



INSIGHT SFI RESEARCH CENTRE ECONOMIC IMPACT REPORT Ten Year Review, 2013 – 2023

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Contents

1. OVERVIEW OF INSIGHT ECONOMIC ACTIVITY, 2013-2023	2
Funding 2013 – 2023	2
Employment	3
Alumni	4
Licences and Assignment Agreements	5
Collaborative Research Agreements	5
Spin-outs	6
International Conferences	6
2. INSIGHT’S INCOME SOURCES AND ECONOMIC IMPACT.....	7
Income	7
Economic Impact	9
Employment impact	11
References	12

1. OVERVIEW OF INSIGHT ECONOMIC ACTIVITY, 2013-2023

Funding 2013 – 2023

As one of Europe’s largest data analytics centres, Insight SFI Research Centre for Data Analytics undertakes cutting edge research across areas such as the Fundamentals of Data Science, Sensing and Actuation, Scaling Algorithms, Model Building, Multi Modal Analysis, Data Engineering and Governance, Decision Making and Trustworthy AI. In the first 6 years following its inception, Insight won competitive grants from SFI of €40.82m and secured an additional €57.47m in research funding from other exchequer, industry and international sources. During this period, for every €1 SFI funding, Insight secured another €1.42 additional investment. In the next 5-year period (2018-2023) Insight won competitive grants from SFI of €39.71m and secured an additional €62.01m in research funding from other sources. During this period, the ratio of SFI funding and funding from other sources increased to 1/1.56.

In the full period since its inception in 2013, Insight has won competitive grants from SFI of €80.53m. It has secured an additional €119.48m in research funding from other exchequer, industry and international sources. Total investment in Insight has amounted to €200m. For every €1 SFI funding, Insight has secured another €1.48 additional investment.

Table 1.1: Insight Funding, by source (2013-2023)

Source	Funding / investment €M 2013-2018	Funding / investment €M 2019-2023
Core SFI grant	40.82	39.71
Other Exchequer funding (EI, IRC)	14.13	7.98
Industry funding (cash and in-kind)	18.72	20.74
Non-Exchequer/Non-Commercial (including H2020)	35.95	45.85
<i>Total additional investment</i>	<i>57.47</i>	<i>62.01</i>
Total investment	98.29	101.72

Employment

Insight currently directly employs 168 highly skilled workers. This figure includes those employed as a result of the core SFI grant and other funding won by the centre. Direct employment numbers have not changed since 2018.

Table 1.2: Employment Numbers 2018 and 2023

	2018	30/03/2023
Management Staff	21	12
Research Fellows	17	20
Post-docs	57	50
Research Assistants	32	31
Technicians	4	9
Admin Staff	27	29
Other	10	17
Total Direct Employment^a	168	168

[a] Those employed as a result of the centres existence. Funded by core SFI grant and other funding won by the centre.

In addition to the above directly employed staff, there are 78 Principle Investigators and Funded Investigators who work in Insight but are employed by their relevant institution.

	2018	30/3/2023
Principal Investigators	24	24
Funded Investigators	29	54
Total	53	78

Alumni

The Insight Centre has trained a total of 1,087 alumni. Currently, at least 25% of these alumni is employed in industry while at least 42% is employed in academia.

Table 1.3 Alumni by sector as of March 2023

	Absolute	Share
Total	1087	100
Industry	269	25%
Academia	457	42%
Other or Unknown	361	33%

Alumni came from 53 different countries. 58% of the alumni were of foreign nationality. Over three quarters of the alumni moved to companies or institutions in Ireland. As a result, Insight has made an important contribution to the development of the Irish System of Innovation in the area of data analytics.

Table 1.4 Alumni by first destination as of March 2023

	Absolute	Share
Total	1,087	100%
Ireland	829	76%
Abroad	258	24%

Table 1.5 Alumni by nationality as of March 2023

	Absolute	Share
Total	1,087	100%
Irish	453	42%
Foreign	634	58%

Licences and Assignment Agreements

Research by Insight has led to 86 licence agreements with Irish and foreign companies. Between 2013 and 2021, Insight generated between 1% and 20% of all licences emanating from Research Performing Organisations (RPOs)¹ in Ireland. In total this accounted for 8.8% of RPO licences for that period.

Table 1.6: Licences and Assignments of Insight and all RPO, 2013-2023

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
No of Licenses	12	19	12	7	13	3	4	1	3	10	2
IP Assignments	0	0	0	0	0	0	0	0	8	0	0
Licenses all RPOs in Ireland ²	103	97	104	111	86	84	78	88	90	N/D	N/D
Insight's share of licences (%)	11.7	19.6	11.5	6.3	15.1	3.6	5.1	1.1	3.3	N/D	N/D

Collaborative Research Agreements

Insight has signed 219 Collaborative Research Agreements (CRAs) involving 146 companies. 97 of these CRAs were with companies located in Ireland and 122 with companies located outside Ireland.

Table 1.7: Collaborative Research Agreements (CRAs), 2013-2023

Total	219 CRAs signed with 146 companies
Irish	97 CRAs signed with 73 companies located in Ireland
Foreign	122 CRAs signed with 73 companies located outside Ireland

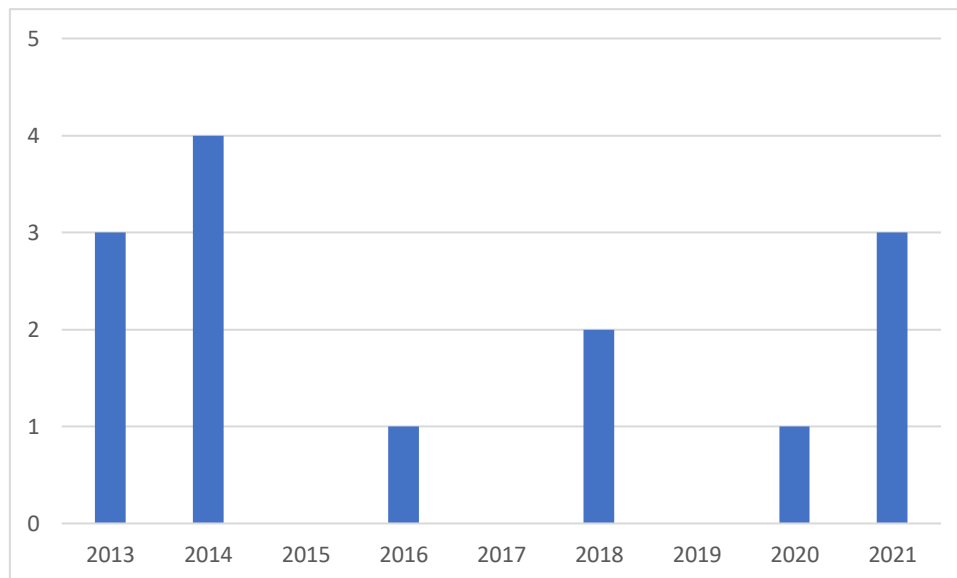
¹ RPOs include: Universities, Institutes of Technology, Specialist Institutes and State Research Bodies.

² Knowledge Transfer Ireland (2013-2021), Annual Knowledge Transfer Survey 2021. Dublin: KTI. [online] <https://www.knowledgetransferireland.com/Reports-Publications/Annual-Knowledge-Transfer-Survey-2021.pdf>

Spin-outs

Between 2013 and 2021, Insight spun out 14 companies, accounting for 6% of all spin-outs from Research Performing Organisations (RPOs) in Ireland.³ By 2023, seven of these companies employed over 170 workers (FTE) and had attracted over €413m in investment.

Table 1.8: Number of Spin-outs Insight, 2013-2021



International Conferences

Between 2013 and 2023, Insight hosted 28 international conferences. These conferences were attended by 7,985 delegates. The estimated impact of these international conferences on the Irish economy is €12.8m.⁴

³ Knowledge Transfer Ireland (2013-2022), Annual Knowledge Transfer Survey 2022. Dublin: KTI. [online] <https://www.knowledgetransferireland.com/Reports-Publications/Annual-Knowledge-Transfer-Survey-2021.pdf>

⁴ Fáilte Ireland estimates that each international delegate attending a conference in Ireland is worth €1,600 to the economy. <http://www.failteireland.ie/Business-Tourism.aspx>

2. INSIGHT'S INCOME SOURCES AND ECONOMIC IMPACT

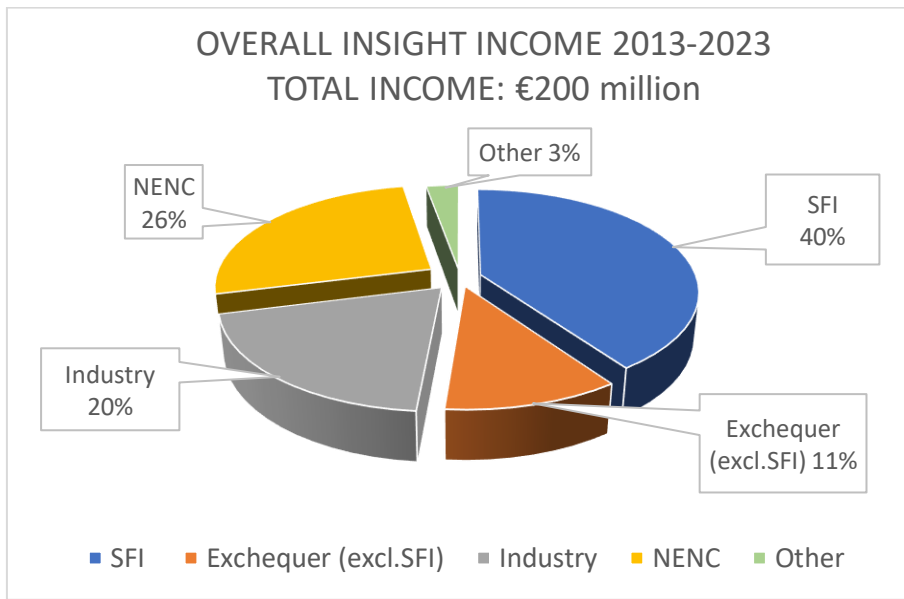
Since its inception in 2013, Insight has enjoyed notable success in attracting income from EU funding streams and industry partners, as well as exchequer funding. For example, since 2013 Insight has been granted 117 EI commercialisation awards, has been involved in 122 EU initiatives, and had been co-ordinator of 30 EU-funded projects. Insight has also cultivated valuable commercial relationships with local, national, and international industry partners. Since 2013 Insight has collaborated with over 150 companies, with these collaborative endeavours ranging from project-based engagements to multi-year multi-site research programmes. And Insight is also an employer and research sponsor in its own right, currently employing 168 staff and supporting more than 450 researchers. From a macro perspective, Insight's economic activities since 2013 have exerted a strong positive impact upon the wider Irish economy. The extent of this positive economic impact is now set out in detail.

Income

Insight has generated an overall income of €200 million over the 2013-2023 period. This includes not only exchequer funding, but also income from other sources such as EU funding and industry investment (see Figure 2.1 below). The sources of this income over the period 2013-2023 are almost evenly split between exchequer (including SFI) funding (51%) and industry, EU, and other sources (49%), which is a testament to Insight's ability to leverage the core SFI and exchequer funding that it has received from 2013 to 2023.

Insight's annual income has increased from just under €8 million in 2013 to €24.2 million in 2022 - a three-fold increase. This increase reflects a widening of Insight's sources of income. While in 2014 exchequer (including SFI) funding was the dominant source (84%) of Insight's income, by 2022 exchequer funding accounted for less than half (47%) of Insight's income. Instead, EU funding together with industry investment had come to be the largest sources of funding, together accounting for 50% of Insight's income in 2022 (see Table 2.1 below).

Figure 2.1: INSIGHT income sources, 2013-2023



Note: NENC refers to non-exchequer non-commercial funding and comprises of funding received from EU sources.

Figure 2.2: Insight income by category (€ million)

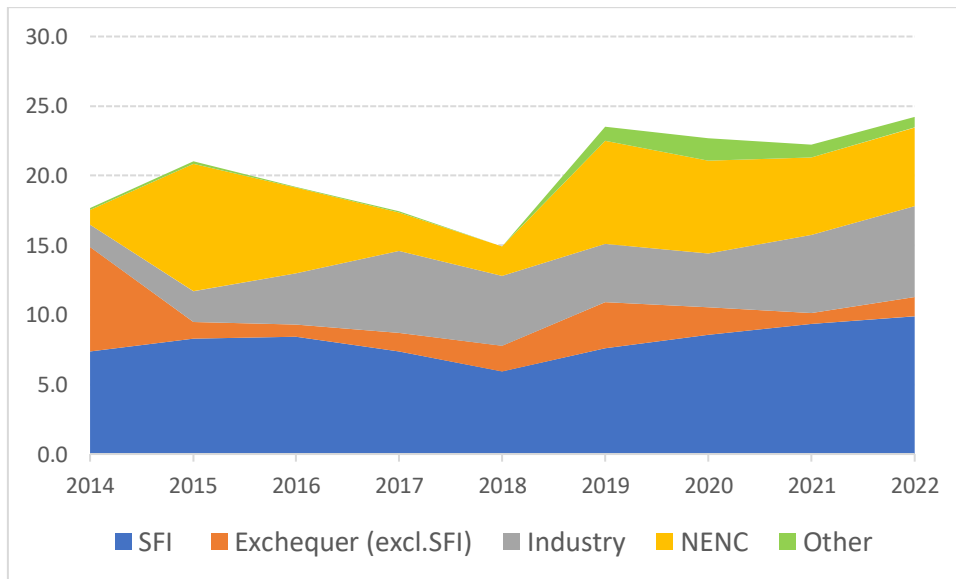


Table 2.1 Insight income sources, by share (%)

	2014	2015	2016	2017	2018	2019	2020	2021	2022
SFI	42%	39%	44%	42%	40%	32%	38%	42%	41%
Exchequer (excl.SFI)	42%	6%	5%	7%	12%	14%	9%	4%	6%
Industry	9%	11%	19%	34%	34%	18%	17%	25%	27%
NENC	6%	43%	32%	16%	14%	32%	29%	25%	23%
Other	1%	1%	0%	1%	0%	4%	7%	4%	3%

Economic Impact

Insight generates an economy-wide economic impact through a number of channels:

- Insight uses the income it attracts to procure goods and services from a range of suppliers across many industry sectors. These suppliers, in turn, must themselves source inputs in order to fulfil Insight's orders.
- Industry actors may also acquire research outputs and other services from Insight.
- Wages and salaries paid to Insight employees are consumed in the economy, which generates income for businesses across a range of sectors. This income is subsequently spent once again, as it flows through the economy.

The economic impact of Insight's research activities can be modelled via an economic input-output model, based on official CSO input-output tables for Ireland.⁵ As outlined in the 2013-2019 Insight Economic Impact report, the economy-wide economic impact of Insight has been estimated as being a multiplicative effect of **5.54** times that of Insight's own direct economic activity.⁶ This multiplier is known as a *Type 2* multiplier: a multiplier that accounts for the impact of output increases on both inter-sectoral demand (i.e. the additional income that an increase in output in one sector generates in other sectors) **and** final demand (i.e. the increase in household consumption arising from additional employment and wage increases across sectors).⁷

The input-output methodology has been widely utilised in order to assess the economic impact of research centres and universities, both in Ireland and internationally. Irish examples include a number of SFI research centres - CRANN/AMBER (2016), APC (2018), AND LERO (2018) – as well as studies of Dublin City University (2014) and University College Cork (2018). International studies that employ the methodology include Kelly et al. (2004), Universities UK (2014), Hermansson et al. (2015), and Zheng et al. (2017).

In terms of the magnitude of the economic multiplier associated with research centres, previously published Irish studies are useful comparators as they are also based on publicly available CSO input-output datasets. The estimated Insight economic multiplier, with a value of 5.4, resides within the range of estimates to emerge from these studies:

- The CRANN/AMBER (2016) study of two SFI Research Centres - Centre for Research on Adaptive Nanostructures and Nanodevices (CRANN) and Advanced Materials and

⁵⁵ Input-output tables are available via the CSO Statbank portal. For a CSO technical note on input-output data and analysis, see:

[https://www.cso.ie/en/media/csoie/releasespublications/documents/ep/supplyandusetablesandinput-outputtables/2015/Supply & Use and Input-Output Tables - Explanatory text.pdf](https://www.cso.ie/en/media/csoie/releasespublications/documents/ep/supplyandusetablesandinput-outputtables/2015/Supply%20&%20Use%20and%20Input-Output%20Tables%20-%20Explanatory%20text.pdf)

⁶ See here for further details re: Insight 2013-2019 Economic Impact report: <https://www.insight-centre.org/wp-content/uploads/2020/04/Insight-Impact-Report-web-pdf-1-min.pdf>

⁷ The calculation of the output multiplier is made possible via an economic methodology known as input-output analysis. Input-output analysis is a statistical technique for calculating the degree of interdependence between sectors as they use inputs from other sectors in the production of their output. The Central Statistics Office (CSO) publishes input-output tables for the Irish economy across 58 sectors of the economy. In order to integrate the research activities of Insight in the input-output analysis, Insight can be disaggregated from the Education Services sector and included as an additional sector within the Irish economy. The input-output matrix can also be augmented to include the effect of increased employee compensation on final household consumption in order to facilitate the calculation of the Type 2 output multiplier.

BioEngineering Research (AMBER) – yields an average annual estimate of 4.7 over the years 2007-2016.

- The LERO (2018) study yields annual estimates of between 4.4 and 5.5 over the period 2005-2018.
- The APC (2018) study yields annual estimates of 5.6 for 2017.

International studies also yield economic impact estimates within this range. For example, the League of European Research Universities (2017) estimate the average economic impact of 23 EU universities as being €5 for every €1 of income received.

Table 2.2: Economic Impact of Total INSIGHT funding, 2013-2023 (€ million, current prices)

Funding Source	Funding (€)	Economic output Multiplier	Total Economic Impact
Total	200.01	5.54	1,108.06
<i>of which:</i>			
SFI	80.53	5.54	446.12
Exchequer (excl. SFI)	22.11	5.54	122.49
Industry	39.46	5.54	218.62
NENC	52.29	5.54	289.69
Other	5.62	5.54	31.13

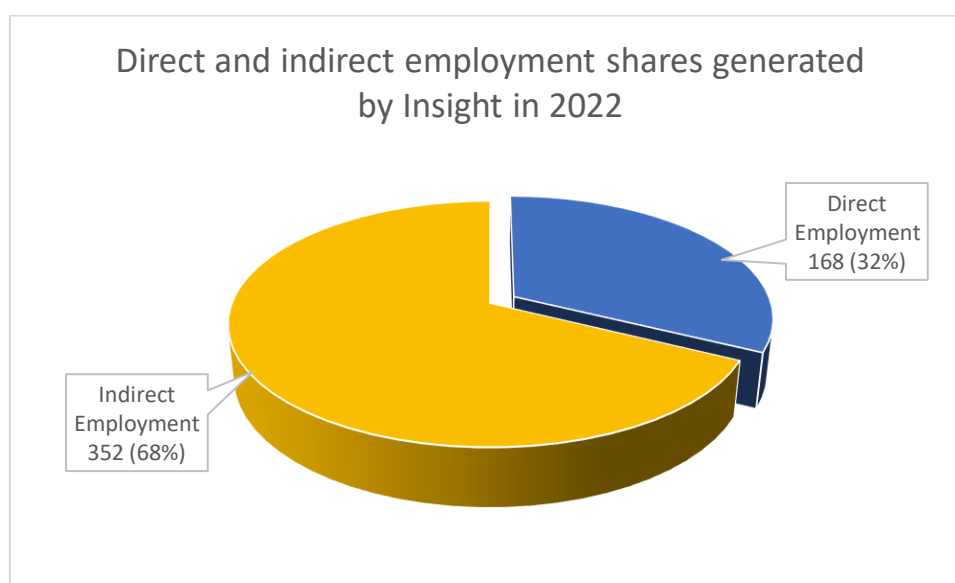
As presented in Table 2.2 above, an overall 2013-2023 income generated by Insight of **€200 million** yielded a total economic impact of **€1.1 billion** to the Irish economy. Table 2.1 also provides a breakdown of this economic impact by income source. Of Insight’s 2013-2023 income, €92 million has been attracted from industry and NENC sources. This successful attraction of non-exchequer funding by Insight has been worth €508 million to the wider Irish economy.

Employment impact

The employment multiplier estimates the impact for the Irish economy in terms of employment arising from a given organisation's economic activity. Available CSO data provides both the number for annual full-time equivalent employees in the Irish economy and the value of annual total output for the Irish economy.⁸ This allows one to calculate the value of output generated by each equivalent full-time employee.⁹ Dividing Insight's total economic impact for a given year by the value of average annual output generated by an equivalent full-time employee yields the number of indirect employees for a given year. The employment multiplier reflects the indirect number of full-time employees in the economy that Insight's economic activity can sustain in addition to its own direct employment.

Insight is currently directly responsible for employing 168 staff. Through the indirect economy-wide effects of its economic activity in the 2022 financial year, Insight generated sufficient annual income to support a further 352 full-time-equivalent jobs in the wider economy. The employment multiplier in this case is **2.09**. In other words, for every one full-time job in Insight, just over two additional full-time jobs were potentially generated outside of Insight as a consequence of its economic activity (see Figure 2.3 below).

Figure 2.3: Direct and indirect Insight employment



⁸ For an overview of CSO output data for the Irish economy from 2013 to 2021, see: <https://www.cso.ie/en/interactivezone/statisticsexplained/nationalaccountsexplained/output/>. CSO full-time equivalent employment data, based on the CSO Labour Force Survey, is available via <https://www.cso.ie/en/statistics/labourmarket/labourforcesurvey/lfs/>. The CSO explain their derivation of Full-Time Equivalent (FTE) Employment as follows: the Full-Time Equivalent (FTE) employment measure for a respondent is the total actual hours worked by the respondent, divided by the average number of hours worked by respondents working in similar (gender, industry sector and employment status) full-time jobs.

⁹ Due to data availability issues, Full-time equivalent employee data for 2019 were used in the calculation of indirect employment. This data is available from the CSO Statbank data portal.

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