



Chartered property,
land and construction
surveyors

SUSTAINABLE DEVELOPMENT IN THE SURVEYING PROFESSION

Dr Róisín Murphy 2022



CONTENTS



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In 2021, the SCSi commissioned an independent research report from Dr Róisín Murphy to explore how well sustainability is embedded at all levels in the property, land and construction disciplines, ranging from third-level course content to professional practice and supports to members and firms from the SCSi.

This report is unique in exploring these issues across the full lifecycle of the built environment and not only assesses our readiness for change but also provides practical recommendations to ensure that sentiment and vision align with positive action.

The report provides us with a picture as to how well sustainability is embedded in SCSi-accredited programmes at third level; it looks at priority areas in sustainable development for surveying professionals and areas of sustainable development that professionals advise upon. These will in turn inform the future development of CPD and training for members. The report also looks at the drivers and challenges facing the profession and crucially, the report provides a suite of practical recommendations for third-level providers, for surveying professionals, for the SCSi and for Government, all of which can form the basis for a roadmap to continue to drive sustainable practice and embed it fully within our profession.

The capacity of the existing labour market to meet the demand for surveying professionals is also a critical factor. The report identifies a general shortage of graduates to meet demand and a specific shortage of individuals with the skillsets required to fully embed sustainability into practice. While the numbers entering third-level surveying programmes are increasing year on year, the challenge of a shortage of qualified surveyors remains. Those who recognise the opportunity this presents and who embrace it will be well placed to contribute to our industry both domestically and globally. It is imperative that we continue to encourage increased diversity and overall numbers of people into surveying professions.

Similarly, for those already employed within the sector, the rapid pace of change and innovation in our industry requires more than ever that the SCSi and our members continue to ensure that we are highly educated, highly trained, embrace change and support a sustainable surveying profession.

TJ Cronin
SCSi President



EXECUTIVE SUMMARY

Sustainable development is development that cultivates an inclusive society where economies and communities can flourish, whilst protecting our planet and improving the quality of life for its inhabitants. It requires collective action to address the climate crises, inequality and poverty and to safeguard natural resources for future generations.

The built environment sector provides the homes, workplaces, amenities and infrastructure to support everyday activity, and is a key contributor to economic growth and employment, but also to emissions and resource use. Construction, land and property surveyors are engaged throughout the built environment lifecycle and therefore, are uniquely positioned to lead and accelerate the transformational change required to ensure a sustainable built environment.

The United Nations Sustainable Development Goals (UNSDGs) provide a blueprint exhibiting social, economic and environmental goals to be considered as a system of interrelated objectives. Attainment of the SDGs requires a global approach, which is entrenched in national, local and sectoral actions.

There are many challenges to achieving the SDGs, chief amongst them is whether sufficient capacity and capability exists to deliver on sustainability measures outlined in Government strategies, for example 'Housing for All', the 'National Climate Action Plan' and the 'National Development Plan (NDP)'. Government policy is underpinned by a legally binding international agreement to achieve net-zero carbon emissions by 2050, and it is imperative that sufficient knowledge and competence exists to advise public and private sector clients on sustainable solutions to achieve these ambitions.

The purpose of this report is to provide a baseline of sustainable development knowledge, skills and competence, which heretofore was undetermined within surveying professions. Research was undertaken in three phases involving education providers, practising surveying professionals and a range of non-surveying professionals with expertise in sustainable development.

Findings from the research confirm that higher education institutions (HEIs) within which SCSi-accredited surveying programmes are delivered have implemented numerous initiatives to ensure sustainable development forms part of academic curriculum and co-curriculum.

HEIs, through a complex ecosystem of stakeholders have tremendous reach and influence, therefore the incorporation of sustainability in corporate and operational strategy is an encouraging indication of HEIs commitment in this regard.

At a programme level, sustainability is embedded in surveying programme content and coupled with a wide range of assessment methods employed, demonstrates that sustainability literacy is fostered amongst learners. Whilst these findings are encouraging, scope exists for a more explicit articulation of sustainable development content within programmes. Participants in this research were overwhelmingly in support of the proposition that future SCSi accreditation should be conditional upon alignment to SDGs.

Surveying practitioners acknowledge the criticality of sustainable development but are at differing stages on the journey towards fully entrenching it within their business. Engagement in sustainability training is prevalent, but the measurement and monitoring of aspects such as carbon emissions is varied. The key drivers of sustainable solutions being advised upon derive from client demand, Government policy, as well as for the common good, though skills shortages and cost inflation present significant challenges. Transparent sustainability credentials are increasingly demanded by clients and the authentic advancement of environmental social governance (ESG) is important to improve business operations, and may result in competitive advantage in the process. ESG training and development is required to further develop expertise in this area.

The research provides important new insight into the current knowledge and practice of sustainable development within the surveying profession, which can act as a yardstick against which future progress may be measured. A range of recommendations and associated actions are suggested to propel and support surveying professionals in leading the way in the provision of innovative solutions for a sustainable built environment.

SCSI ACCREDITED PROGRAMMES

11

HIGHER EDUCATION INSTITUTIONS (HEIS)

50%

OF HEIS HAVE A SUSTAINABLE DEVELOPMENT STRATEGY

24

SURVEYING PROGRAMMES

48%

OF PROGRAMMES HAVE SUSTAINABLE DEVELOPMENT IN PROGRAMME LEARNING OUTCOMES

74%

CONTAIN A WORK PLACEMENT

SURVEYING PRACTICE

57%

SUSTAINABILITY IS CLIENT DRIVEN

82%

ENERGY EFFICIENCY IMPROVEMENTS

53%

PUBLIC INTEREST KEY BENEFIT

65%

KEY CHALLENGE IS COST

55%

SHORTAGE OF SKILLS

28%

MEASURE PROGRESS TOWARDS CARBON EMISSIONS REDUCTION

14%

APPLIED FOR SUSTAINABILITY GRANT

37%

DEDICATED SUSTAINABILITY STRATEGY

1 INTRODUCTION



Sustainable development relates to the interconnected and concurrent pursuit of economic, social and environmental objectives and is defined as:

“Development that meets the needs of the present without compromising the ability of future generations to meet their own needs”.

(Brundtland Commission Report, 1987)

Sustainable development is a complex and multifaceted issue that impacts every aspect of our planet and all its inhabitants. For several decades the discourse on sustainable development has centered upon the capacity of the Earth’s natural resources to satisfy the increasing human population in an equitable manner.

The scientific evidence published by the **Intergovernmental Panel on Climate Change (IPCC)** in August 2021 demonstrates the unambiguous impact of human activity in warming the atmosphere, ocean and land with devastating, permanent outcomes. Unless we combat global warming with drastic action, irreparable damage will continue to be inflicted.

All built environment professionals have a responsibility to ensure our cities, towns and buildings over their whole life, are climate resilient, achieve superior sustainable performance and improve the

wellbeing of the entire population. Surveying professionals play a leading role in planning, constructing, managing and maintaining our built environment and it is incumbent upon the profession to ensure there are adequate knowledge, skills and competence to address the significant challenges that lie ahead. Ambitious goals require us to transform business as usual and unlock opportunities for the global benefit of generations of the future.

The purpose of this exploratory research is to ascertain the current knowledge and skills of surveying professionals, to determine the extent to which sustainable development is addressed and advised upon in practice, and to identify supports required within the profession to meaningfully engage in sustainable development.

This is the first research report of its kind in Ireland, and a holistic approach has been adopted incorporating input from a variety of stakeholders on a broad range of facets of sustainable development.

The research, although commissioned by the SCSi, has been undertaken by an independent researcher ensuring objectivity in data collection, analysis and presentation of findings herein.

It is unfeasible to provide a detailed scrutiny of every aspect of sustainable development within this report, however, the following section provides a synopsis of several critical issues.

FIGURE 1: UNITED NATIONS SUSTAINABLE DEVELOPMENT GOALS (UNSDGs).



The report does not follow traditional academic referencing conventions, but rather reference materials are hyperlinked within the report to facilitate ease of access to useful sources of information.

1.1 BACKGROUND TO SUSTAINABLE DEVELOPMENT AND BUILT ENVIRONMENT

1.1.1 GLOBAL AND NATIONAL CONTEXT

Sustainable development has its origins dating back to the early 1970s, with the United Nations (UN) Conference on the Human Environment, and each subsequent decade represents a milestone in progress. Examples include the previously referenced Brundtland Commission Report (1987), the Rio de Janeiro Earth Summit (1992), Kyoto Protocol (1997), and the Johannesburg Conference on Sustainable Development (2002). More recently, the UN Agenda 2030 was agreed by 193 countries in September 2015 at the UN Sustainable Development Summit. This included 17 Sustainable Development Goals (SDGs) that came into force in January 2016. SDGs form a critical part of a call for global action to balance human prosperity and equality with protecting the planet to improve the lives of the global population now and into the future. The UNSDGs (presented in **Figure 1**) are:

“... a roadmap to ending global poverty, building a life of dignity for all, and leaving no one behind. It is also a clarion call to work on partnership and intensify efforts to share prosperity, empower people’s livelihoods, ensure peace and heal our planet for the benefit of this and future generations”.

UN Secretary-General Ban Ki-moon (2015)

The **UNSDGs** provide a useful framework through which our actions and activities can be considered in the context of social, economic and environmental priorities. Contained within the 17 SDGs are 169 targets (and several hundred actions) to be implemented at a national and international level against which progress may be monitored and used to inform policy.

While the UNSDGs provide a non-binding framework, the Paris Agreement (adopted in 2015 and came into force in 2016) provides the legally binding international treaty on climate change. The agreement aims to reduce emissions by at least 51% by 2030 and deliver net-zero greenhouse gas (GHG) emissions at EU level by 2050.

The UN Conference of the Parties (COP) climate change annual conference took place for the 26th time in Glasgow in October/November 2021, at which progress towards the 1.5°C goal was top of the agenda. COP26 resulted in advancement of some

1 INTRODUCTION

aspects such as mitigation, adaption, finance and collaboration; however, there remain considerable challenges in achieving Paris Agreement targets.

Climate change is the most critical issue facing our planet and its inhabitants, but it is important that a systems-thinking approach is adopted to consider all 17 SDGs in a coherent fashion. Goals must be realised as a collective of mutually interdependent objectives, therefore, SDG13 (climate action) must be accomplished in cognisance of the entire interconnected system on a global basis.

Ireland

In Ireland, a whole-of-government implementation plan, **Sustainable Development Goals National Implementation Plan 2019-2020**, was first published in April 2018 to address sustainable development. As part of the Implementation Plan, a **Matrix of Lead and Stakeholder Departments** in addition to an **SDG Policy Map**, specify which department and national policy addresses each SDG. Progress towards achieving the UNSDGs is monitored in various ways, including the data hub **Geohive**.

More recent policies in Ireland specifically address sustainable development including, but not limited to, the following:

- ▶ **Climate Action and Low Carbon Development (Amendment) Bill 2021** (July 2021): for the purposes of establishing a legally binding framework for transitioning to net zero and a climate neutral economy by 2050;
- ▶ **Housing for All – a New Housing Plan for Ireland** (September 2021): objective to provide access to good quality affordable homes to purchase or rent at a high standard for a high quality of life;

- ▶ **National Development Plan 2021-2030** (September 2021): includes expenditure for the National Retrofit Plan, public transport and carbon tax;
- ▶ **Budget 2022** (October 2021): €858 million allocation to support the transition to a climate-neutral, circular and connected economy and society; allocations to improve education and access to healthcare; and,
- ▶ **Whole of Government Circular Economy Strategy** (December 2021): provides a policy framework to transition to a circular economy by supporting and implementing measures to reduce circularity gap.

Significantly, the Climate Change Advisory Council has (on October 25, 2021) submitted the first carbon budget to Government to reduce GHG emissions by 51% by 2030 relative to 2018. The budget refers to the period from 2021 to 2025, and seeks to reduce emissions by 4.8% on average per year for five years, with the subsequent years targeting an 8.3% reduction per annum. This represents a step change in placing climate change at the forefront of Government policy.

The **Climate Action Plan 2021: Securing Our Future** provides a roadmap for action to reach net zero by 2050 by identifying the current state of play, targets, measures and actions required for carbon pricing. Additionally, electricity, enterprise, built environment, retrofit, transport, agriculture, land use, circular economy and SDGs are also addressed, while ensuring a just transition and transparent governance. Attainment of the ambitions set out is predicated upon labour market capacity. The recently published Expert Group on Future Skills Needs (EGFSN) report **Skills for Zero Carbon** identifies the range of skills required to achieve the binding targets for emissions reduction. Surveying professionals are critical in this regard given their role in ensuring a sustainable built environment.

Climate change is the most critical issue facing our planet and its inhabitants, but it is important that a systems-thinking approach is adopted to consider all 17 SDGs in a coherent fashion.

1.1.2 SUSTAINABLE DEVELOPMENT AND BUILT ENVIRONMENT

The built environment is more than the buildings in which we live, work and learn. It provides the amenities, infrastructure, water, transport and energy systems that support everyday activity. The built environment impacts our health and wellbeing but is also a significant contributor to economic growth and employment.

Buildings and cities reflect the economic activity and growth within a country and evolve with increasing populations, urbanisation and growing reliance upon connectivity, technology and new ways of working. Multiple stakeholders are involved across the full lifecycle of the built environment from planning, design, construction, to occupation/use, maintenance, repair and ultimately demolition. Surveying professionals underpin every facet of the built environment throughout the lifecycle.

The scope of influence of the built environment across several SDGs is highlighted in a 2018 Royal Institution of Chartered Surveyors (RICS) report, **Advancing Responsible Business in Land, Construction and Real Estate Use and Investment - Making the Sustainable Development Goals a Reality**, which mapped surveying activity across development, real estate use and recovery. Surveying practices impact every one of the SDGs at some stage of the life cycle, but a significant downside is evident in that the construction, operation and decommissioning of buildings is responsible for approximately 38% of GHG emissions.¹

A recent report from the World Green Building Council (WGBC) **Bringing embodied carbon upfront**, identified how buildings and infrastructure can reduce embodied carbon emissions and ultimately achieve net zero embodied carbon by 2050. Therefore, while the current trajectory of climate change is alarming, it is within our capability to slow the pace of global warming by modifying our actions.

"Fossil fuels used to heat our buildings (homes, businesses and public buildings) are currently responsible for approximately 25% of Ireland's energy-related emissions. Reducing the emissions from our buildings is a major part of Ireland's Climate Action Plan, requiring a scaling up of existing activity both in terms of depth of retrofit, and quantity of retrofit. There are numerous challenges to this but critically this presents a viable pathway for emissions reductions, using mature and well-developed technical approaches and bringing multiple benefits to Ireland in terms of warmer homes and buildings, better air quality, more energy independence and employment/enterprise opportunities."

Fergus Sharkey, Head of Business Support and Transport, Sustainable Energy Authority of Ireland (SEAI)

Addressing the global challenge presents opportunities for the provision of sustainable output and services, supported by the adoption of new technologies, for both new investment and improvement of existing stock. Plans to retrofit 500,000 homes together with the replacement of 400,000 older heating systems in Ireland as part of the Climate Action Plan/National Retrofit Plan are examples of such opportunities. In addition, emerging sectors such as renewable energy, carbon-neutral heating, decarbonisation technologies and numerous other prospects from the circular economy, provide a positive outlook for the future. Surveying professionals are well placed and increasingly in demand to provide sustainable solutions in this regard.

Government policy and ambitious binding targets to 2050 underpin every facet of economic, environmental and social policy and it is essential that progress is monitored on an ongoing basis at a macro and micro level. Mapping surveying activities against SDGs reinforces the interrelationship between the profession and global objectives, but it also provides a mechanism by which the profession can measure and report upon performance against specific goals.

Sustainability credentials are increasingly required in the property investment decision making process, resulting in a more sustainable built environment, transparency in company reporting performance in attaining targets, and also guards against 'greenwashing'. **Science Based Targets** (SBTs) provide a useful method of measuring progress at a corporate level. The emphasis of SBTs is on the reduction of GHGs,

¹ UNEP 2020 Global Status Report for Buildings and Construction Report (2020).

1 INTRODUCTION

and targets, once determined, are science based in the extent to which they align to the Paris Agreement.

The World Economic Forum (WEF), together with the top four accounting practices, developed a consultation document **Toward Common Metrics and Consistent Reporting of Sustainable Value Creation** outlining criteria for sustainability reporting. The framework centres on four pillars, namely governance, planet, people and prosperity, and aligns existing accounting standards and SDGs. The degree to which sustainable development is emphasised at a corporate level within surveying practices is addressed within this report.

The Covid-19 pandemic exposed several systemic vulnerabilities with devastating consequences, but also demonstrated our resilience to rapid, unprecedented change. The interconnectivity between people and planet has never been more apparent. Business as usual is not an option and decisions taken now will determine whether global sustainability goals will be achieved. It is incumbent upon built environment stakeholders to build momentum to ensure the delivery and management of a sustainable built environment while continuing to prioritise the wellbeing of our planet and its inhabitants.

A challenge facing the surveying profession lies in the capacity to seize opportunities as they arise, thus it is imperative to have a sufficiently skilled workforce to do so. Surveyors' knowledge and skills must remain up to date with the changing environment within which they practise.

1.1.3 EDUCATION FOR SUSTAINABLE DEVELOPMENT

Education for sustainable development (ESD) is a fundamental part of SDG 4 and education is central to the attainment of all goals. While surveying education takes place in the first instance through higher education institutions (HEIs), the ongoing professional development of surveying professionals is critically important and forms part of the requirements of being a Chartered Surveyor. HEIs have an exceptionally important role to play in ensuring future generations are highly educated and informed to implement the societal change required for sustainable development, and the level of influence of HEIs and faculties working within them is often underestimated.

Academic staff are the champions of sustainable development and with responsibility for designing and assessing curriculum content, have tremendous scope to entrench sustainability priorities.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) specifies the need for a learner-centred, action-oriented, and transformative approach to embedding sustainable development into curricula. In addition, the assessment of sustainable development should include transversal skills and competencies to improve graduates' ability to critically analyse complex problems in a systematic way. ESD is a holistic approach encompassing every facet of learning and development on a lifelong basis.

HEIs have an exceptionally important role to play in ensuring future generations are highly educated and informed to implement the societal change required for sustainable development, and the level of influence of HEIs and faculties working within them is often underestimated.

In Ireland, the National Strategy on Education for Sustainable Development (2014 -2020)² is the guiding policy which is currently under review for the purposes of a new ESD strategy to 2030. The objective of the strategy is:

“... to ensure that education contributes to sustainable development by equipping learners with the relevant knowledge (the ‘what’), the dispositions and skills (the ‘how’) and the values (the ‘why’) that will motivate and empower them throughout their lives to become informed active citizens who take action for a more sustainable future”.

The core principles underpinning the strategy include the promotion of lifelong learning, interdisciplinarity and a pedagogical approach that promotes active and participatory learning.

Participatory learning extends beyond the classroom, and the HEI within which students undertake their learning must also exhibit sustainable development practices, thereby accompanying and reinforcing formal curriculum learning. This ranges from the building itself, to campus operation, student extracurricular activities in addition to initiatives such as the “Green-Campus Ireland” initiative to demonstrate meaningful long-term sustainability.

Research is a core function of HEIs and is essential to inform policy and practice. Collaborative research in relation to sustainability provides opportunities for network development and communities of practice, for which several sources of research funding are available. In addition to research, HEIs engage with a range of stakeholders through outreach initiatives such as working with communities, industry, professional bodies, academia and government, both domestic and international. Stakeholder collaboration is vital in the attainment of the SDGs.

The scope and reach of HEIs through a broad range of activities remains understated in the public discourse. This must be addressed given the sizable contribution the HEI sector can make in effecting positive change for future generations. The SCSi works closely with HEIs in Ireland and currently accredits numerous surveying programmes nationwide. In addition, lifelong learning of Chartered Surveyors through continuous professional development (CPD) requirements provides the opportunity for qualified surveyors to remain informed and upskill in new or developing facets of their business.

The importance of knowledge and skills development in the context of achieving SDGs was noted in a previous section. However, until now no empirical investigation has been undertaken within the profession to determine current and future skills requirements in relation to sustainable development.

1.2 RESEARCH AIM, OBJECTIVES AND SCOPE

The surveying profession is multi-faceted and spans the entire spectrum of the built environment. The complexity of the value chain, scope of services provided over the whole life of a building, coupled with the aggregation of national data with other professions results in limitations in nationally available data. This is particularly pronounced in the context of the complex and multi-faceted nature of sustainable development.

The aim of this research is to address the gap in existing knowledge for the purposes of determining a baseline of sustainability education, training and practice within the surveying profession.

In order to attain the aforementioned research aim, the objectives of the research are:

- ▶ to determine the extent to which sustainability is currently embedded in SCSi-accredited surveying programmes nationwide;
- ▶ to establish sustainability priorities for the surveying profession;
- ▶ to ascertain how principles of sustainability are applied and advised within surveying professional practices;
- ▶ to identify gaps in education and training provision in the area of sustainability for surveyors; and,
- ▶ to identify barriers and enablers to embedding sustainability in surveying education and professional practice.

The research is exploratory in nature, incorporating all surveying designations; however, it is not designed to provide a micro-level investigation, nor is it purported to be a guidance document.

The research serves to provide a holistic approach to determine the current position for the surveying profession and to ascertain the critical factors shaping the future of a sustainable built environment and the skills required to meet the challenges ahead.

The research provides a baseline of current practice against which progress may be monitored.

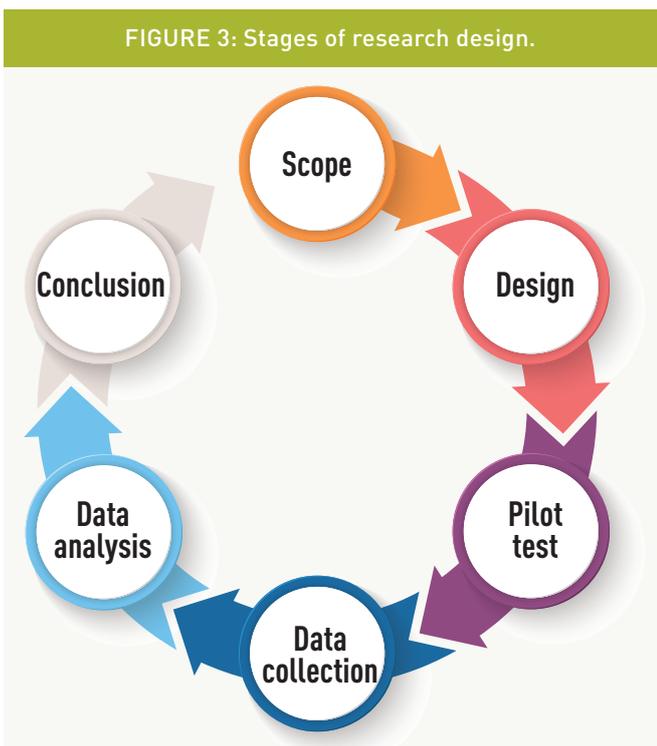
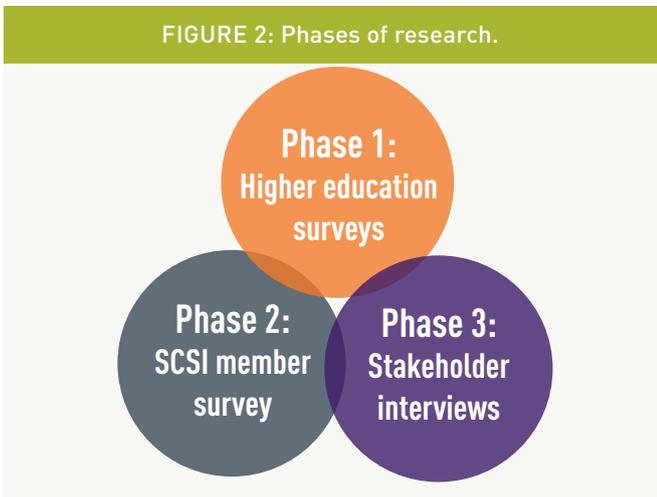
² National Strategy on Education for Sustainable Development in Ireland.

1 INTRODUCTION

1.3 RESEARCH METHODOLOGY

As noted previously, an investigation of this depth and magnitude has never been conducted on the surveying profession in Ireland, therefore no replicable framework of analysis currently exists. The challenge in developing a methodological framework lies not only in the multi-faceted nature of sustainable development, but also the multiplicity of surveying professions.

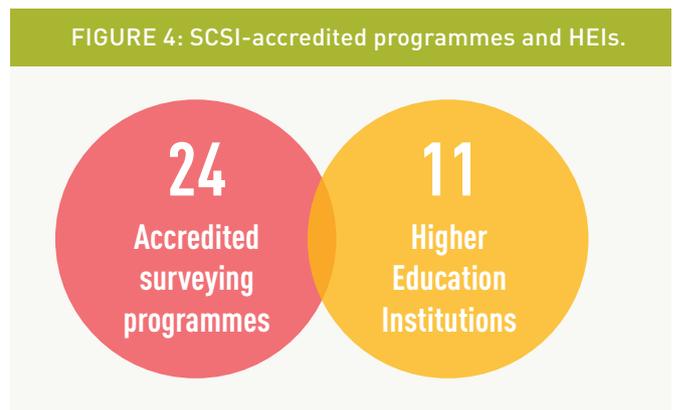
A mixed-method research strategy was developed for the purposes of the research carried out over three phases, as displayed in **Figure 2**.



Each phase of research involved a number of stages commencing with scoping the key issues with a range of stakeholders prior to designing and pilot testing the research instrument. An outline of all stages is provided in **Figure 3**, and discussed in more detail in subsequent sections.

Phase 1: Higher education institutions

The purpose of the first phase was to determine the extent to which sustainability is currently embedded in SCSI-accredited programmes. At the time of writing, 24 surveying programmes are accredited by the SCSI (**Figure 4**), (including two that are “recognised” rather than fully accredited) across 11 HEIs nationwide (see **Appendix 1** for a full list of programmes).



A briefing session was held to inform attendees of the nature of the research, obtain input into defining the scope of research and to seek consent to participate in the study. Participants were informed of the exploratory nature of the research to establish a baseline against which future development could be monitored, and to identify supports required to overcome current challenges.

Two online surveys were administered to garner insight at different levels within the HEI, namely:

- ▶ programme level: to determine the extent to which sustainability is currently embedded into the surveying programme; and,
- ▶ institute level: to determine the extent to which sustainability is prioritised at strategic and operational levels.

A total of 23 programme-level responses and 10 institution-level responses were received, and each relevant HEI was represented overall.

Phase 2: SCSi member survey

The purpose of the second phase of research was to acquire perspectives from practising surveyors in relation to a range of aspects of sustainable development, including:

- ▶ SDG knowledge and priorities;
- ▶ sustainability practices within the company;
- ▶ aspects of sustainability being advised upon to clients;
- ▶ skills level and future skills needs; and,
- ▶ support requirements to advance sustainability knowledge and practice.

An online survey was developed for this purpose. The survey questions had to be sufficiently detailed to provide meaningful insight, but remain broad enough to incorporate questions of relevance across all surveying designations. To overcome this challenge extensive scoping took place with a range of participants to inform the final survey design.

A link to the online survey was sent by the SCSi to relevant members, the results of which were accessible to the researcher alone. Responses were aggregated and anonymous such that no individual or company is identifiable in the analysis. Details of the population size, usable responses and overall response rate are detailed in **Table 1**.

Table 1 Survey response rate.

Population	3,009
Total responses	410
Unusable responses	45
Usable responses	365
Response rate	12%

Given population size involved in this research (3,009) and a confidence level of 95% (allowing for a +/- 5% margin of error), in excess of 230 responses is deemed an appropriate sample size for an acceptable level of precision for this type of (social) research.

The 365 usable responses obtained in this research is therefore above the minimum sample size required for a +/- 5% margin of error, and is closer to +/- 4%.

Based on **Table 1**, one can be 95% confident that findings presented within this research are accurate to +/- 4% margin of error.

Phase 3: stakeholder interviews

The final phase of research comprised a series of semi-structured interviews (26 in total) involving a number of stakeholders including:

- ▶ senior academics;
- ▶ SCSi Professional Group chairs across several designations;
- ▶ SCSi members across all designations;
- ▶ semi-State bodies (including Enterprise Ireland, SEAI, Irish Green Building Council (IGBC));
- ▶ Government departments (Office of Government Procurement (OGP), Office of Public Works (OPW)); and,
- ▶ industry leaders in sustainability practice.

The purpose of interviews was to gain deeper insight into the key issues. Throughout the report, a number of direct quotes are provided with the permission of interviewees.

1.4 OVERVIEW OF DOCUMENT

Chapter 1: Introduction

The first chapter provides the context for the research including an overview of current policy prior to the statement of research aim, objectives and methodological approach.

Chapter 2: Education for sustainable development

The focus of the second chapter lies in the education and training of surveying professionals.

Initially, an overview of prioritisation of sustainability at an educational institution level is provided, following which an examination of the degree to which sustainable development is embedded in SCSi-accredited surveying programmes is presented. Additionally, an outline of CPD in relation to sustainable development is discussed.

Chapter 3: Sustainable development in practice

A detailed examination of sustainable development priorities in practice is provided in Chapter 3.

Drivers, benefits and barriers to sustainable development are presented prior to the consideration of sustainable development priorities for surveying practices. Factors of sustainability currently being advised upon and market trends in this regard are outlined.

Chapter 4: Conclusions and recommendations

The final chapter provides a synopsis of the conclusions arising from the research and a suite of recommendations for relevant stakeholders.

2. EDUCATION FOR SUSTAINABLE DEVELOPMENT FOR SURVEYING



2. EDUCATION FOR SUSTAINABLE DEVELOPMENT FOR SURVEYING

2.1 INTRODUCTION

Education has been a priority of the UN since 1947, with the establishment of the specialist agency, United Nations Educational, Scientific and Cultural Organisation (UNESCO), who defined education for sustainable development (ESD) as follows:

“ESD empowers learners to take informed decisions and responsible actions for environmental integrity, economic viability and a just society, for present and future generations, while respecting cultural diversity. It is about lifelong learning and is an integral part of quality education. ESD is holistic and transformational education which addresses learning content and outcomes, pedagogy and the learning environment”.

UNESCO provides leadership in education to drive sustainable development and a number of priority actions have been identified for ESD 2030 ([Education for Sustainable Development: A Roadmap](#)), namely:

1. Advancing policy: integrate ESD into all policies related to education and sustainable development.

2. Transforming learning environments: promote institution-wide approach to ensure we learn what we live and live what we learn.
3. Building capacities of educators: empower educators with knowledge, skills and attitudes to transition to sustainability.
4. Empowering and mobilising youth: recognise young people as key actors in addressing sustainability.
5. Accelerating local level actions: importance of action in the community as where transformative actions are most likely to occur.

SDG 4.7 specifies that all learners will acquire the knowledge and skills needed to promote sustainable development; therefore, it is incumbent upon education providers to achieve this goal.

HEIs hold an exceptional position in society in collaboration with learners, industry, government, local communities, and wider society at home and abroad. Embedding sustainable development within the curriculum is of primary importance to improve sustainability literacy, but cognisance of co-curriculum (across the student experience, such as societies) and hidden curriculum (within organisational operations) are equally important.

Equipping surveying professionals with sufficient knowledge, skills and competence to advise upon and deliver innovative solutions to tackle climate change and engage in sustainable development is a lifelong process. Therefore, an examination of education provision must extend

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beyond initial qualification to the ongoing training and development throughout a surveyor's career.

The purpose of this chapter is to provide a holistic assessment of the education, training and development of surveying professionals specifically in relation to sustainable development. As this is the first time such an investigation has been undertaken, it provides a benchmark against which progress may be monitored.

The chapter includes an examination of the following:

- ▶ sustainable development in HEIs;
- ▶ sustainable development in surveying programmes;
- ▶ challenges in embedding sustainability and supports required; and.
- ▶ lifelong learning and CPD.

2.2 SUSTAINABLE DEVELOPMENT IN HEIs

The HEI population is made up of our future leaders and solution providers for complex global challenges, providing a cruciality to embedding sustainability within curriculum design and learning environments. Educational institutions hold tremendous potential as living labs of sustainability through on-campus initiatives, research, industry and public engagement.

"Third-level institutions are among the most complex organisations that exist, operating as microcosms of society. While providing the service of higher education by imparting knowledge and offering meaningful learning experiences, universities also manage and operate large mixed-use properties. Therefore, to embed sustainability meaningfully and credibly into the curriculum, higher education institutions (HEIs) must also respond to a wider education need, that of all its active contributors that make up the HEI's ecosystem. Our operation and academic agendas must be aligned if we aspire to being exemplar.

**Jennifer Boyer, Vice President of Sustainability,
Technological University Dublin (TU Dublin)**

It is essential for HEIs to fully develop and build intellectual capital of faculty and students as agents for positive change for the attainment of SDGs. In so doing, the HEI may also benefit from embedding sustainable development. According to the Sustainable Development Solutions Network Report (2020), [Accelerating Education for the SDGs in](#)

The SCSi accredits surveying programmes nationwide, which ensures that the globally recognised standard of surveying education is provided to learners undertaking programmes in Ireland.

Universities, gains from embedding sustainable development across a HEI may include:

- ▶ improve reputation;
- ▶ increase appeal to prospective students and researchers;
- ▶ foster stakeholder collaboration;
- ▶ attract research funding; and,
- ▶ improve competitiveness.

As is evident, embedding sustainability in academic and non-academic affairs across a HEI builds knowledge, skills and competence for the attainment of SDGs, but potentially also benefits the HEI itself.

The following section provides an overview of sustainability within HEIs offering SCSi-accredited programmes.

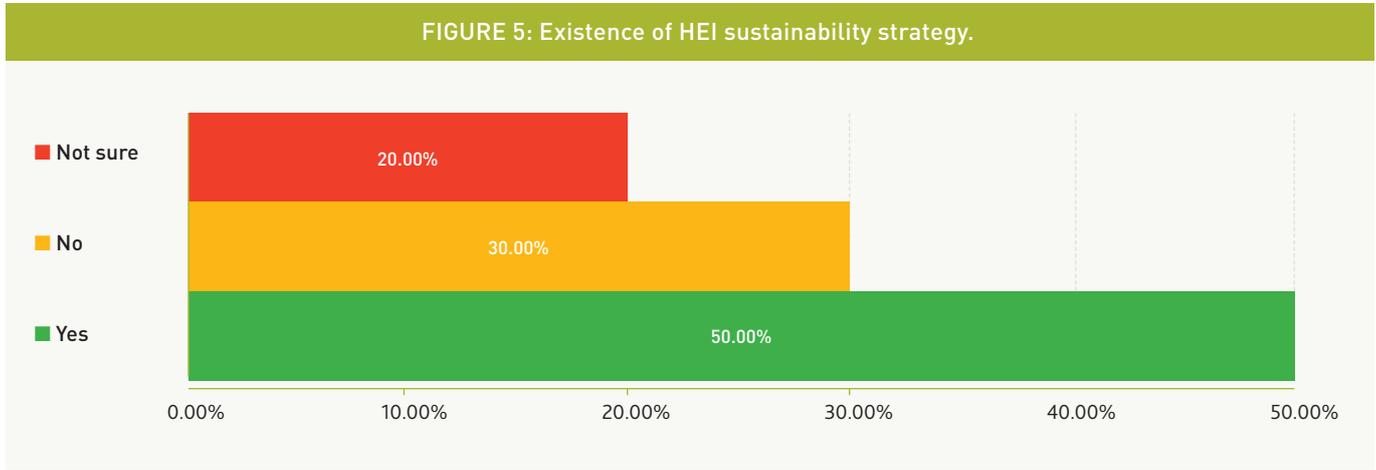
2.2.1 HEIs OFFERING SURVEYING PROGRAMMES

The SCSi accredits surveying programmes nationwide, which ensures that the globally recognised standard of surveying education is provided to learners undertaking programmes in Ireland.

The accreditation process involves a visit to the HEI by a panel of experts to review the programme based upon the alignment of learning outcomes and assessment to the European Credit Transfer System (ECTS) at the level which the award is sought. The curriculum content must also meet the needs of industry and be aligned to the competencies required of the relevant SCSi pathway. At the time of writing, the SCSi accredits surveying programmes within 11 HEIs nationwide. In an effort to uncover the extent to which sustainability is prioritised at an institute or university level, one senior manager within each HEI (e.g., Head of School or Head of Department) was asked to participate in the research from which 10 responses were received. The analysis to follow represents the views of those participants.

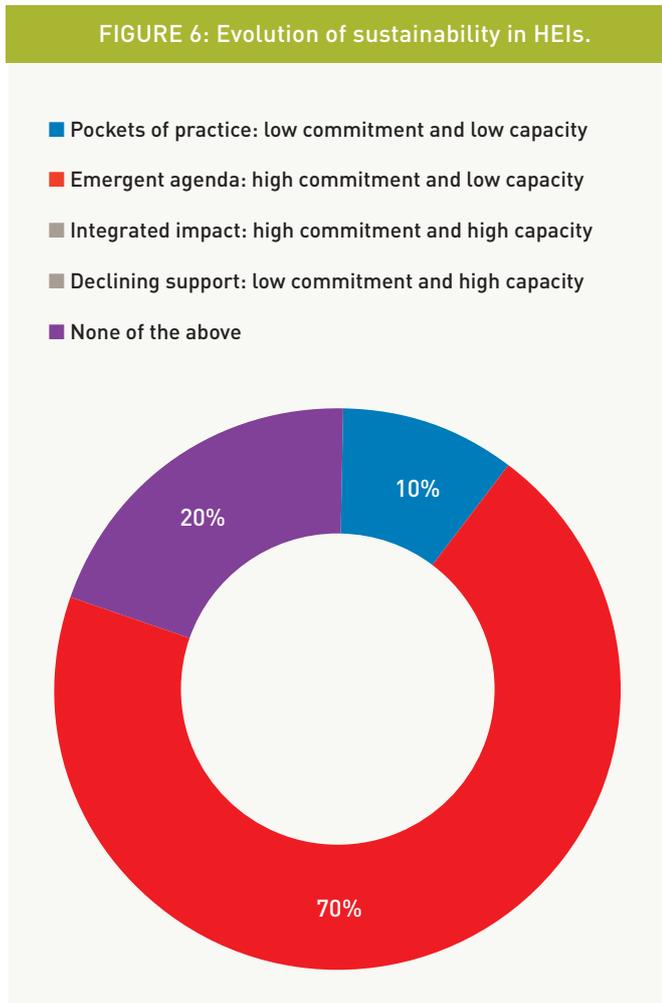
2. EDUCATION FOR SUSTAINABLE DEVELOPMENT FOR SURVEYING

FIGURE 5: Existence of HEI sustainability strategy.



At an institutional level, 80% incorporate aspects of sustainable development as part of the institution’s strategy, mission and/or vision, either explicitly or implicitly. The existence of a specific sustainability strategy was less apparent (see **Figure 5**).

FIGURE 6: Evolution of sustainability in HEIs.



A recent European University Association (EUA) report **Environmental Sustainability of Learning and Teaching**, identified four stages in the evolution of HEI adoption of ESD based upon commitment and capacity. In this context, commitment reflects the top-down influence and high-level strategic support of ESD and capacity relates to knowledge, skills and motivation of staff (in addition to financial resources) to pursue ESD.

Participants in this research were asked to identify the statement that best reflects the current position of their institute based on the four EUA categories, which are presented in **Figure 6**.

The majority of participating HEIs have an emergent agenda reflecting a high commitment to sustainability but a low capacity to do so at present. The implied limitations in knowledge, skills and/or motivation arising from the apparent low capacity requires further consideration to determine the extent, impact and possible solutions to remedy these barriers to progress.

While capacity may be constrained as measured by the EUA model, HEIs are executing a number of operational tasks to ensure the sustainability of campus facilities and estates, including:

- ▶ energy: renewable heat sources, building management and energy monitoring systems, electric car charge points, energy conservation policy;
- ▶ water: environmental remediation, rainwater harvesting, water reuse practices;
- ▶ waste: waste segregation and recycling, smart bins, student-led single-use plastics campaign;
- ▶ travel: public transport policy; bike to work scheme, shared travel policy; and,

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- ▶ biodiversity: wetlands and grasslands on campus, tree planting initiative.

All of the initiatives contribute towards a sustainable campus for action learning and in addition, several HEIs have been awarded a “Green-Campus” status. Respondents confirmed that the Green-Campus initiative was already in situ (50%) or being actively sought (20%).

A notable number (40%) of institutions promote sustainability to attract more students; however, further analysis is required to determine whether there is a correlation between sustainability and impact on the selection process of HEI by learners.

The SCSi must play a leading role to ensure sustainability is embedded into surveying programme curricula and that industry needs are reflected in programme content in this regard. Respondents to this phase of research unanimously agreed that SCSi programme accreditation should be conditional upon embedding sustainable development.

2.2.2 RESEARCH

Research is crucial in pursuit of new knowledge, innovation and solutions to the challenges facing the economy, environment and society. High level, cutting-edge research is undertaken in HEIs around the country. A total of 90% of respondents to this research confirmed that academic staff are actively engaged in research related to sustainable development.

The influence and impact of research can be considered on a number of levels:

- ▶ learner;
- ▶ institution;
- ▶ research partner/collaborator;
- ▶ policy development; and,
- ▶ international.

Learners benefit from research-informed up-to-date content and as academic faculty disseminate the latest research in their discipline area, it fosters a curiosity and enthusiasm in learners for the pursuit of knowledge and lifelong learning. Engaging learners in research develops many skills and competencies such as critical analysis, systems thinking, creativity, project planning and communication. Each of these competencies are important in applying a systems approach to SDGs.

At an institutional level, research serves to attract and retain talent in addition to providing a revenue stream through research funding. Research in sustainability places HEIs at the forefront of innovation, discovery, new technology and potential for commercialisation, often in collaboration with industry and/or HEIs on an international basis. The combination of expertise and experience brought to bear on research collaborations ensure that complex problems are addressed and solutions maximised for stakeholder groups.

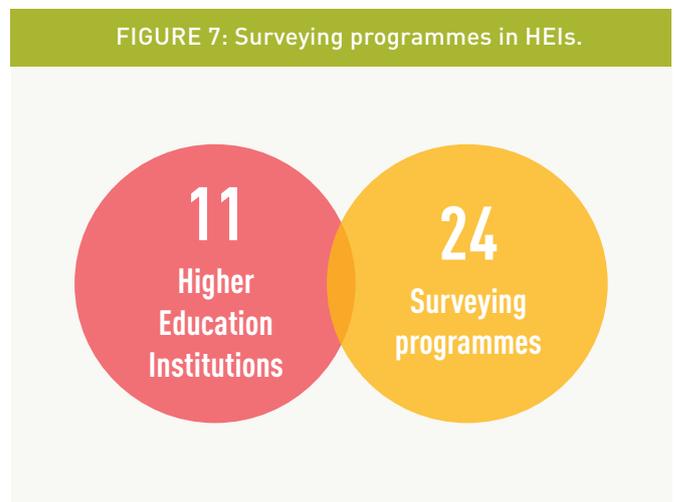
Several HEIs involved in this research have dedicated centres for sustainability research and are leading the way in the discovery of evidence-based innovative solutions (see for example, [envirocore](#) (IT Carlow); and [ESHI](#) (TU Dublin)).

2.3 SUSTAINABLE DEVELOPMENT IN SURVEYING PROGRAMMES

Sustainability literacy development takes place at a programme level in addition to institutional. As noted previously, 24 SCSi-accredited programmes are currently offered in 11 HEIs nationwide (**Figure 7**, see **Appendix 1** for full listing).

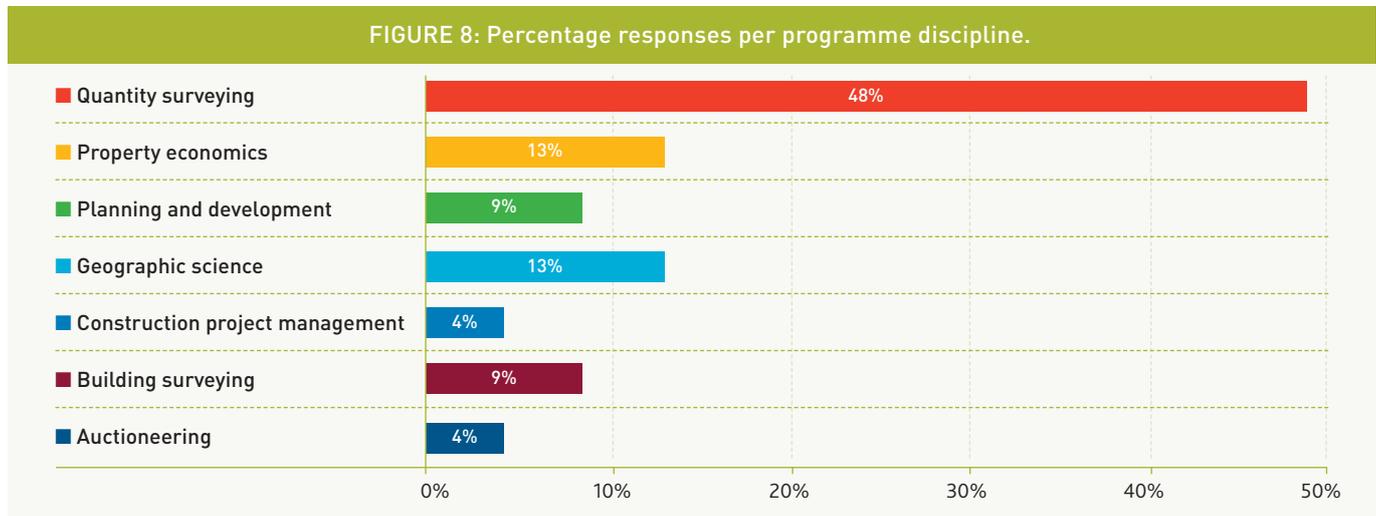
Each programme chair was invited to participate in an online survey to provide a holistic view of the extent to which sustainability was currently embedded across the programme in question. In total 23 completed responses were received that covered the full range of surveying disciplines as presented in **Figure 8**.

FIGURE 7: Surveying programmes in HEIs.



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FIGURE 8: Percentage responses per programme discipline.



Surveying programmes under scrutiny in this research range from level 7 (5%) to level 9 (30%) on the National Framework of Qualifications (NFQ), with the largest proportion (65%) at level 8 (honours degree programme). Numerous opportunities exist for undertaking postgraduate qualifications at level 9 (Masters) or 10 (PhD) upon completion of a level 8, several of which relate to sustainable development. An analysis of programmes that are currently not accredited by the SCSi lies outside the scope of this research.

There is no single method of measuring the extent to which sustainable development is embedded in academic programme curricula. Software is available to undertake a content analysis of module descriptors; however, it requires a commonly agreed lexicon to be used such that key words may be captured and mapped. Respondents to this research confirmed that sustainable development themes may not be explicitly stated in module descriptors, but are embedded in module delivery. Therefore, until terminology is determined, a detailed content analysis of key words is ineffectual.

Participants were asked to identify the range of SDGs that they perceived as being pertinent to surveying professionals, the results of which are presented in **Figure 9**.

As is evident from **Figure 9**, sustainable cities and communities (SDG 11), affordable and clean energy (SDG 7), and climate action (SDG 13) are the SDGs most frequently identified as important for surveying graduates. The extent to which aspects of these SDGs are embedded in curriculum content is addressed in Section 2.3.1.

Surveying programmes have learning outcomes to be attained over the duration of the programme, and learning outcomes are specified at module level also. Respondents confirmed that sustainability is specified as part of learning outcomes for 48% of programmes and all confirmed that sustainability is embedded within modules.

The existence of mandatory modules relating to sustainable development was confirmed by 22% of respondents, with an additional 4% stating that there is an optional module relating to sustainability. Where mandatory modules exist, they are positioned within Quantity Surveying (QS) programmes in all instances.

A sustainability audit of 13% of programmes has been undertaken, whereby programme and module learning outcomes have been mapped against SDGs. However, several respondents noted that programmes are scheduled for review in the 2021-2022 academic year and a full mapping exercise is planned as part of the review process.

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FIGURE 9: Importance of SDGs for surveying graduates.

	1 NO POVERTY	22%
	2 ZERO HUNGER	13%
	3 GOOD HEALTH AND WELL-BEING	39%
	4 QUALITY EDUCATION	57%
	5 GENDER EQUALITY	43%
	6 CLEAN WATER AND SANITATION	52%
	7 AFFORDABLE AND CLEAN ENERGY	83%
	8 DECENT WORK AND ECONOMIC GROWTH	48%
	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	74%
	10 REDUCED INEQUALITIES	30%
	11 SUSTAINABLE CITIES AND COMMUNITIES	87%
	12 RESPONSIBLE CONSUMPTION AND PRODUCTION	57%
	13 CLIMATE ACTION	78%
	14 LIFE BELOW WATER	17%
	15 LIFE ON LAND	39%
	16 PEACE JUSTICE AND STRONG INSTITUTIONS	17%
	17 PARTNERSHIPS FOR THE GOALS	43%

2. EDUCATION FOR SUSTAINABLE DEVELOPMENT FOR SURVEYING

2.3.1 THREE PILLARS OF SUSTAINABILITY

Sustainable development is multidimensional, however, it rests upon three core pillars, namely social (SDG1-SDG6), economic (SDG7-SDG12), and environmental (SDG13-SDG17).

While few surveying programmes have undergone a sustainability audit, a broad assessment of sustainability across programme content along the three pillars was undertaken. To refine the scope, participants were asked to determine the extent to which a number of issues under each of the three pillars was currently embedded.

It is acknowledged that respondents to the survey have responsibility for programme management, therefore answers reflect approved module descriptors under review, and it is likely that additional facets of sustainable development are taught in practice. Consequently, it is not purported that the analysis to follow is absolute, but rather a minimum level of sustainability embeddedness.

Based upon the approved programme document, programme chairs provided confirmation in the first instance of the extent to which a range of economic factors were currently embedded into the programme. **Figure 10** provides the findings in this regard.

Evidently the range of economic factors addressed within programmes varies considerably with development economics, finance and sustainable development and whole-life costing being proportionately more embedded than other economic aspects. Overall QS programmes embed economic themes to a greater extent than other surveying disciplines.

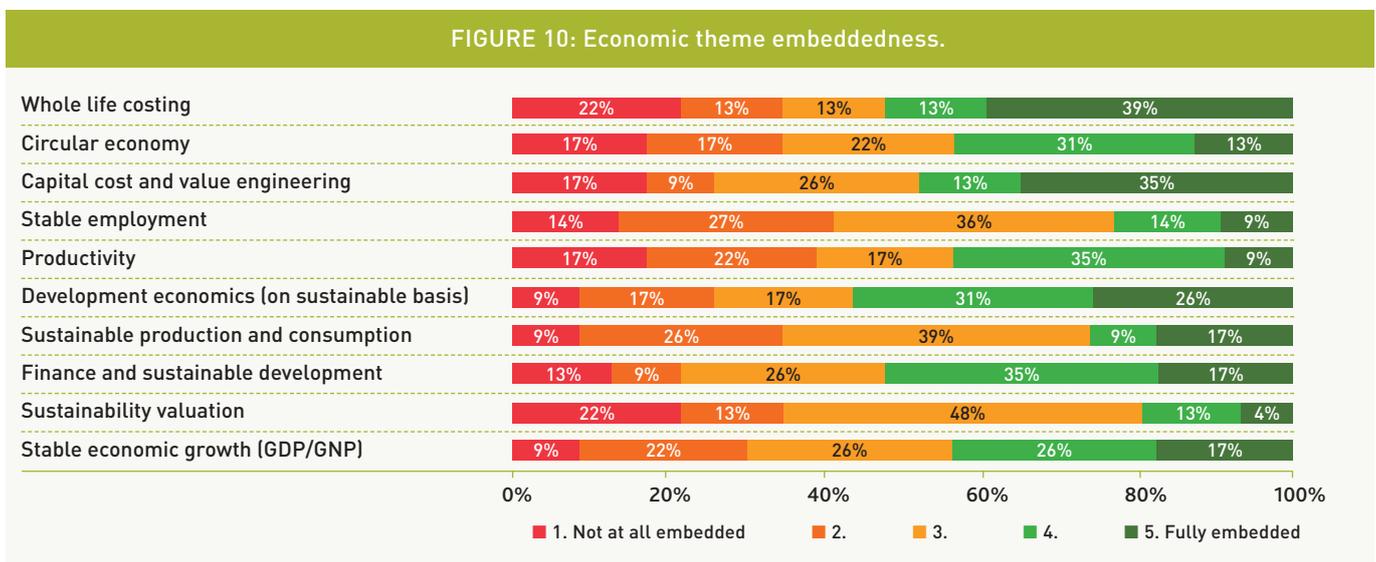
Upon closer examination of the data, the degree to which themes are embedded broadly aligns to the areas of expertise required of the surveying designation. For example, QS programmes are more likely to embed value engineering, whole-life costing, circular economy and stable economic growth. Development economics is prevalent particularly within building surveying, while property surveying programmes place proportionately greater emphasis on finance and sustainable development than other disciplines.

Environmental themes are often more embedded across surveying programmes than economic issues (**Figure 11**), and particularly within building surveying. Caution must be expressed in this regard however, as there is currently only one accredited building surveying programme in Ireland.

QS programmes include sustainable construction, renewable energy and building certification but seldom is biodiversity addressed in these programmes, whereas environmental legislation, land use, waste management and building certification are prevalent within property surveying programmes.

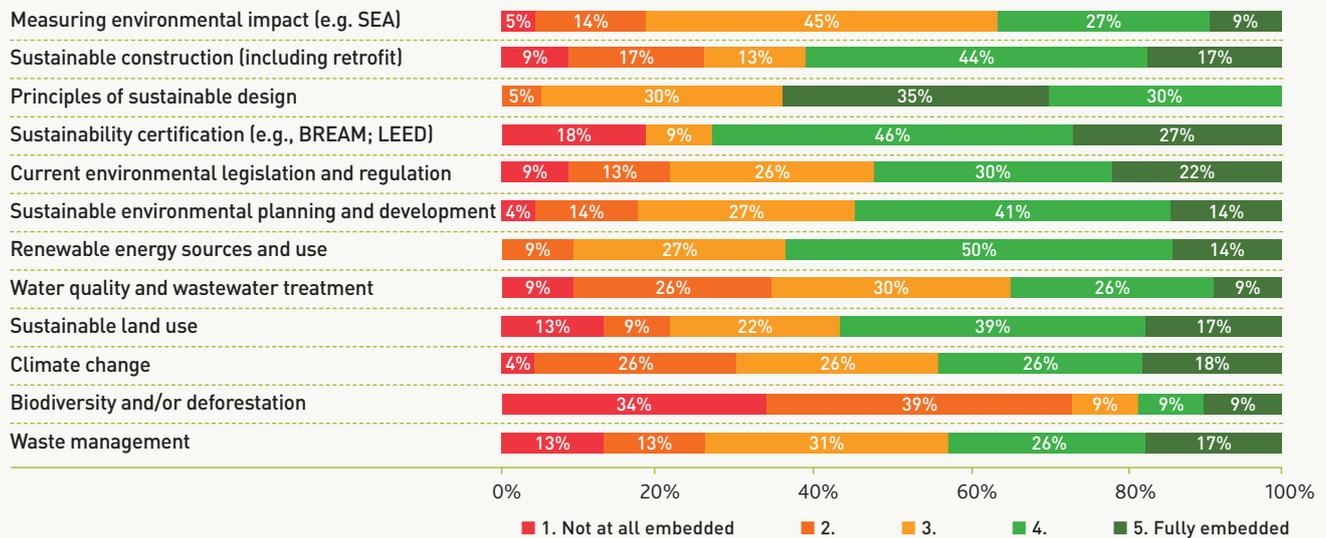
As is evidenced in **Figure 11**, sustainability certification followed closely by sustainable design and renewable energy sources are areas that the largest proportion of respondents confirmed to be embedded. The least embedded include biodiversity, water quality and climate change. Of particular concern is the lack of embeddedness of climate change into curricula (30% confirm that it is not at all or very limitedly embedded). Once again, caution must be expressed as climate change may not be explicitly stated in the approved module descriptor however may still inform teaching.

FIGURE 10: Economic theme embeddedness.



2. EDUCATION FOR SUSTAINABLE DEVELOPMENT FOR SURVEYING

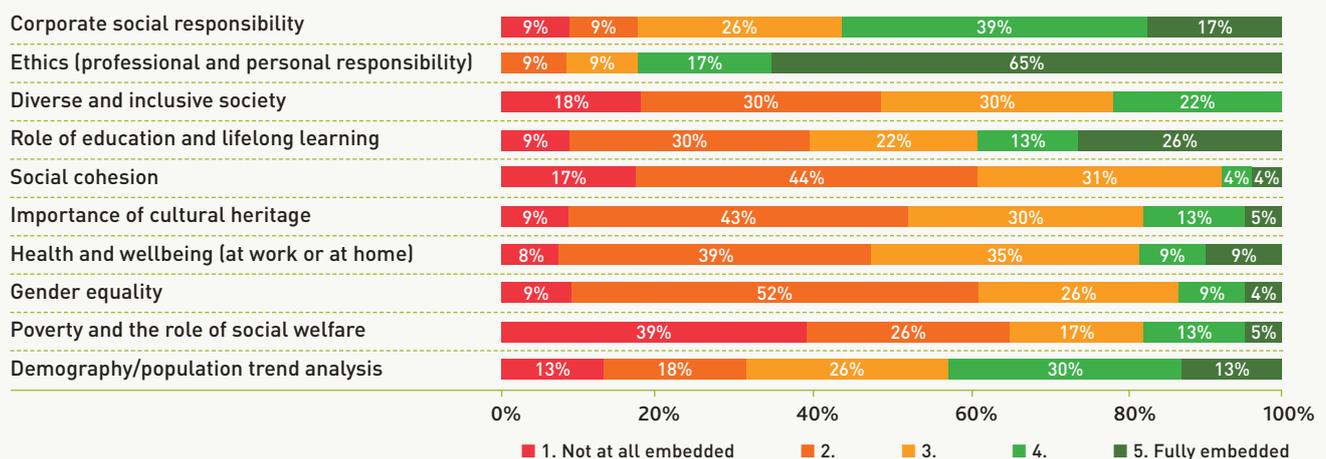
FIGURE 11: Environmental theme embeddedness.



Social themes do not appear to be embedded to a large extent across surveying programmes at present, with the exception of ethics, corporate social responsibility and demography (Figure 12). Social cohesion, gender equality and cultural heritage stand out as themes that are not at all embedded and no divergence across surveying disciplines is evident. Whereas social themes may not be specified as part of curriculum content, respondents noted that these aspects are incorporated through site visits, guest lectures and work-related learning including work placements (see Section 2.3.3).

Land surveying programmes embed social themes to a greater extent than other discipline areas, particularly in relation to demography, poverty, culture and heritage. The research provides insight into the extent to which sustainability is currently entrenched, but interview respondents indicated that additional aspects of sustainable development are delivered, which may not be explicit in programme documents. This is something that should be addressed, and possible solutions are provided in the final chapter of this report.

FIGURE 12: Social theme embeddedness.



2. EDUCATION FOR SUSTAINABLE DEVELOPMENT FOR SURVEYING

2.3.2 ASSESSMENT METHODS AND COMPETENCIES

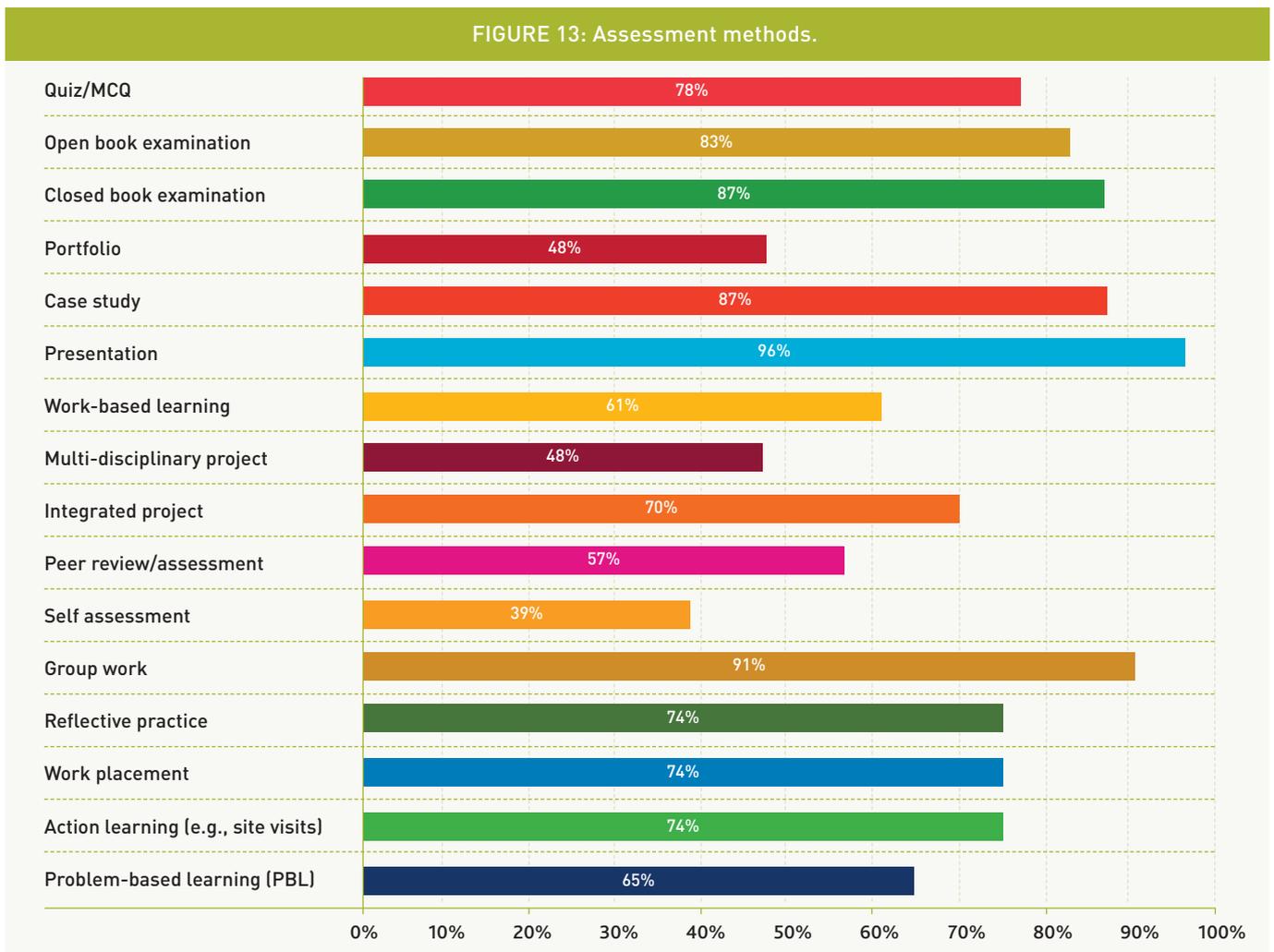
The previous section identified a range of key economic, environmental and social aspects of sustainability to provide insight into programme content. The purpose of this section is to determine how module content is assessed and in so doing the competencies that are developed within surveying programmes. The rationale of the analysis to follow is not to determinate on the appropriateness of assessment methods, but to identify the full range of assessment methods currently utilised.

As is evident from **Figure 13**, an extensive range of assessment methods are used across surveying programmes with the four most common being presentation, group work, closed-book examinations, and case studies.

The assessment methods identified in this research are aligned to competencies required for sustainable development, including:

- ▶ planning;
- ▶ evaluation;
- ▶ communication;
- ▶ numeracy;
- ▶ critical thinking;
- ▶ strategic thinking;
- ▶ problem solving;
- ▶ research; and,
- ▶ collaboration.

The aforementioned competencies and skills are transversal and absolutely critical in pursuit a systems-thinking approach to the attainment of the SDGs.



2. EDUCATION FOR SUSTAINABLE DEVELOPMENT FOR SURVEYING

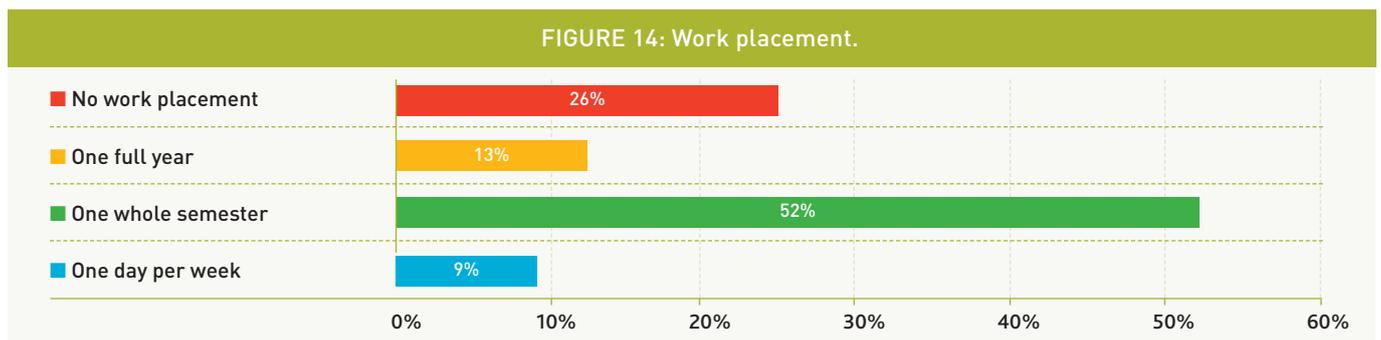
Appendix 2 provides a number of exemplars demonstrating how sustainable development is addressed in surveying curriculum content and assessment.

2.3.3 WORK PLACEMENT

The practical application of knowledge within surveying programmes is demonstrated through work placement. Not only does it serve to put theory into action, it provides learners with an opportunity to further develop transversal skills and competencies. Work placement will vary in duration; however, a large proportion of surveying programmes contain an element of work placement as can be seen from **Figure 14**.

Of those programmes that do not currently have a period of work-related learning, 83% are at level 9 (MSc) on the National Framework of Qualification (NFQ), many of which are part-time programmes with participants working on a full-time basis. The remaining 17% of programmes that do not have work placement are at level 7 on the NFQ, from which graduates often progress onto level 8.

Sustainability is currently assessed as part of work placement within 33% of programmes that contain it. Some respondents noted the diversity in the range of companies within which work placement takes place presents a challenge in assessing sustainable development specifically, and therefore remained outside the parameters of assessment.



Extent of work placement in surveying programmes.

2. EDUCATION FOR SUSTAINABLE DEVELOPMENT FOR SURVEYING

2.4 CHALLENGE IN EMBEDDING SUSTAINABILITY AND SUPPORTS REQUIRED

Evidence from ESD literature identifies a range of potential barriers to embedding sustainability, which were presented to respondents to which their extent of agreement was sought, the results of which are presented in **Figure 15**.

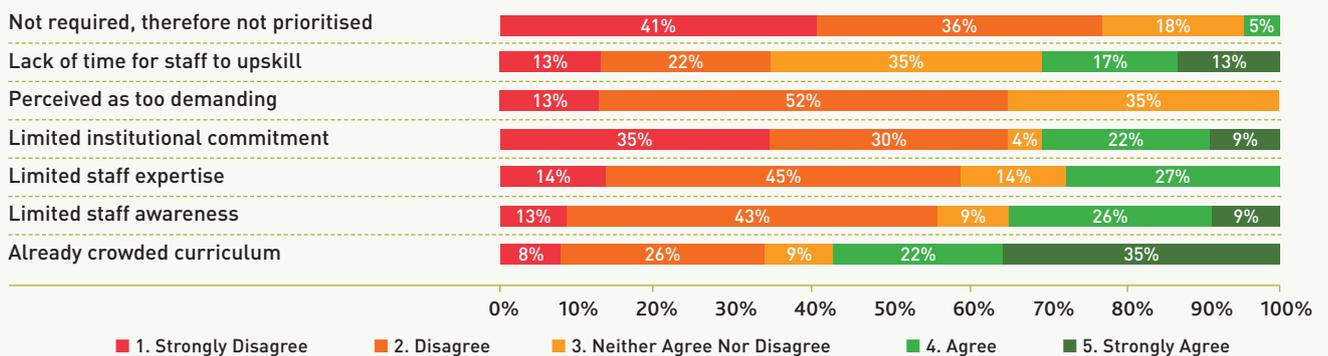
It is interesting to note that several of the challenges faced by educators in other jurisdictions are not prevalent in this research. This may warrant further investigation across all surveying programme team members.

Where challenges do exist, it is often due to an already crowded curriculum and a number of supports required to further embed sustainability were identified. Several of the suggestions provided by participants are detailed in **Table 2** and have been incorporated into the recommendations (**Chapter 4**).

Table 2: Supports required to embed sustainability.

HEI	<ul style="list-style-type: none"> ▶ Improve internal structures and procedures ▶ Timetabling space ▶ Increase number of staff ▶ Improve physical resources
Industry	<ul style="list-style-type: none"> ▶ Shared examples of best practice ▶ Embrace opportunities with building information modelling (BIM) ▶ Industry input into programme development (e.g., advisory board) ▶ Sponsorship and joint projects ▶ Engagement from industry to support teaching (e.g., guest lectures) ▶ Site visits, case studies, presentations ▶ Collaborative research
SCSI	<ul style="list-style-type: none"> ▶ Structured guidance on how sustainability should be embedded ▶ Structured sustainability CPD modules ▶ Leadership statements and support to HEIs ▶ Student sustainability competitions
Government	<ul style="list-style-type: none"> ▶ Increase funding for HEIs to develop human capital ▶ Increase funding for built environment research ▶ Single platform for current and proposed policies and legislation

FIGURE 15: Challenges to embedding sustainability.



2. EDUCATION FOR SUSTAINABLE DEVELOPMENT FOR SURVEYING

2.5 LIFELONG LEARNING AND CONTINUOUS PROFESSIONAL DEVELOPMENT

Learning is a lifelong process for surveying professionals and upon completion of an accredited-surveying programme, they may progress towards the Assessment of Professional Competence (APC) to become a Chartered Surveyor. The APC of qualified surveyors ensures that practitioners are competent and meet the high global standards set by the professional body. Some of the many advantages of being a Chartered Surveyor include the recognition of the quality of service, which may provide a competitive advantage, but also the international recognition and resulting opportunities it may present.

The route to becoming a Chartered Surveyor will vary depending on qualification and experience of the candidate and a range of specific competencies are assessed relating to the chosen pathway. Every pathway across surveying designations includes sustainable development as a mandatory competency (at level 2: knowledge and application of knowledge) for all new APC applicants. This is demonstrative of the importance placed on expertise in this area across all surveying disciplines.

Chartered Surveyors are required to undertake CPD throughout their career to ensure their knowledge is up to date. CPD is defined as:

“The systematic maintenance, improvement and broadening of knowledge and skills, and the development of personal qualities necessary for the execution of professional and technical duties throughout the individual's working life”.

Chartered Surveyors must undertake a minimum of 20 hours of CPD each calendar year, with at least half being formal professional development (e.g., a professional course or structured online training). There is an additional requirement to undertake development in the area of professional and ethical standards every three years; however, at present no such requirement exists in respect of sustainability.

The SCSi provides a varied suite of CPD events, webcasts and presentations across a broad range of discipline areas. Several CPD events have addressed themes relating to sustainability and climate action over the past two years and are available through the members' portal of the SCSi website. A list of these CPD events is contained in **Appendix 3** of this document. The extent to which participants in this research engage in sustainability or climate action CPD relating to sustainability is discussed in section 3.3.

2.6 CONCLUSION

Evidence from the research confirms that sustainable development is embedded throughout the education and ongoing training of surveying professionals in Ireland. The complex ecosystem of the learning environment requires sustainability to be at the core of operational and educational objectives, thus the campus becomes a living lab of sustainability.

At an institutional level, participant HEIs have taken numerous steps forward in the prioritisation of sustainability, including incorporation in strategic plans and in some instances, high-level sustainability appointments. A broad range of economic, environmental and social issues are delivered across curricula for every surveying discipline. Furthermore, the wide variety of assessment methods used develops a range of transversal skills critical to informing sustainable development competency and ensures an holistic approach to enhancing sustainability literacy. The breadth and range of content and assessment is a positive indication of the current position; however, scope remains to undertake a deeper investigation at a module level to identify aspects where further enhancement may be required.

A number of challenges to further embedding sustainable development are evident, and a range of potential solutions to address these challenges were identified by research participants. These are incorporated into the suite of recommendations presented in a subsequent section of the report.

A critical discovery relates to the overwhelming support by respondents in favour of SCSi accreditation being conditional upon deeper embeddedness of sustainable development.

Knowledge acquisition is a lifelong process throughout a surveyor's career, and a range of CPD events in relation to sustainable development are provided by the SCSi. Engagement in such CPD is addressed in the following chapter.

3. SUSTAINABILITY IN PRACTICE



3. SUSTAINABILITY IN PRACTICE

The built environment is a crucially important sector in the attainment of SDGs, and the surveying profession plays a pivotal role across the entire spectrum of activity within it.

Surveyors have considerable influence in generating economic value and employment in the development of infrastructure, housing, commercial and social assets, in addition to healthy ecosystems and communities to improve the health and wellbeing of the population. Activity within the built environment sector contributes substantially to GHG emissions and utilises a large quantity of natural resources; therefore, it must be closely monitored to ensure economic development is not detrimental to the environment and occurs in a socially inclusive manner.

Information gaps currently exist relating to sustainable development priorities, both in relation to the organisations within which surveyors are employed and the clients they advise. Surveyors must provide informed solutions to clients throughout the whole life of an asset, but also lead by example in their own business operations.

Surveying professionals and practices are at varying stages in the sustainability journey; however, until now only anecdotal evidence existed in this regard.

Surveying professionals and practices are at varying stages in the sustainability journey; however, until now only anecdotal evidence existed in this regard.

This chapter details findings from an SCSl member survey and a series of stakeholder interviews to provide evidence of the current position relating to several aspects of sustainable development within the surveying profession.

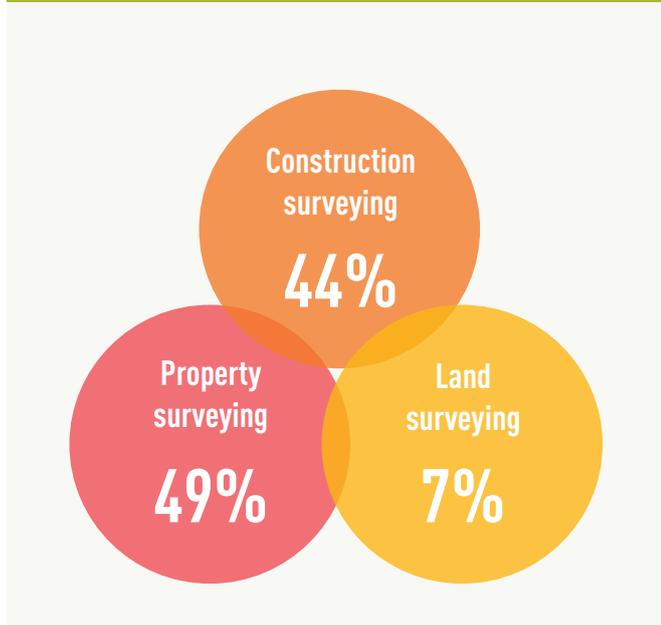
As the first of its kind, it provides a benchmark against which future trends may be monitored and spotlights development and support requirements for the realisation of sustainability ambitions (which form part of the recommendations in the final chapter). The chapter is presented as follows:

- ▶ respondent profile and priority SDGs;
- ▶ drivers, benefits and challenges of sustainable development in practice;
- ▶ knowledge, education and training of sustainable development;
- ▶ climate change and energy performance;
- ▶ sustainability reporting; and,
- ▶ surveying designation advice and market trends.

3.1 RESPONDENT PROFILE

As previously noted, this component of the research centred on a survey administered via the SCSi to full members, for which a 12% response rate was obtained (365 usable responses) across three designations of surveying as outlined in **Figure 16**.

FIGURE 16: SCSi member survey respondent profile.



The purpose of the survey was to ascertain current trends among qualified surveying professionals; therefore, a number of exclusions applied (e.g., academic, student and trainee members). Over 80% of respondents were Chartered with the remainder at associate level. The experience of the respondent was determined by virtue of the position the respondent held within their current employment, as detailed in **Figure 17**.

FIGURE 17: Respondent position in company.

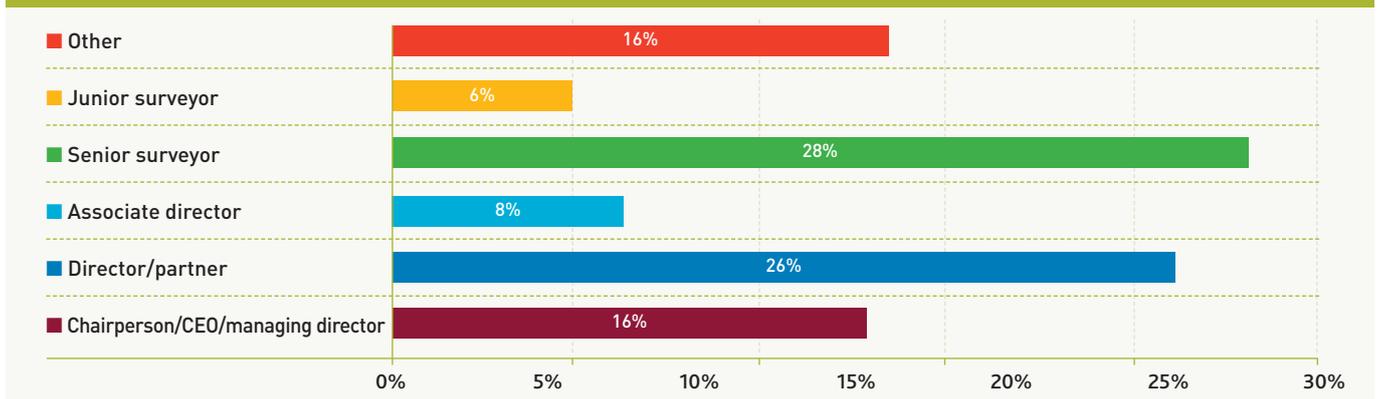
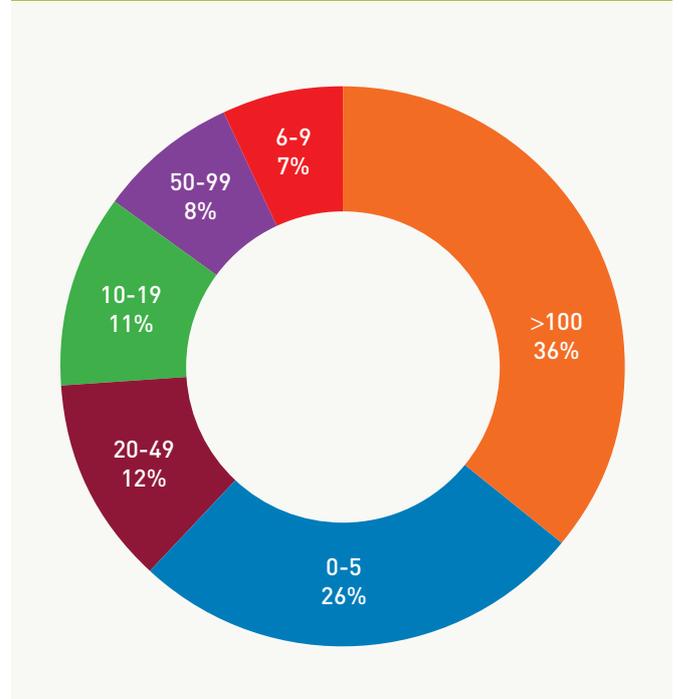


FIGURE 18: Number of employees.



A number of respondents selected the "other" category, the most commonly cited in this regard were sole trader, public sector, centre manager and project manager. A large proportion of respondents were employed in organisations with greater than 100 employees (36% of respondents), however a considerable number worked in practices of five or fewer employees (26%) (see **Figure 18**).

3. SUSTAINABILITY IN PRACTICE

FIGURE 19: Priority SDGs.

	1 NO POVERTY	22%
	2 ZERO HUNGER	24%
	3 GOOD HEALTH AND WELL-BEING	44%
	4 QUALITY EDUCATION	36%
	5 GENDER EQUALITY	33%
	6 CLEAN WATER AND SANITATION	39%
	7 AFFORDABLE AND CLEAN ENERGY	59%
	8 DECENT WORK AND ECONOMIC GROWTH	42%
	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE	43%
	10 REDUCED INEQUALITIES	25%
	11 SUSTAINABLE CITIES AND COMMUNITIES	71%
	12 RESPONSIBLE CONSUMPTION AND PRODUCTION	57%
	13 CLIMATE ACTION	65%
	14 LIFE BELOW WATER	12%
	15 LIFE ON LAND	22%
	16 PEACE JUSTICE AND STRONG INSTITUTIONS	16%
	17 PARTNERSHIPS FOR THE GOALS	16%

3.2 SUSTAINABILITY DRIVERS, BENEFITS AND BARRIERS

The World Business Council for Sustainable Development (WBCSD) recommends the use of **SDG Sector Roadmaps** as a lens through which to monitor progress in three steps, the first of which is the establishment of a baseline of the current position.

The following analysis provides a starting point in understanding the baseline position for surveying professionals in Ireland commencing with insight into the perceived priority SDGs for the profession. Survey participants were asked to identify which of the 17 SDGs were of importance to their profession, and could select as many as they deemed appropriate. **Figure 19** illustrates the proportion of respondents that selected each of the SDGs.

As evidenced in **Figure 19**, the three most commonly cited priority SDGs are sustainable cities and communities, climate action, and affordable and clean energy. There was no notable divergence between surveying designations in this regard. Importantly, the top three priority SDGs noted by practitioners are fully aligned to that confirmed by academic participants.

In order to understand what is required to make further progress towards a sustainable future, it is useful to understand the driving

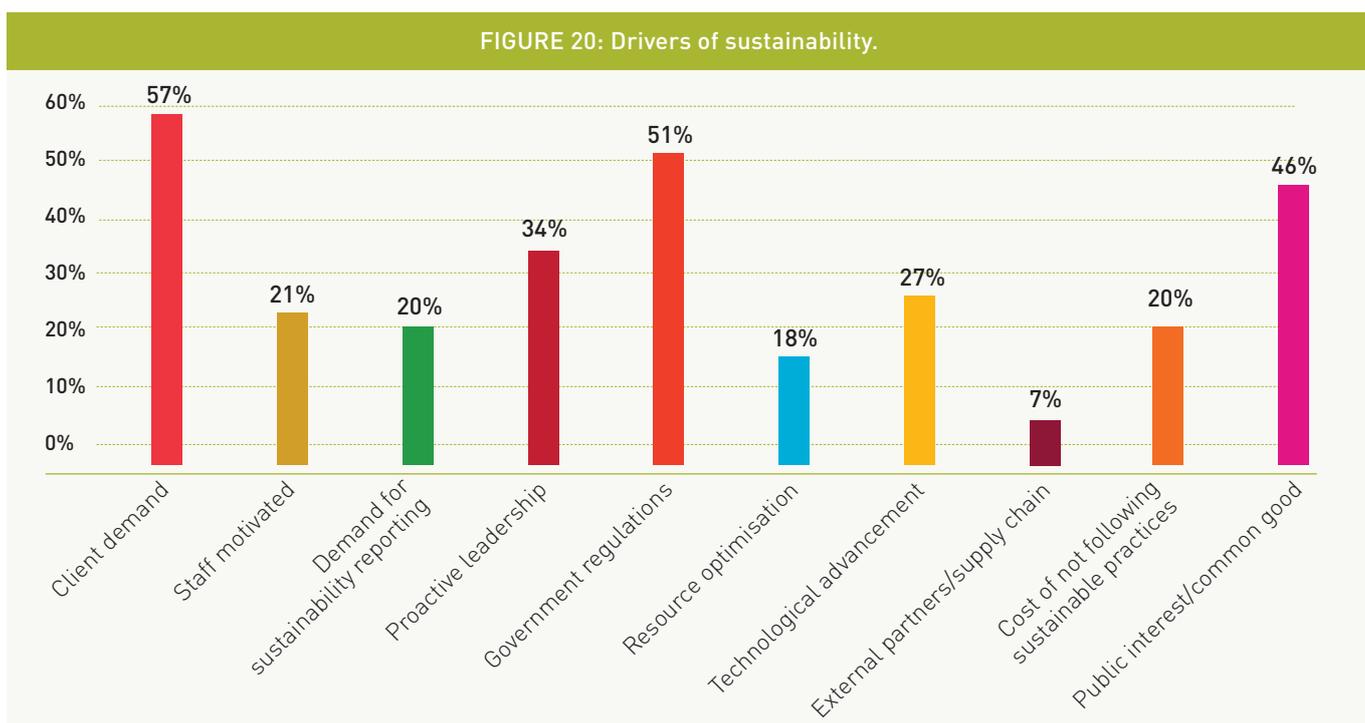
forces and motivation generating impetus to engage and actively pursue SDGs. By understanding the current situation, the path ahead can be planned accordingly. There is a myriad of potential driving forces for practices; however, survey respondents were asked to identify the top-three drivers of sustainability for their business, the results of which are presented in **Figure 20**. The leading drivers of sustainability are client demand and government regulation, followed closely by the public interest/common good. Notable legislative and policy developments include (but are not limited to) the **Climate Action and Low Carbon Development (Amendment) Act 2021** and the emphasis on sustainability criteria within the **National Development Plan 2021-2030**. The combined statutory requirements and supporting investment priorities will underpin progress in the sustainable planning, construction, occupation and maintenance of the built environment.

“For Ireland to meet the 51% emissions reduction target by 2030, a convergence of policy, business and financial markets needs to happen and accelerate through the decade. We are starting to see that emerge, driven by the Climate Action Plan, increased business commitments to net zero and development of transition and green finance availability.”

Shane O’Reilly, Director, KPMG Sustainable Futures

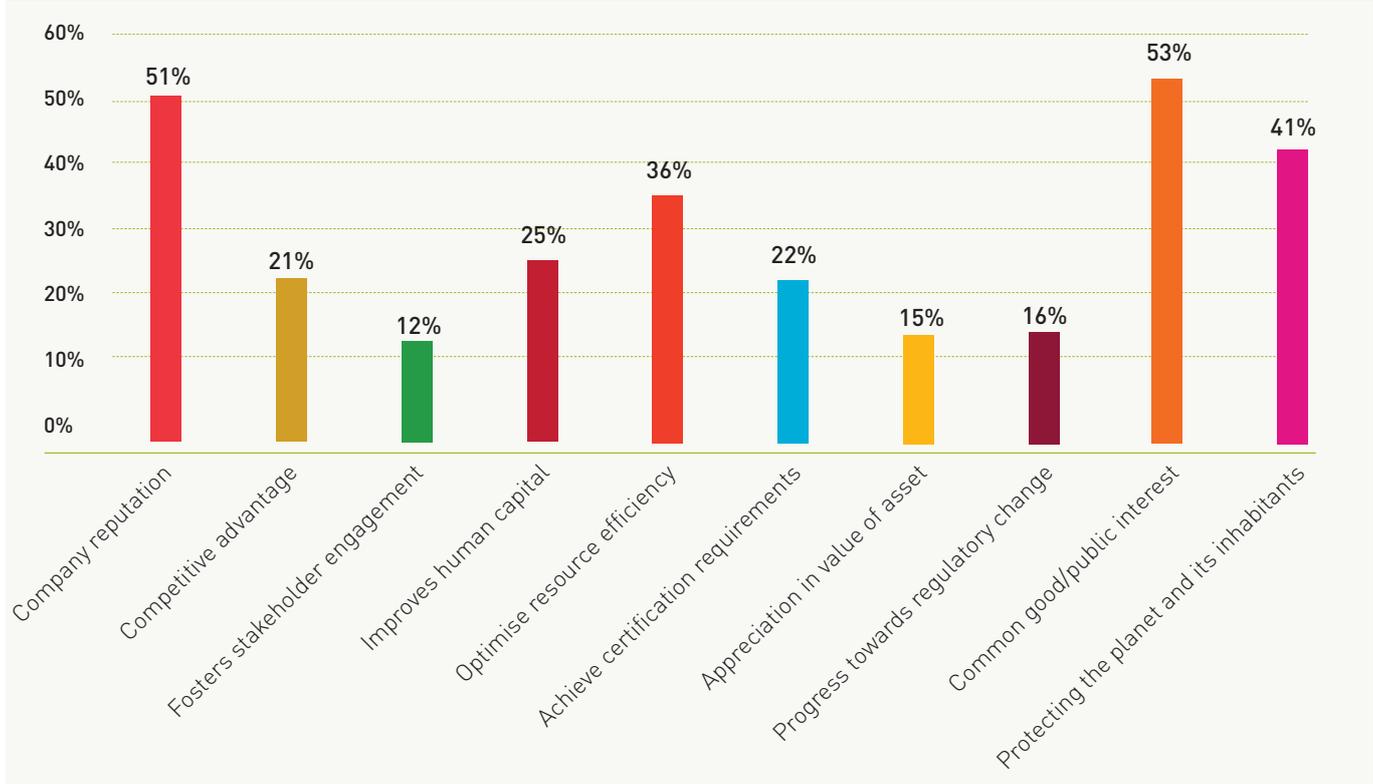
Energy performance improvements with a focus on renewable energy, new housing units to Nearly Zero Energy Building (NZEB) standard and

FIGURE 20: Drivers of sustainability.



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FIGURE 21: Benefits of sustainability.



significant investment in upgrading the energy performance of existing housing stock are key priority areas within the NDP. Consequently, there are ample opportunities for surveying professionals to play a central role in the delivery of these significant goals in collaboration with other built environment professionals across the whole life of the asset. Client demand was selected by the largest proportion of research participants, with those working within the commercial property sector noting that large investors require transparent sustainability credentials as a matter of course. The NDP also makes provision for the commercial sector largely through the provision of supports, such as education/training and grant provision (e.g., through the SEAI; IGBC).

Within the residential sector, provision within the NDP for new housing units to be up to NZEB standard is a positive step forward; however, the overarching issue for those seeking to purchase a home at present is the lack of supply across the country and affordability.

The availability of “green mortgages” has raised the focus on energy performance of existing residential units; however, several respondents queried whether inquires were motivated by the desire to purchase a more energy-efficient property, or whether it was driven by potential for lower cost.

“The most important consideration I am currently seeing for buyers in this market is the cost of the property. BER is discussed, but only in relation to the estimated cost of annual utilities and potential ways to reduce these by increase in BER rather than retrofitting the house due to sustainability responsibility.”

Anne Carroll, Senior Property Specialist, Bank of Ireland Chair, SCSi Residential Professional Group

Interestingly, a divergence occurs for property surveying respondents, in that rather than regulation being in the top-three driving forces, proactive leadership is the third-highest driver identified. On closer examination of the dataset for property surveying respondents, no discernible characteristic was evident in respondents’ profile to determine possible explanations for this (e.g., company size).

While technological advancement may not currently be a significant driver of sustainability, it is an enabler. The drive for sustainability can go hand in hand with digital adoption.

It is interesting to note that the least likely driver of sustainability at present is external partners or the supply chain. It is possible that as

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other segments of the supply chain may evolve at varying paces, therefore supply chain influence may become a more notable driver in the future. Numerous opportunities exist in this regard for the surveying profession, both in terms of service provision to clients but also in collaborating across stakeholder groups along the value chain, thus further scrutiny of potential synergies warrant further investigation.

Engaging in sustainable practice brings numerous benefits, and respondents to the survey were asked to select what they perceived to be the top-three benefits from options presented to them. **Figure 21** illustrates the proportion of responses for each answer option.

Public interest received the greatest number of responses followed closely by company reputation and there is no divergence across surveying designations in this regard. Equally as notable is the comparatively smaller proportion of respondents that selected fostering stakeholder engagement (12%) or asset appreciation (15%) among the top-three benefits of sustainability.

It is acknowledged that the range presented to respondents was limited to those identified in existing literature. Respondents were afforded the opportunity to identify additional benefits, however, no further

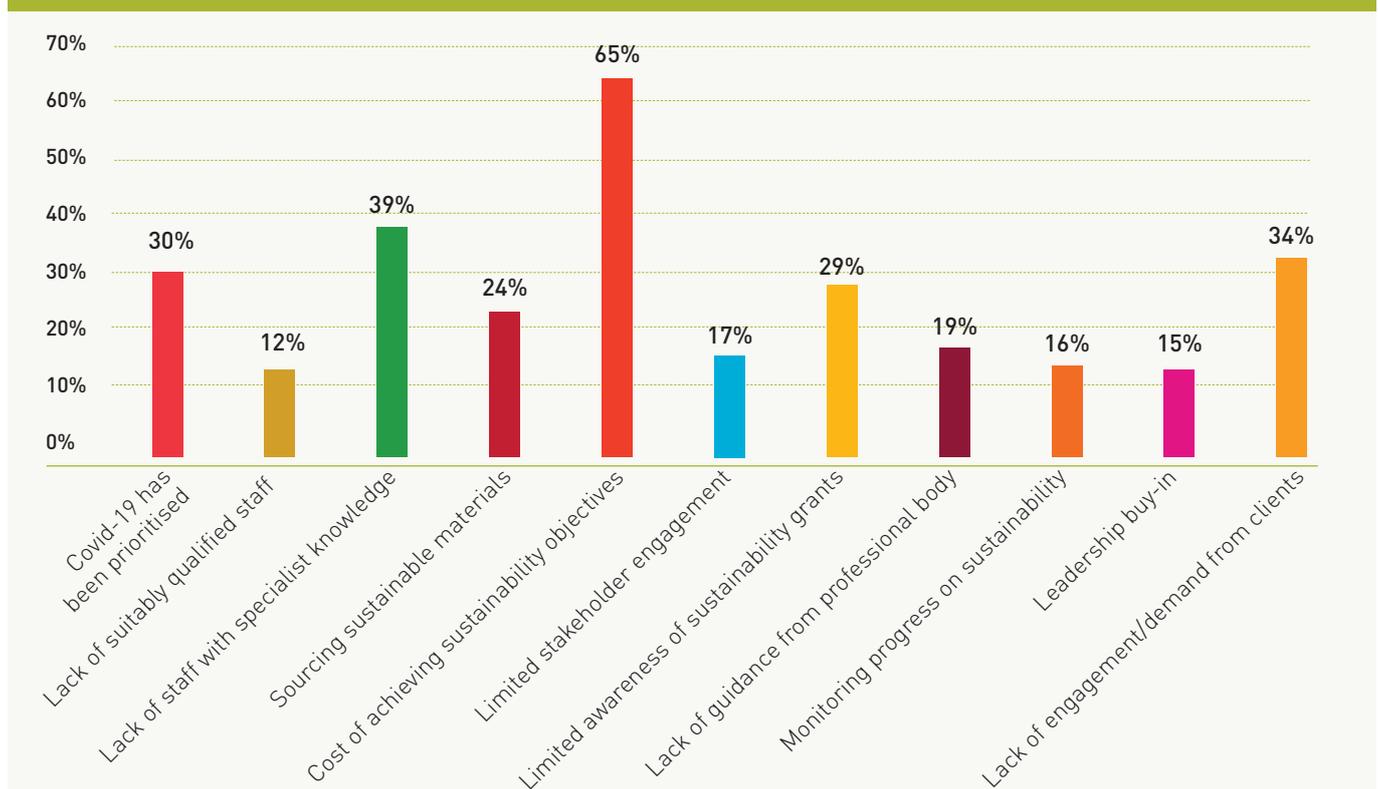
suggestions were received. Interview respondents noted potential for competitive advantage in those companies that differentiate based on sustainability performance, in addition to identifying opportunities in attracting foreign direct investment (FDI).

"Ireland's future potential in renewable energy presents a great opportunity to attract foreign direct investment right across the sub supply chain including professionals such as site surveyors, town planners, project managers and engineers. The country is already seeing strong international investment and this is expected to grow significantly over the coming years as Ireland strives to reach its renewable energy targets."

Rebecca Skeffington, Business Development Specialist, Green Economy Division, IDA

While there are many benefits of sustainable practice there are some barriers to achieving it (**Figure 22**). Participants in this research were presented with a range of potential barriers, from which they were asked to select the three most significant. By far the largest barrier relates to cost (65% of respondents) followed by lack of staff with specialised knowledge of sustainability (39%), and lack of engagement/demand from clients (34%).

FIGURE 22: Barriers to sustainability.



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In the context of the recently announced **Housing for All - a New Housing Plan for Ireland** and expenditure under the NDP, the barriers identified pose a critical downside risk, not only in terms of the capacity to deliver, but also value for money given the resultant inflationary impact of labour market deficiencies. While **Figure 22** provides an overall perspective from respondents on the barriers, some divergences occurred across designations, as outlined in **Table 3**.

Evidently, the cost of achieving sustainability is the primary barrier across all designations but thereafter divergences across surveying disciplines occur. Interview respondents in particular expressed the view that a lack of clearly stated targets and mechanisms to reduce carbon emissions across the built environment was another potential barrier. The establishment of specific and measurable targets to monitor performance improvement are thus warranted. This may also address the issue that some respondents are uncertain as to how to start the journey, therefore as it remains a daunting prospect for some, further guidance and support are merited.

Table 3: Barriers to sustainability per surveying designation.

Surveying designation	No. 1	No. 2	No. 3
Construction	Cost of achieving sustainability objectives (70%)	Lack of engagement/demand from clients (40%)	Lack of suitably qualified staff (40%)
Land	Cost of achieving sustainability objectives (59%)	Limited awareness of sustainability grants (41%)	Sourcing sustainable materials (37%)
Property	Cost of achieving sustainability objectives (61%)	Lack of suitably qualified staff (42%)	Covid-19 challenges prioritised (37%)

3.3 PEOPLE: KNOWLEDGE, EDUCATION AND FUTURE SKILLS REQUIREMENTS

The wellbeing of society now and for future generations underpins sustainability development. It is critically important that knowledge and skills are developed to ensure sufficient capacity to plan, build and operate sustainable cities and communities, while protecting the planet within which we live. Our planet is in a constant state of change; therefore, education must be a lifelong process. The previous chapter outlined the extent to which sustainability is embedded within HEIs and this section addresses the current knowledge and skills of qualified surveyors. It is not intended to highlight deficiencies in this regard but to identify aspects for future development to ensure suitability literacy advancement.

During the scoping phase of research, a range of core sustainability issues were identified and respondents were asked to rate their current level of knowledge in relation to each of the issues (presented in **Table 4**). As is evident from **Table 4**, surveyors have a basic or developing knowledge in the specified aspects of sustainable development at present. However, in the 12 months up to the date of answering the survey, 41% of respondents had undertaken sustainable development-related training and 62% confirmed their intention to do so in the next 12 months. **Table 4** may therefore provide a guide for training requirements, following which it should be the case that a greater proportion of future respondents may be experts or specialists in various aspects.

As noted in the previous chapter, the SCSi provides a range of CPD events in relation to aspects of sustainable development (see **Appendix 3**); however, further training needs in the following areas were identified by respondents, including:

- ▶ sustainability grants and financial support;
- ▶ measuring and valuing energy cost (and savings);
- ▶ carbon offset calculation;
- ▶ lifecycle cost analysis;
- ▶ sustainable vs non-sustainable materials; and,
- ▶ workplace energy use monitoring.

For property surveyors, specific information was sought pertaining to the operation management of building systems, knowledge of applying legal structures to contracts and lease requirement for maintaining certification. In each instance the largest proportion of

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property surveyors confirmed a basic knowledge of these issues; however, it should be noted that depending upon the role of the respondent, they may not be involved in some of these aspects of the business on a day-to-day basis.

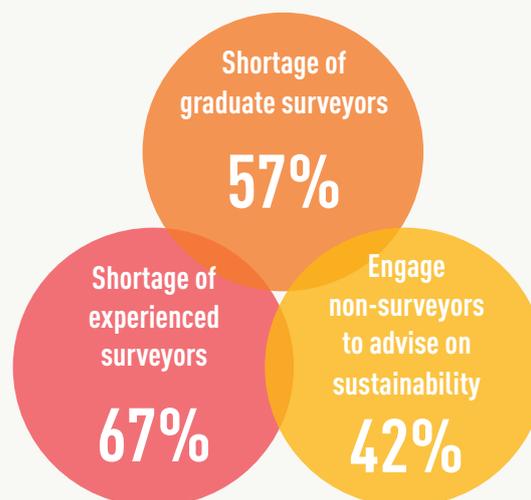
Opportunities exist for collaborative training to be expanded not only with organisations such as the IGBC and the SEAI, but also with other professionals to truly reinforce the interdisciplinarity of the built environment.

“To reach carbon neutrality by 2050, we must fully decarbonise our built environment across its whole life cycle. This means addressing both operational and embodied emissions, and it requires extensive collaboration of all involved in the industry. To support this transition, the IGBC is running training courses on life cycle assessment and has launched a free carbon designer tool. The tool allows building professionals to assess the carbon impact of a project from the concept design stage.”

Marion Jammet,
Policy & Advocacy, Irish Green Building Council (IGBC)

In addition to determining the current level of knowledge of practitioners, insight was also sought from practitioners in relation to general labour market trends given the impact on future skills

FIGURE 23: Surveying staff shortage.



A total of 55% of respondents confirmed that they are experiencing a shortage of skills labour, with a large proportion noting shortages in graduate surveyors and experienced surveying professionals (Figure 23). The shortage of graduate surveyors, although evident across all designations, is most pronounced in Quantity Surveying.

Table 4: Level of sustainability knowledge.

	Basic knowledge	Developing knowledge	Skilled/proficient	Specialist knowledge
Building Energy Rating (BER)	22%	41%	32%	5%
(Green) building certification (e.g., LEED; BREAM)	43%	38%	15%	4%
Sustainable communities initiatives	54%	34%	10%	2%
Water conservation	45%	41%	12%	2%
Circular economy	57%	31%	11%	1%
Forest stewardship	75%	19%	4%	2%
Climate Action Plan 2019	53%	38%	8%	1%
Climate Action and Low Carbon Development (Amendment) Bill 2021	58%	34%	7%	1%
Nearly zero energy building (NZEB)	31%	44%	20%	5%
Net zero and/or carbon negative	46%	39%	13%	2%
Monitoring and evaluating of carbon emissions	65%	28%	7%	0%
Embodied carbon	67%	28%	4%	1%
UN Sustainable Development Goals	69%	23%	6%	2%
UN global fundamental geospatial data themes	81%	14%	4%	1%

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The quantification of the extent of skills shortages lies beyond the scope of this research; however, the recently published Expert Group on Future Skills Needs (EGFSN) report **Skills for Zero Carbon** provides details for the sector overall. The report identifies a range of opportunities, including digital surveying of properties, marine surveying, and costing housing retrofits requiring surveying expertise.

A significant portion of respondents confirmed that non-surveying professionals are engaged to advise on sustainability; however, shortages were also confirmed in this regard. This provides a prospect for surveying professionals to upskill or retrain in facets of these roles providing business and career development opportunities.

“The Climate Action Plan provides a great opportunity to develop and upskill our existing (SCSI) members into retrofit specialists who can manage Ireland’s roadmap to carbon neutrality. In a domestic situation a Building or Quantity Surveyor is well suited to develop into a retrofit technical advisor, capable of managing the retrofit of any domestic property type. This includes measuring the building’s energy performance, developing upgrade plans and introducing renewable technologies into our building stock. The retrofit ambitions for Ireland shall provide work in this area for the next 15-20 years, and for once we may be able to avoid the cyclical nature our property sector has previously followed.”

Michael Slevin, Quantity Surveyor, Director, KSN

3.4 PLANET: CLIMATE CHANGE AND ENERGY PERFORMANCE

The most critical issue within sustainable development is climate change, and built environment activity contributes both positively and negatively in this regard. Underpinning national and international policy is the urgent need to reduce GHG emissions by at least 51% by 2030 and achieve net zero carbon emissions by 2050.

For the built environment sector, this will impact every stage of the process through the lifecycle of a building from site selection, design, construction (including materials usage), operation/use, renovation and ultimately demolition. The construction phase alone accounts for c. 38% of CO₂ emissions globally, thus it is critically important that stakeholders rethink how to sustainably deliver the much-needed housing and infrastructure a growing population requires.

As noted previously, surveying professionals advise across the full lifecycle of the built environment, therefore their scope of influence is considerable. For the purposes of this research a number of factors impacting climate change were investigated, both in terms of what is advised to clients but also in the companies within which surveyors are employed.

Carbon emissions

The measurement of the whole life carbon footprint of a built environment (including embodied and operational carbon) is challenging but essential. For many, this will require upskilling and a range of resources are available in this regard, but scope remains for the provision of additional training in relation to carbon measurement and costing. A roadmap to net zero whole life carbon is currently under development by the Irish Green Building Council (IGBC); however, a number of **Preliminary Recommendations** have been made available.

The **Science Based Targets Initiative** enables companies to establish science-based targets (SBTs) in relation to emissions reduction (and they are scientific to the degree that they are aligned to the 2015 Paris Agreement). Using SBTs ensures that a commitment to a reduction in emissions is developed and communicated, monitored and reported upon in a systematic way. Emissions are categorised as follows:

- ▶ scope 1 – direct emissions by the company (e.g., fleet vehicles);
- ▶ scope 2 – indirect emissions that are purchased or acquired (e.g., electricity); and,
- ▶ scope 3 – indirect emissions that occur along value chain not included in scope 2 emissions.

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The overwhelming majority of respondents (87%) confirmed that steps are taken within their practice to reduce emissions within the company, for example, reducing energy use and switching fleets to electronic vehicles (EVs). Comparatively fewer (28%) however, measure progress towards emission targets.

Almost half confirm that they routinely use sustainably sourced materials in place of alternatives within the company (Figure 24). However, only 28% of respondents confirmed that they measure progress towards specified carbon emission targets, such as SBTs for the company (see section 3.5 for further information in this regard). These are broadly in line with what is advised upon to clients (e.g., 41% source sustainable materials for clients and, 27% measure progress towards carbon emission targets for clients).

Interview participants noted that the low proportion of survey respondents measuring progress towards carbon emissions targets results from both a lack of knowledge of the issues, but also not knowing where to start on improving energy performance. Furthermore, it was noted in some instances, that targets are not specific enough; therefore, while it is agreed that targets should be in place, the pathway to achieving them must be more explicit.

[An example of how the public sector is leading the way in decarbonisation of its property portfolio is evidenced within the Office of Public Works (OPW) and an overview of the process is contained in Appendix 4.]

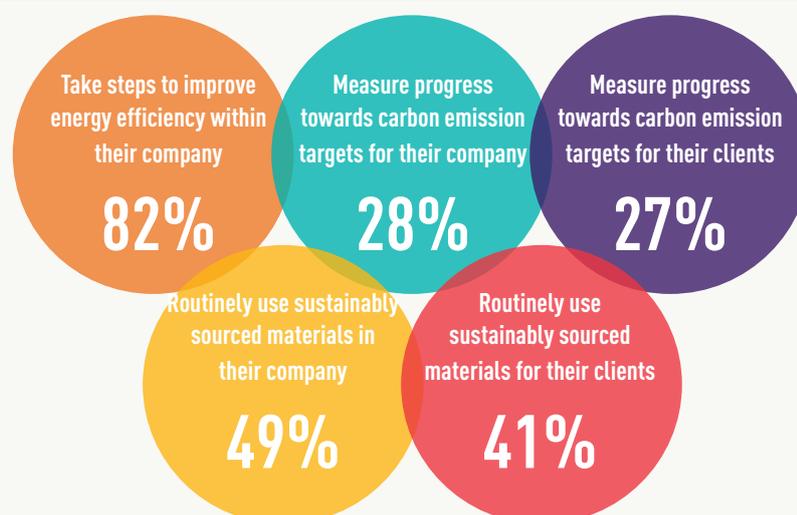
Business supports

Several State, semi-State and non-profit organisations provide a range of supports to assist people and businesses on their sustainability journey. This can range from support to fund a consultant to assess a business (e.g., Enterprise Ireland's **GreenStart**), grants for electric vehicles (e.g., SEAI **Electric Vehicle Grant**), home retrofit scheme (SEAI **National Retrofit Scheme**), or toolkits to assess your home energy performance (IGBC **Home Performance Index Tool**) or business (**Climate Toolkit 4 Business**).

"Any business should be motivated to reduce its emission footprint, driven by economic and market imperatives. There are key steps that can be taken by understanding your business energy use and emissions footprint, implementing a structured energy management system, and targeted investments in both energy efficiency and renewable energy. SEAI have a wide range of supports to facilitate businesses including the Energy Academy, energy management training, Energy Audit Support Scheme, grants and other financial incentives."

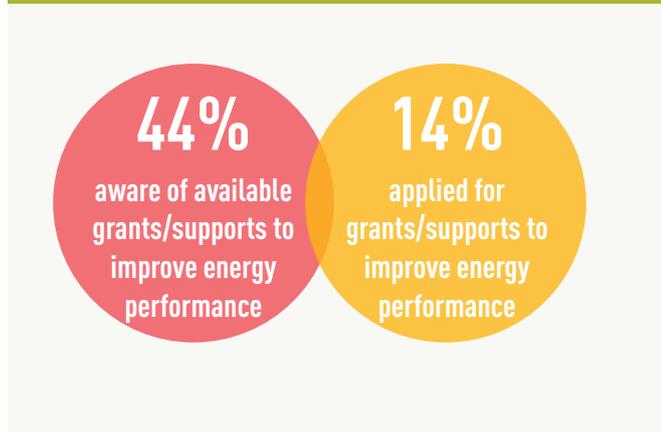
Fergus Sharkey, Head of Business Support & Transport, Sustainable Energy Authority of Ireland (SEAI)

FIGURE 24: Carbon emissions, energy performance and sustainable materials.



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FIGURE 25: Awareness of and applications for sustainability grants.



Overall, 44% of respondents confirm that they are aware of grants that are available (Figure 25); however, a slightly higher proportion of construction surveyors (54%) and land surveyors (59%) reported this to be the case. Only 14% of respondents confirmed that they had previously applied for a sustainability grant, but this increases to 30% for land surveyors (the latter finding must be considered in light of the significantly lower number of respondents within this designation).

The low take-up of available grant funding and other supports within surveying practices is a missed opportunity, and one that must be more fully exploited. Funding pathways should be promoted among surveying professionals, as while many surveyors do not know how to start their sustainability journey, many others are unaware of supports available to do so.

Legislation

The legislative basis for the built environment is considerable. The most notable at present is the Climate Action and Low Carbon Development (Amendment) Act 2021. The Act was passed into law in July 2021 for the purposes of supporting Ireland's transition to net zero and achieving climate neutrality by 2050. This is the legally binding framework to ensure required structures and processes have a statutory basis to meet our national and EU commitments. Figure 26 illustrates the current level of awareness among respondents of the legal requirements of the Act.

A divergence in responses is apparent, with 52% of land surveyors confirming that they are aware of the legal requirements specified in the Act. The timing of this survey (approximately two months after the Act was signed into law and prior to the publication of the Climate Action Plan 2021) is likely to impact the findings in this

FIGURE 26: Knowledge of the Climate Action and Low Carbon Development (Amendment) Act 2021.



regard; however, findings provide a useful baseline for future comparison.

Waste

Waste minimisation is of importance when using scarce, and often irreplaceable natural resources. A total of 87% of respondents confirmed that they actively take steps to reduce waste within their companies, and 68% do so on behalf of their clients.

Workplace strategy

The final element considered under this heading is related to workplace strategy. The Covid-19 pandemic propelled many companies into implementing new workplace strategies. The timing of the research coincided with the transition back to the office following almost 18 months of working from home. Many benefits of remote working have previously been reported upon and in several instances a hybrid workplace strategy was being pursued prior to the pandemic.

Participants in this research were asked whether climate change influenced the decision to continue or extend remote working, for which 32% of respondents confirmed that this was the case.

A total of 87% of respondents confirmed that they actively take steps to reduce waste within their companies, and 74% do so on behalf of their clients.

3.5 ENVIRONMENTAL SOCIAL GOVERNANCE: SUSTAINABILITY REPORTING

Environmental Social Governance (ESG) relates to the evaluation of a company against a range of metrics and disclosures relating to non-financial information, such as progress on sustainability, which is undertaken in conjunction with other aspects of business and financial reporting. Industry stakeholders, including investors, lenders and clients, are increasingly demanding transparent environmental credentials/ reporting in the valuation of organisational and built environment assets to inform investment decisions. A number of established frameworks and assessment tools are currently used such as the Global Real Estate Standards Board (GRESB), and the Building Research Establishments Environmental Assessment Method (BREEAM) In-Use.

"With climate change, changing stakeholder demands, increased and changing regulations, rising costs of raw materials, energy, carbon taxes, etc., it makes business sense for companies to improve their environmental performance to ensure they remain competitive and can maximise opportunities in the low-carbon, resource-efficient economy of the future. Businesses that provide products or services to larger companies are now being required to show transparent environmental credentials and alignment with international standards. Enterprise Ireland launched the Climate Enterprise Action Fund in April 2021. The fund is designed to assist companies, which are supported by Enterprise Ireland, to begin or to accelerate their sustainability and low-carbon agendas."

Kathleen O'Regan,
Senior Environmental Advisor, Enterprise Ireland

The recently launched Green Public Procurement (GPP) guidelines require green and sustainable credentials in the tendering process in Ireland, compounding the urgency with which surveying professionals must engage in ESG.

The regulatory landscape is also evolving at a European level, most notably in the Sustainable Finance Disclosure Regulation (SFDR), which was adopted in 2019 and introduced in 2021 requiring fund managers to disclose the ESG of their products and services. The regulation is likely to be expanded upon over the coming years.

Sustainability credentials are clearly gaining prominence for all relevant stakeholders.

"If the concept and meaning of sustainability is to have an actual effect then it will need to be more than just a box to tick. The demand from institutional investors is real, as they are under pressure to make sure their assets are compliant, but there needs to be a distinction made between the ESG rating and the actual efficiency. The pricing of both these aspects is still in its infancy but will likely see much progress through 2022."

Max Reilly, Senior Director, Investments, JLL
Chair, SCSi Commercial Property Surveying Professional Group

While there is a growing demand for ESG, there remain challenges in terms of lack of awareness and understanding of what it entails, compounded by the lack of commonly agreed metrics of measurement at the time of writing.

A detailed investigation of ESG within the surveying profession remains outside the scope of this report, however, the extent to which a number of facets of sustainability reporting are currently undertaken within SCSi member practices were identified. A number of aspects of ESG were presented to participants, who were asked to confirm if the practice is:

- ▶ currently in place;
- ▶ not currently in place, but will be in next 12 months;
- ▶ not currently in place, but likely to be by 2030;
- ▶ not currently in place, and not under consideration; and,
- ▶ unsure of status.

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Figure 27 details the responses in this regard. As is evident from Figure 27, sustainability is currently addressed by a significant proportion of respondents through the existence of diversity and inclusion policies (55%), coupled with incorporation into corporate social responsibility (CSR) strategies (48%), and corporate strategies (40%); this is likely to increase by 7%, 12% and 15%, respectively, in these aspects within the next year.

There is still some way to go however, in terms of more-detailed reporting in that the minority of respondents monitor supply chains (11%), set SBTs (10%), or report more generally on sustainability goals (16%).

There are almost equal percentages currently setting SBTs now or within 12 months (12%), as those that are not considering it at all (23%). Ample opportunity remains for surveyors to engage in this initiative to establish verified net-zero targets and be fully involved in the circular economy.

On closer examination of the dataset, larger firms have a greater degree of sustainability reporting currently in place. Within this cohort of respondents, the number of facets of reporting currently in place are higher than the overall average, for example:

- ▶ 81% have a diversity and inclusion plan;
- ▶ 69% have a CSR strategy;
- ▶ 57% confirm sustainability is specified within the corporate strategy; and,
- ▶ 56% have a dedicated sustainability strategy.

There are a number of reasons this is the case, the most notable from interview respondents is resource availability, investor and organisational ownership structure (i.e., part of a global organisation).

"In order to serve our clients well, we need to stay far ahead of mere compliance, and evidence shows that not only do earlier movers in ESG reap deep rewards, but it's also the right thing to do!"

Eloise Heron, Valuation Surveyor
Chair, SCSi Sustainability Working Group

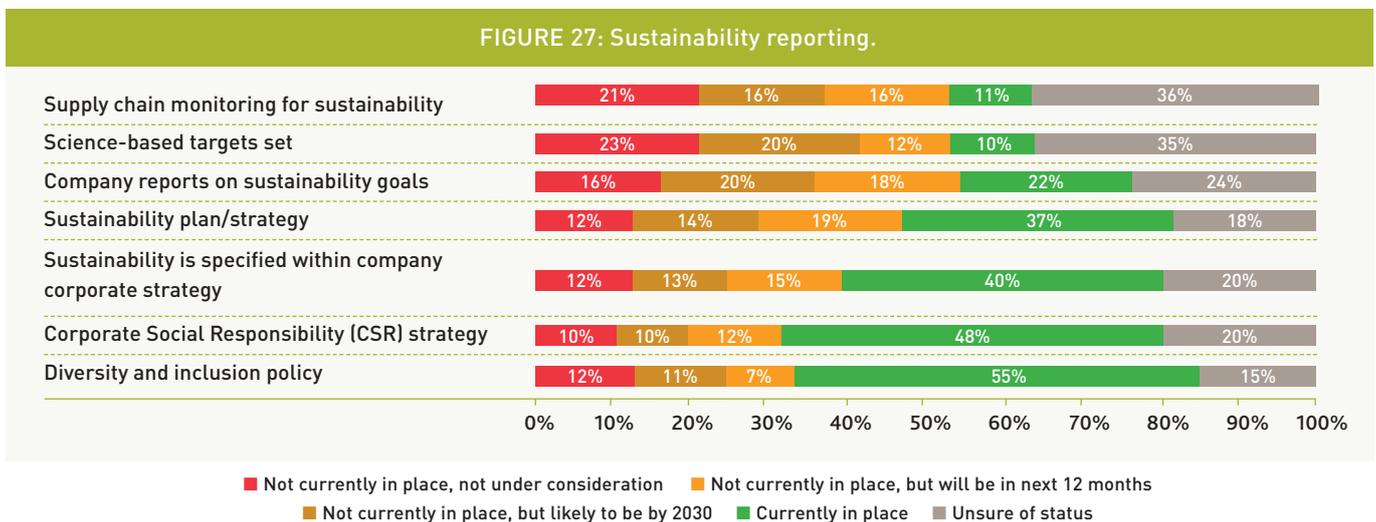
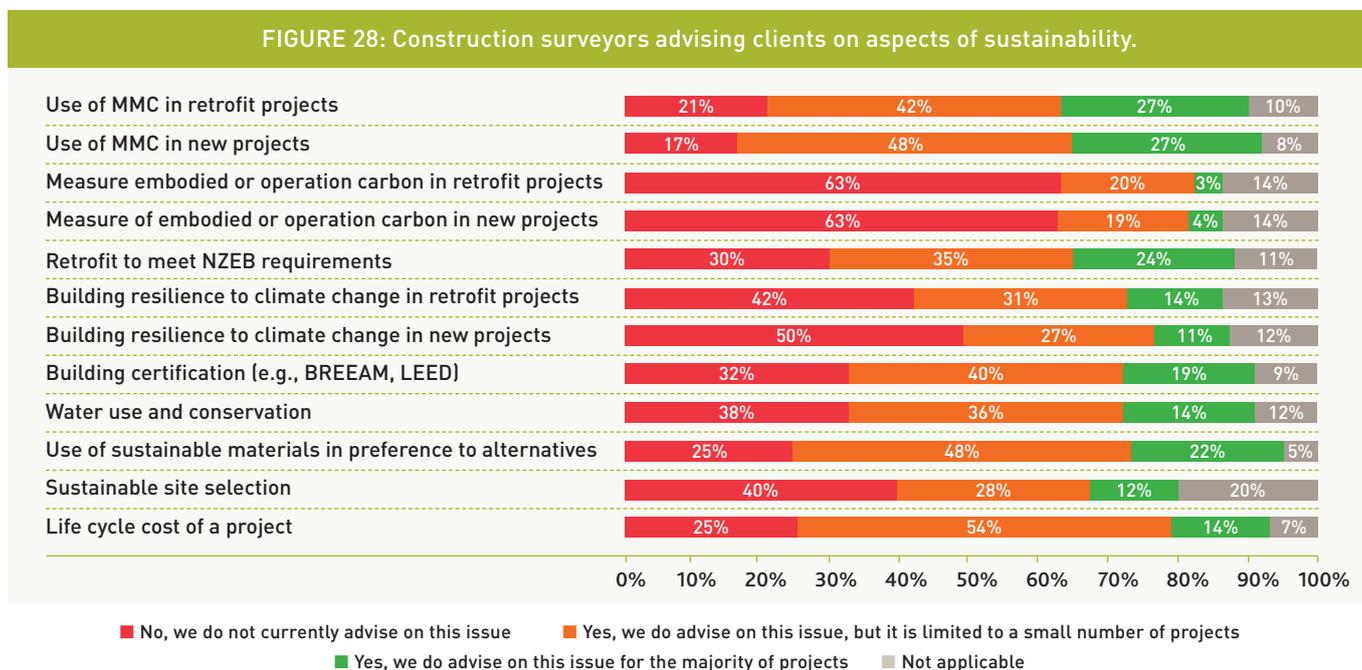


FIGURE 28: Construction surveyors advising clients on aspects of sustainability.



3.6 SURVEYING DESIGNATION ADVICE AND MARKET TRENDS

Throughout the report the diversity in the range of surveying disciplines has been noted, and variances in findings between disciplines have been identified. Some aspects of sustainability are particularly pertinent to particular surveying designations; therefore, a number of targeted questions were asked for each designation.

Respondents to the survey were asked to select their broad designation (construction, land or property) in order to direct them appropriately within the survey instrument.

3.6.1 CONSTRUCTION SURVEYING

Building Surveyors and Quantity Surveyors account for the largest share of the construction surveying respondents who were asked the level to which they were engaged in advising on a range of aspects relating to sustainability. Respondents were asked to identify whether each issue was:

- ▶ not currently advised upon;
- ▶ advised on the issue, but limited to a small number of projects; or,
- ▶ advised on the issue for the majority of projects.

Figure 28 provides an overview of the core aspects of sustainability being advised upon by construction surveyors in relation to sustainable development. Results from this suite of questions are aggregated in Figure 28, and in most instances are consistent across both QS and Building Surveying (BS) designations; however, where divergences occur they are highlighted in the narrative.

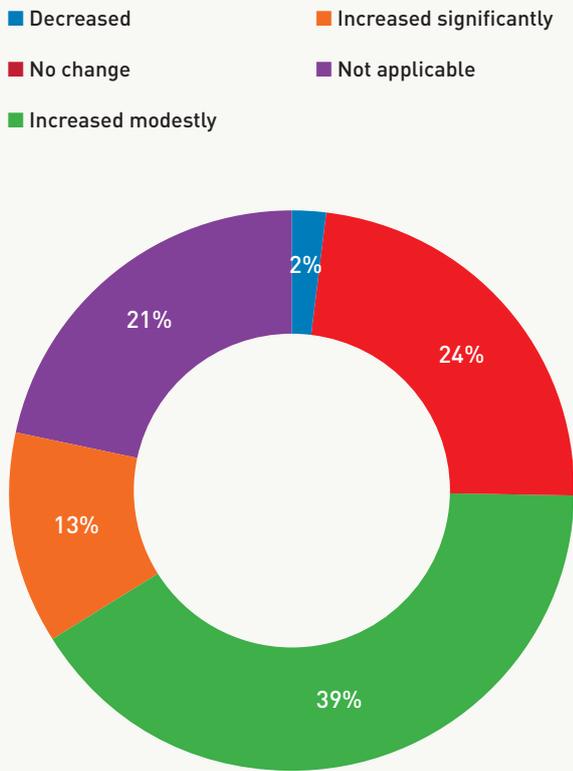
It is acknowledged that the range of issues presented to respondents was limited for the purposes of the survey; however, insight garnered provides a useful snapshot of current practice.

Slight divergences occur in that QS are less likely to advise upon embodied or operational carbon, and water conservation, and BS are marginally more likely to advise upon certification in a large portion of projects.

Improving the energy performance of existing stock is a priority area as detailed in the NDP, and significant funding will be made available over the life of the plan to improve the energy performance of existing public and private sector stock. This will provide numerous opportunities for construction surveyors, and familiarity with the International Cost Management Standard (ICMS) will provide global consistency in cost reporting.

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FIGURE 29: Demand for residential retrofit.



“The role of the Quantity Surveyor is changing. It’s no longer enough to think only about capital expenditure. You have to consider cost in use and the unseen costs such as those attributable to embodied carbon.”

Charles Mitchell, Quantity Surveyor, Construction Technical Advisor, Office of Government Procurement

Respondents to this research confirmed the extent to which demand for retrofitting existing stock had changed in the previous 12 months. The results presented in **Figure 29** clearly illustrate the increase in demand in this regard.

In executing the national retrofit programme, it is important to ensure compatibility of material use with our existing stock, including heritage buildings. Building surveyors are very well placed to advise in this regard.

“In terms of encouraging people to retrofit our existing traditionally built houses, we need to use more carrot and less of the stick. Part IV of the 2000 Planning Act is there to protect our heritage buildings...Traditionally built and well-

maintained historic buildings are sustainable and healthy as they are built of natural materials using methods that have evolved over hundreds of years. The use of inappropriate modern materials and technologies that are incompatible with these buildings, e.g., non-natural materials, finishes, and technologies, changes the ecological balance of this sustainable healthy ecosystem that has been the home to many generations and can be both now and in the future.”

**David Humphreys, Building Surveyor
Director, Architectural Conservation Professionals (ACP)**

The demand for retrofit within the non-residential sector has also increased modestly for many practices (39%), but remained unchanged for several respondents (24%).

There are many underlying factors influencing the results, most notably the impacts arising from Covid-19 and Brexit on the commercial property market; however, numerous opportunities for construction surveyors exist going forward given the regulatory and policy landscape.

“Sustainability is everyone’s responsibility but it is also a collaborative team effort. The Quantity Surveyor is one of the key stakeholders in this team effort because with their unique skills, they can calculate, analyse and communicate the commercial impact that a sustainability strategy will have for companies, investors, society and the industry as a whole.”

**Ross Griffin, Quantity Surveyor
Founder/Chief Commercial Specialist, Kosmos**

A large proportion of construction surveyors (68%) say that sustainability and carbon emissions targets have increased the cost of a construction project and interview respondents reinforced the criticality of this issue as a barrier in the attainment of SDGs.

The overwhelming majority (81%) of construction surveying respondents agree that technology will play a key role in achieving sustainability objectives going forward, whilst 42% confirmed they had invested in new technology in the preceding 12 months. However, only 36% had undergone training in technologies that support sustainability over the same time period.

As noted previously, the role of technology in the achievement of SDGs is critically important, and warrants further investigation.

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Table 5: Land surveying service provision.

	Data capture only	Data analysis only	Data capture and analysis	Analysis and advice to clients	Capture, analysis and advice to clients
Land cover (cover of Earth's surface)	6%	6%	35%	12%	29%
Land use (current and future planned management of land)	11%	6%	28%	17%	22%
Land parcels (land under common rights)	12%	18%	18%	0%	35%
Land surveys for legal purposes (e.g., rights and boundaries)	0%	0%	11%	11%	50%
Buildings and settlements	18%	6%	35%	12%	29%
Transport networks (road, rail, air)	19%	6%	25%	0%	25%
Physical infrastructure (utilities, schools, hospitals)	6%	0%	29%	12%	24%
Geology and soils	12%	12%	12%	0%	12%
Water (e.g., physical profile surveys of rivers and waterways)	6%	0%	12%	12%	18%
Orthoimagery (image data from sensors/satellite)	0%	18%	29%	5%	24%

3.6.2 LAND SURVEYING

Land surveying covers a diverse range of services in relation to land, buildings and settlements, transport and infrastructure, the use of which is dependent upon population, geology and other natural resources.

Land surveying professionals may collect, store and analyse data pertaining to our planet; however, in practice, the range of services provision extends from data capture or data analysis to capturing, analysing and advising clients on the data obtained. Until now no investigation has been undertaken to determine the breadth and range of land surveying services undertaken by SCSi members.

"SCSi Geospatial Surveyors are mapping the human footprint to enhance sustainability. Our skillsets help address several sustainable development goals, such as SDG9 (industry, innovation and infrastructure), SDG11 (sustainable cities and communities), SDG13 (climate action), SDG14 (life below water) and SDG15 (life on land)."

**Eugen Nicolae, Geomatics Surveyor, TU Dublin
Chair, SCSi Geomatics Surveying Professional Group**

Following a detailed scoping phase, a range of land surveying services were identified from which respondents to the survey were asked to confirm their extent of involvement (presented in **Table 5**). Where totals do not equal 100% respondents have selected 'not applicable'.

As evidenced from **Table 5**, few firms engage solely in either data capture or data analysis.

A vast amount of information relating to our planet is available through satellite imagery, which provides essential information to surveying professionals. EU programmes, such as the Copernicus Earth Observation programme are freely available and 77% of respondents to this research are aware of this resource, with 44% of respondents confirming these resources are currently in use within their company (the majority of which are large companies). Interview respondents noted that it may be the case that practitioners are aware of its existence but may not see the immediate benefit of its use in their day-to-day workflow. Potential exists to further exploit the resource going forward.

Technology plays a central role for land surveyors, and 89% of respondents reported that the company has invested in new technology in the previous 12 months. Over half of respondents (56%) consider sustainability at the end of life of equipment when deciding which equipment to purchase. This is partially explained by the emphasis equipment manufacturers are placing on end of life of equipment. It is not uncommon for used equipment to be given a "second life" in a third-world country, for example, if it is in working order (potentially refurbished and resold).

Whereas 83% rely on cloud computing to store large datasets, fewer than half (47%) consider the environmental impact of the

3. SUSTAINABILITY IN PRACTICE

cloud storage (i.e., impact of datacentres). On closer examination of responses, smaller companies are less likely to consider the environmental impact of cloud storage, which interview respondents noted is because they may store data on site.

3.6.3 PROPERTY SURVEYING

The property surveying designation encompasses a diverse range of professionals including arts/antiques, valuations, property and facilities management, residential, commercial and finance. A scoping phase to determine priority areas spanning all property surveying professions was undertaken, such that respondents could confirm trends over the preceding 12 months across residential and commercial sectors, in addition to sustainable property and facilities management.

It is important to note that the latest RICS Valuation – Global Standards (“Red Book Global Standards”) came into effect January 31, 2022, which provides further emphasis on the valuation of sustainability and ESG factors that could affect a valuation. Specifically it states “valuers should collect and record appropriate and sufficient sustainability and ESG for the valuation” given that the sustainability and ESG factors potentially have significant market influence. Several supports are available to incorporate sustainability into the valuation process, for example [RenoValue](#).

Respondents were asked to identify the trend in relation to each of the issues from a scale of decreased significantly to increased significantly. Interestingly, a negligible proportion of responses were confirmed on the negative end of the scale, with either no change or positive change in each instance. The analysis to follow identifies the three most common trends for each of the issues.

Residential sector

The residential sector remains plagued by a shortage in supply, which continues to put upward pressure on prices nationally, both for rental and owner-occupier units. The [SCSI Residential Property Market Review and Outlook 2022](#) provides a detailed analysis of the residential property market, spotlighting the housing supply shortage, pent-up demand and the Covid effect on activity within the sector.

The focus of this research is specifically on sustainability priorities of those renting and purchasing properties based upon transactions in the preceding 12 months.

As noted previously, a small number of respondents confirmed a downward trajectory in trends in this regard, with some respondents confirming that a particular sub-sector was not applicable to their practice (which explains the low totals in **Table 6**).

Table 6: Demand for sustainable residential units.

	Increased slightly	Increased significantly	No change
Purchaser demand for sustainable residential property (e.g., demand for specific sustainability criteria)	23%	19%	19%
Renter demand for sustainable residential property	18%	9%	33%
Investor demand for residential buildings with green building certification	28%	18%	12%

Table 6 indicates a positive trajectory in the demand for sustainable residential units, over the preceding 12 months. As noted in a previous section, the motivating factor for demanding specific sustainability criteria requires additional consideration, as it is possible that cost rather than sustainability objectives is the driving force behind the uptick in demand. Housing affordability over sustainability remains a priority for many.

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Commercial sector

The commercial sector has seen considerable growth in the demand for buildings with superior sustainability performance credentials as measured by the existence of certification such as LEED, BREEAM and BREEAM-In Use. Trends in demand for commercial buildings with green building certification as confirmed by research participants is detailed in **Table 7**.

Table 7: Demand for sustainable commercial property.

	Increased slightly	Increased significantly	No change
Investor demand for commercial buildings with green building certification	28%	37%	12%
Occupier demand for commercial buildings with green building certification	34%	33%	11%
Non-certified or sustainably challenged existing stock of non-residential buildings	13%	5%	26%

Evidently from **Table 7**, the demand for more sustainable commercial buildings is clearly on an upward trajectory over the preceding 12 months. Furthermore, 19% of respondents noted that demand for non-certified sustainably challenged non-residential buildings had decreased. These trends must be considered in the context of unprecedented challenges in the commercial property market and changes to workplace strategy, which were accelerated due to the Covid-19 pandemic. Interestingly, the number of respondents reporting a significant increase in demand (investor and occupier) is proportionally greater in this study compared to the findings from the global **RICS Sustainability Report 2021**.

Interview participants noted that investors are requiring increased granularity in relation to sustainability credentials; however, while large investors may demand high ESG performance credentials, it is not universally the case across all property professionals.

"Sustainability is integrated into our investment strategy and a key driver for our approach is the requirements of our investors for transparency on the ESG performance of our portfolio and ensuring that the buildings we develop and manage are attractive to high-calibre occupiers. It makes good business sense. The challenges for large institutional funds such as IPUT may be different to those faced by landlords with smaller portfolios, particularly when it comes to access to finance, making investment decisions over shorter time horizons or considering the 'split incentive' where occupiers may benefit more from financial investment in retrofits. However, the starting point is the same for all, start by measuring the energy performance of your asset, identify the inefficiencies and develop a plan to reduce consumption."

Shane Caldwell, Senior Portfolio Manager and Sustainability Lead, IPUT Real Estate Dublin

Respondents (48%) noted that green-certified buildings achieve a rent premium over comparable non-green buildings; similarly half of respondents confirmed that green-certified buildings achieve a price premium over comparable non-green buildings. These results are broadly in line with those reported in the aforementioned RICS Sustainability Report.

As noted in a previous section, while clients are demanding superior sustainability credentials, it is imperative that this is not merely at the construction phase but also incorporates the fit-out and in-use sustainability performance. Energy monitoring is required on an ongoing basis by the occupier of the building for it to be truly sustainable over its whole life, and upskilling of occupiers may be required.

For commercial property in particular, the identification, assessment and impact of sustainability must be considered in the valuation of the asset, as there may be potential future cost liability to meet regulatory requirements.

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Property and facilities management

Preceding analysis relates to current trends in transactions across residential and commercial property; however, the ongoing use of buildings is critically important for sustainability throughout the occupation of buildings transacted. **Table 8** provides a snapshot of general trends in this regard.

Table 8: Sustainable property and facilities management practice.

	Increased slightly	Increased significantly	No change
Emphasis on sustainable property management practice	35%	20%	14%
Emphasis on sustainable facilities management practice	29%	24%	14%

Findings presented in **Table 8** demonstrate the upward trends in the preceding 12 months in the provision of sustainable property and facilities management practice. The ongoing performance of a building throughout its whole life is critically important for a sustainability built environment, therefore the trends are a positive discovery. However, a note of caution must be expressed given the low response rate from property and/or facilities management surveyors to this research.

Property surveyors also have an important role to play in relation to biodiversity, as noted by one participant:

“Nature is declining at unprecedented rates, and the loss of biodiversity in Ireland is shocking and far reaching. As Chartered Surveyors, we can make a positive impact on this in a lot of ways. We need to speak up for nature at every turn, whether it be by letting the grass grow in common areas, planting pollinator-friendly flowers around and on top of buildings, or advising our clients to retain as many existing trees as possible on development sites”.

Eloise Heron, Valuation Surveyor
Chair, SCSi Sustainability Working Group

Life on land (SDG15) was identified as a priority area by 22% of survey respondents within this research; however, further examination of practical steps currently taken (and advised upon) warrants further investigation in the future.

3.7 CONCLUSION

Built environment professionals are pivotal to ensuring their businesses and those they advise provide sustainable solutions over the whole life of the built environment to protect the planet and all its inhabitants in an equitable fashion. Surveying professionals underpin every phase of the built environment lifecycle from planning, construction, occupation, maintenance and ultimately demolition.

Ireland is on a legally binding pathway to becoming net zero by 2050, so business as usual is not an option. While the ambitious targets are challenging, they present an opportunity for surveying professionals to lead the way in transforming the built environment.

Respondents to this research recognise and acknowledge the importance of sustainable development, most notably driven by client demand and Government policy, 37% of participants in this research have committed to the SCSi 'Surveyors Declare' initiative. However, surveying professionals are at varying stages of their sustainable development journey and while numerous benefits of engaging in sustainable practice have been identified, challenges remain.

Capacity must be fostered and expertise further developed on an ongoing basis in technical aspects of sustainability, climate action, biodiversity and the circular economy, but also in sustainability reporting. Respondents to this research identified a range of training supports required, which can now be considered as part of the CPD programme as appropriate.

A significant proportion of surveying professionals are unsure of how to commence their sustainable development journey and often are unaware of the array of nationally available supports. Guidance is required to signpost members to these supports so that sustainability ambitions may be determined and pathways to achievement specified. Opportunities also exist to enhance collaboration with other stakeholders to ensure alignment and connectivity across the full lifecycle of the built environment.

4. CONCLUSIONS AND RECOMMENDATIONS



4. CONCLUSIONS AND RECOMMENDATIONS

Built environment professionals play a central role in economic development, social inclusion and environmental protection to ensure the wellbeing of the planet and its inhabitants. Surveying professionals are engaged throughout the lifecycle of the built environment and must collaborate with other stakeholders in the value chain to ensure circularity and connectivity of activity.

Sustainable development is multidimensional and as it continues to progress to the fore, surveying professionals have a responsibility to develop proficiency for societal benefit, to satisfy regulatory, legal and client demand and possibly improve competitive positioning as a result.

The preceding chapters provided extensive insight from a variety of perspectives in a first of its kind investigation in Ireland. Through a number of stakeholder surveys and numerous semi-structured interviews, the current baseline knowledge, skills, service provision and practice of sustainability are determined.

The next section synthesises key conclusions from the research, following which a range of recommendations are made for stakeholder groups.

4.1 CONCLUSIONS

4.1.1 EDUCATION SECTOR

Human capital development is critical to the attainment of SDGs. The education and training of surveying professionals is a lifelong process, commencing with the completion of an accredited surveying programme and progressing throughout the career of a Chartered Surveyor through CPD.

At the time of writing, the SCSi accredits 24 surveying programmes within 11 HEIs across Ireland. Evidence from the research confirms that sustainable development is embedded within programmes, both in curriculum content and assessment strategies. A broad range of economic, social and environmental issues are incorporated into module delivery and a varied range of assessment methods are used to develop competencies required for sustainable development. The research thus confirms that sustainability literacy is developed across surveying programmes. In some instances, however, it is not explicitly stated within module descriptors, therefore while all indications are positive, there remains additional work to be done in this regard.

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A number of surveying programmes have undergone a sustainability audit and several participants confirmed the intention to do so as part of the next SCSi review processes. Consistency in agreed terminology and sustainability indicators are required should a micro-level analysis of module descriptors be undertaken to measure progress in this regard.

There was universal support among programme chairs and Heads of School that future SCSi accreditation should be conditional upon embedding sustainability across surveying programmes. The challenge is how best to do so given an already crowded curriculum, and the aforementioned consistency in the lexicon.

Institutional commitment to sustainable development is apparent within HEIs evidenced through corporate and sustainability strategies and at an operational level, with the majority of participant HEIs either already in possession of, or working towards, Green-Campus status. Several practical initiatives are in situ to ensure learners are actively engaged in sustainability through curriculum and non-curriculum activities.

HEIs are actively engaged in sustainability-related research, much of which is undertaken on a collaborative basis with partner HEIs and/or industry. Competitive funding has been awarded in this regard and a number of participating HEIs have a dedicated centre for sustainable development research. Knowledge development at a national and international level is crucial and sustainability research must be supported, strengthened and financed to ensure innovative, entrepreneurial and technical solutions are developed to meet sustainability challenges.

Lifelong learning throughout a surveyor's career is critically important to remain current in industry, regulatory, legislative and policy advancement, but also for personal and professional development. Chartered Surveyors are required to undertake CPD on a rolling basis, and the SCSi currently offers a range of CPD events relating to sustainable development. Training collaborations are currently in place with the SCSi and agencies, such as the IGBC and SEAI and others; however, many respondents remain unaware of the full range of supports available to them.

Additional programmes of study relating to sustainability and the circular economy are provided on a collaborative basis through HEIs and industry, including (but not limited to) those offered through the Digital Academy for the Sustainable Built Environment (**DASBE**):

"...we set up the Digital Academy for the Sustainable Built Environment (DASBE) with the aim to quicken up the design, development and deployment of education and training programmes, working collaboratively with industry and other educational bodies to respond to industry needs. We've also established the DASBE interactive platform, signposting where to find suitable courses, supporting the industry to upskill and gain new knowledge in a cost-effective, worker-centric learning environment."

Lis O'Brien, Manager

Digital Academy for the Sustainable Built Environment

The development of sustainability literacy and human capital is central to the attainment of the SDGs and the research has demonstrated that sustainable development is a strong thread running through the education, training and lifelong learning of surveying professionals.

Advanced expertise in sustainable development provides a unique opportunity for surveyors to innovate and lead the transformational change required to meet ambitious global goals.

4.1.2 SURVEYING PROFESSIONALS AND PRACTICES

Surveying practices are at varying stages in their sustainability development journey. Numerous exemplars of industry leaders are evident among participants and many surveying professionals are commencing the journey. The importance of sustainable development is universally acknowledged among participants, although those at an early stage often have difficulty knowing where to start (and knowing what supports are available to do so).

The recently launched Department of Enterprise, Trade and Employment **ClimateToolkit4Business** is an excellent starting point for companies to measure and reduce carbon. Grant schemes to

4. CONCLUSIONS AND RECOMMENDATIONS

undertake an environmental audit, for example **GreenStart** (Enterprise Ireland) or the **Energy Audit Voucher** (SEAI), are currently underutilised within the surveying profession.

A range of factors are driving sustainability across the profession, including the desire to do what is right for the public good, client demand and regulatory change. However, a range of challenges remain, most notably skills availability and inflationary pressure. The demand for qualified surveyors is likely to remain strong in the medium term, providing tremendous opportunities to those considering a career in the sector to be part of the transformational change towards a more sustainable built environment. Knowledge of key aspects of sustainability and climate action is developing among qualified surveyors, but scope exists to acquire new knowledge and to cultivate stronger networks for knowledge sharing. It is encouraging to discover that a significant proportion of participants have undergone sustainability training in the past year, with an even greater number intending to do so in the year ahead.

ESG is becoming increasingly important to ensure the authentic advancement of environmental improvements across the built environment sector, and to combat what may otherwise be "greenwashing". Monitoring progress and sustainability reporting tends to be concentrated in larger practices (and for larger clients), with few participants measuring sustainability performance through criteria such as SBTs at present.

Aspects such as accounting standards, green procurement and climate legislation are the new norm, and all businesses must adapt and transform their business operations accordingly. Those that do so now may be ahead of the curve and potentially gain competitive advantage as a result.

The provision of ongoing training in the measurement, costing and monitoring of building energy performance is required to ensure surveying professionals, regardless of designation, are upskilled in this area. Client demand will drive this necessity, but practitioners need to lead by example within their own organisations.

The surveying profession has an opportunity to play a leading role in providing authentic, innovative solutions across the built environment to meet the complex challenges associated with the achievement of the SDGs.

4.2. RECOMMENDATIONS

All built-environment stakeholders have a part to play in achieving the SDGs and combat the climate emergency, therefore recommendations are made for each of the following stakeholder groups:

- ▶ education sector;
- ▶ surveying professionals and practices;
- ▶ SCSi; and,
- ▶ Government.

Recommendations to follow are not exhaustive but are purposely practical as first principles to take positive steps forward to meet the challenges ahead.

4. CONCLUSIONS AND RECOMMENDATIONS

4.2.1 EDUCATION SECTOR

The education sector has a complex eco-system that is impacted by several internal and external forces. The following suite of recommendations should be considered by means of collaborative action with the SCSi and industry stakeholders.

Recommendation	Recommended actions	
Recommendation 1: Fully embed sustainable development in all SCSi-accredited programmes	1.1	Map surveying programme and module content and assessment strategies to SDGs as a condition of accreditation. This may include technical and/or competency-based benchmarks.
	1.2	Include sustainable development criteria as part of the assessment of work placement and work-related learning. This may include technical and/or competency-based benchmarks.
	1.3	Collaboratively develop a suite of short courses and modules in sustainable development, climate change and circular economy for surveying professionals.
Recommendation 2: Strengthen sustainable development in HEIs	2.1	Enable, support and incentivise academic faculty to upskill in sustainability.
	2.2	Promote and encourage student-centred sustainability initiatives as agents of change for the future. This may include, but is not limited to, student societies, events, competitions, and charitable and community engagement.
	2.3	Increase collaborative engagement with industry, communities and stakeholder groups to optimise the HEI ecosystem as an exemplar of sustainability in practice.
	2.4	Pursue Green-Campus status where not already in situ.
Recommendation 3: Expand and develop sustainability research	3.1	Actively engage in and expand innovative anticipatory research in sustainable development across the built environment sector.
	3.2	Identify and secure funding for collaborative sustainability research with national and international partners, including industry, education and relevant stakeholders across the built environment.
	3.3	Contribute research output to open-access national repositories of knowledge dissemination.
	3.4	Monitor output and impact of sustainable development research across the built environment sector.
Recommendation 4: Surveying career promotion	4.1	Promote surveying opportunities and the criticality of the profession in the provision of innovative solutions for a sustainable built environment.
	4.2	Encourage current learners to showcase and publicise the full range of career possibilities across surveying disciplines through social media, societies and networks.
	4.3	Fully utilise surveying alumni networks to demonstratively advocate the role of the surveyor in leading sustainable solutions within the built environment sector.
Recommendation 5: Collaboration	5.1	Expand industry engagement and collaboration for action learning on sustainable development through guest lectures, site visits, case study development and other initiatives.
	5.2	Develop targeted sustainability training and development programmes with agencies including (but not limited to) the Environmental Protection Agency (EPA); IGBC and SEAI for inclusion in accredited programmes and as part of SCSi CPD.
	5.3	Develop inclusive activities with local communities to inform, promote and action SDGs on a collaborative basis (aligned to action 2.2).
	5.4	Engage with Engineering, Architecture and other built environment professionals in the development of multidisciplinary collaborative projects and/or student competitions.

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4.2.2 SURVEYING PROFESSIONALS AND PRACTICES

Every surveying practice is at a different stage in the journey towards sustainability and climate action goals, therefore the suite of recommendations and associated actions is wide ranging.

Recommendation	Recommended actions
Recommendation 6: Surveying practitioners and practice	<p>6.1 Undertake an assessment of energy use within the organisation to inform the establishment of specific and measurable actions for improvement. Available toolkits should be used for this purpose.</p> <p>6.2 Demonstrate transparent commitment to sustainable development with the implementation of ESG reporting to ensure authentic ambitions are measured, monitored and reported upon. Associated training may be required to support this action (see 11.3).</p> <p>6.3 Build internal capacity for sustainability enhancement by identifying sustainability champions and empowering them to manage and implement sustainable business improvements.</p> <p>6.4 Engage in sustainability, climate action and circular economy training and education on an annual basis (and in line with 10.2) to ensure knowledge and skill enhancement on an ongoing basis.</p> <p>6.5 Entrench sustainable practice across all business operations and throughout the supply chain, and actively prioritise sustainable solutions where practical. Collaboration with the value chain and other stakeholders is essential for this purpose.</p>
Recommendation 7: Client advice	<p>7.1 Proactively inform and advise clients on sustainable solutions to meet their requirements to maximise the positive impact.</p> <p>7.2 Adopt available technologies for the delivery of client projects for more sustainable outcomes over the life of an asset.</p> <p>7.3 Support clients in sourcing and securing grant aid to support the realisation of sustainability ambitions.</p>
Recommendation 8: Funding	<p>8.1 Exploit available business funding supports to enable positive action on sustainable development in practice and in advising clients.</p> <p>8.2 Invest in collaborative sustainability research funding (see Recommendation 3) and other learner-centred initiatives.</p>
Recommendation 9: Collaboration	<p>9.1 Support education sector in participation in curriculum delivery and research collaboration.</p> <p>9.2 Provide test-projects and case studies for learners/researchers as action-learning education for sustainable development (ESD).</p> <p>9.3 Take a leading role in the community initiatives to support the SDGs.</p> <p>9.4 Surveying leaders in sustainable development should provide mentoring/advice to those at an earlier stage on the sustainability maturity journey, particularly for SMEs.</p> <p>9.5 Surveying practices should fully engage with and foster social enterprise.</p>

4. CONCLUSIONS AND RECOMMENDATIONS

4.2.3 SCSI

As Ireland's foremost body for construction, land and property professionals, the SCSI must continue to promote the surveying profession and the pivotal role in the delivery of a sustainable built environment. The SCSI must lead by example, and while many of the following recommendations relate to education providers and practitioners/ practices, many are equally applicable to the Society as an organisation.

Recommendation	Recommended actions
Recommendation 10: SCSI leadership	10.1 Appoint an ESG officer within the SCSI to ensure sustainability is integrated into policy and operations within the Society.
	10.2 Develop a roadmap for the surveying profession, which establishes sustainability ambitions and measurable targets, and identifies supports required for the attainment of short-, medium- and long-term goals.
	10.3 Work with other professional bodies to establish a multi-disciplinary approach to embedding sustainability across the whole built environment lifecycle.
	10.4 Promote the criticality of the surveying profession in the provision and protection of a sustainable built environment and in so doing, identify and communicate the range of opportunities for those considering a surveying career.
Recommendation 11: Surveying education and training	11.1 Require sustainability to be fully embedded as a prerequisite for surveying programme accreditation (see 1.1).
	11.2 Establish a mandatory requirement for Chartered Surveyors to undergo a minimum number of hours CPD specifically in relation to sustainable development to upskill surveying professionals.
	11.3 Expand existing collaboration with training providers to develop and deliver industry training requirements relating to sustainable development.
	11.4 Create a nationwide competition for surveying students to demonstrate applied knowledge and innovation in relation to sustainable development in the built environment (see 5.4)
	11.5 Magnify collaboration with HEIs in the development and delivery of education and training short courses/CPD modules to qualified surveyors to support lifelong learning.
Recommendation 12: Member support	12.1 Agree and communicate a vision of the future for the surveying profession as a leading stakeholder in the delivery of a sustainable built environment. This should be undertaken on a consultative basis across all surveying designations and upon agreement must percolate through all future policy.
	12.2 Develop a roadmap for surveying professionals/practices with authentic, measurable and realistic milestones for the attainment of agreed sustainability ambitions (based upon 10.2).
	12.3 Provide relevant advice, guidance, education and training to members to support them on their sustainability journey regardless of current position in this regard. This must include ongoing support for continuous change in the regulatory landscape.
	12.4 Inform surveying professionals of business supports available to them and work with State and semi-State sustainability grant providers to guide practitioners in the preparation of applications for this purpose.
	12.5 Intensify the mentoring programme for surveying SMEs to deliver on 12.3, using the Surveyors Declare initiative as the vehicle for doing so.
Recommendation 13: Collaboration	13.1 Work in partnership with built environment stakeholders to ensure the full supply chain actively incorporates sustainability at every stage. Leveraging existing networks will be essential for interdisciplinary collaboration.
	13.2 Develop, fund and participate in collaborative research and new programme development (as appropriate) with HEIs relating to sustainable development.
	13.3 Strengthen and expand multidisciplinary sustainability training programmes to emphasise connectivity through the circular built environment value chain.

4. CONCLUSIONS AND RECOMMENDATIONS

4.2.4 GOVERNMENT

Recommendation	Recommended actions
Recommendation 14: Business focus	14.1 Further promote and extend the range of supports (financial and other) for sustainable and low-carbon business transformation.
	14.2 Detail and share exemplars of sustainable development practice and processes across the public sector for potential replication in the private sector. Freely available public sector case studies should contain cost allocations and savings as appropriate.
	14.3 Collaborate with built environment stakeholders in the implementation of the IGBC roadmap for a sustainable built environment across the public and private sectors.
Recommendation 15: Education focus	15.1 Increase funding to HEIs to develop human capital in sustainable development, climate change and the circular economy to ensure Ireland ranks highly on a global scale for sustainability education.
	15.2 Intensify and prioritise research funding streams relating to sustainability, climate change and circularity.

APPENDICES

APPENDIX 1

LIST OF SCSI-ACCREDITED PROGRAMMES

Institute	Course
Technological University of the Shannon (TUS) Athlone (formerly Athlone Institute of Technology (IT))	BSc Quantity Surveying*
Dundalk IT	BSc Building Surveying PG Dip and MSc Building Surveying*
Galway-Mayo IT (GMIT)	BSc Construction and QS
IT Carlow	BSc Quantity Surveying
Letterkenny IT	BSc Quantity Surveying
TUS Limerick (formerly Limerick IT)	BSc Quantity Surveying BSc Property Valuation and Management MSc Quantity Surveying
Maynooth University	MSc GIS and Remote Sensing
Munster TU (formerly Cork IT)	BSc Quantity Surveying MSc Construction Project Management
Sligo IT	BSc Quantity Surveying BSc Construction Project Management
TU Dublin	BSc Property Economics MSc Real Estate MSc Planning and Development MSc Spatial Planning MSc Spatial Planning and Development BSc Geospatial Surveying MSc GIS MSc Geospatial Engineering BSc Quantity Surveying MSc Quantity Surveying
Waterford IT	BSc Quantity Surveying MSc Construction Project Management

*These programmes obtained accreditation subsequent to data collection for the purposes of this research, and therefore are not included in the findings presented.

APPENDIX 2

EXEMPLARS OF SUSTAINABILITY ASSESSMENT

Exemplar 1: TU Dublin

BSc Property Economics Year 3: Integrated Real Estate Investment Strategy 2021-2022

The Integrated Real Estate Investment Strategy Module, Year 3, Property Economics, is an exemplar of how TU Dublin is delivering sustainability within the framework of its real estate programmes. Since its introduction, the module actively encourages students to recognise the important role sustainability plays in the wider built environment. Through the promotion of student-centred learning, the module presents students with a particular challenge in the real estate industry that adapts each year to a changing market.

Students are required to draw on their knowledge across the programme's modules (including construction studies, law and sustainable development, planning, economics and valuations) to critically evaluate a problem statement and provide recommendations and advice.

An industry leader who provides real-world insights into the relevance of the challenge supports the module. They also provide and share access to case studies, market knowledge and industry research. In this year's project, the problem statement required students to critically evaluate an investment fund's investment strategy and provide reasoned advice as to whether or not the fund should amend the strategy to incorporate sustainability and ESG.

Upon completion, the students will have demonstrated their ability to: understand what is meant by sustainability and ESG; identify the key drivers of ESG/sustainability in investment markets; critically evaluate the impact of sustainability on the real estate market and wider economy; use case studies to evaluate the cost and the potential impact on future real estate returns of sustainable investment; and, develop conclusions and recommendations as to whether this is a significant factor that will continue to influence markets over the shorter and longer term.

Exemplar 2: GMIT

BSc (Honours) in Construction Economics and Quantity Surveying: Integrated Project (Mandatory)

Students are required to:

- undertake a social, technological, environmental, economic and political (STEEP), and SDG analysis of sustainability in the built environment based on engagement with everyday news items and five selected peer-reviewed academic journals;
- prepare a detailed construction and demolition waste prevention, reduction and management plan in response to detailed client requirements;
- prepare a detailed circular economy protocol for the built environment, encompassing the following roles: planning authority and client; and, where each student is to develop a series of checklists in relation to embedding circular economy principles across the value chain; and,
- complete the embedded Building Research Establishment (BRE) BIM-Approved Graduate course including weekly e-journal entries, the preparation of a BIM execution plan, and a final multiple-choice exam.

Sustainability elements are outlined in the first three points listed above.

Upon completion, students will have:

- demonstrated an ability to critically evaluate the complexities of sustainability issues in the built environment and the associated environmental impacts;
- prepared a detailed construction and demolition waste prevention, reduction and management plan; and,
- prepared a detailed circular economy protocol for the built environment for specific value chain stakeholders.

APPENDIX 3

CPD IN SUSTAINABLE DEVELOPMENT OFFERED BY THE SCSi

All-Ireland Pollinator Plan – how can you help?
An Introduction to Green Leases CPD
An Introduction to Sustainability
Better Data, Better Outcomes in Wind Farm Design
Bringing Embodied Carbon Upfront
Climate Action – Things are Hotting Up!
Construction Contracts and the Green Agenda – how are the contracts likely to respond?
Developing Climate Change Law
Electric Car Charging Solutions
How to Embed Sustainability in your Procurements
IGBC Carbon Designer Ireland
Introduction to Building Renovations Passport
Measuring the Carbon Cost of Buildings Across their Lifecycle
Nearly Zero Energy Building (NZEB) Performance for Buildings
Net Zero Carbon – what does it mean for commercial real estate?
Nearly Zero Energy Building (NZEB) – where are we now?
Overview of the LEED Green Building Rating System
Property and Construction Sustainability
Remote Building Monitoring and Sustainability
Renewable Energy in the Built Environment
Reporting on Sustainability – a Guide for Building Surveyors
Retrofitting and Sustainability
Scaling up our Approach to Sustainability
Sustainable Energy Communities and Energy Master Plans
Sustainable Mobility and Climate-Proofing our Communities
The Future of Sustainable Building Design
Valuations and Sustainability – items to consider for the report
Waste Management, Recycling and Sustainability

APPENDIX 4

OFFICE OF PUBLIC WORKS: DECARBONISING BUILDING PORTFOLIO

Climate change poses the greatest existential threat to the continuation of life on Earth ever witnessed by humankind. There are many international and EU policies and directives in place which attempt to combat this global phenomenon. Buildings are a major consumer of energy and significant contributor to greenhouse gas (GHG) emissions. In relation to decarbonising the building portfolio, the Office of Public Works (OPW) has adopted a three-step strategy:

Step 1: Behavioural change, elimination of waste and optimisation of existing controls

The OPW has achieved average energy savings of over 20% through a behavioural change campaign (Optimising Power @ Work) in 300 large central Government buildings. In recent years the programme was expanded into the wider public sector and is making significant savings in hospitals, third-level institutions, prisons and local authorities. A fundamental element of the programme is the installation of energy metering in all facilities to establish benchmark data before the campaign commences. This data is used to monitor progress and is also essential in identifying projects suitable for investment and monitoring payback.

Step 2: Upgrading of mechanical and electrical systems

Significant energy savings can be achieved by upgrading existing inefficient mechanical and electrical systems, particularly in older buildings. Most buildings will benefit from upgrading of existing lighting systems, boilers and controls. These interventions can be carried out with minimum disruption to the normal operation of the occupants. Typical savings of 8-15% can be expected with payback periods of eight to 12 years.

Step 3: Deep retrofit

Deep retrofit is a combination of major fabric upgrades and mechanical and electrical (M&E) systems upgrades. These works will yield significant reductions in energy usage. However, they cannot be practically carried out while the building is occupied. Alternative accommodation can be costly and add significantly to costs. For this and other reasons, this type of intervention should only be considered where it is opportune, i.e., the building is being vacated for general improvements. Where such opportunities are presented, it is worthwhile taking a longer-term view and investing in improved energy.

**Conor Clarke, Head of Mechanical and Electrical Engineering
Office of Public Works (OPW)**

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