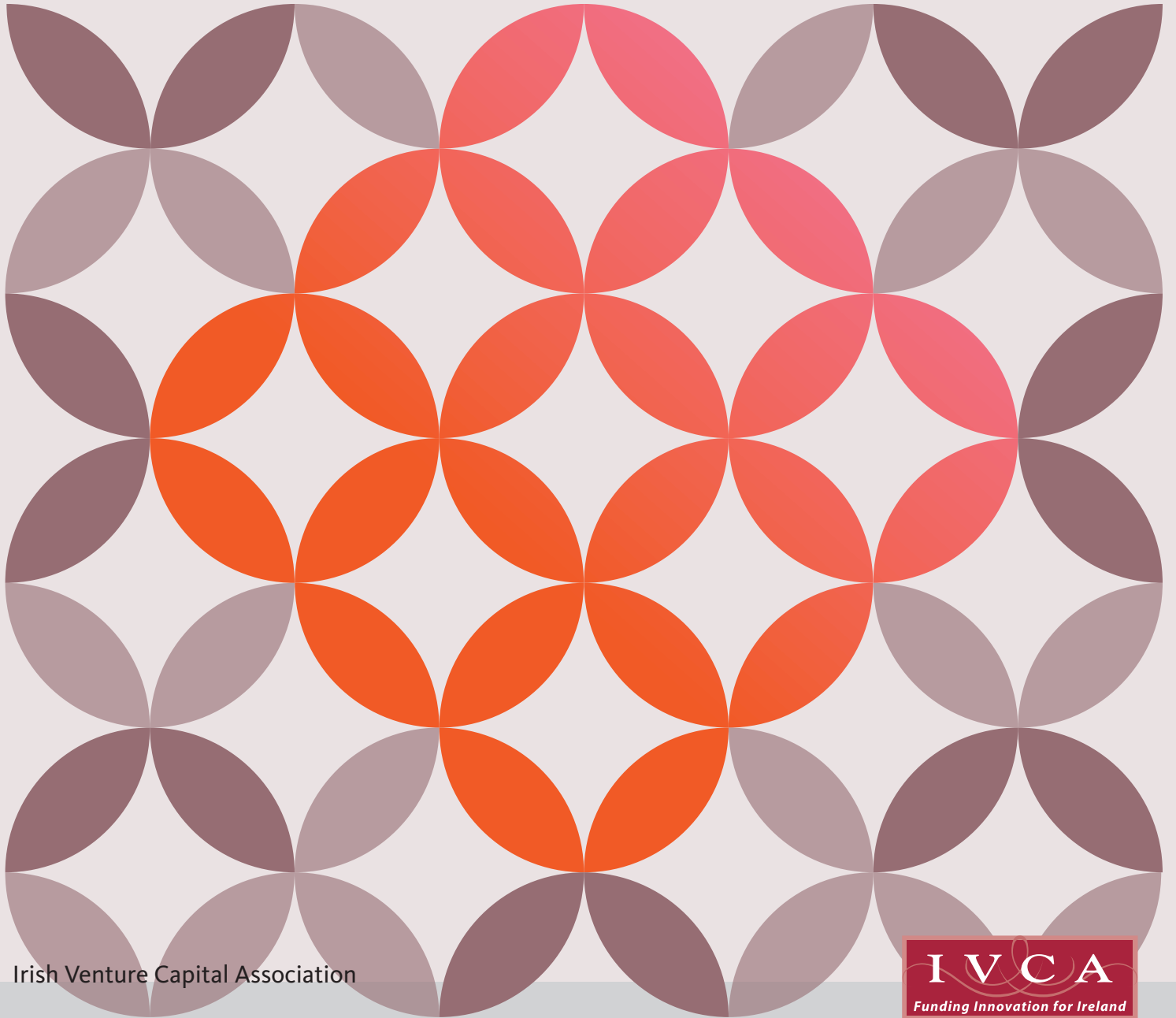


2016

The Economic Impact of **Venture Capital in Ireland**



Irish Venture Capital Association



Contents

Foreword	1
Executive Summary	3
Venture capital invests in the knowledge based economy	4
Focus on the characteristics of Entrants and Exits	6
Building a Successful Venture Capital Ecosystem in Ireland	8
Study Methodology	12

Foreword

The Irish Venture Capital Association is the representative organisation for venture capital firms in Ireland. Irish venture capital firms have invested €1.2bn in Irish SMEs since 2003 and, through syndication, have attracted in a further €1.4bn from international venture capital firms.

For over a decade now, the IVCA has collected data that provides information on the impact of venture capital on Ireland's job creation and economic growth. This sixth in depth study of The Economic Impact of Venture Capital in Ireland continues to reinforce the narrative. The industry creates high calibre jobs and generates significant export sales growth. It plays a critical role in driving innovation by investing in research and development. That the activity during the last five years occurred amid one of the toughest recessions in history speaks volumes about the importance of venture capital to our economy. As investors, venture capitalists assume more risk and partner more closely with entrepreneurs than other equity investors to bring breakthrough ideas and technologies to the marketplace. The skill set and domain expertise of venture capitalists has deepened considerably over the years resulting in VCs adding significant value to portfolio companies. The technologies developed have changed the way we live and work in profound and countless ways.

Activity levels in global markets have recovered and venture capital firms are raising new funds. In Ireland activity levels peaked at over €500m in 2015 with scaling activities on the

increase. Irish venture capital funds are currently in the process of raising fresh capital. Government recognises that venture activity, by deploying capital efficiently to emerging technologies, results in the creation of thousands of high calibre direct jobs with significant downstream impact on indirect jobs and in billions of euros in revenues and exports. In recognition of this positive economic impact, Government has been pro-active and committed, through Enterprise Ireland, up to €175m as a cornerstone investor to venture capital funds under the Seed & Venture Capital Scheme 2013-2018. It is anticipated that the venture capital industry will leverage this commitment by a multiple of four to five times. We are confident that the industry will thrive and grow and will continue to play its part in building companies, in driving entrepreneurialism and in supporting innovation.

This study, conducted by the DCU Business School, was carried out between January and June 2016 and covers the three years 2013, 2014 and 2015. It is unique in that it is a census of VC backed companies in Ireland and, as such, it provides very useful data for policymakers, investors and industry practitioners. It has become an authoritative source of information about our industry and its social and economic impact. Its value continues to deepen as the trend analysis expands from its start date in 2003.

We would like to take this opportunity to thank the venture capital companies for providing the necessary data and Dr Eric Clinton of the DCU Business School for conducting the study.

Michael Murphy
IVCA Chairman

Expenditure on R&D by VC backed companies represents 34% of all SMEs share of total spend on BERD (Business Expenditure on Research and Development).

34%
R&D



Executive Summary

Venture capital backed companies continue to provide a substantial impetus to the ongoing development of a knowledge-based economy in Ireland and to the achievement of public policy objectives in this regard. This is the key finding of this study of the economic impact of venture capital companies in 2015 and in the three years since 2012.

Investment

In 2015 there were 165 funding rounds raising €522m. Since 2012 462 funding rounds have raised €1,207m.

Employment

Since 2012 VC backed companies created 3,672 high calibre jobs. It is noteworthy that in the past twelve years these companies created 20,046 high calibre jobs, of which 7,466 are represented in the current portfolio and 12,580 were represented in the portfolio exits since 2003. Employment in companies that have exited the portfolio continues to grow but the study cannot track this growth.

It is estimated that these companies support up to three additional indirect downstream jobs i.e. a further 60,000.

Graduate intensity peaked at 82% of the workforce in 2014. Employment numbers increased by 14% per annum since 2012.

Exports

Exports by VC backed companies grew by 25% per annum since 2012. In this period VC backed companies generated exports of €1,523m. This represented export intensity of 90% of revenues in High Technology companies.

Research & Development

Expenditure on R&D by VC backed companies since 2012 was €417m. In 2015 this represented 34% of all SME's share of total spend on BERD (Business Expenditure on Research and Development).

Irish Venture Capitalists:

- **Invest in High Technology:** In 2015 98% of the funds were raised by SMEs in the High Technology sector.
- **Build/Scale Businesses:** Over 50 companies in the portfolio have in excess of 90 employees. Since 2012 the number of companies raising €25m+ has trebled.

Venture capital invests in the knowledge based economy

An in depth analysis of VC backed High Technology companies shows that they are knowledge based and export led, particularly the younger companies.

Investment

In 2015 activity levels reached an all-time high with 165 funding rounds raising €522m. Since 2012 activity levels increased at an annual rate of 26%, 462 funding rounds have raised €1,207m. High Technology companies accounted for 98% of the funds raised. This is the highest technology weighting in Europe.

Since 2012 13% of this capital was invested in start up and early stage companies. This pattern compares with the European average of 23% (EVCA).

Employment

The performance of VC backed companies has been significantly better than the IT & Communications sector (CSO) and in the economy generally. **Venture backed companies increased employment by 19.7% in 2015** and by 14.4% per annum since 2012. This compares to an overall increase in employment in the economy of 3.37% in 2015 and to an increase of 2.79% per annum since 2012. **Within the High Technology sector the increases were 17.2% for 2015** and 17.1% per annum since 2012. This compares to an overall increase of 1.9% in 2012 in the IT and Communications Sector (CSO) and to an increase of .4% per annum since 2012.

Growth momentum continues to escalate year on year particularly in the High Technology sector. Across the age spectrum, whilst all cohorts exhibited significant growth rates in 2015, it is noteworthy that younger companies (< 5 years) grew at significantly higher rates.

Graduate Based Employment

In 2015 graduate employment in VC backed High Technology companies increased by 15%. **Graduates represented 71% of the workforce in these sectors.** This graduate % ranges from 74% in 3-5 year old High Technology companies to a high of 78% in the 6-10 year old companies. Intensity is similar across all age spectrums, whereas in earlier years of the study, intensity was significantly higher in younger companies.

Revenues

VC backed companies increased revenues by 30.4% in 2015. The average annual growth rate since 2012 was 29.4%. The IVCA data set shows that, in terms of productivity, revenues per employee are higher in the High Technology sector.

Exports

VC backed companies increased exports by 22.7% in 2012 and by 24.8% per annum since 2012. This compares to an increase of 21.1% in total Irish exports in 2015 and to an annual average increase of 6.8% since 2012 (CSO).

In the High Technology sector exports represented 86% of revenues, ranging from 77% in young companies (3-5 years) to 95% in older companies (10+ years).

Research and Development

VC backed High Technology companies increased the R&D spend by 26.6% in 2015 and by 21% per annum since 2012.

Expenditure on R&D by VC backed companies represents 34% of all Irish SME's share of total spend on BERD (Business Expenditure on Research and Development).

R&D intensity in the High Technology younger companies i.e. less than three years old is at 73%. This intensity falls to 12% in companies over ten years old.

Sales & Marketing

Expenditure on sales and marketing by VC backed High Technology companies increased by 24.2% in 2015 and by 23.6% per annum since 2012.

Accelerating Growth

Momentum in growth rates is escalating.

Fig. 1 Employment Growth

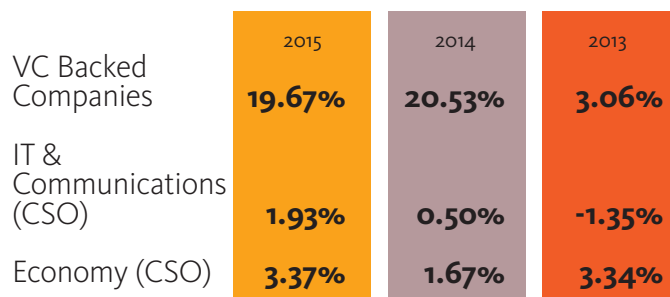


Fig. 2 Employment Growth - Age

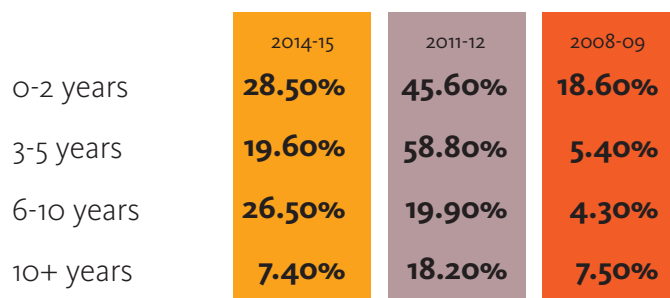
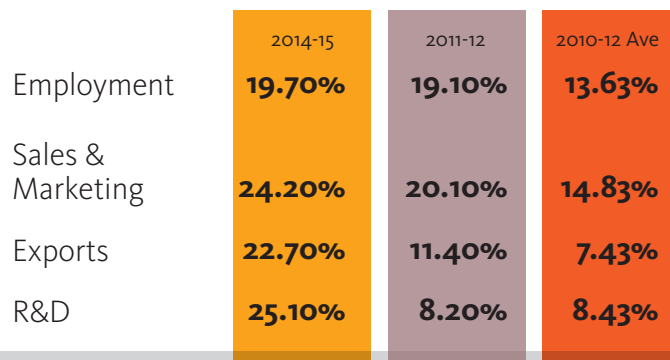


Fig. 3 Growth Momentum



Focus on the characteristics of Entrants and Exits

An in depth analysis of new VC backed companies shows that they are knowledge based and export led.

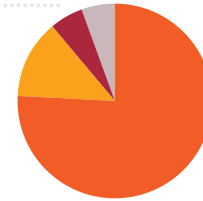
Entrants to Portfolio - New Investments

Irish venture capitalists continue to invest in early stage High Technology companies. Since 2012 there have been 73 new companies added to the portfolio, 70 (96%) of them into the High Technology area and the majority concentrated in the ICT and Lifesciences sectors.

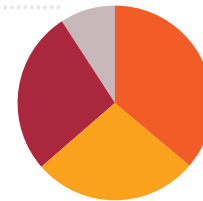
These new entrants, in the main, continue to exhibit a high concentration on exports, R&D spend and graduate employment.

Fig. 4 New Entrants - Sectoral

2013



2014



2015

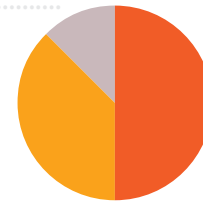


Fig. 5 Financial Characteristics

	2013	2014	2015
Revenues per company	€ .77m	€ 0.74m	€ 0.15m
Employees per company	19	23	30
Export Intensity	64%	82%	66%
Graduates as % of Employees	46%	36%	53%
R&D as % of Revenues	16%	30%	15%
S&M as % of Revenues	17%	12%	6%

Exits from Portfolio

Since 2012 there were 53 exits (trade sale, IPO, restructuring, bankruptcy etc) from the portfolio, 46 (81%) were in the High Technology sector.

Since 2012 companies exiting the portfolio, on average, were five times the size of new entrants.

Statistics relating to exits are removed from the database. Consequently realised investments, because they can be significantly larger than the average investment in the portfolio, tend to have a disproportionate effect on portfolio revenues and employment.



Building a Successful Venture Capital Ecosystem in Ireland

Venture Capital: Economic Relevance

The venture capital industry drives job creation and economic growth by helping entrepreneurs turn innovative ideas and scientific advances into products and services that change the way we live. Venture capitalists do this by providing the funding and guidance – and by sharing the risks with the entrepreneurs – necessary to build high-growth companies capable of bringing these innovations to the marketplace. Venture capital nourishes entire industries and because of their high growth characteristics venture capitalists continue to fund innovations within them.

While its innovations impact the lives of people around the country and around the world, venture capital still lies mostly below the public's radar. In those countries or regions that have built thriving venture hubs, however, the industry's effects on job creation, revenue growth and the tax base are significant. International studies indicate that the predominance of venture capital:

- Stimulates Growth – an increase of 0.1% in VC/GDP results in 0.3% real GDP growth. **In Ireland, between 2003 and 2015, VC/GDP increased from 0.06% to 0.20%.** This is the highest % in Europe, Denmark is next at 0.11%.
- Stimulates Innovation – There is a positive statistical correlation between the amount of venture capital and the conversion of ideas into commercially successful innovations.
- Stimulates Research and Development – In the US a \$ of venture capital is three times more potent in stimulating patenting than a \$ of traditional R&D.

In Ireland the spend on R&D by venture-backed innovative companies increased by 15% per annum in the period from 2003 to 2015, double the rate from indigenous Irish SMEs. **R&D spend by venture-backed companies now represents 34% of all SMEs share of total spend on BERD (Business Expenditure on Research and Development).**

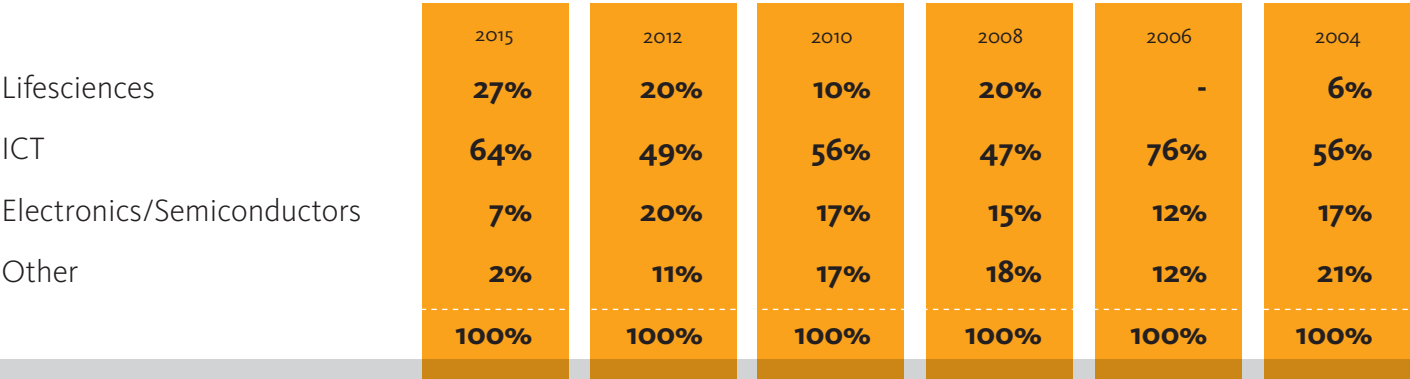
- Stimulates the Creation of New Businesses – The rate of new business creation increases and is three times more likely in industries that attract sizeable venture capital investment. **In the twelve-year period to 2015 the number of new companies raising seed capital in Ireland increased four fold from 16 in 2003 to 81 in 2015.**
- Stimulates Entrepreneurialism – Venture capital investment in a firm stimulates the creation of between two and twelve additional spin-out firms. **Irish technology companies have spun out a significant number of new companies and created a new generation of serial entrepreneurs who are now dominant in the early stage sectors.** Parthus, Iona and Smartforce alone have spun out one hundred and forty six (146) companies.

Throughout its history, venture capital in the US has developed numerous life-changing innovations into entirely new industries. In the 1970s, VCs helped found the biotechnology industry through their investments in pioneering companies like Genentech and Amgen. A decade later, venture funding was growing the software development and semiconductor industries into prime drivers of the U.S. economy. Online retailing (Amazon, eBay) followed in the 1990s and clean technology is extending this legacy today. **In Ireland venture capitalists have driven growth in these new industries by funding innovation within them.** Many of these “new industry” companies located their European headquarters in Ireland and consequently **Irish VCs have developed specialist sectoral clusters of innovative activities** including medical devices, telecommunications, laser optics, electronic switching devices, business software and fintech. In this its fifth investment cycle, the skill set and domain expertise of venture capitalists has

deepened considerably. Public policy encourages collaboration through the establishment of the infrastructure necessary to support networks, clusters and regional gateways. These can be geographical or sectoral and are usually based near a third level institute or other research centre. The venture capital community supports and collaborates with this process. **Several Funds are closely linked to a particular third level institute and often to a particular region or sector.** The sectoral analysis of venture capital investment in Ireland in the last decade highlights the growth in Lifesciences.

Venture capitalists bring many intangible benefits to portfolio companies including syndication with international investors, introductions to potential business partners, customers and acquirers, corporate governance and an endorsement of the business and management team to the sector in which it operates.

Fig. 6 VC Investment in Ireland by Sector



Economic Impact Study – Twelve-Year Review

The EIS database compiled by the DCU Business School includes information on venture-backed companies over the last twelve years to 2015. The analysis shows that venture backed companies:

- Create more high calibre jobs
- Are export led in all age cohorts
- Grow faster
- Are knowledge based i.e. significant graduate employment and spend on R&D particularly in companies in the younger age cohort.

The table below provides details of key annualised growth rates (with some CSO comparators) and knowledge-based characteristics.

These economic characteristics have encouraged and influenced policy makers to recognise the importance of venture capital activity and consequently **innovation and venture capital are at the centre of Ireland's economic policy**. This is evidenced by funding initiatives from Enterprise Ireland at the seed stage and in the growth capital space and by the establishment of a later stage expansion funds by ISIF (Irish Strategic Investment Fund). In 2013 Government has committed, through Enterprise Ireland, up to €175m as a cornerstone investor to venture capital funds under the Seed & Venture Capital Scheme 2013-2018.

Fig. 7 Performance Measures Annualised Growth Rates

	1 Year 2014-15	2 Years 2013-15	3 Years 2012-15	5 Years 2010-15	10 Years 2005-15	12 Years 2003-15
Employment	20%	20%	14%	14%	14%	16%
IT & Communications (CSO)	2%	1%	.4%	2%	2%	3%
Exports	23%	22%	25%	22%	13%	12%
Irish Economy (CSO)	21%	12%	7%	5%	3%	3%
Revenues	30%	28%	29%	20%	16%	17%
R&D Spend	27%	25%	21%	19%	13%	15%
Sales & Marketing Spend	20%	20%	15%	22%	19%	17%

Performance Measures

	2015	2012	2010	2008	2006	2004
Graduates : Workforce	71%	79%	79%	77%	76%	74%
R&D : Revenues	31%	28%	24%	31%	31%	32%

Rates of Intensity

Building the Venture Ecosystem

Most venture capital communities tend to feature the same elements working in the same symbiotic ways.

Most start with a **steady flow of ideas** – usually generated by a top-class research university, government laboratory or academic community. The development agencies in Ireland are improving the quality of the public research infrastructure and promoting its links to industry in order to transfer knowledge from research organisations to the market. Specific initiatives include a) the establishment of SFI Centres for Science, Engineering and Technology with the aim of significantly advancing knowledge and exploiting opportunities for discovery and innovation – these Centres involve research partnerships between Irish universities, multinational companies and SMEs and b) linking academic researchers and industry within Strategic Research Clusters that focus on aspects of the ICT and Lifescience industries. Enterprise Ireland is working closely with these research centres to encourage and facilitate commercialisation of ideas and technologies by supporting the emergence of spin-outs. In 2016 a new Spin-Out Fund has been established by the universities to accelerate this process. **Approximately 75% of Irish university spin-outs go on to raise venture capital and 66% of the SMEs collaborating within the CSETs and SRCs are venture backed, thus closing the virtuous funding circle.**

The presence of innovative, venture-backed companies with an entrepreneurial streak – one that draws talent to the area (e.g. Google or Intel) – is another benefit. These organisations are often breeding grounds for the entrepreneurs of tomorrow and regularly spin-out new ideas and companies from existing operations. These anchor companies also have pools of qualified middle management from which to draw. Encouraged and facilitated by the IDA, almost all of the leading US ICT and Pharma/Medtech/Biotechnology companies have located their European headquarters in Ireland. **A number of the Irish venture capital investments have been into spin-outs**

established by employees from these multinational corporations (MNCs).

In the last five years **the number of incubation centres and accelerator programmes has trebled** mainly due to the involvement of the private corporate sector. These centres and programmes provide training, mentoring and networking opportunities for entrepreneurs. Start up companies are now better prepared in terms of investor readiness than ever before.

Entrepreneurs need significant operations support to get their ideas off the ground. That's why a healthy network of lawyers, accountants and other business professionals who understand the challenges of the start-up community remains essential to building a viable venture capital hub. These networks develop over time and provide start-ups and VCs with specialized services such as intellectual property protection, IPO registration, auditing and workforce development. **Ireland is currently ranked 2nd best place in Europe for venture capital supports** as reported in the Invest Europe: Benchmarking European Tax and Legal Environment

Support from state and local government in the form of favorable tax policies, common-sense regulatory structures and encouragement of basic research provide a key essential component. Ireland's tax regime, through R&D tax credits and a low rate of CGT on carried interest, recognizes the importance of capital formation and rewards long-term investment in innovation. However there is a note of caution here in that the incentives offered to entrepreneurs in the UK are now more attractive than in Ireland. Further work needs to be done to catch up competitively in this regard.

The ecosystem must provide a vibrant exit mechanism for entrepreneurs and venture capitalists. **Most exits in Ireland are through trade sales, mainly to the MNCs thus further expanding the presence of the multinational industry in Ireland.**

Study Methodology

This is the sixth in depth study of the economic impact of venture capital on the Irish economy. The study, conducted by the DCU Business School, gathered and analysed the following statistics:

- **For every company in the portfolios of IVCA member's venture capital funds at the end of 2013, 2014 and at the end of 2015;**
 - revenues,
 - employment,
 - capital raised,
 - spend on research and development,
 - graduate employment,
 - export performance,
 - spend on sales and marketing.
- **For every company supported by non-IVCA venture capital companies active in Ireland at the end of 2013, 2014 and at the end of 2015;**
 - revenues,
 - employment,
 - capital raised.

The database was adjusted to reflect exits and new entrants during these years.

Act Venture Capital	www.actventure.com
Atlantic Bridge	www.abven.com
Clarendon Fund Managers	www.clarendon-fm.co.uk
Crescent Capital	www.crescentcapital.co.uk
Delta Partners	www.deltapartners.com
Development Capital	www.developmentcapital.ie
Draper Esprit	www.draperesprit.com
Dublin BIC	www.dublinbic.ie
Enterprise Equity	www.enterpriseequity.ie
Fountain Healthcare	www.fh-partners.com
Frontline Ventures	www.frontline.vc
Greencoat Capital	www.greencoat-capital.com
Innovation Ulster	www.innovationulster.com
Investec Ventures	www.investec.ie
Kernel Capital	www.kernel-capital.com
MML	www.mmlcapital.ie
NDRC	www.ndrc.ie
Pentech Ventures	www.techstartni.com
Seroba Life Sciences	www.seroba-lifesciences.com
SOSV	www.sosv.com
Western Investment Fund	www.wdc.ie

Venture Capital, using equity funds & expertise,
partners with entrepreneurs to build great
businesses that can scale in global markets.

Irish Venture Capital Association

3 Rectory Slopes

Bray

Co. Wicklow

Ireland

t +353 1 276 4647

e secretary@ivca.ie

www.ivca.ie

 [@IVCA_ie](https://twitter.com/IVCA_ie)

