



Employment Opportunities and Future Skills Requirements for Surveying Professions

2018-2021

Dr. Róisín Murphy

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FOREWORD

Surveying professions are in the midst of a period of rapid transformation arising from strong recovery following deep and prolonged recession. Numerous exciting opportunities are on the horizon for surveying professionals driven by innovative ideas, projects and methods in addition to disruptive technologies changing the way construction, property and land surveyors perform their function within the built environment. A critical consideration lies with the capacity of the existing labour market to meet the demand for surveying professionals.

Expanding significantly on an SCSi report from 2014, this research on ‘Employment Opportunities and Skills Requirements for Construction, Property and Land Surveying, 2018-2021’ report projects employment levels within the sector over the next four years in contrast to the numbers currently enrolled on third-level surveying programmes. In addition, the report identifies key sectors for employment growth and the requisite skills requirements for the period.

The report, undertaken by an independent researcher, is based on the participation of over 400 SCSi member construction, property and land practices. Additionally, third level education providers contributed in the determination of the future supply of surveying professionals over the time period in question.

The report provides unique insight into an industry in a period of transformation, an industry ripe for disruption, innovation and opportunity; reflected by emerging growth sectors and skills requirements that indicate changing market needs, both at home and internationally.

With the pace of change and innovation in our industry and in society in general, it is more important than ever that we continue to ensure that surveyors are highly educated, highly trained and agile in their approach to work.

While numbers coming into third level construction, property and land surveying programmes are increasing, the challenge facing the professions continues to be the shortage of qualified surveyors.

It is clear that the new generation of surveyors will be well placed to take advantage of growing domestic and international employment opportunities. It is imperative that we continue to encourage increased diversity and overall numbers of people into surveying professions.

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EXECUTIVE SUMMARY AND KEY FINDINGS

This report was commissioned by the Society of Chartered Surveyors Ireland (SCSI) to gain industry insight into current and future employment opportunities and skills requirements for construction, property and land surveying professionals. The report is a follow-up to the 2014 SCSI report “Employment Opportunities and Future Skills Requirements for Construction and Property Surveyors”, in which a significant shortage of qualified surveying professionals was identified. Since the 2014 report, the industry and economic landscape has changed significantly, and while many opportunities exist with FDI, several sectors are still suffering from under-investment during the downturn, particularly evident within the infrastructure and residential sectors.

Ongoing limitations in the nationally available data relating to surveying employment gave rise to the need to undertake a comprehensive analysis of the sector, given the importance of surveying professionals within the built environment. The current report involves SCSi member practices where a single informant from every member firm was invited to participate in an online survey pertaining to current employment, drivers of and constraints to employment growth and likely future employment. Future employment estimates were derived based on three scenarios of annual economic growth, optimistic (4%), median (3%) and pessimistic (2%). It is more likely that growth will take place around the median; however, the optimistic rate is demonstrative of what may happen if growth occurs at a faster pace than forecast by the Department of Finance.

To determine the future supply of surveyors, data was collected from every third level institution nationwide currently offering surveying programmes. Typically, a surveying degree takes four years to complete; therefore, it is the basis for determining the supply of surveying graduates between 2018-2021.

Using demand projections from employers and supply of graduates from third level institutions, the market for surveyors at every level nationwide is analysed. It is assumed that as positions become vacant for experienced (post APC) surveyors that resultant vacancies will be filled by more junior staff, thus creating opportunities for graduates.



KEY FINDINGS

- Over the last four years there has been a notable **increase in employment across every surveying profession**, which, in most instances has exceeded the estimate conveyed in the 2014 SCSi “Employment Opportunities and Future Skills Requirements” report.

Surveying Group	Additional Employment 2014-2018
Quantity Surveying	1,154
Building Surveying	66
Property Surveying	1,320
Land Surveying	84
Total Additional Surveying Employment	2,624

- Considerable demand for construction, property and Land Surveyors at every level of experience is predicted between 2018-2021, which is particularly pronounced at the post-APC level of experience. Based on the median scenario of economic growth, it is likely that there will be **demand for an additional 3,739 surveying professionals** across surveying disciplines.

Surveying Group	Number of Additional Staff Projected 2018-2021
Quantity Surveying	1,652
Building Surveying	210
Property Surveying	1,640
Land Surveying	237
Total Additional Staff Projected	3,739

- Enrolment on third level surveying programmes has increased since 2014.

Third Level Programme Area	Current (2018) Enrolment
Quantity Surveying	853
Building Surveying	93
Property Surveying	530
Land Surveying	101
Enrolment on Surveying Programmes	1,577

- Given the projected demand for surveyors confirmed by survey respondents, and based on current enrolment on third level surveying programmes nationwide, **graduate output will be insufficient to meet future demand** for surveying professionals.

Surveying Group	Projected Shortage 2018-2021
Quantity Surveying	799
Building Surveying	117
Property Surveying	1,110
Land Surveying	136
Projected Shortage 2018-2021	2,162

5. **Lack of supply of suitably qualified surveying professionals** is the primary constraint to employment growth, and is likely to continue to put upward pressure on wage levels and ultimately tender price inflation.
6. **Consumer sentiment and indigenous private sector investment** are counted as the major drivers of surveying employment to 2021. The domestic economy is likely to provide the impetus for employment growth across surveying professions, while participants remain undecided regarding the impact of Brexit.
7. **Information technology** is transforming the way construction, property and land professions work. 3D modelling, augmented and virtual reality, BIM adoption and other disruptive technologies are changing the way in which we collect spatial information, design, build and manage our built environment, with a more holistic approach to asset management from inception to operation. There is an urgent need to **invest in digital skills development** to ensure that surveying professions remain at the forefront of the technological transformation.
8. Participants recognise the need for greater **diversity** in the workforce across construction, property and land surveying professions. The potential organisational benefits of gender, age, and cultural diversity remain under-realised within the professions. The **promotion of surveying** as a dynamic, varied and technology-driven sector with domestic and international career opportunities is vital to attract and retain suitable people.
9. Ongoing **collaboration** between education providers, industry and professional bodies is critical to attract, retain and develop surveying professionals into the future. A collaborative approach to enhancing the public profile of surveying professions in construction, property and land sectors is required to ensure that surveying is at the forefront of consideration in the public and private built environment sectors alike.
10. There is a growing need to provide **advanced surveying qualifications** and management development for senior surveyors. Significant demand for senior (post APC) surveying staff is predicted, requiring suitable education and training options to be made available in this regard.
11. Stakeholders should encourage Government to more fully recognise the importance and contribution of surveying services to the economy and built environment as a whole. Support for the development of the profession through **investment in the third-level education**, in line with other areas of activity e.g. Science, Technology, Engineering and Mathematics (STEM) is required.

INTRODUCTION

BACKGROUND

The 2014 SCSi report “Employment Opportunities and Future Skills Requirements for Construction and Property Surveyors” forecasted a skills gap across surveying professions up to 2018. The gap was determined by comparing the forecasted demand for surveying professionals within member practices (demand) against enrolments on third level surveying programmes (supply). Estimates were made based on three scenarios of economic growth, which at the time were deemed to be conservative.

Since the 2014 report, the economic environment has improved considerably and growth has occurred at a faster pace than predicted at the time; however, this has not occurred at a consistent rate across all sectors. Years of under-construction in housebuilding has impacted the capacity of the market to meet demand and consequently house prices and residential rents have continued to increase whilst the homeless crisis remains at a critical level. Lack of government

capital expenditure during the recession has also resulted in a deficit in infrastructure nationwide, however some sectors, for example offices, have performed well resulting from Foreign Direct Investment (FDI).

The regulatory context has also changed with the Construction Contracts Act and Building Control (Amendment) Regulation (BCAR) coming into effect in addition to the registration of title requirements for both Quantity Surveyors and Building Surveyors. Property professionals are now required to become licensed by the Property Services Regulatory Authority (PSRA), and with that the need to attain a minimum standard of education.

At the time of the earlier report, a shortage of surveying professionals was forecast due in part to the severe reduction in number of people enrolling onto related third level programmes. Since the earlier report there has been an increase in admissions onto surveying programmes and part of the objective of this report is to determine if the increased enrolment is now sufficient to meet demand.

The backdrop to the current report is that of projected positive economic growth, reducing unemployment and low inflation, as may be seen in Table 1.1:

	2017	2018	2019	2020	2021
Consumer Expenditure	2.3	2.3	2.2	2.1	1.9
Investment Expenditure	-3.7	6.1	5.6	4.2	3.8
Exports	3.5	4.8	4.3	4.0	3.8
Imports	-1.0	5.5	4.9	4.4	4.2
GDP	4.3	3.5	3.2	2.8	2.6
GNP	0.0	3.3	3.0	2.5	2.3
Unemployment Rate	6.3	5.7	5.5	5.5	5.5
Consumer Inflation (HICP)	0.2	0.8	1.4	1.8	1.9

Table 1.1: Forecast of Key Macroeconomic Indicators Department of Finance Budget 2018



While all the key domestic indicators are positive, underpinned by strong employment growth, consumer spending and the recently announced National Planning Framework (NPF) 2040¹ and with that, the proposed ten year €116bn expenditure within the National Development Plan (NDP), a critical uncertainty remains with the potential impact of Brexit.

The decision by the UK in June 2016 to leave the European Union has a significant impact on the Irish economy. However, until the exit strategy has been determined, the full effect remains unknown. It is reasonable to conclude that potential downside risks relating to trade and exchange rate fluctuations may occur, however, opportunities lie with the relocation of some businesses from the UK to Ireland, which is likely to have a positive impact on the commercial sector in particular. Additionally, it is possible that workers who emigrated to the UK during the recession may return to Ireland; however it is difficult to predict precise figures in this regard.

Another key consideration lies with changing demographic trends. An increase of nearly one million people by 2040 has been forecast by the ESRI and with that brings many opportunities and challenges for our built and natural environment. Our growing and aging population requires careful consideration in spatial planning and resource use, and surveying professionals will play a leading role in enabling and delivering the

National Strategic Outcomes specified in the NPF.

The future for surveying professionals is an exciting one, with numerous domestic and international opportunities for talented people to shape the future of the built environment within which we live and work. Digitisation and globalisation are changing the nature of businesses both within and for the built environment in terms of the nature of service provision and the expectations of consumers. We must also ensure that the sector has the capability to keep up with the pace of population change and urbanisation.

Limitations in the determination of surveying labour market trends in national data remain due to the aggregation of surveying with other industry professionals, thus determining the impact of economic and industry developments on surveying profession employment is fraught with difficulty.

This report was commissioned by the SCSi for the purposes of determining employment opportunities and future skills requirements across all surveying professions in Ireland between 2018 and 2021.

The report was undertaken by an independent researcher and the findings reported herein are derived from the participation of current members of the SCSi.

SCSi MEMBERSHIP

SCSi membership is classified over three broad areas of surveying,

namely construction, property and land; each of which incorporate

several areas of specialism as detailed in figure 1.1

Construction Surveyors	Property Surveyors	Land Surveyors
<ul style="list-style-type: none"> Quantity Surveying Building Surveying Project Management Surveying 	<ul style="list-style-type: none"> Commercial Agency Property and Facilities Management Valuation Residential Estate Agency Rural Agency Arts and Antiques 	<ul style="list-style-type: none"> Geomatics Surveying Minerals Surveying Planning and Development Surveying Rural Surveying

Figure 1.1: SCSi Professional Groups/Practice Areas

¹ Project Ireland 2040 National Planning Framework, Government of Ireland

SCOPE OF THE REPORT

Due to the aggregation of surveying with other professional services in the nationally available data, there remains a lack of information available pertaining specifically to surveying professions. The report was commissioned for the purposes of determining the current employment trends and requirements relative to the supply of qualified surveying professionals.

The economic landscape has changed since the 2014 report, and some evidence suggests that the demand for surveyors increased at a faster pace than projected. At the same time, the shortage of surveying graduates due to declining student numbers during the economic downturn has recovered to the extent that enrolment onto third level surveying programmes has increased.

The extent to which the demand for surveyors is met by current supply remains unknown given the aforementioned limitations in the nationally available data. The aim of the research is to ascertain the likely demand for and supply of surveying professionals across all surveying practice areas represented by the SCSi nationwide between 2018 and 2021. Construction, Property and Land Surveyors provide substantially different services; however many commonalities are evident in the factors driving demand for surveyors and indeed in the constraints to surveying employment growth.

The report covers the Republic of Ireland, and involved participants that are current SCSi members. Data was collected from each of the three main categories, construction, property and land surveying. A detailed analysis of the methodological approach to the research is provided in chapter 2.

STRUCTURE OF THE REPORT

The report has been structured in a manner that allows the reader to focus on the surveying profession most relevant to them. Every chapter is divided into three main sections relating to construction surveying, property surveying and land surveying.

Chapter 2

details the methodology employed for the collection, collation and analysis of the data for the purposes of the report.

Chapter 3

contains the results relating to employment trends in surveying firms. Details pertaining to current staffing at various levels of experience are outlined prior to an estimation of future demand at each level being determined. Future demand is projected based on three possible scenarios of economic growth.

Chapter 4

provides an overview of the current enrolment on third level surveying programmes nationwide as a mechanism to estimate future supply of qualified surveyors. A comparative analysis of student enrolment between 2014 and 2018 is presented in addition to key considerations for third level surveying education provision.

Chapter 5

brings together the findings from the previous two chapters to determine the extent to which future supply of qualified surveyors meets demand. Additionally, future skills needs across each of the professions are outlined.

Chapter 6

draws conclusions and presents a number of recommendations based on the findings of the research.



METHODOLOGY

A mixed methods research strategy was adopted for the purposes of the research involving three phases as outlined in figure 2.1

Phase 1	Phase 2	Phase 3
Online Survey	In-depth semi-structured interviews	Student enrolment on surveying programmes

Figure 2.1 Research Strategy

For the purposes of the research, data was collected from three main sources, namely SCSi Member practices via an online survey, interviews with industry stakeholders, and enrolment data from providers of SCSi accredited third level surveying qualifications.

Phase 1 involved a widespread industry survey which was distributed to a single “key informant” from each SCSi member practice to determine the likely future demand for surveying professionals over the timeframe, based on three possible scenarios of economic growth.

Semi-structured interviews formed the basis of phase 2. A number of key industry stakeholders agreed to

participate in an interview such that further depth of understanding of factors shaping employment could be established.

For the final phase of the research, data was collected from each third level institution currently providing SCSi accredited surveying programmes. The information was collated such that the overall number of enrolments across every year was determined as a measure to ascertain the likely future supply of graduate surveyors over the timeframe in question.

The following sections provide further detail pertaining to each phase of research.

QUANTITATIVE PHASE

A senior person within each SCSi member practice was identified as the key informant, as they are deemed to be the most appropriate person to be aware of likely future employment within the company. Selecting only one informant eliminated the risk of double counting in the forecasting of future employment. Over 70% of respondents were a Director/Partner or Principal of the company.

The survey instrument was pilot tested with stakeholders representing the construction, property and land surveying professions, and the main online survey was administered during Quarter 1 2018.

Respondents were asked to provide employment projections for the period 2018-21 based on three scenarios. In order to ensure consistency in interpretation of the meaning of the different scenarios, it was decided to use a macroeconomic indicator rather than sector-specific indicators. The most easily understood measure of economic performance is growth in GDP on an annual basis. Therefore, this was used as the metric on which the three scenarios were based. GDP growth projections were based on Department of Finance, Budget 2018 forecasts.

Limitations in the use of GDP as a measure of economic performance in Ireland due to the potential distorting impact of international firms is acknowledged, however GDP remains widely used for comparative purposes across most sectors within the Irish economy. Furthermore, the continued use of GDP as a benchmark permits comparison of findings from the current to the 2014 report.

Based on current economic forecasts to 2021, a low, medium and high growth estimate was determined. The median GDP forecast of 3% pa is in line with the Department of Finance forecast, and thus is used as the focal point for the report

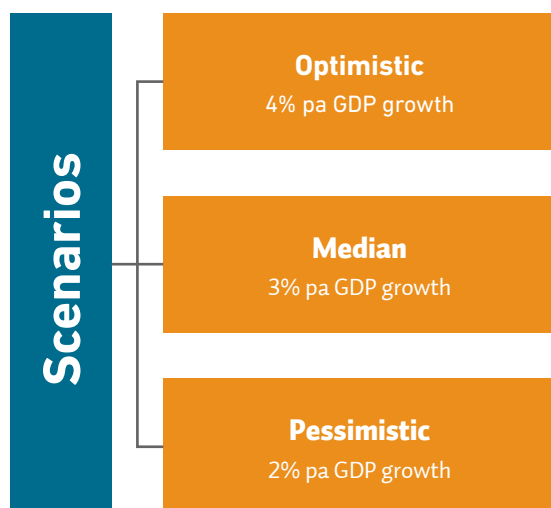


Figure 2.2 Economic Growth Scenarios

Derivation of population estimates from sample results

The survey data was analysed by practice area. The employment estimates were grossed up from the sample results based on the response rates for each practice area. The response rates and the consequent grossing-up factor (multiplier) are shown in tables 2.1 – 2.5.

Quantity Surveying Practice Area	
Total number of firms	422
Individuals opted out of survey	13
Sample for research	409
Total number of survey respondents	115
Total number of usable responses	104
Quantity Surveying Practice Area Response Rate	25%

Table 2.1 Quantity Surveying Practice Area Response Rate

Building Surveying Practice Area	
Total number of firms	89
Individuals opted out of survey	0
Sample for research	89
Total number of survey respondents	35
Total number of usable responses	34
Building Surveying Practice Area Response Rate	38%

Table 2.2 Building Surveying Practice Area Response Rate

Property Surveying Practice Area	
Total number of firms (property surveying)	832
Individuals opted out of survey	16
Sample for research	816
Total number of survey respondents	202
Total number of usable responses	186
Property Surveying Practice Area Response Rate	23%

Table 2.3 Property Surveying Practice Area Response Rate

Land Surveying Practice Area	
Total number of firms	75
Individuals opted out of survey	1
Sample for research	74
Total number of survey respondents	30
Total number of usable responses	29
Land Surveying Practice Area Response Rate	39%

Table 2.4 Land Surveying Practice Area Response Rate

As is evident from tables 2.1-2.4 the response rates obtained varied considerably across practice areas, not least because of varying size of practice area. The two larger practice areas, i.e. Quantity Surveying and Property Surveying had response rates (25% and 23% respectively) considerably lower than the smaller practice areas of Building Surveying and Land Surveying (both just below 40%).

Consequently, in making estimates for the population as a whole, different multipliers were used for each practice area as outlined in table 2.5.

Practice Area	Response Rate	Multiplier*
Quantity Surveying	25%	4
Building Surveying	38%	2.5
Property Surveying	23%	4
Land Surveying	39%	2.5

Table 2.5 Multiplier Used per Practice Area

*The multipliers used for Property Surveyors, Building Surveyors and Land Surveyors are lower than the response rate would yield ($1/0.23 = 4.35$, $1/0.38 = 2.63$, $1/0.39 = 2.56$). However it was deemed appropriate to reduce the multiplier to avoid overestimating projected future growth. The multipliers of 4 and 2.5 used are slightly lower than the figures above and therefore slightly conservative.

Within the Quantity and Land surveying practice areas, a small number of large firms responded to the survey therefore their employment estimates are considered “outliers”. In order to derive a more realistic employment estimate, a lower multiplier was used for this cohort of practices to reduce the probability of data distortion. While this results in a lower projected figure the author considers it appropriate to err on the side of conservatism rather than potentially overestimate future demand.

The majority of SCSi members are based in the Republic of Ireland, although several members are involved in international projects.

Respondents to this research confirmed their location which is illustrated in figure 2.3 (please note that the map below does not include the 13% of respondents that have multiple locations).

As can be seen from figure 2.3, while a large proportion of members have a base in Dublin (which follows national economic activity trends), there are opportunities for surveying professionals nationwide.

- A - 7%
- B - 40%
- C - 5%
- D - 4%
- E - 7%
- F - 7%
- G - 7%
- H - 10%

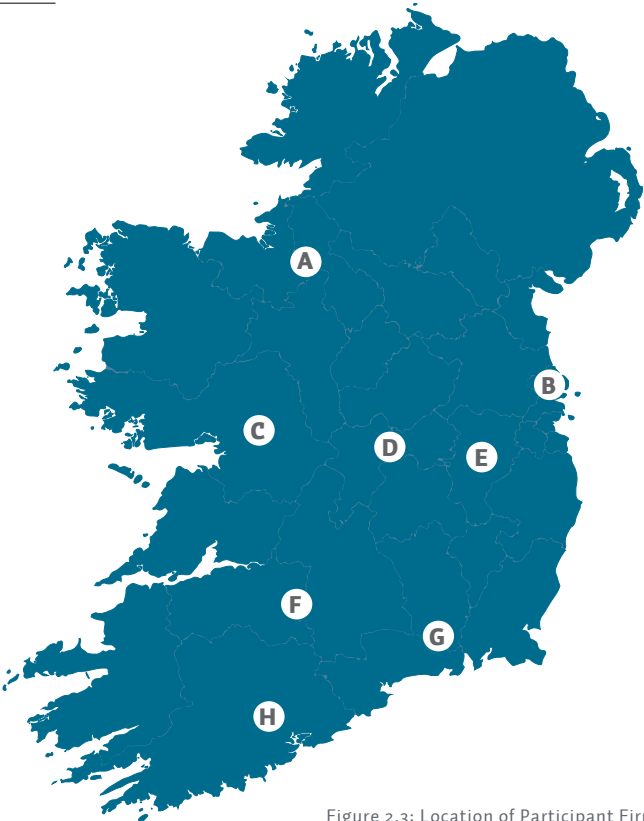


Figure 2.3: Location of Participant Firms

QUALITATIVE PHASE

The second phase involved in-depth semi-structured interviews with various industry stakeholders across construction, property and land practices nationwide.

The content of each interview mirrored that of the questionnaire used in phase one, and broadly covered the following issues

- Factors shaping current employment (economic, environmental, sectoral)
- Drivers of surveying employment growth
- Constraints to surveying employment growth
- Surveying skills requirements
- Graduate skill level

The qualitative phase provides deeper insight into the issues currently facing the professions but also in forecasting future employment and skills requirements.

THIRD LEVEL EDUCATION PROVIDERS

Third level surveying programmes are offered in Institutes of Technology (IoT's) all over Ireland. Every IoT in the country currently offering SCSI accredited surveying programmes participated in the third phase of the research.

In an attempt to forecast the future supply of surveying graduates, and on the basis that it typically takes four years to complete a surveying qualification, current enrolments on surveying programmes was used to approximate future surveying labour supply.

It should be noted that it is assumed that vacancies for experienced surveyors are likely to be met with internal recruitment, recruitment from other firms or indeed from surveying professionals returning from abroad. As surveyors progress to higher levels, vacancies will arise at lower/graduate levels, highlighting the importance of determining graduate output.

Each IoT provided details pertaining to current enrolments which were aggregated for the purposes of the report. It is acknowledged that not every student currently enrolled on a surveying programme will complete it in full, however the numbers are likely to be small and the data is not adjusted to reflect this.



SUMMARY

The findings from each of the three phases of research are presented in the following chapters.

Commencing with an analysis of current and future employment trends as confirmed by SCSi member firms (demand for surveyors), followed by an overview of current enrolments on third level surveying programmes (graduate supply) and finally by determining whether there is sufficient supply to meet demand. Information gathered through the qualitative phase is used throughout the report.





EMPLOYMENT: CURRENT AND FUTURE DEMAND FOR SURVEYORS

This chapter provides an overview of the current trends in employment across construction, property and land surveying professions in Ireland.

Employment trends and factors shaping trends are analysed for each of the specific surveying professions, however there are many national indicators that impact activity across all of the surveying professions including (but not limited to):

- Business sentiment
- Consumer expenditure
- Consumer sentiment
- Employment/unemployment
- Government Capital Expenditure
- Housing commencement/completions
- Interest rates
- Mortgage Approvals/Drawdowns
- Residential House Price Index
- Taxation returns: Corporation Tax and VAT

Other significant issues that will impact the construction, property and land sectors are presented in figure 3.1

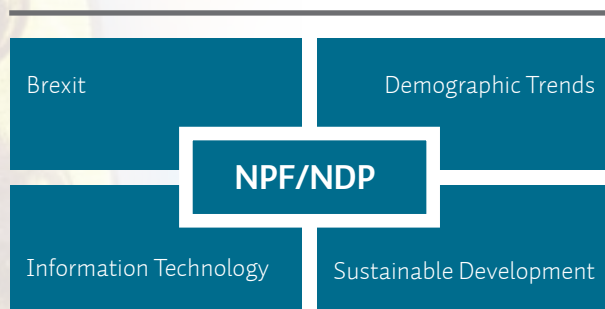


Figure 3.1 Factors Shaping the Future of Built Environment Activity

The analysis in this research is undertaken against the backdrop of these major factors shaping our built and natural environment. The analysis is also undertaken in the context of other SCSi research publications including:

- SCSi Annual Residential Review and Outlook Report 2018
- SCSi/RICS Commercial Property Monitor Q3 2017
- SCSi Remuneration and Benefits Report 2017
- SCSi The Real Cost of Apartment Delivery
- SCSi The Real Cost of New Housing Delivery
- SCSi Tender Price Index 2017

The focus of this chapter is on current and future employment opportunities arising from industry and national activity, and not on a sectoral review and outlook.

Survey data is used to determine current employment requirements for each category of surveying. The key drivers and constraints to employment growth are outlined in addition to a determination of the sectors likely to drive employment for surveyors. Where relevant, information obtained from the qualitative phase is used to support or clarify dynamics shaping the trends presented.

Each section contains projected future demand for surveying employment based on three scenarios of annual economic growth, optimistic (4%), median (3%) and pessimistic (2%). The optimistic scenario is presented for information purposes in the eventuality that growth occurs as a faster pace, however, the median scenario is the most closely aligned to that of Department of Finance forecasts and thus is the focus of analysis.

CONSTRUCTION SURVEYING

Economic and Employment Context

The construction industry is currently on a growth trajectory following a deep and lengthy recessionary period which resulted in almost a decade of under investment. The sector as a whole is now in catch-up mode.

For an economy the size of Ireland, based on demographic trends and existing stock, it is generally accepted that the economy could sustain a construction sector to the value of 10%-12% of GNP. It is currently estimated to account for 7.5% of GNP².

Recovery has not occurred at the same pace across construction sectors. Commercial office construction has been reasonably robust, driven particularly by FDI, but the infrastructure and residential sectors have not kept pace with demand. A decade of under investment coupled with demographic pressure has resulted in significant deficits across these sectors.

The recently launched National Planning Framework (NPF) 2040 and National Development Plan (NDP) 2018-2027, have been developed in order to address the deficits while addressing the challenges posed by uneven development across the country, demographic trends (increasing and aging population in particular) and uncertainties arising from Brexit. The proposed €116bn expenditure over the life of the NDP will undoubtedly boost the construction sector,

however it remains to be seen whether the construction labour market has the capacity to meet the additional demand.

Information Technology (I.T) skills are more important than ever going forward. The Irish government's BIM strategy and subsequent roadmap for BIM adoption is a clear indicator of the digital future of the construction sector. Further research is needed to determine the precise extent of BIM adoption and digitization in construction firms nationwide.

Construction employment is measured by the Central Statistics Office (CSO) however the data collected pertains to direct (on-site) employment using the European NACE Rev 2 category F classification.

Employment in construction professional services, such as Quantity Surveying, is aggregated with other professionals, such as Architectural Technology, therefore less easily determinable. It is generally accepted, however, that construction professional services (including construction surveyors) account for an additional 40% of total direct employment.

Trends in construction employment over the last decade are presented in figure 3.2

Construction Employment (000's)

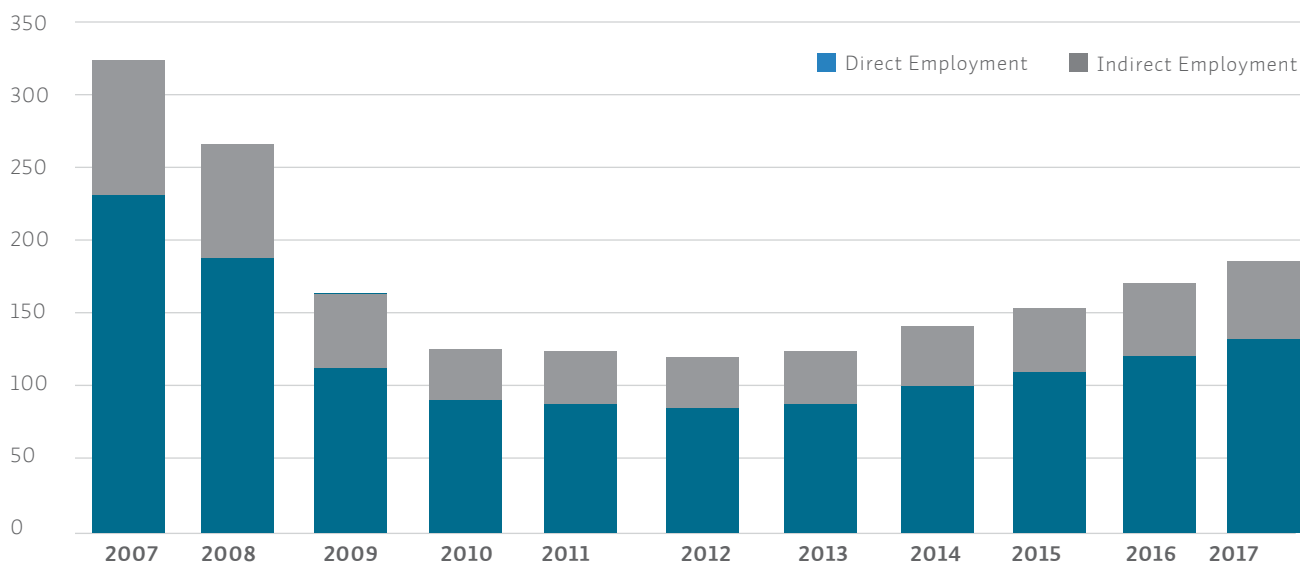


Figure 3.2 Construction Employment (source: Central Statistics Office, Labour Force Survey³)

² Linesight Ireland Handbook 2018

³ Labour Force Survey replaced the Quarterly National Household Survey in Q3 2017. Due to a change in the sample population used for the LFS the numbers employed in NACE Rev 2 Category F have reduced when compared to QNHS method.

As can be seen in figure 3.2, there was a significant decline over the last decade in construction employment, due to the aforementioned lack of construction output. Employment in construction is recovering on a quarterly basis; but the pace

of growth has been slower to that of employment growth in the economy as a whole. This trend is presented in figure 3.3

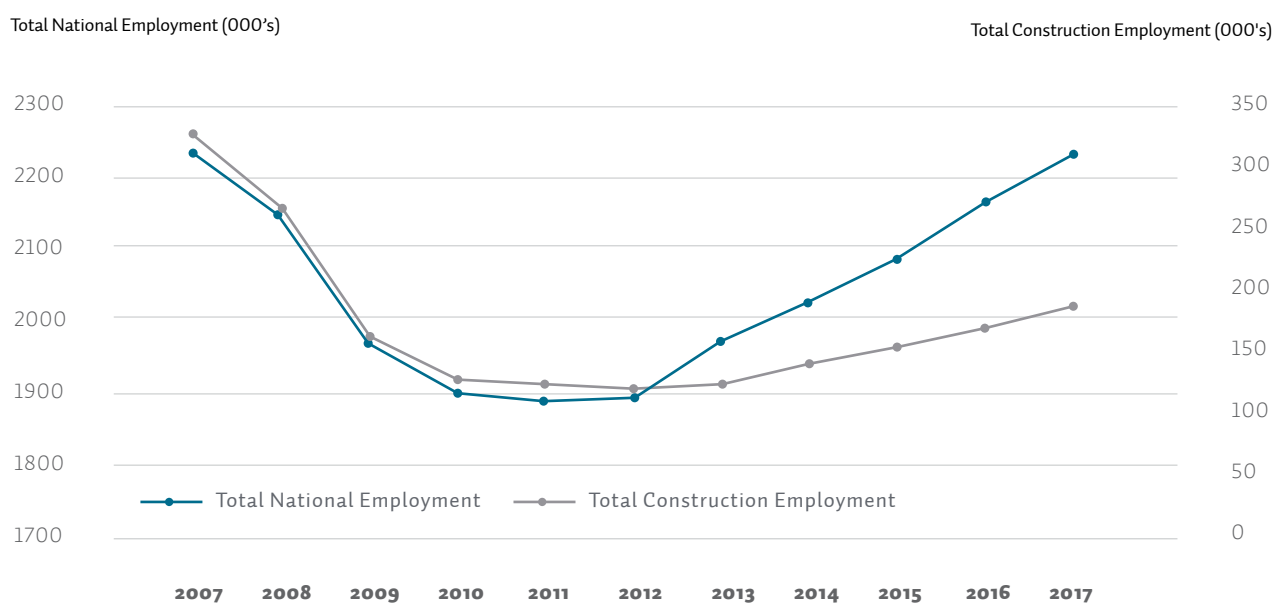


Figure 3.3 National and Total Construction Employment (Source: CSO Labour Force Survey Q4 2017)

The estimated figure for indirect employment includes construction Quantity and Building Surveyors. It is necessary to distinguish the current and recent trends

and factors shaping employment growth in each of the construction surveying professions.

QUANTITY SURVEYING

A Quantity Surveyor (QS) has responsibility for the cost of undertaking a construction project, and works in a diverse range of areas across both public and private sectors. The role of the QS has evolved over time into areas beyond traditional cost management functions to construction management, project management, life cycle costing, sustainable construction and dispute resolution. Statutory registration of title was introduced in the Building Control Act 2007 to provide clients with the assurance that those listed on the register were qualified professionals who comply with codes of ethical and professional conduct. Eligibility to register the title depends on a minimum standard of qualification, training and experience.

As noted in a previous section, accurately estimating the number of QS's is difficult due to the aggregation of QS professions with other professions in national data. To address the shortfall in available national data, survey respondents were asked to confirm the total number of people currently employed at various levels within their organisation. On the basis of the 25% response rate for the QS practice area, the number provided by the survey data was multiplied by four to estimate the total number employed for the population as a whole. The findings are presented in table 3.1

Quantity Surveyor Employment	2018
Position	
Director/Partner	872
Associate Director	578
Senior Surveyor	1138
Surveyor (post APC)	826
Junior Surveyor (pre APC)	645
Recent Graduate	268
Total Quantity Surveying Staff 2018	4,327

Table 3.1 Total Quantity Surveying Employment 2018 (figure grossed up to total population)

Table 3.1 provides the current number of QS staff enrolled in member practices at various levels.

Survey findings demonstrate that there are a small number of large companies within this professional practice group and a significantly larger number of small and medium size enterprises (SME's). An adjustment was made to the survey data received in relation to current employment in order that larger practice figures did not distort the overall total when grossing up to the population as a whole. As a consequence of the adjustment it is likely that the total presented in table 3.1 is a conservative estimate.

In order to ascertain changes in the QS labour market, participants were asked to confirm the number of people employed within their organisation in 2014. Once again the data obtained was adjusted to represent the population as a whole using the same multiplier, and the total change in QS employment between 2014 and 2018 is presented in table 3.2.

Quantity Surveyor Employment	Change 2014-2018
Position	
Director/Partner	81
Associate Director	123
Senior Surveyor	303
Surveyor (post APC)	243
Junior Surveyor (pre APC)	280
Recent Graduate	124
Total Additional Quantity Surveying Staff 2014-2018	1,154

Table 3.2 Total Additional Quantity Surveying Staff 2014-2018 (figure grossed up to total population)

As is evident from Table 3.2, 1,154 additional QS staff were employed between 2014 and 2018, with the largest increase occurring at senior surveyor level. This is evidence that there are opportunities for career advancement for chartered QS staff, furthermore it is likely that promotion within organisations will result in vacancies arising at lower levels.

The largest proportion of survey respondents (37%) are based in the Dublin Region however 15% have multiple locations primarily in the regions with only a small proportion having overseas operations. Detailed examination of the data confirms that 23% of respondents employ people to work on overseas projects, while 28% recruit from abroad due to insufficient numbers of qualified staff.

The favourable economic conditions both in terms of indigenous demand and foreign direct investment (FDI) are the key drivers of employment growth for the profession. A considerable number of respondents (65%) confirmed that indigenous private sector investment was a driver to employment growth, followed closely by consumer confidence/spending. This is a clear signal that domestic demand is considered to be central to generating employment for the profession in the next number of years. FDI was the third highest with 52% of respondents confirming it as a driver of QS employment.

However, the lack of suitable qualified staff, at both graduate and experienced/post-APC levels, was highlighted as a key constraint to employment growth (see figure 3.4). Unsurprisingly, the shortage was most pronounced within larger firms.

Serious concern was raised at the impact of the shortage of qualified staff, the impact on wage levels and ultimately tender prices. With tender prices increasing by an annual average of 6.2% in 2017 alone⁴, ongoing increases of this magnitude may seriously hamper the ability of the sector to reach full potential and will negatively impact affordability, particularly in the residential sector, and value for money for the rollout of the NDP.

⁴ SCSi Tender Price Index H2 2017



While the shortage of suitably qualified staff was the most common constraint to employment growth, a number of other constraints were identified. The top three drivers and

constraints based on survey responses are presented in figure 3.4.

Drivers	Constraints
<ul style="list-style-type: none"> Indigenous private sector investment (65%) Consumer confidence/spending (62%) Foreign direct investment (52%) 	<ul style="list-style-type: none"> Lack of suitably qualified staff (75%) Access to finance for clients (43%) Cost of finance for clients (41%)

Figure 3.4 Drivers and Constraints to Employment Growth for Quantity Surveying

In the context of drivers and constraints to employment growth within the QS profession, respondents were asked to identify the key sectors are likely to drive employment up to 2021.

The three most common sectors likely to drive employment growth identified by QS respondents are illustrated in Figure 3.5.

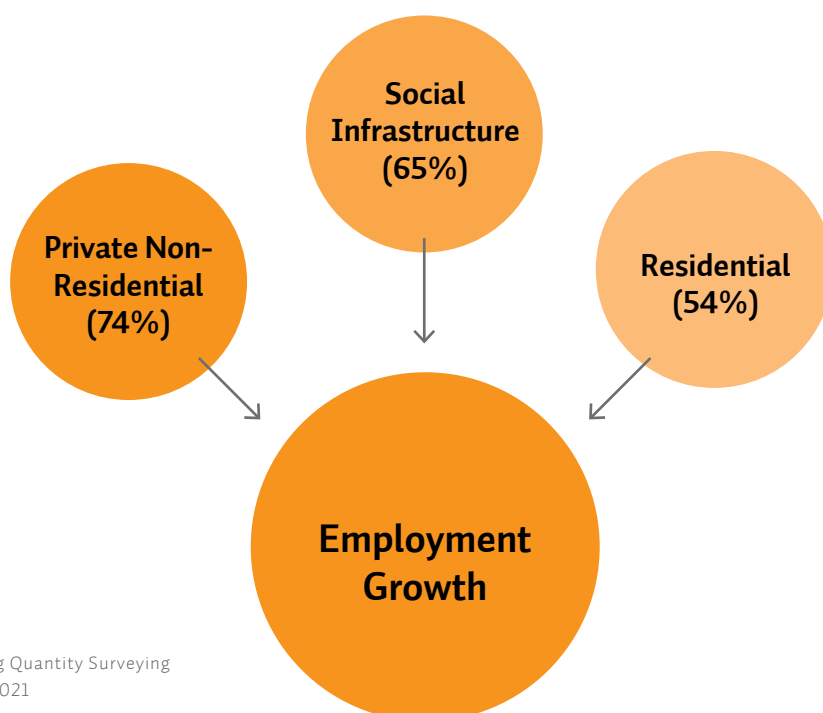


Figure 3.5 Sectors Driving Quantity Surveying Employment Growth to 2021

It is perhaps somewhat surprising given that data collection was undertaken immediately after the Government's announcement for planned expenditure of €116bn over the life of the NDP 2018-2027, that productive infrastructure was not featured in the top sectors for employment

generation. Some interview respondents expressed the view that the tendering process for government contracts was excessively onerous, thereby acting as a disincentive to compete within that sector.

Economic growth scenarios for quantity surveying employment 2018-2021

The methodology outlined in section 2.1 for the derivation of future demand for additional employment was based upon three scenarios of economic growth. A response rate

of 25% was achieved for the QS profession and a multiplier of 4 was therefore applied to responses received. The results are presented in table 3.3.

Additional Quantity Surveying Employment Projections to 2021			
Position	Optimistic (4%)	Median (3%)	Pessimistic (2%)
Director/Partner	130	75	60
Associate Director	215	142	90
Senior Surveyor	649	424	241
Surveyor (post APC)	609	361	188
Junior Surveyor (pre APC)	486	336	155
Recent Graduate	469	314	164
Total Quantity Surveying	2558	1652	898

Table 3.3 Quantity Surveying Employment Projections to 2021

The data presented in table 3.3 demonstrates that there is likely to be considerable demand for QS staff at every level under each scenario. While three scenarios are presented, the median scenario of 3% growth per annum is the closest to the Department of Finance economic growth forecasts presented in section 1.1, and in fact in later years it is possible that growth may occur at a lower level (between the pessimistic and median). Consequently, while data was gathered in relation to an optimistic 4% growth rate over the time period, the focus of analysis for the purposes of the research will remain on the median.

As is also evident from table 3.3, there is a significant demand for experienced QS staff under the median scenario. This demonstrates to those currently at lower levels that

there will be opportunities for advancement in the coming years. Consequently for those either at a junior QS level or considering a career in quantity surveying, on the basis of responses received for this research, evidence suggests that employment prospects are positive. It is likely that as positions become available at higher levels there will be promotional prospects or potential for more frequent movement between practices.

Secondly, the requirement for experienced QS personnel shows those who may have emigrated during the downturn, (and who now have international experience), that there are opportunities in Ireland for experienced QS's, however housing affordability remains a constraint in this regard.

BUILDING SURVEYING

The second type of construction surveyor is the Building Surveyor. The function of a Building Surveyor includes building pathology, pre-purchase advice and building surveys, dilapidations, design, contract administration, project management and statutory obligations. The role of a Building Surveyor relies heavily on an advanced technical understanding of how buildings operate.

Building Surveyors are affected by similar economic and environmental conditions as outlined earlier in the chapter, and in recent years have been particularly impacted by regulatory change.

In an attempt to ensure the quality of buildings, the Building Control (Amendment) Regulation (BCAR) came into force in 2014. The objective of the Act is to ensure that buildings in excess of 40m² are certified by an appointed certifier who will be a signatory on the Certificate of Compliance. The regulation stipulates that a chartered Building Surveyor may act in this capacity (in addition to a registered Architect or Chartered Engineer) and resulting from the Act there is increasing demand for Building Surveyors. However, similarly to the case of QS's, there is a void in national data availability pertaining to Building Surveying employment trends.

To address the paucity of data relating to the profession, survey respondents were asked to confirm the total number of Building Surveyors employed at various levels within their company. A response rate of 38% was obtained for this practice area therefore a multiplier of 2.6 would be appropriate. However given the comparatively lower sample size, it was decided to use a more conservative multiplier of 2.5 in this instance to guard against overestimating current and future demand.

The total number of Building Surveyors currently employed is presented in table 3.4.

Building Surveying Employment	2018
Position	
Director/Partner	95
Associate Director	30
Senior Surveyor	73
Surveyor (post APC)	85
Junior Surveyor (pre APC)	35
Recent Graduate	15
Total Building Surveying Staff 2018	333

Table 3.4 Building Surveying Employment 2018 (figure grossed up to total population)

A large portion of respondent firms are based in Dublin (38%) followed by the Border region (15%), with very few operating from multiple locations (6%). While only 10% of respondent firms employ people in Ireland to work on projects abroad.

As noted previously, the regulatory environment within which Building Surveyors operate has generated an increase in demand for qualified professionals in the discipline. The additional employment growth between 2014 and 2018 based on survey responses and multiplier as described, is provided in table 3.5

Building Surveyors	Change 2014-2018
Position	
Director/Partner	0
Associate Director	16
Senior Surveyor	13
Surveyor (post APC)	16
Junior Surveyor (pre APC)	16
Recent Graduate	5
Total Additional Surveying Staff 2014-2018	66

Table 3.5 Total Additional Building Surveying Staff 2014-2018 (figure grossed up to total population)

Similarly to the case of QS staff, additional employment has been at higher levels within building surveying practices. If the trend continues it is likely that as experienced staff move upwards into more senior positions, vacancies will arise at lower levels.

Interview respondents reiterated the need for experienced Building Surveyors particularly given the role of the Building Surveyor as statutory Registered Design Certifier and Assigned Certifier under BCAR. Legacy issues from poor quality construction during the property boom are resulting in the increased requirement for building surveying professionals' involvement in the remediation of existing buildings.

Survey respondents confirmed a number of drivers of employment growth for building surveying professionals, presented in figure 3.6.

Drivers	Constraints
<ul style="list-style-type: none">• Consumer confidence (78%)• Indigenous private sector investment (63%)• Distressed Asset Management (50%)	<ul style="list-style-type: none">• Lack of suitably qualified staff (66%)• Taxation (47%)• Cost of finance for clients (41%)

Figure 3.6: Drivers and Constraints for Building Surveying Employment

Consumer confidence and investment are deemed to be the key drivers of demand for building surveying professionals over the timeframe in question. Consumer confidence is driving demand in both residential and private non-residential sectors and similarly private sector investment in the non-residential sector.

A number of constraints exist, the most notable of which is lack of availability of suitably qualified staff. Similarly to the QS profession, the lack of qualified building surveying professionals is likely to give rise to wage inflation. Interview respondents corroborated this finding and noted

that lack of experienced staff is the single biggest risk to the profession which may negatively impact the efforts that have gone in to promoting the profession over the last decade.

At present only one third level institute provides an SCSi accredited Building Surveying programme therefore limiting the potential to increase supply (this issue is discussed in more detail in chapter 4). A number of interview respondents consider this a constraint which needs to be addressed.

Based on survey responses, the three main sectors driving building surveying employment are presented in figure 3.7

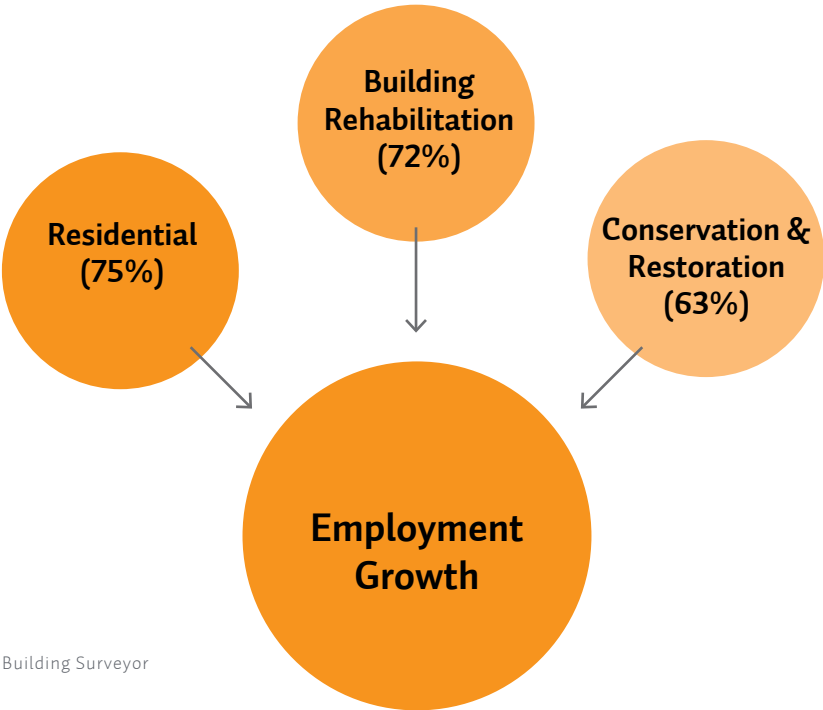


Figure 3.7 Sectors Driving Building Surveyor Employment Growth

As noted, demand is largely driven by consumer confidence and private sector investment and this is evidenced within residential and non-residential sectors particularly, with public sector work faring considerably lower down.

Furnishing private sector residential clients (and management companies) with development and house purchase reports/surveys; commercial and retail with dilapidation, design, fit-out and project management services and pre-acquisition services for investment portfolios were cited as the key services being demanded within these sectors.

ECONOMIC GROWTH SCENARIOS FOR BUILDING SURVEYING EMPLOYMENT 2018-2021

The methodology outlined in section 2.1 for the derivation of future demand for employment yielded a 38% response rate for Building Surveying however a lower multiplier of 2.5 was applied to guard against an over-estimation of future demand due to the low sample size.

Table 3.6 provides the data pertaining to additional Building surveying professionals likely to be required based on the three scenarios of economic growth.

Additional Building Surveyor Employment Projections to 2021			
Position	Optimistic (4%)	Median (3%)	Pessimistic (2%)
Director/Partner	37	24	21
Associate Director	21	13	8
Senior Surveyor	74	47	26
Surveyor (post APC)	66	45	21
Junior Surveyor (pre APC)	53	39	13
Recent Graduate	55	42	34
Total Building Surveying	306	210	123

Table 3.6 Building Surveyor Employment Projections to 2018



As is evident from table 3.6, the demand for Building Surveyors will be positive under each of the scenarios of economic growth to 2021. Similarly to the case of predicted demand for QS professionals, experienced building surveying professionals are particularly likely to be in demand. Once again, this is evidence that promotional opportunities exist for experienced Building Surveyors which is likely to be met to a large extent by current staff. As experienced professionals move higher up it will create vacancies at lower levels.

The role of the Building Surveyor as Registered Design Certifier and Assigned Certifier under BCAR is a significant driver of future employment for registered Building Surveyors giving the profession holds equal status to other industry professionals with similar statutory responsibilities under the Act.

“Due to the recognition of the Building Surveyor as the “go to” expert for any adaption, refurbishment or extension of existing buildings there has been an extensive demand on the profession. This coupled with the inclusion of the Building Surveyor as an assigned certifier has resulted in unprecedented demand for building surveying services.”

Kevin Hollingsworth, Managing Director, Omega Surveying Services

A key caveat to employment growth for building surveying professionals lies in how BCAR may possibly evolve over time.



PROPERTY SURVEYING

ECONOMIC AND EMPLOYMENT CONTEXT

Property Surveying spans a wide range of functions, a number of different sectors and has a widely dispersed geographical reach.

The functions include; estate agency (buying, selling and letting), property and other asset valuations including statutory valuations, mortgage valuations, valuations for compulsory purchase and valuations of going concerns, professional services such as rent reviews and arbitration, and property and asset management. In addition, for the purpose of this research, because of the relatively small response rate from this practice area, facility management is included with property surveying.

Facility managers can work as direct service providers or as in-house facility managers in almost all sectors of the economy and provide a wide ranging and varied function.

“The FM sector in Ireland is estimated to be worth €1.5billion having grown rapidly in recent years with the influx and expansion of technology giants like Google, Facebook, Microsoft, Amazon, Apple and strong growth in the pharma and data centre sectors. Employment opportunities have never been greater in the sector varying from front line roles, to energy management, procurement, spatial planning, to EHS and increasingly technical disciplines.”

Lily Ellis, JLL Account Director, JLL IFM, EMEA LinkedIn Account

Property Surveyors work primarily in the private sector but a significant number work in the public sector. Property Surveyors provide services to the residential sector, the commercial sector (retail, office, industrial) and other diverse sectors such as hospitality and the agricultural sector. Demand for property services and for surveyors is therefore dependent on the performance of these sectors.

Many of the macroeconomic indicators outlined earlier in the chapter have a direct impact on the property sector, and in particular, trends in residential and private non-residential sectors are driving demand for property surveying expertise. The landscape has changed over the last number of years with the inflow of international investment funds, REITS and new mechanisms for investment requiring property professionals to be more cognisant of portfolio asset management. Financial analysis, sensitivity analysis and rigorous due diligence are required by new investors entering into the Irish property market.

Demand for surveying services in the retail sector (agency, management etc.) is strong in the Dublin area but less so in provincial towns where the pace of economic recovery has been slower. A significant medium/long term issue which is starting to impact on the sector is the growth of online sales, reducing footfall in many regions. Over time this is likely to impact on the type of property and as a result, the property services required by that sector.

“Asset management is more than managing a property on a day-to-day basis. It includes identifying trends that will impact on that property over the longer term, preparing strategies including potential refurbishment or redevelopment, identifying tenants and delivering on the business plan, minimising the associated risks of voids and programme implications, to ensure the overall return is maximised consistently. The investor base in Ireland has changed in recent years and institutions/funds are interested in driving the long term performance of the assets with a resultant increase in resources required within this specific skill set.”

Claire Solon, Head of Property, Friends First

The office sector has been performing strongly on the back of the growing economy and particularly the growing services sector. FDI has been a key driver in this regard. The lack of office building for a number of years is now being addressed. This has given rise to a demand for advisory services in relation to development but also agency and valuation services. Furthermore, there is greater awareness on the need to consider use over the whole life of a building, therefore understanding cash positions in terms of rent reviews, services changes and running costs over a longer timeframe.

The nature of industrial property has changed from an over-reliance on manufacturing units to a greater need for storage facilities with the growth of the logistics sector. This sector will face some challenges but also some opportunities in the context of Brexit as supply chains currently linked to the UK may now have to be re-configured.

The residential sector is going through a period of change as the Government tries to come to terms with the affordability and homelessness issues. In addition there is a growing trend of people either being forced to (for economic reasons), or choosing to rent rather than buy residential property and therefore there is a resultant growth of Multi-Unit Developments. There is likely to be strong demand for residential surveyors in the purchase, rental and property management areas. Furthermore, planned construction of residential units under the NDP in addition to the new design guidelines for apartment building will undoubtedly drive demand for property management professionals in the future.

In relation to facility management, there is a growing recognition of this function as a profession in its own right. Companies face the decision as to whether to buy in this service from a specialist provider or to acquire or develop an in-house expertise. The increasing focus on health and safety at work and in the interface with customers, flexibility of office space and building energy efficiency will promote employment needs in this area.

Similarly to other surveying professions, property surveying is not categorised separately in nationally available statistics. In order to determine current employment across property surveying professions, survey respondents were asked to determine the number of surveyors currently employed across all levels of the practice.

A response rate of 23% was achieved thus employment estimates are therefore derived by grossing-up the sample

results. The response rate would indicate that a multiplier of 4.3 should be used ($1/0.23 = 4.35$); however in order to provide a more conservative estimate a multiplier of 4 was applied.

Table 3.7 below provides an estimate of the number of Property Surveyors across different levels of seniority currently practicing in Ireland.

Property Surveying Employment 2018	
Position	
Director/Partner	1,476
Associate Director	472
Senior Surveyor	1,340
Surveyor (post APC)	748
Junior Surveyor (pre APC)	608
Recent Graduate	204
Total Property Surveying Staff 2018	4,848

Table 3.7 Property Surveying Employment 2018 (figure grossed up to total population)

A large portion of respondent firms are based in Dublin (42%) with a fairly even spread across the regions. Almost 14% of firms operate from multiple locations; however only 10% of respondent firms employ people in Ireland to work on projects abroad.

The recovery in the economy and the consequent increased demand for space by occupiers in the commercial sector; the demand for investment and for residential property to buy or rent has given rise to a significant increase in the demand for surveyors. The regulatory requirements, via the Property Services Regulatory Authority (PSRA), have also resulted in more demand for qualified and licenced staff.

In order to ascertain the increase in demand for Property Surveyors since the previous 2014 report, survey respondents were asked to confirm the number of additional surveying staff in the intervening period. Table 3.8 estimates the growth in the number of Property Surveyors over the period 2014-18, based on a grossing-up of sample responses to the total population level.

Property Surveyors	Change 2014-2018
Position	
Director/Partner	132
Associate Director	148
Senior Surveyor	464
Surveyor (post APC)	288
Junior Surveyor (pre APC)	176
Recent Graduate	112
Total Additional Staff 2014-2018	1320

Table 3.8 Total Additional Property Surveying Staff 2014-2018 (figure grossed up to population)

The table shows significant growth across all levels and in particular for experienced and chartered Property Surveyors, whereby the increase was larger for senior surveyors than at lower levels. Similar to the case of Quantity and Building Surveying staff, this demonstrates that there are considerable opportunities for experienced Property Surveyors.

Many of the drivers of demand for property surveying professionals have been highlighted earlier in the chapter; however survey respondents confirmed the key drivers and constraints for their organisation, which are presented in figure 3.8.

Drivers	Constraints
<ul style="list-style-type: none"> Consumer confidence/spending (61%) Indigenous private sector investment (52%) FDI (43%) 	<ul style="list-style-type: none"> Taxation (49%) Cost of finance for clients (44%) Lack of suitably qualified staff (44%) Brexit (42%)

Figure 3.8: Drivers and Constraints for Property Surveying Employment

The survey results confirm the importance of the consumer economy to the property sector, particularly in relation to the residential and retail sectors and more indirectly to the services sector. The level of importance assigned to the NPF indicates that the profession is aware of the potential of the NPF to generate activity in the coming years.

Brexit, as expected, is seen as a constraint, although not the most important one. This may reflect a level of uncertainty as to its impact and may possibly act as a disincentive to hire staff until the ultimate 'shape' of Brexit is clearer.

The key sectors which are likely to lead to employment growth were also identified in the survey. This is shown in Figure 3.9.

Interestingly, the NPF/NDP does not feature in the leading three drivers of employment growth for Property Surveyors. The relative unimportance of Government funded investment (productive or social infrastructure) might suggest that the importance attributed to the National Planning Framework (see Figure 3.8 above) is based more on how it will impact private sector activity, including regionally, than the direct impact it might have on the property sector

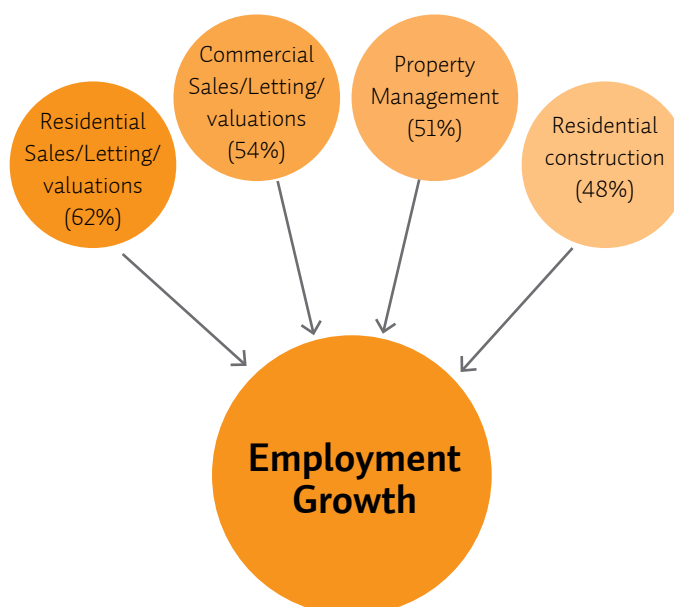


Figure 3.9 Sectors Driving Property Surveying Employment Growth to 2021

ECONOMIC GROWTH SCENARIOS FOR PROPERTY SURVEYING EMPLOYMENT 2018-2021

As noted previously, for property surveying profession a response rate of 23% was achieved and a multiplier 4 was applied, in order that a more conservative estimate

was determined. The basis of this is that many practices, particularly in regional areas, are small and may not have the same capacity or need for employment expansion.

Table 3.9 shows the estimated growth in employment based on the three scenarios.

Additional Property Surveyor Employment Projections to 2021			
Position	Optimistic (4%)	Median (3%)	Pessimistic (2%)
Director/Partner	268	188	124
Associate Director	184	152	96
Senior Surveyor	564	404	308
Surveyor (post APC)	392	280	208
Junior Surveyor (pre APC)	440	320	204
Recent Graduate	400	296	176
Total	2,248	1,640	1,116

Table 3.9 Property Surveying Employment Projections to 2021

Responses to the optimistic scenario are shown here as survey respondents provided the data, however the median scenario is the closest to Department of Finance forecasts to 2021 and therefore is the focus of analysis in subsequent sections.

As is evident from table 3.9 there is a clear demand for property surveying professionals at every level of experience under each scenario analysed.

LAND SURVEYING

Economic and Employment Context

Land surveying incorporates a number of professions including geomatics, minerals and planning and development surveying.

A Geomatics surveyor is a professional that maps the built and natural environment to provide spatial data for planning, development and conservation purposes. Services typically include topographical surveys, measurement of buildings, legal surveys, as-built surveys using 3D Laser scanning, utility surveys and Building Information Modelling (BIM). In fact, so diverse is the range of services offered within the profession that geomatics surveyors are employed across nearly every business sector.

The Planning and Development field is a specialist discipline, which impacts not only on the physical aspects of the

built environment, but the social and environmental aspects as well. As an area of practice, planning and development is of strategic importance to government, as is evidenced in the recently published NPF. Chartered planning and development surveyors are playing a vital role in promoting the use of effective land management and administration as one of the primary drivers behind sustainable development.

The largest land practice area in terms of SCSI membership is Geomatics surveying followed by Planning and Development surveying. In terms of the research at hand, 60% of land survey respondents are geomatics surveyors thus analysis is concentrated to a large extent on this discipline.

Land Surveyors use state-of-the-art survey equipment, employ satellites and aerial imagery, work with advanced survey and geographic software systems and are at the cutting edge of geospatial technology. Vast amounts of data ("big data") are collected and used in almost every facet of the built environment, and land surveying professionals play a central role in collecting and analysing spatially-referenced data. The profession is being driven by disruptive technologies (e.g. augmented and virtual reality, BIM and unmanned aerial vehicles e.g. drone technology) in all aspects of the built environment, including emerging areas such as the development of smart cities, intelligent transport and autonomous vehicles.

Currently the land surveying practice areas represent a small, but growing, proportion of SCSi membership. Technological advancement within the built and natural environment and the quest for accurate spatial information are driving the need for professional Land Surveyors. This trend is likely to accelerate as clients become increasingly knowledgeable and require accurate spatial and location data for a variety of uses.

For the purpose of the research at hand, and given the comparatively lower numbers involved, land surveying will be taken as a whole for analysis purposes rather than disaggregating separate professional groups.

Survey respondents were asked to confirm the total number of people currently employed within their organisation at various levels. A response rate of 39% was obtained for this practice area therefore a multiplier of 2.56 would be appropriate. However, it was decided to use a more conservative multiplier of 2.5 in this instance to guard against overestimating current and future employment trends.

Land Surveying Employment 2018	
Position	
Director/Partner	138
Associate Director	40
Senior Surveyor	140
Surveyor (post APC)	85
Junior Surveyor (pre APC)	108
Recent Graduate	8
Total Land Surveying Staff 2018	519

Table 3.10 Total Land Surveying Staff 2018 (figure grossed up to total population)

In order to gauge the change in employment across land surveying, survey respondents were asked to confirm the numbers employed at various levels since 2014. The additional employment between 2014 and 2018 provided by the sample was grossed-up using a 2.5 multiplier and is presented in Table 3.11

Land Surveyors	Change 2014-2018
Position	
Director/Partner	8
Associate Director	23
Senior Surveyor	25
Surveyor (post APC)	8
Junior Surveyor (pre APC)	20
Recent Graduate	0
Total Additional Surveying Staff 2014-2018	84

Table 3.11 Total Additional Land Surveying Staff 2014-2018 (figure grossed up to total population)

As evidenced in table 3.11, there has been an increase in land surveying employment at every level of experience between 2014-2018

Land surveying is a global profession with employment opportunities available in a wide variety of organisations, however 97% of respondent firms do not employ staff to work on overseas projects concentrating instead on the domestic market. Of the remaining respondents, it is primarily large firms that employ staff to work abroad.

The key drivers and constraints to land surveying employment up to 2021 were identified by survey respondents and are outlined in figure 3.10. Once again, the lack of suitably qualified staff is a key constraint to future employment growth which has been highlighted across all surveying practice areas.

Drivers	Constraints
<ul style="list-style-type: none"> • Consumer confidence and spending (79%) • Indigenous private sector investment (75%) • National Planning Framework (50%) 	<ul style="list-style-type: none"> • Lack of suitably qualified staff (55%) • Taxation (46%) • Cost of finance for clients (44%)

Figure 3.10 Drivers and Constraints to Land Surveying Employment Growth

This finding is consistent with other surveying professions. For land professionals the NPF is in the top three drivers of employment growth during the timeframe under scrutiny, which is perhaps unsurprising given the range of services offered by Land Surveyors.

The profession has been positively impacted by FDI (datacentres, manufacturing, technology companies and pharmaceuticals) and with that international companies expect international practices in terms of construction

process, lean construction and BIM technology. Accurate measurement and data capture are essential for the lean construction techniques required.

While for large firms in particular, FDI will continue to act as a key driver to employment growth up to 2021, demand for Land Surveyors is likely to be across a number of sectors. Survey respondents identified a number of sectors driving employment growth to 2021, the top three most commonly cited are presented in figure 3.11.

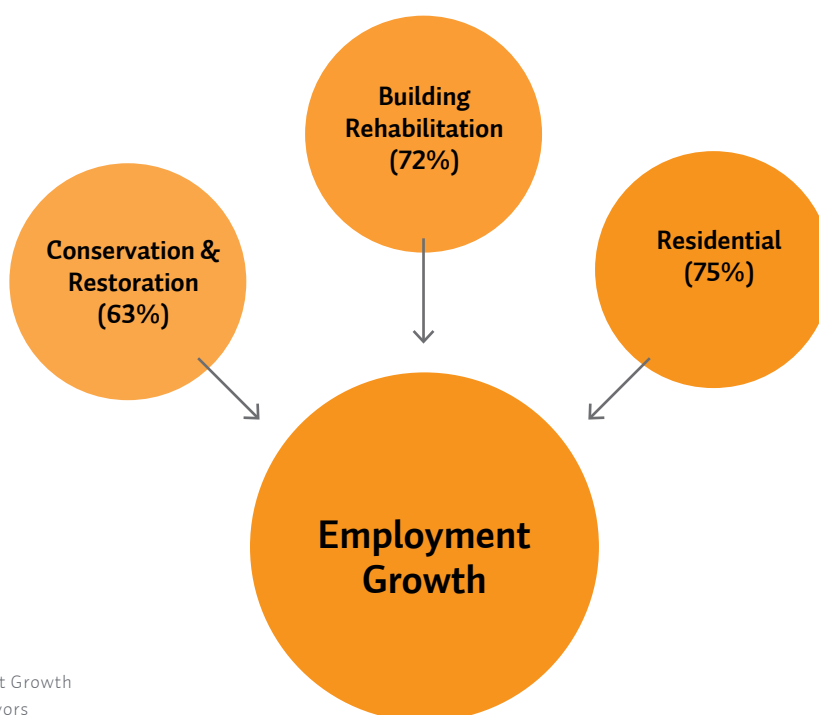


Figure 3.11 Employment Growth Sectors for Land Surveyors

Given the recently published NPF and NDP, it is interesting to observe that the public sector is not within the top three

sectors for employment growth according to survey respondents.



ECONOMIC GROWTH SCENARIOS FOR LAND SURVEYING PROFESSIONALS 2018-2021

The methodology outlined in section 2.1 for the derivation of future demand for employment within each surveying profession was based upon three scenarios of economic growth.

As noted in a previous section, the response rate for Land Surveying was 39%, however a lower multiplier of 2.5 was applied to guard against an over-estimation of future demand due to the low sample size.

Table 3.12 provides the data pertaining to additional land surveying professionals likely to be required based on the three scenarios of economic growth.

Additional Land Surveyor Employment Projections to 2021			
Position	Optimistic (4%)	Median (3%)	Pessimistic (2%)
Director/Partner	26	18	9
Associate Director	16	10	10
Senior Surveyor	78	53	41
Surveyor (post APC)	73	53	39
Junior Surveyor (pre APC)	98	78	50
Recent Graduate	40	25	15
Total Surveying	331	237	164

Table 3.12 Land Surveying Employment Projections to 2021

As noted in previous sections, for the purposes of this report the median scenario is the most closely aligned to

Department of Finance forecast and thus will form the basis of analysis.

CONCLUSIONS

A key issue in analysing trends is that the lack of reliable data pertaining to surveying professions. Employment information pertaining to surveying professions is piecemeal and fragmented, and given the importance of construction, property and land surveying to the built environment within which we live, this is an ongoing challenge.

However, evidence from this research confirms that the number of people employed across surveying professions has increased since the original report, published in 2014. Based on survey data collected centred on three scenarios of economic growth, it is predicted that the demand for surveyors will increase significantly between 2018-2021.

Information technology has been a key factor shaping how surveying professionals undertake their role and it is likely that IT will drive the future of professionals working with the built environment. In order to maintain our status as a talented workforce and to attract FDI to the country, it is important that built environment professionals are highly skilled in this regard.

A number of key drivers of employment growth have been confirmed as being improvement in consumer sentiment, private sector indigenous demand, FDI and the NPF.

It is anticipated that employment opportunities will arise within various sectors with residential and private non-residential coming out as the key drivers in this regard.

Some challenges remain and the single most commonly cited constraint to employment across all surveying disciplines was identified as being the lack of availability of suitably qualified staff.



THIRD LEVEL EDUCATION: SUPPLY OF SURVEYING GRADUATES

This chapter provides an analysis of the third level education sector in the provision of surveying graduates. Ireland is renowned for having an excellent third level sector and consequently a highly skilled workforce⁵, which has been a key decision-making factor for FDI.

SCSI accredited programmes are offered across seven Institutes of Technology (IoT's) nationwide, and range from level 6 (Higher Certificate) to level 9 (Master of Science, MSc. degree) on the National Framework of Qualification (NFQ)⁶.

The PSRA licencing requirements for Property Surveyors requires a minimum of relevant level 6 qualification on the NFQ. In order to commence the Assessment of Professional Competence (APC) within the SCSI, a candidate must also achieve a minimum education standard at level 8 in a relevant discipline.

Surveying degree programmes are delivered on a full time, part time and in some instances on an online learning basis. Full time honours degree programmes are

usually four years duration, while the part time equivalent may be up to five years. Postgraduate MSc. degrees may take between one year (full time), and up to three years (part time).

In order to ascertain the likely future number of surveying graduates, current enrolments were used as a measure of supply in the time period covered by this report.

The next section provides an overview of current enrolments across all surveying qualifications offered nationwide, following which a comparative analysis vis-à-vis 2014 enrolment is undertaken. The chapter concludes with analysis of some issues emanating from the data collected from both quantitative and qualitative phases of the research.

SURVEYING PROGRAMMES

As noted, SCSI accredited programmes are offered in seven IoT's nationwide (see Appendix 2 for a list of programmes offered).

Due to the requirements under PSRA licencing, the participants on levels 6 and 7 have been incorporated into the analysis. However, it should be noted that not all of these students will progress to a level 8 programme thereby impacting the numbers eligible to register for SCSI, APC purposes.

For those candidates currently registered on levels 6 and 7 that do progress to level 8, many will not have completed the programme within the timescale addressed within this report. However, as a counterbalance to this, it is likely that a number of people from non-cognate disciplines may enter the third level education system and re-train as a surveyor by undertaking a comparatively shorter MSc. programme.

Consequently, for the purposes of analysis, the number of students currently enrolled provides the estimate of total number of newly qualified professionals over the time period covered within the report.

⁵ IDA Ireland

⁶ The National Framework of Qualifications (NFQ) describes the qualification and training system and how they interlink. Quality and Qualifications Ireland (QQI) have responsibility to develop and promote the Irish NFQ.



CURRENT ENROLMENTS ON SURVEYING PROGRAMMES

Data was collected from every IoT currently offering SCSi accredited programmes and was aggregated such that an overall nationwide figure was obtained. It is recognised that although a third level qualification is a mandatory entry requirement for surveying professionals, the education

of a surveyor continues on an ongoing basis through APC and Continuous Professional Development (CPD). An annual programme of CPD events is organised by the SCSi in order to meet the requirements in this regard.

Table 4.1 provides the total number of people currently enrolled on QS programmes nationwide.

Level	Programme Title	Year 1	Year 2	Year 3	Year 4	Total
Level 6	Higher Certificate in QS	2	1			3
Level 7	BSc in Quantity Surveying	34	18	22		74
Level 8	BSc (hons) in Quantity Surveying	223	187	103	136	649
Level 9	MSc Quantity Surveying	36	21	22		79
Level 9	MSc Construction Project Management	25	23	25		48
TOTAL	Total Quantity Surveying Enrolments					853

Table 4.1 Current Quantity Surveying Third Level Enrolment

As is evident from table 4.1 the recovery in the construction industry has result in a marked increase in enrolment on an annual basis on QS degree programmes nationwide. The majority of students current registered on year 4 of the programme are likely to have commenced in the academic year 2014/2015, a number of months after the original SCSi Employment Opportunities report had identified

the significant shortage of qualified QS's. The improved confidence in employment prospects and confidence in the construction industry more generally is clearly reflected in the number of students opting to undertake construction-related third level programmes.

Building surveying is currently offered in one IoT, and current enrolment is provided in table 4.2

Level	Programme Title	Year 1	Year 2	Year 3	Year 4	Total
Level 8	BSc (hons) in Building Surveying	25	25	27	16	93
TOTAL	Total Building Surveying Enrolments					93

Table 4.2 Current Building Surveying Third Level Enrolment

Property surveying programmes are offered from level 6 to level 9 nationwide. The SCSi also deliver a BSc(hons) Property Studies and a BSc Property and Facility Management programme on a part time basis (awarded

by DIT) which is included in the overall totals contained in table 4.3. As noted previously, the minimum requirement for PSRA licencing purposes is level 6.

Level	Programme Title	Year 1	Year 2	Year 3	Year 4	Total
Level 6	Higher Cert in Property Valuation & Management	9	-	-	-	9
Level 7	BSc Auctioneering Valuation & Estate Agency ⁷	44	37	16		97
Level 7	BSc Property & Facilities Management	25	19	17	8	69
Level 8	BSc(hons) Property Studies/Economics*	101	88	63	52	304
Level 9	MSc Real Estate	34	17	-	-	51
TOTAL	Total Property Surveying Enrolment					530

Table 4.3 Current Property Studies Third Level Enrolment

*Some programme titles vary however the data includes all level 8 property surveying programmes

The information contained in table 4.3 relates primarily to SCSi accredited programmes. There are a number of programmes offered in UK universities that are also recognised by the PSRA for licencing purposes, thus further increasing the potential supply of qualified property professionals. However it is impossible to

determine the precise numbers involved thus they remain outside the scope of research.

Land surveying programmes are currently offered in only one IoT and current enrolment is detailed in table 4.4

Level	Programme Title	Year 1	Year 2	Year 3	Year 4	Total
Level 8	BSc Geographic Science	30	14	8	18	70
Level 9	MSc Geographic Information Science	16	8	-	-	24
Level 9	MSc Geospatial Engineering	7	-	-	-	7
TOTAL	Total Land Surveying Enrolment					101

Table 4.4 Current Land Surveying Third Level Enrolment

As noted previously, the economic and industry environment has changed considerably since the original report and this has had a significant impact on

surveying student enrolment. The next section provides a comparative analysis between the two time periods in question.

⁷This programme is not currently accredited by the SCSi however graduates may apply for the PSRA licence upon completion therefor adding to the supply of estate agents and property managers.

COMPARATIVE ANALYSIS OF ENROLMENT 2014 V'S 2018

At the time of publication of the original report, the economy was on the path to recovery. The legacy of the severe and prolonged recession and with that soaring unemployment (particularly in construction) was evidenced in the reluctance of people to undertake construction, property and land related third level qualifications. The perceived lack of employment opportunities in construction, property and related sectors for sustained employment was determined to be a key factor in shaping this trend.

In the last number of years the Irish economy has experienced growth rates of nearly double the European average and unemployment has reduced from a high of 15% to the current rate of under 6%⁸. Confidence in the economy as a whole, and in particular construction and property sectors, has resulted in a notable increase in the number of people registering on related third level education programmes.

Additionally, the Society has undertaken a nationwide marketing campaign highlighting employment prospects across surveying professions which undoubtedly had a positive impact on student recruitment. The realisation that a surveying qualification provides graduates with varied, global career opportunities in a variety of business sectors is resonating to the extent that the increase in student enrolments in the last four years is notable.

Figure 4.1 provides a comparison between 2014 and 2018 enrolment onto third level surveying programmes nationwide.

2014	2018
Quantity Surveying 428	Quantity Surveying 853
Building Surveying 84	Building Surveying 93
Property Surveying 323	Property Surveying 530
Land Surveying Not measured in 2014 report	Land Surveying 101

Figure 4.1 Comparative Analysis 2014 v 2018 Third Level Enrolment

As is evident from figure 4.1 there has been a considerable increase in the number of student enrolments onto surveying programmes in Ireland as a result of improved market conditions, regulatory/licencing requirements and confidence more generally within the property and construction industries.

Further analysis of the nationwide data demonstrates that the numbers on part time programmes have increased significantly in the time period, and this is evidenced in particular with the numbers undertaking level 9 (MSc) programmes, which represents nearly 13% of the future surveying graduate output. On deeper analysis it is apparent that non-cognate professionals, including architects, engineering and legal professionals, are retraining into surveying degrees which is seen by industry stakeholders as a positive development. The diversity of skillset arising from the trends is discussed in the following chapter.

Another development in third level education is the industry-based part time QS degree programme currently offered. This provides post leaving certificate students an opportunity to undertake a part time QS

⁸ Central Statistics Office (2018) Monthly Unemployment June 2018

degree while working in the construction industry. Students attend college one day a week and work in practice for the remainder of the week, qualifying with considerable experience after five years.

The apprentice-style provision of surveying professionals, while not new, is favoured by some employers given the extent of experience gained by participants. Several survey respondents suggested that an apprenticeship-style model may be beneficial in other categories of surveying most notably in building surveying. However, this mode of education is not necessarily suitable to all as the college experience overall differs to that of a full-time student's, and this may be a consideration for potential applicants.

There are a growing number of advanced qualifications for surveyors being offered nationwide, and this has been identified by interview respondents as critically important going forward. As surveyors must continue to upskill on an ongoing basis, the number of experienced surveying professionals seeking additional qualifications is likely to increase, particularly in specialised areas such as BIM and management practice.

In summary, there has been a notable increase in the number of students registering on third level SCSi accredited surveying degree programmes nationwide which is a positive outcome. Some of the key considerations arising from this development are analysed in the following section.



KEY CONSIDERATIONS FOR THE THIRD LEVEL SECTOR

The nature of surveying is changing in light of digitization, globalisation and sectoral complexity therefore it is important that graduates are equipped to meet the demands of the environment within which they practice.

Survey respondents across the board (86%) agreed that third level institutes should provide surveying professionals with an advanced knowledge within their discipline, while 96% of respondents agreed that a collaborative approach between third level, industry and professional bodies must be taken to ensure that surveying professionals are suitably qualified to meet industry needs.

One example of this collaboration is that increasingly, a period of work placement is incorporated into undergraduate full time surveying degree programmes, ranging from one semester to one year of the full time degree. This represents a positive development since the original report wherein the minority of programmes at that time offered structured work placement. Other industry involvement takes the form of guest lectures provided by senior surveyors to students in IoT's across the country, providing students with invaluable industry insight.

In order to keep up with the demand for surveying programmes, and indeed for the demands placed upon students, it is necessary for the third level sector to adopt a flexible approach to learning by way of blended learning, where appropriate. The potential for a blended delivery method was highlighted in the qualitative phase of research:

“To accommodate flexibility for those working in industry and increasing difficulties not to mention the extra time spent traveling and getting to centres of learning, courses that can be delivered using blended learning will become more desirable. This particularly applies to construction professionals who may be working on a variety of sites during the years they are undertaking a programme and not confined to an office convenient to a college.”

Tom Dunne, Head of School of Surveying and Construction Management, DIT.

Should a blended learning delivery be adopted it is important that the quality of education is not negatively impacted. Investment is needed in order to embrace a blended approach, in terms of Information Technology (IT) facilities but also staff training and development in this mode of delivery.

IT is of critical importance, not only in the delivery of third level programmes but also in third level programme content. Construction, property and land professions are now using cutting edge technologies including virtual and augmented reality, BIM, artificial intelligence, 3-D printing, robotics and a range of cutting edge software, therefore it is essential that graduates are familiar with such technologies. According to 70% of survey respondents, surveying graduates have good/very good IT skills; in fact a number of interview respondents noted that they (to some extent) rely on graduates to bring IT knowhow to their practice.

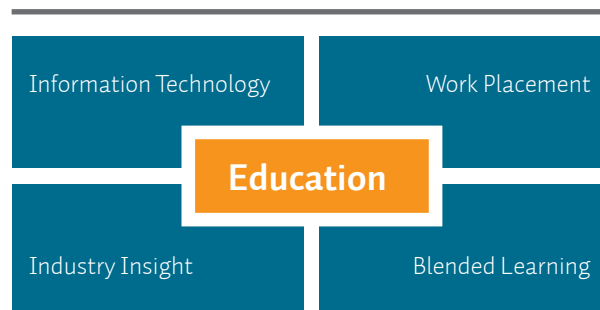


Figure 4.2 Key Considerations for Third Level Provision of Surveying Programmes

For some IoT's, increases in student numbers have not been met by recruitment of staff and that is challenging in the context of larger student numbers and class sizes. Third level providers tend to be slow to respond to fluctuating student numbers given the nature of public sector recruitment. Furthermore, difficulties may also arise in trying to attract highly qualified academic staff when industry salaries are in excess of the entry point into an IoT (which requires a minimum of level 9 qualification).

In conversation with academic management it was noted that:

“Colleges should not be expected to staff up for boom time employment. Rather a judgement has to be made about the

number of student places that can be offered sustainably in the long term. This of course means that there could be shortages of places on property and construction related programmes during booms while at other times student numbers could drop below ideal intake levels.”

CONCLUSIONS

Surveying qualifications are available across the country, demonstrating that opportunities to undertake a surveying course are available nationwide.

Resulting from the misconception of lack of employment opportunities during the economic downturn, the numbers enrolling on surveying courses had reduced significantly up to 2014. Since then the economy has recovered, and specifically the construction and property sectors, enrolments onto surveying programmes have increased considerably.

The challenge now facing third level providers is to keep student numbers at a sustainable level, in order to reduce the impact of severe fluctuations. A number of mechanisms by which this may be achieved is through use of IT, blended learning and to continue to ensure the relevance of programme content by engaging industry stakeholders as part of programme delivery.

Collaboration between third level institutes, industry and the SCSI was highlighted as a priority with the overwhelming number of respondents across construction, property and land practice areas.

DEMAND, SUPPLY AND SKILLS REQUIREMENTS FOR SURVEYORS

INTRODUCTION

Preceding chapters have identified the key drivers and constraints to surveying employment in Ireland and have identified the trends in relation to current enrolments onto surveying programmes. The purpose of this chapter is to ascertain the projected future demand for surveying professionals; determine whether the supply of graduates is sufficient to meet the demand and to outline the future skills requirements.

Methodologically, the primary source of data for this chapter emanates from the quantitative phase of research for which data was gathered pertaining to employment across each level of surveyor based on three scenarios of economic growth optimistic (4% pa); median (3% pa) and pessimistic (2% pa). The median scenario is closely aligned to Department of Finance forecasts therefore focus remains on this scenario. It may be argued that the 4% scenario is

unrealistic over the timeframe under scrutiny, however for illustrative purpose the data is presented in this chapter to demonstrate the impact should growth occur at a faster rate than forecast.

Response rates and resulting method for determining the future demand for surveyors has been detailed in an earlier chapter of the report.

The chapter is divided into sections based on the three broad areas of surveying, namely construction, property and land. In each section the likely future demand for surveyors at various levels has been determined based on the three scenarios of economic growth. Supply has been determined by identifying the total number of graduates currently enrolled. Demand and supply are compared to ascertain possible future labour market trends.

Each section provides an analysis of the future skills requirements pertaining to the specific profession, as confirmed by survey respondents, prior to overall conclusions being made.



CONSTRUCTION SURVEYING

QUANTITY SURVEYING: DEMAND AND SUPPLY

As noted in a previous chapter, for the purposes of determining the likely demand for QS's the responses gained were grossed up by a multiplier of 4 given the 25%

response rate obtained from survey data, but with an adjustment made to reflect the impact of larger firms.

Figure 5.1 provides the overall likely future demand based on the three scenarios of economic growth.

Total Projected Additional Demand for and Supply of Quantity Surveyors 2018-21

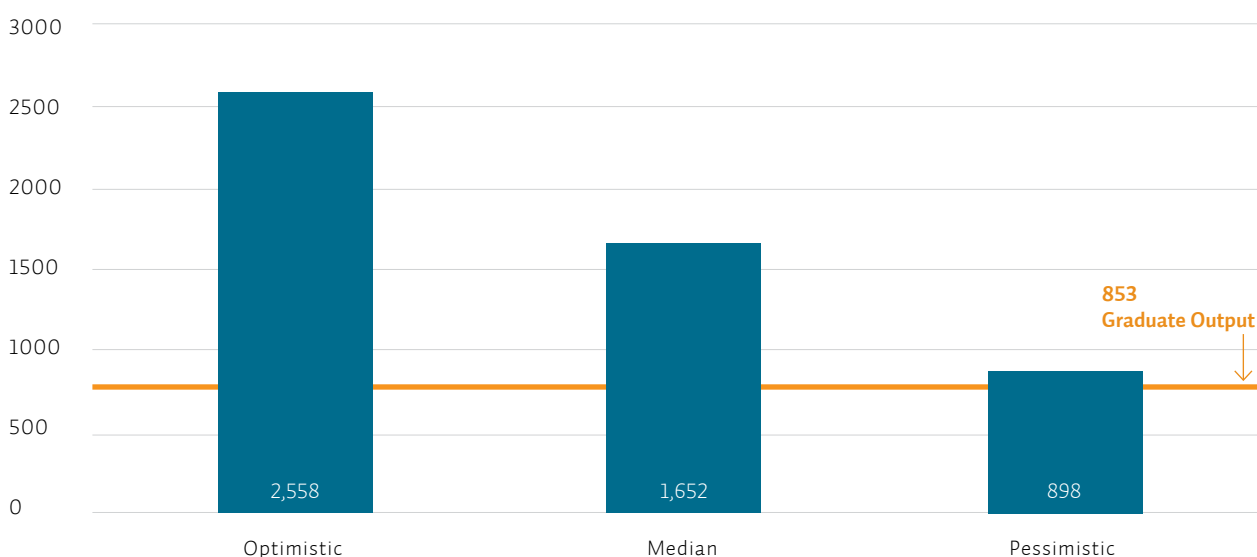


Figure 5.1 Total Projected Additional Quantity Surveyor Demand and Supply 2018-21

While figure 5.1 provides the total project additional QS's demanded up to 2021, figure 5.2 illustrates the level at

which the additional employment growth is likely to take place.

Level of Quantity Surveying Employment Growth 2018-2021

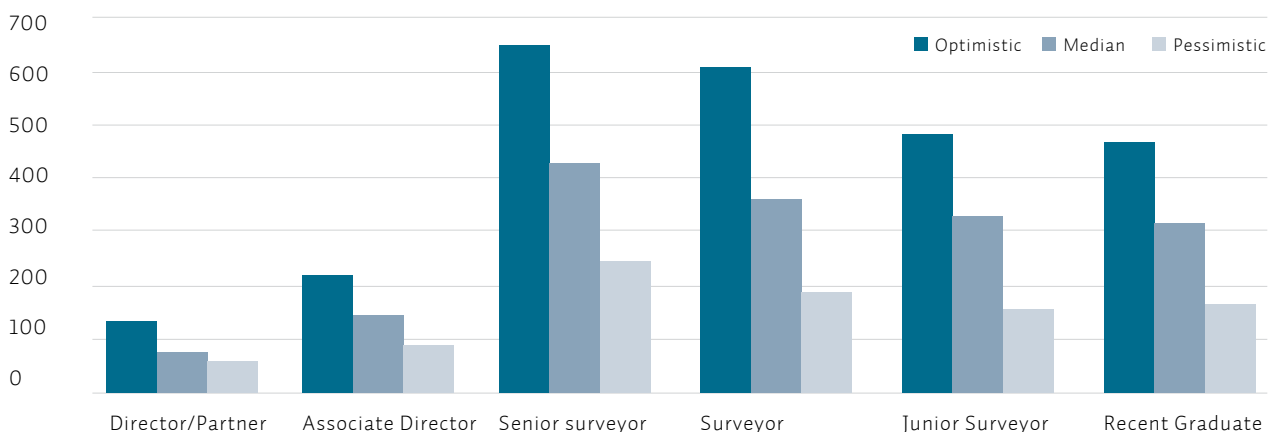


Figure 5.2 Level of QS Employment Growth 2018-2021

As can be seen from figures 5.1 and 5.2, a considerable demand for QS professionals across every level is likely over the time period covered within the report. In spite of the increase in third level enrolment (discussed in chapter 4), it is likely that there will be a shortage of qualified QS professionals over the time period from 2018-2021.

Based on survey data, a significant increase in demand for qualified QS's will be experienced in the timeframe, and this is particularly evident for experienced post-APC staff, reflecting both emigration during the economic recession and reduced numbers enrolling on third level QS Programmes at that time. Consequently, for those that moved abroad and may be considering a return to Ireland, there is now evidence to suggest that opportunities exist for experienced QS's. However, one significant constraint for returning emigrants that remains to be addressed lies with housing affordability for those considering a return to Ireland.

It is very likely that many senior positions will be filled from existing staff thus creating opportunities for junior QS's to occupy the vacant positions arising as people progress upwards.

Regardless of opportunities arising for lower levels due to vacancies through promotion, the demand for graduate surveyors is strong with new opportunities across the country. In some instances, according to interview participants, recruitment in the regions is less challenging than in Dublin, as people choose to move out of major cities due to affordability problems and commuting times.

Both survey and interview respondents noted that graduates that had undergone a period of work placement or had industry experience were preferred to those without. It was also noted that given the competitive nature of the QS labour market that a graduate who could add value to the organisation, for example based on dissertation research or IT skills, would also be demanded.

Survey responses also demonstrated a notable demand for QS's at director/partner and associate director levels. Demand at these levels is very likely to be filled by existing surveyors (either within or from another firm) which will further increase demand at senior surveyor levels, and therefore below that again. The demand for executive level QS staff gives rise to a management and leadership education and training requirements, discussed in section 5.2.2.

As noted in section 3.1.2 lack of available staff is the greatest constraint to employment growth for QS respondents. The result of this is that there is intense competition for qualified QS's in Ireland, which is exerting upward pressure on wages. Several sources noted that experienced QS staff are moving between practices at a greater rate than has been seen in the last number of years, and salaries are a key factor in their decision. Wage inflation was examined in detail as part of the 2017 SCSi Remuneration and Benefits Report and the impact on tender prices is apparent.

The future skills requirements of QS professionals are analysed in the next section.

"Construction activity in the regions, whilst increasing, is not currently experiencing significant skills shortages. This is in part due to construction trades and professional staff seeking, where opportunities present themselves, to relocate to regional locations for quality of life and affordability reasons."

Tomás Kelly, Director, Programme, Cost, Consultancy, AECOM

QUANTITY SURVEYING SKILLS REQUIREMENTS

For the most part, respondents believe that graduates are reasonably competent in core QS skills, however it appears there is still room for improvement as in some instances an “average” rating was confirmed by a large proportion of respondents.

Quantity Surveying Graduate Competency in Core Skills

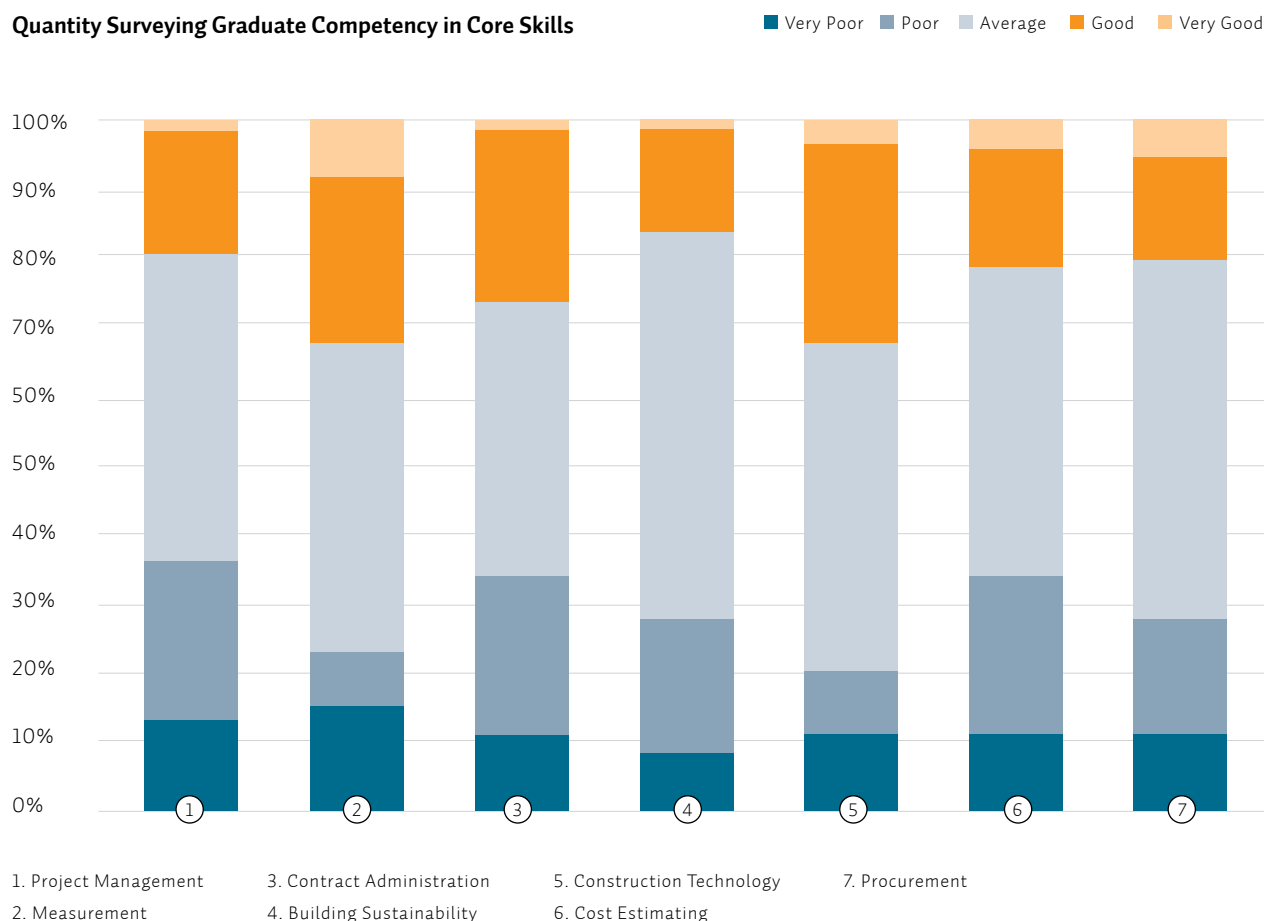


Figure 5.3: Quantity Surveying Graduate Competency in Core Skills

Interview respondents noted that that quality of graduates is satisfactory, with improvements made in areas such as measurement, however some suggested more focus could be placed on construction technology within third level QS programmes. A caveat to this was that respondents maintained that this is likely to improve as the candidate gains more workplace experience.

QS respondents however, overwhelmingly agreed (81%) that third level institutions should provide an advanced knowledge of the core QS skills. However, 96% confirmed that a collaborative approach between third level education institutions, industry and the SCSI is essential for developing the skills required.

Graduates fare somewhat better in terms of competency in transferrable skills. Teamwork, numeracy and IT skills are the key strengths of QS graduates according to survey respondents.

The rating of graduates transferrable skills is displayed in Figure 5.4.

Quantity Surveying Graduate Competency in Transferable Skills 2018-2021

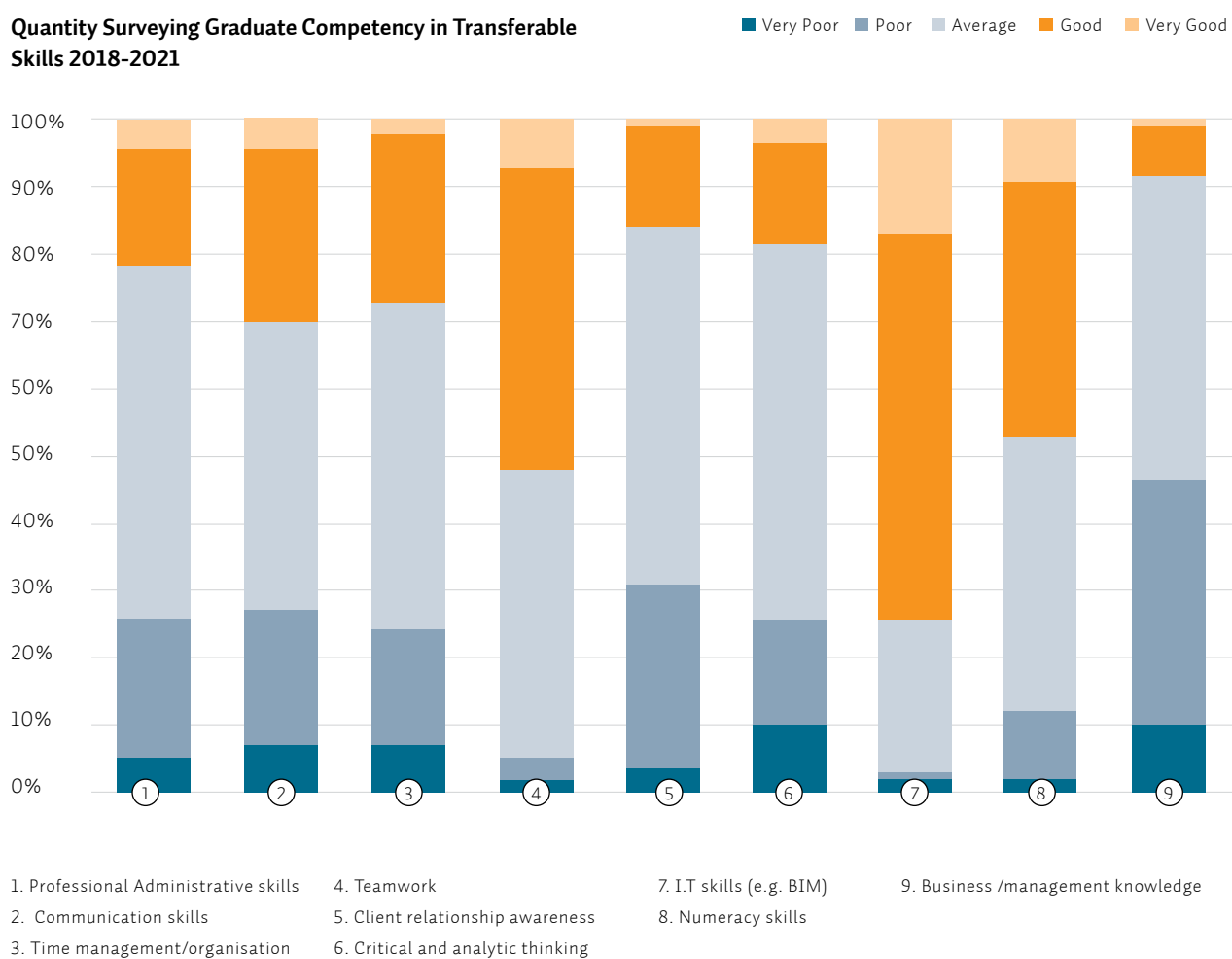


Figure 5.4 Quantity Surveying Graduate Competency in Transferable Skills

Digitisation of the construction sector is a driving force for a change in skillset for workers. Respondents to the survey acknowledged that graduates are proficient in the use of IT, faring above average in most instances. Interview respondents verified this finding, and further added that IT proficiency, including knowledge of BIM, may act as a differentiating factor between graduate applicants.

Expansion of services beyond traditional QS functions towards a more diversified construction management consultancy is becoming more prevalent in this sector. Thus general business management skills were identified by both survey respondents and interview participants as an aspect of education and training that requires further attention.

Another issue that remains unresolved is that of diversity in the construction workforce. Emanating from the qualitative phase of research in particular, the continued lack of diversity in the construction sector workforce was noted as an ongoing concern. Interview respondents highlighted the opportunities arising from encouraging a more diverse workforce, not only in terms of gender, but also nationality, culture and educational background. It was suggested

that promotion of the QS profession should address this imbalance. Additionally, it was suggested that widening the reach to other related professions to retrain in Quantity Surveying would simultaneously address the skills shortage but also bring to bear a diverse range of knowledge and skills that would benefit the construction project team.

“There has been considerable discussion in the last couple of years around the need to increase diversity in the construction industry. One possible solution which the industry could look closer at is seeking to attract graduates from non-construction related courses. This could introduce greater gender diversity but also diversity in approach and solutions and bring innovations to a sector which plays an increasingly important role in the broader economy.”

Tomás Kelly, Director, Programme, Cost, Consultancy, AECOM

Looking ahead, the top three skills required for QS professionals are illustrated in figure 5.5

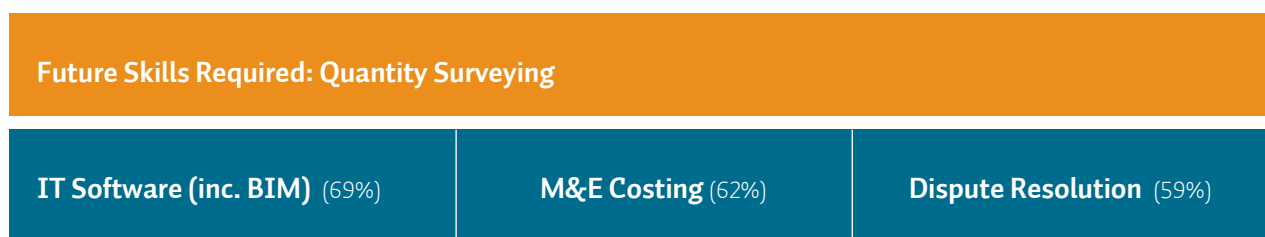


Figure 5.5 Future Quantity Surveying Skills Required

BUILDING SURVEYING: DEMAND AND SUPPLY

As noted in a previous chapter, for the purposes of determining the likely demand for Building Surveyors the responses gained were grossed up by a multiplier of 2.5, slightly below the 2.63 that would be justified by the response rate of 38%.

Figure 5.6 provides the overall possible future demand based on the three scenarios representing optimistic, median and pessimistic rates of annual economic growth of 4%, 3% and 2% respectively.

Currently only one IoT provides a BSc(Hons) Building Surveying with current enrolment standing at 93 students. Evidence from the survey data indicates that at current enrolment levels, there is unlikely to be a sufficient supply of Building Surveyors to meet demand up to 2021.

A number of interview respondents expressed concern over the low supply of Building Surveying professionals and confirmed the need for an additional programme to be developed in order to address the perceptible shortage. This is particular important given opportunities available due to BCAR.

“Building surveying practices are struggling to recruit qualified building surveying professionals. There is an urgent need for an additional building surveying degree programme to be developed, perhaps in Dublin, to address this shortage. A Dublin-based programme should incorporate work placement given the concentration of building surveying practices in the capital.”

Alan Baldwin, Managing Director, The Building Consultancy

Total Projected Additional Building Surveyor Demand and Supply 2018-2021

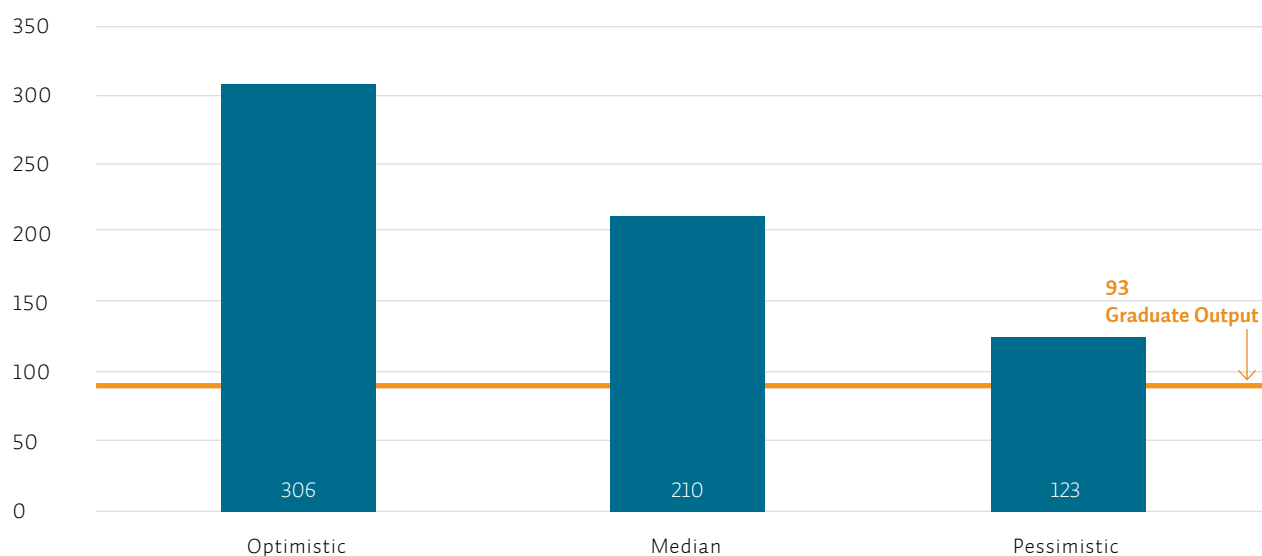


Figure 5.6 Total Projected Additional Building Surveyor Employment 2018-21

Opportunities exist for Building Surveyors at every level, however interview participants confirmed that the shortage

in experienced Building Surveyors is significant.

Level of Building Surveying Employment Growth 2018-2021

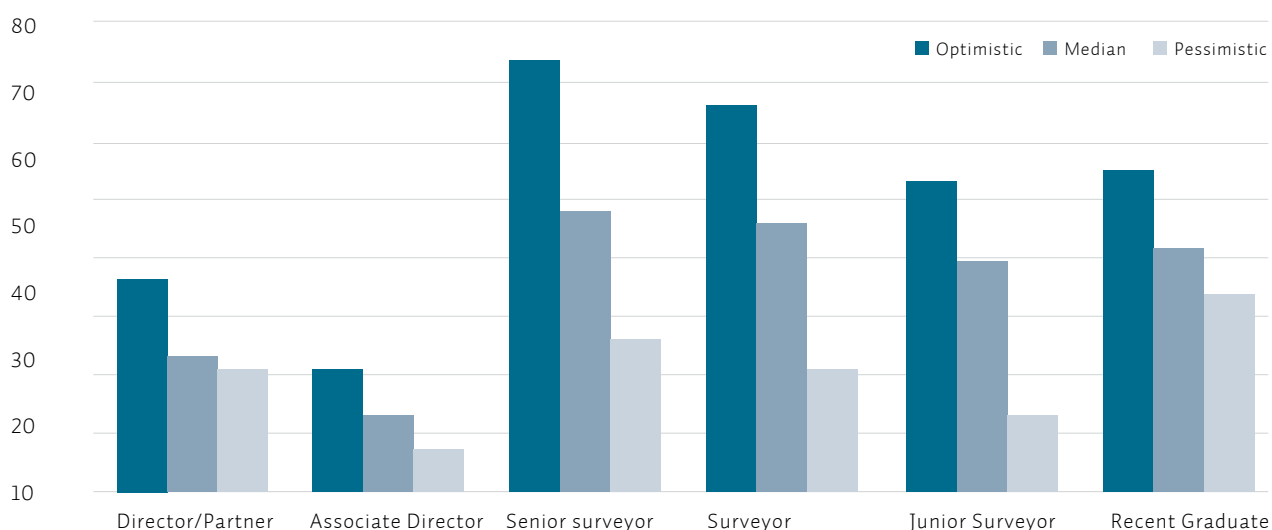


Figure 5.7 Level of Building Surveyor Employment Growth 2018-2021

A large number (73%) of respondents agree that there is an insufficient supply of experienced Building Surveyors. In fact it was noted that the shortage is so pronounced, that it is the single biggest risk facing the profession "...that has spent the last 20 years trying to promote itself." Approximately 10% of respondent firms recruit from abroad due to the insufficient pool of available resources domestically. International recruitment tends to be from the UK, where the Building Surveying profession is mature with a larger pool of experienced staff.

The overwhelming majority (79%) of survey respondents concur that there is an urgent need to promote the building surveying profession; not only to attract suitable candidates but to highlight the contribution of the particular skillset

brought by building surveyors to a project team. While Building Surveyors have a similar status to other construction professionals under BCAR, it is important to continue to emphasise to government and industry professionals alike, the value added by the Building Surveyor.

BUILDING SURVEYING SKILLS REQUIREMENTS

Building Surveying respondents noted that the core skill of building pathology was fundamental (99% of respondents ranked it above average).

Figure 5.8 outlines the core building surveying skills and how respondents perceive graduate capability.

Building Surveying Graduate Competency in Core Skills

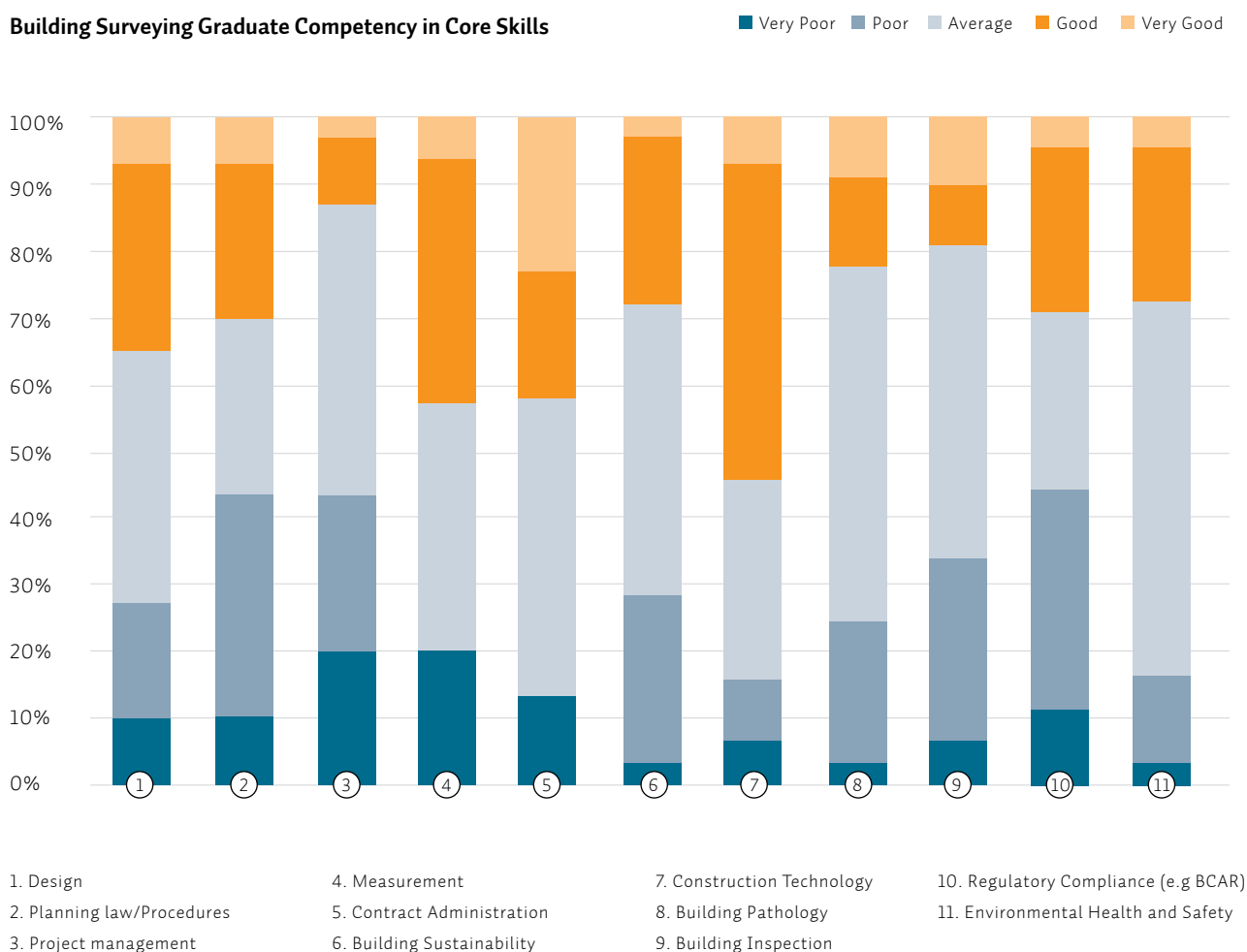
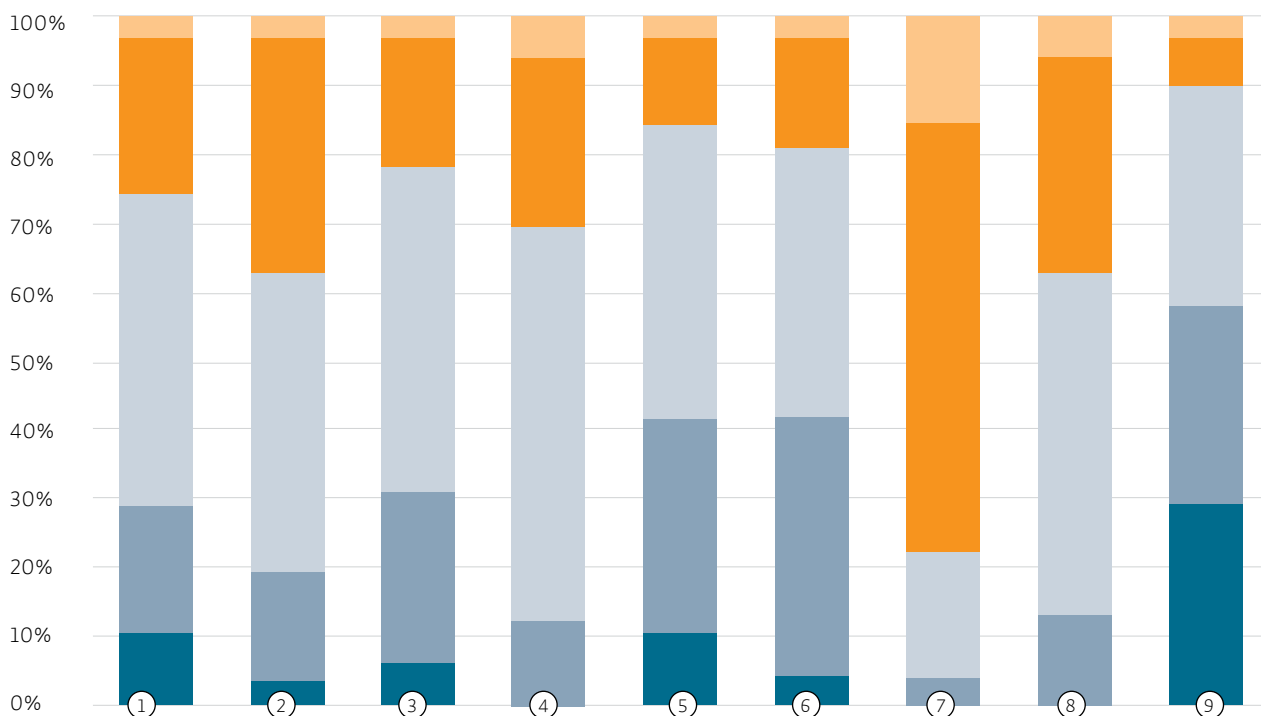


Figure 5.8 Building Surveying Graduate Competency in Core Skills

Building Surveying Graduate Competency in Transferable Skills

Very Poor Poor Average Good Very Good



1. Professional Administrative skills 4. Teamwork 7. I.T skills (e.g BIM). 9. Wider business/management knowledge
 2. Communication skills 5. Client relationship awareness 8. Numeracy skills
 3. Time management/organisation 6. Critical and analytic thinking

Figure 5.9 Building Surveying Graduate Competency in Transferable Skills

Respondents noted that graduates are proficient in IT skills with 65% of respondents confirming that graduates have above average competence in this area. Communication and numeracy skills were also ranked above average at by 38% and 37% of respondents respectively. However, business management knowledge (e.g. finance, planning, and leadership skills) was the most notable below-average skill identified, with 56% of respondents confirming that graduates were either poor or very poor in this regard.

Looking ahead, figure 5.10 illustrates the top three most

important skills for Building Surveyors, as confirmed by survey respondents. It is perhaps not surprising that building pathology is the key skillset followed by building performance evaluation.

The vast majority (87%) of building surveying respondents were of the view that third level education providers should provide an advanced knowledge of the requisite skills. However there was unanimous agreement that a collaborative approach between IoT's, industry and SCSI is essential for developing the skills required.

Future Skills Required: Building Surveying

Building Pathology (92%)

Building Performance Evaluation (84%)

Sustainable Construction (75%)

Figure 5.10 Future Building Surveying Skills Requirements

PROPERTY SURVEYING

PROPERTY SURVEYING: DEMAND AND SUPPLY

The likely demand for Property Surveyors is estimated based on the survey response by applying a multiplier of 4 to survey sample responses. As previously indicated, this is a somewhat conservative projection as the response rate of 23% would have justified a multiplier of 4.35.

The chart below compares the overall likely future demand based on the three scenarios representing optimistic (4% pa), median (3% pa) and pessimistic (2% pa) rates of economic growth to the expected supply of property surveying graduates from SCSi accredited programmes in the IoT's.

Total Projected Additional Demand for and Supply of Property Surveyors 2018-2021

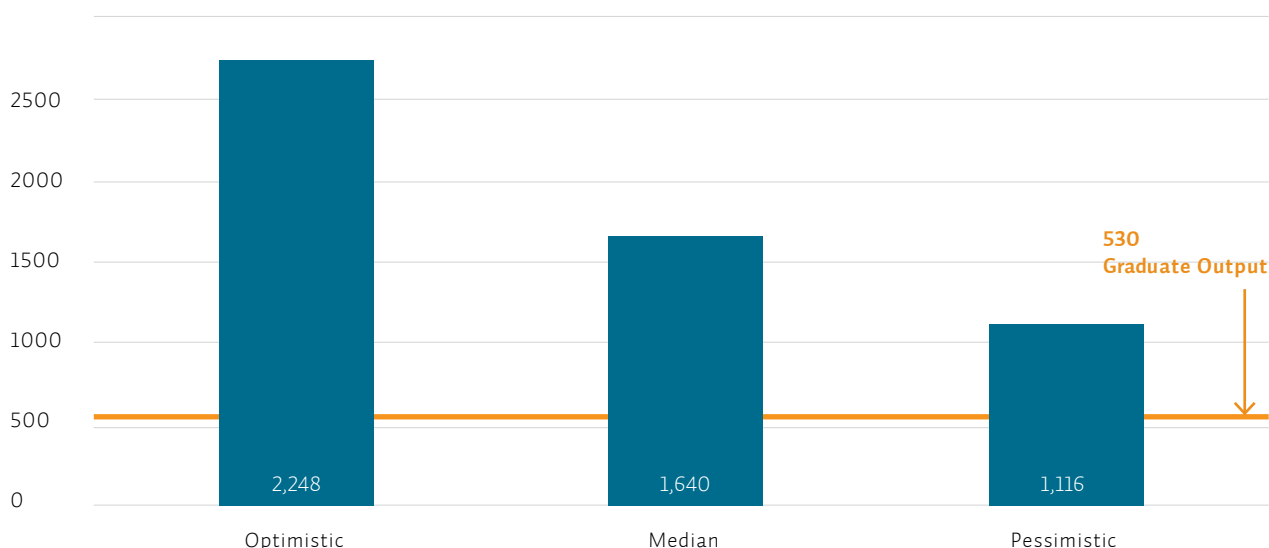


Figure 5.11 Total Projected Additional Property Surveyor Demand and Supply 2018-21

Figure 5.11 shows that even at the pessimistic employment projection, the level of demand is double the current supply level. This rises to more than 4 times the supply for the optimistic scenario.

These forecasts suggest that, at current levels of supply, and current levels of enrolment into property surveying related educational programmes, that there will be a significant shortfall in the supply of qualified professionals. The implications of this are:

- Rising wage levels at all stages of the career cycle, including at the graduate entry level as firms compete to hire the best graduates;
- Increased staff turnover as professionals move jobs more often in what would be a (labour) sellers' market;
- Increased levels of recruitment from other professions and non-cognate qualifications;
- Increased recruitment from overseas;

Figure 5.12 provides a breakdown of the total projected employment into different stages of the career cycle from entry to director level.

Level of Property Surveying Employment Growth

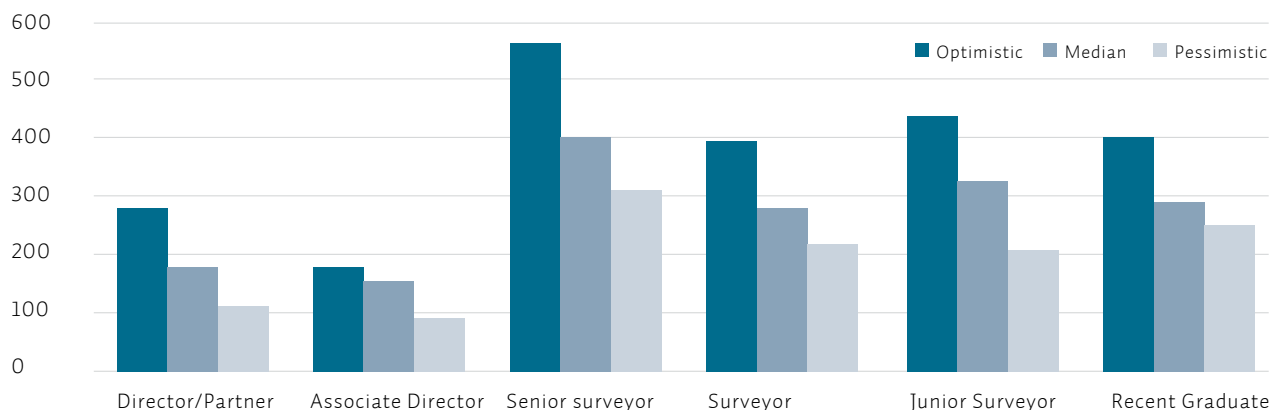


Figure 5.12 Total Projected Additional Property Surveying Employment Demand at Various Levels 2018-2021

Figure 5.12 indicates that employment creation will take place at all levels but particularly at the senior surveyor level, with over 300 new positions projected even in the pessimistic scenario.

PROPERTY SURVEYING SKILLS REQUIREMENTS

Overall survey respondents believe that graduates are fairly competent on the core skills with 'average' being the most frequent rating. However analysing the balance of positive and negative ratings indicates that respondents are generally satisfied with quality in these areas.

Property Surveying Graduate Competency in Core Skills

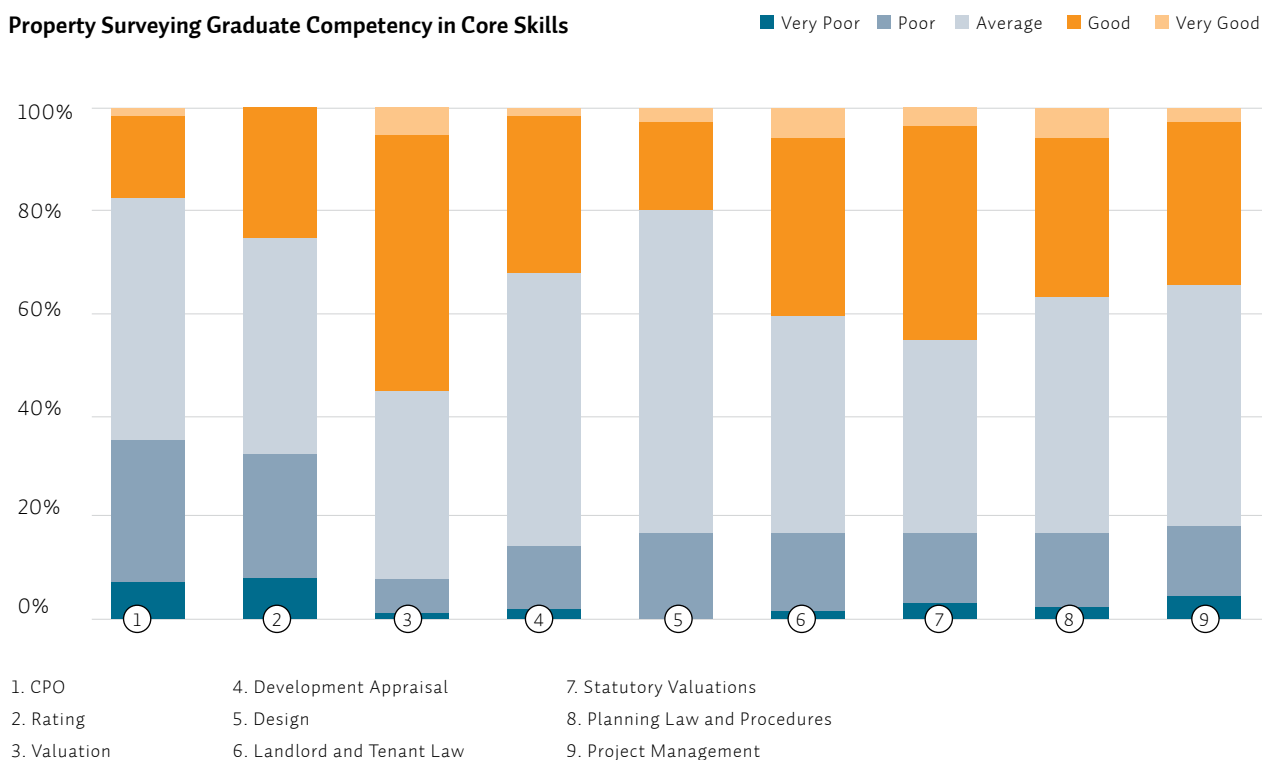


Figure 5.13 Property Surveyor Graduate Competency in Core Skills

It can be seen in Fig. 5.13 that in 7 of the 9 areas identified, that graduates are rated more positively by respondents. This is overwhelmingly so in the case of property valuations, where the positive rating outweighs the negative rating by a factor of 7.

The two areas in which graduates receive on balance a negative score (CPO and Rating) are both somewhat specialist functions/services and may reflect a lack of exposure of students to this material in programme content.

Property Surveying Graduate Competency in Transferable Skills

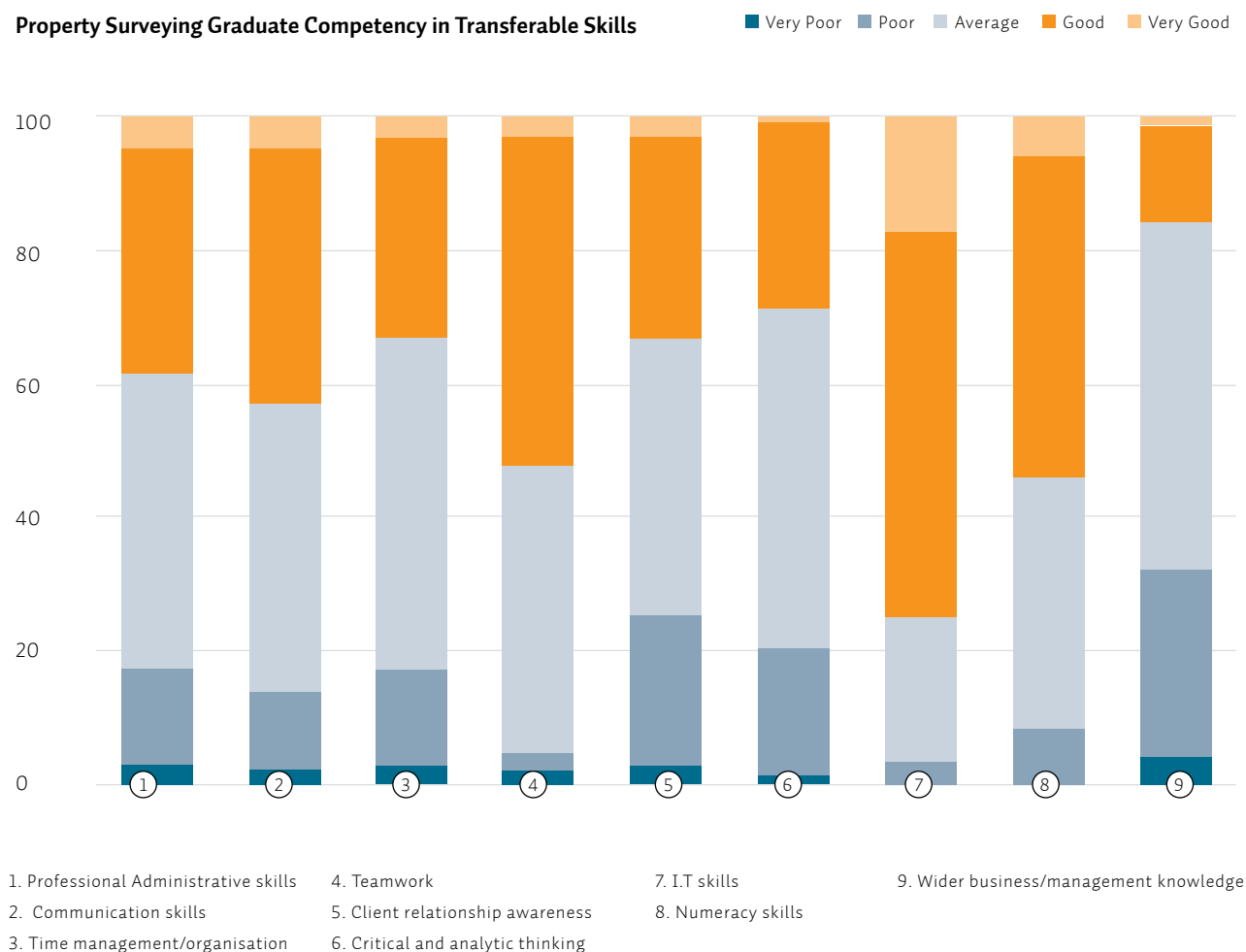


Figure 5.14 Property Surveying Graduate Competency Transferable Skills

In 8 of the 9 identified areas, graduates are rated more positively by respondents. In IT skills in particular, graduates are rated either 'good' or 'very good' by 75% of respondents compared to just 3.5% who rate them as 'poor' and none who rate them as 'very poor'. The 'poor' rating by a small number of respondents may reflect lack

of competence in bespoke software, which may not be taught in the colleges. This is a ringing endorsement of the quality of IT skills of graduates and is a very positive feature of graduates' skill profile given the speed of change of technology in the industry.

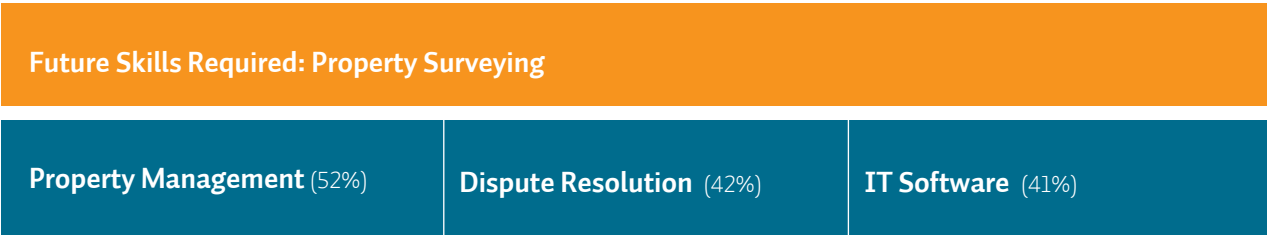


Figure 5.15 Future Property Surveyor Skills Requirements 2018-2021

Looking to the future, property management emerges as the key skill that will be required. This may include the wider definition of asset management as the profession is increasingly expected to deliver value-added services to clients, e.g. enhancing the value of assets through higher quality and better tenant mixes, more innovative lease terms as investors look for ways to compensate for the loss of the comfort of upward-only rent reviews, and possibly more hands-on management in the retail sector.

IT skills will remain critical given the rate of change of applications both in the delivery of services but also in relation to clients’ requirements. This could relate to online advertising and online sales.

The importance attributed to dispute resolution skills is somewhat surprising and may reflect a growing fear of litigation by clients. It may be the case that clients look to the profession to resolve issues before they reach the litigation stage.



LAND SURVEYING

LAND SURVEYING: DEMAND AND SUPPLY

The response rate for Land Surveyors was 39% therefore the actual figures obtained were grossed-up by a factor of

2.5 (rounded down to maintain a conservative approach to grossing the figure up to the total population).

Total Projected Additional Demand for and Supply of Land Surveyors 2018-2021

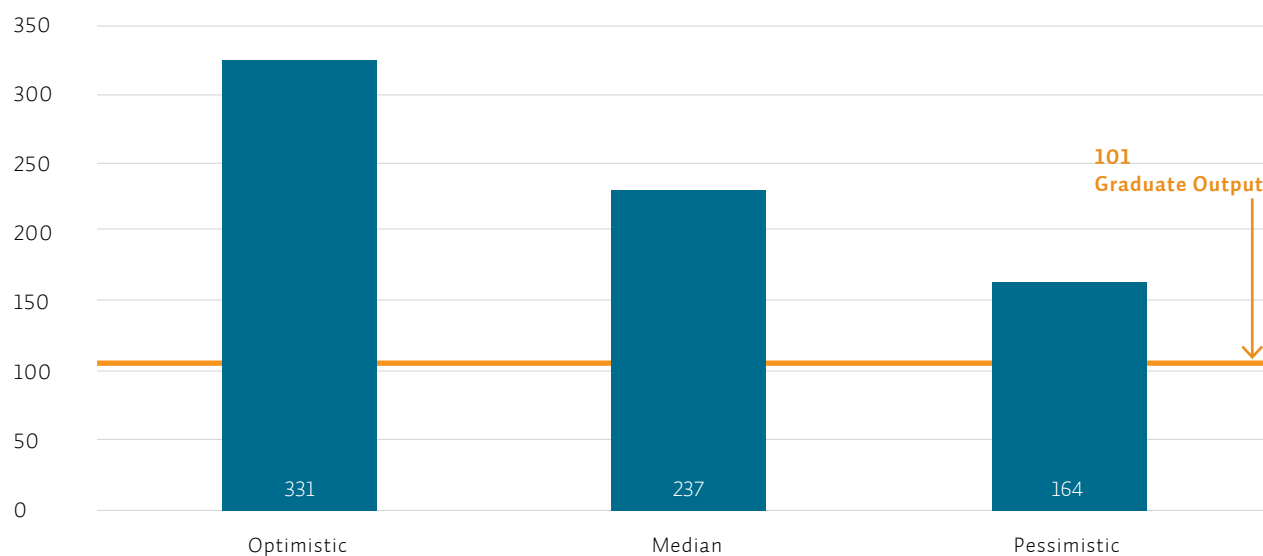


Figure 5.16 Total Projected Additional Land Surveyor Demand and Supply 2018-21

Level of Land Surveying Employment Growth 2018-2021

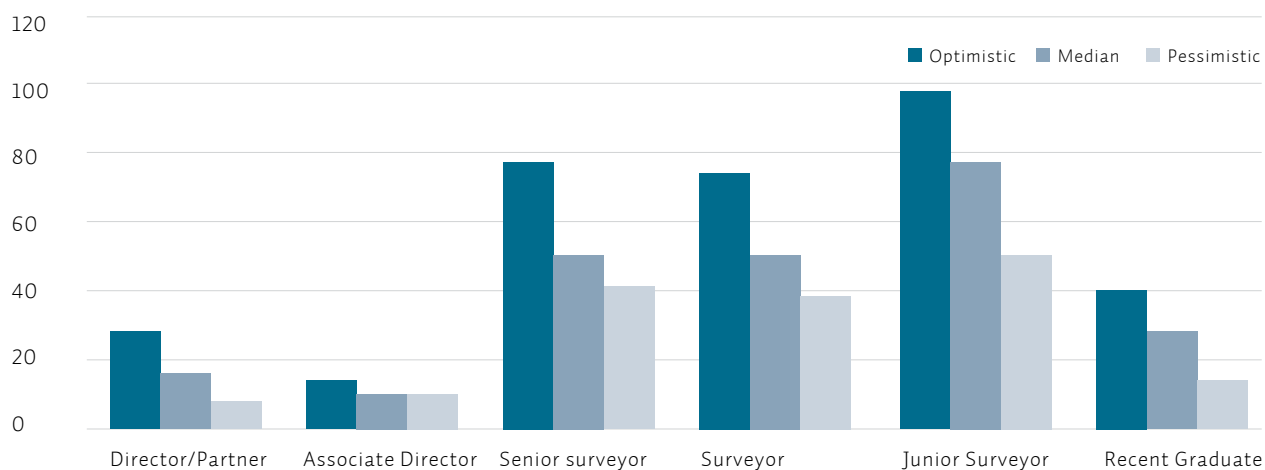


Figure 5.17 Land Surveying Employment at Various Levels 2018-2021

As is evident from figures 5.16 and 5.17, based on various potential economic growth forecasts presented to participants, there are significant variations in likely future demand for Land Surveyors as a whole. Based on the median scenario for economic growth, evidence suggests there is likely to be a considerable shortage in land surveying professionals.

The demand is most pronounced for senior level Land Surveyors, however once again it must be noted that over time the demand for senior surveyors is likely to be met from current staff therefore generating opportunities at lower levels.

The majority of survey respondents noted that there was insufficient numbers of graduates and experienced staff, however respondents indicated that for the most part, they were satisfied with the quality of graduate output.

Land surveying respondents identified the need to promote the professions, with 65% of respondents

agreeing that there is a need to market the profession to attract suitable candidates to it. Interview respondents raised the point that the profession is dominated by the use of state of the art technologies and therefore should be appealing to a wide variety of candidates working in a high-tech segment of the built environment.

“The world around us is constantly changing, from the cities we live in, to the infrastructure that underpins our lives every single day. Innovative new technology is pushing the boundaries of what can be developed as we see the concept of smart cities become reality, and new dimensions in 3D data capture are enabling developers to create Artificial Intelligence, autonomous vehicles and photorealistic animation. The profession is continually adapting and innovating as we look to the future we actively encourage young professionals to consider a career in geomatics/land surveying.”

Raymond Murphy, Chief Executive, Murphy Surveys Ltd.

LAND SURVEYING SKILLS REQUIREMENTS

Among respondent firms, graduates are considered to rank above average in specific land surveying skills including mapping, GIS, construction technology and measurement. Furthermore graduates scored above

average in transferable skills such as IT skills (72%), numeracy skills (52%) and teamwork (48%).

Data pertaining to core land surveying and transferable skills are contained in figures 5.18

Land Surveying Graduate Competency in Core Skills

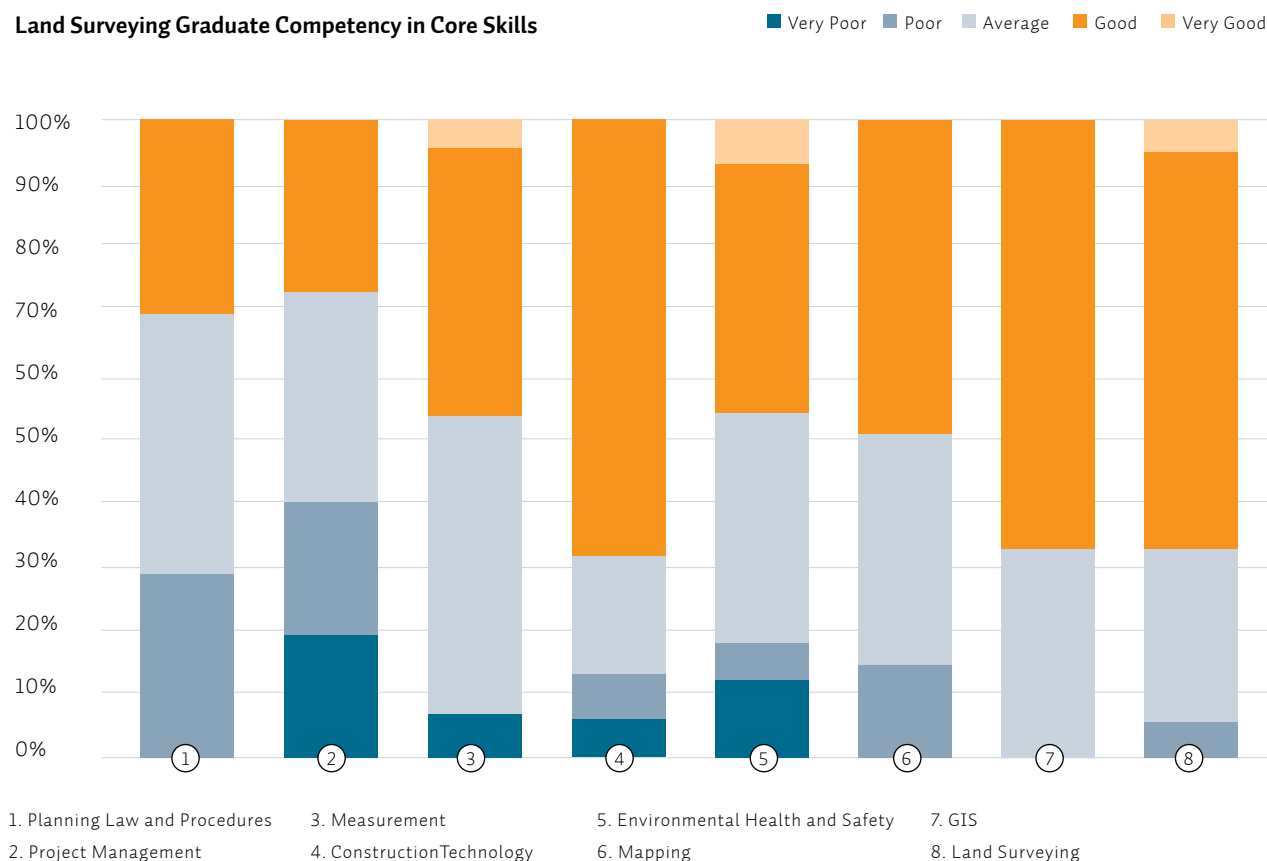


Figure 5.18 Land Surveyor Graduate Competency in Core Skills

As can be seen from figure 5.18 graduates tend to be competent in the core land surveying skills of measurement, mapping, GIS and land surveying particularly.

In terms of transferable skills, once again land surveying graduates are perceived as being competent in key

transferable skills, as displayed in figure 5.19.

IT skills in particular stand out as being a strong area for graduates according to survey responses, which is consistent with findings from the qualitative phase. Land surveying involves the use of high-tech equipment and software therefore it is essential that graduates have the requisite skillset in this regard.

Land Surveyors have a role to play across a multitude of business sectors, however the common thread is the use of disruptive technology. Graduates (and experienced Land Surveyors alike) must have an advanced knowledge in the use of these technologies, software and

programming (C++; Java etc.). Clients are becoming more knowledgeable in this regard and international firms operating in Ireland (particularly in the technology and pharmaceutical sectors) demand rapid data capture, accurate measurement and 3D visualisation of construction and property needs.

Land Surveying Graduate Competency in Transferable Skills

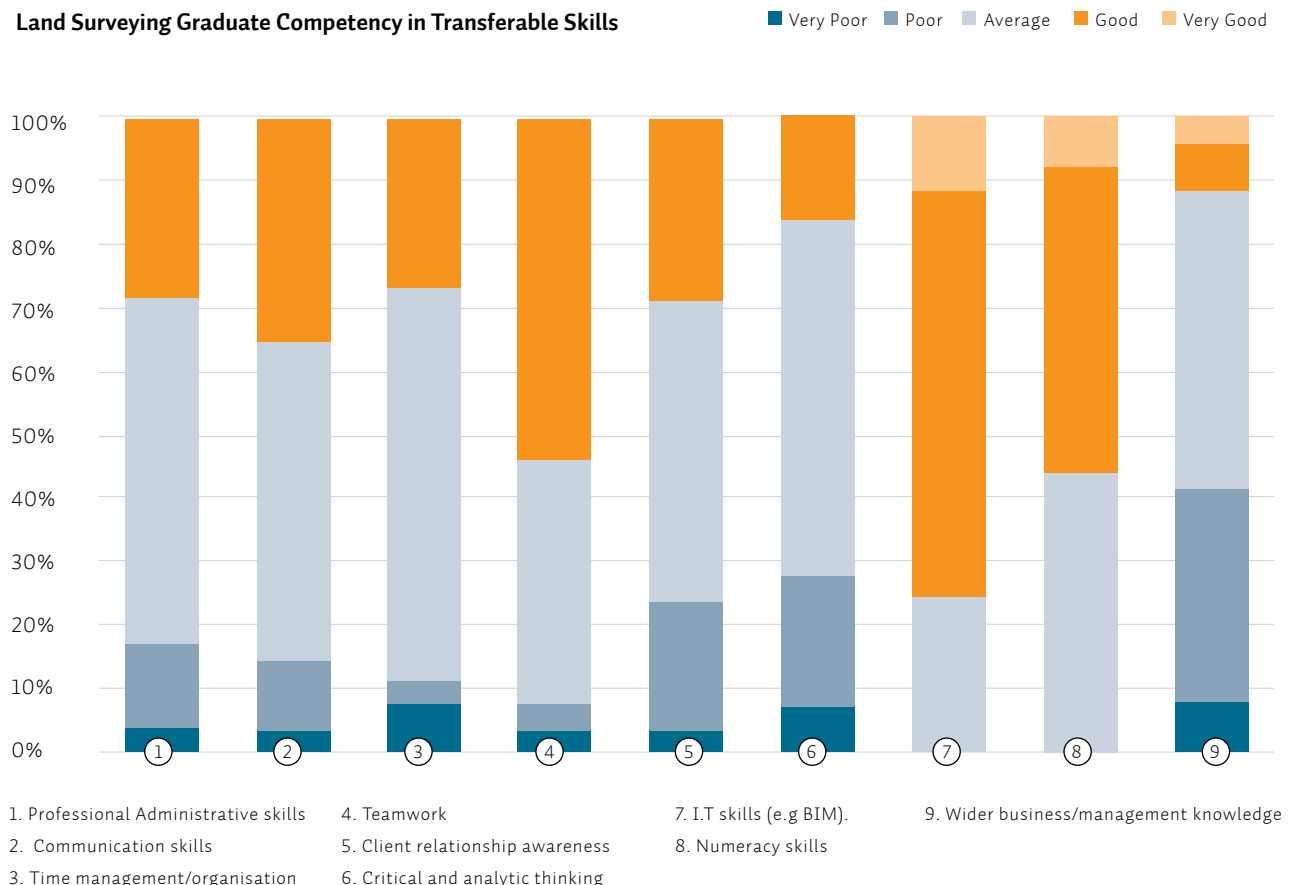


Figure 5.19 Graduate Competencies in Transferable Land Surveying Skills

Survey respondents were asked to identify the future skills required for the land surveying profession, the top three most frequently identified skills required are presented in figure 5.20. Once again, land surveying respondents believe that IoT's must provide an advanced knowledge

however, they were unanimous in their agreement that a collaborative approach between industry, education providers and the SCSi was essential to ensuring sufficiently skilled land surveying professionals.

Future Skills Required: Land Surveying

3D Modelling (55%)

IT software (45%)

Dispute resolution (34%)

Figure 5.20 Future Skills Required of Land Surveying Professionals

CONCLUSIONS

The primary conclusion from the findings and analysis presented in this chapter is that there is likely to be a shortage across all surveying professions based upon current enrolment on third level programmes versus likely demand based on alternative scenarios presented to SCSi member firms.

Respondents are generally satisfied with discipline-specific and transferrable skillset of graduates, and have clearly highlighted the importance of IT across all surveying specialisms.

Third level institutions must provide an advanced level of knowledge to students, however a collaborative approach to the education and training of competent surveyors is overwhelmingly endorsed.

One area that remains underdeveloped is in the education and training in relation to general business and management knowledge. Participants noted the requirement of surveying professionals to fully understand the business implications of client interaction, and this is an area where scope remains for improvement.

Across all surveying professions, but particularly construction, diversity in the workforce was identified as an underutilised resource. Potential exits for improved business performance arising from a more diverse workforce in terms of gender, race, culture and socioeconomic status, and it is believed that a more concerted effort to actively encourage a diverse workforce must be engaged upon.





CONCLUSIONS AND RECOMMENDATIONS

The report is a comprehensive investigation into employment opportunities and future skills needs across all surveying professions, from which several conclusions and recommendations may be made.

CONCLUSIONS

Limited national employment data relating to surveying

There is limited national employment data relating to the surveying profession. This presents a difficulty in analysing labour market trends and, in particular, projecting required labour supply. This report makes a contribution to filling this gap in information.

Demand for surveying professionals projected to be very strong

Evidence from the report has confirmed a clear demand for additional surveying professionals across every level of experience in the period 2018-2021 based upon each of the scenarios of economic growth presented to participants. The demand is particularly pronounced for experienced, post-APC professionals in construction, property and land surveying.

Supply of surveying professionals is growing

There is a notable increase in enrolment on surveying programmes on an annual basis nationwide since the 2014 report, both in terms of intake to existing programmes and the establishment and accreditation of a number of new programmes.

Demand is expected to outstrip supply over next four years

However, based on current estimates it is likely that the projected supply will not be sufficient to meet projected

demand. A shortage in qualified professionals has been identified across construction, property and land surveying. The shortfall is substantial based on the official projected economic growth but remains significant even in a more pessimistic economic growth scenario.

Domestic demand will be a key driver of employment growth

The main future drivers of employment growth for surveying professionals have been identified as consumer sentiment and private sector indigenous investment. FDI and the NPF are also likely to generate additional employment opportunities. Research participants remain undecided regarding the impact of Brexit on their business and recruitment growth.

Lack of supply will act as the main constraints to employment growth

The lack of sufficient number of suitably qualified surveying professionals is the single greatest constraint to employment growth. This was identified as the key issue across construction, land and property surveying practices.

IT competence is now the critical skills necessity

Findings confirm the crucial importance of IT skills for every surveying practice area. Interview respondents expressed the view that under-investment in this area by the industry over the past decade may have left the sector lacking in expertise in the context of the application of technology to the surveying services provided.

Collaboration between the profession, the SCSi and the education sector is crucial in addressing the skills challenge

Research participants confirmed that while the onus should remain on the third level sector to provide an advanced discipline-specific knowledge, that a collaborative approach involving third level education providers, industry and the SCSi was necessary to ensure competent surveying professionals for the future.

Research and Advanced Qualifications are required

There is a growing requirement for more advanced qualifications, e.g. Masters level programmes in the third-level sector or CPD, particularly in relation to strategic business functions.

Profile of industry membership lacks diversity

The research found that there is a growing awareness of the lack of diversity in surveying professions. This ranges across gender, race, educational background, experience, range of skills etc. It is recognised that diversity in the workforce is very beneficial and must be encouraged/supported.

Profession may be losing business to other professions in emerging areas of activity

There is a perception that boundaries between professions is increasingly blurred and consequently other professions may become involved in the provision of services traditionally the preserve of surveyors. There is concern at the potential impact on some aspects of surveying services.



RECOMMENDATIONS

Promote surveying professions

It is imperative that the SCSi continues to market and promote surveying professions, not just to school-leavers but should widen the focus to encourage a more diverse amalgam of personnel into surveying professions. This should include non-cognate professionals retraining in surveying-related degree and masters level programmes.

Enhance level of collaboration between main stakeholders

While there are existing arrangements to ensure a degree of collaboration between industry, third level education providers and the SCSi, the Society should take the lead in making this more regular, more formal and with measurable outputs.

Each stakeholder can benefit from the input of the other e.g. educational programmes being industry informed and practice led; academic institutions undertaking industry-based research.

Provide more advanced qualification for surveying professionals

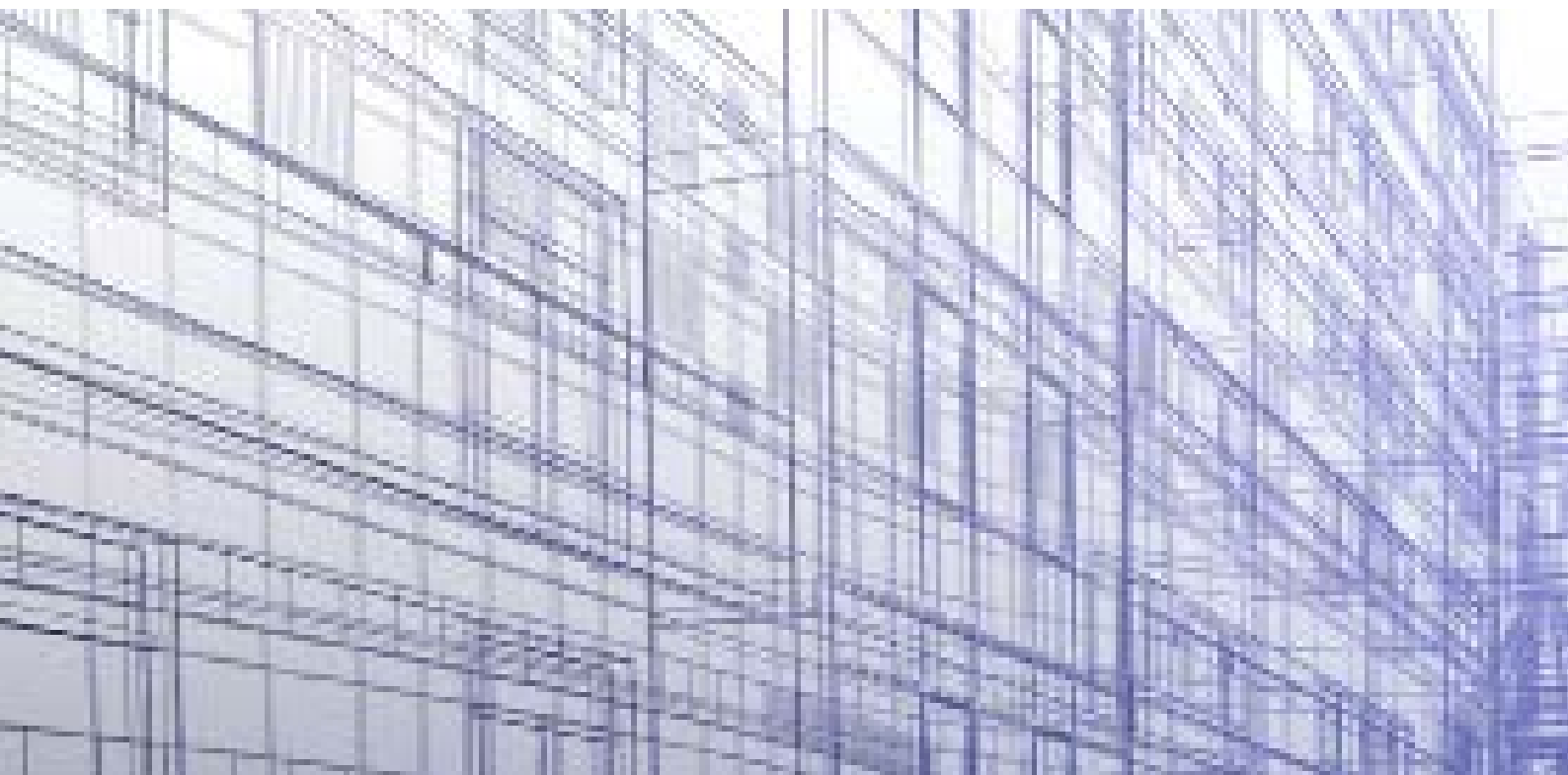
As part of the above collaboration, the partners should identify and establish more advanced, industry-relevant programmes, either formal Master's level qualifications or short suites of stand-alone CPD. This could be particularly in the areas of strategic management or IT.

Treat the acquisition of Information Technology skills as a top priority for the profession

The profession should adopt the acquisition of IT as a top priority. This could be linked to developing Ireland's profile as a centre of excellence in relation to the application of technology across the surveying professions and the built environment.

Confirm the profession's primacy in recognised areas of expertise

The profession should enhance its public profile to ensure that its traditional primacy in construction, land and property surveying is at the forefront of consideration in the public and private built environment sectors alike.



Encourage the return of experienced surveyors back to Ireland

As part of the response to addressing the shortage of surveying professionals, the time is right to incentivise the lost generation of surveyors that emigrated during the recession, to return to Ireland. There are cost implications of this (acutely evident in terms of housing affordability), which must be addressed by the government. Surveying professionals, in conjunction with other industry stakeholders, should campaign for an appropriate incentive package to be developed to offset some of this cost.

Encourage greater investment in third level education sector relevant to the profession

The profession should encourage Government to more fully recognise the importance and contribution of surveying services to the economy and built environment as a whole and support the development of the profession through investment in the third-level education, in line with other areas of activity e.g. Science, Technology, Engineering and Mathematics (STEM).

Promote and support relevant applied research relevant to the profession

Empirical research pertaining to the construction, property and land sectors should be undertaken at a strategic level involving various stakeholders, including membership bodies, third level institutes, practitioners and government agencies.

It is recommended that a working group be established including stakeholder representatives with the objective of developing a thorough and applied research strategy programme for the profession. A successful outcome to this recommendation would require adequate funding, but would serve to address limitations in national data pertaining to surveying professions.





ABOUT THE AUTHOR

Dr Róisín Murphy is a Senior Lecturer in the School of Surveying and Construction Management (SSCM), DIT. Having completed her primary degree in Economics and History from UCD, Róisín holds Masters' Degrees from both the UCD Smurfit School and Heriot Watt University. She completed a Doctor of Business Administration (DBA) from Heriot Watt University with doctoral research entitled "Strategic Planning in Irish Quantity Surveying Practices" in 2011. A portion of the research was part-funded by the SCSi through the provision of a research grant. Several peer-review publications stemmed from the research, which has also been presented at conferences across Europe and the USA.

Róisín is the lead author of the SCSi Employment Opportunities and Future Skills Requirements for Construction and Property Surveying report, published in 2014. She has subsequently undertaken research on behalf of several professional bodies and construction industry stakeholders in relation to strategic management and labour market analysis.

Róisín lectures in areas related to construction and property economics and strategic management at all levels of the NFQ framework. Research interests mirror these subject areas. As a research active member of SSCM staff, Róisín is currently engaged in a number of industry-based research projects and is acting as lead supervisor to several PhD candidates.

Contact: roisin.murphy@dit.ie

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APPENDICES

APPENDIX 1: Surveying Disciplines

Chartered surveyors are highly trained and experienced professionals, who are typically employed throughout the construction, property, and land sectors and will usually specialise in one of the following areas.

CONSTRUCTION

Quantity Surveyor –
advises on the costs of developing all types of buildings and infrastructure;

Building Surveyor –
carries out building surveys and provides management and design consultancy services; and,

Project Management Surveyor –
manages complex building and infrastructural projects.

PROPERTY

Residential Agency Surveyor –
provides professional expertise in the valuation, management, letting, and sale of residential property;

Commercial Agency Surveyor –
provides professional expertise in the valuation, management, letting, and sale of commercial property;

Valuation Surveyor –
provides professional expertise in valuations, acquisitions, disposals, investments, and rent reviews for all types of property;

Property and Facilities Management Surveyor –
provides professional management services for residential and commercial multi-unit developments and facilities; and,

Arts and Antiques Surveyor –
provides professional expertise in the valuation and sale of arts and antiques.

LAND

Planning and Development Surveyor –
manages the proposals to develop new, or refurbish existing, buildings;

Geomatics Surveyor –
maps the built and natural environment to provide accurate spatial data, which facilitates planning, development, and conservation;

Minerals Surveyor –
provides expertise in the full-life cycle of mineral development; and,

Rural Surveyor –
values, manages, and sells agricultural land including forestry.

APPENDIX 2: SCSI Accredited Third Level Programmes

CORK INSTITUTE OF TECHNOLOGY

BSc in Quantity Surveying (level 7)
BSc (Hons) in Quantity Surveying (level 8)

DUBLIN INSTITUTE OF TECHNOLOGY

Higher Certificate Property and Facilities Management (level 6)

Higher Certificate Property Studies (level 6)

BSc (Hons) Surveying (Property Economics) (level 8)

BSc (Hons) Property Studies (level 8)

BSc (Hons) Quantity Surveying and Construction Economics (level 8)

BSc (Hons) Geographic Science (level 8)

MSc Quantity Surveying (level 9)

MSc Real Estate (level 9) MSc Planning and Development (level 9)

MSc Geographic Information Science (level 9)

MSc Geospatial Engineering (level 9)

DUNDALK INSTITUTE OF TECHNOLOGY

BSc (Hons) Building Surveying (level 8)

GALWAY-MAYO INSTITUTE OF TECHNOLOGY

BSc Construction Economics and Quantity Surveying (level 7)

BSc (Hons) Construction Economics and Quantity Surveying (level 8)

Institute of Technology Sligo
BSc Quantity Surveying (level 7)

BSc (Hons) Quantity Surveying (level 8)

LETTERKENNY INSTITUTE OF TECHNOLOGY

BSc in Quantity Surveying (level 7)

LIMERICK INSTITUTE OF TECHNOLOGY

Higher Certificate Property Valuation and Management (level 6)

BSc (Hons) Property Valuation and Management (level 8)

BSc (Hons) Quantity Surveying (level 8)
MSc Quantity Surveying

WATERFORD INSTITUTE OF TECHNOLOGY

BSc (Hons) Quantity Surveying (level 8)
MSc Construction Project Management (level 9)

NUI MAYNOOTH

MSc Geograp.Information Systems & Remote Sensing (level 9)

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