

Engineering 2021

A barometer of the profession in Ireland



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Engineers Ireland Advocacy

National recovery: Our members' skills are core to rebuilding Ireland's post Covid-19 and Brexit economy, delivering a green and digital recovery, and realising the ambition of Project Ireland 2040.

The Big Challenge – sustainability: Engineers Ireland, collaborating with others, is a definitive voice on sustainable engineering solutions. Our members are encouraged to keep sustainability at the heart of their roles.

Engineering a Digital Future, Now: Engineers Ireland is a go-to organisation in ensuring the future workforce has the necessary digitalisation skills to succeed.

Standards protect Society: Engineers Ireland is passionate about ensuring that the quality of standards that impact our lives, is first class. We actively encourage members' participation in the continuous maintenance, development, and implementation of these standards.

This is the fourth in the series of Engineering reports, the barometer of the engineering profession in Ireland. Previous reports presented indicators of engineering employment, perspectives and education based on bespoke research and publicly accessible data. Due to COVID-19 restrictions on data collection techniques, many of the public data sources referenced in previous reports are not available this year. This report is based on the results of an Engineers Ireland member survey and focuses on the impact of the pandemic on engineering employment.

COVID-19 pandemic

Throughout this pandemic, engineers around the world have been supporting those at the frontline through the development and delivery of medical supplies and innovations for protecting healthcare workers and wider society. Utility companies have ensured that water, electricity, gas and broadband sustained healthcare, businesses and supported families, including older people and workers at home. Engineers in public administration and education digitalised many vital public services, while engineers in consultancy, construction and other sectors delivered essential projects.

Aside from the tragic human cost, the pandemic has had a major impact on the economy and employment. As of January 2021, there are more than 650,000 people on the live register or Pandemic Unemployment

Payment (in January 2020, there were 184,000 people on the live register). To maintain employment levels, State income supports have been provided to eligible employers through the Temporary Wage Subsidy Scheme (TWSS) and Employment Wage Subsidy Scheme. According to Revenue, more than 664,000 employees received a wage subsidy through the TWSS at some point between March and August 2020. During this time, approximately 50% of all employees in the construction and 37% in professional, scientific and technical activities received a wage subsidy, while rates were significantly lower in public administration. There were some engineering-related sectors, such as ICT and pharmaceuticals which experienced strong growth in 2020.

Engineering 2021

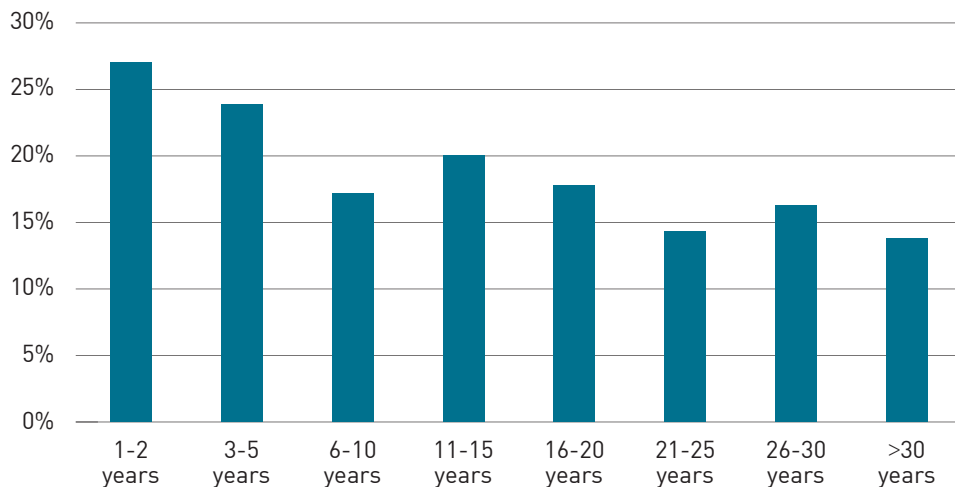
The purpose of Engineering 2021 is to measure, analyse and learn from trends in engineering employment in Ireland. The report is based a survey of Engineers Ireland members conducted online between 12-26 January 2021. There were 1,956 responses (after data cleaning), representative of the Engineers Ireland membership. A detailed breakdown of the sample is available in Engineers Ireland's Salary Survey 2021 report.

The analysis focuses on changes to engineers' employment over the past year and on engineers' perspectives on the profession. These results are filtered by respondents' experience, gender, job position, work location, engineering discipline and sector. Due to limitations of the sample, some broad categories are used, e.g. location (provinces, Cork, Dublin, overseas) and broad engineering disciplines and sectors. The concluding section of the report summarises some key trends and lessons for the engineering profession in Ireland.

Impact of the pandemic on engineering careers

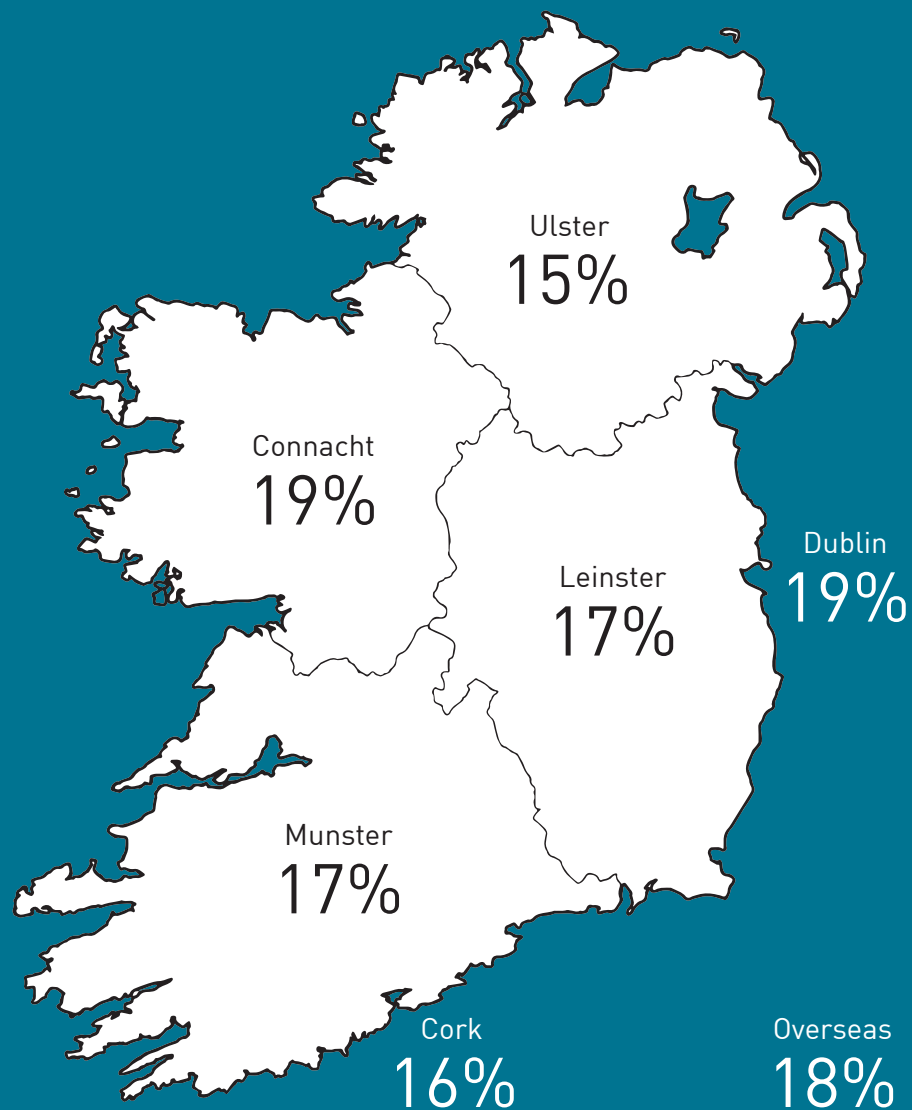
To gauge the impact of the pandemic on engineering careers, respondents were asked whether they agreed with the statement 'my career has stalled as a result of the COVID-19 pandemic'. 18% of respondents agreed that their careers had stalled, while 55% disagreed and 27% neither agreed nor disagreed. Engineers with less experience are much more likely to have had their careers impacted by the pandemic. Twice as many graduate engineers (27%, 1-2 years' experience) agreed that their career had stalled compared to the most experienced engineers (14%, over 30 years). This is also reflected in respondents' positions, junior engineers experiencing a greater negative impact than managers. Electrical and electronic engineers and those working in public administration were least likely to say that their careers had stalled. There was no significant difference between the responses of male and female engineers or between regions.

Career stalled by experience

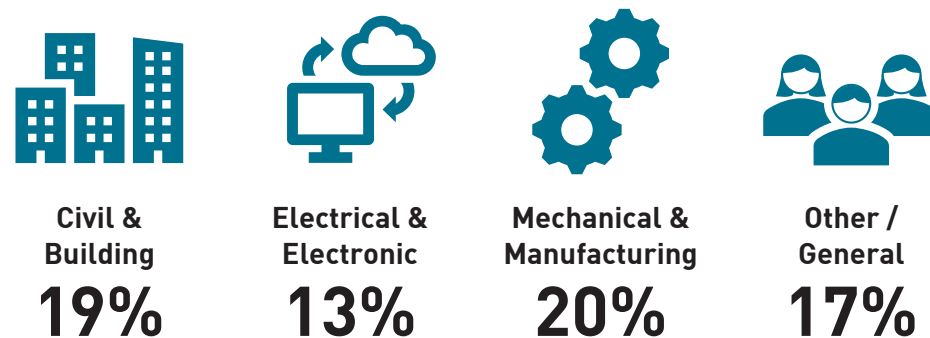


	Agree	Disagree	Neither
All respondents	18%	55%	27%
Experience			
1-2 years	27%	46%	27%
3-5 years	24%	54%	22%
6-10 years	17%	55%	28%
11-15 years	20%	53%	27%
16-20 years	18%	58%	24%
21-25 years	14%	53%	33%
26-30 years	16%	54%	30%
>30 years	14%	62%	24%
Gender			
Female	20%	55%	25%
Male	18%	55%	27%
Position			
Junior engineer	24%	51%	24%
Senior engineer	19%	51%	29%
Manager	13%	61%	26%
Associate	18%	63%	19%
Director	19%	59%	23%

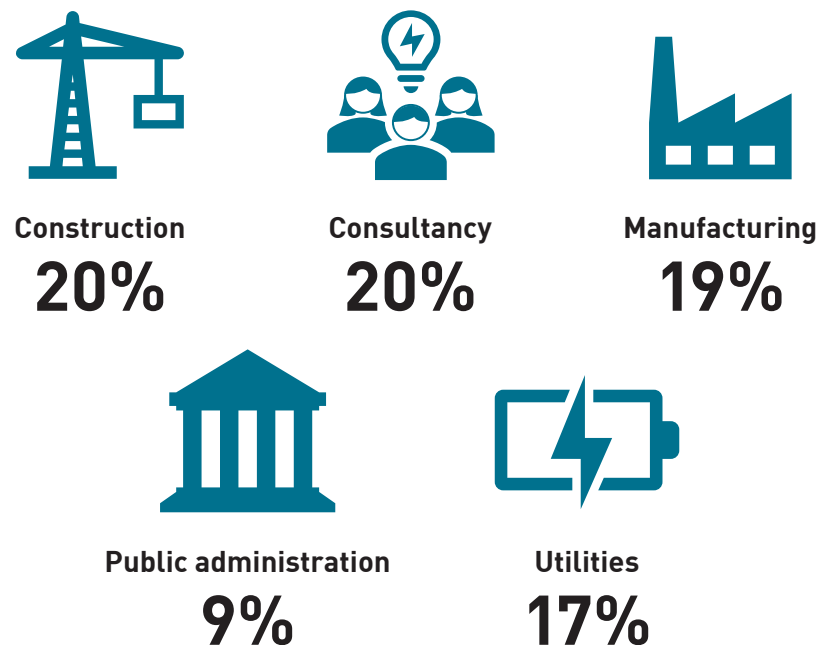
Career stalled by location



Career stalled by discipline of engineering



Career stalled by engineering sector



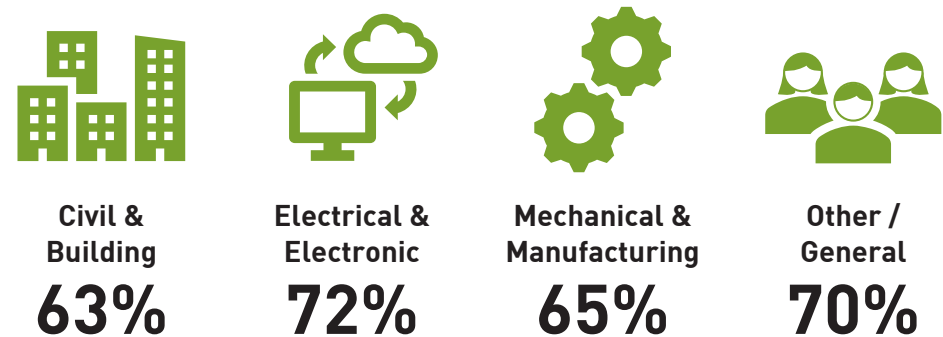
Salary change

Each year, Engineers Ireland undertakes a member salary survey, following a similar approach to ensure comparability. Despite challenging economic conditions, two-thirds of engineers increased their salary in the past year, typically by 2.5% or less. The largest reported increases were by engineers with 3-5 years of experience, 53% of whom received a raise of more than 5%. Electrical and electronic engineers and those working in public administration were most likely to report an increase in salary. Salary increases were not received by as many civil and building engineers and those working in the construction sector.

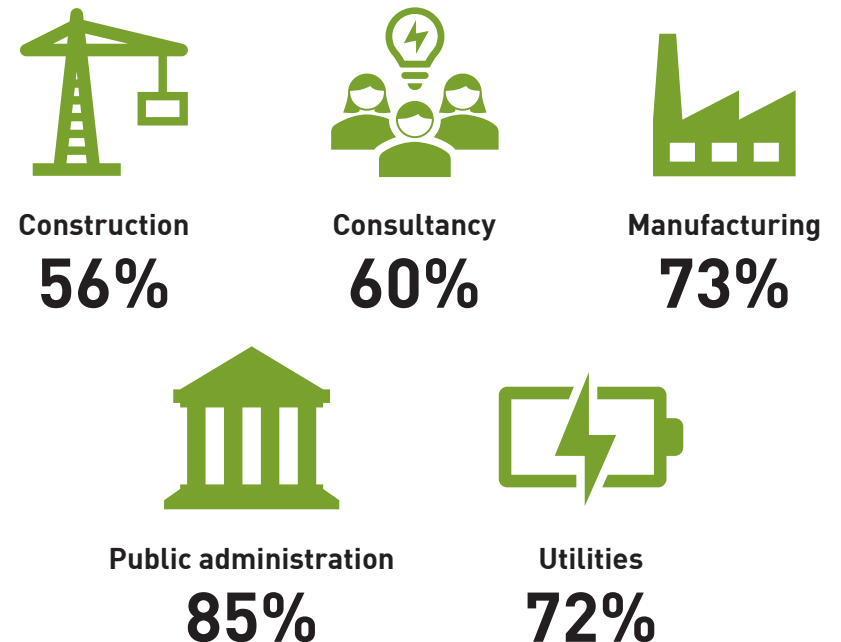
Reported change in salary in the past year

Experience	Decrease	No change	< 2.5% increase	2.5-5% increase	> 5% increase	Any increase
1-2 years	0%	43%	19%	10%	28%	57%
3-5 years	2%	25%	10%	10%	53%	73%
6-10 years	4%	28%	19%	17%	32%	68%
11-15 years	4%	31%	21%	22%	22%	65%
16-20 years	4%	33%	29%	17%	17%	63%
21-25 years	6%	29%	33%	15%	16%	65%
26-30 years	8%	30%	40%	15%	6%	62%
>30 years	8%	28%	41%	16%	8%	65%

Any increase in salary by discipline of engineering



Any increase in salary by engineering sector



Median salary by years of experience and professional title

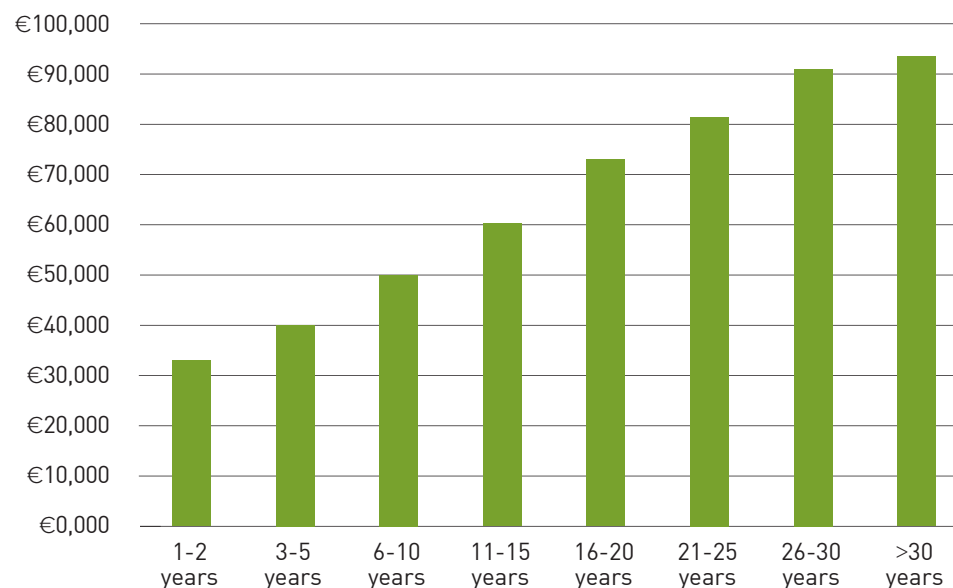
Experience	All members	Member (MIEI)	Chartered Engineer (CEng)	Fellow (FIEI)
1-2 years	€33,000	€32,750	-	-
3-5 years	€40,000	€40,000	-	-
6-10 years	€50,000	€47,000	€53,000	-
11-15 years	€60,250	€60,000	€60,500	-
16-20 years	€73,000	€66,000	€75,000	€93,000
21-25 years	€81,500	€76,000	€82,000	€101,000
26-30 years	€91,000	€84,500	€94,000	-
>30 years	€93,500	€84,500	€88,250	€110,000

Note: The median is the number in the middle when a list of numbers is sorted from lowest to highest. Half of all engineers earn more than the median salary; half of all engineers earn less than the median salary.

A graduate engineer can expect to earn €33,000, rising to approximately €50,000 with 6-10 years of experience. Remuneration levels rise more-or-less consistently with experience and most engineers with more than 30 years of experience earn more than €93,000. Engineers Ireland awards professional titles such as 'Chartered Engineer' and 'Fellow', recognising the career progression, ethical standards and achievements of our members. The value of these professional titles is recognised through increased remuneration.

A Chartered Engineer can expect to earn approximately €5,000 per year more than an engineer without a professional title with the same number of years of experience. While the typical engineer without a professional title with 6-10 years' experience earns €47,000, a Chartered Engineer who graduates in the same year typically earns €53,000. With more than 15 years' experience, Chartered Engineers who become Fellows of Engineers Ireland can expect to earn an additional €15,000-€20,000 per year.

Median salary by experience



The Engineers Ireland Salary Survey 2021 report is an exclusive Engineers Ireland member benefit, available to download from www.engineersireland.ie. This report includes detailed analysis of salaries and other benefits (pensions, bonuses etc.) according to engineering discipline, sector, position, location and more.

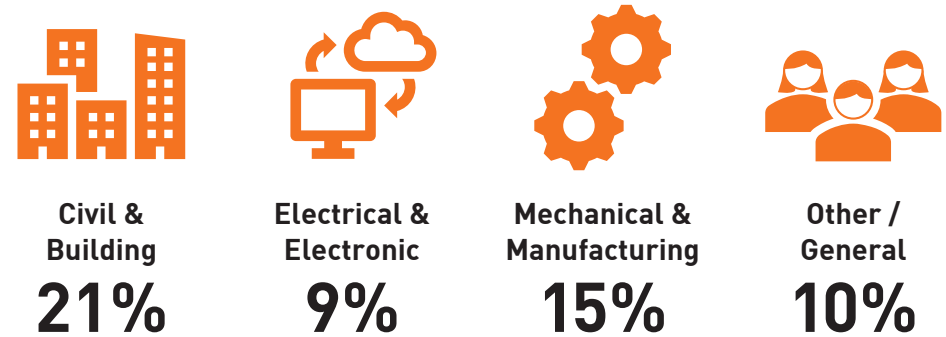
Wage subsidy schemes

Respondents based in the Republic of Ireland were asked whether they had been placed at any stage on the Temporary Wage Subsidy Scheme (TWSS) or the Employment Wage Subsidy Scheme (EWSS). 81% are not in receipt of either wage subsidy while 17% were previously on either the TWSS or the EWSS and 2% are currently on the EWSS (as of January 2021). Almost one-third of engineers with 3-5 years of experience were (28%) or are currently (4%) in receipt of a wage subsidy. Civil and building engineers and those working in consultancy and construction are most likely to have received a wage subsidy. Very few engineers working in utilities and public administration were placed on a wage subsidy scheme.

Respondents placed on wage subsidy scheme by experience

Experience	Never on wage subsidy	Previously on wage subsidy	Currently on wage subsidy
1-2 years	84%	15%	1%
3-5 years	67%	28%	4%
6-10 years	71%	27%	2%
11-15 years	78%	20%	2%
16-20 years	86%	12%	2%
21-25 years	87%	12%	1%
26-30 years	94%	5%	1%
>30 years	94%	5%	1%
All	81%	17%	2%

Previously on wage subsidy by discipline of engineering



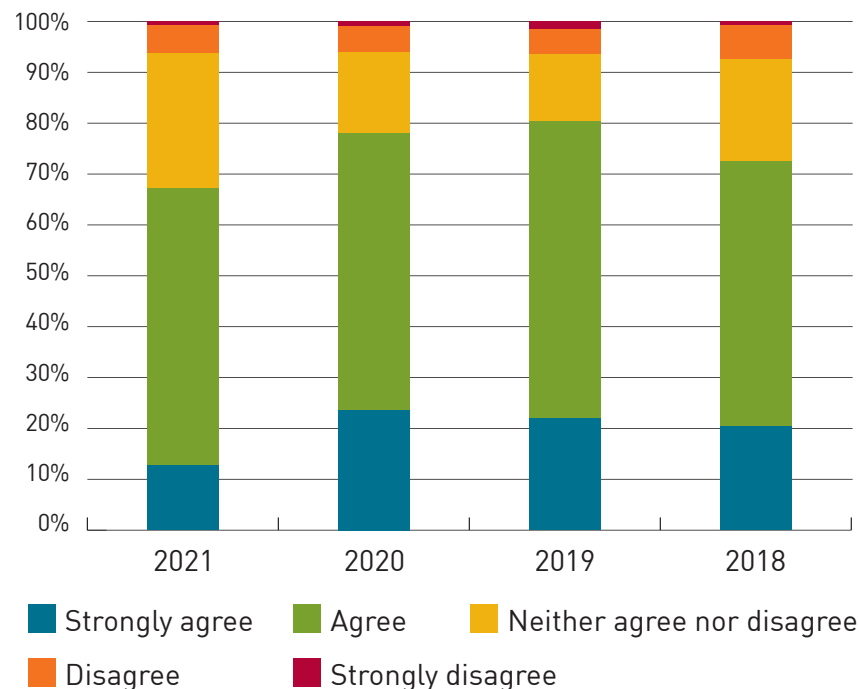
Previously on wage subsidy by engineering sector



Job opportunities

To better understand perspectives on the jobs market, respondents were asked whether they agree with the statement 'there are plenty of job opportunities in the engineering sector in Ireland'. This question was also posed in member surveys over the previous three years. In 2021, 67% agreed that there are plenty of job opportunities, a decline of 11 percentage points. Meanwhile, the proportion agreement neither agreeing or disagreeing rose by 10 percentage points. This highlights some growing uncertainty regarding engineering job opportunities. Engineers with less experience and female engineers are more likely to agree that there are plenty of job opportunities.

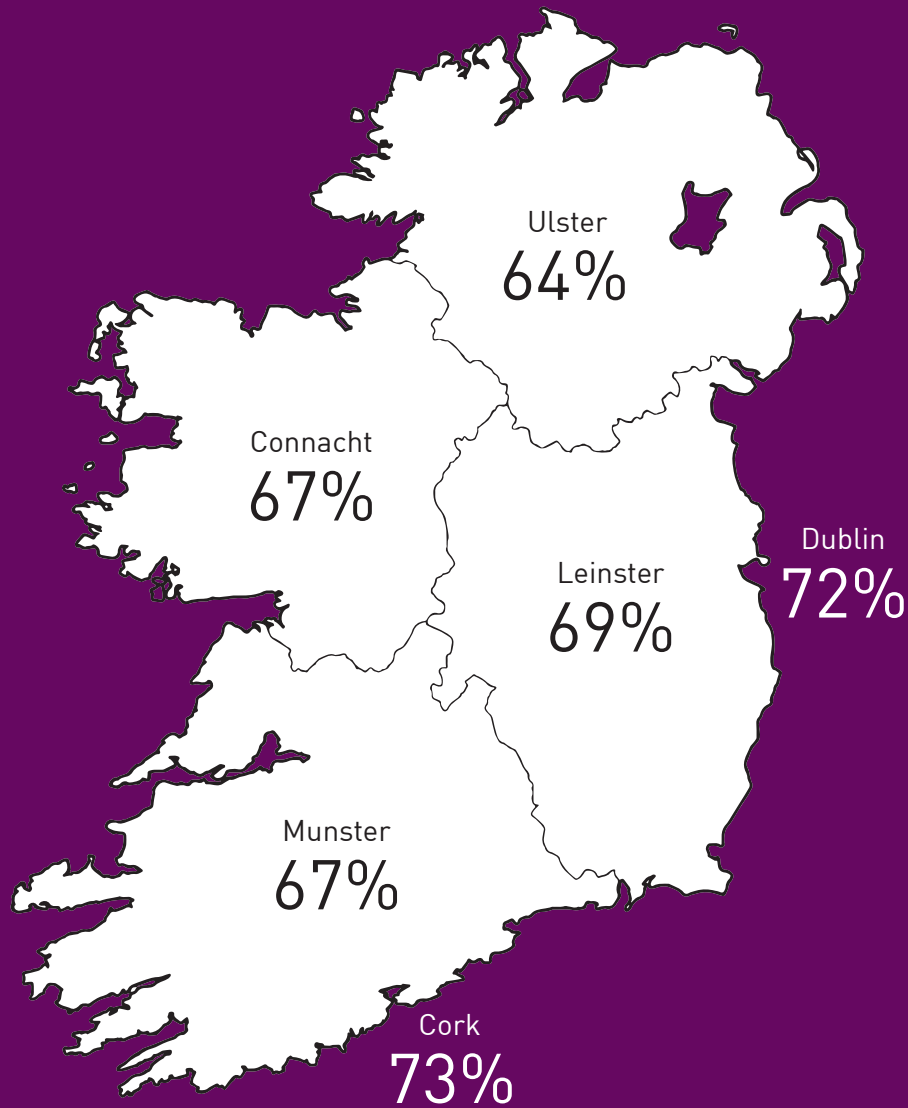
There are 'plenty of jobs in engineering'



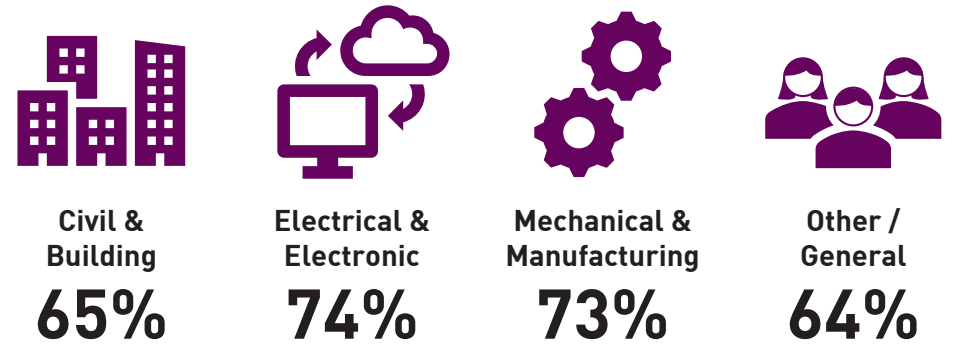
	Agree	Disagree	Neither
Survey year			
2021	67%	6%	26%
2020	78%	6%	16%
2019	80%	6%	13%
2018	73%	7%	20%
Experience			
1-2 years	74%	1%	25%
3-5 years	74%	3%	23%
6-10 years	71%	9%	19%
11-15 years	63%	8%	29%
16-20 years	69%	6%	25%
21-25 years	64%	6%	30%
26-30 years	66%	4%	29%
>30 years	62%	5%	33%
Gender			
Female	71%	5%	24%
Male	67%	7%	27%

The viewpoint that there are plenty of job opportunities is strongest among electrical and electronic engineers, mechanical and manufacturing engineers, those working in manufacturing, and respondents based in Cork and in Dublin. Most overseas respondents selected 'neither agree nor disagree' as the question related to job opportunities in Ireland.

Agreement that there are 'plenty of jobs in engineering' by location



Agreement that there are 'plenty of jobs in engineering' by discipline



Agreement that there are 'plenty of jobs in engineering' by sector



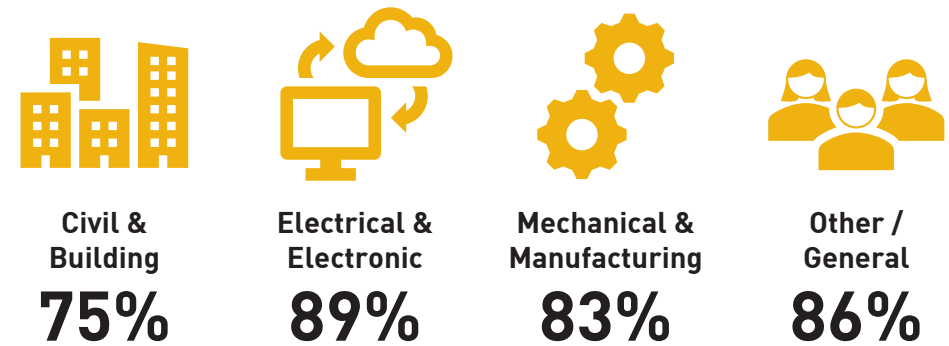
Recruitment plans

To gain an indication of engineering companies' hiring plans for the year ahead, respondents were asked whether their organisation plans to recruit engineers in 2021. The sample was restricted to Directors, Managers and Associates (n = 671) and 'don't knows' were excluded. Overall, 79% of these respondents said that their organisation plans to recruit engineers in 2021. Utilities and public administration are most likely to hire engineers, while organisations and manufacturing and consultancy appear less likely. Electrical and electronic engineering respondents are more confident than civil and building engineering respondents that their organisation plans to recruit. These results do not factor in the quantity of engineering recruits sought; they are an indication of organisations' intention to recruit.

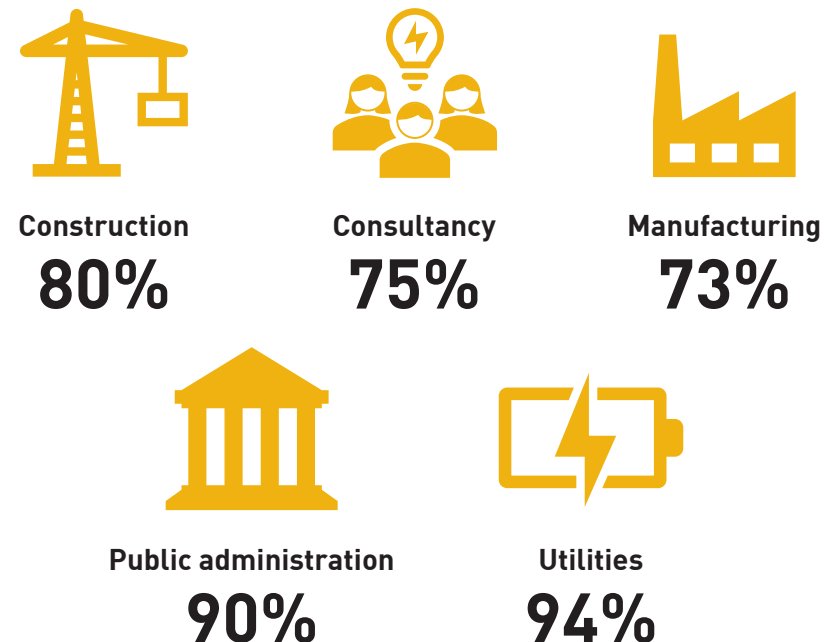
Organisations planning to recruit engineers

	Yes	No
All organisations	79%	21%
Sector		
Construction	80%	20%
Consultancy	75%	25%
Manufacturing	73%	27%
Public administration	90%	10%
Utilities	94%	6%
Discipline (of respondent)		
Civil & Building	75%	25%
Electrical & Electronic	89%	11%
Mechanical & Manufacturing	83%	17%
Other/General	86%	14%

Organisations planning to recruit engineers by respondent discipline



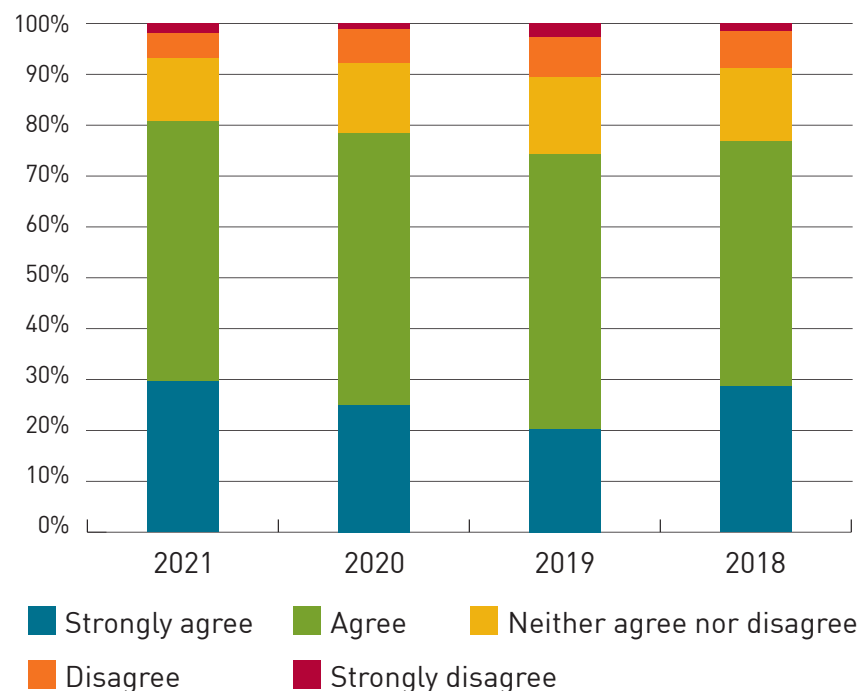
Organisations planning to recruit engineers by sector



Engineering as a career

To benchmark views on engineering as a career, respondents were asked whether they agree with the statement 'engineering is a rewarding career choice for young people'. This question was also posed in member surveys in the previous three years. In 2021, 81% agreed that engineering is a rewarding career; this is the highest level of the past four years. At 30%, 2021 also showed the highest level of 'strongly agree'. The cohort with the lowest level of agreement was those with 11-15 years of experience. Female engineers are more likely to agree that engineering is a rewarding career choice for young people.

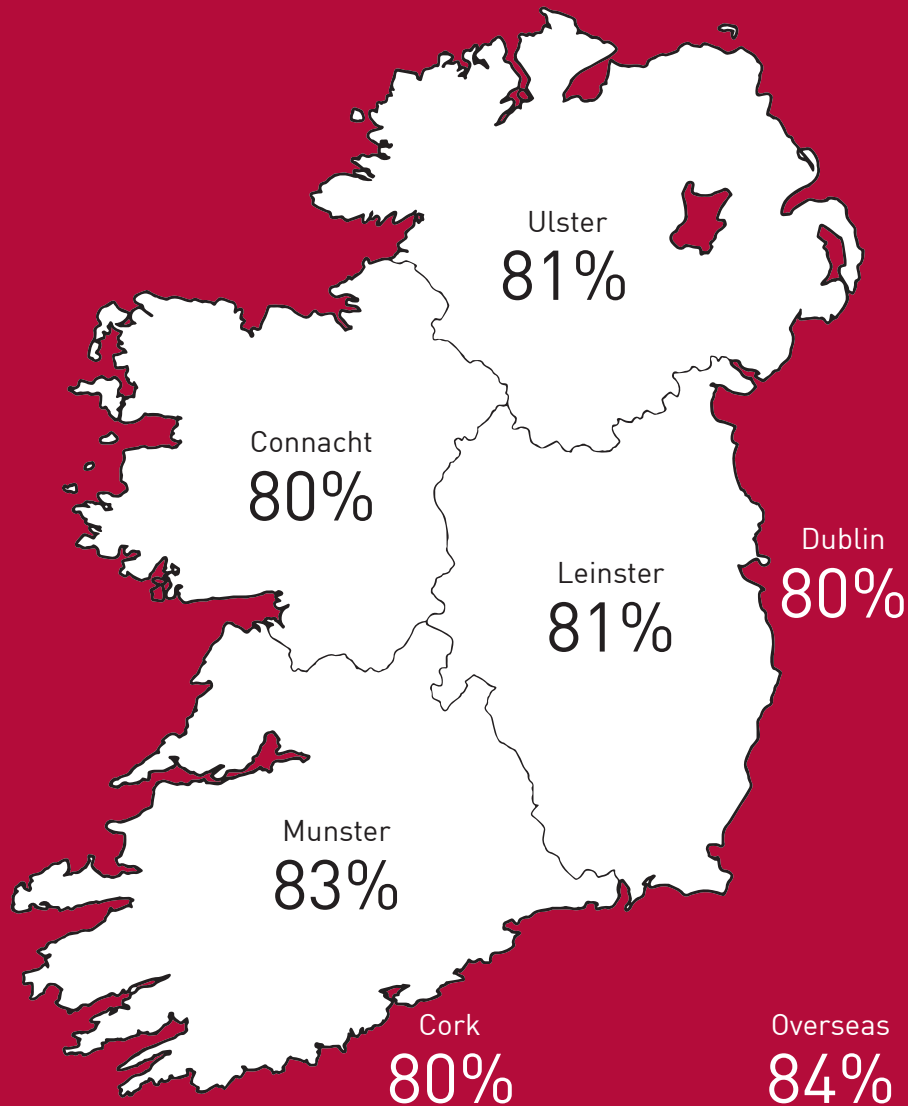
Engineering is a rewarding career choice for young people



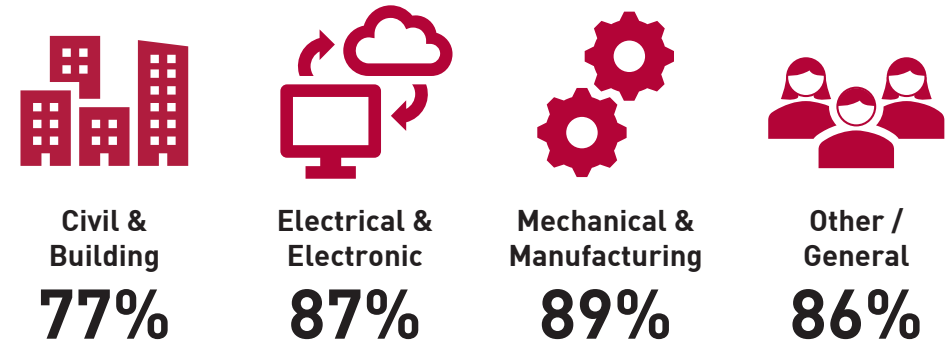
	Agree	Disagree	Neither
Survey year			
2021	81%	7%	12%
2020	78%	8%	14%
2019	74%	11%	15%
2018	77%	9%	14%
Experience			
1-2 years	87%	4%	9%
3-5 years	78%	6%	16%
6-10 years	78%	11%	11%
11-15 years	72%	10%	19%
16-20 years	82%	7%	11%
21-25 years	82%	5%	13%
26-30 years	89%	1%	10%
>30 years	90%	4%	6%
Gender			
Female	84%	5%	12%
Male	80%	7%	12%

Engineering is more likely to be viewed as a rewarding career by mechanical and manufacturing engineers, electrical and electronic engineers, those working in manufacturing and utilities, and respondents based overseas and in Munster.

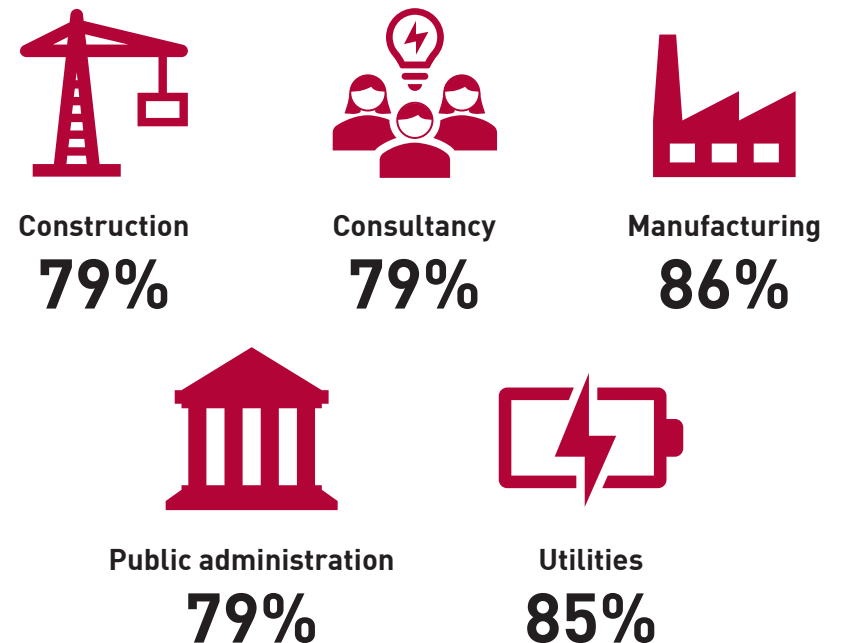
Agreement that 'engineering is a rewarding career' by location



Agreement that 'engineering is a rewarding career' by discipline



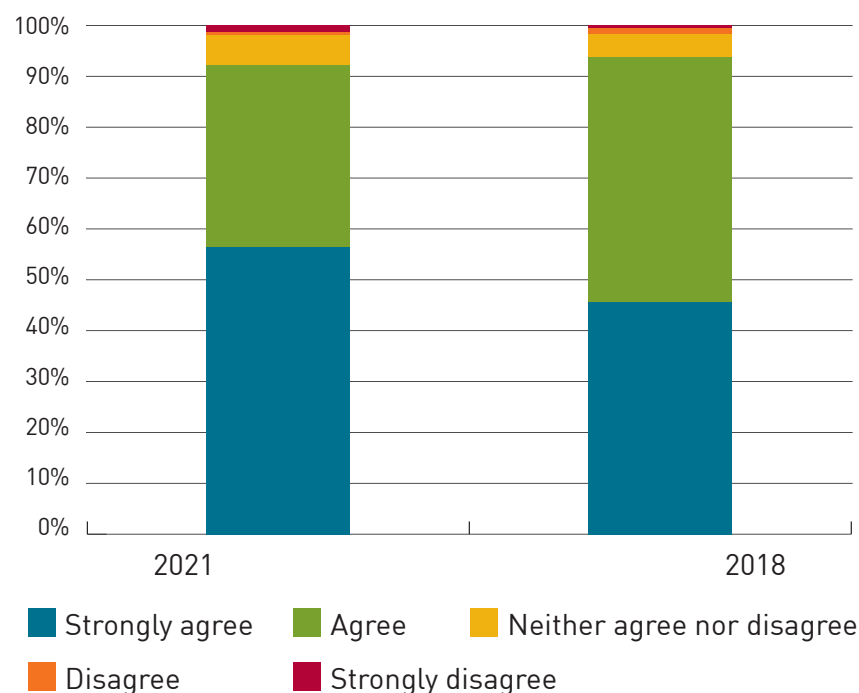
Agreement that 'engineering is a rewarding career' by sector



Engineers in health and safety

To examine views on the importance of engineers in health and safety, respondents were asked whether they agree with the statement 'engineers are essential to reduce risks to public health and safety'. This question was also posed in 2018. In 2021, 92% of respondents agreed; this represents a fall of two percentage points from three years previously. However, there was a 10 percentage point increase in the proportion of respondents strongly agreeing. More experienced engineers (as well as graduate engineers) and female engineers are more likely to agree that engineers are essential to reduce risks to public health and safety.

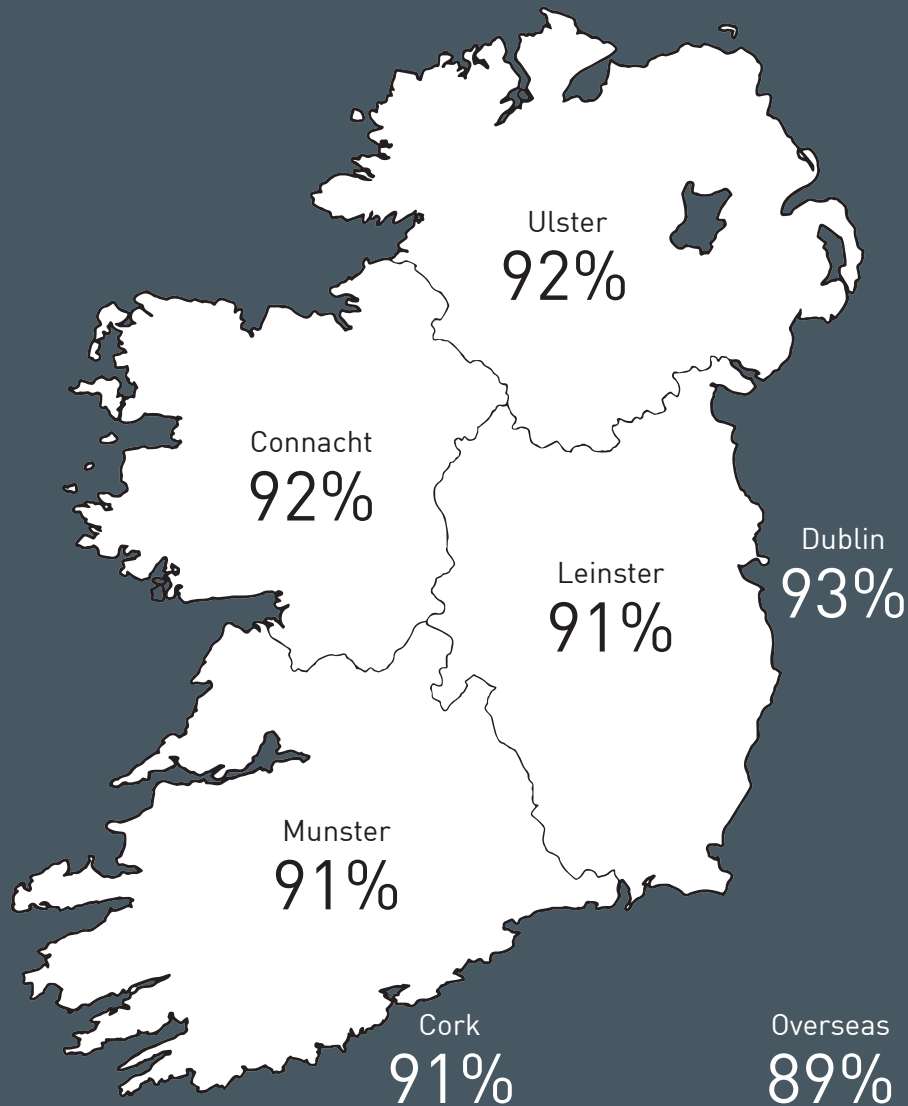
Engineers are essential to reduce risks to public health and safety



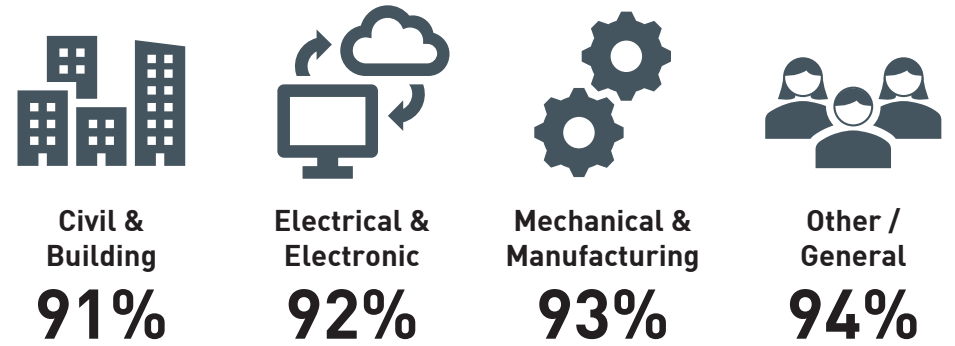
	Strongly agree	Agree	Neither	Disagree	Strongly disagree
Survey year					
2021	56%	36%	6%	1%	1%
2018	46%	48%	5%	1%	0%
Experience					
1-2 years	67%	27%	6%	0%	0%
3-5 years	54%	38%	6%	1%	1%
6-10 years	50%	40%	7%	0%	2%
11-15 years	51%	38%	7%	3%	1%
16-20 years	50%	44%	5%	0%	1%
21-25 years	65%	28%	6%	0%	0%
26-30 years	60%	32%	6%	1%	1%
>30 years	68%	27%	4%	0%	1%
Gender					
Female	61%	30%	6%	1%	2%
Male	56%	37%	6%	1%	1%

More engineers working in utilities than those in the construction sector are of the view that engineers are essential in health and safety, although there are similarly high rates of agreement across the engineering sectors, disciplines and respondent locations.

Agreement that 'engineers are essential to reduce risks to public health and safety' by location



Agreement that 'engineers are essential to reduce risks to public health and safety' by discipline



Agreement that 'engineers are essential to reduce risks to public health and safety' by sector



Conclusion

Engineers and engineering organisations across the various economic sectors demonstrated great resilience throughout the very challenging year of 2020. The results presented in this report show that the profession remains robust in terms of remuneration, job opportunities and outlook.

Remuneration steady

One-in-five engineers was placed on a wage subsidy scheme at some point in the past year (falling to 2% in January 2021), suggesting that engineering organisations did not experience significant declines in revenue during 2020. While civil and building engineers and those working in construction and consultancy were more impacted than the average engineer, the proportion on a wage subsidy scheme did not exceed 25%. This compares favourably with the generally high rates across construction (50% of employees) and professional, scientific and technical activities (37%). In fact, two-thirds of engineers increased their salary in the past year and just one-in-twenty reported receiving a pay cut.

Junior engineers remain positive

Junior engineers and those with up to five years of experience were more likely than their senior colleagues to be negatively impacted by the pandemic. Approximately one-quarter of junior engineers said that their career had stalled, and a similar proportion were in receipt of the wage subsidy at some point. Nevertheless, junior engineers remain positive about the engineering profession: more than 80% agreed that engineering is a rewarding career for young people and 74% said that there are plenty of job opportunities.

Recruitment outlook for 2021

There are currently plenty of job opportunities in the engineering sector in Ireland, according to two-thirds of respondents, although there is understandably some more uncertainty than at this time last year. These opportunities appear to be most visible to junior engineers and those living in Cork and Dublin. Engineering directors and managers are confident about growth in their organisations in 2021 with 79% planning to recruit engineers. Utilities (which include electricity, water, gas and telecommunications) intend to expand their engineering workforces in the year ahead with 94% of these companies looking to hire engineers.

An essential and rewarding career

The pandemic has provided an opportunity to reflect on public health and safety and essential areas of work. Engineers across all sectors, disciplines and demographics see their role in protecting society with more than 90% stating that engineers are essential to reduce risks to public health and safety. There has been a substantial rise in the number of engineers strongly agreeing with this perspective over the last three years.

This role in public health and safety is one aspect of what makes engineering a rewarding career. More than 80% of engineers are of the view that engineering is a rewarding career for young people today. Of the four annual Engineering reports, this indicator is at its highest this year. Female engineers, mechanical and manufacturing engineers and junior engineers are the most positive about engineering as a career.

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