Security and Privacy
- **C** Digital Platforms, Content and Applications
- **D** Connected Health and Independent Living
- **E** Medical Devices
- **F** Diagnostics
- **G** Therapeutics – Synthesis, Formulation, Processing and Drug Delivery
- **H** Food for Health
- **I** Sustainable Food Production and Processing
- **J** Marine Renewable Energy
- **K** Smart Grids and Smart Cities
- **L** Manufacturing Competitiveness
- **M** Processing Technologies and Novel Materials
- **N** Innovation in Services and Business
- **-** Other

Figure 14 Location of the Active Spin-outs based in Ireland (n=108)



Source: Technopolis, based on TTO responses and desk research.

Figure 15 Age of Active spin-outs as of 2015 by banded years (n = 109)



3.6 Location

Mapping the location of each of the Active Spin-outs shows that all bar one are located in Ireland. The majority (64%, 70 companies) are located in the Greater Dublin area which is likely to reflect the fact that 64% of Active Spin-outs arise from Dublin-based institutions. A general observation in Ireland and overseas is that spin-outs appear to stay close to their parent institution. One Active Spin-out is now headquartered outside of Ireland, in Bournemouth, UK.

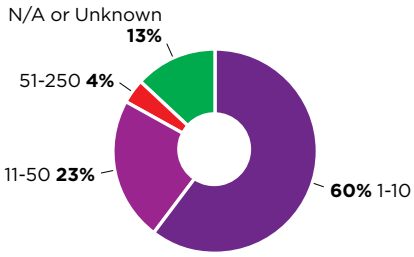
The study team used desk research (e.g. reviewing company websites, news and press releases as well as company LinkedIn profiles) to infer the international presence and activities of the Active Spin-outs. Whilst this does not provide a fully comprehensive picture and only includes those companies for which the study team was able to obtain relevant information, it does give an indication of positive overseas activity. By examining overseas offices and partnerships, such as distribution arrangements, the team concluded that 23 Active Spin-outs (21%) are currently trading in 22 overseas markets, with the US as the most recorded market.

3.7 Employment

To understand employment within the Active Spin-outs, the study team used several different publicly available sources such as company websites, company reports, business information repositories and LinkedIn company profiles. It was not possible to obtain precise employment figures for all the companies and for some, very little - if any - information was available. The team suggested that a rough estimate of the jobs could be reached based on headcount rather the full-time equivalent jobs. It provided an indicative estimate that the 109 Active Spin-outs support approximately 1,080 jobs.

Building on the same sources, the breakdown of company size by employment bandings shows that the majority (61%) of Active Spin-outs are in the micro range (1-10 employees) and around a quarter (23%) are small companies (11-50 employees). Because of the sources used to gather the information, the bandings used in this study vary slightly from the employment bandings most commonly used in examinations of business size (i.e. 0-9, 10-49, 50-249). For example, LinkedIn uses the less-common employment banding, and there are several instances where this band is the only information available for a company's employment, necessitating the aggregation of other, more precise employment figures into the same banding structure for analysis.

Figure 16 Size breakdown of all Active Spin-outs by employment banding (n=109)



CASE STUDY

Local companies accessing global markets.

Bio-remediation company Microgen Biotech was founded by a returning former IT Carlow PhD student. The technology behind the business relates to the use of certain bacterial strains for cleaning and the remediation of contaminated soil via a process of delivering bacteria on micro beads to 'eat' contaminating micro bacteria. This makes the soil suitable again for agricultural use and avoids the traditional method of incineration.

The TTO at IT Carlow, with support from its TTSI consortium lead Maynooth University TTO, played a hands-on role in ensuring the successful spin-out of Microgen Biotech. This began with an assessment of relevant business models for the company and involved licensing bacterial strains to Microgen. The relationship has remained close following incorporation and the company is based in the IT Carlow incubator. This has led to an ongoing relationship with the TTO including input into identifying new markets and sources of funding. Accessing Enterprise Ireland Innovation Vouchers enabled the company and IT Carlow to work together to problem solve ways of delivering the encapsulated bacteria.

Microgen Biotech has benefited from a range of State supports including the Enterprise Ireland New Frontiers national entrepreneur programme and an Enterprise Ireland Female Competitive Start-up award. The company is currently exploring specific agri-tech applications of the technology in China and last year secured EI HPSU funding, tailored to match the private Chinese investment already lined up by Microgen. Microgen Biotech now employs six full-time individuals and five part-time individuals.

Research Prioritisation Area: **Processing Technologies and Novel Materials**

4
State funding supporting commercialisation

The study team investigated the State supports that had directly enabled the commercialisation that led to the launch of products and service and the creation of Active Spin-out companies.

Enterprise Ireland is an important source of funding for RPOs to commercialise their innovations. Frequently reported by the TTOs was the use of EI Commercialisation Fund grants to develop the commercial proposition (and associated IP) behind many licences and spin-outs established by the RPOs. Other funding supports that were used by the Active Spin-outs include the range of Enterprise Ireland grants such as New Frontiers, Competitive Start and High Potential Start-Up funds.

The study did not probe in any detail the prior research and infrastructure funding by the State that supported the academic research. Such funding streams include those from SFI, IRC, HRB and the HEA. This is an area that will be looked at by KTI in more detail over the coming year.

CASE STUDY

Leveraging funding to mature the business model – KelAda Pharmachem Ltd.

KelAda is a new entrant to the Active Spin-out class, founded from RCSI in 2012. The company specialises in developing new chemical synthetic processes for chemical intermediates in pharmaceutical manufacturing. It has licensed two patents from RCSI. The company business model involves the in-licensing and development of novel chemistry into scalable processes which can then be out-licensed to major pharmaceutical players.

The TTO at RCSI provided support to the emerging company in accessing State funding, which included Enterprise Ireland Commercialisation Feasibility funding and the EI Commercialisation Fund. The TTO also helped the founder to identify an experienced CEO. KelAda has recently been successful in securing funding under the Horizon 2020 SME Instrument. Support for the company continues from the TTO as KelAda seeks space in the RCSI labs for the work funded through the EC programme.

Research Prioritisation Area: **Therapeutics - Synthesis, Formulation, Processing and Drug Delivery.**

Appendix A
Abbreviations, acronyms and definitions

Acronym	*Description*
AKTS	Annual Knowledge Transfer Survey
HEI	Higher Education Institution
IoT	Institute of Technology
IP	Intellectual Property
IPR	Intellectual Property Right
LOA	Licences, Options and Assignments
PI	Principal Investigator
RPA	Research Prioritisation Area
RPO	Research Performing Organisation
TTO	Technology Transfer Office
TTSI	Enterprise Ireland's Technology Transfer Strengthening Initiative Programme

Abbreviations for HEIs included in this report:

AIT	Athlone Institute of Technology
DCU	Dublin City University
DIT	Dublin Institute of Technology
IADT	Dun Laoghaire Institute of Art, Design and Technology
ITB	Institute of Technology Blanchardstown
ITC	Institute of Technology Carlow
MU	Maynooth University
NUIG	National University of Ireland, Galway
RCSI	Royal College of Surgeons in Ireland
TCD	Trinity College Dublin
UCC	University College Cork
UCD	University College Dublin
UL	University of Limerick
WIT	Waterford Institute of Technology

Relevant definitions used in the AKTS 2015

RPO	Research Performing Organisations. Universities, Institutes of Technology and other research institutions funded primarily by public funds. Also referred to as PRO (Public Research Organisations).
TTO	Technology Transfer Office – the team responsible for managing KT services, including intellectual property management, licensing, partnering with industry and the creation of new companies.
Spin-out	A spin-out company is a new, incorporated business based primarily on knowledge and/or intellectual property originating from the RPO in which the RPO holds equity and/or has a licence to the IP.
Active Spin-out	An Active Spin-out is an RPO-created spin-out company that, as at the end of the reference year, has at least one paid employee and has raised equity and/or it has booked sales revenue. It is an incorporated entity which at the time of formation was dependent on the exploitation of specific intellectual property rights of the RPO. The RPO will have executed a licence to the spin-out for the IPR and/or will hold equity in the spin-out. (Excludes start-ups and spin-ins).
Licence	A contract under which IP rights are transferred from one party to another for the purpose of commercialisation.

Appendix B
Methodology

The study and reporting was undertaken between April and September 2016. The methodology applied by Technopolis to undertake this outcomes study combined the use of the previously collected information through the AKTS as well as data from previous outcomes studies. The primary data collection activities included desk based research to update and validate the already collected information during the 2013 and 2014 AKTS and outcomes studies, and an interview programme with the representatives of the TTOs from the research performing organisations that reported either new products and services based on RPO licences or new Active Spin-outs for 2015.

Appendix C
National Research Prioritisation Areas and Themes

Research Prioritisation Areas	Research Themes
A Future Networks and Communications B Data Analytics, Management, Security and Privacy C Digital Platforms, Content and Applications	ICT
D Connected Health and Independent Living E Medical Devices F Diagnostics G Therapeutics - Synthesis, Formulation, Processing and Drug Delivery	Health & Medical Technologies
H Food for Health I Sustainable Food Production and Processing	Sustainable Food
J Marine Renewable Energy K Smart Grids and Smart Cities	Energy
L Manufacturing Competitiveness M Processing Technologies and Novel Materials	Manufacturing & Materials
N Innovation in Services and Business Processes	Innovation in Services and Business Processes

Source: http://www.knowledgetransferireland.com/About_KTI/Reports-Publications/Directory-of-Innovation-Supports-Research-Centres-and-Technology-Centres-2016.pdf

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