A Futures Perspective on Sustainability Planning: Exploring a Framework for Sustainability Strategy Development in Irish Higher Education

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Declaration

I hereby certify that this material, which I now submit for assessment on the programme of study leading to the award of Doctor of Education is entirely my own work, and that I have exercised reasonable care to ensure that the work is original and have conformed to the regulations on the use and declaration of Generative AI, and does not to the best of my knowledge breach any law of copyright, and has not been taken from the work of others save and to the extent that such work has been cited and acknowledged within the text of my work.

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Outputs:	Check statistical calculations which were done in Excel.	Various images/graphics for inclusion in thesis Figure 2-1Figure 2-3, Figure 3-2, Figure 3-3, Figure 3-4, Figure 4-6, Figure 5-4, Figure 5-5, Figure 6-1, Figure 6-2	Grammerly (built into MS Word) to review writing and to suggest improvements	Summaries of articles/studies to support recall and recollection of key findings
Prompts:	Prompt: Review the attached excel file and confirm T-Test and Mann Whitney calculations are correct.	For each image, the AI tool was proposed with text summarising the anticipated image. Sample Prompt "produce an image which represents the Preferred future defined within the attached document. The image of the preferred future is to represent the Case Study HEI in 2050 where it has a futures oriented, whole-of-institution and holistic approach to sustainability".	No specific prompts	Produce a 100 word summary of the attached article identifying key points, findings which align with research questions
Iterations:	1	2 iterations were normally required to correct typographical or interpretation errors in the initial graphic.	1	1
Critical Reflection:	Gen AI played a minimal role in my research. The constructivist and qualitative nature of my research meant that my engagement with the data (documents, transcripts etc) was critical to me constructing my insights and interpretations. AI was indeed useful for creating graphical representation of aspects of my research but if I had greater skills with relevant graphic packages I may have been able to produce similar results. Summaries of articles were useful as a functional tool but did not replace the need to review scholarly work in detail and gain insights and deeper connections to my research.			

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List of Abbreviations

CAP: Climate Action Plan
CAR: Climate Action Roadmap
CLA: Causal Layered Analysis
CLR: Comprehensive Literature Review
CSHEI: Case Study Higher Education Institute
CSP: Campus Sustainability Plans
DCU: Dublin City University
ESD: Education for Sustainable Development
FOSPF: Futures-oriented Sustainability Planning Framework
FS: Futures Studies
FT: Futures Thinking
HE: Higher Education
HEA: Higher Education Authority
HEI: Higher Education Institute
HESPF: HE Systems Performance Framework
IAU: International Association of Universities
MODES: Media, Observations, Documents, Experts, and Secondary data
NEP: New Ecological Paradigm
OECD: Organisation for Economic Co-operation and Development
PBL: Problem-Based Learning
RQ: Research Question
RTA: Reflexive Thematic Analysis
SC: Sustainability Competencies
SCom: Sustainability Committee
SD: Sustainable Development
SDGs: Sustainable Development Goals
SHEI: Sustainable Higher Education Institute
SL: Sustainability Leader
SP: Sustainability Action Plan
SS: Sustainability Strategy
TBL: Team-Based Learning
UN: United Nations
UNESCO: United Nations Educational, Scientific and Cultural Organization
WoI: Whole-of-Institution

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List of Publications and Presentations

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Abstract

A Futures Perspective on Sustainability Planning: Exploring a Framework for Sustainability Strategy Development in Irish Higher Education

Seamus Hoyne

Higher education institutions (HEIs) globally bear a profound responsibility to model systemic sustainability, yet institutional planning often remains fragmented and compliance-driven. Within the Irish higher education sector, evolving national policy frameworks increasingly mandate whole-of-institution (WoI), holistic, long-term approaches to sustainability. This doctoral study examined the current strategic framing of sustainability planning within Irish HEIs and explored the transformative potential of Futures Thinking (FT) methodologies to cultivate advanced anticipatory planning capacities. Employing an interpretivist research philosophy and an abductive multi-method design, the study was conducted in two sequential research phases. Phase 1 involved a comprehensive document analysis of national and international HEI sustainability strategies, action plans, and climate action roadmaps, enriched by online surveys and semi-structured interviews with sustainability leaders. Phase 2 situated the research within a case-study technological university, applying a seven-step action-oriented FT intervention, including Causal Layered Analysis (CLA) and backcasting, with an institutional Sustainability Committee (SCom).

The findings reveal a critical institutional tension: while sustainability leaders possess highly developed ecological worldviews and individual competencies, institutional planning foregrounds environmental sustainability and remains overwhelmingly operations focused, short-term, and constrained by regulatory compliance. The FT intervention successfully released participants from immediate systemic path dependencies, generating a cognitive space of "educated hope" and enabling the collaborative conceptualisation of alternative institutional futures. By synthesising these empirical insights with contemporary futures literacy and institutional archetype literatures, this thesis delivers an original contribution to knowledge: the Futures-oriented Sustainability Planning Framework. As an emergent conceptual outcome, the Framework offers HEIs a rigorous pathway to transcend typical compliance metrics, navigate institutional tensions, and activate long-term whole-of-institution transformation that shifts the sector from mainstream compliance toward critical sustainability.

1 Chapter 1 Introduction

"*Higher education institutions bear a profound, moral responsibility to increase the awareness, knowledge, skills, and values needed to create a just and sustainable future. ...What if higher education were to take a leadership role, as it did in the space race and the war on cancer, in preparing students and providing the information and knowledge to achieve a just and sustainable society? What would higher education look like? The education of all professionals would reflect a new approach to learning and practice. A college or university would operate as a fully integrated community that models social and biological sustainability itself and in its interdependence with the local, regional, and global communities."* (Cortese, 2003, p.17)

1.1 Introduction.

The commitment of the higher education (HE) sector to sustainability has been codified through a range of international declarations and collaborative networks designed to foster institutional transformations. Since the 1977 Tbilisi Declaration first recognised the link between education and sustainable development (SD), over a dozen major accords, including the Talloires (1990), Graz (2005), and Nagoya (2014) declarations, have emphasised the need for whole-of-institution (WoI) approaches that integrates sustainability across education, research, operations, and outreach (Lozano *et al.*, 2013). Cortese (2003) captures this in his vision for leadership in sustainability (in excerpt above) where he calls out the moral responsibility of Higher Education Institutions (HEIs) to provide sustainability education whilst also modelling sustainability in their campus operations and wider engagement with communities. The integration of sustainability in HEIs is supported by global entities such as the COPERNICUS Alliance (COPERNICUS Alliance, no date), the Higher Education Sustainability Initiative (HESI) (United Nations, no date), and the International Association of Universities (IAU) Higher Education and Research for Sustainable Development (HESD) Cluster (IAU HESD, no date b), alongside localised efforts like the United Nations University's Regional Centre of Excellence (RCE) on ESD (IAU HESD, no date a).

Against the backdrop of increasing efforts by HEIs globally to embed sustainability into institutional planning and decision-making processes, this research study set out to examine sustainability planning within Irish HEIs, and to explore the potential of futures thinking (FT) approaches to support longer-term sustainability planning. This chapter provides the historical context and rationale for the research, articulates the theoretical framework in which the research is situated, introduces the studies methodological approach while outlining the thesis's contributions and structural progression.

1.2 Historical Context.

1.2.1 Origins.

The historical trajectory of Sustainable Development (SD) began as a critical global concern at the 1972 UN Conference on the Human Environment and was further catalysed by the publication of Limits to Growth (Meadows *et al.*, 1972). This momentum led to the seminal Brundtland Report, Our Common Future (1987) (United Nations, 1987), which formalised the call for SD, followed by key milestones of Agenda 21 (1992), the Millennium Development Goals (2000), and the UN Decade of Education for Sustainable Development (2005–2014). The evolution of this global commitment culminated with the 2030 Agenda and the articulation of 17 Sustainable Development Goals (SDGs), representing a multi-sectoral imperative to address intertwined ecological and social crises (United Nations, 2015).

Debates surrounding Rio+20 prompted HEIs internationally to consider progress made on SD within HE and call for a scaling of activity and transformation of the HE sector (Wals, 2012). HEIs, through their education, research, innovation and regional development dimensions should bring the required knowledge, skills and solutions to the fore in addressing the challenges of sustainable development (Cortese, 2003; Tilbury, 2012; Sterling, Maxey and

Luna, 2013). However, some critics have maintained that only incremental progress has been made on sustainability within HE, and education in general, and that radical disruption and transformation of education is required if global sustainability ambitions are to be achieved (Selby, 2009; Selby and Kagawa, 2010; Schulte, 2022). Others have argued that SD is emerging as an add-on rather than a built-in priority within HEIs, and impact is limited due to a lack of sustainability planning and limited transformation of pedagogies, systems, approaches and cultures within HEIs (Granados-Sanchez, Jesus *et al.*, 2012; Bieler and McKenzie, 2017; Barros Guerrero and Odila Bello Benavides, 2022; McCowan, 2023a). Tilbury (2012) argued that such institutional transformation is a protracted and intricate process that necessitates a clear vision, a radical restructuring of knowledge and lifestyles, and the cultivation of innovative competencies, all of which must be underpinned by effective leadership and robust decision-making tools.

In categorising HEIs responses to sustainability Stein (2024) suggested the majority fall within a "mainstream sustainability" paradigm, where adjustments to improve efficiency are sought instead of transformational action (Stein, 2024, p. 10). In contrast "critical sustainability" challenges the narrative of infinite growth, seeking major reforms with a strong focus on equity (Stein, 2024, p. 12). Finally, a highly ambitious and transformative "beyond sustainability" approach suggests that the system is beyond reform and "cannot solve the problems it has created" (Stein, 2024, p. 12). Stein has also suggested that the future cannot be determined in advance and a range of possible futures need to be explored (ibid).

The 2025 SDG report from the United Nations warned that the current pace of change is insufficient and system transformation is necessary (United Nations Department of Economic and Social Affairs, 2025). This UN report reaffirmed the responsibility on the education sector to contribute to the goals and specifically, SDG 4 on Quality Education. HEIs need to play a

significant role in the global sustainability discourse, which necessitates a deeper examination of how these institutions internalise their sustainability mandates.

1.2.2 Tensions.

Significant tensions regarding the definition and implementation of sustainability are hindering its integration in HE contexts. Scholars differentiate between sustainability as a "destiny-oriented long voyage" (Waas *et al.*, 2011, p. 1647) and SD as the process followed to achieve a final goal (Diesendorf, 2000). Friction exists between "weak" sustainability, which permits the substitution of natural capital with human-made capital, and "strong" sustainability, which views natural capital as irreplaceable (Ruggerio, 2021). These debates are compounded by critiques of the neoliberal growth agenda, where scholars have argued that continuous economic expansion is fundamentally incompatible with ecological limits (Jackson, 2017; O'Neill and Sinden, 2021; Schulte, 2022). Furthermore, the temporal dimension of SD introduces a conflict between prioritising the immediate needs of marginalised populations (Agyeman, 2008) and the long-term protection of future generations (Spijkers, 2018). HEIs need to consider these tensions when framing their approaches to sustainability, including within their sustainability strategies.

1.2.3 Re-conceptualising sustainability for unscripted futures.

The concept of the Anthropocene, a proposed geological epoch in which human activity has become the dominant influence on the Earth's geology, climate, and ecosystems, has gained traction (Crutzen, Stoermer and Steffen, 2000; Malhi, 2017). This epoch is defined by the great acceleration of intersecting ecological crises, including climate instability and biodiversity loss, which Stein (2024) characterises as wicked problems that are hyper-complex and resistant to traditional fixes. The convergence of multiple ecological, social, and geopolitical

instabilities, frequently referred to as a polycrisis, demands a reconsideration of traditional strategic planning methodologies and a critical examination by HEIs of their approaches to sustainability (Bierwisch and Schmitz, 2024; Stein, 2024). Navigating this existential uncertainty demands a departure from ill-fitting visions of advancement and progress tied to past performances or experiences, such as the “used futures” of the industrial age (Inayatullah, 2008) toward a paradigm of transformative thinking. HEIs should act as role models by exploring disruptive thinking, innovation and transformative action in relation to SD (Obexer *et al.*, 2024).

According to Inayatullah (2008), Futures Thinking (FT) is one such transformative practice that moves beyond simple forecasting to explore alternative futures while deconstructing present assumptions to map possible, probable, and preferred scenarios. This empowers individuals to actively shape the long-term future rather than merely reacting to it. The pluralisation of "futures" is essential here, as it distinguishes FT from singular, deterministic prediction and acknowledges a spectrum of potential outcomes (Sardar, 2010). By focusing on long-term horizons, FT has been found to create cognitive space necessary for transformation, allowing for the integration of multiple drivers of change, technological, social, and political, rather than remaining confined to narrow, specialist silos (Miller, 2018; Cork *et al.*, 2023).

In contrast, conventional planning and foresight approaches are frequently constrained by adherence to pre-existing institutional boundaries and path dependencies – Inayatullah’s concept of “used futures.” These have the potential to close down discussions of the long-term and stifle the emergence of diverse perspectives or alternative worldviews (Cuhls, 2020). Scholars suggest that a transition from deterministic modes of thinking enables organisations to question underlying assumptions and actively construct preferable scenarios (Laherto and Rasa, 2022). UNESCO, in its call for a new planetary consciousness suggests that critical

reflection is needed to decolonise and transform our imaginaries and visions of the future (Mbembe, 2023). Current sustainability narratives are often dominated by pessimistic or dystopian outlooks of climate collapse and economic chaos (Slaughter, 2020). In contrast, FT is often positioned as a tool for agency and hope; by visualising preferred futures, it can prompt strategic actions that move away from fatalistic or dystopian narratives toward more resilient institutional practices. Scholars such as Inayatullah (2012) and Dator, Yeh and Park (2013) have utilised FT to present alternative scenarios and futures for SD in HEIs. Despite this potential, there remains a significant gap in the literature exploring the nexus between planning for SD and FT, particularly regarding how desired futures are articulated within HE strategic planning exercises (Juri *et al.*, 2025).

1.3 Rationale for the research.

The rationale for this study emerges from two distinct gaps in contemporary HE scholarship. First, while international literature extensively examines HEIs strategic responses to SD (Larrán Jorge *et al.*, 2015; Leal Filho *et al.*, 2023), empirical research dedicated specifically to sustainability planning within the Irish higher education sector remains profoundly scarce (O'Dowd Lohan *et al.*, 2020; Sun *et al.*, 2024; Cullen, 2026). Second, there is a deficit in empirical scholarship concerning the practical application of FT interventions to actively inform and disrupt formal institutional sustainability strategies. By bridging these disparate domains, this study addresses an empirical void, investigating how Irish HEIs conceptualise, articulate, and operationalise their long-term sustainability mandates.

This research is further justified by a tension within the Irish macro-political landscape, namely the gap between sustainability policy formulation at national level versus sustainability implementation at local institutional levels. A recent evaluation conducted by the Organisation for Economic Co-operation and Development (OECD, 2025) reveals that despite high

national-level commitments to SDG4 (Quality Education), stretching from the 1997 National Sustainable Development Strategy to Project Ireland 2040, translating these declarations into coherent, localised implementation remains a systemic challenge. This implementation gap is routinely exacerbated by rigid subnational governance silos, unclear regional mandates, and severe resource constraints (OECD, 2025).

Concurrently, Irish HEIs face an increasingly coercive regulatory environment demanding immediate whole-of-institution (WoI) alignment. The second National Strategy on Education for Sustainable Development (ESD to 2030) tasks institutions with systemic embedding of sustainability across governance, research, operations, and teaching (Government of Ireland, 2022). This mandate is reinforced by the Higher Education System Performance Framework (HESPF), which enforces institutional accountability via indicator-based performance metrification (Higher Education Authority, 2023; McCowan, 2023b). The Climate Action Plan (CAP) (Government of Ireland, 2023)and Climate Action and Low Carbon Development Act (Irish Statute Book, 2015), legally binds public sector entities to a 51% carbon reduction target. This carbon reduction target, and other environmental targets are specified in the Climate Action Mandate which public bodies, including HEIs, report on annually (Government of Ireland, 2025). Furthermore, public bodies are required to produce annual Climate Action Roadmaps (CAR) (Government of Ireland, 2023) and submit data to the Sustainable Energy Authority of Ireland Monitoring and Reporting system (Sustainable Energy Authority of Ireland, 2026). Irish HEIs are thus caught between prescriptive, short-term compliance metrics and the existential necessity for long-term ecological transformation.

This structural and regulatory tension is pronounced due to the ongoing reorganisation of the Irish HE landscape, notably the consolidation of institutes of technology into five new Technological Universities (TUs). While the Technological Universities Act 2018 legally

mandates these new entities to formulate institutional strategic plans, the legislation omits any explicit reference to sustainability or SD (Irish Statute Book, 2018). Furthermore, international evidence indicates that institutional strategic planning within HEIs is routinely constrained by dominant neoliberal market drivers and hyper-metrification, which stifles creative institutional imagination regarding genuine systemic transformation (Leal Filho, Pallant, *et al.*, 2018; McCowan, 2023b). McCowan (2023a) suggests that by pedagogical renewal to address climate change "Higher education must become (or return to being) or a deeply transformative experience" (McCowan, 2023a, p. 947)

Consequently, this study aligns with the critical domain of "Educational Futures" (Facer, 2021) exploring what higher education might look like when liberated from deterministic, state- or market-colonised trajectories that narrow society's long-term horizons (Robertson, 2017; Hutchinson *et al.*, 2023). It responds directly to Slaughter's (1997) foundational assertion that foresight activities must move beyond tracking external trends to interrogate internal organisational paradigms, values, and worldviews. By evaluating the capacity of alternative foresight methodologies to challenge institutional path dependencies, this research probes the capacity of HEI leadership to critique dominant discourses and actively co-create alternative institutional possibilities (Bisht, 2017; Miller, 2018).

Finally, this research is driven by a distinct professional rationale. As a senior academic and researcher operating within a newly established Irish Technological University, I am directly situated at an intersection between structural mergers, regulatory pressures, and compliance demands. Introduced to the paradigms of Futures Studies and Futures Thinking during my doctoral studies, I recognised the potential of these methodologies to act as a disruptive intervention against conventional, linear strategic planning. Futures studies, rooted in sociology and policy sciences, became recognised as an academic discipline by the 1960s

(Bell, 2017). Futures Studies is increasingly focused on areas such as futures beyond climate crises, the future of energy, the future of AI (Kristóf and Nováky, 2023) while also exploring how FT can support imagination and be integrated into decision making (Moore and Milkoreit, 2020; Cork *et al.*, 2023). Futures Thinking has the potential to challenge conventional thinking, imagine possible futures for SD within HEIs and inform sustainability strategies (Aleixo, Leal and Azeiteiro, 2018; United Nations Environment Programme, 2022). This study therefore serves a dual pragmatic and scholarly purpose: it addresses an empirical void in Irish HE scholarship while offering an innovative, futures-oriented decision-making framework to assist institutional leaders in navigating the complex polycrisis.

1.4 Theoretical framework.

The theoretical framework which guided and supported this study's design is rooted in critical theory, specifically drawing upon Henry Giroux's critique of the corporatisation of HE (Giroux, 2020) and his advocacy for radical pedagogy (Giroux, 1983). Giroux argues that the contemporary HE landscape is increasingly defined by neoliberal ideologies that prioritise market efficiency, vocational training, and quantifiable metrics over the university's traditional role as a site of democratic inquiry and social ethics (Giroux, 2000, 2020). This framework provides a lens through which the current state of sustainability planning in Irish HEIs can be analysed. Within this corporate or neoliberal paradigm, sustainability is frequently reduced to a series of technical or administrative compliance exercises, what Giroux might term neoliberal metrification, which avoids challenging the underlying socio-economic structures driving ecological degradation.

To move beyond these symbolic or weak sustainability responses, this study employs Giroux's concepts of radical pedagogy and educated hope. Radical pedagogy posits that education is never neutral; it is either a tool for domesticating students to accept the status quo or a means

of empowering them to transform it (Giroux, 1983). For HEIs to authentically engage with the polycrisis they must be reclaimed as public spheres where critical thought and civic courage are nurtured (Giroux, 2020). Giroux argues that educated hope in this context is not a vague optimism, but a subversive pedagogical force, a language of possibility, that allows individuals to believe that different futures are possible (Giroux, 2020).

By grounding this research in Giroux's critical theory, the study reframes FT not simply as a strategic planning methodology, but as a counter-hegemonic act. FT approaches could serve as radical pedagogical interventions by deconstructing the corporate metaphors of the present and creating protected intellectual space to envision preferred futures. By envisioning futures through a lens of educated hope, sustainability leaders can be empowered to navigate institutional constraints thereby enabling the potential transformation towards a sustainable university. Such transformation would require sustainability to be placed as an integrated core principle within the education, research and engagement dimensions of a HEI, and not viewed solely as an operational requirement.

1.5 Research Questions.

This research set out to explore the framing of sustainability strategies within Irish HEIs, and to examine whether futures thinking approaches can contribute to sustainability planning. The core research questions (RQs) are:

- RQ1: How is sustainability characterised within strategic planning in Irish Higher Education Institutions?
- RQ2: In what ways might FT approaches contribute to sustainability planning in HEIs?

- RQ3: How do sustainability leaders perceive the effectiveness and usability of FT methods in enabling them to develop a sustainability strategy?

1.6 Overview of research methodology.

This study employed a robust methodological framework to investigate the formulation of sustainability strategies in Irish HEIs and the potential for FT to enhance these processes.

The research was anchored in a constructivist ontology and a subjectivist epistemology, primarily informed by the constructivism of John Dewey (Dewey, 1938). This position marked an evolution from the researcher's initial positivist background in engineering toward an understanding that sustainability is a dynamic, socially constructed reality. Knowledge in this study is viewed through Dewey's lens of instrumentalism, where a sustainability strategy is considered a functional tool for action, a "warranted assertibility" (Dewey, 1938, p. 6), developed through rigorous inquiry to solve complex institutional problems. This approach explicitly rejected the idea of a single, universal truth in sustainability planning, instead prioritising the diverse, lived experiences and reflections of sustainability leaders in Irish HEIs.

The study adopted a multi-method qualitative approach drawing insights from multiple data sources including sustainability documents, interviews and FT interventions. This choice aligned with the constructivist framework by exploring the transactions between static institutional documents and the dynamic experiences of sustainability leaders. The overarching research strategy was a qualitative case study involving a dual-case design. Case Study 1 (National/Sectoral) provided a broad baseline analysis of the current sustainability planning landscape across 17 public HEIs in the Republic of Ireland. Case Study 2 (Institutional/Interventional) involved an in-depth exploration within a Case Study HEI (CSHEI), focusing on the practical application of FT interventions with its Sustainability

Committee (SCom). Research was conducted across two distinct phases using a variety of qualitative tools. Reflexive Thematic Analysis (RTA) was the central analysis approach utilised throughout the research.

The following were the key tasks across the two phases of the research.

- Document Analysis (Phase 1): A total of 50 Irish and 16 international sustainability documents were analysed as social artifacts to uncover how sustainability is framed and whether futures-oriented perspectives are currently integrated into formal strategies. The documents analysed included institutional strategies, sustainability strategies and CARs.

- Sustainability Leaders Survey (Phase 1): An online survey was distributed to 66 sustainability leaders across the Irish sector, achieving a final dataset of 28 respondents (42% of the total population). The survey integrated the Revised New Ecological Paradigm (NEP) scale and self-assessments of sustainability competencies to help ascertain participants' worldviews.

- Semi-Structured Interviews (Phases 1 & 2): In-depth interviews were conducted with five national sustainability leaders and 11 members of the SCom. These served as social encounters for the co-construction of knowledge regarding the challenges of institutional leadership and the perceived utility of FT methods.

- FT Interventions (Phase 2): Two FT interventions were held with the SCom members to observe how futures-oriented processes inform sustainability planning in real-time.

The study employed purposive sampling to identify information-rich cases relevant to the RQs. The sampling frame included 17 public HEIs in Ireland, supplemented by five leading international institutions identified via the Times Higher Education Impact Rankings for

benchmarking purposes. Document analysis was focused primarily on documents directly aligned with sustainability. While recognising that other initiatives, such as those related to diversity and access make contributions to SD, resource and time limitations bounded the scope of the analysis. Rigour and trustworthiness were maintained through the application of Reflexive Thematic Analysis, utilising NVivo to ensure a transparent audit trail. The researcher maintained a reflexive journal and used rich, thick descriptions to bridge the gap between formal institutional strategy and the subjective experiences of those tasked with its delivery. The study is bounded by the cross-sectional nature of the study, its focus on Irish HEIs and the scope of documents included in Phase 1 of the research. Despite these limitations this methodological framework provides a robust foundation for understanding the transformative potential of FT in sustainability planning in the Irish HEI sector.

1.7 Significance of the research.

The significance of this research lies in its potential to bridge critical theoretical and practical divides within the field of HE sustainability planning. While international mandates and national policies, such as the 2nd National Strategy on ESD, increasingly demand WoI approaches, limited research exists exploring Irish HEIs responses to such demands. This study provides a comprehensive baseline analysis of sustainability strategies across 17 public Irish HEIs, offering a unique sectoral diagnostic that identifies why current planning processes frequently fail to move beyond incremental environmental reporting.

Furthermore, this research contributes to the emerging discipline of Futures Studies by providing empirical evidence on the utility of FT as a possible disruptive tool to inform sustainability planning within the HE context. By moving beyond linear, business as usual projections, the study explored the potential of FT to create the cognitive space necessary for leaders to navigate the polycrisis and challenge dominant neoliberal growth agendas that often

constrain institutional imagination. It investigates the potential for HEIs to transition from the current mainstream sustainability approaches to where they adopt stances aligned to Steins's (2024) critical sustainability or beyond sustainability paradigms.

Furthermore, this study has resulted in the articulation of a Futures-oriented Sustainability Planning Framework, a guide to sustainability planning in HEIs. The adoption of this framework within sustainability planning has the potential to challenge traditional planning approaches and enable HEIs to move away from incremental actions to transformational change for sustainability.

1.8 Structure of thesis.

Chapter 2 presents the key literature relevant to the research. Using a comprehensive literature review methodology, this chapter examines global and Irish contexts for SD and FT within HE. It identifies a critical gap: while HEIs commitments to sustainability align with international declarations and national policies, their strategies often suffer from a narrow environmental focus and fragmented implementation. It emphasises that FT remains underutilised in HEI planning despite its potential to navigate systemic complexity. By identifying these theoretical and practical gaps, the chapter informs the specific methodological framework detailed in Chapter 3.

Chapter 3 details a qualitative, multi-method research design anchored in constructivist ontology and Deweyan instrumentalism. Using the Research Onion model (Saunders, Lewis and Thornhill, 2019), it outlines a two-phase approach: a national sectoral analysis and an institutional intervention at a case study HEI. Key information includes the use of RTA to process document reviews, surveys, interviews and interventions. This robust framework

ensures methodological rigor, setting the stage for the presentation of Phase 1 national findings in Chapter 4.

Chapter 4 presents the findings from Phase 1 of the research, a national baseline of sustainability planning across 17 Irish HEIs through document analysis, surveys and interviews with sustainability leaders. Key findings suggest that Irish HEIs are making progress on environmental sustainability with weaker evidence of progress on social, economic or cultural aspects of sustainability. A strong compliance and reporting culture is evident but genuine transformation is lacking. Furthermore, there is a noted weak futures orientation across the sector. These results highlight systemic constraints and a lack of holistic integration, providing the empirical justification for the FT intervention explored in Chapter 5.

Chapter 5 focuses on the interventional case study at the CSHEI, beginning with a baseline assessment of the SCom members ecological worldviews and sustainability competencies using the Revised New Ecological Paradigm (NEP) framework. It then details the execution of the seven-step futures thinking interventions and deepens these insights through qualitative interviews with the SCom. Key findings show that while SCom members expressed frustration with the present and with current short-term planning cycles, FT could function as a disruptive yet generative force that uncovers hidden fears and creates space for preferred future scenarios. Participants noted that the interventions successfully catapulted them beyond immediate institutional constraints to imagine a truly sustainable university. These situated insights offer a rich, practical counterpoint to national trends, leading directly into the integrated thematic discussion in Chapter 6.

Chapter 6 discusses and synthesises the empirical findings from both research phases, linking them back to the primary research questions and existing literature. The discussion is structured around three overarching themes 1) the potential to expand sustainability beyond current foregrounded environmental sustainability 2) existing structural and systemic constraints such as compliance-driven governance and growth agendas and 3) the potential to activate anticipatory and futures-oriented planning. A central contribution of this synthesis is the culmination and proposal of an emergent conceptual outcome and primary original contribution, the Futures-oriented Sustainability Planning Framework, designed to help HEIs transition from reactive, add-on compliance toward proactive, built-in, futures oriented, whole-of-institution sustainability. This critical evaluation prepares the ground for the final conclusions and recommendations in Chapter 7.

Chapter 7 concludes the thesis by summarising the research's core contributions and acknowledging its key limitations, such as the snapshot nature of the document analysis and the context-specific scope of the single-site CSHEI case study. Key conclusions emphasise that while HE leaders readily recognise the strategic value of FT, their capacity to enact transformational change is frequently hindered by entrenched institutional cultures and resource limitations. Recommendations centre on utilising the proposed framework to deploy leadership interventions and holistic planning mechanisms that counter compliance-driven, short-term administrative agendas. The thesis concludes by identifying future research avenues, specifically highlighting the opportunity to develop mixed-methods evaluation tools based on the proposed framework to measure the long-term impact of futures-oriented interventions on institutional behaviour.

2 Chapter 2 Literature Review

2.1 Introduction.

This chapter presents a critical exploration of the existing literature and scholarly studies relevant to sustainability planning within Higher Education Institutions (HEIs). The comprehensive literature review (CLR) methodology used to frame the review of the scholarly literature is outlined at the outset. The review examined scholarly studies of strategic planning for sustainability in Higher Education (HE), with a focus on sustainability integration in institutional strategies, policies and plans. It further examined research studies that explored the application of FT within sustainability planning in HE.

2.2 Comprehensive Literature Review (CLR) methodology.

The literature review followed the CLR framework developed by Onwuegbuzie and Frels (2016). This approach consists of three phases and seven interactive, iterative steps designed to provide a synergistic and holistic synthesis of existing scholarship, as shown in Figure 2-1.

2.2.1.1 CLR exploration phase.

The first five steps of the CLR model fall within the Exploration Phase. To begin, the researcher explored the purpose and orientation of this literature review, in the context of the overall research study, articulating the values and beliefs underpinning the proposed research study. This literature review was undertaken with the understanding that research is not a values-neutral endeavour; rather, it is a process significantly shaped by the researcher's philosophical assumptions and professional lens. A reflection on the evolution of researcher's worldview, from positivist to constructivist, informed the selection of studies in the literature review. While the researcher asserts that sustainability within HEIs is a socially constructed reality shaped by stakeholder interpretations and unique institutional cultures, the researcher

acknowledges and accepts that other scholars may not take this position. This reflexive lens ensured a balanced exploration and interrogation of scholarly studies investigating how sustainability and FT are conceptualised and enacted in practice within HEIs.

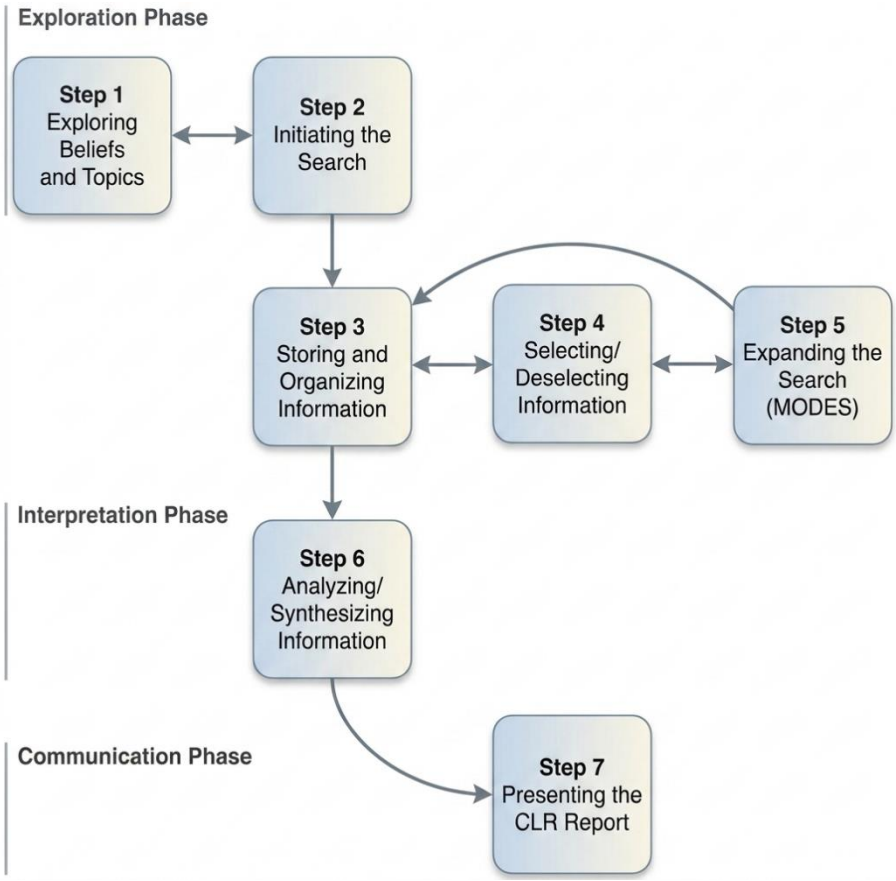


Figure 2-1: Onwuegbuzie and Frels' (2016) 'seven steps' to a comprehensive literature review.

In Step 2, the broad topics under the remit of the literature review were identified, which informed the parameters for the initial search. Two primary databases, Scopus (Elsevier, 2025) and Education Source Ultimate, ESU (EBSCO, 2025) were utilised for the research. Search strings (Table 2-1) utilised root phrases and wildcards (e.g., "sustainab*") to capture variations in terminology. The search was restricted to English-language, peer-reviewed articles published between 2000 and 2025. The year 2000 was selected as the starting year given that Rotondo and Giovanelli (2024) suggests that significant efforts to integrate sustainability within HEIs emerged from 2002 onwards. This timeframe also aligned with the launch of the

Millennium Development Goals (2000) and captured the significant surge in research following the UN Decade of ESD (2005–2014) and the 2015 launch of the SDGs (Hallinger and Chatpinyakoop, 2019; Gorski *et al.*, 2023).

Steps 3-5 involved an iterative process of identifying and storing relevant literature, expanding the search where necessary to include: Media, Observations, Documents, Experts, and Secondary data (MODES) as shown in Figure 2-1. In the context of this research, this resulted in grey literature, such as Irish government policies and podcasts (e.g., 'Universities, futures thinking and climate change - Keri Facer', 2021) informing the review. Searches were first conducted using Scopus, and then using ESU, with additional studies which didn't duplicate those found in Scopus selected from ESU searches. The outcome of the literature searches is summarised in Table 2-2. Titles and abstracts of identified literature were reviewed. Studies were excluded due to irrelevance, lack of an explicit HEI sustainability or FT focus or if they did not meet the empirical or theoretical depth required. As an example, studies by Arias-Valle and Marimon (2025) and Longhurst and Gough (2018) provided limited methodological insights, and adopted a reporting stance providing limited analytical insights into sustainability actions within their HEIs. The selected literature was reviewed fully and additional exclusions applied e.g. addressing a narrow ESD aspect or limited applicability to strategic planning in HEIs. Given that the initial searches revealed limited references to Irish HEIs an additional search for research specifically focused on Irish HEIs was conducted, resulting in a further four relevant studies being identified.

With respect to SD and sustainability planning in HEIs the review revealed 82 primary research studies and 16 secondary sources. Secondary sources included grey literature (3), studies referenced in primary sources (6) and additional studies identified (9). In relation to FT in HEIs the review identified 15 primary studies. A total of 14 secondary sources included

grey literature (1), studies references in primary sources (3), and 10 studies identified through additional searches. The selected literature was managed via Zotero, with key metadata, including geographic location, methodology, and core findings, extracted into an Excel matrix. Sources were categorised into thematic clusters, such as 'HEI Sustainability Strategies' and 'FT in Higher Education' for management purposes.

#	Statement
1	[("sustainability" OR "sustainable development*) AND (" higher AND education " OR " universit* OR " college ") AND (" strategy " OR " strategies " OR plan*)].
2	[("sustainability" OR "sustainable development* OR " sdg ") AND (" higher AND education " OR " universit* OR " college ") AND (" strategy " OR " strategies " OR plan*)]
3	[("sustainab* plan*" OR "sustainab* strat*") AND (" higher education" OR "universit*")].
4	[(" higher education" OR "universit*") AND ("strateg*" OR "plan*") AND (" future* AND think* " OR " pestle " OR " backcasting " OR " foresight " OR "cla")].
5	[(" higher education" OR "university*") AND ("strateg*" OR "plan*") AND (" future* AND think* " OR " pestle " OR " backcasting " OR " foresight " OR "cla") AND ("sustainab*" OR "sustainable development" OR "sdg")]
6	[("sustainab* plan*" OR "sustainab* strat*") AND (" higher education" OR "universit*") AND ("future* think*")].
7	[("sustainab* plan*" OR "sustainab* strat*") AND (" higher education" OR "universit*") AND ("future*")].

Table 2-1: Literature Review search strings

#	Scopus			ESU		
	Identified	**Selected**	**Used**	**Identified**	**Selected**	**Used**
1	355	92	26	466	65	13
2	11	10	8	215	21	
3	328	79	22	35	6	4
4	261	32	12	177	11	2
5	16	1	1	24	6	1
6	1	1		2	2	
7	36	11	2	70	27	7
Total	1008	226	71	989	138	27

Table 2-2: Literature Review search results -primary sources

2.2.1.2 CLR interpretation phase.

The 82 primary studies covering SD and sustainability strategies in HEIs was methodologically diverse including, for example three systematic reviews, 11 case studies and 13 papers utilising content/document analysis. Reflecting the recent growth in research since the launch of the SDGs, 75% of these studies were published after 2015. While most of the

research originates from the Global North, the review included studies addressing sustainability within HEIs in South America, Africa, and Asia.

Of the 15 primary studies related to FT, six related to Futures Thinking in HEIs and a further 9 related to Futures Thinking and sustainable development in HEIs. The quantum of literature focused on FT and sustainability planning within HEIs was found to be limited, when compared to the literature on sustainability within HEIs.

2.2.1.3 CLR communication phase.

The last step in CLR is the communication phase, in which the outcome of the review is presented in this chapter. In the context of this literature review, the findings are presented in two sections. The first section presents the findings from the review of sustainability planning within HEIs. The second section presents the findings from research studies on the integration of FT within HE sustainability planning.

2.3 Sustainability planning within HEIs.

This section presents the findings from studies on strategic planning for sustainability within HEIs. Firstly, studies exploring the integration of SD and sustainability within HEI institutional strategies are discussed. Institutional strategies are HEI wide strategies addressing all dimensions of HEI activity and set out the mission, vision and key strategic objectives for the HEI. Secondly, studies addressing dedicated sustainability strategies within HEIs are explored. Sustainability strategies are focused exclusively on sustainability within the HEI and present an insight to its objectives, approaches and priorities in relation to sustainability and SD. Finally, research related to campus sustainability plans (CSPs), which typically had a particular focus on a single HEI campus location, are discussed.

2.3.1 Sustainability within HEI institutional strategies.

The literature search identified 16 studies which explored how sustainability is presented within HEIs institutional strategic plans. This section provides insights to key findings from these studies. The literature search revealed no specific studies focused on sustainability within Irish HEIs institutional strategies.

HEIs institutional strategic plans set out an organisations' vision, mission and strategic goals and can provide insights into a HEIs approach to SD (Velazquez *et al.*, 2006). According to Rotondo and Giovanelli (2024), the approaches that HEIs have taken to address sustainability has evolved in two distinct phases. The initial phase "sustainability within HEIs" (from 2002 to mid-2010s) saw sustainability as an innovative activity which was concentrated in education and research and dominated by environmental sustainability (ibid). While best practice was disseminated internally and externally, HEI strategies and processes remained fragmented, driven by sustainability champions acting in the absence of institutional support. International and national declarations and policies were instrumental in driving this development (Wright, 2004).

The transition to "sustainable HEIs" emerged from the mid-2010s (Rotondo and Giovanelli, 2024, p. 11) but the researchers argue that only a limited number of HEIs have made this transition by prioritising sustainability and investing in structures and resources. An alternative categorisation of HEI strategies suggests that the majority of HEI fit within a definition of a Modern HEI (University 2.0) where standardisation, efficiency improvements, performance and rankings dominate, and SD is a management task (Giesenbauer and Müller-Christ, 2020). An evolution of HEIs towards, "University 4.0" is proposed, where integrative worldviews to sustainability exists and a WoI approach to sustainability is adopted by the HEI (ibid). Both of

these studies point to the need for HEIs to move from superficial, standardised approaches to SD towards systematic, integrated approaches to sustainability. Both also align with Steins' (2024) contention that HEIs are predominately addressing mainstream sustainability, with limited evidence of significance transformation.

An exploration of the strategic plans of 82 Spanish HEIs (50 public, 32 private) identified that of the 58 HEIs which had a strategic plan, sustainability was addressed within the mission, vision or strategic priorities of 41 (70%) of these plans (Bautista-Puig and Sanz-Casado, 2021). This compares favourably with an earlier study from Larrán Jorge *et al*. (2015) which indicated that only 40% of Spanish HEI strategic plans addressed sustainability, perhaps signalling a greater penetration of sustainability within strategic planning within the five year period. However, while commitment appears to have expanded across the Spanish HEIs involved in this study "few included the three pillars (social, economic, environmental) of sustainability", with no reference being made to the cultural pillar of sustainability (Bautista-Puig and Sanz-Casado, 2021, p. 10). The authors argue that sustainability is emerging as a core goal within some HEI strategies, with comprehensive approaches being taken to add value at both organisation and system levels (ibid). A later study of the strategic plans of 26 Spanish HEIs suggests that HEIs can be grouped based on the differences in a HEIs' strategic commitment to sustainability (Bautista Chamizo *et al.*, 2024). The best performing HEIs have developed a sustainability culture (across mission, vision, values, actions and structures) while others have recognised the need and are evolving plans (ibid). A third group of HEIs included those forced to react to the sustainability agenda while a final cohort included those "following a sustainability hype to improve their legitimacy and organisational reputation" (Bautista Chamizo *et al.*, 2024, p. 66). These studies suggest that, from the evidence present in their

institutional strategies, there is significant variation in how HEIs are seen to prioritise sustainability.

An approach to categorising HEIs responses to sustainability emerged from content analysis of 50 Canadian HEIs institutional strategies (Bieler and McKenzie, 2017). Similar to Bautista Chamizo *et al* (2024), the study considered sustainability across the dimensions of governance, education, research, campus operations and engagement and HEI strategies were categorised as presenting "nil, accommodative, reformative, progressive, or transformative responses" (Bieler and McKenzie, 2017, p. 1). The term 'Nil' indicated little or no evidence of sustainability with the strategy. The number of dimensions covered i.e. 1-2 = accommodative, 2-3 = reformative, 3-4 = progressive and 5 = transformative, indicated the breadth of planning for sustainability across an institution. The quality/quantity of text covering sustainability represented the depth i.e. shallow = cursory mention of sustainability terminology, deep = sustainability addressed in mission, values, objectives etc. (ibid). While 9 HEIs, approximately 20%, were categorised as Nil, no HEI was classified within the transformative category. Bieler and McKenzie (2017) used Sterling, Maxey and Luna's (2013) definition of a sustainable university and suggested that for a HEI to be categorised as transformative it must challenge dominant worldviews and seek to "embody and manifest [SD] within their strategies, values, concepts and ideas, challenges and approaches." (Sterling, Maxey and Luna, 2013, p. 23). Twenty of the 50 (40%) of the HEIs involved in the study, were categorised as accommodative with the study suggesting that they may be reacting to coercive pressure from external policy drivers (ibid). The research hinted at the influence of performance systems such as rankings by the Association for the Advancement of Sustainability in Higher Education (AASHE) (*The Association for the Advancement of Sustainability in Higher Education*, no date) with HEIs aligned to AASHE being placed in higher categories.

The UN SDGs (as articulated within the 2030 Agenda for Sustainable Development, 2015) present another mechanism to evaluate a HEIs commitment to sustainability. They also enable a level of comparative analysis, beyond national case studies, given their universal nature. Leal Filho *et al.* (2023) evaluated the integration of SDGs within HEI institutional strategies following a survey with 128 respondents from HEIs in 28 countries across Africa, Asia, Europe, North America, Oceania and South America (85.94% of respondents were from South America and Europe). Despite a majority of respondents confirming they consider SD part of the institutional mission a significant proportion stated that "the integration of the SDGs …is not yet part of their regular routine" (Leal Filho *et al.*, 2023, p. 573). Complexity of integration and lack of institutional commitment emerged as critical barriers preventing wide scale adoption and integration. The aforementioned study by Bautista Chamizo *et al.*, (2024) also considered the presence of SDGs within institutional strategies. They utilised a series of twenty seven key indicators, grouped into the dimensions of governance (11 items), education (4 items), research (3 items), people (5 items) and community outreach (4 items) to evaluate SDGs integration within Spanish HEI strategic plans. Similar to Leal Filho *et al*., (2023) references to SDGs within mission/vision were lower than references to sustainability appearing to reinforce the point that the SDGs have not yet penetrated institutional strategic planning. Rotondo and Giovanelli (2024), in their evaluation of the presence of SDGs within strategic plans concur with these studies.

Studies discussed to date have primarily reflected research conducted in European or North American HEIs, and the literature searches for this study found limited research involving HEIs in the Global South. Osman, Sheikh Farah and Abdi, (2025) concluded, following a bibliometric analysis of SD research in HEIs, analysing 1,122 articles between 2015 and 2023, that there is a research gap in emerging economies, with an absence of government support

and financing sighted as key barriers. A recent systematic literature review re-enforced the lack of empirical studies focusing on HEIs in the Global South, emphasising that existing literature disproportionately examines sustainability practices in developed and well-resourced countries, thus failing to examine specific challenges faced by institutions in the Global South (Hassan and Ahmad, 2025). While their study point to progress on environmental sustainability and ESD, significant gaps in relation to "strategic coherence, financial resilience and social accountability" are highlighted (Hassan and Ahmad, 2025, p. 1). Analysis of 23 Turkish HEIs institutional strategies for the presence of the SDGs produced similar findings to that of Bautista Chamizo *et al.* (2024) (Yilmaz, Roychoudhury and Hatipoglu, 2022). While SDG4 (Quality Education) and SDG16 (Peace, Justice and Strong Institutions) were the most present, SDG 13 (climate action), SDG1 (no poverty) or SDG 6 (clean water) were surprisingly absent. Leading Turkish HEIs appear to have placed an initial focus on ESD and stakeholder collaboration. The authors concluded that those HEIs with the most SDG-related objectives were typically research universities involved in university ranking systems, perhaps suggesting external coercive factors are influencing their sustainability priorities (Yılmaz Fındık and Erçetin, 2023, p. 11). A more recent analysis of Turkish HEIs concurred with the outcomes, highlighting again limited evidence within institutional strategies of SDGs addressing issues such as poverty and inequality (Göçoğlu, 2025). An analysis involving 11 Indian HEIs concluded that sustainability reporting is in its infancy with moderate levels of reference to sustainability across governance, economic, social and environmental aspects in HEI strategy documents (Paul, Abhay and Kumawat, 2025). In Ghana, HEIs lack an overall SD ecosystem for collaboration and studies on SD are primarily environmentally focused, with research on social topics e.g. gender, inequality limited (Owusu-Agyeman, 2021). Weak attention to SD was also identified as an issue within Latin American HEIs by Herrera F, Mora-Frank and Carrión, (2023). An earlier study involving Latin American HEIs highlighted that they have

similar drivers, and barriers, to HEIs in other jurisdictions with internal resistance, complexity and lack of resources in particular ranking highest as hindering action (Blanco-Portela *et al.*, 2018).

The literature reveals an evolution in how sustainability is addressed within HEI institutional strategies. While some studies point to an evolution in how HEIs are addressing sustainability many others suggest that full integration of sustainability into strategic planning has not yet occurred. Studies considering sustainability within HEIs in the Global South are limited. Irrespective of location, the research suggests that there is variable institutional adoption of sustainability as a key priority. This literature review would appear to agree with the conclusion by Rotondo, Giovanelli and Lozano (2024) that there is a scarcity of studies investigating integration of sustainability in HE from a strategic perspective, while also pointing to a lack of theoretical frameworks which support HEI management in systematically designing and implementing strategic initiatives in line with the principles of a sustainable university.

2.3.2 HEI sustainability strategies.

A HEI sustainability strategy provides a mechanism for HEIs to institutionalise SD across the University (Velazquez *et al.*, 2006). This section explores the purpose of sustainability strategies, approaches to their development and current challenges and barriers. A total of 31 different studies addressing various aspects of sustainability strategies were reviewed.

2.3.2.1 Purpose and alignment with institutional strategy.

Velazquez *et al* (2006) explored the purpose of sustainability strategies through a survey of 40 sustainability leaders (75% who were from North America and Europe). They concluded that a sustainability strategy must align with the overall eco-system of the university and address

the dimensions of education, research, outreach/partnership and campus operations with engagement with internal and external stakeholders being critical (ibid). Sustainability must first be a priority in the institutional strategy, thus ensuring clear alignment between it and the sustainability strategy (ibid). Long term sustainability strategies, supported by authoritative leadership are seen as a critical competitive advantage in the HE marketplace (Ramísio *et al.*, 2019). Barros Guerrero and Odila Bello Benavides (2022) highlight that a sustainability strategy is vital if a HEI is to truly incorporate the complexity of sustainability into the organisation. Lozano (2006) in an earlier study similarly concluded that a successful sustainability strategy makes sustainability explicit across the HEIs policies and mission, provides resources, supports stakeholder involvement and is designed to ensure a WoI approach. The value and "ultimate purpose of sustainability strategies is to bring about organisational, technological, cultural and social shifts" within a HEI (Ferrer-Balas, Buckland and de Mingo, 2009, p. 1080). Leal Filho *et al.* (2019) highlighted that sustainability planning needs to take a comprehensive approach and done correctly will lead to more effective, and faster implementation. The study concludes however that sustainability planning could be categorised as weak across the HE sector (ibid).

Sustainability planning emerged as a thematic priority area, from the bibliometric analysis of 594 documents, in research examining the relationship between HEI organisation cultures and sustainability efforts (Cruz-Cárdenas and Parra-Domínguez, 2023). Three other themes from this research included teaching and sustainability, organisational/cultural change and measuring impacts of sustainability efforts. Another international assessment, involving 35 HEIs across 7 countries (Brazil, Germany, Greece, Portugal, South Africa, the UK and the USA) explored the existence and impact of specific sustainability policies (Leal Filho, Brandli, *et al.*, 2018). 60% of surveyed HEIs had a policy that specifically addressed SD (with the HEIs

in Portugal, USA and UK all having SD policies) with the study concluding that while the existence of a SD policy is not a precondition for action on SD "universities with SD policies have more probability to have initiatives" (Leal Filho, Brandli, *et al.*, 2018, p. 10) across the HEI compared to those HEI who lack a SD policy. Evidence of coercive isomorphism is emerging as HEIs seek to comply with regulatory and policy requirements (Zdonek *et al.*, 2025). HEI actions on sustainability also need to be considered in the context of mimetic isomorphism with HEIs trying to enhance or maintain their sustainability criteria via various international ranking and rating systems (ibid). Such pressures can have an influence on how a HEIs sustainability strategy is formed.

While the literature presents research on sustainability strategies within HEIs in the Global North (USA, Canada, Spain, Portugal, Italy etc.) limited research was found exploring their evolution in other regions. One study (Abubakar, Aina and Alshuwaikhat, 2020) conducted content analysis of sustainability information on the websites of 44 Saudi Arabian universities and found limited evidence of sustainability strategies or plans. While 72.7% of the HEIs presented a sustainability vision few were found to have a comprehensive sustainability strategy (Abubakar, Aina and Alshuwaikhat, 2020).

The available literature suggests that sustainability strategies are emerging as a key component within the HEI sustainability eco-system, with explicit recommendations that such strategies must be clearly aligned with institutional strategies. The imbalance of research exploring sustainability planning within HEIs in the Global South suggests a possible bias in the literature. Issues such as climate justice and inter-generational and global sustainability may not be reflected in the strategies of HEIs in the Global North, and efforts should be made during sustainability strategy formation to consider this imbalance.

2.3.2.2 Bottom-up and top-down approaches to sustainability strategy development.

Having considered the purpose and benefit of a sustainability strategy, this section considers the different approaches which can be taken in developing a sustainability strategy, considering both bottom-up and top-down approaches.

A number of studies explored the development and evolution of sustainability strategies within specific HEIs. Lukman and Glavič, (2007) emphasised the critical importance of sustainability planning when reviewing sustainability progress within the University of Maribor (Slovenia). While governance structures were in place, the review concluded that a sustainability strategy was required, stressing the need for a combination of bottom-up and top-down approaches to be integrated into the sustainability strategy (Lukman and Glavič, 2007). Ferrer-Balas, Buckland and de Mingo (2009), following their case-study of the Technical University of Catalonia (UPC) (Spain), concur with this recommendation while also highlighting that sustainability strategies have the potential to redefine the role and purpose of HEIs in addressing SD. An exploration of the evolution of SD within KHLeuven (Germany) also underscored the integration of top down and bottom-up approaches (Verhulst and Lambrechts, 2015). Their research emphasised that strategic commitment, articulated through the HEIs sustainability strategy, evolved from small-scale actions led by sustainability champions. Securing resources, scaling up actions and creating synergies between top-down and bottom-up approaches led to the prioritisation of sustainability across the HEI (ibid).

Ramísio *et al.*, (2019) critiqued the evolution of sustainability within the University of Minho (Portugal) and highlighted that "implementation of sustainability policies that address all mission areas …. is crucial to demonstrate commitment to all stakeholders" (Ramísio *et al.*, 2019, p. 300). Their study concluded that the University's holistic and inclusive approach to

sustainability demonstrated an alignment between the academic community and University leadership. Similar organisational alignment is evident within Otto von Guericke University Magdeburg (OVGU) (Germany) where extensive engagement with university staff, and students, enabled the development of a sustainability strategy (Rühmland, Brinken and Haase, 2023). However, a case study profiling both top-down and bottom-up initiatives at the Norwegian University of Science and Technology highlighted that success is not guaranteed and that, in addition to top-down and bottom-up alignment, alignment with policy and strong support from external and internal stakeholders is also critical (Berker *et al.*, 2024, p. 1210).

The case studies articulate a pattern where HEIs who have taken a strategic approach to sustainability have balanced top-down approaches with bottom-up initiatives. Such balanced approaches maintained engagement across the HEI, avoiding fragmentation of actions and generated stakeholder buy-in. However, such alignment cannot guarantee successful implementation of all actions.

2.3.2.3 Sustainability competencies and knowledge requirements.

While the sustainability competencies (SC) of students is a frequent topic of ESD related research (Wiek, Withycombe and Redman, 2011; Annelin and Boström, 2023), sustainability competencies and knowledge of those leading sustainability strategy development and implementation, are equally important. A Delphi study involving 70 ESD experts globally identified 12 key competencies for sustainability (Rieckmann, 2012) with systems thinking, handling of complexity, anticipatory thinking and critical thinking particularly highlighted. A separate study identified five key SCs (systems thinking, anticipatory thinking, strategic thinking, interpersonal skills and normative) in the context of academic programme development (Wiek, Withycombe and Redman, 2011), broadly aligning with those proposed

by Rieckmann (2012). These studies provided the baseline for research that considered sustainability leadership competencies in particular (Savage *et al.*, 2015) which clustered these competences into a community cluster, encapsulating the strategic, interpersonal and systems thinking competencies and a future cluster, including the anticipatory and normative competencies. They also identified personal development as a key competency, although this was not directly captured in Wiek et al.'s (2011) competencies. Savage *et al's* (2015) framework provide a useful tool to assess sustainability leadership competencies. Their research concluded that while students sustainability competencies were advanced, the students considered that time and space for cognitive reflection were important for competency development.

Robinson, Molthan-Hill and Higgins (2025) contend that "..all staff, whether with responsibilities for delivering education or contributing to the wider university setting, need an understanding of both the sustainability implications of their roles and relevant links to education and learning" (Robinson, Molthan-Hill and Higgins, 2025, p. 36). This is particularly relevant if a HEI is seeking to implement significant transformation changes (ibid). It can be difficult for all members of the university to acquire the required knowledge and competencies in the absence of a specific sustainability strategy (Schopp, Bornemann and Potthast, 2020). HEIs also need to consider that SCs can be developed through formal training/education programmes but also through informal learning approaches such as sustainability committees, actions groups and interdisciplinary activities (Barth *et al.*, 2007).

The research indicated that in framing sustainability strategies HEIs should consider and reflect on the sustainability knowledge and competencies of those in HEI leadership and management roles and not restrict its actions to addressing sustainability competencies through its education and research activities alone.

2.3.2.4 Whole-of-institution approaches to sustainability planning.

One conclusion from the 4th UNESCO Chair Conference on Higher Education for Sustainable Development in 2011, was that a WoI approach is necessary if higher education is to make meaningful change towards sustainability (Müller-Christ *et al.*, 2014). WoI is taken to involve SD being integrated across the core dimensions of the HEI (education, research, engagement and operations) while also being aligned with the HEIs institutional strategy and governance (UNESCO, 2014; Kohl *et al.*, 2021). UNESCO have placed increased emphasis on HEIs adopting WoI approaches as a means to advance the achievement of the SDGs (United Nations Environment Programme, 2022). The UNEP Sustainable University Framework (USUF), launched in 2021, presents four dimensions through which a HEI should address sustainability (Teaching & Research, Environment & Climate, People & Society, Administration & Governance) (United Nations Environment Programme, 2022). WoI approaches can enable a move from isolated bolt on efforts to where sustainability practices are embedded throughout the institution, placing HEIs at the "heart of societal transformation towards a sustainable future" (Robinson, Molthan-Hill and Higgins, 2025, p. 55).

The IAU 2nd Global Survey Report on Higher Education and Research for Sustainable Development concluded that HEIs are increasingly taking WoI approaches but suggest that regional variations exist (Mallow, Toman and Land, 2020). However, the IAU view was contradicted in a systematic review, involving 113 peer-reviewed studies between 2005-2017, which considered the impacts of HEI SD actions (Findler *et al.*, 2019). This study concluded that "there remains a lack of whole institution and holistic approaches and perspectives" (Findler *et al.*, 2019, p. 30). Furthermore Findler *et al's* study (ibid) concluded that the literature was dominated by case studies and examples which emphasised the fragmented and siloed approaches to SD being pursued in HEIs. WoI approaches should not just look at

systematic issues but actively involve stakeholders across the HEI (staff, students, faculty, administration, management) "..ensuring that sustainability is not just a few people's responsibilities but something everyone in the institution is committed to" (Christou *et al.*, 2024, p. 16). Others concur stating that a "whole organisational system approach linking and coordinating the operations, education, research and outreach is necessary to foster a sustainable university" (Cebrián Bernat, 2019, p. 89). Christou *et al.* (2024) proposes that HEIs should also include management systems, organisational culture, strategic planning, and monitoring and evaluation when designing their WoI approaches. While various definitions of WoI approaches emerge in the literature, the need to address sustainability across the dimensions of education, research, operations, engagement and governance are consistently grounded in the research. However, the literature points to a variation in how WoI approaches are adopted in HEIs.

Campus operations, and environmental sustainability, emerged as a major area of focus in the literature (Vaughter *et al.*, 2016; Cebrián Bernat, 2019; Farinha, Caeiro and Azeiteiro, 2019). Several factors can inform this specific focus including sustainability assessment frameworks which often have a particular focus on environmental sustainability, sustainability officers are often located within facilities/estates divisions and funding available for sustainability measures and investments can be restricted to environmental actions (Vaughter *et al.*, 2016). There is some evidence to suggest HEIs are broadening their consideration of their environmental impact through considering Scope 3 carbon emissions (those indirect emissions arising from a HEIs non-energy related activities) (Woszczek *et al.*, 2025). Organisational structures can also influence action as different dimensions of the HEI may be more advanced in some areas that others i.e. operations compared to engagement (Niedlich, Bauer, *et al.*, 2020). Key decision makers (i.e. Governors and Presidents) also have a significant influence

due to their differing conceptualisations of sustainability and how it is prioritised within the organisation (Wright, 2010; Dyer and Dyer, 2017). Even within specific dimensions, such as ESD, studies suggest fragmentation and silos remain (Cebrián Bernat, 2019; Farinha, Caeiro and Azeiteiro, 2019) with "actions relating to ESD [often] taken in "isolation" and…not integrated in a whole institution approach". (Farinha, Caeiro and Azeiteiro, 2019, p. 13). External drivers such as policy, rankings and reporting requirements can potentially affect HEIs approaches. While some evidence points to a correlation between positions on international rankings and the level of SD integration (Salvioni, Franzoni and Cassano, 2017) others suggest HEIs are taking action often to simply maintain or improve rankings rather than as transformative actions (Zdonek *et al.*, 2025).

Sustainable Higher Education Institute (SHEI) is emerging as a term in the literature broadly encompassing a WoI approach, where a HEI has integrated SD across structural and organisational aspects of the organisation. (Wright, 2010; Larrán Jorge *et al.*, 2015; Aleixo, Leal and Azeiteiro, 2018). An alternative to the SHEI term is a University Sustainability Concept which considered a HEI as comprising of an academic sub-system and an administrative sub-system (Hernández-Diaz *et al.*, 2021). Within this framework ESD principles influence the design of the academic sub-system, informing academic programme design and pedagogies. The administrative sub-system is informed by a corporate sustainability paradigm, adopted from a business context, focused on organisational integration of sustainability (Hahn et al. 2015 in Hernández-Diaz *et al.*, 2021). The study concluded that both the academic and administrative sub-systems within the HEI have to take an integrated approach to sustainability but also concluded that the "literature does not report a single model" suitable for assessing the integration of sustainability across all dimensions within a HEI (Hernández-Diaz *et al.*, 2021, p. 2).

An alternative concept of HEI sustainability archetypes, is informed by the application of sustainable business model architypes (SBMA) (Bocken *et al*., 2014 in Sanches, Campos, *et al.*, 2022). This framework proposes a series of four sustainability action archetypes (Figure 2-2) (Sanches, Campos, *et al.*, 2022). The Operations Archetype has a strong focus on environmental measures (energy, waste, circular economy) but also addresses procurement and use of materials. The Academic Archetype addresses education and research for SD while the Organisational Archetype considers strategic issues, management decisions and structures. Finally, the Community Archetype considers engagement with internal and external communities/stakeholders. Compared to the model from Hernández-Diaz *et al.*, (2021), which suggests a boundary between the Academic and Administrative activities of the HEI, the archetypes model is more closely aligned with the UNEP Sustainable University Framework. Sanches, Souza, *et al.* (2022) utilised the archetypes model in the development of a sustainability strategy within a Brazilian HEI (Fundação Hermínio Ometto's University Center (FHO)) and concluded that it contributed to a WoI approach being adopted within the sustainability strategy.

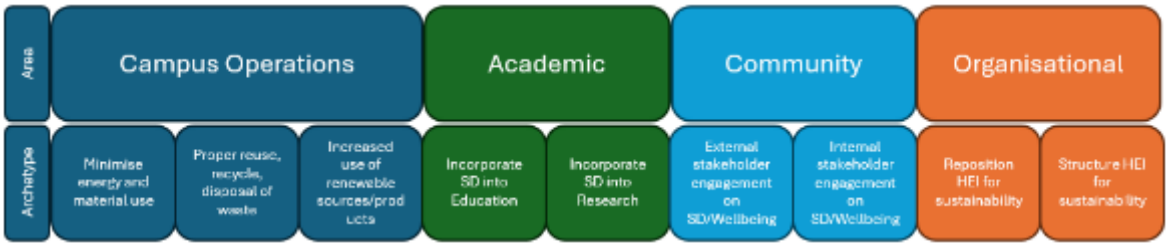


Figure 2-2: HEI sustainability archetypes. Adapted from Sanches, Souza, et al. (2022, p. 821)

While differing conceptualisation of WoI approaches are evident in the literature, most agree that HEIs must consider SD across the core dimensions of education, research, engagement, and operations, while also aligning sustainability with its governance, strategic planning and monitoring/evaluation structures. Various frameworks, such as the UNEP Sustainable

University Framework (United Nations Environment Programme, 2022) and sustainability action archetypes (Sanches, Campos, *et al.,* 2022), provide valuable models to guide HEIs.

2.3.2.5 Holistic approaches within sustainability strategies.

Having addressed the differing dimensions within the HEI where sustainability needs to be integrated, the following section considers the need for HEIs to address sustainability from a holistic perspective. A holistic approach to sustainability is grounded in the need for HE to deepen our understanding of the human condition. The complexity of the ecological, anthropological, economic, and political challenges faced by society requires HE to move away from compartmentalised and disjointed approaches to addresses these problems from a multi-dimensional perspective (Morin, 1999). While the terms WoI and holistic are often interchanged within the literature in this study the term holistic has been taken to consider the four pillars of SD i.e. social, economic, environmental and cultural.

A holistic conceptualisation of sustainability conceives it in "its larger meaning, referring to economic, social and environmental aspects" (Agostino and Dal, 2016, p. 9). Results from a study of 10 Italian HEI sustainability strategies revealed that only 60% were deemed to have taken a holistic conceptualisation of SD (Sonetti, Barioglio and Campobenedetto, 2020). A holistic conceptualisation serves to overcome disciplinary fragmentation/siloes, creating opportunities to integrate complex and systems thinking within sustainability education and research (ibid). Sustainability within HEIs can often be understood to have a narrower focus on campus operations and environmental sustainability (Aleixo, Leal and Azeiteiro, 2018) and that "only some …see sustainability…covering the three sustainability pillars (environmental, social, economic)" (Aleixo, Leal and Azeiteiro, 2018, p. 1670). The UNEP states that " a sustainable university is one whose activities are ecologically, socially and culturally

equitable, and economically sustainable ” (United Nations Environment Programme, 2022), yet the cultural pillar of sustainability is often neglected. Limited reference to the cultural pillar was found in the literature. The commitment by a Canadian University to ensure engagement with local indigenous communities, highlights the importance of considering local/regional cultural and socio-economic aspects in developing HEI sustainability strategies (Lidstone, Wright and Sherren, 2015, p. 9). The importance of taking a holistic approach, acknowledging differing perspectives of sustainability is encouraged by UNESCO in the context of ESD and therefore should be also applied at a strategic level.

Sustainability strategies often favoured a focus on environmental sustainability, particularly in the context of campus operations (White, 2014; Bautista-Puig and Sanz-Casado, 2021). The social pillar of sustainability is considered to receive significantly less attention within sustainability strategies compared to other pillars (Alba Hidalgo, 2017; Wolff and Ehrström, 2020). Shifts away from environmental sustainability to a broader understanding of sustainability are emerging, however deeper analysis indicated that “broadened conceptualisation does not carry over into the details of implementation” (Vaughter *et al.*, 2016, p. 33). In their survey of ESD pedagogies Lozano *et al.* (2019) concluded that while economic, environmental, and cross-cutting (systems thinking, governance etc) pillars tend to be addressed almost equally, the social pillar remains the most underdeveloped. An absence of sustainability actions focused on areas such as gender, poverty and health was also confirmed in a study of 50 Canadian HEIs (Dickson, 2025). Furthermore, imbalances were found in a study of 34 Portuguese HEIs strategies which highlighted that references to environmental and economic/financial sustainability dominated over social/cultural sustainability (Pinheiro *et al.*, 2024). Addressing social sustainability themes such as justice, equality, inclusion, safety, and well-being, all of which are intrinsically linked to the United

Nations' SDGs, is deemed essential for creating a socially sustainable university (Barnett-Itzhaki *et al.*, 2025). A study involving thematic analysis of vice-presidents and governing body members of nine Chilian HEIs connected the need to address various economic, social and environmental dimensions of sustainability with the need for strong governance structures, and decision making processes (Abello-Romero *et al.*, 2025). These assorted studies suggest that achieving a holistic approach to sustainability is challenging and not confined to a specific region or HEI type.

The temporal dimension of sustainability is also relevant when seeking to adopt a holistic approach. The literature suggests that there is limited evidence of HEIs addressing the long-term challenge of climate adaptation. HEIs are only beginning to consider the potentially severe consequences of climate change (relocating campuses, water shortages, inability for international students to travel etc.) (Alexander, 2023b). Despite a survey of 41 HEIs across six countries (USA, Canada, Australia, New Zealand, Finland and Switzerland) highlighting "the highest risks to institutions were rated as: 'changes to government tertiary sector funding/tax structures', 'global financial shock/crisis' and 'climate change' (Kautto, Trundle and McEvoy, 2018, p. 1268), few had developed climate adaptation plans. This suggests that short-term climate mitigation actions are dominating HEI sustainability planning with longer-term adaptation issues being ignored or receiving limited attention. Several studies also highlight the need to consider the inter-generational dimension of SD (Schopp, Bornemann and Potthast, 2020; Barros Guerrero and Odila Bello Benavides, 2022). While some evidence points to the fact that this is beginning to be addressed by HEIs (Vaughter *et al.*, 2016), sustainability strategies with timeframes of 4-6 years do not necessarily reflect this (Harris *et al.*, 2017). Sustainability strategies are "very unlikely to have thought strategically about the needs of future generations and to have adopted policies that take a sufficiently long-term

perspective into consideration" (Leal Filho, Brandli, *et al.*, 2018, p. 89). This suggests that sustainability planning may not yet be sufficiently sophisticated to address the long-term implications of SD.

Frameworks to enable HEIs to define holistic approaches to sustainability are required, similar to those that have been developed for WoI approaches. One conceptual framework to support adoption of a holistic approach to sustainability planning introduced a social and cultural layer while also referencing themes and actions related to holistic thinking, equity, altruism spirituality, social equity, peace, cultural diversity and gender (Casarejos, Frota and Gustavson, 2017)(Figure 2-3). In fact, this framework could be said to combine both a WoI and holistic approach to sustainability planning, where WoI dimensions such as engagement are placed within the social and cultural layer.

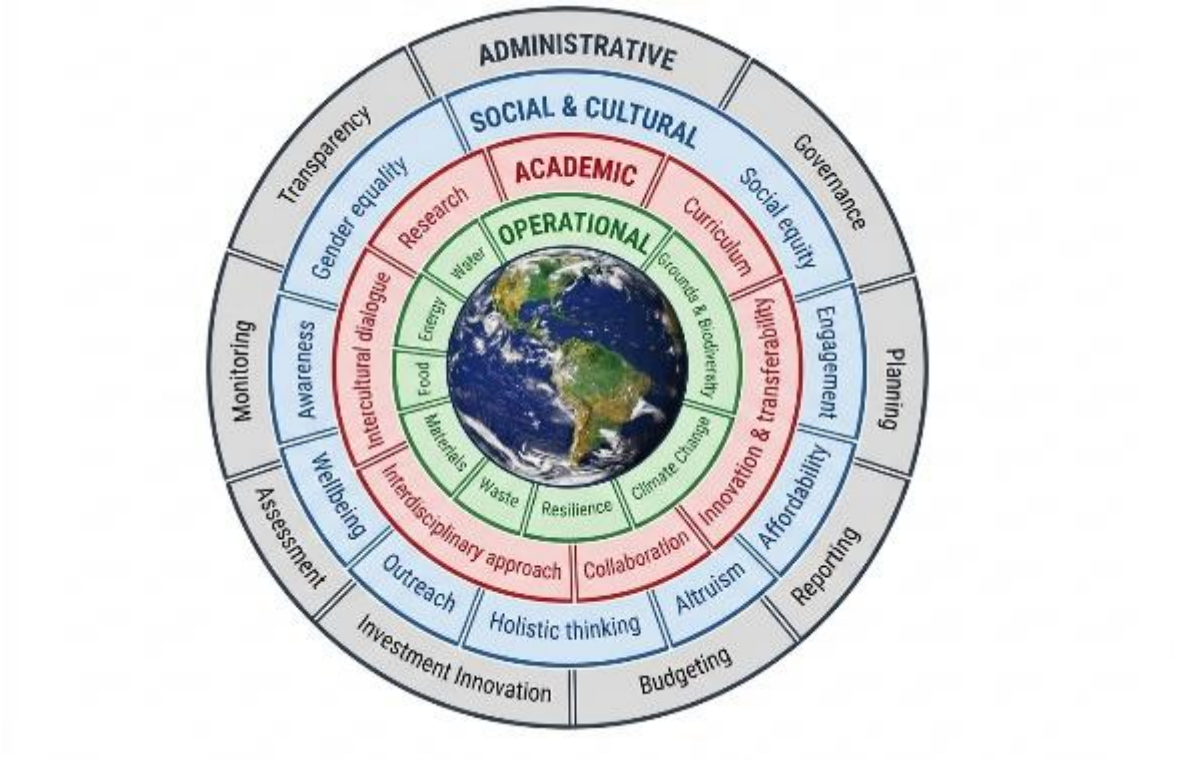


Figure 2-3: Conceptual framework for holistic (and WoI) approach to sustainability within HEI (adapted from Casarejos, Frota and Gustavson, 2017, p. 1002)

The SDGs present another potential lens to evaluate holistic approaches to SD. A study of members of the Higher Education Sustainability Initiative (HESI) indicated that HEIs contained their SDG commitments to a limited number, and that five SDGs had no HEIs committing to contributing to them (Moon, Walmsley and Apostolopoulos, 2018). Similar results emerged following a systematic literature review of HEI sustainability activities which concluded that approaches to integration of SDGs "are still developing and do not show uniform patterns" (Fia, Ghasemzadeh and Paletta, 2023, p. 623) and that "universities are pursuing a growing variety of strategies at different organizational levels in order to meet the goals of the Agenda 2030" (Fia, Ghasemzadeh and Paletta, 2023, p. 621). A recent global study (Hong, Calderon and Coates, 2023) following documentary analysis and interviews with 19 HEI presidents from Africa (1), Asia Pacific (6), Europe (7) and North America (5) confirmed fragmented and uneven adoption. Studies in Finland (Dziubaniuk *et al.*, 2022) and Mexico (Carrillo Valdez, Villanueva Gutiérrez and Álvarez-Mendiola, 2025) similarly highlighted fragmented, uneven and inconsistent adoption of SDGs into sustainability planning. These studies suggest that the SDGs, to date, may not represent an appropriate mechanism to evaluate a HEIs holistic approach to sustainability given the apparent failure to embed them into sustainability planning.

A more holistic approach to sustainability can counter the current neoliberal, growth and economic impact narrative which dominates education, particularly in the Global North "we need a more rich and complex notion of development which is not only material but also intellectual, emotional, moral..." (Morin, 1999, p. 34). Despite HEIs indicating the adoption of a more holistic approach current evidence points to continued compartmentalisation and specialisation of approaches.

2.3.2.6 Challenges and barriers to sustainable planning in HEIs

This section considers challenges and barriers to the development and implementation of sustainability strategies within HEIs. Aleixo, Leal and Azeiteiro (2018) identified a range of barriers including the ambiguity and complexity of the sustainability concept, resistance to change, the influence of the neoliberal agenda, organisational structures and their rigidity, resource constraints, lack of engagement (amongst staff, students and management) and lack of training and capacity building. Suklun and Bengü (2024) concurred while also suggesting that politics/policy changes, ethical decision making and local social, economic, and environmental conditions can influence the strategic planning process.

Several studies suggest that an inconsistent interpretation of SD and sustainability contribute to a lack of commitment and weak sustainability planning. Sammalisto, Sundström and Holm, (2015) in a case study within the University of Gävle (Sweden) suggested that a wide variation in the perceptions of sustainability amongst staff contributed to confusion. Similarly, Niedlich, Kummer, *et al.* (2020), Schopp, Bornemann and Potthast (2020) and Cerón *et al.* (2022) highlight that the variety of worldviews within a HEI present challenges when seeking to agree a common definition of SD and sustainability. Ambivalence towards sustainability and sustainability strategies contributed to a lack of engagement or action at institutional and faculty level (Dyball, Wang and Wright, 2015). The political, philosophical and personal interpretations of SD that HEI senior leaders have can influence how it is treated and prioritised within the organisation (Schopp, Bornemann and Potthast, 2020; Abello-Romero *et al.*, 2025). HEI leaders worldviews, knowledge and understanding of the interrelated complex social, economic and environmental aspects of SD can inform whether WoI or holistic approaches to sustainability are adopted or whether specific pillars or dimensions are prioritised (ibid). Research suggests a “tight framing” of sustainability exists where a HEI can articulate clearly

its' approach to SD and sustainability, and its alignment to its values and vision (Scott, 2015). Such tight framings can lead to deeper embedding of sustainability within the HEI. Where HEIs have looser framings and definitions, this often presents a limit and constrains the adoption of sustainability across the HEI (ibid). Sustainability strategies require careful planning and development with Timmerman and Metcalfe (2009) warning that loose definitions and language can contribute to ambiguity and constrain impact and action.

Several studies highlight a range of other internal factors which influence sustainability planning within HEIs (Awuzie and Abuzeinab, 2019; McCowan, 2023b; Abello-Romero *et al.*, 2025). Multiple studies identify the absence of, or insufficient, resources (human and financial) to develop and implement sustainability strategies as a barrier (Verhulst and Lambrechts, 2015; Leal Filho, Pallant, *et al.*, 2018; McCowan, 2023b; Suklun and Bengü, 2024). Such resource constraints lead to limited transformation within the HEI resulting in SD being felt "as an 'add-on' to education, not a built-in aspect" (Granados-Sanchez, Jesus *et al.*, 2012, p. 200). This lack of integration is often a result of HEIs carrying out short-term sustainability project/actions in the absence of long-term plans (Barros Guerrero and Odila Bello Benavides, 2022, p. 56). This is also true for bottom-up initiatives, in particular student led actions, as they are frequently short-term and senior management are typically distant from actual implementation (Brinkhurst *et al.*, 2011). Senior managers and academics from nine Chilian HEIs pinpointed internal leadership, cultural norms, and lack of organisational coordination as critical factors impeding integration of sustainability (Abello-Romero *et al.*, 2025), reflecting similar challenges from the case study of environmental sustainability within University of Coimbra (Portugal) (Amaral *et al.*, 2023). Resources and time are also required when managing consultation and engagement with internal and external stakeholders (Cortese, 2003; Lidstone, Wright and Sherren, 2015; Awuzie and Abuzeinab, 2019). Suklun and Bengü

(2024) contend that sustainability strategies and actions are often dismissed due to a lack of capacity and skills of academics and a lack of comprehensive impact data across social, economic and environmental areas. HEIs therefore need to consider how to address these internal barriers while also developing an organisationally agreed conception of sustainability during the sustainability planning process (Niedlich, Kummer, *et al.*, 2020).

Despite increased evidence of sustainability commitments within HEIs there are those who suggest that "universities appear to remain firmly wedded to neoliberal ideals, whilst concurrently claiming to be sites of strong sustainability" with little evidence of transformative change (O'Neill and Sinden, 2021, p. 37). Sustainability strategies can act as a camouflage for HEIs contribution to the neoliberal agenda (ibid). Transformation of HE, and the overall education system, is challenged by the influence of the neoliberal agenda (Sterling, 2024). Others argue that radical transformation is not possible and advocate for a more pragmatic and incremental approach, suggesting that HEIs must transition towards sustainable futures and that radial transformation of HEIs is challenging (Robinson, Molthan-Hill and Higgins, 2025). Political pressure can also influence HEIs responses as Government objective and policies in relation to sustainability change (Suklun and Bengü, 2024). Larrán, Herrera and Andrades, (2016) argue that sustainability strategies are often developed in response to "mimetic pressures" from government policy and performance related state funding. Despite such mimetic pressures Andrades, Martinez-Martinez and Larrán, (2024) contend that 20% (10 out of 50) of Spanish HEIs involved in their study were avoiding or ignoring the topic of sustainability. McCowan (2023b) suggests that marketisation of HE and competition for status through rankings/ratings are further influencing HEIs responses to the sustainability agenda.

Finally, other studies claim that a focus on short-term economic drivers (Granados-Sanchez, Jesus *et al.*, 2012) and an absence of expertise on long-term planning (Leal Filho, Pallant, *et*

al., 2018) are reasons behind HEIs failing to adopt long-term perspectives when it comes to sustainability planning. Sustainability strategic planning can also receive less priority as it does not result in the immediate impacts which are required to sustain HEI leadership attention and resources (Leal Filho, Brandli, *et al.*, 2018). In addition, McCowan (2023b) suggests that a lack of imagination on how HEIs could be reinvented to address sustainability restricts innovation and transformation, thus compounding the ability of HEIs to develop long-term strategies.

In developing and implementing sustainability strategies HEIs have to balance dealing with the complexity of SD, the need to adopt WoI and holistic approaches while also ensuring that long-term strategic and inter-generational perspectives are considered. Internal barriers such as constrained resources, resistance to change, rigid organisational structures combined with external pressures such as marketisation, the neoliberal agenda and variable government policies further complicate progress and transformation.

2.3.3 HEI Campus sustainability plans (CSPs).

There is a body of research that examined HEI Campus Sustainability Plans (CSPs), providing insights into how HEIs implement their sustainability objectives. CSPs are typically confined to physical campus location(s). The AASHE Sustainability Tracking, Assessment & Rating System (STARS) Technical Manual defines a CSP as "a published document that outlines how an institution intends to advance its environmental, social, and economic performance" (*The Association for the Advancement of Sustainability in Higher Education*, no date). Research on CSPs is particularly prevalent in North America, suggesting that the AASHE STARS methodology has influenced HEIs approaches to sustainability in that region.

Following an analysis of CSPs within twenty-seven US HEIs CSPs White (2014) concluded that the campus plans focused predominantly on environmental issues, a WoI approach was lacking and that only 30% made reference to the social pillar of SD. Similar results emerged following content analysis of 21 Canadian HEIs CSPs by Lidstone, Wright and Sherren (2015), who highlighted a focus on environmental sustainability, with social and economic aspects less emphasised. While the University of British Columbia aligned their CSP with the SD pillars, all others aligned their actions within various dimensions of the university (research, education, facilities, community engagement, planning or administration) (ibid). Both studies concluded that CSPs present a narrow focus on sustainability, dominated by environmental actions and with a particular focus on facilities and operations. While the engagement and education dimensions of sustainability planning have some presence, research and administration actions for sustainability are less prominent according to the aforementioned studies. A thematic analysis of interviews with facilities managers highlighted, that despite their narrow focus, CSPs suffer from similar challenges to wider institutional sustainability strategies i.e. lack of resources, dependence on specific individuals/leaders and challenges in communicating sustainability across the HEI (Cerón *et al.*, 2022).

A more recent study that conducted document analysis of 155 US CSPs noted that "Over one-half (57%) of the plans tied sustainability to their institutional mission" (Eby and Rangarajan, 2023, p. 1407) with one-third of HEIs considering themselves sustainability leaders. However the dominance of environmental and operational sustainability evident in earlier studies continues with all but one plan addressing multiple operational environmentally focused priorities (ibid). While 89% of plans addressed engagement and 74% addressed curriculum improvements there was less focus on research, administration and social equity. Thematic analysis of existing research on US HEIs CSPs confirmed that CSPs focused on environmental

sustainability from the 1990s until 2015 (Dougherty, Dawson and Vos, 2025). Post 2015, with the emergence of the SDGs, there is some evidence of HEIs addressing broader social and economic sustainability aspects but the study concluded that CSPs "continuously disregarded social issues and inequities" (Dougherty, Dawson and Vos, 2025, p. 535). The study also points to a continued failure to institutionalise sustainability across HEIs as being a fundamental barrier to US HEIs achieving the transformation necessary in relation to sustainability (ibid).

Another recent study, this time in Australia, conducted case study analysis of campus sustainability and carbon neutrality initiatives in six HEIs (Sen *et al.*, 2022). While the research highlighted that "universities are implementing sustainability initiatives in line with their mission and values" (Sen *et al.*, 2022, p. 25) the focus remained on specific measures to reduce the HEIs carbon footprint. Also in Australia, Melles, Lodewyckx and Hariharan, (2021) point to a diversity of approaches to campus sustainability in terms of reporting, focus and planning. Thematic analysis of sustainability documents and interviews with sustainability managers revealed a siloed approach to sustainability, often constrained by a focus on operations within facilities management (ibid). While efforts to gather narratives and stories from students and staff (in contrast to dry operational reporting) are encouraging, they highlighted external pressures from "coercion of government regulation" (Melles, Lodewyckx and Hariharan, 2021, p. 101) to meet sustainability targets.

These studies provide insights into how sustainability is operationalised in the context of CSPs. Evidence from White (2014), Eby and Rangarajan (2023) and Dougherty, Dawson and Vos (2025) reflect US HEIs predominantly focusing on environmental sustainability with limited evidence that social or economic aspects of sustainability are prioritised. This is also reflected in the two studies in Australia. Across both jurisdictions the narrow framing of sustainability

within external coercive factors (the AASHE STARS framework in the US and Government regulations in Australia), have influenced the prioritisation of environmental sustainability.

2.3.4 HEI sustainability planning – Irish HEI context.

While the main literature searches did not reveal any specific studies involving Irish HEIs an additional search was conducted which identified four studies focused specifically on sustainability in Irish HEIs. Shawe *et al.*, (2019) conducted a mapping of sustainability strategies and initiatives in 16 HEIs, of which 7 were Irish (Shawe *et al.*, 2019). The study had a particular focus on environmental sustainability and included interviews with energy/transport managers and site visits to two of the 7 Irish HEIs (GMIT Galway (now ATU Galway) and Maynooth University). The study concluded that Irish HEIs lacked a systemic approach to sustainability and only two HEIs were found to have dedicated sustainability strategies (University College Cork and University of Galway). Sustainability was only briefly addressed within the 7 Irish HEIs institutional strategies. Compared to the international HEIs in the study there was a lack of data and support structures, with activity within Irish HEIs focused within estates teams or through Green Campus Committees (An Taisce, no date). The research noted that "..management support is essential if sustainable development is to survive in the long-term" (Shawe *et al.*, 2019, p. 1). The process through which the sustainability strategy within the University of Galway was developed is outlined in a study by O'Dowd Lohan *et al.*, (2020). A comprehensive engagement and consultation process, including significant student engagement, resulted in a 3 year (2017-2020) sustainability strategy. The strategy meets the definition of being WoI given that it addresses all dimensions of the HEI through its six key themes (Research and Learning, Energy and Greenhouse Gas Emissions, Nature and Ecosystems, Health and Wellbeing, Built Environment, Governance and Leadership). The strategy identified the SDGs as a key mechanism to integrate sustainability

across the HEI based on its 'Learn, Live, Lead' model and there is evidence of the cultural pillar of sustainability being addressed. The HEI also explicitly highlights that it views "..sustainability as a process rather than an endpoint" (O'Dowd Lohan *et al.*, 2020, p. 223).

More recent research highlighted that sustainability reporting in Irish HEIs, based on data published on HEI websites, tends to be symbolic and designed to gain legitimacy, privileging form over substance (Sun *et al.*, 2024). While there was extensive information provided on environmental and social dimensions of sustainability, they were lacking in substance with economic factors being prioritised. Cullen (2026) sought to assess progress on SD within Irish HEIs through the prism of performance on various international ranking systems. Insights were limited as only 9 out of 17 HEIs participate in any of the rankings studied, with only 1 of these being a Technological University (Cullen, 2026). Barriers to engagement in such rankings are cited as including lack of resources (particularly in smaller and newly formed HEIs), complexity of data requirements and limited commitment from leadership (ibid). Barriers facing Irish HEIs in developing sustainability strategies are seen to mirror those observed internationally i.e. complexity of SD concept, lack of resources, leadership commitment and organisational structural and cultural resistance (ibid).

The limited research on sustainability strategies and sustainability planning in Irish HEIs pointed to a research gap and suggested the Irish HE sector could benefit from more comprehensive studies which explore Irish HEIs approaches to sustainability planning.

2.4 Futures Thinking in Higher Education.

As highlighted earlier in studies by Granados-Sanchez, Jesus *et al.* (2012), Leal Filho, Pallant, *et al.*, (2018) and McCowan (2023b), strategic planning within HEIs is often constrained by short-term priorities and lack of long-term planning expertise. The rapidly evolving landscape

of the twenty-first century suggests that HEIs should shift how they plan and prepare for an uncertain world. There is an expanding envelop of research addressing FT and climate change as a symptom of the Anthropocene which provides insights and possible areas for development (Cork *et al.*, 2023).

If HEIs are to consider how they can respond to potential radical changes across infrastructure, teaching, research and funding longer term, futures-oriented approaches to strategic planning are necessary (Alexander, 2023b). The threats and challenges to HEIs are many and immediate including global warming which "threatens to squeeze, injure and destroy institutions and the many purposes we invest in them" (Alexander, 2023b, p. 225). Urry (2016) suggests that all aspects of society need to consider four possible climate futures (Business as usual, De-growth, Ecological modernisation, Geo-engineering the future) all of which have negative, and in some cases dystopian, climate and societal impacts. However, an absence of foresight capacity and knowledge within HEIs is seen as a significant risk with evidence that despite HEIs beginning to address sustainability there is a lack of long-term planning (Hafezi *et al.*, 2024). Fošner (2023) argues that HEIs should imagine future scenarios and evaluate their impacts on various dimensions of the HEI, including resource management and sustainability. Others contend that imagination, of possible futures, is an essential capacity for securing ecological, social, economic, and cultural well-being in times of rapid and often unpredictable global change (Moore and Milkoreit, 2020).

The following section explores the evidence of FT being utilised to support sustainability planning in HEIs. It first explores FT within strategic planning in HEIs generally, followed by a more in-depth consideration of FT for sustainability planning. This is followed by discussing available literature related to FT in Irish HEIs, while also considering FT competencies.

2.4.1 FT for strategic planning in HEIs.

The literature search identified a limited amount of literature relating to FT and HEI institutional planning. Two particular studies explored how new visions and metaphors for HEIs were imagined. The first study considered the outcomes from an initiative where FT capacity building was provided to a number of Malaysian HEIs, leading to the exploration of possible futures for two HEIs: Universiti Sains Malaysia (USM) and Universiti Teknikal Malaysia Melaka (UteM) (Ithnin, Nor and Yusoff, 2017; Ithnin *et al.*, 2018). Utilising a Causal Layers Analysis (CLA) approach the research exposed forces affecting HEI future development including a dynamic global environment, digitalisation, the role of academics as agents of change and adaptative/responsive governance. A range of possible futures emerged including a prestigious international HEI, a digital university with no physical campuses or a HEI focused primarily on enterprise and economic development (Ithnin *et al.*, 2018). An agreed preferred future envisaged an industry-based HEI, which was research led and produced industry ready graduates. It also highlighted possible future challenges related to student enrolment and new education actors entering the market (ibid). A similar CLA exercise was conducted in the University of Tehran (UT) (Iran) as it sought to move away from a perceived metaphor of the University as an "Ivory Tower" (Baradaran Ghahfarokhi, Mohaghar and Saghafi, 2018). As CLA uses metaphors to explore existing and possible systems, a range of futures were considered and metaphors developed including; UT as an "Orchestra" (collaboration, inter-disciplinarity at is core), UT as "Ecoversity" (innovation and agility to respond to radical changes), UT as "Digilogue University" (shifting away from traditional analogue modes of teaching to on-line/blended) or UT as "Polycentric Metropolitan/Mega University" (business, corporate orientation). Both studies concluded that the FT approach and

CLA process resulted in a reframing of university visions and values, exposing systematic issues for debate, while the FT outcomes ultimately informed the strategic planning process.

In seminal work by Dator, Yeh and Park (2013), scenario-based FT was used to challenge the prevailing assumption of continued economic growth in HE strategic planning. Four generic alternative futures for the year 2060: Grow (continued expansion), Collapse (drastic resource depletion), Discipline (sustainability-focused expert rule), and Transformation (radical technological evolution) were used to explore possible futures for a Hawaiian University (Dator, Yeh and Park, 2013). Within each scenario six institutional dimensions were considered (societal assumptions, HEI mission, participants, resource availability, pedagogical approaches and physical structure). A number of distinct university models emerged from the FT exercise including a "Global Green University" and a biologically enhanced "Transform You" model. Dator, Yeh and Park's (2013) two-year study enabled a deep interrogation of the various forces and factors (internal and external) which informed possible futures for the HEI.

HEIs face challenges with adopting a futures-oriented approach to strategic planning. Four key challenges were articulated by Soheil Inayatullah (Ahmid, 2020). Firstly, people are frequently unable to imagine new futures which are different from futures based on current experiences “Brains wired to the past” (ibid). Secondly, there is often insufficient time and resources to think about the future and possible futures “Futures literacy takes time and effort” (ibid). Thirdly, a focus on governance, responses to mimetic pressures and institutional isomorphism restricts and constrains imagination and consideration of possible futures “collective rush” (ibid). Finally, there may be instances where leadership teams have a fear of the future as it may demand radical transformation, and power shifts (ibid). Integration of FT into decision making also presents challenges but insights can be taken from anticipatory climate governance approaches (Muiderman *et al.*, 2020). Rather than decision making being solely

informed by risk management and trend analysis, HEIs could adopt or combined these with anticipatory decision-making processes.

These studies suggest that FT can contribute to HEIs imagining possible futures and inform strategic planning. While different FT approaches were utilised (CLA, Scenario planning) the studies suggest that exploring possible futures can expose issues and challenges with the present, foster imagination and identification of new opportunities. Sustainability and climate change emerged as one area where FT can imagine possible futures which address the climate agenda (Facer, 2021; 'Universities, futures thinking and climate change - Keri Facer', 2021).

2.4.2 FT and sustainability planning.

The Anthropocene is informed by the premise that human activity has become the dominant influence on the Earth's geology, climate, and ecosystems (Crutzen, Stoermer and Steffen, 2000; Malhi, 2017). Defined by the great acceleration of intersecting ecological crises, including climate instability and biodiversity loss, the concept highlights the importance of considering both short-term and longer-term dimensions of sustainability when developing strategic plans (Bansal and DesJardine, 2014; Christou *et al.*, 2024). Sterling (2024) contends that education needs to "come on board – far more quickly and nimbly that it has to date" (Sterling, 2024, p. 44) if a preferred sustainable future is to be realised. FT presents an approach to disrupt what are typically short-term sustainability planning approaches (Slaughter, 2020) but evidence of the application of FT in sustainability planning within HEIs is limited in the literature.

Extensive stakeholder engagement through a future visioning process informed the sustainability strategy of the University of Vermont (Pollock *et al.*, 2009). The study revealed elevated levels of engagement when positive, future-oriented processes were utilised (ibid).

The process resulted in vision statements and strategic priorities emerging across four categories (Human capital, social capital, built capital, natural capital) (Pollock *et al.*, 2009, p. 346). The visioning process was multifaceted using open in-person events and on-line surveys and connected with multiple stakeholders. The study concluded that a focus on values and long-term goals enabled the HEI to achieve "consensus on many key issues while avoiding much of the divisiveness that characterizes university governance" (Pollock *et al.*, 2009, p. 353)

Scenario based FT approaches emerged as a prominent approach within the literature. Dator, Yeh, and Park (2013) in applying the "Manoa School" framework of foresight utilised four alternative scenarios: Grow, Collapse, Disciplined Society, and Transformational Society. Sustainability and environmental factors are key within all scenarios, in particular the Collapse scenario depicted environmental crises dramatically affecting the future of society, and the HEI. The framework challenged educational leaders to move beyond linear forecasting and concluded that institutional resilience depends on the ability to navigate diverse possibilities (ibid). Informed by the "The Future We Want" (United Nations, 2012) a qualitative study by Beynaghi *et al.*, (2016), utilised trends-based analysis and scenario building to determine the impact of SD on HE in proposing alternative futures for HEIs. Trends across higher education, sustainable development and sustainability development in higher education were considered. The research developed three complementary futures scenarios i.e. a socially-oriented University, an environmentally-oriented University and an economically-oriented University (ibid). SD was highlighted as a core mission within each scenario, with differing priorities on social, environmental or economic issues emerging depending on the specific scenario. The economically-oriented university scenario is considered "already a widely normalized and promoted pathway for the university" (Beynaghi *et al.*, 2016, p. 3474). Similar to Dator, Yeh

and Park (2013) the authors argue that the pursuit of SD through any of these scenarios would require fundamental changes across the HEI's mission, its approach to ESD, the key disciplines involved in sustainability and redefinition of how it engaged with external stakeholders (Beynaghi *et al.*, 2016).

A study conducted in the Leuphana University of Lüneburg (Germany) supported the development of a response to the Government policy "Higher Education Landscape 2035" (Barth *et al.*, 2011). Scenario planning, informed by key drivers, institutional history and culture, existing expertise and future ambitions resulted in three future orientations, each captured with a metaphor, for the HEI. The three scenarios could be considered more mainstream when compared to the possible extreme scenarios proposed by Dator *et al* (2013). The research concluded that the preferred scenario, with a focus on close cooperation with stakeholders to solve societal problems, would demand organisational transformation to deliver on the HEIs sustainability ambitions (Barth *et al.*, 2011). Furthermore, the research recommended the utilisation of backcasting as a FT tool to guide and plot a pathway for the HEI to achieve its preferred future scenario (ibid).

Backcasting was also utilised during the development of a sustainability strategy within the University of Foggia (Italy) (Sisto, Sica and Cappelletti, 2020). The University's institutional strategy included a strategic objective related to "improving the environmental, social and economic sustainability of UniFg" but there was no strategy in place to achieve this objective (Sisto, Sica and Cappelletti, 2020, p. 4). An expert group developed a preferred future for sustainability within the HEI which the research acknowledged had an environmental sustainability focus (ibid). A participatory backcasting workshop, involving 39 participants including internal and external stakeholders (civil society, other public bodies, private sector and general public) informed the development of the sustainability strategy. The backcasting

approach was evaluated positively providing validity and justification for its application (Sisto, Sica and Cappelletti, 2020, p. 8). The researchers highlighted that the FT approach supported wider participation and a longer term approach to sustainability in the strategic planning process. Collectively it fostered greater confidence levels amongst the participants in defining the sustainability strategy (ibid).

While the previous studies confirm the benefit of using methodologies such as scenario building or backcasting other researchers argue that ecological crisis demands a move away from pragmatic and incremental measures towards more radical and imaginative approaches (Nørgård and Holflod, 2024). They advocate for exploring wider and wilder preposterous futures by encouraging consideration of dystopias and utopias. Dystopian futures include "grimdark" where HEIs will fail to respond to climate and sustainability challenges. In contrast, utopian futures, the conceptualisation of which is supported by more imaginative hopepunk (people oriented) and solarpunk (planet oriented) approaches, envisages that HEIs can reimagine and support hopeful planetary futures (Alexander, 2023a). Nørgård and Holflod (2024) argue deeper consideration of dystopian and utopian futures exposes HEI leaders to the discomfort associated with achieving real transformation within in HEIs. The concept of radical hope is advocated for by Strazds (2019) as a means to counter the culture of fear associated with climate change. Both Nørgård and Holflod (2024) and Strazds (2019) align with Giroux's theme of educated hope.

The literature provides insights into how FT can be utilised to inform planning within HE in general. Given the focus of this research within the Irish HE sector the next section moves to discuss literature in relation to FT within Irish HE.

2.4.3 FT for SD in Irish HEIs.

Evidence was found during the literature review of two Irish HEIs applying FT in the context of SD. A Futures Academy was established in Dublin Institute of Technology (now Technological University of Dublin) (*Futures Academy - Technological University Dublin*, no date) although no recent research outputs were found. While no specific research on SD within HEIs was identified, the academy did conduct a study on the future of HE (Finn, Ratcliffe and Sirr, 2007) and a study on SD in the context of Local Agenda 21 (Kelly, Sirr and Ratcliffe, 2004), both advocating for a move beyond short-term planning and espousing the use of FT methodologies. Recent research in the University of Limerick within the Centre for Sustainable Futures & Innovation (CSFI), resulted in the development of a position paper and a Futures Report "Tomorrows University" (Centre for Sustainable Futures & Innovation (CSFI), 2023). The Futures Report was informed by extensive scenario development aligned with Steins "beyond sustainability" paradigm. The Futures Report challenges HEIs to re-imagine their role in society and move beyond mainstream sustainability towards regenerative HEIs. Eight future scenarios were critically assessed under the headings of participants (students, staff etc.), the institution and its systems, concept viability, short-term and long-term impact and wider strategic considerations. The analysis resulted in the creation of a series of action plans to achieve the possible futures. No published research was available on the impact of this Futures Report on the HEIs institutional planning, with the CSFI indicating that the future institutional strategy was still under consideration ('Conversation with CSFI Staff', 2025).

2.4.4 FT and futures literacy.

Facer (2021) suggests that education about futures is an important element that should be addressed within HE while Wiek, Withycombe and Redman (2011), Rieckmann (2012) and

Savage *et al.* (2015) highlighted the importance of anticipatory competencies for sustainability leadership. In exploring the similarities and differences between competencies related to SD and FT, Thayer (2023) concludes that while FT can support development of anticipatory knowledge and intelligence, SD competencies include the knowledge and skills required to put the "futures knowledge and intelligence to work" (Thayer, 2023, p. 107). FT encourages staff and learners to consider and prepare for various possible, probable, and preferable futures (Laherto, & Rasa, 2022). Possible futures for environmental and sustainable education consider a future where education "will connect people and planet and empower people to make changes and to live meaningful, dignified and responsible lives" (Wals, Weakland and Corcoran, 2017).

Some insights into the application of FT within HEIs can be gained from considering how FT is being introduced into HEI curricula to enhance futures literacy. Isidori *et al.* (2023) explored FT approaches and the pedagogy of creativity, reflecting on the need for educators to develop knowledge, skills and competencies to apply FT approaches within their curriculum (Isidori *et al.*, 2023). A range of FT methodologies (foresight, backcasting, futures wheel etc.) were used to explore the future of community healthcare within nursing education (Freed and McLaughlin, 2011). The potential for FT to be utilised in both inter and transdisciplinary contexts was also stressed during the development of a Transdisciplinary Future-making Capabilities Framework which integrates "capabilities associated with sustainability, employability, and innovation." (Kligyte *et al.*, 2025, p. 10). Furthermore, this study highlighted the potential for their FT framework to position systems transformation as a priority when developing sustainable futures (ibid). Backcasting was also utilised within a Global Challenges and Sustainable Futures programme to define sustainable and desirable futures. The application of FT approaches facilitated critical discussion about future directions,

exposed hidden assumptions and inspired hope of transformation (Ishihara and Valls, 2017). Finally, the establishment of a "Futures Collaboratory" was seen as a means of integrating FT within a US HEI (Nissen *et al.*, 2020). The collaboratory was seen to be successful in raising awareness and supporting small scale projects, however the research highlighted challenges in relation to resources, FT capacity and futures literacy, and the impact of external factors (COVID-19) which restricted impact.

Evidence of the application of FT in sustainability planning within HEIs is limited, both internationally and within Ireland, pointing to a gap in the literature. The available literature offers insights into the potential of FT approaches to provide HEIs with opportunities to anticipate long-term sustainability challenges and develop more comprehensive strategies.

2.5 Conclusions and implications for the study.

This literature review demonstrates that sustainability in HEIs is evolving, yet significant challenges remain in relation to WoI integration, holistic approaches, and long-term, futures-oriented planning.

Evidence that HEIs have adopted the characteristics of a sustainable HEI (SHEI) is largely absent (United Nations Environment Programme, 2022; Rotondo, Giovanelli and Lozano, 2024). While institutional strategies suggest many HEIs have identified SD as a key institutional priority, the literature suggests approaches to SD could be categorised as accommodative and reformative (Bieler and McKenzie, 2017), or evolving, (Bautista Chamizo *et al.*, 2024) rather than transformative (Sterling, 2024). In some cases HEIs are driven by external coercive factors such as international rankings or reputation management, rather than a deep-seated cultural shift. Examples of transformative, critical sustainability (Stein, 2024) or "radical pedagogy" (Giroux, 2000) were largely absent.

The literature suggests an evolving landscape with HEIs making efforts to develop sustainability strategies. Such strategies, aligned to institutional strategies and supported by HEI leadership are deemed essential if a HEI is to truly incorporate the complexity of sustainability into the organisation (Barros Guerrero and Odila Bello Benavides, 2022, p. 66), while also potentially providing a competitive advantage in the HE marketplace (Ramísio et al., 2019).

The literature suggests that a SHEI must be characterised by an integrative worldview and a genuine WoI approach (Christou *et al.*, 2024). This requires the embedding of sustainability across four core dimensions: education, research, campus operations, and community engagement, all while ensuring alignment with institutional governance and strategic planning (United Nations Environment Programme, 2022). Research demonstrates uneven engagement across these dimensions (Bieler and McKenzie, 2017; Bautista-Puig and Sanz-Casado, 2021; Bautista Chamizo *et al.*, 2024). A defining trait of a mature SHEI strategy is a holistic approach, addressing environmental, social, economic, and the often-neglected cultural pillars of sustainability. The literature highlights a persistent imbalance, where environmental and campus operations are often foregrounded at the expense of social justice themes and wider economic and cultural aspects (Lozano and Carpenter, 2022; Barnett-Itzhaki *et al.*, 2025). HEI sustainability strategies should not exist as a bolt-on effort but as a core priority ensuring clear alignment between institutional goals and sustainability ambitions.

Effective change depends on authoritative and committed leadership to provide the necessary resources and formalise sustainability within the HEI ecosystem (Abello-Romero *et al.*, 2025). Research suggests that the most successful transformations occur when institutions balance top-down strategic commitments with bottom-up initiatives from the academic community, thereby avoiding the fragmentation of actions (Ramísio *et al.*, 2019). Cognitively, the

transition demands a specific set of sustainability competencies among staff and leaders, including systemic, critical, and anticipatory thinking (Savage *et al.*, 2015; Robinson, Molthan-Hill and Higgins, 2025).

Anticipatory capacity is vital for moving beyond short-term strategic cycles, typically lasting 4–6 years, which are often insufficient to address the intergenerational requirements of SD or the long-term challenges of climate adaptation (Alexander, 2023b). While a number of case studies demonstrate the opportunity for FT to support transformative thinking (Dator, Yeh and Park, 2013; Beynaghi *et al.*, 2016; Sisto, Sica and Cappelletti, 2020), evidence from the literature suggests that sustainability planning approaches primarily adopt traditional methods (Leal Filho, Brandli, *et al.*, 2018; Rotondo, Giovanelli and Lozano, 2024) indicating that HEI sustainability planning aligns with "mainstream sustainability" thinking (Stein, 2024).

Despite the proliferation of research since the launch of the SDGs, this review identifies several critical gaps. First, there is a noted scarcity of research investigating the integration of sustainability from a strategic management perspective, specifically regarding the theoretical frameworks needed to guide systematic implementation. Second, a significant geographical imbalance remains, as the literature disproportionately examines well-resourced institutions in the Global North, meaning the challenges of emerging economies and specific national contexts are under-researched. Finally, while anticipatory thinking is recognised as a core competency, there is limited evidence of the application of FT methodologies within sustainability planning processes.

Most notably, this review identified an absence of studies focused on sustainability planning generally or the application of FT within sustainability planning in Irish HEIs. This study

sought to address these voids by exploring how transformative, future-oriented frameworks can be applied within the unique context of the Irish HE sector.

3 Chapter 3: Research Design and Methodology

3.1 Introduction.

This chapter presents the research design and methodology, using the frame of Saunders, Lewis and Thornhill's (2019) Research Onion to summarise the research considerations. The philosophical underpinnings of the research design are presented, followed by the approach to theory development, methodological choices, research strategies and the temporal horizon of the study. Data collection and data analysis processes are then outlined while the concluding section explains the ethical approaches in research design and practice and how rigour was ensured across the study.

3.2 Research design.

In any doctoral study, Research Questions (RQs) function as the guiding compass, focusing the entire project by breaking down a broad problem into specific, explorable inquiries that inform the study's scope and research processes (Clark *et al.*, 2021). While RQs can evolve, to expand or sharpen during research they must form part of a conceptually coherent design (Braun and Clarke, 2022). The core RQs that guided this study are articulated as follows.

- RQ1: How is sustainability characterised within strategic planning in Irish Higher Education Institutions?
- RQ2: In what ways might FT approaches contribute to sustainability planning in HEIs?
- RQ3: How do sustainability leaders perceive the effectiveness and usability of FT methods in enabling them to develop a sustainability strategy?

Saunders, Lewis and Thornhill's (2019) Research Onion provides a visual model which conceptualises research design as layers to be peeled systematically, from the outer

(philosophy, approach) to the inner core (data collection/analysis), guiding researchers through interconnected research decision-making on matters including philosophy, approaches, strategy and data tools/analysis for a coherent study (Figure 3-1). The chosen approach for this research is circled within each layer of the diagram, highlighting that the research was informed by an interpretivist philosophy with an abductive approach to theory development. The research utilised a multi-method qualitative approach focusing on two bounded case studies (National and Institutional) with various data collection tools used in the cross-sectional study.

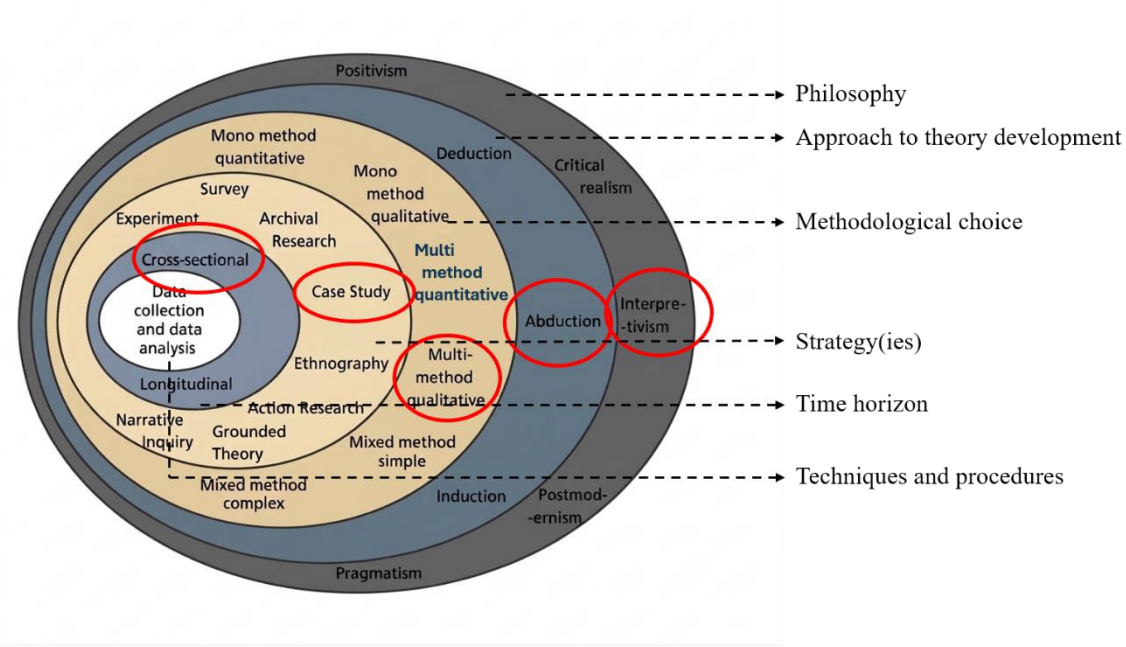


Figure 3-1: Research onion (adapted from Saunders, Lewis and Thornhill, 2019).

3.2.1 Research philosophy.

The philosophical stance underpinning any research study proposes a view of reality and knowledge that informs the researcher perspectives, approaches and methods. It also clarifies a set of assumptions that enables researchers to be clear about the reasons they have chosen a particular research design, framed here as the ontological and the epistemological positions.

3.2.1.1 Ontological position.

An ontological position refers to an individual's philosophical assumptions about the nature of reality. Ontology determines whether a researcher believes that reality exists independently of human perception or if it is a social construct shaped by human interpretation (Bryman, 2016). My background in engineering shaped my early professional career within SD, a disciplinary area rooted in the sciences and positivist ways of thinking about the world. Therefore, my initial forays into research were underpinned with an orientation rooted in the positivist paradigm (Cohen, Manion and Morrison, 2017). Positivism, as pioneered by Auguste Comte, asserts that the social world can be studied with the same empirical rigour as the natural sciences (Comte, 2009). This perspective is built upon a realist ontology, which posits that an objective reality exists independent of human perception (Denscombe, 2021; Braun and Clarke, 2022). By prioritising empirical evidence over normative speculation, my earlier research work typically sought to generate objective scientific statements, maintaining a strict separation between the observer and the observed phenomena. However, my worldview has evolved during the 20 years of my career in HE, working across a variety of educational, research and operational aspects of sustainability. Philosophical positioning "can change over time and over a career….especially after a scholar leaves the enclave of their discipline and begins to work in more of a trans or multidisciplinary way" (Creswell and Poth, 2023). As my career evolved to address wider economic, social and cultural aspects of sustainability, I developed a wider appreciation of how diverse contexts and values shape perspectives, leading to a shift in my ontological position to one of constructivism.

A constructivist ontological view acknowledges the need to explore and emphasise subjective meanings and experiences of individuals within their specific contexts. Constructivism, as a philosophical paradigm, asserts that reality is not an objective entity that exists independently

of human perception, but rather, it is constructed through social processes and interactions (Creswell and Poth, 2023). Ontologically this suggests that knowledge is subjective and context-dependent, shaped by the experiences, values, and interpretations of individuals and groups. Key features of constructivism include the recognition of multiple realities, the importance of understanding phenomena within their specific contexts, and the active engagement of participants in the research process (Lincoln and Guba, 1985).

This research is anchored in the pragmatic ontology of John Dewey (Dewey, 1938). While drawing on constructivist and interpretivist ideas, Dewey's pragmatism is uniquely concerned with workability, the notion that the truth or value of an idea is found in its practical consequences and its ability to solve a specific problem (Hickman, Neubert and Reich, 2010). Unlike cognitive models proposed by theorists such as von Glasersfeld (1995) or purely social models such as Vygotsky (1978), Dewey's perspective posits that reality is not a static object to be discovered, but is continuously reconstructed through interactions between individuals and their environment. The subject (the researcher/leader) and the object (the institution) are not separate entities interacting but are mutually constitutive; they define and change each other through their relationship. For this study, the reality of a sustainability strategy is not merely a written document or a fixed institutional goal, but a dynamic construct emerging from the lived experiences and problem-solving efforts of HEI leaders. This approach shifts the focus from finding an "absolute" reality to understanding how sustainability leaders navigate and transform their environments through pragmatic action.

3.2.1.2 Epistemological position.

Epistemology is the branch of philosophy concerned with the nature, origin, and scope of knowledge. In the context of educational research, it addresses the fundamental question:

"How do we know what we know?" (Cohen, Manion and Morrison, 2017). It defines the relationship between the researcher (the inquirer) and the reality being studied (the known), dictating whether knowledge is viewed as an objective truth to be discovered or a subjective meaning to be constructed (Crotty, 1998). My epistemological position is one of subjectivism, specifically refined through John Dewey's notion of instrumentalism (Dewey, 1938). This approach suggests that knowledge is not a passive representation of an external world, but a tool developed through experience to solve complex problems, a process Dewey terms 'inquiry.' In the context of this study, knowledge is not viewed as a collection of static facts about sustainability; instead, it is treated as "warranted assertibility" (Dewey, 1938, p. 9). This means that a sustainability strategy is true or valid insofar as it is a product of rigorous inquiry and proves effective in navigating institutional challenges. Sustainability leaders do not merely observe their environment but actively engage with it, reflecting upon institutional contexts while also taking pragmatic decisions in framing the sustainability strategies within organisational, social and cultural contexts (Clark *et al.*, 2021). Because reality is perceived differently by different individuals, there is no single, universal truth regarding what a sustainability strategy should be; rather, meaning is contingent on individual perspectives (Crotty, 1998) and the reflections people bring to their professional roles (Denzin et al., 2024).

By adopting this subjectivist and instrumentalist approach, there is acceptance that it is not possible to separate the researcher from the researched or the sustainability leader from relevant sustainability strategies (Lawrence, 2023). It is important to acknowledge that my subjectivist and instrumentalist stance is not operating in an ideological vacuum or from a value-neutral starting point. While I accept that meaning is constructed and contingent on individual perspectives, this inquiry is bound by the normative principles of the critical theory framework and Henry Giroux's critique of the corporate university (Giroux, 2011). The FT

interventions and proposed futures-oriented sustainability planning framework are viewed within this study as instruments intended to actively challenge neoliberal dominance, foster a balanced approach to SD and facilitate educated hope. Therefore, my position is one where I am reflexively aware, acknowledging that I am not detached from the researched context but actively situated within a theoretical environment dedicated to systemic and cultural reform in HE sustainability (Denzin et al., 2024).

This subjectivist position inherently rejects objectivism, which assumes that knowledge exists independently of human experience (Guba and Lincoln, 1994). Some researchers in the field of sustainability have validly adopted a positivist worldview to identify causal links through observation and testing (Ceulemans et al., 2015; Bautista Chamizo et al., 2024). For this research it was considered that such a position would reduce the opportunity for deeper insights into the cultural and organisational factors informing institutional responses to sustainability.

3.2.2 Abductive approach to theory development.

Three approaches to theory development (deductive, inductive and abductive) were considered. A deductive approach, which relies on the researcher drawing upon extant theoretical concepts within a specific domain to formulate a hypothesis that is then subjected to empirical testing was rejected (Bryman, 2016; Clark *et al.*, 2021). As this research does not seek to validate a pre-existing general theory or confirm a specific causal relationship, and no hypothesis was put forward, this rendered deduction unsuitable. Similarly, a purely inductive approach was evaluated but deemed insufficient for the complexities of this study. Induction is a theory-building process where the researcher moves from specific observations to the generation of broader generalisations and theories (Saunders, Lewis and Thornhill, 2019). It typically involves the systematic coding of raw data and a constant comparative analysis to

identify emergent patterns and categories (Strauss and Corbin, 1998; Nathaniel, 2023). While induction allows for high levels of flexibility, it was rejected due to the wide spectrum of sustainability planning in HEIs evident from the literature review. Relying solely on emergent data without acknowledging the influence of existing strategic pillars would fail to capture the evolutionary aspect of the field. Consequently, a more nuanced approach was required to bridge the gap between known and existing strategic frameworks and new, emergent institutional practices.

An abductive approach provides the flexibility to iteratively engage with empirical data and theoretical frameworks while allowing for the emergence of novel explanations. Abduction was first conceptualised by Charles Sanders Peirce (Pierce, 1998) as a logical reasoning process that seeks the most plausible explanation for observations that do not fit pre-existing theories. Abduction iterates between data and theory, refining explanations as new patterns emerge (Timmermans and Tavory, 2012). Abduction can enable the assembly or discovery, on the basis of an interpretation of collected data, of combinations of features where there is no appropriate explanation or rule in the store of knowledge that already exists. “Abduction begins when an observation does not fit into existing theoretical frameworks, requiring the researcher to refine or develop new theoretical insights that offer a plausible explanation” (Timmermans and Tavory, 2012, p. 168). Furthermore, abduction involves the researcher grounding a theoretical understanding of the contexts and people they are studying in the meanings and perspectives of their worldview (Clark *et al.*, 2021). Abduction typically involves an iterative process where data collection and theory development occurs in cycles, as opposed to sequentially. Opportunities for unexpected patterns, which can drive explanation or evolution of theories, are retained in the process (Reichertz, 2007).

Rotondo, Giovanelli and Lozano (2024) contend that there are limited theoretical frameworks supporting HEI sustainability planning. Various frameworks have separately considered sustainability planning within HEIs from WoI (Sanches, Campos, *et al.*, 2022), holistic (Agostino and Dal, 2016) or futures-oriented (Sisto, Sica and Cappelletti, 2020) perspectives. While these provide valuable starting points, an abductive approach allows for the modification, expansion, or integration of these frameworks based on empirical findings rather than assuming their universal applicability. Rather than testing existing sustainability frameworks (deductive) or developing a framework entirely from data (inductive), abduction allows for a middle-ground approach, iterating between emerging patterns and theoretical refinement which complements the constructivist ontological and subjectivist epistemological positions of the research.

3.2.3 Methodological choice.

This research adopted a qualitative approach, using various data collection tools and analysis techniques to gain deep insights into the perspectives of those formulating sustainability strategies in HEIs. A quantitative research methodology, aligned to a positivist perspective with a narrow objective conception of the social reality of sustainability within HEIs, was rejected as the research explored insights, opinions and perspectives of sustainability leaders within Irish HEIs (Clark *et al.*, 2021). A qualitative approach aligned with the ontological and epistemological stance and provided an opportunity to explore hidden or untold insights into sustainability planning and FT within HEIs, thus adding to existing literature and responding to identified research gaps. Existing quantitative studies have provided valuable objective insights into sustainability planning (Larrán Jorge *et al.*, 2015; Bautista-Puig and Sanz-Casado, 2021). This qualitative study provides a subjective insight seeking to add to the existing body

of knowledge in relation to sustainability planning and FT in HEIs (Sonetti, Barioglio and Campobenedetto, 2020; Sen *et al.*, 2022; Suklun and Bengü, 2024; Cullen, 2026).

A multi-method qualitative approach was deemed most appropriate for this study. As defined by Denzin *et al.* (2024), this refers to the use of multiple qualitative data collection and analysis techniques within a single study. This approach is distinct from mixed-methods research, which seeks to integrate quantitative and qualitative logic (Silverman, 2020). Descriptive statistics and sustainability worldviews/competency data e.g. the Revised New Ecological Paradigm (NEP), are used to profile sustainability leaders, providing contextual, foundational data rather than quantitative insights to inform qualitative components of the research.

Figure 3-2 outlines the key components of the multi-method approach: document analysis, surveys, interviews and observations of FT interventions. Aligned with the Deweyan constructivist framework, this approach allowed the researcher to explore the connections between institutional documents (the static reality) and the lived experiences of sustainability leaders seeking pragmatic solutions to sustainability issues (the dynamic reality). This approach facilitates crystallisation, providing a complex, multi-faceted depth to the findings that enhances the credibility of the research (Richardson, 2005; Denzin *et al.*, 2024).

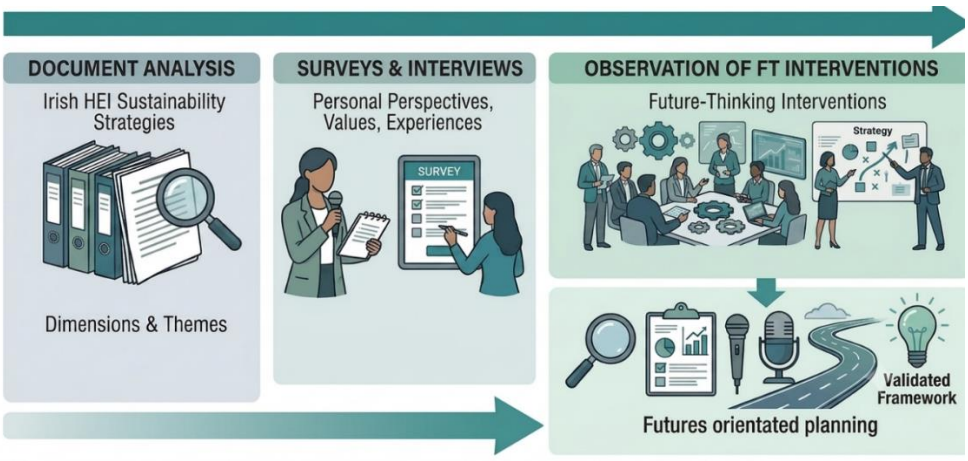


Figure 3-2: Multi-method research design for this study.

3.2.4 Research strategy.

The research strategy layer of the "Research Onion" defines the plan for how the RQs are answered. For this study, a qualitative dual case study strategy was selected to capture both the current national landscape and a specific institutional intervention. A case study is defined as a detailed, in-depth analysis of a bounded system (Creswell and Poth, 2023), allowing for a rich exploration of complex phenomena within their real-life context. Case Study 1 (National/Sectoral) is bounded by HEIs within the Republic of Ireland and analysed existing sustainability strategies and perspectives of sustainability leaders to establish a baseline of current practice. Case Study 2 (Institutional/Interventional) is bounded within a single Irish HEI (CSHEI) and explored the implementation of FT interventions to inform sustainability planning. This dual approach moves from a broad sectoral understanding (Case Study 1) to an experiential application (Case Study 2). In addition sustainability strategies of five international HEIs, although not treated as a case study, were reviewed during the document analysis phase for benchmarking and comparative purposes. The selection of a case study strategy aligned with this research study's focus on how and why sustainability strategies are formulated. By bounding the research within the Irish HEI sector and a singular HEI, the study produced warranted insights that are contextually rich and applicable to the field of sustainability planning and FT in higher education in Ireland.

Classical experimental design was discounted as a strategy as this typically involves experimental groups where an independent variable can be manipulated to determine impact on a dependent variable (Clark *et al.*, 2021). The research involved working with senior leaders in real-world institutional settings and the control of variables required for a formal experiment would be challenging. Ethnography and narrative inquiry, while offering depth, require a longitudinal immersion or a focus on individual life stories that did not align with the strategic,

organisational focus nor the timeframe of this study. Although grounded theory was considered for its ability to construct theory from data (Glaser and Strauss, 1967), it was discounted due to the requirement for theoretical sampling and category saturation. The scope and resources of this doctoral study were better suited to an approach that identifies patterns within a predefined sectoral and institutional context rather than the exhaustive, fragmented coding required by Grounded Theory (Clark *et al.*, 2021). Action research was also discounted as while the study involved an FT intervention, the primary goal was exploration and meaning-making rather than a full iterative cycle of organisational change typical of action research.

Figure 3-3 provides an overview of the research design, highlighting the connection between the RQs, and the qualitative, multi-method methodology, case study research strategy and RTA phases.

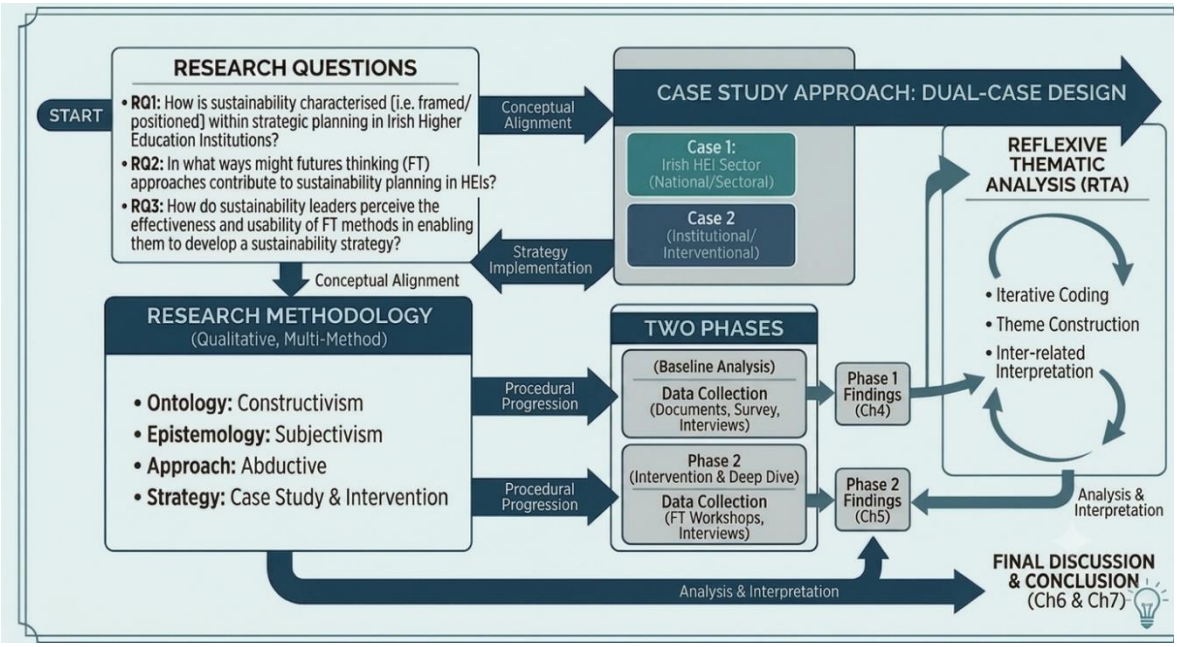


Figure 3-3: Research questions, methodology and thematic analysis.

3.2.5 Research time horizon.

The research took a cross-sectional design approach collecting data from a number of cases at a particular point in time. This contrasts with a longitudinal design which involves gathering data, usually at multiple stages, over a longer period of time (Clark *et al.*, 2021). The sustainability strategies and associated documents which were reviewed in Phase 1 were those which are published and publicly available in 2024 and 2025, acknowledging that new or updated strategies could emerge outside of this time period. The two year time frame over which the study was conducted (2024-2026) did not facilitate an examination of the impacts of the research on participants' contribution to strategy formation arising out of this study. Thus the study focuses on how existing sustainability strategies and plans have been developed to date, rather than examining the implementation and impact of these strategies. Nor does it consider the longitudinal impact of the FT interventions on future sustainability strategy development.

3.3 Data collection.

Having outlined the research design and considered the various layers from ontology through to the time horizon for the research, this section outlines the data collection phases, the tools used and their design, the sampling approach along with details on the sustainability documents reviewed and research participants.

3.3.1 Data collection phases and tools.

Data was collected using a variety of approaches namely; document analysis, surveys, semi-structured interviews and observation at FT interventions. Figure 3-4 provides a summary of each phase, the tasks, data inputs, data analysis, proposed outputs and thematic evolution

aligned with the abductive approach to theory development. The following sub-sections consider each component.

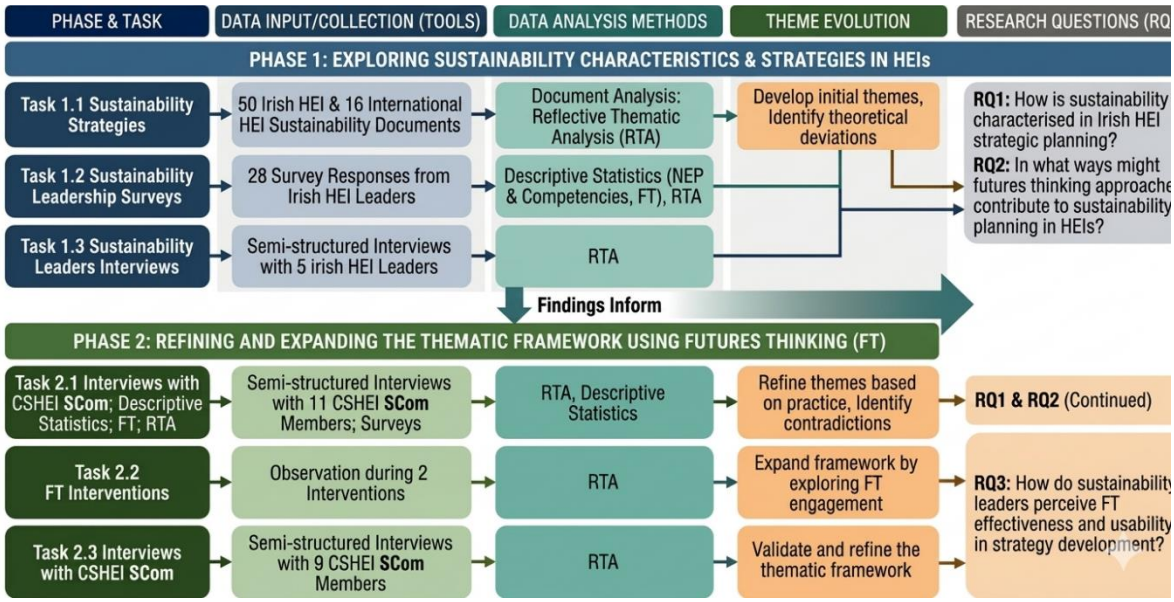


Figure 3-4: Research phases, data collection tools, analysis and alignment with RQs.

3.3.2 Sampling.

Purposive sampling (a non-probability sampling approach) was employed (Clark *et al.*, 2021). Unlike quantitative research, which relies on probability sampling for statistical generalisability, purposive sampling allows the researcher select information-rich cases that are most relevant to the RQs (Patton, 2015). Theoretical sampling was rejected as it is specific to Grounded Theory and is characterised as an on-going process rather than one that is fixed from the start (Clark *et al.*, 2021). The key samples for this study were generally known from the beginning. Extreme or typical case sampling was deemed unsuitable as the objective was to explore the breadth of the Irish HEI landscape rather than focusing solely on outliers or the average institution. Finally, snowball sampling was not required, as the roles and documents were clearly identifiable through institutional mapping and established criteria.

The sampling approach followed an a priori design, where specific criteria were established at the outset (Clark *et al.*, 2021). The sampling frame (Max *n*) and final number of documents/participants (*n*) are outlined in Table 3-1. For the document analysis the list of HEIs working under statute was used (Higher Education Authority, no date). One exclusion was made on the basis of a recent merger between two institutions, where strategy and policy formation was still under development. This resulted in a final sample of 17 Irish HEIs. Five international HEIs used for comparison/benchmarking were identified via the 2024 Times Higher Education (THE) Impact Rankings, chosen for its singular focus on the UN SDGs (*Times Higher Education Impact Ranking*, 2023). Sustainability leaders (n=66) in Irish HEIs were identified from public records/profiles, aiming for maximum variation, capturing diverse perspectives across different institutional types. The five participants for the semi-structured interviews were purposively sought to achieve a representative cross-section of the sector. The sustainability committee at the CSHEI was purposively selected as the bounded unit for Phase 2, representing a critical group of decision-makers in a specific institutional context.

Phase	Task	Sampling Frame (Max) *Max n*	Final No/Participants *n*
1	Document analysis – Sustainability Strategies	17	17
1	Sustainability Leaders Survey	66	28
1	Sustainability Leaders Interview	28	5
2	SCom Members Pre FT Intervention Interview	12	11
2	SCom Members Post FT Intervention Interview	12	9

Table 3-1: Sampling frame and final sample sizes during data collection phases.

3.3.3 Participants.

Participants in the research differed across the two phases. Phase 1 involved the 66 sustainability leaders invited to participate in the survey, of which 28 responded (Table 3-2). Across the profile of respondents there was an even split by gender, with age ranges from 25-34 to 65+. Educational attainment was high with 92% holding a postgraduate qualification and

30% holding sustainability-related qualifications. The sample included sustainability leaders in a diverse mix of academic (29%), management (32%), and professional services (39%) roles, with 57% working full time on sustainability and 42% holding senior roles focused solely on sustainability. The five sustainability leaders who participated in semi-structured interviews (3 male and 2 female) represented a cross section of positions within HEIs with responsibility for strategy, ESD, academic programme delivery, research and student engagement (Table 3-3).

Resp. No	Education Level	Role	Sustainability in role
SLQ_1	PhD	Academic	Part of role, along with other duties
SLQ_2	PhD	Prof. services	Full Time role
SLQ_3	MSc/MA etc	Prof. services	Full Time role
SLQ_4	MSc/MA etc	Management	Part of role, along with other duties
SLQ_5	MSc/MA etc	Prof. services	Part of role, along with other duties
SLQ_6	MSc/MA etc	Management	Part of role, along with other duties
SLQ_7	PhD	Academic	Involved because of interest
SLQ_8	MSc/MA etc	Prof. services	Full Time role
SLQ_9	PhD	Management	Full Time role
SLQ_10	MSc/MA etc	Prof. services	Full Time role
SLQ_11	MSc/MA etc	Management	Full Time role
SLQ_12	MSc/MA etc	Management	Full Time role
SLQ_13	PhD	Management	Full Time role
SLQ_14	MSc/MA etc	Prof. services	Full Time role
SLQ_15	MSc/MA etc	Prof. services	Full Time role
SLQ_16	MSc/MA etc	Prof. services	Part of role, along with other duties
SLQ_17	PhD	Academic	Part of role, along with other duties
SLQ_18	PhD	Academic	Full Time role
SLQ_19	PhD	Management	Full Time role
SLQ_20	PhD	Prof. services	Full Time role
SLQ_21	MSc/MA etc	Prof. services	Full Time role
SLQ_22	BSc/B.Eng/BA	Prof. services	Full Time role
SLQ_23	BSc/B.Eng/BA	Management	Part of role, along with other duties
SLQ_24	PhD	Academic	Part of role, along with other duties
SLQ_25	PhD	Academic	Full Time role
SLQ_26	PhD	Academic	Involved because of interest
SLQ_27	MSc/MA etc	Management	Part of role, along with other duties
SLQ_28	PhD	Academic	Part of role, along with other duties

Table 3-2: Participant profile of sustainability leader respondents to on-line survey.

Resp. No	Education Level	Role	Sustainability in role
SLI_1	MSc/MA etc	Prof. services	Full Time role
SLI_2	PhD	Management	Full Time role
SLI_3	PhD	Management	Full Time role
SLI_4	PhD	Prof. services	Full Time role
SLI_5	PhD	Academic	Involved because of interest

Table 3-3: Participant profile of sustainability leaders who participated in semi-structured interviews.

The SCom was formed within the CSHEI prior to the commencement of this study and therefore this research had no influence on its membership. Members represent a variety of roles across the CSHEI organisation, and participation in interviews and FT interventions is shown in Table 3-4. Three SCom Members did not participate in any aspect of the FT interventions.

Code	Interview1	Intervention1	Intervention2	Interview2
CSHEI_1	x	0	0	0
CSHEI_2	x	x	x	x
CSHEI_3	0	0	x	x
CSHEI_4	x	x	0	x
CSHEI_5	x	0	0	0
CSHEI_6	x	0	0	x
CSHEI_7	x	0	0	0
CSHEI_8	x	x	x	x
CSHEI_9	x	x	x	x
CSHEI_10	x	0	x	x
CSHEI_11	x	0	x	x
CSHEI_12	x	x	x	x
Total	11	5	7	9

Table 3-4: SCom member attendees at semi-structured interviews and FT interventions.

3.3.4 HEI sustainability documents.

From a constructivist perspective, the documents analysed in the study are not just objective records but were social artifacts that reflect the underlying assumptions, power dynamics, and priorities of their authors (Bowen, 2009; Denscombe, 2021). Examples of research studies which utilised document analysis to explore sustainability planning in HEIs, include: Farinha, Caeiro and Azeiteiro (2019), White (2014) and Bautista Chamizo *et al.* (2024).

The documents in this study were publicly available sustainability-related documents from the 17 Irish HEIs, including institutional strategies, sustainability strategies, sustainability policies, sustainability action plans, and CARs. These documents represented the primary data source on sustainability actions within Irish HEIs. It is acknowledged that other data sources exist such as general information posted on HEI websites, related policies e.g. Equality, Diversity and Inclusion, or information on HEI research outputs. While such documents may have provided additional insights and perspectives, given the limited timeframe in which this study had to be conducted, a decision was made to boundary the research by focusing on the sustainability strategies, policies and action plans. Table 3-5 provides a summary of the document types analysed in the study.

Document Type	Purpose	Rationale for inclusion
HEI Institutional Strategy	Set out the mission, vision and strategic priorities of the HEI across all its key dimensions (education, research, engagement, governance and operations).	Analysed to determine evidence of sustainability as a strategic objective.
Sustainability strategies	Set out the HEIs vision, aims and key objectives for sustainability	These documents presented opportunity to gain insights into HEIs specific priorities and approaches to sustainability
Sustainability Action Plans	Provide specific details on actions and implementation plans within the HEI	Provided further insights into resources and responsibilities allocated within the HEI
Sustainability policies	Concise focused documents setting out key sustainability policies to be followed in a HEI	Provided possible insights into governance and management systems within the HEI
Climate Action Roadmaps (CARs)	HEIs are mandated to submit a CARs annually to the National Energy Agency and the Department of Further and Higher Education. HEIs are provided with a template to complete, with specific areas to be addressed	Analysis of how HEIs are responding to National policy and regulations

Table 3-5: Summary of sustainability documents included in analysis.

The inclusion criteria were strictly limited to final, published versions of documents gathered between December 2024 and March 2025. Where documentation was not available online, respective institutions were contacted to request the document, or to confirm its availability.

Each HEI was allocated a pseudonym (e.g. HEI01), and a document type identifier added for each document type e.g. Sustainability Strategy (SS) HEI01_SS. Documents from international HEIs were preceded by "Int" e.g., Int_HEI01. All 17 HEIs had institutional strategic plans available online. Fifteen CARs were publicly accessible. Five HEIs had sustainability strategies, five had sustainability policies, and three had sustainability action plans. A total of 50 documents from Irish HEIs and 16 documents from International HEIs were sourced and prepared for analysis (Figure 3-5 and Figure 3-6).

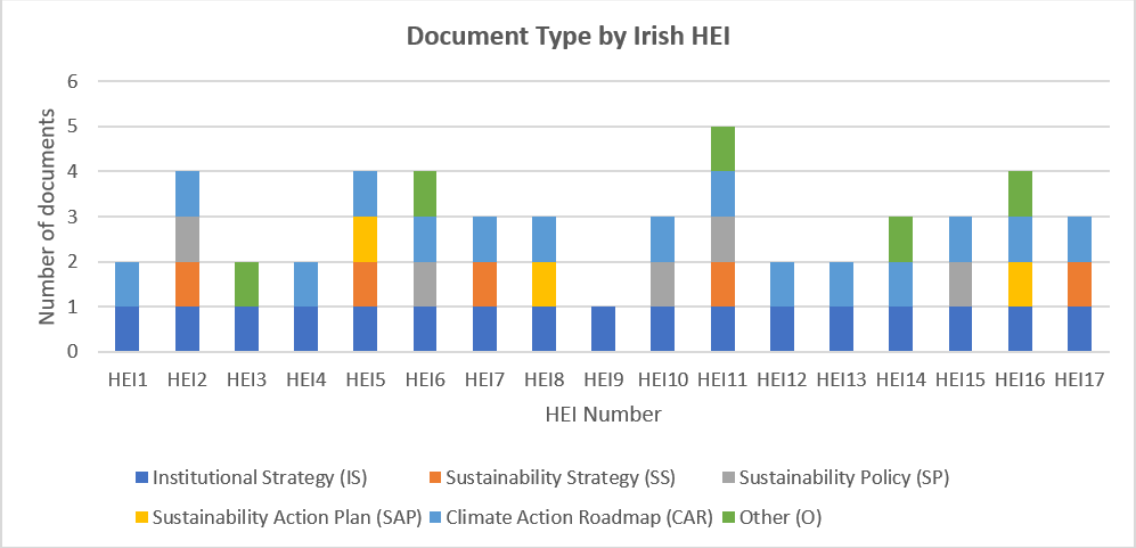


Figure 3-5: Overview of sustainability documents from Irish HEIs.

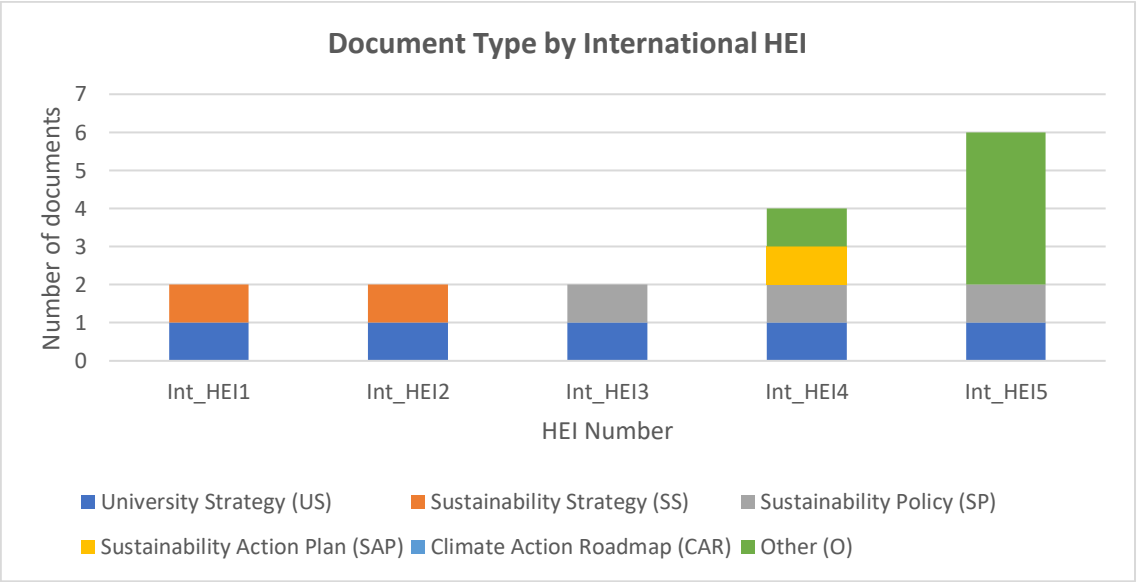


Figure 3-6: Overview of sustainability documents from International HEI.

3.3.5 Sustainability leaders survey.

An online survey was employed to gain insights into the perceptions of sustainability leaders, at a particular point in time, of how their HEIs are responding to sustainability, while also exploring their views and knowledge of FT. This method has been successfully utilised in previous studies (Pollock *et al.*, 2009; Kautto, Trundle and McEvoy, 2018). Often associated with quantitative research, surveys are also effective tools in constructivist inquiry for capturing nuanced, diverse views across a specific population (Bryman, 2016; Denscombe, 2021). An on-line survey was chosen as it was the most effective in terms of time for distribution and response. The survey, designed for completion in approximately 15-20 minutes to minimise participant burden, utilised a mix of open-ended and closed questions, with more complex interpretive questions placed toward the end to maintain respondent engagement (Denscombe, 2007). Open-ended questions focused on the respondent's personal perspectives or reflections to which simple answers cannot be provided (Cohen, Manion and Morrison, 2017, p. 476). Closed questions sought to avoid bias, ensure relevant categories were appropriate to the research and avoid less thought-through responses (Denscombe, 2007). Following piloting with five individuals outside the target cohort, refinements were made to the survey including adjustment of the ordering of questions, rewording of questions to improve clarity and reduce respondent fatigue.

The questionnaire had six sections. Section 1 provided an introduction and requested confirmation that the consent form was returned, and participation information sheet had been read. Section 2 focused on demographic information (HEI, Age, Qualification etc.). Section 3 sought to gather the personal perspectives of the respondent on sustainability and incorporated the Revised New Ecological Paradigm (NEP) instrument and questions related to sustainability

competencies using the Savage et al (2015) framework. Section 4 sought to explore respondents' perceptions into how their HEI's is addressing sustainability, how sustainability is categorised and approaches to governance and coordination. A series of questions gathered insights into their knowledge of FT and its application within their respective HEI. Section 5 allowed for any final reflections from the respondent while Section 6 allowed respondents to indicate if they wished to participate in a follow up interview.

A URL link to the final survey was prepared in DCU Qualtrics. The purposeful sample (n=66) were invited on 6th June 2025, via email, to return a completed consent form after which the survey link was distributed. The survey closed on 14th July 2025 with a response rate of 42% of total population (Table 3-6). Responses were anonymised using pseudonyms (e.g., SLQ_1) and exported to Excel for analysis.

Item	Detail	Comment
Total Population	n=66	
Launch Date	6th June 2025	
Closing Date	14th July 2025	Summer period may have impacted availability and overall response rate
Total # Consent Forms	n=42	Required before sending survey link
Total # Complete Surveys	n=28	
Response Rate (Consent)	66%	
Response Rate (Population)	42%	

Table 3-6: Summary details of on-line survey.

3.3.6 Semi-structured interviews.

Interviews were central to this constructivist inquiry, facilitating an in-depth exploration of participant's perspectives and experiences (Cohen, Manion and Morrison, 2017). A semi-structured format was chosen for its flexibility, allowing the researcher to probe deeper into participants' interpretations of complex institutional phenomena impacting on sustainability planning (Denscombe, 2021). This approach has been validated in similar HEI sustainability studies, such as those conducted by White, (2014) and Agostino and Dal, (2016). From a

constructivist perspective, the semi-structured interview is viewed as a social encounter where knowledge is not merely collected but is actively co-constructed between the researcher and the participant (Patton, 2015; Denscombe, 2021). The interview acted as a shared space where the sustainability leader reflected upon and reconstructed their institutional experience through dialogue. Unlike structured interviews, which assume a fixed reality to be measured, the semi-structured format acknowledges that reality is fluid and subject-dependent (Clark *et al.*, 2021; Denscombe, 2021). An interview guide ensured consistency across interviews, while providing the freedom to explore unique institutional contexts (Appendices D, E and F). Open-ended questions shifted the power dynamic allowing participants to frame sustainability in their own language rather than using the researcher's predefined categories (Kvale, 1996). The flexible nature of semi-structured interviews meant the researcher's own values could influence the direction of the conversation. RTA and the maintenance of a reflexive journal enabled the researcher to interrogate their influence on the findings (Braun and Clarke, 2022).

In Phase 1, the semi-structured interviews with sustainability leaders examined how their HEIs conceptually define, organise, and execute strategic responses to sustainability. Participants expanded upon their prior questionnaire data by analysing their university's current structural maturity level, formal action plans, perceived gaps, and associated operational challenges and successes. Finally, the interview investigated participants knowledge and application of FT, opening up discussion on possible futures of sustainability within their HEIs.

In Phase 2, the pre-FT-intervention interviews with SCom members explored participants' institutional roles, and personal perspectives on sustainability. Discussions evaluated current institutional responses and future strategy development, focusing specifically on drivers, scope, organisational gaps, and anticipated implementation challenges. The final part of the interview explored participants baseline familiarity with futures-oriented planning and FT

methodologies. The post-intervention interviews captured detailed reflections on the FT interventions, evaluating participant engagement and specific comfort levels with the variety of FT activities. Finally, members analysed the diverse future scenarios articulated and assessed how these collaborative insights might inform CSHEIs approach to sustainability planning.

Interviews, which were recorded, were conducted between September 2025 and January 2026, primarily via video conferencing software (DCU Zoom) (Table 3-7). The transcript facility was utilised on DCU Zoom to produce the transcript files. Video recordings and transcripts were downloaded and stored on DCU cloud storage, with each file given an appropriate identifier e.g. CSHEI_6. Transcripts were imported into NVivo 15 for analysis (Silverman, 2020). Each transcript was reviewed and transcription errors amended following review of the audio from the video recording.

Phase	Cohort interviewed	n	Timing	Focus of interview
1	National Leaders	5	Sept–Dec 2025	HEI sustainability context & FT Knowledge
2	SCom (Pre)	11	Sept–Oct 2025	HEI sustainability context & FT Knowledge
2	SCom (Post)	9	Dec 2025–Jan 2026	FT Intervention Reflection

Table 3-7: Semi-structured interviews summary.

3.3.7 Tools used in FT interventions.

Two FT participatory interventions were held to explore how FT approaches can support sustainability planning. The design was informed by Lincoln and Guba's (1985) naturalistic inquiry framework, emphasising collaborative meaning-making within the complex social system of a HEI (Lozano and Carpenter, 2022). The structural logic of the interventions drew on two established frameworks, Inayatullah's Six Pillars (2008, 2012) and Dator's Four Archetypal Futures (2013). The design integrated proven FT approaches including Causal Layered Analysis (CLA), scenario planning and backcasting to stimulate strategic dialogue

among institutional leaders. Intervention design was also informed by previous studies (Beynaghi *et al.*, 2016; Baradaran Ghahfarokhi, Mohaghar and Saghafi, 2018; Centre for Sustainable Futures & Innovation (CSFI), 2022).

Audio and video recordings were used to capture verbal comments, discussion and non-verbal cues during each of the two interventions. The audio/video recordings were reviewed offline by the researcher to enable deeper reflection on his observations of the participants' interactions in the FT processes. The researcher maintained a field diary to record observations on participant engagement and institutional dynamics. Physical artefacts, flipcharts, FT activity worksheets, and timeline maps produced by participants were retained, uploaded to NVivo and reviewed by the researcher in his reflexive analysis of the intervention. All data was anonymised and digitised. To maintain impartiality and maximise participant engagement, an external facilitator was appointed to guide the FT intervention. The researcher acted as a participant-observer, providing theoretical framing and documenting the social interactions and negotiations of meaning. Participants immediate reflections were gathered at the end of each intervention, through a series of discussions, and captured by the researcher. Table 3-8 provides an overview of the FT interventions. A number of SCom members had to withdraw from the FT interviews due to illness or unexpected work commitments.

No	Date	Location	Attendees (n)	Activities completed in each intervention
1	18/11/25	CSHEI Campus A	5	Activity 1: Shared history Activity 2: Future persona Activity 3: Causal Layered Analysis (CLA) Activity 4: Futures scenarios – Irish HE.
2	4/12/15	CSHEI Campus B	6	Activity 5: Futures scenarios – CSHEI Activity 6: Preferred future CSHEI Activity 7: Backcasting

Table 3-8: Futures Thinking intervention details.

3.4 Data analysis.

The following section sets out how the data analysis was completed through the various phases and tasks. The overall RTA approach is explained, as used in the analysis of data from Phase 1 and 2 of the study.

3.4.1 Reflexive thematic analysis.

Reflective Thematic Analysis (RTA) was selected as the primary analytical framework for this study. RTA is a flexible, interpretive approach that emphasises the active, reflexive role of the researcher in meaning-making (Braun and Clarke, 2021). Unlike positivist variants of thematic analysis that use structured codebooks, RTA rejects the notion that themes emerge as objective truths. Instead, themes are viewed as creative outputs generated through the researcher's subjective engagement with the data, informed by their theoretical positioning and professional curiosity (Byrne, 2022). RTA is particularly well-suited to the constructivist and Deweyan underpinnings of this research. It acknowledges that the researcher is not a neutral observer but an active participant engaging with the data. Braun and Clarke (2022) compare the researcher to an artist rather than a miner; the goal is not to extract pre-existing meaning but to sculpt an interpretation that captures the complexity of the participants' experiences. Subjectivity is viewed as a resource rather than a problem providing a qualitative sensibility essential for exploring contested concepts like sustainability or emerging areas like FT (Kidder and Fine, 1987). The analysis followed the six recursive phases outlined by Braun and Clarke (2021); 1) familiarisation 2) coding 3) generating initial themes 4) reviewing themes 5) defining/naming themes and 6) reporting. Thematic analysis has been utilised in previous studies on sustainability planning, including but not limited to; Niedlich, Kummer, *et al.*, (2020); Hernández-Diaz *et al.*, (2021); Cerón *et al.*, (2022). To satisfy the requirements of dependability and confirmability, a transparent audit trail was established within NVivo 15

(Nowell et al., 2017). This trail documented the evolution of the research from raw data (transcripts and artifacts) to initial codes, and finally to the latent themes. Analytical decisions, such as the merging of codes or the refinement of a theme name, was recorded for each task and phase of the research.

Phase 1 of the research focused on the case study of sustainability planning in the 17 Irish HEIs. The key thematic categories of WoI, holistic and FT were used to inform an initial coding framework (Figure 3-7). As the RTA developed new codes, categories and themes evolved. Phase 2 involved RTA of interviews with SCom members and outputs from the FT interventions. Codes and themes from Phase 1 were developed further while new codes and themes specific to FT were constructed. The last step involved the researcher developing final overarching themes reflecting the overall outcomes from the analysis. An extract from the code book from NVivo 15 is provided in Appendix H.

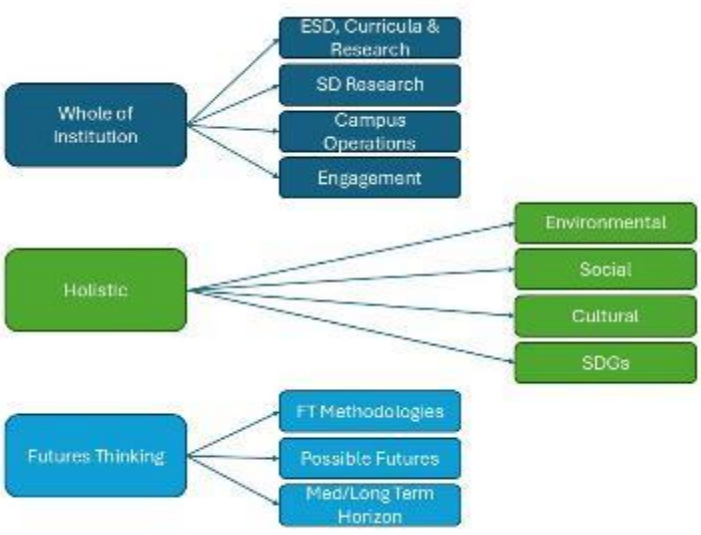


Figure 3-7: Initial coding categories for document analysis.

3.4.2 Document analysis of sustainability documents.

Bowen (2009) describes the overall concept of document analysis as a process of evaluating documents in such a way that empirical knowledge is produced, and understanding is developed, seeking to avoid simply collecting extracts and excerpts relevant to the research at hand. The relatively small sample size (n=66 documents - 50 national and 16 international) meant findings are not generalisable to the entire HE sector but are rather informative, as is customary with qualitative research designs (Clark *et al.*, 2021). Similar document analysis research has used by Bieler and McKenzie (2017), Farinha, Caeiro and Azeiteiro (2019) and Harris *et al.* (2017). Table 3-9 provides an example of the coding process from this stage of the research.

HEI#	Extract	Initial Code	Final Code	Theme
HEI11	we have improved our energy efficiency by almost 50%, on the cusp of achieving the 2030 public sector target	Range of environmental actions	Extensive environmental sustainability actions	DA_T1 A strong environmental pillar which mainly dominates sustainability planning
HEI11	greening of laboratories has been a particular focus	Range of environmental actions	Extensive environmental sustainability actions	
HEI15	actively involved in waste management and will continue to improve the collection, segregation and disposal of any food waste	Reducing resource use	Focus on reducing resource use	
HEI16	the enormous contribution of Scope 3 emissions to overall Institution GHG emissions	Carbon emission reduction	Carbon, GHG, Scope 3	

Table 3-9: Example of document analysis coding process.

3.4.3 Sustainability leaders survey.

The data from the survey was exported from Qualtrics to Excel for initial processing. Descriptive and inferential statistics were generated from the responses to closed questions and analysis completed in Excel (n=28). Descriptive statistics were utilised to summarise demographic information about the participants. Standard inferential tests, including T-Tests and Mann-Whitney U tests, were applied to the NEP and Sustainability Competency data (Appendix B and C).

While these statistical insights provided a vital foundational profile of sustainability leaders' worldviews, they were intentionally not used to shape or inform the subsequent qualitative analysis phase. Keeping these analytic strands separate aligns with a complementary mixed-methods framework, which dictates that quantitative and qualitative data must be analysed independently according to their respective paradigm protocols to preserve their distinct epistemic integrity (Creswell and Creswell, 2018). The quantitative metrics served purely to establish macro-level, institutional and/or participants context. Conversely, utilising these statistical outputs to structure, guide, or pre-emptively organise the qualitative coding would conflict with the core tenets of RTA. Within RTA, themes are conceptualised as patterns of meaning that must be actively co-constructed through open-ended interpretive engagement with the textual data, rather than being bounded by external numerical findings (Braun & Clarke, 2021). Maintaining this analytical boundary ensured that the qualitative phase remained fully immersive, experiential, and strictly grounded in the participants subjective reflections.

Consequently, responses to open-ended questions were imported into NVivo 15 for RTA, allowing for the comparison of formalised institutional strategy with the personal, subjective

reflections of the leaders responsible for their creation and delivery. Table 3-10 provides an example of the coding process for the sustainability leaders survey.

SL#	Extract	Initial Code	Refined Code	Theme
SLQ_2	HEIs should establish a Sustainability Office or at least appoint a Head of Sustainability to coordinate strategy and actions across the wide range of activities.	Structures and supports	Emerging sustainability structures	SL_T2 Some coordinated action evident but fragmented approaches to sustainability planning
SLQ_19	A holistic approach encompassing all aspects of the university to ensure that it embodies sustainability, climate action and the SDGs.	Holistic sustainability	Limited holistic approaches	
SLQ_1	We simply need to work together and be very aware of whats happening that impacts sustainability	Approaches to WoI	Governance and WoI approaches	

Table 3-10: Example of sustainability leaders survey coding process.

3.4.4 Sustainability leaders semi-structured interviews.

Analysis of the interviews with five sustainability leaders built on codes and patterns suggested from the coding of documents and survey insights. The researcher remained open to "new" codes that developed from the analysis of the lived experiences of the participants (Kidder and Fine, 1987). This process was not a linear search for pre-existing meanings but a recursive engagement where the researcher's subjectivity functioned as the primary analytical tool (Braun and Clarke, 2021). Analysis of interview transcripts provided the opportunity to

explore more abstract perceptions of FT and the contextual, cultural and organisational insights which were absent from formal documents/survey responses. Coding moved from a semantic level (explicitly stated meanings) to a latent level, interrogating underlying assumptions, institutional metaphors, and narratives that informed how leaders conceptualise the future (Willig *et al.*, 2017). As new codes were identified, they were not simply added to a list but were reflexively compared against the existing dataset to see how they expanded or challenged the developing themes (Table 3-11).

SL#	Extract	Initial Code	Refined Code	Theme
SLI_3	that universities are under so much pressure to appear to be progressing, and to appear to be innovative	Governance, strategy and organisational systems	Compliance and evolving management systems	SLI_T3 Commitment evident but conflicting priorities
SLI_1	they're waiting for the whole reorganisation to happen, because that is a huge undertaking,	Mergers and organisational change	Mergers, organisation change and culture	
SLI_2	We didn't call it futures thinking,….. in the olden days we'd have called it brainstorming	Understanding of FT	Limited Awareness of FT Concepts or Methodologies	SLI_T4 Limited FT Knowledge and Capacity
SLI_4	I suppose I'm aware of it, but I'm aware of the… the term, I'm loosely aware of what it actually means	Understanding of FT	Limited Awareness of FT Concepts or Methodologies	

Table 3-11: Example of sustainability leaders interviews coding process.

3.4.5 SCom semi-structured interviews.

The analysis of the SCom interviews sought to track the evolution of participants' perceptions before and after the FT interventions. The coding strategy was characterised by thematic expansion and refinement rather than mere replication. Initially coding utilised the core

thematic areas identified in Phase 1, ensuring a warranted level of comparability between the national and CSHEI-specific context. However, in line with the recursive nature of RTA (Braun and Clarke, 2022), the researcher sought to capture unique institutional nuances, cultural metaphors, and localised barriers not present in the broader national dataset.

SCom#	Extract	Initial Code	Refined Code	Theme
CSHEI_6	if we haven't imagined the dystopian future, … How can we say that's we are 70% likely to end up in this dystopian future.	Uncomfortable, pessimistic about the future	Fears and hopes for the future	SCom_T5 FT can foster hope while also acknowledging fears of future
CSHEI_11	you know, that if… if you… if you really sat down and dreamt, and really said, what is the university that we'd like to create	Imagination and imaging the future	Being able to imagine and dream	SCom_T6 FT can release you from the present to imagine possible futures
CSHEI_4	next step up in sustainability that's different to what's happened in society, ….., that we are, you know, doing something more different in this space,	Imagination and imaging the future	Being able to imagine and dream	
CSHEI_8	you need strategic thinking for sustainability, but I actually think it's a useful tool for strategic thinking full stop	Opportunities to apply FT	Opportunities exist for FT to be used	SCom_T7 Futures oriented planning should be viewed as a process and not a skill

Table 3-12: Example of SCom semi-structured interviews coding process.

For the second set of interviews, conducted following the FT interventions, coding shifted toward latent-level interpretation of how participants' understanding of the future, and FT, had been reshaped by the interventions (Willig *et al.*, 2017). By maintaining a consistent coding

architecture across both interview rounds while allowing for the organic growth of codes, the analysis captured the temporal dimension of the research. This longitudinal comparison is a form of within-case crystallisation, where the pre-intervention data serves as a control for the post-intervention reflections. To ensure rigour, reflexive memos were used to document the researcher's own insider role during the analysis of their home institution, acknowledging how this dual positionality informed the interpretation of the SCom's shifting narratives (Byrne, 2022). Table 3-12 provides examples of RTA coding for this phase of the research.

3.4.6 SCom FT interventions.

The analysis of the FT interventions focused on the process of inquiry rather than merely the physical artifacts produced. The analytical focus was placed on how participants engaged with the tools of FT to reconstruct their institutional reality. Data analysis was primarily driven by researcher observations, field notes and the various outputs from the FT activities e.g. CLA. The video recordings of the interventions were utilised to refine and validate the analysis of the researcher's field notes. Following each intervention the researcher reviewed the recordings to update notes, clarify participant verbalised reflections gathered during the intervention, and consider overall participation and engagement. This approach was chosen to garner a sense of levels of enthusiasm, and moments of cognitive friction which are often lost in text-only records (Willig *et al.*, 2017). In line with the RTA methodology, coding focused on the participants' lived experience of the intervention and how participants articulated the value or difficulty of engaging in futures-oriented thinking (Finlay, 2012). Table 3-13 provides some examples of a how a variety of researcher observations were coded, while Appendix G provides an overview of the FT interventions.

FT Intervention Observation	Extract	Initial Code	Refined Code	Theme
1	Fears were focused around impacts on climate change and access to food, rise of the far right, absence of social connections	Uncomfortable, pessimistic about the future	Fears and hopes for the future	SCom_T5 FT can foster hope while also acknowledging fears of future
2	interesting to note that the discussion emerged towards changing everything (WoI) and that sustainability was not seen as a nice to have	Different to how people normally think	FT is counterintuitive	SCom_T6 FT can release you from the present to imagine possible futures
3	Externalities (and un-controllables) are important to acknowledge but also to influence.	Perceived challenges of using FT	External controls and limits	SCom_T7 Futures oriented planning should be viewed as a process and not a skill

Table 3-13: Example of FT Interventions coding process.

3.5 Methodological Rigour.

To ensure the integrity of the findings, this research adopts a multifaceted approach to rigour, moving beyond traditional positivist notions of validity toward the qualitative criteria of trustworthiness and authenticity (Nowell *et al.*, 2017; Merriam and Grenier, 2019). Table 3-14 provides an overview of the strategies adopted and steps taken.

The study employed crystallisation by integrating data from document analysis, surveys, interviews, and FT intervention artefacts to reflect a complex, multi-dimensional reality. This enabled the researcher to develop a deep, complex, and layered understanding of a phenomenon, rather than seeking a single, objective truth. It moves beyond the concept of

triangulation, which seeks validation through convergence, by embracing the idea that knowledge is faceted like a crystal, with each viewpoint providing a different, but equally valid, dimension of the reality being studied. This ensured adequate engagement with the data, where patterns are interrogated across the entire bounded case study and iteratively refined themes evolution linked to each data phase. Consistent with a Deweyan constructivist positionality, the researcher's background was viewed as a support for deeper insight rather than a bias, supported by a reflexive journal used to document inter-subjectivity and interrogate insider assumptions. Rigour was further established by subjecting initial themes to peer debriefing with doctoral supervisors. Methodological coherence was maintained by aligning intervention activities with recognised futures frameworks (Inayatullah, 2008; Dator, Yeh and Park, 2013) and utilising an external facilitator to reduce undue influence.

Strategy	Description
Crystallisation	Moving beyond simple triangulation by integrating data from document analysis, qualitative surveys, semi-structured interviews, and FT interventions to reflect a multi-dimensional reality.
Reflexivity	Acknowledging the researcher as the primary instrument and using a reflective journal in NVivo 15 to document inter-subjectivity and interrogate "insider" assumptions.
Peer Debriefing	Subjecting initial themes and coding structures to doctoral supervisors review to challenge blind spots and ensure robust interpretive logic.
Adequate Engagement	Interrogating patterns across the entire bounded system of the case study to ensure findings are not identified in just one source.
Maximum Variation Sampling	Engaging with 17 different institutions and various leadership roles within the Irish HEI sector to capture a broad spectrum of institutional cultures.
Rich, Thick Descriptions	Utilising extensive participant quotes and detailed observational notes to allow readers to assess the transferability of findings.
Audit Trail / Documentation	Providing clear documentation of protocols, workshop designs, and systematic records of how findings interacted with existing frameworks.
Methodological Coherence	Aligning FT intervention activities with recognised futures frameworks (Inayatullah; Dator) and using external facilitators to reduce influence.
Iterative Refinement	Using thematic versions linked to each data phase and attending to surprising or contradictory insights to keep themes grounded in empirical data.

Table 3-14: Strategies for promoting trustworthiness and rigour.

To capture a broad spectrum of institutional cultures, the study employed maximum variation sampling across 17 Irish HEIs. The analysis prioritised rich, thick descriptions and clear documentation of protocols to allow readers to assess the transferability and relevance of findings to their own contexts. Ultimately, this systematic process ensured that themes were developed at a latent level, reflecting the deeper institutional metaphors and narratives shaping sustainability planning.

3.6 Insider Research.

This study is characterised as insider research, particularly in Phase 2, as it involved engagement with sustainability leaders and peers within the researchers' home institution. In qualitative inquiry, the researcher's positionality, the social and political context that creates their identity, is not a bias to be eliminated but a lens to be reflexively managed (Darwin Holmes, 2020). Insider researchers can gain easier access to aspects of the organisation (people, documents, observation) that outsider researchers may not. However such access needs to be managed and appropriate approval sought (Brannick and Coghlan, 2007). In this regard approval was sought and secured from the President of the CSHEI and the research proposal was presented to the sustainability committee for approval.

Occupying an insider role provided a position of privilege, facilitating "additional levels of trust and openness" (Clark *et al.*, 2021, p. 133; Braun and Clarke, 2022). This is often described as having pre-understanding, an inherent knowledge of the institutional culture, informal power structures, and technical language of the HEI (Brannick and Coghlan, 2007). This allowed for a deeper level of rapport during the semi-structured interviews and interventions, as participants did not need to explain basic organisational contexts (Saidin, 2016). However, the insider status is not static, it is a fluid continuum where the researcher may feel like an outsider when asking difficult strategic questions (Mercer, 2007). Several potential risks were

reflexively managed. Participants might have assumed the researcher already knew the answer, leading to truncated responses and therefore participants were asked to explain, if possible, concepts as if to an outsider (Kvale, 1996). The researcher remained mindful of the urge to build rapport by sharing views, which could lead the participants. A reflexive journal was maintained to interrogate any influence on the dialogue (Finlay, 2012).

As the researcher's deeply held beliefs regarding sustainability and climate action inevitably informed the research design, confirmability rather than impartiality was sought (Nowell *et al.*, 2017) by using video recordings and an external facilitator for the FT interventions. This provided the opportunity for the researcher to occupy the role of observer, while the facilitator managed the group dynamics. Following the recommendations of Merriam and Tisdell (2015) adequate engagement with the data was paired with ethical caution. Being an insider necessitates a higher level of relational ethics; the research outcomes could impact ongoing professional relationships. Reviews/checks with supervisors and anonymisation protocols (pseudonyms) sought to ensure that the rich, thick descriptions provided in the analysis did not compromise the professional standing of participants or the HEI.

3.7 Ethical considerations.

To maintain ethical integrity, this research followed a rigorous, continuous process of institutional review and reflexive practice. Formal ethical approval was secured from the DCU Faculty Research Ethics Committee in December 2024 (Appendix A) and reciprocated by the CSHEI Research Ethics Committee in March 2025. This dual-track approach ensured the study met governance standards for both the degree-awarding body and the interventional case study site, supplemented by formal permission from the President of the CSHEI. The detailed ethics committee submissions addressed research design, recruitment, GDPR-compliant data protection, and risk mitigation to prioritise participant well-being.

Informed consent was operationalised through a two-stage process using Plain Language Statements and signed Consent forms. Participants retained the right to withdraw or pause at any stage without penalty, ensuring the burden of participation remained balanced. To manage insider researcher relationships and mitigate perceived coercion, an independent gatekeeper handled recruitment and served as a neutral contact within the CSHEI. This protected participant autonomy and relational ethics. Finally, anonymity was safeguarded through pseudonymisation at the point of transcription and the modification of identifiers in reporting to prevent deductive identification. All data was stored on secure, DCU-approved drives.

3.8 Conclusion.

This chapter has detailed the methodological architecture of the study, providing a foundation for the exploration of sustainability planning and FT within Irish HEIs. The researcher acknowledges that institutional reality is not a static object to be measured, but a dynamic, socially negotiated process. This philosophical shift from the researcher's initial positivist background to a subjectivist stance has been central to the study's design, emphasising the role of the researcher as an active instrument in the co-construction of knowledge.

The research utilised a two-phase, multi-method approach. Phase 1 established a national baseline for sustainability planning in Irish HEIs through document analysis and qualitative surveys with sustainability leaders, while Phase 2 explored the potential of FT oriented interventions in sustainability planning within the CSHEI through interviews and participatory interventions. This design allowed for the integration of diverse datasets, bridging the gap between formal institutional strategy and the subjective, lived experiences of those tasked with its delivery. Rigour was maintained through RTA, utilising NVivo 15 to ensure a transparent audit trail and meeting the criteria for trustworthiness through peer review, reflexive journaling, and rich, thick descriptions. While limitations regarding the snap-shot nature, and

specific Irish context, of document analysis and the context-specific nature of the CSHEI intervention are acknowledged, the study provides a framework for understanding the potential of FT to support sustainability planning in Irish HEIs.

Having established the rationale for the research and the methodological approach for the inquiry, the following chapters present the findings generated from this methodological framework, beginning with the national sectoral analysis in Chapter 4.

4 Chapter 4: Findings – Phase 1

4.1 Introduction.

This chapter presents the findings from Phase One of the research. The findings are structured to move from institutional sustainability strategy and policy documentation to leadership perspectives and, finally, to deeper insights into sustainability planning and FT in practice. Document analysis provides an overview of how sustainability is articulated and positioned within HE. Survey responses offer insight into leaders' worldviews, governance arrangements, and familiarity with futures-oriented approaches. Interviews then explore these issues in greater depth, illuminating the challenges and opportunities shaping sustainability planning within Irish HEIs.

4.2 Document analysis of HEI sustainability documents.

This section presents findings from the document analysis of sustainability-related documents from 17 Irish HEIs and 5 International HEIs. Table 4-1 provides a summary of the four themes that were constructed from the analysis. The analysis explores the foregrounding of environmental sustainability, coordination of sustainability efforts, sustainability governance and weak futures orientation in sustainability planning within Irish HEIs. Finally, to support comparative insights between Irish HEIs and a selection of international best practice, the main characteristics of the 5 international HEIs are then presented.

Theme Label	Theme
DA_T1	A strong environmental pillar which mainly dominates sustainability planning.
DA_T2	Some coordinated action evident but fragmented approaches to sustainability planning
DA_T3	Compliance-driven sustainability governance with seeds of progressive leadership
DA_T4	Weak futures orientation in sustainability planning

Table 4-1: Themes constructed from analysis of Irish HEI sustainability documents.

4.2.1 A strong environmental pillar which mainly dominates sustainability planning.

The analysis suggests that Irish HEIs have made substantive progress on environmental sustainability in particular, and this is articulated through sustainability strategies, action plans and Climate Action Roadmaps (CARs). The analysis indicates an Irish HEI sector in which environmental action is a key priority and across document types, environmental sustainability is consistently foregrounded. Carbon reduction, energy efficiency, biodiversity, and campus operations emerge as central priorities, reflecting alignment with climate policy requirements. Approximately 50% of HEIs reference efforts to reduce Scope 3 emissions, signalling recognition of indirect environmental impacts through procurement and stakeholder engagement.

"Scope 3, which are more challenging to measure accurately, are included " (HEI11)

Sustainability is frequently framed within operational domains, such as buildings, infrastructure, energy supply and research innovation, rather than as a transformative institutional agenda. With a limited number of exceptions, broader social, cultural, and economic dimensions receive comparatively less strategic attention. Patterns suggest Irish HEIs have placed significant efforts and attention on environmental sustainability achieving success in relation to energy, water, biodiversity, waste and other areas. The documents present extensive plans, subject to resource and funding availability, to continue and indeed accelerate action in this regard.

CARs reinforce the operational emphasis, concentrating on emissions reporting and campus-level implementation in line with regulatory requirements. The analysis of CARs indicates an Irish HE sector making progress and achieving success in relation to the implementation, measurement, and reporting of environmental actions.

"tracking and reporting on its various waste streams (general waste, recyclables, organic and glass)" (HEI16)

Figure 4-1 provides an insight to the significant focus within CARs, illustrating the fact that dimensions related to environmental and operational sustainability and governance have the greatest number of references. The number of references across the dimensions of engagement and partnership and education and research are significantly lower. This pattern is consistent with expectations as CARs have a defined template, aligned with CAP regulatory and policy demands, which HEIs utilise for reporting. While emissions reduction and governance aspects are mandated sections, some HEIs take the opportunity to reflect on wider dimensions and their whole-of-institution approaches to sustainability.

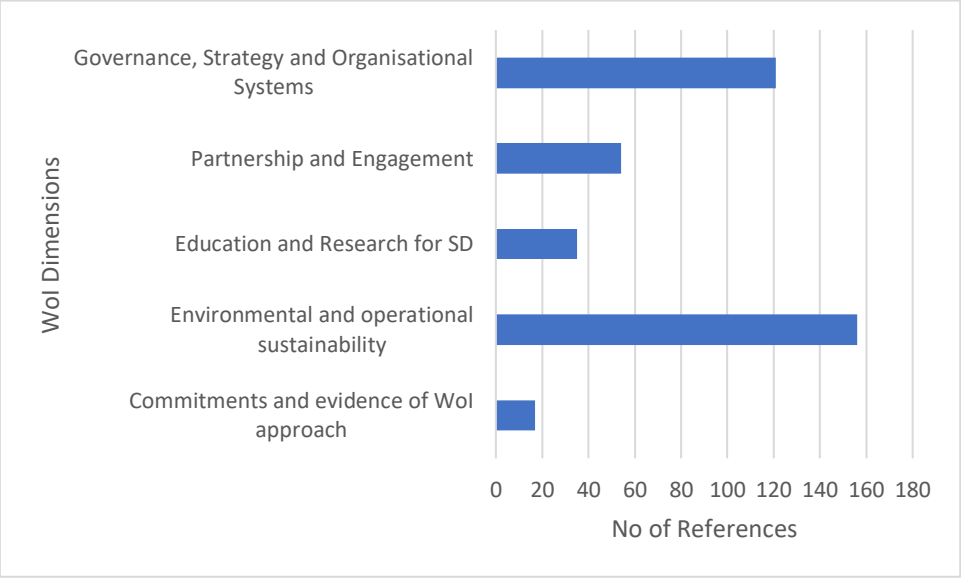


Figure 4-1: Coding references across WoI dimensions within CARs.

4.2.2 Some coordinated action evident but fragmented approaches to sustainability planning widespread.

This theme captures an Irish HEI sector seeking to broaden its conceptualisation of sustainability towards a more holistic approach. Institutional strategies were seen to increasingly reference economic, social dimensions of sustainability, in addition to

environmental references. Social justice, health and wellbeing, and regional economic development feature within the institutional strategies with one HEI emphasising that it places *" a strong focus on health and societal impact"* (HEI6). The analysis suggest some Irish HEIs are increasing their focus on societal and regional impacts within their institutional strategies. Sustainability strategies, action plans and CARs, however, remain predominantly environmentally focused as illustrated by the references under each of the sustainability pillar codes (Table 4-2). Cultural aspects receive comparatively less strategic attention with only a minority of HEIs explicitly connecting culture with the topic of SD. One HEI (HEI11) explicitly linked language, culture, and sustainability within its sustainability strategy. HEIs may have prioritised environmental sustainability given current policy and regulatory demands, signalling an absence of such policies driving activity in the field of cultural sustainability. A particular focus on coordinated efforts on ESD is evident from the analysis.

Code	Sustainability Strategy	Sustainability Action Plan	CAR
Extensive environmental sustainability actions	115	60	177
Emerging social pillar	40	13	18
Recognition of economic pillar	19	5	5
Limited attention to cultural sustainability	21	10	4

Table 4-2: Sustainability pillars coding references in sustainability strategies, action plans and CARs.

The analysis also suggests an appreciation by HEIs that accelerating action and maximising impact demands extensive partnership and engagement. The language across documents indicates that HEIs are engaging with a wide portfolio of internal and external stakeholders (staff and students, local authorities, local communities, industry etc.), demonstrating proactive and comprehensive awareness raising and communication activities. Pursuing external partnerships for sustainability is framed as being vital to successful implementation of sustainability strategies.

The analysis indicates that SDGs are referenced across the majority of HEIs but strategic and systematic adoption of the goals within sustainability planning is not yet evident. Language associated with SDGs varies in depth ranging from alignment with specific SDG objectives to general commitments to support the goals. SDGs are frequently aligned with ESD efforts or utilised as a framework to evaluate the impact of a particular sustainability action. Engagement, communication, and awareness-raising activities in relation to the SDGs are common features across documents. Only 50% of institutional strategies analysed reference the SDGs, while all five sustainability strategies make reference to the goals, including how the HEI has signed up to the SDG Accord. Figure 4-2 provides an insight into how SDGs are integrated within the five sustainability strategies, illustrating the variety of language used and approaches taken within these HEIs. The analysis indicates that a single coherent approach has not been taken to integrate the SDGs into institutional or sustainability planning within the Irish HE sector, perhaps pointing to a policy failure and an area which warrants further attention.

The analysis depicts a sector seeking to adopt whole-of-institution (WoI) approaches to sustainability planning. Collaboration and coordination of efforts across sustainability, biodiversity, health, and wellbeing initiatives are increasingly articulated. A limited number of HEIs explicitly connect the issues of planetary and human health, signalling emerging systems-oriented awareness. This manifested, for example, in the connection of previously siloed initiatives on healthy campus with wider sustainability ambitions.

> *"our future prosperity depends on human health, planetary and ecological health and a liveable earth" (HEI11)*
>
> *"improved access to and uptake of healthier plant-based diets; expansion of the current Tobacco Free campus to include Tobacco and Vape by 2030; and reduction of sedentary behaviours, as well as an increase in physical activity". (HEI17)*

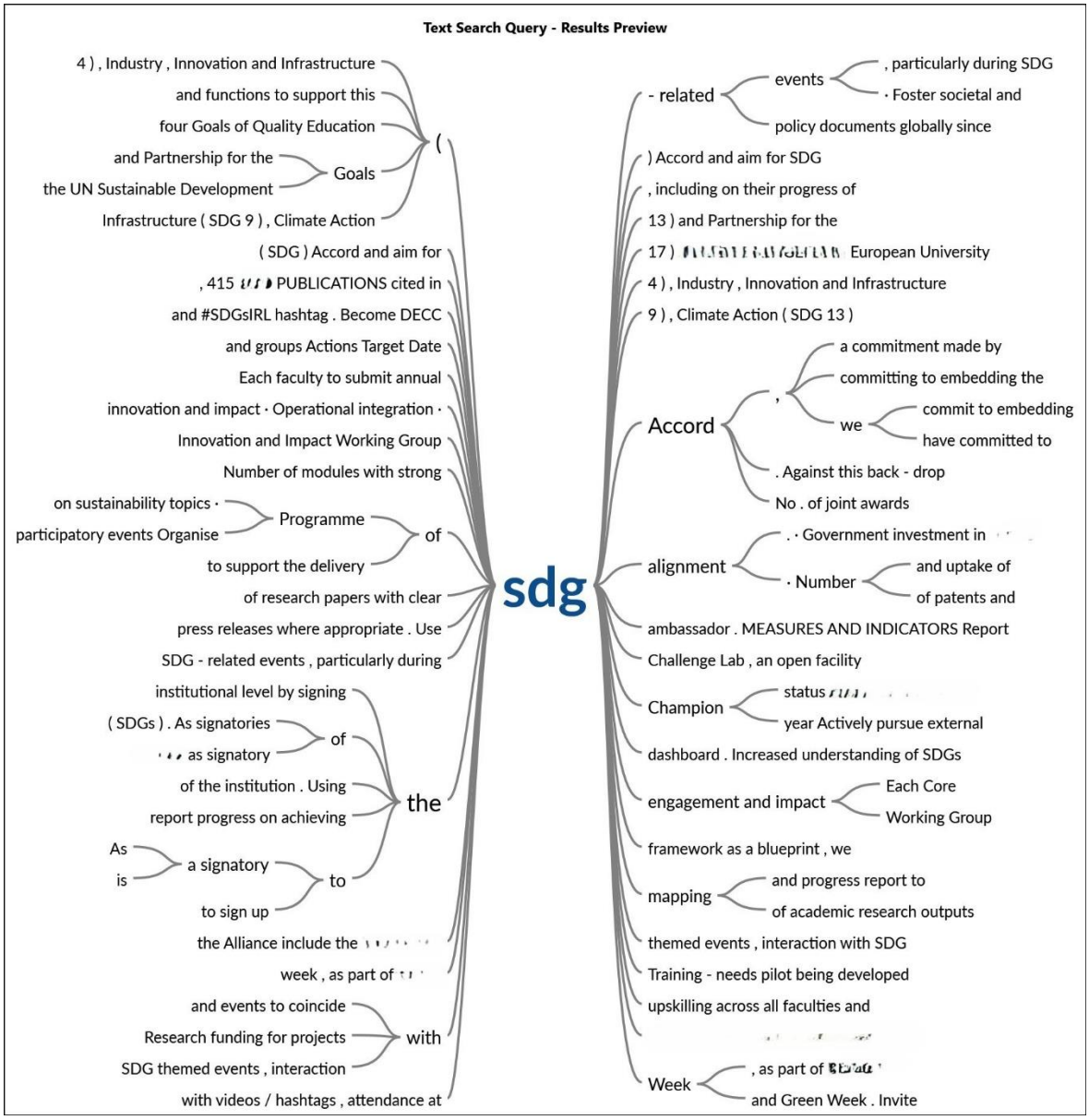


Figure 4-2: Word Tree illustrating references to SDGs within available sustainability strategies (note HEI names redacted for anonymity).

The five HEIs who have developed sustainability strategies provide evidence of having adopted WoI approaches, embedding sustainability across the various dimensions of the HEI. These HEIs also demonstrate alignment with contemporary WoI frameworks (Sanches, Campos, *et al.*, 2022) and confirm that while the existence of a sustainability strategy is not a precondition for action, the likelihood of action increases (Leal Filho, Brandli, *et al.*, 2018, p. 10). There is less evidence to confirm whether the remaining 12 HEIs, who present sustainability as a priority within their institutional strategies are adopting WoI approaches.

Despite the differentiation across the sector, the data constructs Irish HEIs as increasingly seeking to coordinate actions between complementary initiatives. While environmental sustainability is foregrounded there are signals of deeper integration of sustainability across the HEI dimensions, although integration of the SDGs within sustainability planning lacks coherence.

4.2.3 Compliance-driven sustainability governance with seeds of progressive leadership.

The patterns from the analysis suggest an Irish HEI sector increasingly embedding sustainability as a strategic priority, with evolving and maturing sustainability governance structures. Prioritisation of sustainability is variable however, with approximately half of HEIs articulating sustainability as a strategic priority within institutional strategies, with others adopting a more accommodative stance often reflecting sustainability within a limited number of HEI dimensions. Nine HEIs reference sustainability within institutional strategy mission statements or core values, suggesting strong strategic positioning. A limited number extend strategic horizons for sustainability measures to 2040 providing some acknowledgement of the temporal dimension of sustainability.

The mandatory requirement to report on governance structures within CARs provided sectoral wide insights into emerging governance structures, particularly in institutions lacking standalone sustainability strategies. Patterns suggest that efforts to integrate sustainability within institutional governance and decision making structures are on-going. Language associated with sustainability committees, leadership roles, and cross-departmental working groups, was evident across the documents, with efforts being made to align sustainability reporting to institutional governance structures.

"…structure ensures that climate action has direct reporting and accountability to the Governing Body." (HEI13)

The analysis indicates an alignment of sustainability with institutional structures, leadership responsibilities, and strategic objectives. It is not possible to confirm whether some governance developments are reactions to legislative reporting requirements in CARs or are part of internally driven sustainability actions. Three HEIs specifically reference the need to demonstrate thought leadership in the sustainability space.

External rankings and awards for sustainability (e.g., Times Higher Impact Rankings, STARS, Green Campus) are frequently referenced as mechanisms for tracking progress and demonstrating impact. While these may be being used to incentivise action, they also reflect reliance on external validation and perhaps memetic pressures imposed by such systems.

The data also constructs a sector actively seeking to increase the knowledge and competencies of HEI leadership teams in relation to sustainability. Evidence exists of staff and leadership training initiatives on climate action leadership, sustainability leadership, ESD and specific technical topics e.g. sustainable transport. Much of this training, however, appears aligned with compliance requirements under the National CAP rather than reflecting individual institutional initiatives. This may suggest that some HEIs are responding to coercive pressures or alternatively signal a level of institutional isomorphism emerging within the sector.

Overall, the patterns suggest a maturing approach to governance for sustainability within Irish HEIs. The influence of external policy drivers is evident with HEIs constructing strategies and plans in response to policy requirements and implementing relevant governance structures. While the analysis does not suggest significant transformational change within Irish HEIs there is clear evidence of some HEIs adopting increasingly progressive approaches to implementing sustainability plans.

4.2.4 Weak futures orientation in sustainability planning.

This theme constructs sustainability planning within Irish HEIs as lacking a futures-oriented approach, dominated by short-term to medium-term planning timeframes. Most strategies operate within three- to five-year planning cycles. References to long-term impacts or intergenerational responsibility are typically aspirational rather than methodological *"..effects will have impacts for multiple generations to come*" (HEI17). Only two HEIs reference climate adaptation, with one suggesting the establishment of an innovative specific fund to incentivise intergenerational solidarity.

Only one HEI demonstrated a structured and explicit futures-oriented approach via two specific futures reports. This HEI's approach set it apart, as it adopted longer-term transformational scenario planning, while also espousing a holistic and regenerative approach to sustainability. Evidence of these futures reports influencing institutional strategic planning was not found during this research, but this may be explained by timing of institutional planning processes. This approach can be contrasted with CARs which reflect annual reporting cycles aligned with regulatory compliance. While the futures reports suggest possible paradigmatic shifts, CARs typically present incremental progress and short to medium term (2030) plans to address environmental sustainability.

Explicit use of foresight tools, such as scenario planning, backcasting, or horizon scanning, is largely absent. A tension is evident where documents propose "long-term" or "20+ year" ambitions yet the methodological processes through which such futures will be explored or prioritised are not articulated. Futures language such as "future leaders," "resilience," and "long-term change" is common across documents but is mainly within the context of equipping students with skills, knowledge and competency to deal with future uncertainty, and challenges

of climate change, suggesting that HEIs recognise that their graduates face significant future challenges. The framing of the future within documents rarely translates into systematic FT practices, suggesting a conceptual tension: sustainability is articulated as an ideal for the future, yet managed through actions connected to the present. This may mirror a broader institutional trend of focusing on the immediate horizon. Table 4-3, presenting the number of FT references by document type, illustrates that CARs, as expected, have the lowest number of references, with sustainability actions plans reflecting somewhat higher presence. The data does not that suggest specific training or capacity building on FT, futures literacy or futures methodologies has occurred in Irish HEIs.

Taken together the analysis presents an approach to sustainability planning in Irish HEIs which is grounded in the immediate future with sporadic and general references to long term challenges of climate change, and future ambition of sustainability.

Code	University Strategy	Sustainability Strategy	Sustainability Action Plan	Climate Action Roadmap
General references to possible futures	11	13	12	1
FT methods	0	0	4	2
Long term strategy time frames	0	7	4	3
Future Leaders, intergenerational	2	2	2	0

Table 4-3: Futures Thinking references by document type.

4.2.5 International HEIs: Key characteristics and comparative insights.

The documents from the five international HEIs were analysed following the completion of the primary Irish HEI documentary analysis. As leading institutions within the Times Higher Education (THE) Impact Rankings, these international HEIs were selected to illuminate global benchmarks across sustainability planning. Methodologically, the cross-case attributes identified in this section are presented as shared structural and operational characteristics rather

than interpretive or conceptual themes per se. Interpretive themes are reserved for the deep, co-constructed subjective data gathered across the documentary and qualitative interview phases. The analysis of international HEI documents yielded descriptive typologies that outline the strategic approaches to sustainability within these benchmark institutions. The analysis arrived at four defining characteristics across the international cohort highlighting how these institutions construct sustainability as an institutionally integrated, contextually grounded, and strategically embedded agenda.

Characteristic 1: An integrated, contextually grounded, and strategically embedded sustainability approach.

The strategies, plans and documents from the international HEIs are reflective of the local/cultural/economic context in which the HEI is located e.g. island, urban, aboriginal lands, international locations and these contexts informed the HEIs approach to sustainability. The importance of the HEIs context is explicitly stated, with the potential for positive regional, national and international impact emphasised. Given the island context in which one HEI is situated the unique finite qualities of islands is reflected in the strategy i.e. they are especially attuned to the need to work in balance with nature and available resources. While grounded and informed by local social, cultural, economic, environmental contexts the five HEIs exhibit strong global connections with international partners collaborating on sustainability initiatives. This is perhaps reflective of their scale (as 4 of the 5 HEIs have student numbers >30,000) or their scientific excellence in specific areas.

Governance structures are well established and supported by dedicated resources, monitoring systems, and evaluation mechanisms. In contrast to the compliance-oriented consolidation

observed in many Irish HEIs, governance in these institutions suggest purposeful design enabling institutional transformation rather than primarily meeting regulatory requirements.

Characteristic 2: Coordinated actions reflecting whole-of-institution approaches.

All five HEIs articulate WoI approaches, embedding sustainability across teaching and learning, research, operations, governance, engagement, and communications. Interdisciplinary and transdisciplinary collaboration is explicitly framed as necessary to address the complexity of sustainability challenges. Living labs are consistently referenced as mechanisms for integrating education, research, and operational practice. Climate adaptation is highlighted throughout one sustainability strategy, informed by recent climate challenges, and linked to climate justice and protection of individuals. The concept of peace is linked to climate justice and food security i.e. linking local impacts to global issues. This combined with attention to climate adaptation again differentiates them from the majority of Irish HEIs sustainability planning practices.

Economic impacts are explicitly addressed by two HEIs who link sustainability to institutional financial resilience and long-term viability. Sustainability is integrated within HEI risk management and financial planning. The SDGs are integrated into sustainability planning by all the international HEIs, with one HEI moving beyond headline goals to specific SDG targets. This contrasts with the more inconsistent and superficial SDG alignment observed in Irish HEIs.

> *"As we think about that stewardship and the broader task of being sustainable, we are guided in our thinking by the United Nations Sustainable Development Goals"* (Int_HEI3)

One HEI differentiates between a “climate handprint” (education, research, behaviour change) and a “climate footprint” (operations and procurement). Behavioural change is explicitly embedded as a strategic objective in several documents, with communications positioned as central to enabling systemic change.

Characteristic 3: Holistic approaches to sustainability, including the cultural pillar.

Three of the five HEIs demonstrate a pronounced emphasis on the cultural pillar of sustainability, explicitly integrating Indigenous knowledge, local traditions, and cultural heritage into sustainability strategy. This dimension was largely absent in the Irish documentation. External engagement is positioned as central to impact. Sustainability is framed not only as an internal agenda but as a societal commitment, including contributions to regional development, climate justice, Indigenous rights, sustainable enterprise, and public debate. One institution links climate adaptation, food security, and peace, explicitly connecting local vulnerability to global systems. Patterns of language related to resilience are evident including references to resilience of graduates, environmental resilience (fire, climate, water etc.) and economic resilience. This suggests that these HEIs have moved beyond mainstream sustainability approaches and are addressing sustainability as a critical societal and economic challenge.

Characteristic 4: Weak futures orientation in sustainability planning.

Despite the integrated and holistic approaches to sustainability exhibited by these HEIs, explicit futures-oriented planning remains limited. References to sustainable futures, agility, resilience, and long-term ambition are present, yet structured foresight methodologies are

rarely articulated. Climate adaptation is referenced by three of the five HEIs, while one HEI referenced a Sustainable Futures platform designed to inform responses to emerging environmental challenges. A specific search for references to futures (Figure 4-3) did not suggest systematic application of scenario planning, backcasting, or formal futures methodologies. Thus, while the international HEIs demonstrate stronger holistic integration and governance maturity compared to Irish HEIs, FT remains more aspirational than methodologically embedded.

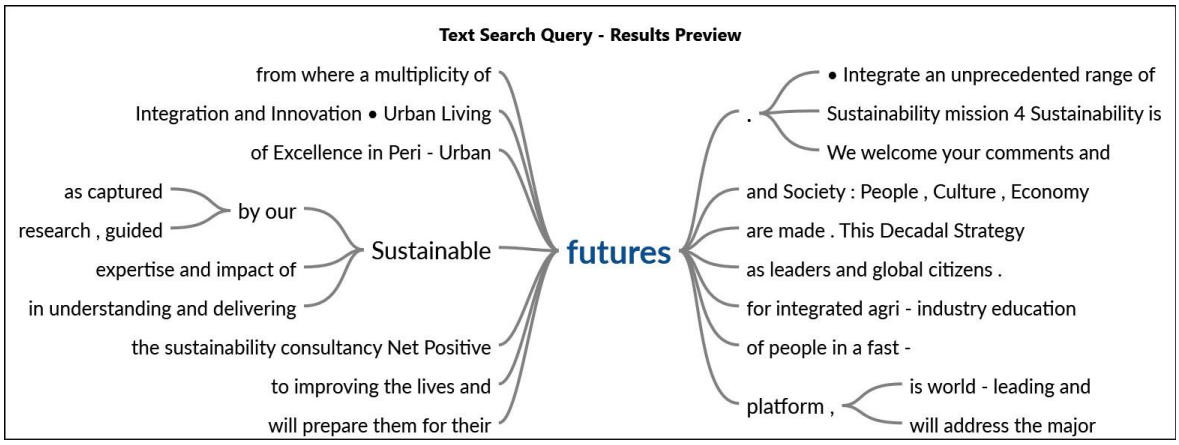


Figure 4-3: Word tree illustrating use of "Futures" in International HEI strategies.

4.2.6 Synthesis of findings from document analysis.

Taken together, the four themes construct an Irish HE sector in which sustainability is increasingly institutionalised yet unevenly integrated. Significant evidence of considerable progress and investment of resources into environmental sustainability suggests a sector seeking to respond to acknowledged environmental crises. Environmental priorities and actions are consistently foregrounded in strategies and plans, supported by maturing governance structures and expanding reporting mechanisms. While institutional strategies signal a broadening conceptualisation of sustainability across social and economic dimensions, the sector as a whole exhibits fragmentation of approaches and variation in how sustainability

is embedded across institutions. Explicit engagement with cultural sustainability is limited to a small number of HEIs, and structured futures-oriented methodologies are largely absent.

Notably, sustainability planning remains focused on short to medium term timeframes and is weakly informed by futures-oriented methodologies. References to long-term responsibility and future generations are common, yet systematic foresight practices are largely absent. Collectively, the document analysis suggests a sector progressing from where sustainability is accommodated as an add-on and compliance-driven towards more holistic and progressive ambition, but where transformative, futures-oriented sustainability planning has yet to be fully realised. In contrast international cases demonstrate deeper WoI integration and stronger contextual grounding. However, despite this greater maturity in holistic framing and governance practice, structured futures-oriented methodologies also appear limited.

While the analysis provides evidence of Irish HEIs commitment to the sustainability agenda, transformative, futures-oriented sustainability planning remains underdeveloped. The semantic level coding and analysis could not determine how sustainability is understood, prioritised, or strategically navigated by sustainability leaders in their HEIs. The next section presents findings from a survey of sustainability leaders in Irish HEIs which evaluated their worldviews, governance perceptions, and understanding of FT.

4.3 Sustainability Leaders Survey.

This section presents the findings from the 28 responses from sustainability leaders to the survey. The findings complement the document analysis by shifting from institutional artefacts to practitioner perspectives, thereby deepening insight into how sustainability is conceptualised and operationalised within the sector. The analysis firstly presents descriptive statistical analysis of the respondents ecological worldviews and sustainability competencies.

4.3.1 Ecological worldviews and sustainability competencies.

4.3.1.1 Ecological worldviews.

Responses (*n*=28) to the Revised NEP scale indicate that participants hold strong pro-ecological worldviews. The overall mean NEP score for the group was 4.2 (*SD* = 0.51) on a five-point scale, indicating a pro-ecological environmental worldview (full details in Appendix B). 80% of respondents selected either "Somewhat Agree" or "Strongly Agree" for the majority of the pro-ecological statements (odd-numbered items), with the exception of Statement 1, where agreement was lower (59%). Overall, the pattern of responses constructs a cohort of sustainability leaders who demonstrate a strong ecological orientation, recognising both the fragility of natural systems and the scale of human impact on the planet.

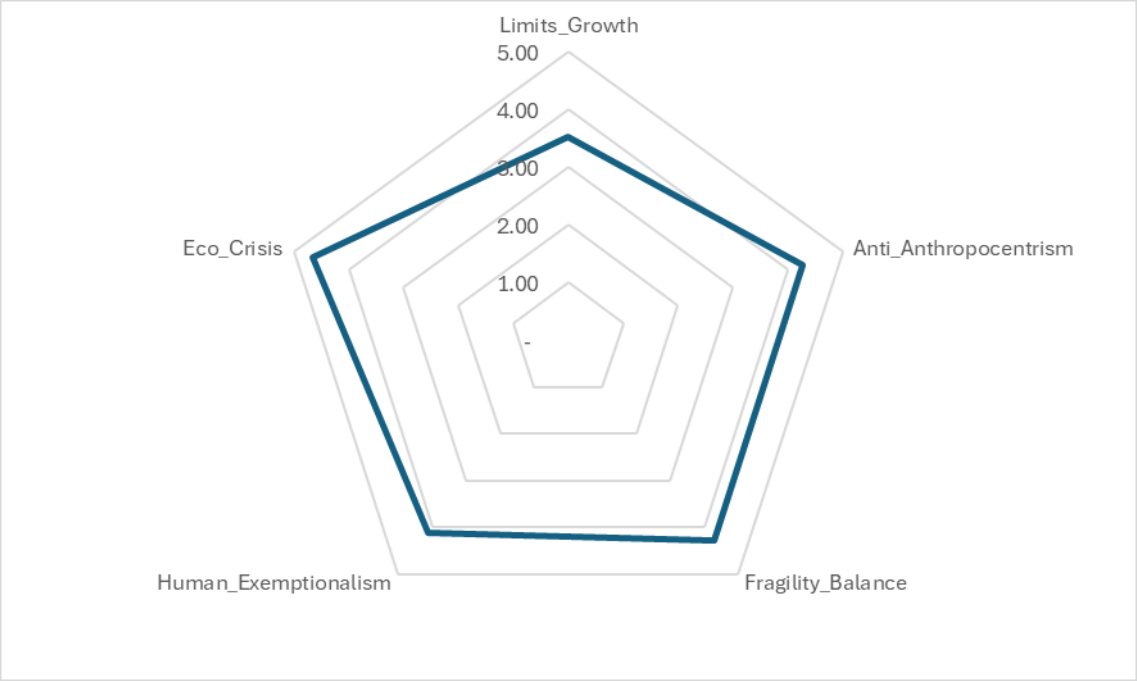


Figure 4-4: Mean scores for five NEP dimensions for SL cohort..

The Revised NEP scale was also analysed across its five underlying worldview dimensions (Dunlap et al., 2000), providing further insight into how participants conceptualise environmental challenges and human–nature relationships (Figure 4-4).

Limits to Growth: Despite this dimension having the lowest mean score, responses indicate strong recognition among participants that the Earth's resources are finite and that continued economic and population expansion places pressure on ecological systems. High levels of agreement with statements relating to resource limits suggest agreement that environmental constraints represent a structural boundary to human activity.

Anti-Anthropocentrism: Responses suggest that participants generally reject strongly anthropocentric perspectives and recognise that human activities must operate within ecological boundaries. This pattern indicates a worldview that recognises intrinsic value in the natural environment beyond purely human interests.

Fragility of Nature's Balance: Responses indicate strong awareness of the vulnerability of ecological systems. Participants agreed that natural systems are delicate and can be easily disrupted by human activity. This suggests that respondents recognise the interconnectedness of environmental systems and the potential for ecological imbalance when environmental pressures exceed natural limits.

Rejection of Human Exceptionalism: This dimension assesses whether individuals believe that humans are exempt from the constraints that govern other species. Responses suggest moderate to strong rejection of this perspective, indicating that participants recognise human societies remain dependent on ecological systems and are subject to the same environmental constraints as other species. Furthermore, it rejects the notion that technological solutions can be found to respond to environmental challenges (Catton and Dunlap, 1980).

Possibility of Eco-Crisis: Responses relating to ecological crisis indicate that participants recognise the potential for serious environmental disruption if current patterns of environmental degradation continue. High levels of agreement with these items suggest that

respondents acknowledge the seriousness of environmental challenges such as climate change and biodiversity loss.

4.3.1.2 Sustainability Competencies

Based on the Savage *et al.* (2015) framework, respondents reported strong confidence across strategic, interpersonal, and systems-thinking competencies. Interpersonal competency recorded the highest mean score, with the normative competency recording the lowest mean score (Table 4-4) (full data in Appendix C).

Competency Category	SL Count (*n*)	SL Mean (*M*)	SL Standard Deviation (*SD*)
Normative	28	3.86	0.56
Interpersonal	28	4.29	0.61
Strategic	28	4.07	0.50
Systems Thinking	28	4.02	0.53
Anticipatory	28	3.93	0.59
Total	28	4.03	0.46

Table 4-4: Sustainability leaders competencies mean scores and SD.

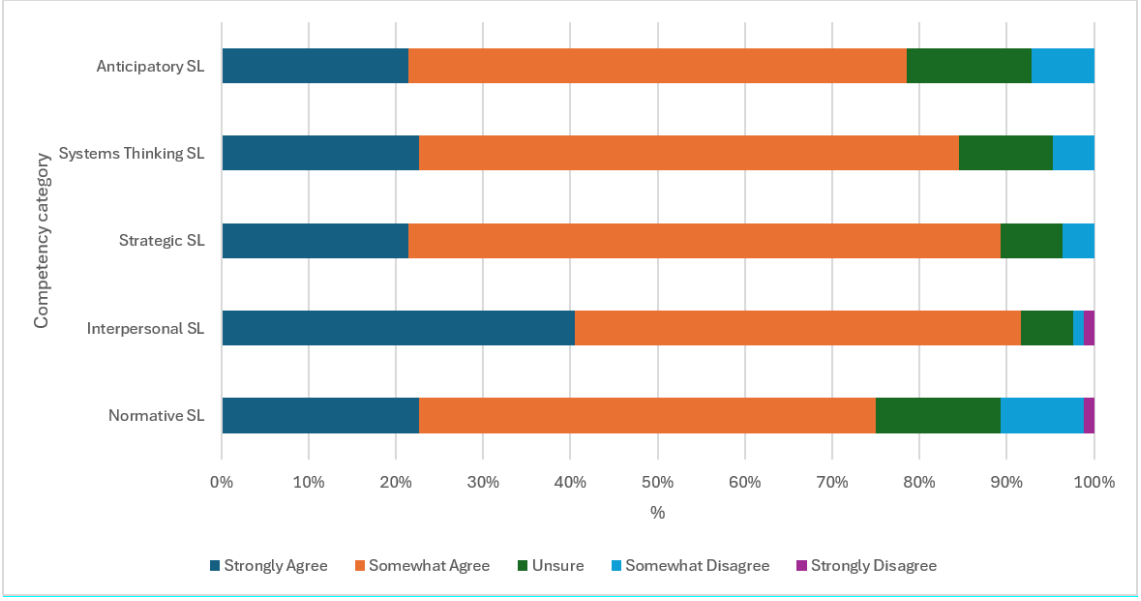


Figure 4-5: Sustainability leaders sustainability competencies.

As seen in Figure 4-5 competencies were particularly strong in areas related to strategic planning. Systems thinking was also well developed, with respondents indicating confidence in understanding interconnections between environmental, social, and economic dimensions. By contrast, anticipatory competencies were comparatively weaker. Only 36% strongly or somewhat agreed with the statement related to confidence in collectively assessing socio-ecological systems, and uncertainty emerged around dealing with ambiguity and anticipating unintended consequences. While many agreed that the future is "open and shapeable," structured futures-oriented competence appears less developed. This suggests a leadership cohort strong in operational and collaborative action, but less confident in structured future-oriented analysis. The pattern aligns with document analysis findings indicating limited evidence of FT or futures-oriented planning. Correlation analysis between NEP scores and competencies revealed some positive relationships, though none were statistically significant ($p > 0.05$), suggesting that strong environmental values do not automatically translate into anticipatory capability.

4.3.2 Sustainability pillars: personal vs institutional priorities.

When asked to rank the sustainability pillars in order of priority, environmental sustainability was ranked first, followed by social sustainability and then economic sustainability. In contrast, they perceived their institutions as prioritising economic sustainability, followed by environmental and then social sustainability (Table 4-5). This suggests sustainability leaders perceived that HEI decision makers place economic considerations (e.g. financial viability, growth imperatives) ahead of others. The perceived institutional prioritisation of economic aspects may reflect the wider regional/national agendas which HEIs have to consider. The prioritisation of environmental sustainability by sustainability leaders suggests alignment with the foregrounding of environmental action evident from the document analysis.

Pillar	SL Personal Views Mean Score (*M*)	SL perceived views of HEI Mean Score (*M*)
Environmental pillar prioritised	4.13	3.43
Social pillar prioritised	3.65	3.74
Economic pillar prioritised	2.7	4.3
All pillars prioritised equally	3.52	2.48

Table 4-5: Sustainability pillar prioritisation, SL personal and perceived views (Mean Scores).

4.3.3 Evolving governance structures.

Participant responses confirm that most HEIs have sustainability governance structures, including committees, designated leads, and occasionally Vice Presidents with sustainability portfolios. A cross-check of survey responses with document analysis revealed that HEIs with dedicated sustainability strategies have more robust, integrated governance, suggesting a correlation between strategic planning and governance. Conversely, other HEIs reported fragmented, recently reorganised, or under-resourced structures. Executive commitment emerged as a key enabler, while a lack of leadership buy-in and funding constraints are primary barriers.

Campus operations are the most coordinated dimension, with 93% of participants reporting some or full coordination. Coordination is weaker across teaching, learning, research, and governance (Table 4-6). Respondents considered that coordination of sustainability actions with health, well-being, diversity and inclusion initiatives are strong, but weaker with culture and arts (Table 4-7), mirroring patterns found in the document analysis. Additionally, over two-thirds of HEIs use or plan to use international rankings (e.g., THE Impact, QS) for external benchmarking.

Overall, these findings deepen the understanding of Irish HEI governance. Sustainability is most integrated in operations and education, with persistent gaps in governance, research, and

engagement, likely reflecting the influence of external drivers like current Irish climate action and ESD policies.

	Governance	Education	Research	Operations	Engagement
1 No Coordination	4%	4%	7%	0%	11%
2 Minimal Coordination	25%	11%	21%	4%	18%
3 Unsure	7%	4%	7%	4%	7%
4 Some Coordination	32%	64%	46%	64%	54%
5 Fully Coordinated	32%	18%	18%	29%	11%
Total	100%	100%	100%	100%	100%

Table 4-6: Sustainability leaders perceptions on level of coordination across HEI dimensions (% of respondents).

	Health and Wellbeing	Diversity and Inclusion	Culture and Arts
1 No Coordination	7%	7%	7%
2 Minimal Coordination	11%	14%	21%
3 Unsure	7%	0%	21%
4 Some Coordination	57%	54%	46%
5 Fully Coordinated	18%	25%	4%
Total	100%	100%	100%

Table 4-7: Sustainability leaders perceptions of coordination of sustainability actions with other priority areas (% of respondents).

4.3.4 Progressive action aligned to National policy.

Utilising Bieler and McKenzie (2017) categories respondents were asked to indicate which of the statements in Table 4-8 best described how their HEI addresses sustainability across the dimensions of governance, education, research, operations and engagement. Sixty-four percent of respondents categorised their HEI as reformative or progressive, while one respondent described their institution as transformative. This suggests an evolving Irish HEI sector where sustainability leaders perceive that progress is being made in relation to sustainability, but transformative action has not yet become common place.

Category	Statement	%
Accommodative	Shallow : There is a limited and cursory discussion of sustainability within my HEI	4%
Accommodative	Narrow : 1-2 dimensions addressed but with limited action	11%
Accommodative	Emerging : 2-3 dimensions addressed with a small number of specific goals	14%
Reformative	Developing : at least 3 dimensions addressed but lacking significant action	14%
Reformative	Reformative : 3-4 dimensions addressed with some evidence of actions and implementation	7%
Progressive	Progressive: 4–5 dimensions addressed with significant depth, and there is some alignment of mission, values, goals and actions	29%
Progressive	Comprehensive: all 5 dimensions addressed with significant depth and full alignment of mission, values, goals and actions	14%
Transformative	Transformative : All 5 dimensions addressed in depth with transformative approaches evident in all dimensions	4%
	Unsure	4%

Table 4-8: Sustainability leaders categorisation of their HEI approach to sustainability (% of respondents).

Twenty of the respondents indicated that external factors such as Government Policy and UN SDGs were critical drivers for sustainability planning, while alignment within institutional strategy (14) and internal planning processes (9) were less prominent. Table 4-9 outlines participants perceptions of their HEIs alignment with national policy and international declarations. Respondents confirmed that their sustainability actions are primarily aligned to National policies such as the 2nd ESD Strategy and CAP. There were high levels of uncertainty expressed in relation to the influence of international declarations such as Turin Declaration. Respondents called for clearer government direction, stronger mandates, more resources and investment and a widening of the scope of sustainability policies beyond carbon emissions. Two respondents pointed to broader systemic issues including constraints imposed by neoliberal economic models and institutional inertia, calling for transformational change if sustainability goals are to be achieved.

Policy/Declaration	Definitely not	To some extent	To a large extent	Fully	Unsure
2nd Irish National ESD Strategy (2022)	0%	36%	21%	18%	25%
Irish Climate Action Plan(s) (various years)	0%	25%	25%	43%	7%
UNEP Sustainable University Framework (2021)	11%	18%	14%	0%	57%
Talloires Declaration (1990)	14%	11%	4%	4%	68%
Luneburg Declaration (2001)	14%	7%	4%	0%	75%
Turin Declaration (2009)	14%	7%	4%	0%	75%

Table 4-9: Alignment of sustainability strategies with national and international policies and declarations (% of respondents).

4.3.5 Limited FT knowledge and capacity.

The results reflect that conceptual awareness of FT was moderate amongst sustainability leaders. Scenario planning and visioning were the most familiar approaches, however, structured methodologies such as backcasting, CLA, futures wheel, and horizon scanning were less recognised. No consistent pattern emerged to suggest that structured futures literacy programmes or foresight capacity-building exists within HEIs. While respondents acknowledged that sustainability inherently involves long-term and intergenerational considerations, they indicated that futures-oriented practices were rarely embedded within institutional sustainability planning. Despite limited formal exposure, 75% of respondents agreed that sustainability leaders should develop FT expertise. Fifty four percent "Strongly Agreed" that a range of possible futures should be considered while 79% "Strongly Agreed" that sustainability strategies should have long term vision, indicating an appreciation of the temporal dimension of sustainability planning. There was a low response rates (<50%) to questions exploring how HEIs are currently considering disruptive or alternative futures (e.g., AI, geopolitical shifts, climate tipping points). This suggests sustainability leaders had a lack of knowledge or were uncertain about how HEIs are approaching such issues. Of the responses

provided, disruptive issues were typically framed within risk management or resilience contexts rather than explored through systematic foresight methodologies.

4.3.6 Synthesis of findings from sustainability leaders survey.

Across the survey findings, several patterns support a deepening of insights generated through the document analysis phase. Sustainability leaders perceived that their HEIs place greater importance of economic aspects of sustainability, while they themselves wish to prioritise environmental and social aspects. Patterns suggest Irish HEIs are transitioning from an accommodative response to sustainability to a reformative position, or in some cases progressive action. This progression appears to align with National policy requirements, rather than driven by international declarations or frameworks. Evidence of emerging and integrated governance structures, identified in the document analysis, were confirmed. However fragmentation and poor coordination is still perceived as an issue. Despite limited evidence of formal FT knowledge or competencies across respondents there was recognition of the need for longer-term approaches to sustainability planning with structural constraints reinforcing short-termism. Broadly the survey results suggest sustainability within Irish HEIs has progressed beyond symbolic commitment but has not yet achieved transformative, futures-oriented integration.

4.4 Sustainability leaders semi-structured interview.

This section presents the thematic findings from interviews with five sustainability leaders across five different Irish HEIs. The analysis constructs how sustainability is currently understood, positioned, and operationalised within HEIs, and how FT is conceptualised within sustainability planning. Four themes were constructed during the analysis (Table 4-10), the first two of which aligned with those from the document analysis.

Theme Label	Theme
SLI_T1	A strong environmental pillar which mainly dominates sustainability planning.
SLI_T2	Some coordinated action evident but fragmented approaches to sustainability planning
SLI_T3	Commitment evident but conflicting priorities
SLI_T4	Limited FT knowledge and capacity

Table 4-10: Themes constructed following RTA of sustainability leaders semi-structured interviews.

4.4.1 A strong environmental pillar which mainly dominates sustainability planning.

The analysis deepened and expanded the patterns from the document analysis which suggested a foregrounding of environment sustainability within Irish HEIs. Participants consistently described sustainability in their HEIs as heavily weighted towards climate action and carbon reduction, driven by legislative requirements, such as CARs and cost savings (SLI_2). Tensions related to how HEIs can achieve a balance across environmental, social, economic and cultural pillars of sustainability, highlighted within the document and survey analysis, were reinforced. Disciplinary siloes were emphasised while a lack of robust data related to social, economic and cultural pillars of sustainability was also identified as contributing to this imbalance.

> *There can be a tendency for environmental sciences, as a discipline, to sort of think they own the sustainability space (SLI_3).*
>
> *we have all of these, you know, social aspects with the environmental aspects…..but our data collection probably isn't what it should be (SLI_5).*

Language associated with social, economic, and cultural dimensions was present (regional development, health and well-being, and community engagement) with sustainability leaders advocating for a more holistic approach. One participant noted that despite broader ambitions, their institution was still engaged in "*…doing light sustainability"* (SLI_4). Participants were acutely aware of the need to look at all aspects of sustainability "*….there are a lot of other SDGs out there…*" (SLI_4). Three of the five participants referenced Living labs as

mechanisms for broadening activity and enabling engagement (SLI_3; SLI_4; SLI_5), echoing characteristics from the international HEIs. One participant emphasised the need to develop an organisational culture towards sustainability or a "*sustainability conscience*" (SLI_2).

The analysis contributes to re-affirming a view that Irish HEIs have made significant progress on environmental sustainability and that this is currently to the forefront of discourse and action. Sustainability leaders however articulate emerging efforts, and wishes, to deliver on objectives in a more holistic manner addressing other sustainability pillars.

4.4.2 Some coordinated action evident but fragmented approaches to sustainability planning widespread.

The analysis reinforced the theme which constructs sustainability with Irish HEIs as unevenly embedded and structurally contingent. Participants positioned their institutions progress and actions on sustainability on a similar spectrum to that of the survey, with perceptions varying from emerging to progressive. The one participant who described sustainability as formally and comprehensively embedded across the institution "*In every one of the 12 strategic objectives… sustainability is in the vision, mission, values*" (SLI_2) qualified this description with reference to dispersed implementation and weak coordination. They also emphasised the need to "*get beneath the surface*" (SLI_2) of what embedding sustainability (and specifically the SDGs) actually means. In contrast, another characterised their institutions approaches to sustainability as "*ad-hoc*" (SLI_3), describing initiatives as "*interesting ... and enjoyable*" (ibid) but lacking systemic structure. The responses strengthened the theme which suggests that WoI sustainability is visible in pockets but not yet HEI wide.

Recurring language associated with governance (Governing Body, Steering Committees, Working Groups etc.) deepened insights from the document analysis and surveys, that HEIs

are developing structures to coordinate sustainability planning and maximise impact. For two respondents, sustainability was framed as enabling collaboration and "*opening doors*" (SLI_2; SLI_5). Tensions regarding ownership and responsibility were also articulated by one respondent with sustainability described as a space where individuals put "*flags in the ground*" (SLI_3). This suggests that despite the convincing evidence of HEIs developing sustainability governance structures, organisational and discipline related constraints exist. While sustainability can act as a common goal or bridge across institutions, for some it may also be perceived as a boundary to defend.

Participants frequently framed sustainability within the context of ESD, describing it as having significant potential to drive institutional change. Recuring language signalled a move to deeper integration through strategic actions e.g. "programmatic review," "module content analysis", "beyond checklist". The analysis constructs engagement as positive and open but with pockets of resistance and disciplinary silos also identified

> *..working with faculty staff, ...there are always possibilities to engage with staff and students on sustainability.* (SLI_4*).*
>
> *...finance and business can be challenging.* (SLI_1*).*

The focus on ESD suggests strong engagement with students with examples articulated of discipline specific and interdisciplinary activities. Despite this, concerns were raised over student engagement and participation, with a lack of dedicated resources (SL_4) and reduced environmental activism since COVID (SL_1) highlighted as possible causes.

> *The level of student engagement is nowhere near where I would like it to have been.* (SLI_2).

The analysis indicated respondents value collaboration across the HEI sector, with a recently established network (Climate Justice University Union) being highlighted as a useful bridge to connect with others in the sector. The need to collaborate and learn from internal and

external stakeholders was clear. In addition, learning from others who have been leading on other institute wide initiatives such as those related to equality, diversity and inclusion (EDI), was highlighted. This suggests a sustainability leadership cohort who acknowledge the need to collaborate and cooperate to address complex sustainability challenges.

The patterns suggest sustainability leaders perceive their HEIs as taking proactive and strategic approaches to sustainability, with varying levels of progress being made, aligning with the findings from document and survey analysis. Patterns also construct tensions with references to internal boundaries and strains in relation to responsibility and ownership. The progress being made on ESD, which was evident from the document and survey analysis, was confirmed but a collective concern regarding student engagement was also exposed. An openness to sector collaboration is evident along with collaboration with other stakeholders in other HEI priority areas.

4.4.3 Commitment evident but conflicting priorities.

A new theme was constructed to reflect perceptions that leadership commitment within HEIs is essential but potentially fragile. Participants articulated an uneven commitment of resources across the sector with a small number of Irish HEIs having full-time senior roles e.g. Vice Presidents for Sustainability, while elsewhere, leadership roles are distributed or secondary. Participants emphasised the relationship between resourcing and impact:

> *I mean, the most obvious thing is that* [HEIName] *has committed considerable resources to sustainability….if there is no top-down direction, then it won't happen.* (SLI_4)

One respondent acknowledged the support that has been provided towards sustainability initiatives but questioned the depth of commitment and potential vulnerability to government

priorities and financial pressures. This suggests concerned that resources and commitments may be threatened in the future.

> *No one's gonna say they don't like it (sustainability)…* (SLI_3)
> *With universities in deficit… sustainability is the first thing to be cut.* (SLI_3)

Tensions were expressed between the dominant influence of growth oriented policies and resourcing frameworks "*universities exist within growth dependent neoliberal system*" (SL_1). Several participants expressed frustrations in relation to a lack of debate to counter the growth agenda and how HEI actions were being influenced by external factors including international rankings.

> *rankings, what do they mean?....get back to the core business of how we lecture, and what we lecture on, and what modules deliver, they're the important things.* (SLI_4)

This suggests a wish by sustainability leaders to engage in critical analysis and debate of the growth oriented and metrification of higher education, with a view to deeper integration and transformation of activities.

Institutional histories are also reflected, as four of the five participants were from recently created Technological Universities. For these participants, organisational change was constructed as both destabilising and enabling. Cultural differences and competing priorities across various areas of the new TU organisations were acknowledged "*People have different responsibilities and different roles*." (SLI_5). Two participants viewed mergers as making cross-institutional coherence difficult with sustainability having to compete with multiple other commitments for leadership attention (SLI_4, SLI_3). The analysis suggests that, in some cases, sustainability has to fight for attention and resources within new and emerging HEIs due to the multiple other priorities and resource demands.

These accounts provide deeper insights to sustainability governance and resources within HEIs. While the document and surveys analysis constructed a theme articulating a sector with evolving governance and a progressive approach to sustainability, analysis from the sustainability leaders suggests commitment to sustainability may be vulnerable with uneven resource availability across HEIs. Concerns regarding a focus by HEI leadership on growth potentially align with the perception from the survey that HEI leadership prioritises economic sustainability, over the social or environmental dimensions of sustainability.

4.4.4 Limited FT knowledge and capacity.

A new theme was constructed to reflect patterns where the majority of participants expressed limited familiarity with FT as a formalised methodology. Most explicitly acknowledged this gap "*I don't have any expertise.*" (SLI_4), "*I'm aware of the term… but really familiar with it? No*." (SLI_5), while one participant outlined some experience "*I play around with a lot of the methodologies*" (SL_3).

Sporadic language associated with long-term visioning and scenario-based thinking was present (visions, options, predictions etc.). While one interviewee noted that their strategy had taken a longer-term perspective, this was primarily driven by having an appropriate timeframe in which to implement their goals

> *..gives us an opportunity to actually, I suppose, try and implement what we're setting out to do..* (SLI_5)

Current short-term planning was acknowledged to be problematic *"…sometimes you miss opportunities if you only look at the short term..*" (SLI_5). The analysis constructs HEI strategic planning as being incremental, with preferences for prediction and foresight based on key data "*people confuse futures with foresight*" (SLI_3) and decision/policy makers are

perceived as being risk averse. Another participant articulated a distinction between foresight and FT within their HEI, suggesting that current approaches to sustainability planning may follow traditional planning approaches, with alternative futures not being imagined or developed.

> *my experience is that [HEI Name] is very good at foresight but possibly could be better at futures thinking.* (SLI_1)

Despite limited expertise, the analysis suggests an openness by sustainability leaders towards FT once the purpose and logic of FT was discussed. One respondent reflected FT language in one their responses "*Walking through our campus in 2040… that's our preferred future*." (SLI_2). The single participant with some experience of FT highlighted its potential to stimulate engagement through provocation, imagination and deeper examination of issues.

> *It really sort of provokes people about thinking about their position in the world, their role, and what they can do* (SLI_3)

Institutional practices and strategic plan renewal are seen as potential entry points for future oriented thinking by three of the respondents (SLI_4, SLI_3, SLI_2). Participants emphasised the importance of challenging current discourse to "*generate a bit of discomfort*" (SL_1), reflecting that FT places people in scenarios which may be negative" *you know, it's okay if people are uncomfortable. You know, that's the point*." (SLI_3). Respondents articulated a desire for longer-term futures-oriented planning, but this was contradicted by fears over long term-engagement, future funding levels and a preference to have plans which are aligned to resources.

> *..actually, partly one of the reasons why we didn't go further, because you don't know what kind of level of funding that you can go 25, 30, 35 years in the future* (SLI_5).

The openness to exploring and utilising futures-oriented planning was initially universal but as participants explored the FT topic contradictions and challenges began to emerge. Tensions

were articulated when considering the use of FT approaches within current strategic planning cycles that are tightly constrained by HEA policy, annual funding models, operational deadlines and compliance. The patterns suggest that constraints imposed by risk averse policy makers, resource management systems and preference for predictive planning, have resulted in short-term planning being an entrenched feature of HE governance.

Transformational change is perceived as a challenge given that operational priorities act as a key constraint (SLI_4). Participants articulated psychological discomfort and cultural resistance as additional barriers while FT competences (creativity, imagination and engagement with uncertainty") were perceived as weak in HE "*It is a challenge for people… to imagine possible, preferable or dystopian futures*." (SLI_3). One participant described being "*haunted by futures thinking*" (SLI_1), while another argued "*The dystopian future camp… gets enough airtime…* " (SLI_2). The pattern suggests that FT will have to overcome a range of barriers, perceived and real, if HEIs are to adopt futures-oriented planning.

The analysis suggests that FT is currently a peripheral topic and participants expressed limited knowledge of the concept. There is evidence that latent capacity and willingness may exist to adopt FT. Once the topic was explored further, leaders identified some opportunities for breaking the cycle of incrementalism and moving towards transformation, while also acknowledging systematic constraints.

4.4.5 Synthesis of findings for sustainability leaders interviews.

Taken together, the interviews reinforce earlier phases of the study. Within Irish HEIs sustainability has progressed beyond symbolic commitment and demonstrates growing governance consolidation and environmental institutionalisation. However, the interviews highlight some constraints arising from growth-oriented priorities, perceived variations in

leadership commitment, resource vulnerability, merger disruption, and short-term strategic planning cycles. FT remains conceptually acknowledged but methodologically underdeveloped. Latent openness exists, yet structural, economic, and temporal conditions inhibit transformative, futures-oriented integration.

4.5 Conclusion from Phase 1.

This chapter documented the findings from Phase 1 of the multi-method research. Document analysis was completed of sustainability-related strategies and policy documents from 17 Irish HEIs and 5 International HEIs. This was followed by an analysis of survey responses from 28 sustainability leaders across 15 Irish HEIs. Finally analysis of in-depth interviews conducted with five sustainability leaders was presented. A summary of findings is reflected in Figure 4-6.

The themes which were constructed characterise the current landscape of sustainability planning in Irish HEIs. Across all research steps, environmental action, specifically carbon reduction, energy efficiency across campus operations, is consistently foregrounded in the sustainability discourse. This is influenced by national policy requirements which prioritise carbon reduction emission targets and environmental reporting in line with climate action mandates and CARs. Irish HEIs have made noteworthy progress in this regard as reflected in survey and interview responses. While institutional strategies increasingly mention social and economic dimensions, these broader pillars appear to receive comparatively less strategic attention perhaps due to resource or prioritisation constrains.

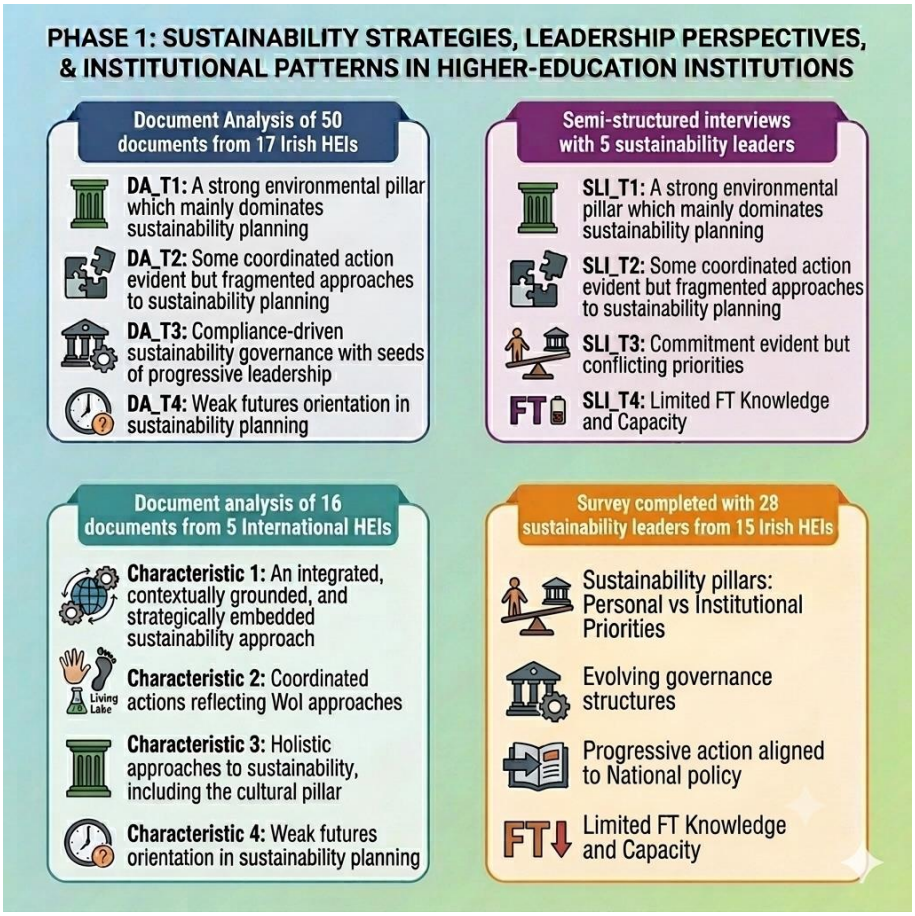


Figure 4-6: Summary of outcomes from Phase 1 of research.

Governance structures for sustainability are maturing, with many institutions establishing formal committees and leadership roles. However, this is often a compliance-oriented consolidation focused on meeting legislative reporting requirements, rather than driving institutional transformation. Evidence of fragmentation remains, with integrated and WoI approaches strongest in those HEIs with sustainability strategies. In other cases sustainability may be visible in certain pockets or operational domains. Encouragingly the document analysis did identify exceptions to the sectoral norms. Those HEIs with sustainability strategies demonstrate greater evidence of WoI approaches. Furthermore, one HEI was seen to apply FT methodologies in developing alternative futures.

A consistent finding across the document analysis, survey, and interviews is the absence of futures-oriented approaches to sustainability planning, with current planning typically operating within short-to-medium-term cycles. While aspirational futures language is utilised, methodological futures thinking tools like scenario planning, backcasting, or horizon scanning are largely absent. While three quarters of surveyed leaders believed they should develop FT expertise, they currently lack formal training and institutional support to move beyond current incremental planning approaches.

A divergence emerged between the personal priorities of sustainability leaders and their perceived institutional priorities. Leaders personally prioritise environmental and social sustainability, yet they perceive their institutions as prioritising economic sustainability and growth imperatives. This tension is exacerbated by the perception that HEI leadership prioritises growth and responses to neoliberal policy agendas.

5 Chapter 5: Findings - Phase 2

5.1 Introduction.

Phase 2 of this research deepened the empirical investigation by exploring the use of FT in sustainability planning within the case study HEI (CSHEI). The research builds on Phase 1 findings by providing a situated, organisationally embedded analysis of how sustainability is understood, enacted, and imagined within a single university context.

Phase 2 comprises three interconnected strands of qualitative inquiry, semi-structured interviews with SCom members, FT interventions with these SCom members, and researcher observations of their engagement therein. Together, these methods enable exploration of both present-day practices and longer-term aspirations for sustainability, while also capturing the tensions, constraints, and opportunities experienced by senior leaders responsible for sustainability governance within the CSHEI.

5.2 Ecological worldviews and sustainability competencies.

SCom members completed a short survey gathering responses to the Revised NEP and sustainability leadership competency survey, allowing for a descriptive profile of individual HEIs sustainability committee members ecological worldviews and perceived sustainability competencies.

5.2.1 Ecological worldviews.

The overall mean NEP score for SCom respondents was 3.99 (standard deviation (*SD*) = 0.59) on a five-point scale, indicating a generally pro-ecological environmental worldview (Table 5-1) (full data in Appendix B). Overall, the NEP results suggest that members of the SCom demonstrate ecological worldviews comparable to those of sustainability leaders across the

Irish HE sector. While sustainability leaders recorded slightly higher average NEP scores, both groups display strong recognition of ecological constraints and environmental challenges.

Group	Count (*n*)	Mean (*M*)	Standard Deviation (*SD*)
SL	28	4.18	0.51
SCom	9	3.99	0.59

Table 5-1: Mean NEP Scores for SL and SCom Cohorts.

Similar to the analysis for sustainability leaders, responses were also analysed across the five conceptual dimensions underpinning the Revised NEP scale (Figure 5-1 and Table 5-2). Across all five dimensions, both groups demonstrated strongly pro-ecological orientations. Mean scores for both SCom members and sustainability leaders were consistently above the midpoint of the scale, with particularly high levels of agreement observed for the fragility of nature's balance and the possibility of ecological crisis. These findings suggest that SCom members ecological worldviews are broadly comparable to those of sustainability leaders across other Irish HEIs.

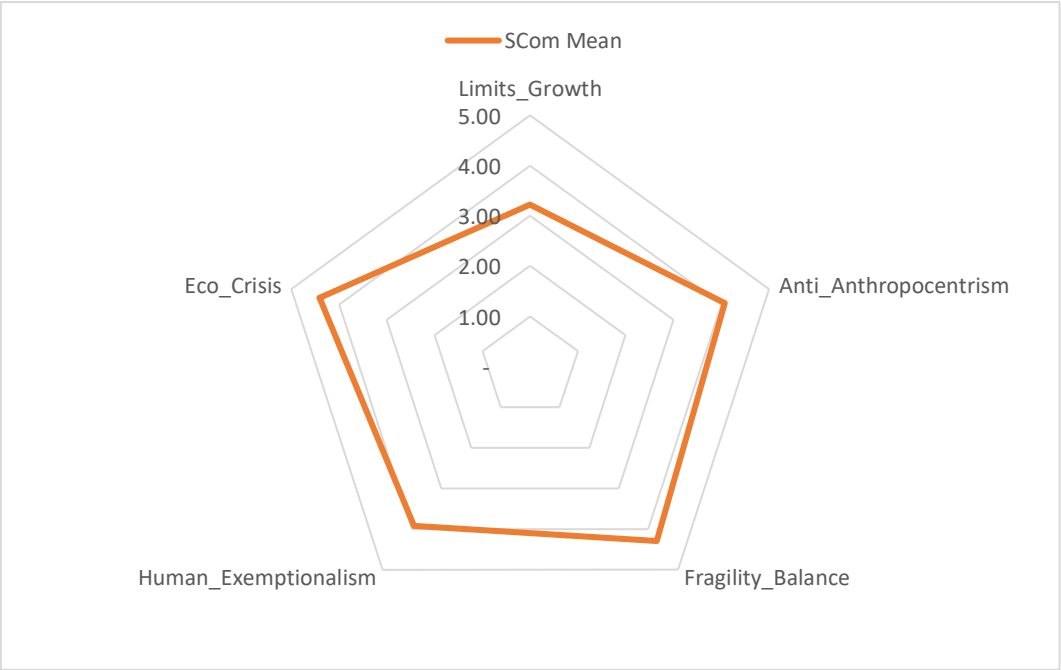


Figure 5-1: Mean scores for five NEP dimensions for SCom cohort.

Category	SCom Mean (*M*)	SCom Std Dev (*SD*)
Limits_Growth	3.2	1.12
Anti_Anthropocentrism	4.1	0.92
Fragility_Balance	4.3	0.45
Human_Exemptionalism	3.9	0.80
Eco_Crisis	4.4	0.83

Table 5-2: Statistical analysis of NEP dimension scores (Mean, standard deviation) for SCom cohort.

5.2.2 Sustainability competencies.

The assessment of sustainability competencies highlights the SCom members strong competencies across interpersonal, strategic and anticipatory domains. Direct comparison with the sustainability leadership group was not deemed appropriate given that the SCom cohort represents a significantly diverse profile of roles within the CSHEI with only one member working solely on sustainability. In comparison sixty percent of the SL participants work full time on sustainability, with extensive experience in the field.

Means scores and standard deviations for the SCom group are shown in Table 5-3 and Figure 5-2 (full data in Appendix C). Overall, for SCom respondents lowest scores were observed for normative competence (M = 3.04, SD = 0.61) and systems thinking (M = 3.15, SD = 0.91), suggesting comparatively lower confidence in areas related to sustainability values, ethical decision-making, and the analysis of complex socio-ecological systems. Anticipatory competencies were slightly weaker which is consistent with that of the SL cohort, while also aligning with findings from the document analysis that suggest there is limited futures-oriented planning across Irish HEIs. Overall the SCom has a strong balance of sustainability competencies with opportunities for development and capacity building.

Domain	SCom Count (*n*)	SCom Mean (*M*)	SCom Std Dev (*SD*)
Total	9	3.40	0.71
Normative	9	3.04	0.61
Interpersonal	9	3.89	0.82
Strategic	9	3.37	1.09
Systems Thinking	9	3.15	0.91
Anticipatory	9	3.56	0.88

Table 5-3: Statistical analysis of SCs (Means, standard deviation) for SCom cohort.

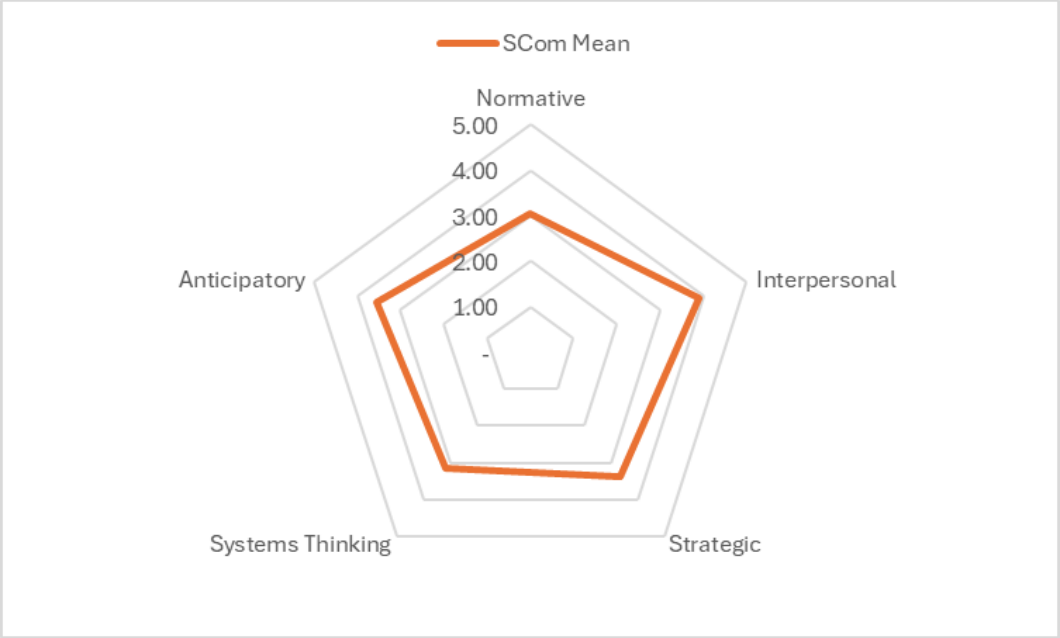


Figure 5-2: Radar chart of SCs mean scores for SCom cohort.

5.3 Futures Thinking interventions.

The following section provides insights into the two FT interventions held with SCom members in the CSHEI, presenting key outcomes, reflections and insights which contributed to RTA. A detailed outline of the FT interventions is provided in Appendix G.

5.3.1 Activity 1 - Shared History.

The shared history activity resulted in a cluster of items being added by SCom members post the year 2005, with limited contributions being added prior to this date (Figure 5-3). The

majority of items added to the shared history were external drivers/milestones e.g. COP1, Exxon Climate Research, free education in Ireland (social impact). Thematic clusters of items were discussed including; policy changes (e.g. plastic bag levy), economic/social issues (e.g. 2008 economic crash), CSHEI operational aspects (e.g. PV array on one campus) and technical aspects (e.g. offshore wind research). The exercise suggests that the SCom group struggled to recall or conceptualise items affecting SD in the past, instead concentrating on recent events which had a predominantly environmental focus. The group highlighted their limited knowledge of sustainability actions within the CSHEI prior to 2010, and that they found it challenging to identify key milestones or actions which informed SD globally, nationally or regionally.

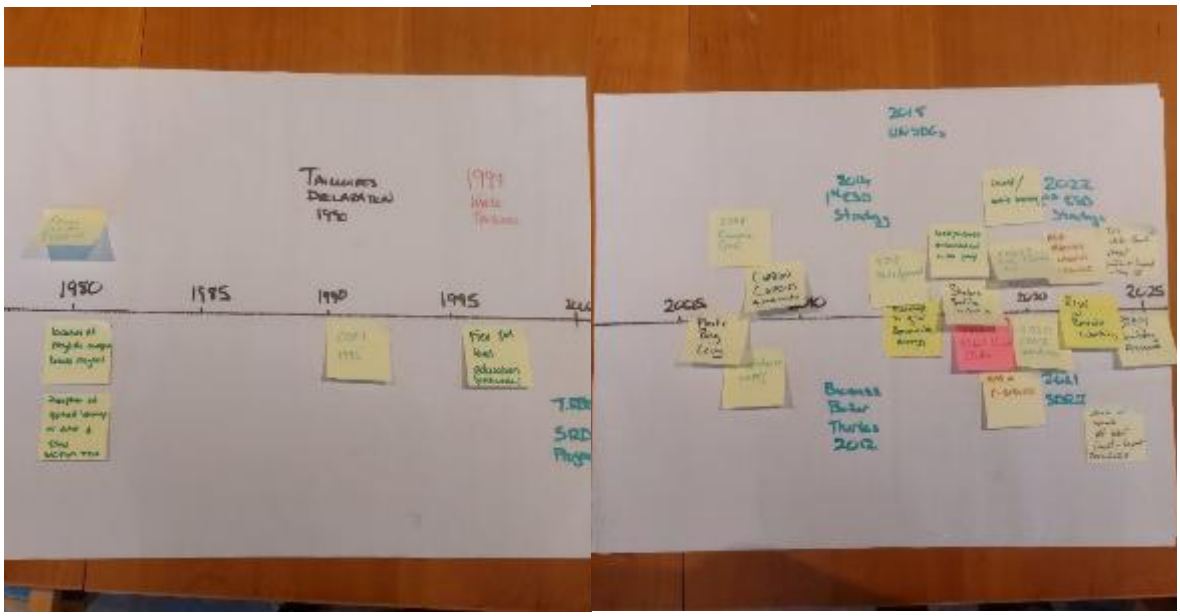


Figure 5-3: Activity 1: shared history.

5.3.2 Activity 2 - Future persona in 2050.

The SCom developed a diverse range of future personas during this activity, and these are summarised in Table 5-4. During the subsequent discussion, participants reflected that their personas were situated in fragmented futures in a CSHEI defined by online delivery and where

wider society is characterised by constraints in energy, funding, and food supply. Projected futures were characterised by social erosion, where heightened individualism and isolation coexisted with climate instability and the rise of extremist political ideologies. The ambitions of these future personas remained rooted in pragmatic socio-economic mobility, ranging from breaking cycles of unemployment to the pursuit of personal wealth, rather than broader societal transformation. While the participants envisaged their future personas as living in challenging circumstances there was an absence of dystopian or utopian narratives suggesting that participants imaginations may have been anchored/constrained by their current socio-economic realities. Participants reflected that their future personas may also have been informed by present priorities such as parental concerns for their children's future, financial security which they projected to the future. Participants expressed a cognitive difficulty in self-inserting into an undefined, distant temporal landscape.

The activity presented the first indications that when considering alternative futures participants often envisaged them as negative and challenging. Seeds of hope are also evident with HE been seen as a possible pathway out of poverty or due to an increased focus on community development, as a response to climate change challenges. Participants self-diagnosis of challenges in imagining futures signals alignment with a lack of FT capacity and weak anticipatory competencies.

5.3.3 Activity 3 - Causal Layered Analysis (CLA).

The Causal Layered Analysis (CLA) activity explored participants perspectives of sustainability within the CSHEI in the present, with participants moving through the litany, systems and worldview layers to ultimately develop metaphors reflecting current practices, as illustrated in Table 5-5. The activity exposed a perceived gap between how sustainability is

framed within the CSHEI strategic documents and its institutional reality. At the litany level, sustainability is viewed as superficial or an "add-on", suggesting the CSHEI is adopting an accommodative stance. At the systems level, participants identified a disconnect between national political ambitions and the practical constraints within the Irish higher education system, specifically an over-reliance on precarious, non-core funding for sustainability measures which deters long-term action. Tensions arise because of temporal misalignment, where the necessity for long-term strategic SD decisions are stifled by short-term funding cycles dominated by a neoliberal growth agenda. Furthermore, at the worldview layer, while climate anxiety, extending to fear of human extinction is prevalent, individual and organisational agency is perceived as constrained by geopolitical volatility and the rise of far-right ideologies. This suggests a possible frustration in relation to the participants ability to implement change and a lack of control over wider geo-political drivers affecting the SD agenda.

The metaphors generated during the activity, encapsulated the perceived stagnation and challenges of embedding sustainability within HEIs. The image of sustainability “perched on a see-saw,” outweighed by competing institutional priorities, illustrated the difficulty of prioritising sustainability within a crowded HE agenda. Similarly, the metaphor of a "fossil-fuelled SUV painted green" critiques the institutional narratives that mask the limited progress made on transitioning away from unsustainable practices. The "cruise ship stuck at dock" symbolised a lack of alignment between leadership’s stated destination and the collective buy-in of the crew and passengers (staff and students).

Ultimately, the CLA suggests that sustainability is not yet a core priority, despite ambitions articulated within institutional strategies. Structural and systematic constraints including geopolitical shifts, changing government policy and resource limitations were surfaced. In

addition to external pressures, the metaphors also point to internal challenges such as individualism (cabins on cruise ship) and competing priorities (see saw) which currently prevent transformative future-oriented action. Collectively the CLA suggests a HEI with ambitions to deliver on sustainability, but substantive progress has not yet been made.

5.3.4 Activity 4 - Creating future scenarios -Ireland.

Utilising Dator's four-scenario framework, participants generated divergent possible futures for Ireland in 2050, as outlined in Table 5-6. The participants reflections highlighted that the futures which emerged veered toward the dystopian. The "Collapse" scenario was characterised by the commodification of nature and severe ecological displacement, while the "Grow" scenario envisioned a neoliberal extreme where corporations subsume university governance and health technologies remain the exclusive province of the wealthy. "Transform" scenarios offered radical technological shifts, such as moon-based mineral extraction and the repurposing of maritime industries for sub-sea data centres. However, these transformations were shadowed by fears of societal breakdown, pervasive state surveillance via digital identification, and a resulting "culture of hidden resistance."

The participant reflections and subsequent analysis highlighted a sense of pessimism amongst participants. While the "Sustain" scenario was viewed as an extension of the current business as usual model, the remaining trajectories were perceived as predominantly negative. The shift toward digital-only social interaction and avatar-based travel was framed through the lens of lost personal freedom rather than innovation. Kernels of hope can be seen within "Grow" where Irish culture is revived and technology has solved many health related problems, while the "Transform" scenario sees climate change addressed through technological advances. Ultimately, the analysis suggests the future is conceptualised as a choice between stagnant

continuity or varying degrees of socio-political and ecological decay. The future scenarios may reflect the influence of current narratives regarding ecological collapse, geopolitical turmoil while also suggesting a perceived lack of agency in formulating positive futures. The activity also resulted in more imaginative futures being articulated, suggesting that the initial barrier to imagining possible futures, highlighted in the futures persona activity (Activity 2) had been somewhat broken down.

5.3.5 Activity 5 - Creating future scenarios - CSHEI.

Activity 5 saw the participants narrow their focus to develop possible futures for the CSHEI in 2050 under the Grow, Collapse and Transform scenarios. Despite the move from the national societal perspective to envisaging futures at an institutional level participants continued to gravitate toward pessimistic projections, with "Transform" offering the only, albeit marginal, sense of optimism (Table 5-6).

This collective anxiety was distilled into three evocative metaphors: the "hollow donut," representing a void in community; the "conveyor belt," depicting education as a mechanised economic production line; and the "overflowing bath," symbolising an unmanaged ecological crisis. In the "Collapse" scenario, ecological decay was viewed as irreversible, with rising sea levels physically erasing coastal campuses. Across all scenarios, a consistent theme of regional fragmentation emerged. The pedagogical focus shifted toward narrow technical skills at the expense of critical thinking, although interpersonal skills gained renewed importance in the "Collapse" scenarios as a survival mechanism for climate-stricken communities. Technological determinism pervaded the discourse, envisioning a landscape where humanoids act as student representatives and bots deliver lectures. This shift signalled a profound anxiety

regarding HE in general, which participants feared would be reduced to mere data management and AI curation.

Ultimately, the future of the physical university was seen as precarious, threatened either by the obsolescence of facilities in an automated digital age or the literal inundation of campuses due to environmental collapse. Overall, the activity depicts a HEI challenged by wider systematic and structural developments in the economy, society and environment. The collective acknowledgment by participants of their negative perspectives of the future suggested growing awareness of the profound challenges which HEIs face, while also highlighting the transformational changes needed.

5.3.6 Activity 6 - Towards a preferred future for sustainability in the CSHEI.

When the participants progressed to a narrower focus, envisioning a preferred future for sustainability in the CSHEI, the researcher observed an increase in energy levels, a transition from pessimistic to optimistic insights and increased group debate. This suggests that the change in focus from abstract societal or wider institutional futures to a narrower sustainability agenda evoked increased feelings of agency and control. The group discussion reflected a collective shift toward a whole-of-institution approach, with sustainability normalised rather than treated as a peripheral activity.

The preferred future was encapsulated in the metaphor of a "Greenhouse for the flowers of the future," symbolising a secure, vibrant ecosystem that balances human intervention with the enhancement of natural resources to foster diverse growth (Table 5-7) (Figure 5-5). This preferred future represented a radical departure from present, business as usual approach, by explicitly rejecting the neoliberal growth mandate. Participants advocated for a decoupled economic model and acknowledged a state of "peak students" where success is no longer

tethered to enrolment metrics. Strategically, the group proposed "doubling down" or enhancing the HEIs core identity of applied learning while aggressively transforming operations to minimise institutional carbon footprint. Proposed interventions include a compressed two-day academic week to reduce transport emissions and contribute to societal work/study/life balance, the implementation of staff carbon budgets, and the development of on-site university farms to achieve energy and food self-sufficiency. Rather than physical expansion, the focus shifted toward optimising the existing footprint and enhancing inter-campus connectivity. In the preferred future, technology, specifically AI, was seen as a pedagogical enhancement tool, supporting a curriculum centred on Problem-Based Learning (PBL) and Team-Based Learning (TBL). Ultimately, the preferred future prioritised critical thinking and global citizenship as primary CSHEI graduate attributes, rather than narrower approaches to knowledge transfer.

The preferred future counters the external and internal challenges which surfaced during the CLA, while also depicting significant transformation across the HEI. A wish to counter perceived norms of growth and neoliberal policy agendas suggests increased levels of agency and an ambition for the CSHEI not just to be seen as a “conveyor belt” of graduates.

5.3.7 Activity 7 – Backcasting from the preferred future.

Having developed their preferred future, the participants then proceeded to backcast a high level series of actions to enable achievement of their envisioned future. The backcasting exercise suggested that cognitive friction existed for participants as they instinctively favoured a linear, forward-facing problem-solving approach starting from 2025, rather than working backwards from the 2050 horizon. This resistance, which participants later identified as a tether to business as usual planning, required researcher intervention to maintain the methodology’s focus. Despite this initial difficulty, the resulting action plan identified critical milestones,

concluding that long-term transformation necessitates immediate systemic integration, such as embedding ESD within the present programmatic review policies (Table 5-8).

Analysis of the backcasting activity highlighted a dual-level approach to institutional evolution. At the sectoral level, participants advocated for reformed academic contracts, while at the institutional level, they proposed radical operational shifts, including compressed work and academic schedules and the acquisition of land for a CSHEI farm. Participants cited changes in organisational operations as being critical not only for environmental reasons, but also to enable students/staff to gain maximum benefit from social interaction inside and outside the CSHEI. These proposed actions reflect a shift towards holistic, WoI philosophy, shifting from fragmented initiatives toward systemic change. Key drivers for this transition include large-scale staff upskilling on a range of pedagogical approaches, including PBL and TBL, the redesign of timetables to minimise travel-related emissions, and the adaptive reuse of campus infrastructure for community engagement. Ultimately, the exercise underscored that the journey towards a preferred future is contingent upon shifting from a reactive stance to a proactive planning approach, acknowledging that there is significant internal and external structural reform required.

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Participant Code	CSHEI_4	CSHEI_12	CSHEI_8	CSHEI_9	CSHEI_2
Future Name	Maggie	Joe	Felix	Beyonce	Troy
Future Gender	Female	Male	Male	Female	Male
Future Age	23	20	32	41	58
Future Role in CSHEI	Student of AI/Data Analytics	Student - 1st year Business of Energy	Junior lecturer. Just joined organised from overseas. Have worked in other Universities doing research in ICT	Mature Student - Forensic Biosciences	Lecturer and Community Engagement officer on environmental science/ecology/permaculture /agriculture
Where they are from	West of Ireland	Small rural village of 1000 people, grew up there	Born in South America but grew up in Europe	Moyross, single mother of 4	From Nenagh, studied in Cork
Political/ Philosophical/ Religious viewpoint	Liberal	"I'm the only person that matters"	Not strongly religious but from a Christian background	No	Social justice, self sufficiency orientated
Particular Ambition	Save the world	To create and build a new energy business to make millions but run it from home	To create an academic career to ensure employment, prove valuable enough to be retained	Break the cycle of unemployment and addiction	Make a positive regional impact
Particular Fear	Rise of the far right/individualism/conservatism	Engaging with other people	Don't want to be exposed to returning to South America where there is a low level of social cohesion	Food poverty	Ongoing struggle to adapt to worsening climate impacts (professionally and personally) and about the future he is leaving for his children/grandchildren
What they value most value about CSHEI	Acceptability, supporting, online	I can learn and study for degree with limited interaction with others	Freedom of speech afforded to academics	Opportunities it has provided in educating me to allow me to unleash by potential to provide for my family and end cycle of poverty	Community engagement aspects of CSHEI and the meaningful impact it has through local work and advocacy
What they dislike most about CSHEI	Restrictive - lack of blue sky thinking	Having to physically attend 20% of classes	The requirement from private partners to fund the university. The use of advertisements in lectures	Have to come on campus for labs and cannot get my personalised learning avator to complete my assignments	Continued stretch on resources

Table 5-4: Activity 1: Outcomes from future persona activity.

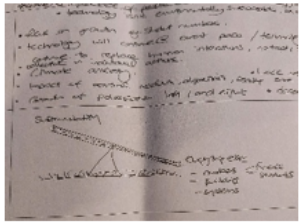
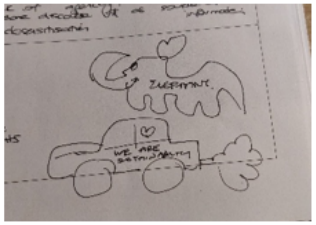
Layer	Group 1 (2 person)	Group 2 (3 person)
Litany	HEA funding aligned to Climate actions; CSHEI Strategy, Value, Objective and Strategic Enabler; 2030 Climate target; Disengaged student (and potentially staff) population; Perception that students require this of us and we must be seen to address this; Individual siloes and passions, not engrained or lived experience across culture; Not centrally embedded in things, it's an "add on" or after thought, not central; Big footprint of locations not easily physically connected	Stated official position: sustainability is a central tenant of every university behaviour Problem : fundamental disconnect between stated importance /priority versus individual and collective behaviour which falls short of stated goals
Systems	Political: TU Sector new and emerging, financially uncertain, lack of continuous funding. In policies nationally, without drivers or funds for TUs to enact policies. Politics is short term in nature , long term decisions required Economic: Housing crisis/cost of living – impact on students, Increasing reliance on non-centralised and privately sourced funding – "for profit" neoliberal agenda, Uncertain job market Social: Social isolation/reduction in communication/technology; Rise of right and/or polarisation; Replacement of people and jobs by technology. Technology isn't environmentally sustainable , but can be used for social good	A political narrative has catalysed sustainability goals within the university – but follow through lacks – funding, support, sector movement etc.
Worldview	Focus on growth of student numbers; Technology will continue and current pace /technology is the solution/will continue to replace human interactions Extinction of humankind as we know it, Collective or individual actions Climate anxiety: Impact of social media, algorithms, feeling some discover or use it as a source of information; Lack of agency; Growth of polarisation left/right -	Accepted across society the climate change is real and having an impact on the world Disconnect between personal actions on changing climate – lack of urgency/personal focus – multifactorial International political leadership causes disconnect
Metaphor	  See saw – sustainability at the top Large JEEP SUV – DIESEL – 6 L ENGINE – but painted green with the words sustainability on the side.	Large cruise ship – captain has picked a direction to somewhere everyone wants to go. People are on-board but ship is not moving - nobody doing anything to go anywhere

Table 5-5: Activity 3: CLA of sustainability in the CSHEI at present.

Forces	1 Grow	2 Collapse	3 Steady State	4 Transform
Population	*Ireland Population: 10million CSHEI student population: 35,000. World Population: 10billion*	*Ireland has a population of 2.5 million and CSHEI has a student population of 5,000. World Population 4 billion*	*Ireland population: 4.5 m CSHEI student population: 15m. World Population 7 billion*	*Ireland Population- 12 million, CSHEI Student Population:- 75,000. World Population 14 billion including Humanoids*
Energy	Energy prices still place financial burden on low income households	Due to lack of investment in required infrastructure over-reliance on imported energy continues in Ireland. Increased costs	Continued use of natural resources, supplemented with man-made options, but not significantly	
Economy	Increasing commodification widens inequalities. People still working long hours despite technological advancement	Many jobs replaced by humanoids. Job stability and economic stability no longer exist	Open economy, dependent and influenced by external forces e.g. US	Significant data storage facilities in Ireland due to climate suitability result in significant income. Fish farmers replaced with submerged data centres
Environment	Access to last remaining tracts of nature is prohibitively expensive. The river Shannon is polluted and dead	Herd population eradicated, viruses wiping out livestock; More extreme weather conditions leading to unpredictable crop growth; Many coastal areas uninhabitable, cities uninhabitable due to flood risks	Not subject to extreme changes, gradual change applicable	Artificial chemical processing and physical interventions have mitigated climate change. Lack of rare earth minerals has resulted in destroying areas external to earth (Moon and comets) with mining operations
Culture	Revival of Irish culture and embrace of multiculturalism still offers free opportunities for community, fun and expression	Fractured social interactions and connections arising from the growth of left/right extremes	Middle ground dominant but with tension between the far left and far right	Increasingly fractured with lower levels of social cohesion due to climate refugees and higher levels of personal debt, related to housing and food which are now scarce. *Multiplicity of rules creates dominant governance structure but has created an underworld of choice. Centralised decision making has promoted a culture of hidden resistance*
Technology	Technology has solved many problems for those who can afford it, while creating many more	Big brother is watching Technology – mental health issues/loneliness/isolation and somehow believe that technology the cause/solution Embedded health technologies	Gradual development of technology options, but not transformative in impact	Digital systems are where the vast majority of people interact. Automation and avatars make travel inessential. Costs of food are higher and ultra-processed food are popular. *Allows humans to live forever, but humanoids control, manage, inform every decision. Live actions are all prohibited*
Governance	Corporations have replaced universities and other sectors as xxx (illegible) constituencies. University graduate attributes linked to corporation mission statements.	Global unrest and war Right/left polarisation dominating globally Ireland local politics continues to dominate but at level when central government represents internationally but local rule	Democratic but governed tightly through laws and regulations	Citizens exist in a more observed society. Personal actions have freedom within a framework provided by Government. ID Cards required for all transactions. Digital identity directly linked to personal freedoms Detailed rules for every action/person, no individual decision making allowed or made. World is devoid of choice – only one colour (grey). No education system needed.

Table 5-6: Activity 4 – Grow, Sustain, Collapse and Transform scenarios for Ireland in 2050

Item	Group	Input	Discussion
Metaphor	Transform	Donut – hollow core – no community	Overall negative metaphors – even in transform scenario.; Perception that graduates are a number/function rather than person; Collapse – discussion that CSHEI part of a wider society that is not dealing with the core problem of climate change/SD; Technology a common feature; Lack of interpersonal connection
	Grow	Conveyor belt Producing graduates for corporate machine	
	Collapse	Overflowing bath – avoiding core problems	
Assumptions	Transform	No regional linkage, on-line, no applied learning, disintegrated	Technology significant part of Transform and Grow. Both of these didn't seem to consider climate impacts; Collapse – significant changes infrastructure, financial and socially due to climate change; Regional linkage broken in Transform scenario; Both Transform and Grow are producing graduates for economic activity ; More of teaching radically changed for Transform and Grow; Collapse see education being for local people (due to access) and lower economic class – but is privately funded???
	Grow	QA of AI Teaching, short courses, corporate needs, LLL converted, Access to HE via economic credit	
	Collapse	Coastal flooding, Food security, Limerick uninhabitable, funding private, scrambling for solutions	
Mission	Transform	No significant change (educ, research, engagement) but larger scale	While Transform group could have potentially radically changed mission chose to remain the same fundamentally. Group felt that they were more positive than other groups; Grow was more "negative" in terms of the purpose of CSHEI…training not education! Not thinking How to think but what to do!; Collapse felt that people able to solve problems by working with people will have become important (as tech and other areas will have failed?)
	Grow	Train next generation of cogs for the machine. Not How to Think	
	Collapse	"Delivering Innovation Solutions to Problems of Tomorrow Through people"	
Participants	Transform	Participating on-line and at a distance, humanoids as class reps, lecturers by bots	Strong link with students lost in Transform and Grow scenarios … Students in Collapse come from locality as access is an issue, lower socio-economic profiles; Only 5000 students in collapse
	Grow	Avatars (male!) respond to needs. Tech poverty exists need more to access AI, avatars	
	Collapse	Mainly for lower socio-economic cohorts	
Resources	Transform	Chip embedded in body, activity (attendance, exams)	Lecturers are more about managing data than thinking/expertise
	Grow	Tech poverty	
	Collapse	Mainly private funding	
Pedagogy,	Transform	AI Less about expertise but data management	Technology dominates!
	Grow/Collapse – Not Completed		
Campus	Transform	Has become a hub as not needed for delivery	Appears to becoming less relevant to have physical spaces
	Grow/Collapse – Not Completed		

Table 5-7: Activity 5: Transform, Grow, Collapse scenarios for the CSHEI in 2050.

Mission	Pedagogy	Resources
Courage to fight for what CSHEI believes Be Brave – Stick with Applied Learning. Double Down on This Strategic Decision is Not Necessarily Growth in Student Numbers Disconnecting from economic driver Take control back CSHEI becomes a nexus for learning – debate, conversations Critical thinking becomes our USP. Focus on Quality Is it too utopian Not one or the other – can have balance of tech, interpersonal etc Strand of research needs to be in mission Mission – students have power and knowledge to address SD and global challenges Mission – educating future students to be global citizens	"How to think" Be Brave – Stick with Applied Learning. Double Down on This More on-line teaching Different profile of teaching AI technologically enhanced Get rid of lectures – flipped classroom possibility Will companies live up to their part of bargain and demand the interpersonal aspect Change pedagogy – more PBL and TBL Still teaching knowledge but curricula is more interrogative and ESD focused Feelings Arts Skills not lost – still important but independent thinking re-enforced. Student agency in education	Sufficiency Think about carbon footprint for everything – e.g. 2 day week for students Carbon friendly approach 4 day work week HEA needs to align with our thinking Self-sufficient – food and energy AI technologically enhanced Additive use of AI in what we do (no displacement)
Campus	**Participants**	
Accommodation issue eliminated – will we need it if 2 day week Better social engagement Same footprint of campuses but doing more with same space Community spaces – change masterplan Home campuses which are accessible, bus light rail etc	Value of in-person interaction Student Population is 25k Challenge of culture coming from primary/secondary "Peak Student" – like peak oil. Be brave to say this is enough Global citizens	
Metaphor: *"Green house for the flowers of the future*		

Table 5-8: Activity 6: Preferred future for sustainability in the CSHEI in 2050.

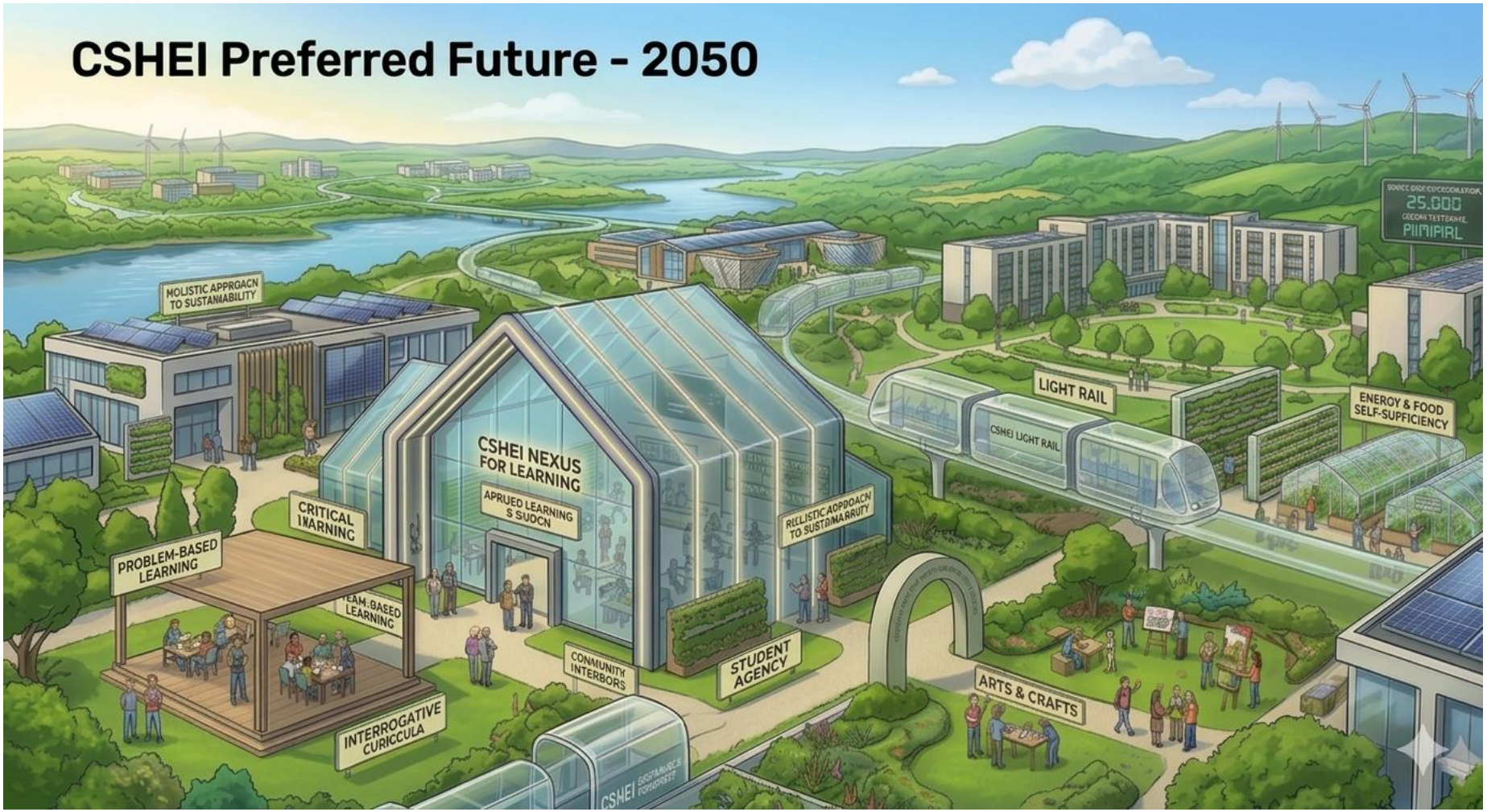


Figure 5-5: Activity 6: Preferred future for sustainability in the CSHEI in 2050 (Google Gemini generated image based on participants description).

	2025	2030	2035	2040	2045
Pedagogy	Academic Council debate on programmatic review and integration of SD What "dictates" to include	Move to including sustainability, critical thinking, soft skills across programmes Programmatic Integration of SD vs non-displacement of modules Review shift, Academic Council adoption Review of relevant policies	All programmes have sustainability, critical thinking, soft skills (communication) embedded CSHEI Graduate Attributes refined	Digitisation complete academically	Programme Development for 2050
Resources	Business process review in context of SD commenced Sustainability lens through everything that we do	Business processes – embedding culture of sustainability and efficiency e.g. timetabling	HEA funding structures shifts to support sustainability Academic Contract has changed from rigid 16/18hrs lecturing All processes reviewed through lens of sustainability	Carbon Budget for all staff Data Infrastructure available Digitisation complete operationally	
Campus	Contracts for Phase 1 student accommodation	Phase #1 student accommodation (adjacent) complete Purchase of land for Phase #2 student accommodation	Land purchased for CSHEI Farm Phase #2 of student accommodation (on-campus)	Planting of crops on CSHEI Farm, Training on animal husbandry Completion of buildings to net-zero	CSHEI Farm Operational
Participants	Upskilling\educating decision makers, senior management	Upskilling staff on SD	17,000 students Significant upskilling of all staff complete	19,000 students	22000 students Upskilling of staff
Mission	CSHEI Strategy to 2030 – key priority				

Table 5-9: Activity 7: Backcasting to 2025 from the CSHEI 2050 preferred future.

5.3.8 FT intervention summary

The scenarios envisioned during the FT interventions provide a rich, multi-layered series of insights into how sustainability leaders at the CSHEI navigated through the FT planning experience. Figure 5-6 summarises the outcomes from the interventions.

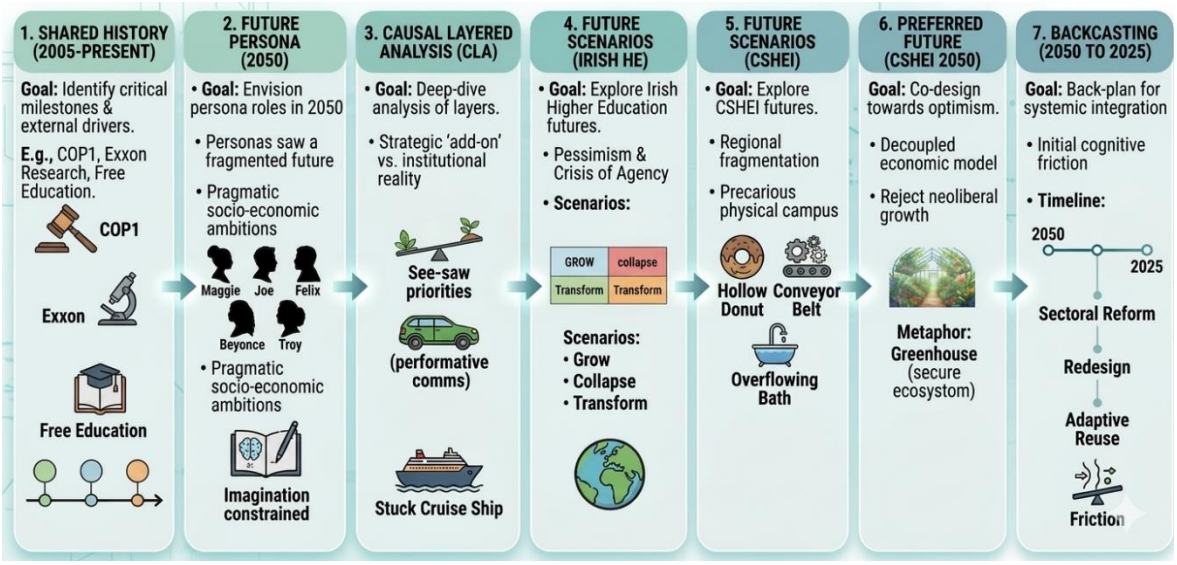


Figure 5-6: Summary of outcomes from FT interventions.

By moving from a descriptive shared history to the deeply metaphorical CLA, participants exposed a fundamental tension. While SCom members hold strong individual pro-ecological worldviews (as evidenced by NEP scores), and are strongly committed to the CSHEI's sustainability ambitions, they expressed frustration with the current approach to sustainability which they perceived as a "green-painted SUV" or a "stuck cruise ship". These metaphors act as a bridge between the quantitative data on leadership competencies and the qualitative nuances of the thematic analysis, highlighting a gap between personal values and professional agency with respect to their ability to mobilise enhanced sustainability planning at institutional level. Furthermore, the cognitive friction which the participants acknowledged during the backcasting, and scenario-building exercises underscores the present-day operational priorities that characterises senior leadership roles within the CSHEI. The resistance to working

backward from 2050, and the initial instinct to revert to linear, problem-solving logics, suggests that the adoption of futures oriented approaches is not solely a logistical challenge but a cognitive one.

5.4 Thematic Analysis.

This section presents the outcomes from RTA of the outcomes and observations during the FT interventions and semi-structured interviews held with SCom members. Seven themes were developed with the linkage between themes and research questions shown in Table 5-9.

Theme Label	Theme description	RQ contribution
SCom_T1	Progress on sustainability being made but it is fragmented and not yet embedded	RQ1
SCom_T2	Different approaches to how sustainability is interpreted and prioritised	RQ1
SCom_T3	Conflicting priorities can constrain transformative sustainability planning	RQ1
SCom_T4	Thought leadership and strong values required to transform into a sustainable university	RQ1 and RQ2
SCom_T5	FT can foster hope while also acknowledging fears of the future	RQ2 and RQ3
SCom_T6	FT can release you from the present to imagine new possible futures	RQ2 and RQ3
SCom_T7	Futures-oriented planning should be viewed as a process and not just a skill	RQ2 and RQ3

Table 5-10: Phase 2 themes from RTA and contribution to research questions.

5.4.1 Progress on sustainability being made but it is fragmented and not yet embedded.

The analysis suggests that the CSHEI's current sustainability approach is making incremental progress on sustainability, with the focus being predominantly on environmental sustainability. Evidence of transformative or futures-oriented integration is largely absence. While participants acknowledged institutional commitment to sustainability there was concern that sustainability has yet to become fully embedded across the university, with one participant wondering "*..how are we going to make it core?"* (CSHEI_6). While sustainability is clearly

evident within the institutional strategy the analysis suggests that strategic recognition has not consistently translated into systemic action throughout the institution. Participants articulated appreciation that governance and coordination structures signalled a shared perception, at an institutional leadership level, that sustainability is increasingly prioritised. One participant also highlighted efforts to adopt a whole-of-institution approach due to " *the inclusion of the whole organisation on our overall SCom."* (CSHEI_12). The researcher interpreted the data as reflecting a shared aspiration that sustainability leadership should be distributed across the institution, rather than confined to senior management teams. The increased focus on research within the HEI, away from a previous focus predominantly on teaching within an Institute of Technology, was highlighted by one participant as a means to enhance and develop the critical thinking needed for sustainability.

...a greater research remit…. get out of the cycle of teaching..mentality. (CSHEI_9).

However, evidence of progress was predominantly framed in the context of environmental sustainability. Language associated with energy, waste, solar energy and ecological impact recurred throughout interviews reflecting a strong understanding of the imperative to address key environmental issues. While participants demonstrated strong ecological awareness, one questioned whether the foregrounding of environmental sustainability was due to this dimension of sustainability being the "*easy bit*" (CSHEI_5). This frames environmental sustainability as manageable through measurable targets and technical interventions, whereas deeper cultural and curricular transformation requires more profound structural change.

The analysis further suggests that sustainability action is shaped by a compliance culture, reinforcing findings in Phase 1. Participants frequently referenced external mandates "*the Performance Compact, because the HEA looked for it"* (CSHEI_12) and highlighted a tension between responding to multiple external compliance requirements where there is "*a case of*

them sometimes being in conflict with each other" (CSHEI_2). Patterns construct a desire to move beyond compliance where "*every program can tick a box*"(CSHEI_11) towards deeper more transformative action which embeds sustainability across the organisations culture, policies and practices. The need for a wider holistic conceptualisation of sustainability was evident but concerns about how to communicate this to the wider CSHEI community were raised

> *..this is about sustainable livelihoods; this is about people.* (CSHEI_1)
> *..people don't realise it does impact upon.. environmental, social, economic, whatever.* (CSHEI_4).

Participants recognised that change in some areas will take time in particular in relation to embedding sustainability within curricula (CSHEI_9) while one participant expressed frustration that action was not being taken (or assigned)

> *I don't feel I'm getting my hands dirty on anything* (CSHEI_10).

Participants acknowledged the importance of pragmatic approaches to overcome on the ground barriers and grasp evolving opportunities. Creating space for constructive critique of current policy, practice and actions is seen as a priority to embed sustainability. Rather than simply generating new actions and endeavours, such critiques should carefully examine current practice and address the challenges faced in delivering on our ambitions

> *But actually, to what extent are our actions and practices really sustainable…* (CSHEI_1).

Participants articulated similar fears to sustainability leaders in Phase 1, that sustainability could be seen as luxury item and advocated for it to be made core from a funding, resources and policy perspective. While governance structures such as the SCom were deemed critical, participants noted poor translation of sustainability into actionable, role-specific behaviours,

connecting with the theme of sustainability being conceptually ambiguous and strategically under-defined

> *the bit we haven't done …. is actually translate it into each of the components of the organisation …* (CSHEI_12).

Embedding sustainability within curricula was seen as a particular priority with the majority of participants advocating for explicit policy actions through Academic Council. Faculties and Academic Departments should adopt reflective practices with a focus on integration of sustainability across curricula and avoiding minimalist compliance approaches.

Taken together, these patterns construct the CSHEI as institutionally committed and ambitious in relation to sustainability yet operating within an environmentally dominated framework. A tension emerges between stated ambition and the absence of a coherent long-term roadmap capable of embedding sustainability across the "*university as institution, educator, researcher, and innovator"* (CSHEI_6). This analysis suggests an emerging understanding amongst SCom participants that sustainability has failed to be embedded within the CSHEI not because of lack of governance, but because of weak translation into everyday roles, practices, and decisions. This aligns with the perception from the CLA of sustainability being an "add-on" rather than a core priority, with considerable change required to achieve one participant's ambition that sustainability

> *..embedded in every single thing that we do without even having to say..* (CSHEI_11).

The theme clearly reflects the need for an alignment of vision, values, policy and practice if the CSHEI is to transform into the type of sustainable university envisaged by Rotondo and Giovanelli (2024).

5.4.2 Different approaches to how sustainability is interpreted and prioritised.

Sustainability within the CSHEI is presented in this theme as conceptually ambiguous and strategically under-defined, resulting in uneven interpretation, fragmented implementation, and constrained institutional transformation. Participants described sustainability as broad, multifaceted, and open to multiple interpretations at both institutional and individual levels with one participant concerned it was

> *...so broad and multifaceted that it is hard to…actualise for a lot of people.* (CSHEI_12).

Tension arose between a perception that the CSHEI needs to determine its own institutional definition of sustainability, and an appreciation that sustainability's breadth enables engagement across multiple disciplines and stakeholders. The analysis suggests a clear institutional definition is required if sustainability is to be extended beyond governance structures to mainstream sustainability "*outside the…the operations of the Sustainability Committee*" (CSHEI_2). Tensions associated with definitions were framed as potentially generative, capable of stimulating richer debate and stronger strategy.

> *There has to be tensions. …. You would hope that that leads to stronger discussion to happen and, and in the sense of stronger strategy.* (CSHEI_4)

This ambiguity also intersected with participants' confidence and capacity. While one SCom member expressed strong personal commitment there was acknowledgement of differing levels of knowledge and expertise.

> *I feel very strongly about this topic… but not all people do.* (CSHEI_7)

This intersects with the analysis of ecological worldviews and sustainability competencies. Slightly lower confidence levels related to systems thinking and anticipatory competencies suggest that definitional uncertainty may constrain participants' ability to articulate sustainability and preferred futures.

The analysis indicates that participants aspire to a holistic definition of sustainability "*outside of the infrastructure of a building*" (CSHEI_9), that is not restricted to the environmental pillar or aligned to an economic growth agenda "*it's not about sustaining economies*" (CSHEI_1). This resonates with the earlier theme suggesting that the current focus is predominantly on environmental sustainability. Recurring references to social and economic pillars of sustainability (quality of life, socio-economic, SDGs, social sciences) confirm this desire towards a broader framing, with one participant suggesting that "*all our issues are societal*" (CSHEI_6). The relative absence of references to the cultural pillar mirrors gaps identified in the document analysis of Irish HEIs.

Opportunities for engagement with underrepresented disciplines was highlighted as being important. One participant advocated for specific efforts to be made to counter the perception that sustainability is primarily a technological issue, while another explicitly highlighted that engagement with non-scientific/engineering disciplines can stimulate FT approaches.

> *the engineers and the scientists and all of that, that that's their job* (CSHEI_11)
>
> *…actually doing.. sociology-type approaches..bring in that notion of future thinking..* (CSHEI_10).

Taken together, these patterns suggest that participants would welcome an agreed definition of sustainability within the CSHEI. Doing so may contribute to moving sustainability beyond governance structures and narrow environmental framings, with a shared, holistic definition helping to guide action and be foundational in the design of a futures-oriented sustainability strategy.

5.4.3 Conflicting priorities can constrain transformative sustainability planning.

The analysis identified patterns suggesting that sustainability planning at the CSHEI is constrained by systemic, cultural, and temporal forces that privilege compliance and short-termism over transformation.

This theme presents strategic planning at the CSHEI as temporally compressed and shaped by structurally reactive frameworks. The majority of participants reflected on a lack of time to engage in sustained, critical, and futures-oriented thinking. The analysis suggests frustration with the limited time available for debate of current and emerging issues such as sustainability

> *Who has time to think that way now, ...?* (CSHEI_11)
> *...we don't have time to do this sort of thinking.* (CSHEI_8).

The data suggests participants would appreciate greater protected intellectual space, framed as necessary for reclaiming the university's critical and future-oriented role. The repeated emphasis on short-term fixes (CSHEI_2), perpetually changing funding cycles (CSHEI_9) and five-year planning frameworks constructs a temporally compressed institutional planning environment in which long-term sustainability ambitions struggles to gain traction. One participant suggested that the system is "*designed to be reactive rather than strategic*" (CSHEI_4).

The pattern points to challenges experienced by participants in prioritisation of sustainability amongst a range of other competing areas. Participants described an institutional landscape characterised by agenda crowding, where sustainability competes with other strategic priorities for limited managerial attention and resources. In such an environment, sustainability becomes "*something that you kind of get to*" (CSHEI_9) rather than something which structures strategic action, rendering futures-oriented planning aspirational rather than operational. This

competition was perceived as reinforcing sustainability's precarious position within the current system. Despite recognising structural constraints, participants articulated a clear aspiration to shift towards more proactive, futures-oriented approaches with one participant noting

> *unless we do it that way* [using futures thinking] *we are reactive, can you really be proactive if the 5 years is your vision.* (CSHEI_6).

These patterns demonstrate a crowded strategic planning environment that is structurally reactive and temporally compressed, with ambitions for more futures-oriented sustainability approaches emerging despite current inhibiting factors.

Other competing priorities raised by SCom members included a HE system shaped by a dominant neoliberal growth logic, and the HEIs evolution as a Technological University. Participants reflected on the realisation, and feelings of discomfort, that HE has entered a "*corporatist phase*" (CSHEI_1) and that "*the business of education has taken over…"* (CSHEI_11). The recurring language of growth, KPIs and a need to grow student numbers (CSHEI_5) constructs a system in which market-oriented performance metrics are prioritised and displace sustainability impact as primary indicators of institutional success. One participant expressed resignation towards the dominance of neoliberal growth logics (CSHEI_11), while another framed viewed transformational approaches to sustainability planning as an opportunity

> *to be challenging that kind of dominant neoliberal growth…narrative* (CSHEI_2).

Participants articulated unease and frustration regarding a perceived vacuum of long-term sustainability leadership at a national policy level and fluctuating government priorities. This unease is reflected in one participant's sense that the CSHEI, and other HEIs are potentially *"exposed from a government perspective*" (CSHEI_4) with the risk of reduced resources being

available in the future. One participant suggested that HEIs need to reassert their ability to foster possibility, imagination and deliver societal impact,

> *This is what education is all about. What are the possibilities? Where could we go?* (CSHEI_11).

The analysis suggests underlying challenges in embedding sustainability within the CSHEI related to its recent formation as a new HEI. Organisational evolution, fatigue arising from change management, bureaucratic processes combined with managing operations across multiple campuses are perceived as limiting institutional capacity to prioritise futures-oriented sustainability plans. Participants articulated pride in what had been achieved to date while also recognising that action on sustainability cannot wait.

> *for a university of its age, an awful lot has been accomplished* (CSHEI_1).

Taken together, these patterns present the CSHEI as operating in a HE system characterised by market-oriented performance metrics, political short-termism and ongoing organisational change, all of which were perceived as constraining transformative sustainability action. Yet participants advocate for HEIs to reassert their normative and societal role by challenging growth-dominated logics and embracing futures-oriented sustainability leadership.

5.4.4 Thought leadership and strong values required to transform into a sustainable university.

The theme captures participants' ambition that the CSHEI can be a sustainability thought leader delivering positive societal impacts, and not just passively complying with policy and regulatory requirements. Participants contrasted this aspirational role with the risk of passive, compliance-driven engagement, seeking to position thought leadership and sustainability values as a mark of institutional courage, ambition, and future orientation. Participants articulated an expectation that universities should operate at the forefront of new thinking,

challenge dominant narratives, and actively agitate for societal change, rather than responding passively to external mandates.

> *Higher education institutions….. should be at the forefront of new thought and new discussion.* (CSHEI_4).
>
> *That higher education has to lead it….Because education should always be the leaders.* (CSHEI_11).

The analysis suggests that participants viewed the development of a new institutional strategy as a critical opportunity for the CSHEI to articulate this leadership role and embed ambition within strategic planning. One participant highlighted the need to align institutional strategic ambitions with specific sustainability goals.

> *A metric of ambition within the new strategic plan… will be necessary in order to deliver a meaningful, accepted, embraced sustainability strategy. (CSHEI_6)*

Strong leadership, advocating for systematic changes will also be required if long-term sustainability ambitions are to be realised. Participants articulated a culture across higher education where systematic constraints exists due to legitimate risk management and accountability controls. Existing preferences for prediction and forecasting, viewed as straight-jackets by one participant, will present challenges to the adoption of FT approaches. Leadership and a commitment to core values will be necessary to achieve longer term visions, with one participant suggesting perseverance will be important, at times of funding or resource constraints.

> *how much the university can commit to… and stick with it in challenging times* (CSHEI_2).

Participants highlighted the potential for the CSHEI's influence to extend beyond the institution itself, suggesting that by positioning itself as a sustainability thought leader, its impact could be amplified through staff, graduates, and wider societal engagement

…you're more of an influencer within society, not just producing graduates. (CSHEI_4).

The analysis indicated participants connected the dimension of leadership with that of values. Throughout the interviews values as a topic was woven through the conversations, with many participants suggesting a clear articulation of values is a critical reflection of a HEIs long-term commitments to sustainability. The analysis indicates that sustainability should be positioned as a core value, and not just as management task to be implemented. Despite participants articulating a need to deeply embed sustainability as a value within future strategic plans one participant expressed apprehension about the CSHEI's ability to deliver on its ambition

> *How are we going to live that value that becomes part of our brand into the future* (CSHEI_6)

However, one participant (CSHEI_1) articulated a fear that a significant value-action-gap exists where stated values are not always reflected in the actions of the CSHEI as an organisation or indeed the behaviours of students and staff. Such mis-alignment was interpreted as possibly resulting from pragmatic resistance, lack of knowledge/skills, differing worldviews or interpretations of sustainability as a value.

The findings underscore a collective desire of SCom members for the CSHEI to transcend passive compliance and embrace a role as a sustainability thought leader. The CSHEI can shift from a producer of graduates to an influential driver of long-term change, positioning sustainability not as a mandate to be met, but as an opportunity to redefine the university's value within a complex, neoliberal landscape.

5.4.5 FT can foster hope while also acknowledging fears of the future.

This theme presents a tension between aspirational institutional futures and embedded fears about possible futures, including those involving societal collapse. The preferred future, which emerged from the FT interventions presented an image of positivity, reflecting participants

ambitions for the CSHEIs' holistic approach to sustainability. The preferred future imagined the CSHEI as a decentralised, community-engaged, and holistic sustainable university by 2050, yet the analysis suggests patterns of apprehension and unease about broader societal trajectories. These fears could be framed around the radical changes and compromises needed due to the critical climate challenges facing society "*there are no non-radical futures*" (CSHEI_2), and an implicit expectation that the wider societal future may be dystopian.

A dystopian future is embedded in our thinking. (CSHEI_6).

Outcomes from activities within the FT interventions appear to reinforce this pattern, with several scenarios (from Activities 3 and 4) framed as negative, depressing and offering limited hope. The pattern of concern and fear went beyond sustainability, with participants reflecting on wider societal issues such as AI, data centres, economic instability and the future of education. The analysis suggests concerns are shaped, not only by sustainability challenges but a broader societal discourse of crisis and uncertainty. The factors influencing this negativity/pessimism could also be framed within a possible dominant imagery of crisis as well as cultural imagery.

.. *reflecting the narrative and the discourse that's out there...* (CSHEI_12).

.. *I love a good dystopian sci-fi movie* (CSHEI_8).

One participant acknowledged that few people are comfortable thinking about their life and mortality and therefore are uncomfortable in imagining a future in which they are not in it (CSHEI_5).

While participants recognised the value of exploring pessimistic or dystopian futures, several expressed discomfort with the dominance of negative futures. There was concern that excessive pessimism could undermine motivation and agency and that the emphasis should be on hope, optimism and purpose.

if there's future thinking, I think that positivity needs to be brought back into it…? (CSHEI_4).

A notable contrast emerged between participants' darker imaginaries of societal futures and their more optimistic framing of the CSHEI as a sustainable university. When discussion shifted to areas within the university's sphere of influence, participants' tone became more hopeful and solution-oriented.

the positivity towards the university and its future role. It's completely at odds with what they see for society,.. (CSHEI_6).

Participants articulated the need for, and their interest in developing, a long-term vision for sustainability in the CSHEI, while also accepting different pathways may need to be taken to achieve that vision. Participants reflections point to FT enabling greater freedom to articulate such visions along with feelings of engagement and excitement.

I felt it was more of a freedom to have a vision. (CSHEI_9).

dreamt about .. what is the university that we'd like to create" (CSHEI_11).

the next step up in sustainability....that creates a bit of excitement about sustainability within the Institute (CSHEI_4).

The researcher interprets this pattern as indicating that perceived agency plays a critical role in shaping futures. Where participants felt control and influence (within the CSHEI), optimism prevailed; where futures were framed at societal or global scales, dystopian narratives dominated. This finding suggests that FT methodologies must attend carefully to the emotional and discursive dimensions of anticipation, ensuring that critical engagement with crisis does not eclipse hope, agency, and constructive imagination.

5.4.6 FT can release you from the present to imagine new possible futures.

This theme was constructed from a pattern related to operational constraints, counterintuitive thought process and participants reflections on the FT interventions. Participants experienced

FT as a deliberate disruption to habitual modes of strategic planning. FT approaches were perceived as a break away from normal incremental planning processes participants had previously been exposed to in HE. Participants contrasted futures-oriented planning processes with more traditional strategic planning processes. While the legitimacy of traditional planning approaches was accepted (CSHEI_11), participants articulated frustration with predicable outcomes, a lack of innovation and an implicit resistance to paradigm shifts.

> *... it's easy to see incremental change, but you don't see paradigm shifts* (CSHEI_8).

FT was consistently framed as a valuable mechanism enabling a shift beyond short-term, operational, compliance-driven and habitual planning logics, addressing the reactive, compliance oriented planning culture in HE identified earlier. The use of personas, scenario exploration, and backcasting disrupted entrenched ways of thinking and opened space for imagination, creativity and ambition.

> *What could you do? What are the limits? Where could we go?* (CSHEI_8).

Connected to this disruption of planning logic was participants experiences of psychological and cognitive separation from their daily operational focus. Reflection on current institutional routines evoked images of drudgery, slow progress, frustration, need for escape from transactional activities and "*firefighting"* (CSHEI_9). Separation from operational pressures and constraints was also connected by participants to an absence of (hidden) agendas with the FT interventions (CSHEI_2). FT was perceived as requiring a deliberate act of escape from these limitations, where deeply embedded operational norms were understood to restrict imagination.

> *You need to actually catapult yourself past that… fling you over the kind of moat of the sort of stuff you get stuck in.* (CSHEI_8).

At a cognitive level, participants reflected on the difficulty of imaginative thinking itself. FT was seen as demanding a level of cognitive freedom that is often underdeveloped within institutional contexts, while other participants acknowledged their own limitations, particularly those with limited expertise in sustainability.

But some people are not very good at imagining things….. (CSHEI_1).
I just found it very hard imagining in the discipline of sustainability (CSHEI_10).

Connected to the challenge of imagination, was a perceived weaknesses in relation to metaphor development, despite the researcher acknowledging the power of some of the metaphors developed.

I suppose the metaphor ….. we found that challenging now (CSHEI_11).

The example of a proposed CSHEI farm, emerging during the preferred future exercise, was cited as an example of an imaginative idea that may not surface under conventional strategic planning environments. The analysis suggests that FT functioned not by replacing traditional planning approaches, but by suspending institutional constraint long enough to allow participants to engage with more expansive and ambitious institutional futures.

5.4.7 Futures-oriented planning should be viewed as a process and not just a skill.

This theme captures the affective and developmental responses of participants to engaging with FT. Despite their limited knowledge of FT prior to the interventions, participants expressed feelings of both intrigue and excitement with the topic, seeing it as a potential catalyst for change (CSHEI_6). Prior to the FT interventions, a pattern of uncertainty, and lack of knowledge of FT was evident with references to "*scared*" "*scary*" (CSHEI_12) (CSHEI_11) and "*fear*" (CSHEI_6). The analysis articulated strong positive emotional responses towards

FT, and the FT interventions with the majority of participants highlighting positive emotional responses. Reflections included enjoyment, freedom, inspiration, hope, motivation and energy.

> *you know, I had a bounce in my step after it* (CSHEI_11).
> *..it's more like a breath of fresh air in terms of the possibilities* (CSHEI_9).

These responses suggest that FT not only disrupted habitual planning logics but also contributed to temporarily counteracting the fatigue and constraint associated with day-to-day institutional life.

Participants also framed their experience as a learning journey. While one participant initially perceived FT as abstract and complex (CSHEI_10), the majority reflected a gradual shift towards comprehension and appreciation of applicability.

> *..the penny started to drop for me. I could actually see it being deployed* (CSHEI_12).

This transition from abstract theory to perceived utility can be interpreted as FT having moved from being an unfamiliar methodology to a transferable approach to strategic thinking. Participants expressed a willingness to share and extend their learning beyond the SCom group, framing FT as a "*conversation starter*" (CSHEI_10), with potential to influence wider organisational practice. The analysis indicates that FT was experienced not only as an intellectual exercise but as a developmental intervention, contributing to reshaping both participants' affective orientation towards the future and their perceived agency in shaping institutional strategy.

The analysis also captured acceptance from participants of a strong tendency to revert to conventional linear, short-term thinking when exposed to the backcasting activity and take a habitual incremental approach (CSHEI_6). The researcher's intervention in preventing this reversion was interpreted as necessary.

> *…doing the backcasting, the not letting us run back to 2025 that was… I thought that was important,* (CSHEI_8).

These reflections suggest that futures-oriented thinking requires sustained cognitive effort and, as one participant noted, "*retraining the mind*" (CSHEI_11) to counter deeply embedded operational reflexes. This affirms a sense that FT should be viewed as a process and not an operational activity to complete.

Patterns suggest a deepening of their conceptualisation of the CSHEI as a sustainable university. Sustainability was no longer framed narrowly around estates, carbon, or technology, but as encompassing social, cultural, and economic dimensions. This evolution in thinking is particularly evident when contrasted with earlier CLA depictions of sustainable development as a peripheral "add-on" or additional priority.

Prior to the interventions, a small number of participants demonstrated an awareness of the intrinsic relationship between sustainability and temporality.

> *...sustainability literature... when you pull a lot of it back it is actually about the future.* (CSHEI_1).

Participants articulated an increased intergenerational orientation, emphasising that sustainability planning must extend beyond immediate institutional timeframes, and demonstrating a strong appreciation of the temporal nature of sustainability (CSHEI_12). This temporal broadening was accompanied by a reframing of climate anxiety. Rather than avoiding discomfort, participants described FT as helping them to "*sit with the discomfort*" (CSHEI_2), transforming fear into constructive engagement. The analysis suggests that FT enabled participants to reassert agency in the face of uncertainty, reframing FT as a means of reclaiming control rather than succumbing to dystopian narratives.

Participants moved to endorse FT as a legitimate strategic methodology for long-term sustainability planning within the CSHEI with participants advocating for FT to be embraced as part of future CSHEI strategic planning processes.

I'd love to see this part of the strategic plan development (CSHEI_10).

Despite recognising cognitive, cultural, and structural barriers to its wider adoption, participants articulated a clear desire to embed FT approaches across the university, signalling a shift from experimental engagement to strategic endorsement. While FT was experienced as energising and valuable, its institutionalisation would require cognitive development, cultural adaptation, and leadership-level commitment.

In the context of the application of FT processes structural concerns were raised about the representativeness of the cohort involved in the FT interventions. Participants acknowledged that SCom members may be biased towards progressive and future-oriented thinking than the wider institutional population. A lack of diversity in participants involved in the FT interventions was raised by one participant

you had too many straight-line thinkers, possibly.. (CSHEI_12).

These concerns raised questions about how FT approaches would be received by other senior leaders or more risk-averse audiences. This could be interpreted as a fear/apprehension that larger-scale or senior-level participation could introduce fixed agendas, reduce openness, and compromise deeper engagement.

5.5 Conclusion

This chapter has presented a situated, empirical account of sustainability within the CSHEI, suggesting that the institution is at a critical threshold. The findings indicate a significant paradox: while SCom members demonstrate a high degree of ecological awareness and a desire

for WoI transformation, their practical agency is consistently curtailed by the growth imperatives and short-term funding cycles that define the current HE landscape. Participants reflected that the FT interventions temporarily “catapulted” them away from everyday thinking, moving participants towards an articulation of a preferred future, the "Greenhouse" model, where sustainability is a core pedagogical and operational principle rather than a peripheral compliance requirement.

The evidence gathered across Phase 2 suggests that for the CSHEI to move from a position of accommodating sustainability to where it implements significant transformation it should position itself as a thought leader advocating for sustainability not just at an institutional level but regionally and nationally. The FT interventions demonstrated that when provided with protected intellectual space, leaders can move beyond dystopian fears toward proactive structural reform. However, without consistent integration of FT methodologies, there remains a significant danger of reverting to norm.

These findings set the stage for the following Chapter, which critically evaluates these themes against the wider literature on sustainable universities and transformation. By situating the CSHEI experience within the broader Irish HEI context, the next chapter will propose a framework for futures-oriented sustainability planning that seeks to reconcile the tension between immediate institutional priorities and long-term sustainability.

6 Chapter 6: Discussion

6.1 Introduction.

Despite the extensive history of international collaboration amongst HEIs and the evolution of the SDGs and international frameworks, specific policy drivers for SD in HEIs in Ireland are relatively recent. The Ireland's 1st National ESD strategy, developed in 2014 (Government of Ireland, 2014), had a limited focus on higher education but the 2nd National Strategy for ESD addresses it specifically (Government of Ireland, 2022). The Irish National Climate Action Plan sets carbon emission reduction targets (Government of Ireland, 2023) and Climate Action Mandates set broader environmental targets (Government of Ireland, 2025). The literature review highlighted the significant increase in research studies examining SD within HE since the launch of the SDGs in 2015, but the literature search found few studies focused on sustainability planning within Irish HEIs. This compares poorly with other countries and provided the warrant to explore how Irish HEIs were responding to the sustainability agenda within sustainability strategies, policies or action plans. This chapter presents a summary of the main research findings and discusses them in the context of the literature. The discussion connects the analysis with the core research questions (RQs):

- RQ1: How is sustainability characterised within strategic planning in Irish HEIs?
- RQ2: In what ways might FT approaches contribute to sustainability planning in HEIs?
- RQ3: How do sustainability leaders perceive the effectiveness and usability of FT methods in enabling them to develop a sustainability strategy?

6.2 Final overarching themes.

The research study culminated with the development of three overarching themes. Theme 1 focuses on an expansion of sustainability within HEIs across all pillars while Theme 2

addresses wider sustainability ecology, systems, structures and associated constraints. Finally, Theme 3 focuses on approaches and benefits of futures-oriented sustainability planning. Each overarching theme acts as an umbrella concept anchoring a number of category themes together (Braun and Clarke, 2022). Each category theme addresses a single central concept contributing to the overarching theme. The individual themes identified during Phases 1 and 2, contribute to each category theme by addressing one particular aspect of that category theme. Table 6-1 and Figure 6-1 illustrates the overall structure and alignment of themes, category themes and overarching themes.

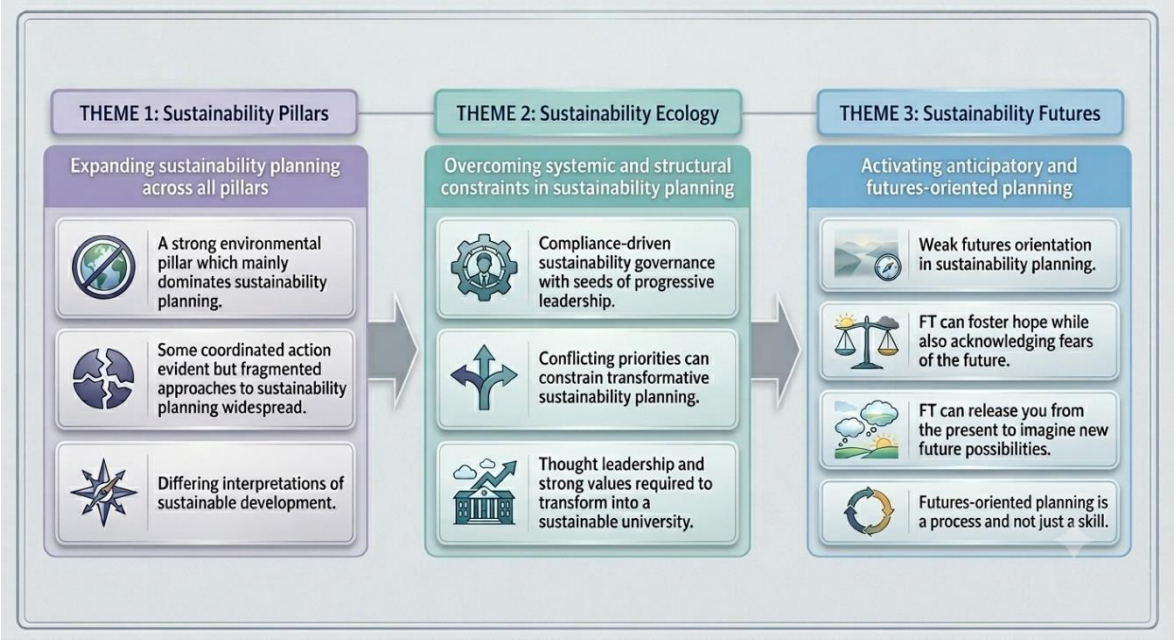


Figure 6-1: Final overarching themes and their category themes.

Theme Label	Theme	Category Theme	Overarching Theme
DA_T1	A strong environmental pillar which mainly dominates sustainability planning.	A strong environmental pillar which mainly dominates sustainability planning	Sustainability Pillars: Expanding Sustainability Planning across all pillars
SLI_T1	A strong environmental pillar which mainly dominates sustainability planning.		
DA_T2	Some coordinated action evident but fragmented approaches to sustainability planning	Some coordinated action evident but fragmented approaches to sustainability planning widespread	
SLI_T2	Some coordinated action evident but fragmented approaches to sustainability planning		
SCom_T1	Progress on sustainability being made but it is fragmented and not yet embedded		
SCom_T2	Different approaches to how sustainability is interpreted and prioritised	Differing interpretations of sustainability	
SLQ_1	Sustainability pillars: Personal vs Institutional Priorities		
DA_T3	Compliance-driven sustainability governance with seeds of progressive leadership	Compliance-driven sustainability governance with seeds of progressive leadership	Sustainability Ecology: Overcoming Systemic and Structural Constraints in Sustainability
SLQ_2	Evolving governance structures		
SLQ_3	Progressive action aligned to National policy		
SLI_T3	Commitment evident but conflicting priorities	Conflicting priorities can constrain transformative sustainability planning	
SCom_T3	Conflicting priorities can constrain transformative sustainability planning		
SCom_T4	Thought leadership and strong values required to transform into a sustainable university	Thought leadership and strong sustainability values required to transform into a sustainable university	
DA_T4	Weak futures orientation in sustainability planning	Weak futures orientation in sustainability planning	Sustainability Futures: Activating Anticipatory and Futures-Oriented Planning
SLI_T4	Limited FT knowledge and capacity		
SLQ_4	Limited FT knowledge and capacity		
SCom_T5	FT can foster hope while also acknowledging fears of the future	FT can foster hope while also acknowledging fears of the future	
SCom_T6	FT can release you from the present to imagine new possible futures	FT can release you from the present to imagine new possible futures	
SCom_T7	Futures-oriented planning should be viewed as a process and not just a skill	Futures-oriented planning should be viewed as a process and not just a skill	

DA: Document analysis; SLI: Sustainability leaders interviews; SLQ: Sustainability leaders survey; SCom: Sustainability committee interviews and FT intervention observations; T1, T2 etc.: Theme 1 in respective analysis phase; e.g. DA_T1: Theme 1 in Document analysis phase.

Table 6-1: Final overarching themes, category themes and themes.

6.3 Theme 1: Sustainability pillars - Expanding sustainability planning across all pillars.

This theme constructs SD in Irish HEIs as predominately environmentally focused with evolving but fragmented holistic and WoI approaches. The theme, and its category themes reflect the evidence from documentary analysis and insights by sustainability leaders at sectoral and institutional level of the need to widen and deepen action on sustainability, while also exposing a gap between rhetoric and reality. It articulates a need to agree a conceptual framework for SD within HEIs as differing interpretations of sustainability and SD can potentially cause ambiguity. This theme also creates a bridge to thematic area two which is focused on the structural and systematic constraints preventing HEIs taking such holistic and WoI approaches to sustainability planning. Broadly this theme, and its category-themes contribute to answering RQ1 "How is sustainability characterised within strategic planning in Irish Higher Education Institutions?"

6.3.1 A strong environmental pillar which mainly dominates sustainability planning.

The research contends that Irish HEIs appear to compare favourably with Spanish HEIs when comparing the presence of sustainability within their institutional strategies, with 82% referencing sustainability, to some degree, compared to 70% in a Spanish study (Bautista-Puig and Sanz-Casado, 2021). They also appear to be in line with international trends identified by Rotondo and Giovanelli (2024) suggesting a level of institutional isomorphism emerging within the sector (Zdonek *et al.*, 2025). The analysis suggests that this isomorphism within Irish HEIs may be influenced by the emergence of key national climate and ESD policies in recent years. While a small number of Irish HEIs present a substantial history of sustainability action, these recent policies prompted all HEIs to develop Climate Action Roadmaps (CARs) and two out of five new Technological Universities have developed sustainability strategies.

However, this research suggests that deeper analysis beyond institutional strategies exposes a possible gap between strategic rhetoric and operational reality. On the ground reality, informed by sustainability leaders, suggests that to date HEIs have mainly concentrated resources and actions on environmental sustainability, achieving progress in areas such as energy, waste and carbon emissions with measurable outputs and impacts being to the fore. This operational and environmental reality aligns with research in other jurisdictions across Europe (Bautista-Puig and Sanz-Casado, 2021), Canada (Lidstone, Wright and Sherren, 2015), North America (White, 2014) and Australia (Sen *et al.*, 2022). The foregrounding of environmental sustainability aligns with the suggestion by one participant that environmental sustainability is in fact the "*easy bit*" (CSHEI_5). It could therefore be argued that while sustainability leaders perceive their HEIs to be in Bieler and Mckenzie's progressive category, this advancement may have primarily been within the context of environmental sustainability.

A possible explanation for the progress that has been made is the influence of external policy frameworks. Climate and ESD policies, combined with increased access to supports and resources at a sectoral level has contributed to many HEIs, including the CSHEI, projecting progress. The metrification of HE, including that of sustainability, requires HEIs to report more frequently on their progress (McCowan, 2023b). Sustainability leaders acknowledge that social, cultural and indeed economic areas of sustainability often suffer from a deficiency in both qualitative and quantitative data "*..social aspects…..but our data collection probably isn't what it should (be)*" (SLI_5). In contrast, environmental sustainability, which often provides measurable data from technical interventions, can provide more accessible quantitative data and outputs to meet relevant reporting requirements.

The foregrounding of environmental sustainability does not appear to be unique to Irish HEIs with similar challenges highlighted in other studies (Casarejos, Frota and Gustavson, 2017;

Bautista-Puig and Sanz-Casado, 2021). The overshadowing of the social pillar is consistent with conclusions from other studies (Pinheiro *et al.*, 2024; Dickson, 2025) and it suggests a need for HEIs to place specific attention to this issue (Barnett-Itzhaki *et al.*, 2025). There is an absence of references to cultural sustainability across the majority of Irish HEIs, with only one HEI making an explicit connection between culture and sustainability. Despite UNEP calls for HEIs to ensure sustainability actions are culturally equitable (United Nations Environment Programme, 2022), HEIs in Ireland and internationally are currently failing to do so. The concentration of efforts in recent years on environmental sustainability combined with a lack of specific policy drivers related to cultural sustainability may explain this gap.

The findings reported here suggest that a more holistic approach to sustainability can be decerned within those Irish HEIs who have sustainability strategies, when compared to those without. The current investigation found increased attention towards the social, economic and cultural pillars of sustainability within the documents of those HEIs with sustainability strategies. Wider societal and economic impacts are also being recognised as they advocate more complex assessments of their HEIs sustainability impacts, including through Scope 3 emissions calculations (Woszczek *et al.*, 2025). The five international HEIs reflect an approach which is fully grounded within the local/regional cultural context, presenting a broader conceptualisation of SD and sustainability. Explicit integration of Indigenous culture(s), cultural heritage, climate justice, regional development and other non-environmental dimensions provides evidence of a more holistic approach to sustainability planning. Possible explanations for this differentiation may include differing national policies and institutional histories. It is likely that national/regional socio-economic and cultural factors will also have informed the sustainability ambitions of these international HEIs.

It is not possible to determine if the pro-ecological worldview, as evidenced by the NEP analysis, of sustainability leaders in Irish HEIs has influenced the foregrounding of environmental sustainability within Irish HEIs. The findings suggest a wish, on behalf of sustainability leaders, that their HEIs would take a more holistic approach to sustainability but they highlight the need to overcome barriers related to disciplinary silos and poor data collection systems.

Overall this category theme reflects a HE system where Irish HEIs are making significant progress on environmental sustainability, and this is reflected in the various sustainability documents analysed within this study. Sustainability leaders acknowledge the significant progress but also advocated for a widening and deepening of efforts across all pillars of sustainability.

6.3.2 Some coordinated action evident but fragmented approaches to sustainability planning widespread.

The results of this study suggest that the Irish HEI sector is making progress on sustainability, but WoI approaches are evasive with many HEIs failing to embed sustainability across the various dimensions of the institution, aligning with conclusions by Findler *et al.* (2019). The CSHEI case study provides evidence to support this with a SCom member contending that sustainability is not currently embedded across the

> *"university as institution, educator, researcher, and innovator"* (CSHEI_6).

When examining the documentary evidence and insights from SCom members progress has been made across the dimensions of operations and ESD, but other dimensions such as research and partnership/engagement are less advanced. As such it could be argued that Irish HEIs and

the CSHEI are not yet fully aligned with contemporary WoI frameworks (Sanches, Campos, *et al.*, 2022; United Nations Environment Programme, 2022).

While Theme 2 explores a suggested compliance approach to sustainability governance the research findings also indicate a pattern of fragmented leadership and governance. This study shows that within Irish HEIs, coordination of sustainability efforts is strongest in the operations dimension. This may be explained by the history of sustainability activity within estates teams (Shawe *et al.*, 2019), or reflect the influence of environmental policy demands. Irish HEI sustainability leaders perceive that governance, engagement, and research dimensions show mixed levels of collaboration, findings which are consistent with the literature (Bautista Chamizo *et al.*, 2024; Christou *et al.*, 2024). The limited explicit alignment and coordination of resources across sustainability, biodiversity, health, wellbeing, equality, culture and other areas may be explained by both external and internal factors. External policy and associated funding sources may conflict and constrain coordination and collaboration, while internally, institutional silos can exist due to geographical, organisational or HR/funding restrictions, factors which concur with those of Abello-Romero *et al.* (2025). In contrast, the five international HEIs articulate highly coordinated and WoI approaches, embedding sustainability across the different dimensions of their HEIs while also advocating for interdisciplinary and transdisciplinary collaboration.

Patterns suggest frustration and lack of agency from sustainability leaders. The slow pace of change, lack of resources, poor engagement and uneven or inadequate leadership and governance were raised as key frustrations. Sustainability leaders call for substantial investment in infrastructure (e.g., retrofitting, district heating), staffing (e.g., full-time sustainability roles), and curriculum revision and redevelopment. The lack of agency may be explained by a sustainability leadership cohort which sees itself sidelined or on the periphery

of decision making within the institution. Additionally, sustainability leaders perceive that HEI leaders prioritise economic issues when compared to environmental or social issues. The demands from sustainability leaders in Irish HEIs for adequate resources and investment align with outcomes from other studies (McCowan, 2023b; Suklun and Bengü, 2024; Abello-Romero *et al.*, 2025). The outcome from the FT Causal Layered Analysis also emphasises this challenge as it suggests sustainability is currently an "add-on" (litany layer) and inadequately resourced (system layer).

One interesting finding relates to the importance of communicating SD across the HEI and gaining student and staff engagement. While language within sustainability documents suggest a commitment to communication and engagement campaigns, underlying issues with engagement were exposed during interviews. This may be explained by factors such as ambiguous definitions, staff or student ambivalence or crowded information campaigns addressing multiple HEI prioritises. It is somewhat surprising, and concerning, that student engagement was raised as an issue by numerous interviewees.

> *The level of student engagement is nowhere near where I would like it to have been.* (SLI_2).

Issues which are beyond the scope of this research may be influencing factors e.g. student accommodation shortages, time-poor students emerged as issues to be addressed during the Preferred Future Activity during the FT interventions. HEI sustainability frameworks such as those proposed by Sanches, Campos, *et al.* (2022) place a specific focus on engagement with internal and external stakeholders. The engagement challenges highlighted in this study are not unique to the Irish HE sector and this issue has also been highlighted in other studies by Aleixo, Leal and Azeiteiro (2018) and Suklun and Bengü (2024). This issue of engagement may warrant further attention given that the CSHEI's preferred future, and HEI sustainability

strategies, envisage student and staff engagement as being critical in the development of SHEIs. Lessons can be learned from previous studies addressing the integration of initiatives from both the bottom-up and the top-down (Ramísio *et al.*, 2019; Berker *et al.*, 2024), or initiatives which integrate practical sustainability experiences (internships, social partnerships, community workshops) which can aid in maximising student engagement (Zdonek *et al.*, 2025).

Frustration and perceived lack of agency amongst sustainability leaders may be a contributing factor in the emergence of sectorial bottom-up approaches and networks. New collaboration frameworks, such as the Climate Justic University Union, may present avenues for those involved in sustainability within Irish HEIs to broaden the discourse beyond the current narrow and accommodative responses to sustainability. Initiative such as this one also point to seeds of more radical pedagogy, aligned with Giroux's critique of the corporatisation of HE (Giroux, 2020).

It is clear that significant progress has been made when comparing conclusions from Phase1 of this research with that of Shawe *et al.* (2019). This research indicates that the barriers raised by Shawe *et al.* (2019) relating to data capture, poor support structures and a concentration of sustainability activity with Green Campus Committees are being addressed. However, the analysis from this research also suggests that Irish HEIs have not yet fully succeeded in coordinating the multiple sustainability related priorities and actions occurring across the institutions. The breadth of areas to be coordinated adds to the complexity of the coordination effort, with resource constraints highlighted as one particular challenge. Fragmentation, and slow pace of change are contributing to a perceived lack of agency of sustainability leaders. Despite this and other challenges Irish HEIs are attempting to address this fragmentation with progress being made in the operations and education dimensions.

6.3.3 Differing interpretations of sustainability.

A critical tension emerged during the analysis between the personal conceptualisation of sustainability by sustainability leaders and that of their HEIs. Sustainability leaders articulated a desire for a broader framing of sustainability with recurring references to social and economic actions (e.g. quality of life, socio-justice etc.). The ambitions of sustainability leaders, contrasts with the current foregrounding of environmental sustainability and their perception that institutional leadership is concentrated on economic and financial priorities (Granados-Sanchez, Jesus *et al.*, 2012). The preference of sustainability leaders for a wider framing of sustainability aligns with conclusions from other studies which call for issues of social justice, ecological compatibility, and economic viability to be balanced within sustainability strategies and plans (Barros Guerrero and Odila Bello Benavides, 2022).

Tensions are evident in the findings, with some sustainability leaders seeking greater direction, stronger mandates and clearer definitions through Government policy, while others call for more focused definitions at an institutional level. Inconsistent interpretations and perceptions of SD across a HEI are not unique to the CSHEI and are consistent with the literature (Schopp, Bornemann and Potthast, 2020; Cerón *et al.*, 2022; Abello-Romero *et al.*, 2025). Schopp, Bornemann and Potthast (2020) suggest that the development of a sustainability strategy, which exposes the HEI to communication, engagement and debate on the topic should lead to a shared understanding of sustainability emerging.

The CSHEI data currently positions sustainability and SD as ambiguous terms contributing to rhetorical signalling – an issue highlighted in the Casual Layered Analysis (CLA) metaphor of the jeep painted green. The CLA activity also exposed contradictions between what is happening at litany level and the ecological worldviews of sustainability leaders articulated

through the NEP results. The strong ecological worldviews emerging across the SCom, broadly in line with the wider Irish sustainability leader cohort, do not appear to have penetrated throughout the HEI. The lack of a definition inadvertently appears to contribute to inaction, resulting in one participant (CSHEI_10) articulating frustration at not "*getting my hands dirty on anything*". Robinson, Molthan-Hill and Higgins (2025) argue that all staff, including those in leadership positions, need a collective understanding of sustainability and the implications for their roles. However, Schopp, Bornemann and Potthast (2020) contend that agreeing this common understanding, and gaining the requisite knowledge and competences, can be challenging in the absence of a sustainability strategy. SCom members perceived the breadth of sustainability and the SDGs as presenting a conceptual overload that inhibits specific action or a holistic ideal which can be used to engage stakeholders, pointing to a need to follow suggestions by Abello-Romero *et al.* (2025) to consider the worldviews of HEI leadership in drafting sustainability strategies.

Some studies consider that a tight framing of sustainability, developed through an "institute-wide deliberation on the conceptual framing(s)" (Scott, 2015, p. 952), is essential if a HEI is to transform into a SHEI. Conversely the absence of an agreed definition, or a loose framing, may enable constructive ambiguity and symbolic, weaker approaches to sustainability to be taken, thus avoiding tackling deeper socio-economic challenges and issues (Giroux, 2000; Scott, 2015). While this research did not explore differing definitions and perceptions of SD and sustainability in detail across Irish HEIs, it would appear that the CSHEI, and indeed the Irish HE sector, must bridge the gap between individual interpretations and perceptions of SD and a collective, institutionalised definition of SD. Without this, this research suggests that sustainability risks remaining an ambiguous add-on rather than a core transformative driver.

6.3.4 Summary.

In contributing to RQ1 “How is sustainability characterised within strategic planning in Irish HEIs?”, this theme, of expanding sustainability planning across all pillars, suggests that while Irish HEIs have made visible strides in operational and environmental sustainability, the sector exhibits a level of fragmentation with incremental progress being made. The patterns from the analysis suggest the majority of Irish HEIs exhibit characteristics aligned with Stein’s (2024) “mainstream sustainability” or Rotondo, Giovanelli and Lozano's (2024) “sustainability in HEI” paradigms. While a majority of sustainability leaders categorise their HEIs as reformative and progressive (Bieler and McKenzie, 2017), this self-assessment may reflect traditional thinking rather than the radical, whole-of-institution transformation required for critical sustainability (Stein, 2024). While Irish HEIs have responded to recent policy drivers, sustainability leaders advocate for a broadening beyond current environmental sustainability priorities.

The findings suggest that the absence of an agreed institutional definition of sustainability can act as a strategic vacuum, allowing for what Inayatullah (2008) terms “used futures” to persist unchallenged. Furthermore, patterns associated with frustration and lack of agency suggest a sustainability leadership cohort encountering boundaries. While sustainability leaders exhibit the pro-ecological worldviews and anticipatory competencies (Wiek et al., 2011) necessary for transformative change, they are frequently immobilised by institutional inertia and policy drivers that prioritise neoliberal growth imperatives over ecological limits. This suggests that the primary brakes to progress are not a lack of personal commitment or individual expertise but instead may be structural and systematic.

The subsequent theme will critically explore these structural and systematic constraints, exposing the barriers that prevent Irish HEIs from moving beyond performative sustainability toward a more comprehensive, futures-oriented paradigm.

6.4 Theme 2: Sustainability ecology - Overcoming systemic and structural constraints in sustainability.

This research has been carried out in the context of an Irish HE system that has undergone significant change with the enactment of the Technological Universities Act (Irish Statute Book, 2018) which arose out of the Hunt Report (Higher Education Authority, 2011). Structurally this has resulted in organisational mergers with 12 Institutes of Technology combining at regional levels to form five Technological Universities. Such complex organisational change influences the HE eco-system in which existing and newly merged HEIs develop their sustainability plans. Continued policy evolution across agendas related to research, access and internationalisation require HEIs to balance, and report progress against, multiple competing priorities.

While Theme 1 illustrated the progress and foregrounding of environmental sustainability within Irish HEIs (aligning with the litany layer of the CLA), Theme 2 constructs the Irish HE system as one subject to systematic and structural constraints which influence sustainability planning (CLA system layer), while the broad neo-liberal growth agenda permeates many aspects of HEI operations, including sustainability (CLA worldview layer). The focus on, and prioritisation of, environmental sustainability evident from Theme 1 may be influenced by a wider systematic metrification of HE and a growth and development orientated policy agenda (McCowan, 2023b).

This section explores the external influences on sustainability planning in Irish HEIs, while also exposing barriers to the application of FT, thus contributing to answer RQ1: "How is sustainability characterised within strategic planning in Irish HEIs?" and RQ2: "In what ways might FT approaches contribute to sustainability planning in HEIs?". It discusses why HEIs should position themselves as thought leaders in relation to sustainability and align themselves with Stein's (2024) critical sustainability paradigm.

6.4.1 Compliance-driven sustainability governance with seeds of progressive leadership.

This study found that sustainability planning within Irish HEIs can be characterised as short-term, reactive and with a strong focus on compliance as HEIs seek to implement a wide range of sustainability measures. This reactive, compliance-based culture can limit the space for HEIs to innovate and explore alternative futures. This characterisation is similar to that of HEIs in other jurisdictions in the Global North (Aleixo, Leal and Azeiteiro, 2018; Christou *et al.*, 2024). A possible explanation for this reactive, short-term approach might be due to the compressed environment in which HEIs have had to respond to multiple sustainability policies. A local articulation of the temporal compression described by Aleixo et al. (2018) and Christou *et al.*, (2024) is reflected in one participant's comment "*Who has time to think that way now…*?" (CSHEI_11). The relative absence of references to climate adaptation within Irish HEI documents is another signal that Irish HEIs are strongly influenced by compliance requirements. The lack of specific climate adaptation legislative and policy drivers means that HEIs are not currently required to address the medium to long term implications of climate adaptation. This absence contrasts with calls by Alexander (2023b) for HEIs to urgently consider climate adaptation needs as a key risk which will affect their future viability, while also having social, economic, cultural and environmental impacts in their regions. Furthermore, the dominance of short-term sustainability and climate mitigation measures

within Irish HEIs can be contrasted with one of the international HEIs considered in this study, which links climate adaptation, food security, and peace, explicitly connecting local vulnerability to global systems.

Prior studies have highlighted the importance of governance structures in enabling HEIs to implement ambitious, holistic and WoI sustainability strategies (Sanches, Campos, *et al.*, 2022; Abello-Romero *et al.*, 2025). This research has demonstrated that governance and support structures for sustainability are maturing, but that for some HEIs, such structures may only be a response to the coercive pressures of policy and performance-based funding. HEIs with sustainability strategies in place exhibit comprehensive governance and leadership structures, while for 30% of HEIs the only evidence of governance and leadership on sustainability is within their CARs. The majority present accommodative or weak responses to sustainability, reinforcing suggestions that sustainability has yet to be embedded or prioritised within the HEI. Strong governance structures suggest deeper embedding of sustainability within a HEI, which aligns with recommendations from Ferrer-Balas, Buckland and de Mingo, (2009) and Barros Guerrero and Odila Bello Benavides (2022).

One interesting pattern to emerge from the research highlights concerns regarding fragile commitments to sustainability at senior management level. Risks of sustainability being abandoned due to financial pressures "*..sustainability is the first thing to be cut.*" (SLI_3) and an uneven commitment of resources align with insights from McCowan (2023b) who emphasises the need for commitment from HEI leadership to deliver ambitious transformational change. Previous studies emphasised the need for, and value in, engaging with external stakeholders to inform sustainability strategies and governance (Lidstone, Wright and Sherren, 2015; Sisto, Sica and Cappelletti, 2020; Bautista Chamizo *et al.*, 2024) yet Irish HEIs' sustainability governance structures appear predominantly internally focused

with limited evidence of external stakeholder input. The absence of external input narrows the potential for critical reflection, innovation and regional grounding and may be explained by a lack of resources or the dominant compliance focus of HEIs.

The research also surfaced a level of frustration and ambivalence towards the use of international rankings and ratings to demonstrate compliance and progress on sustainability. The literature suggests that marketisation of the HE sector and competition for status through rankings systems can influence the actions which HEIs take on sustainability (McCowan, 2023b; Zdonek *et al.*, 2025). Sustainability leaders expressed frustration with the value of rankings e.g. "*rankings, what do they mean?"* (SLI_4), and the resources required to compete in these. The research indicates a tension exists between individual sustainability leader perspectives and institutional use of rankings as evaluation and promotional tools, with 59% of survey respondents indicating that international ranking systems are being used to measure impact, with a further 14% planning to use them. The data aligns broadly with the study by Cullen (2026) who concluded that 9 out of 17 Irish HEIs participate in rankings. One explanation for the focus on rankings is that sustainability continues to be perceived as a management task, where standardisation, efficiency improvements, performance and rankings dominate thinking (Giesenbauer and Müller-Christ, 2020). There is also a risk that sustainability outcomes become performative and not necessarily transformative with an absence of integrative sustainability worldviews (Sun *et al.*, 2024).

Patterns suggest an appetite to move beyond the current conservative and compliance orientation, towards more innovative and transformative approaches to sustainability. Persistent language associated with change, difference and risk taking suggest a sustainability leadership cohort open to exploring how a HEI can take the transformative action advocated for in the literature (McCowan, 2023b; Robinson, Molthan-Hill and Higgins, 2025).

next step up in sustainability that's different to what's happened in society (CSHEI_4)

This is also reflected in the metaphoric transformation envisaged in the CLA activity where sustainability committee members viewed a transformation from "ship stuck at port" to a "greenhouse". Transformative actions envisaged as part of the preferred future (condensed staff/student/carbon friendly timetables/revised funding models), combined with innovative concepts such as developing a farm for food security, suggest a shift in thinking to identify solutions to address anticipated challenges. It signals a transition from compliance based responses towards an integrated futures oriented model aligned with the sustainable university paradigm discussed by Rotondo, Giovanelli and Lozano (2024), or embedded pedagogical approaches considered by McCowan (2023a).

6.4.2 Conflicting priorities can constrain transformative sustainability planning.

Tensions between SD and the neoliberal agenda have been consistently articulated in literature (O'Neill, 2014; Aleixo, Leal and Azeiteiro, 2018; McCowan, 2023a; Sterling, 2024; Suklun and Bengü, 2024), including by those who contend that the Agenda 2030 process, which led to the SDGs, was highly political and influenced by capitalist and free-market principles (Schulte, 2022). These tensions also surface within the Irish context with some sustainability leaders calling for degrowth, post-growth economic thinking, and holistic societal transformation. This tension also emerged during the Causal Layered Analysis (CLA) activity with participants suggesting it represented a "systems" layer external influence. It, and other external forces and priorities, are represented in the "see-saw" metaphor as the priorities which are outweighing a focus on sustainability.

The persistent use of language related to growth, skills output, corporate influences, and "conveyor belts" of graduates, during the FT activities, reflect perceptions that higher

education is now viewed as a means of providing the human capital with the skills necessary to drive technological development. This is articulated in one participants realisation, and feelings of discomfort, that HE has entered a "*corporatist phase*" (CSHEI_1), a position that is critiqued by Giroux (2002). These dominant influences have informed the metrification of higher education (Giroux, 2002) which in turn have been translated into Government frameworks such as the HE Systems Performance Framework. As a result, a colonisation of the future of Irish HEIs has occurred (Robertson, 2017) where current practices and priorities are persistently projected into the future (Inayatullah, 2008). Traditional strategic planning and fore-casting approaches constrain the ability to imagine paradigm shifts away from such narrow futures (Leal Filho, Pallant, *et al.*, 2018; McCowan, 2023b). Sustainability leaders highlighted a lack of agency in being able to debate and contest the continued focus on growth as a priority. The findings suggest that sustainability leaders feel constrained in challenging the status-quo.

> *try and talk to senior leadership about not growing (SLI_3).*

The international HEIs reviewed within this study reflected a more nuanced view, with one HEI highlighting the "social benefits" and "social limits" of economic growth (Int_HEI1) with another acknowledging that growth "impacts the climate account" of the HEI (Int_HEI4). This may suggest that these HEIs are engaged in a deeper consideration of growth orientated policies, with opportunities to pursue other approaches and strategies.

With 64% of sustainability leaders categorising their HEI as reformative or progressive in the context of sustainability planning, this suggest progress and momentum but limited transformational change. There is an argument to be made that recent HE policy and legislative changes, including the TU Act, represented an opportunity to deliberately enable pathways towards the creation of sustainable universities envisaged by the United Nations Environment

Programme (2022) or Rotondo and Giovanelli (2024). Opportunities to reframe new TUs towards social or environmentally oriented universities, as proposed by Beynaghi *et al.* (2016) have not been grasped. While many HEI leaders have had an intensive period focused on institutional formation, radical transformational agendas aligned with Giroux's radical pedagogy are absent. Sterling (2024) highlights the need for HEIs to accelerate their actions on sustainability if they are to make significant contributions to global sustainability goals.

6.4.3 Thought leadership and strong sustainability values required to transform into a sustainable university.

Prior studies have noted that some HEIs self-identify as leaders in the sustainability space (Eby and Rangarajan, 2023) with others emphasising the role of thought leadership in developing institutional foresight and long-term sustainability pathways (Nissen et al., 2020). In particular Giroux (2020) and Stein (2024) call for HEIs to reclaim their public role in society and use their positions to engage in critical debate and discourse in relation to sustainability, regenerative practices and alternative futures. The findings from this research suggest that participants associate leadership with boundary-pushing action, cultural influence, and futures-oriented ambition, rather than the symbolic positioning as discussed under Theme 1. In defining their preferred future during the FT interventions participants advocated for the CSHEI to "be brave". One participant also suggests that HEIs should grasp the opportunity to take an active leadership role in the field.

HEIs should be at the forefront of new thought and new discussion. (CSHEI_4).

The CSHEI case study suggest that it has not yet made sustainability "*core*" (CSHEI_6) or sufficiently taken "responsibility for sustainable development" (Niedlich, Bauer, *et al.*, 2020). This lack of thought leadership may be explained by the fact that, despite exhibiting strong

pro-ecological worldviews, SCom members projected slightly lower confidence levels associated with articulating a vision for a just and sustainable society.

Previous studies suggest that sustainability is frequently articulated as a value, and not just an action, within HEI strategic plans (Bautista-Puig and Sanz-Casado, 2021). However, this study suggests that a disconnect exists between aspirational values and their translation into action, a value-action-gap. This value-action-gap is perceived to exist both within the HEI and in society in general. Several factors might explain why this value-action-gap exists including poor communication regarding sustainability, the complex nature of SD and the lack of systematic development within the HEI. The attention paid to values by sustainability leaders aligns with Ramísio *et al.* (2019) conclusion that sustainability values need to be agreed, adopted and integrated across the organisation.

Exploring and developing new future scenarios through FT also presented participants with opportunities to challenge current perceptions of organisational and sustainability values (Dator, Yeh and Park, 2013; Baradaran Ghahfarokhi, Mohaghar and Saghafi, 2018). Pollock *et al.* (2009) in particular contended that a focus on values and long-term goals can enable a HEI to achieve consensus on issues while avoiding much of the divisiveness that often emerges during strategic planning. Within this study, and the FT interventions in particular, there was limited explicit debate about future organisational or sustainability values, which may be explained by the compressed nature of the FT interventions. Exploring sustainability values in the context of developing a sustainability strategy may present an opportunity for future research and engagement on this issue.

6.4.4 Summary.

In summary, Theme 2, focused on systematic and structural constraints provides valuable contributions to characterising sustainability planning in Irish HEIs (RQ1) and the identification of ways in which FT can contribute to sustainability planning (RQ2). Concerning RQ1, the data constructs sustainability planning within Irish HEIs as a reactive, compliance-driven management task. It is frequently fragmented and subordinate to neoliberal growth imperatives, leading to the persistent adoption of used futures (Inayatullah, 2008). There is a tendency for institutions to mimic external mandates rather than fostering authentic, context-specific transformation. This characterisation underscores a systemic gap between institutional rhetoric and pedagogical or operational reality, where despite the significant efforts made by HEIs to date, in some cases sustainability remains a bolt-on rather than a foundational driver of institutional identity.

Addressing RQ2, the research demonstrates that FT exposed underlying systematic and structural issues which are acting as brakes in overcoming institutional inertia. The findings suggest that the FT intervention enabled participants to move beyond used or colonised futures and the current conservative, compliance-oriented approaches. These methodologies facilitated the deconstruction of the current institutional reality, which was metaphorically described by participants as sustainability being "perched on a see-saw" outweighed by competing priorities, a "cruise ship stuck at dock," or a "fossil-fuelled SUV painted green" that masks unsustainable core practices. In this way, FT facilitates a shift from incremental reform toward transformative action by pluralising possible futures and restoring agency to sustainability leaders. By moving away from mainstream sustainability, often critiqued for its techno-solutionism, the FT process can facilitate a move toward Stein's (2024) critical sustainability.

Having considered the structural and systematic constraints affecting futures-oriented sustainability planning in Irish HEIs, the following theme discusses the opportunity for FT to break down obstacles and liberate sustainability leaders to challenge cultural norms.

6.5 Theme 3: Sustainability Futures: Activating anticipatory and futures-oriented planning.

Theme 3 explores the transformative potential of FT as a counter to dominant sustainability planning practices. It explores how FT can support conceptualisation of the holistic and WoI approaches discussed in Theme 1, while also unlocking institutional imagination to develop solutions to the current systematic and structural constraints, and perceived conservative and compliance culture explored in Theme 2. The psychological and professional transition of sustainability leaders is discussed as they navigate the tensions between fears of the future and the hope and optimism which can be generated by speculative practice. The theme contributes to RQ2 by critical evaluation of how FT can support sustainability planning and RQ3 through an exploration of sustainability leaders reactions to and perceptions of FT.

6.5.1 Weak futures orientation in sustainability planning.

The findings from this research confirm that Irish HEIs do not currently exhibit a futures-oriented approach to sustainability planning. Sustainability planning is currently grounded in the short-medium term, with climate and environmental actions foregrounded as urgent priorities. The application of FT methodologies is weak, with limited evidence of FT capacity amongst sustainability leaders, outcomes which can be somewhat explained by pervasive use of traditional business as usual planning approaches. Given that the literature review found a very limited number of studies exploring futures-oriented sustainability planning (Beynaghi *et al.*, 2016; Sisto, Sica and Cappelletti, 2020) the Irish context can be said to mimic the situation

internationally. Indeed, the five international HEIs reviewed within this study exhibited similar characteristics, although a number did address the longer-term issue of climate adaptation in more detail. HEIs may also reflect societal gaps in FT competencies as the literature also suggests that FT at societal level is low "in many (perhaps most) parts of the world" (Cork *et al.*, 2023, p. 32). Encouragingly one Irish HEI sets itself apart in conducting analysis which adopted FT approaches to develop possible futures as a sustainable university. The possible futures explored by this HEI could be categorised as being with Stein's (2024) "beyond sustainability" paradigm. The development of the futures reports in this HEI was led by a team with specific expertise, thus enabling a level of ambition and thorough application of FT practices. The findings suggest that such expertise is not available across other HEIs.

Consideration of the temporal dimension of sustainability is critical in any sustainability planning discourse. Despite its critics, the Brundtland definition of SD directly connects present development and its potential impact on future generations. Previous studies have suggested HEIs are beginning to address the intergenerational notion of sustainability (Vaughter *et al.*, 2016; Harris *et al.*, 2017), but limited evidence of this was found during this analysis. Findings from this research indicate that many sustainability strategies are defined in timeframes of 4-6 years, with limited references to future generations. This suggests that strategic planning may not yet be sufficiently sophisticated to address the long-term implications and confirms that Irish HEIs are "..unlikely to have thought strategically about the needs of future generations".. (Leal Filho, Brandli, *et al.*, 2018, p. 89). By relegating sustainability to a future goal or destination, HEIs may be conforming to the notion that as the concept of sustainability deals with victims who are distant in both time and geography, it diminishes the urgency for long-term systemic change (Selby and Kagawa, 2010). Current predictive and indicator-based logic which permeates sustainability planning do not favour the

use of anticipatory processes which seek to imagine different scenarios or radical, transformative futures for HEIs. It is therefore unsurprising that sustainability leaders articulate limited knowledge of FT and limited exposure to capacity building.

The findings suggest sustainability leaders have low levels of knowledge of FT methodologies and somewhat weak anticipatory competencies, pointing to overall weak futures literacy. This research argues for the development of futures literacy within HEI leadership in Ireland, something that Inayatuallah argues requires time and investment (Ahmid, 2020). By developing futures and anticipatory competencies within HEIs, and the ability to apply different anticipatory systems, HEIs can avoid reducing the future to a discoverable target (Miller, 2018). While this study lacks a quantitative metric evaluating changes in anticipatory competencies, analysis of reactions from participants in the FT interventions indicates that anticipatory competencies and appreciation of FT methodologies were enhanced. The following insights confirm that the FT intervention disrupted, if only briefly, current conventional planning approaches and exposed them to new possible futures.

> *dreamt about .. what is the university that we'd like to create* (CSHEI_11).
> *..it's more like a breath of fresh air in terms of the possibilities* (CSHEI_9).

Facer's (2021) argument that the connection between education and futures is both tokenistic and rhetorical is borne out by this research as the majority of Irish HEIs, with one exception, present narratives such as "future leaders," "resilience," and "long-term change" but this rarely translates into systematic FT practices or transformative action. The findings suggest that Irish HEIs have to date been predominantly focused on implementing actions in the near term with an aspiration that sustainability will be achieved in the future.

This research confirms conclusions from other studies that predictive, metrics-based models utilising traditional foresight methodologies translate into incremental action, avoid

transformation solutions and continue the colonisation of the future (Robertson, 2017; Hutchinson *et al.*, 2023). It is no longer possible to assume, given the complexity of systems, speed of development and uncertainty projected by trends in the Anthropocene, that the future will follow a predictable straight line (Morin, 1999; Stein, 2024). FT, in the context of this research, has demonstrated within a bounded case study, an alternative approach which sought to counter traditional liner growth dominated models. The research findings demonstrate, despite participants limited awareness of FT, an openness amongst sustainability leaders to move beyond focusing on trends and drivers of change to develop a deeper understanding of individual and organisational beliefs, worldviews and attitudes.

The findings from this study align with calls from UNESCO, through their Futures of Education initiative, for a re-imagining of education, seeking a new planetary consciousness and critical reflection on educations role in the context of ecological crises (Mbembe, 2023). This study therefore positions FT as a counter-hegemony approach challenging the dominant ideologies, beliefs, and power structures that maintain the status quo. This finding is also consistent with Giroux's (2020) call for a critical examination of HE and his advocacy for radical pedagogy and educated hope.

6.5.2 FT can foster hope while also acknowledging fears of the future.

Findings from this study enabled an exploration of a possible preferred future for sustainability within the CSHEI while also exploring, at a thematic level, participants psychological and emotional responses to imagining alternative futures.

The predictive control model of HE in which participants operate, and their own perspectives, emotions, futures literacy and anticipatory traits informed the study. SCom participants considered FT to be "*counter-intuitive,*" "*abstract*" and "*challenging*". These challenges might

be explained by their limited exposure to FT methodologies or reflect constrained ability to embrace discontinuity from the present and to invent, imagine and explore new futures (Miller, 2018).

The four future scenarios (Grow, Collapse, Sustain and Transform) developed during the FT interventions were broadly framed by the participants as negative, depressing and offering limited hope. The somewhat dystopian futures predicting societal breakdown, environmental collapse and corporatisation of HE, align with views of FT experts such as Slaughter (2020). Such pessimistic futures may be explained by participants sub-conscious bias, societal discourse related to climate change and other crises, with one participant reflecting that "*A dystopian future is embedded in our thinking*." (CSHEI_6). Literature frequently predicts dystopian futures with large scale eco system collapse due to climate change (Urry, 2016; Nørgård and Holflod, 2024). The pessimism and fears exposed during the earlier FT activities transformed into positivity and hope during the preferred future activity, with the researcher observing increased engagement and debate. Pollock *et al.* (2009) reached similar conclusions during their study, revealing elevated levels of engagement when positive, future-oriented processes were utilised.

Despite the prevalence of negative futures within the study, threads of hope and positivity are also present. Hope was expressed through anticipated increased appreciation of culture, greater levels of community collaboration and new technological solutions to address climate and biodiversity crises. The fearful futures predicted for wider society contrasts with a more hopeful future which emerged when participants focused on the controllable and more known future for sustainability within the CSHEI. This change might be explained by the fact that participants were able to translate often intangible emotions such as fear and hope into purposeful action within the context of the CSHEI and thus avoid "condemning [themselves]

to hope alone" (Inayatullah, 2008, p. 20), while also signalling an initial move towards educated hope as advocated for by Giroux (2020).

While this study did not apply observational research techniques or use emotion coding analysis, the researcher's reflective journal noted an increase in debate and energy levels as participants addressed both the preferred future and backcasting activities. Metaphorically participants moved from depicting hollow communities and overflowing baths to growing flowers for the future. The preferred future leans away from dystopian futures to conjure hopeful, forward-looking futures evoking connections with Alexander's (2023a) hope for "solarpunks" to rewild education. The findings also suggest that participants worldviews have evolved to one of collective action for societal benefit. Furthermore, it is argued that participants rejected a future defined by collapse, climate crisis and disfunction as they defined their desirable alternative (Facer, 2021).

This transition from fear to hope and negative to positive might be explained by the ability to focus on the singular issue of sustainability within the narrow context of the HEI, thereby increase participants' agency in influencing that future. The expanded group dynamic, with all participants engaged in the preferred future and backcasting activities, may have balanced dominant negative views, something which is harder to control in smaller group activities. An implication of this finding is that in designing FT interventions in the future careful consideration should be given to group dynamics, language, imagery and narratives used. The need to balance an exposure to hidden fears while also supporting hopes for the future was captured by one participant who reflected that

> *if there's future thinking, I think that positivity needs to be brought back into it…?* (CSHEI_4).

6.5.4 FT can release you from the present to imagine new future possibilities.

Finding suggest that the FT intervention supported participants to move, temporarily, from an approach focused on incremental change to imagining paradigm shifts for sustainability in the CSHEI, with FT acting "as a catapult" moving participants away from everyday institutional constraints. This evocative metaphor depicting freedom contradicts a possible future which continues the current status of "incremental managerialism" (Inayatullah, 2012). While the FT intervention triggered a shift in how the future was imagined, the findings do not indicate a shift to a radical utopian position as advocated by Nørgård and Holflod (2024). In fact the preferred future could be critiqued as being pragmatic, including a range of measures which are viable and achievable. This might be explained by the temporary nature of the FT interventions, which was unable to fully counter the conservative, temporally compressed nature of participants thinking. The preferred future could not be considered to sit within Stein's (2024) beyond sustainability paradigm but does reflect a move towards a critical sustainability (2024) position.

The findings suggest participants faced challenges in imagining possible futures during the activities. FT competences (creativity, imagination and engagement with uncertainty) were perceived as weak with one participant noting

It is a challenge for people… to imagine possible, preferable or dystopian futures. (SLI_3).

Despite these challenges an increased appreciation of the benefits of imagining possible futures is noted. Reflections suggest that imagining and shaping possible futures increased participants level of agency, articulated by one participant noting a "*bounce in my step*" (CSHEI_11), localising the theory that the prediction of (un)sustainable futures is an exercise in power (Facer, 2021). Several factors may explain why challenges were experienced in imagining

possible futures. Firstly, education currently operates within a controlled, predictable environment where change is incremental, and participants are normally constrained from imagining "*paradigm shifts"* (CSHEI_8). Current discourses related to sustainable HEIs continue to align with traditional HEI models and structures thereby projecting the present into the future (Inayatullah, 2008; O'Neill, 2014). A lack of cognitive space and time which sustainability leaders have to engage with FT and imagination may also have influenced the interventions (Miller, 2018). Finally, the FT interventions in this study utilised a series of text-based tools. Stories, science fiction, art, imagery, music, film, and games are emerging as tools to support imagining possible futures e.g. the use of computational text modelling to support imagining alternative Arctic futures (Keys and Meyer (2022) in Cork *et al.*, 2023). The text based approached used in this study may have constrained participants opportunities for imagination and visioning. It is therefore reasonable to conclude that while FT interventions have been shown to support envisioning possible futures, the design and development of the interventions requires careful consideration to maximise impact and effectiveness.

6.5.5 Futures-oriented planning is a process and not just a skill.

The research findings suggest that FT has a place in sustainability planning and participants advocated that it should in fact be utilised in strategic planning in general, identifying opportunities for its application in multiple fields.

One outcome from the research was that FT was experienced not only as an intellectual exercise but as a developmental intervention which reshaped participants' affective orientation towards the future and their perceived agency in shaping institutional strategy. The research suggests that FT is now seen, by participants, as a legitimate methodology capable of informing institutional strategy, but cognitive, cultural, and structural barriers will hinder its

wider adoption. A source of uncertainty with this finding arises from the ease with which participants reverted to the norm of solving immediate short-term problems during the backcasting activity. However, participants acknowledged this issue themselves suggesting that overcoming this cognitive, and cultural barrier, will require people to "practise diversifying their 'uses-of-the-future'" (Miller, 2018, p. 21).

The challenges encountered with the application of FT can be aligned with challenges within the literature. Soheil Inayatullah, when interviewed in his role as UNESCO Chair of Futures Studies (Ahmid, 2020), highlighted four key challenges, three of which align with this study's findings. The theme of weak futures orientation aligns with the contention that people struggle to imagine alternative futures, with "brains wired to the past" (ibid). The lack of intellectual space for FT, and frustrations raised by participants of a lack of time for strategic thinking generally, agrees with Inayatullah's suggestion that futures literacy takes time and effort to develop. The constant need to respond to mimic pressures combined with compliance orientated governance approaches aligns with the suggested third challenge of the "collective rush" (ibid) to address immediate demands. The final challenge, suggested by Inayatullah, is that leaders are in power because of fear of the future rather than having a deep understanding of the science of possibility. Findings from this study do not provide any insights to respond to this suggestion.

The findings from this research suggest that in fact FT is a counter-hegemony act and thus to maximise its impact conditions have to favour both the development of FT skills and anticipatory competencies. For FT to move from an experimental action, as defined within the context of this study, to become a strategic approach will demand organisational change and decision making at senior management level. HEI leaders will need to carve out protected intellectual space while also taking conscious actions to move away from indicator bound

evaluation of progress. The development of foresight capacity and FT competencies can contribute to addressing the lack of long-term planning in sustainability planning identified by Hafezi *et al.* (2024). Combining the development of anticipatory knowledge and intelligence with the enhancement of sustainability competencies can ensure that sustainability leaders have a comprehensive range of knowledge and skills to put the "futures knowledge and intelligence to work" (Thayer, 2023, p. 107).

To crystalise the possible transformation towards a sustainable university, within the context of the CSHEI case study, the researcher undertook an additional exercise, without participant input, to conduct a reverse CLA seeking to capture the outcomes from the preferred future activity within the FT intervention. This CLA acts as a signal to the CSHEI leadership on the transformation required (Table 6-2) at litany, system and worldview layers enabling a succinct comparison of the preferred future with the present.

	Present	**Transformed**
Litany	Not centrally embedded in things, it is an "add on" or after thought, not central	Sustainability is the 1st thought – it is the norm Operations changed to balance social, economic and environmental costs e.g. 4 day week
Systematic Causes	A political narrative has catalysed sustainability goals within the university – but follow through lacks – funding, support, sector movement etc.	HE funding pivoted/changed away from KPI/Growth Self-sufficiency in energy/food Pedagogical practices transformed
Worldview	Neo-liberal growth worldview dominates. Value-Act-Gap across organisations and individuals. Lack of agency	No longer growth obsessed – be brave Our graduates are global citizens delivering change.
Myth & Metaphor	Cruise Ship stuck at port See-saw – sustainability weighed down by "other priorities"	Green house for the flowers of the future

Table 6-2: CSHEI CLA of preferred future (developed by researcher based on CLA and Preferred Future Activities).

To ensure the outputs from the application of FT translates into tangible outcomes, it must be robustly connected to institutional decision-making (Cork et al., 2023). Moving sustainability beyond the current add-on status, a frustration clearly identified in the CLA Litany layer,

requires the CSHEI, and HEIs generally, to adopt more sophisticated governance structures. Muiderman et al.'s (2020) framework for anticipatory climate governance provides a possible pathway for this transition. Rather than relying on traditional models focused solely on risk mitigation and probable trends, this research suggests a move toward Muiderman's more pluralistic and performative approaches. Such an approach can counter perceived prioritisation of economic issues by HEIs leaders identified in the study, while also engaging key decision makers in structured futures-oriented planning (Dyer and Dyer, 2017; Abello-Romero *et al.*, 2025). Encouraging the co-creation of multiple pathways acknowledges that selecting a preferred future is an inherently political act, something which was welcomed by Giroux. By viewing future-focused planning as a series of critical decisions to be made in the present, rather than just an imaginative exercise for the future, the CSHEI can move from passive adaptation toward transformative institutional leadership.

6.5.6 Summary.

In conclusion, Theme 3 through its focus on developing futures oriented sustainability planning address RQ3's enquiry into how sustainability leaders perceive FT. The study concluded that while sustainability leaders initially remarked that FT is seen as an abstract or complex methodology, its practical application presented evidence of high perceived utility and effectiveness. Participants described the FT interventions as an act of escape that "catapulted" them beyond their daily operational firefighting, thus creating the protected intellectual space required for strategic meaning-making. Methodologically, the use of CLA, backcasting and other FT tools proved effective in overcoming the inherent imagination challenge (McCowan, 2023b), allowing leaders to deconstruct used futures (Inayatullah, 2008) and envision a greenhouse model of institutional identity. The usability of FT is further evidenced by its ability to convert institutional fear into educated hope (Giroux, 2020),

restoring individual agency in the face of systemic inertia. The findings suggest the FT interventions facilitated an experimental transition from "mainstream" to "critical sustainability" (Stein, 2024) with sustainability leaders able to conceptualise strategies that are not merely compliant but transformative. Ultimately, this research suggests that to embed FT as a strategic planning approach HEIs will need to address organisational decision-making processes as well as anticipatory competencies.

6.6 Futures-oriented sustainability planning framework.

Empirical findings demonstrate that while HEIs are increasingly eager to adopt sustainability strategies, their planning mechanisms remain structurally constrained. Document analysis and interviews revealed a clear institutional path-dependency, characterised by a foregrounded environmental pillar, compliance-driven governance, and an administrative emphasis on short-term operational implementation.

In response, this section introduces the Futures-Oriented Sustainability Planning Framework. Rather than a generic application of macro futures concepts, this bespoke, empirically grounded model, guides HEIs away from compliance-driven mainstream sustainability toward systemic transformation. FT interventions highlighted a clear institutional desire for authentic thought leadership, liberating sustainability leaders from immediate operational challenges so they may formulate preferred institutional futures.

6.6.1 Framework Structure.

The framework is conceptualised as a connected series of layers. This structure deliberately inverts traditional planning models by shifting the initial administrative focus away from immediate operational implementation, which typically monopolises institutional decision making, towards foundational thought leadership. This structural inversion establishes the

baseline necessary for the HEI to position itself critically in the present while mapping its long-term transformation. Pragmatically, the framework functions along two distinct vertical axes: moving vertically upward, the framework methodically translates abstract, broad conceptual ambitions into concrete operational realities while working vertically downward, data, metrics, KPIs and qualitative insights generated at the operational surface feed back down to critically test, evaluate, and reshape underlying theoretical and pedagogical assumptions.

6.6.2 The Four Framework Layers.

The four layers present a structured logic to respond to the findings from this research.

- Layer 1 - Thought Leadership as a Foundational Base: This base layer requires HEIs to adopt philosophical stances aligned with Critical Sustainability or Beyond Sustainability paradigms, establishing clear institutional definitions and core values. Collaboration with Global South HEIs is structurally positioned as a core requirement, to inform holistic conceptualisations of sustainability. Crucially, governance frameworks must be redesigned to support and enable institutional risk-taking and innovation, moving past traditional, risk-averse structures that stifle thought leadership with a strict compliance focus. This layer is theoretically anchored in Giroux's (2002) calls for radical critique and Stein's (2024) mandate to transcend mainstream sustainability constraints, and envisages HEI leadership teams developing preferred futures aligned with specific institutional contexts and structures.

- Layer 2 - Radical Pedagogy: Operationalising Giroux's pedagogical critique alongside Morin (1999) and UNEP's (2022) calls for holistic, non-reductionist frameworks, this layer leverages the HEI as an integrated learning ecosystem. It shifts academic delivery away from traditional disciplinary silos, toward collaborative, systemic mechanisms,

including Living Labs and transdisciplinary programmes. The layer leans on developing critical thinking and ensuring that boundary-pushing thought leadership is translated directly into actionable, community-engaged academic practice.

- Layer 3 - Educated Hope: Positioned at the critical intersection of sustainability and anticipatory competencies, this layer focuses on building anticipatory competencies across institutional actors (Kligyte *et al.*, 2025). Utilising diverse FT methodologies (informed by Inayatullah, 2008; Facer, 2021; Alexander, 2023a) it builds the collective capacity to imagine alternative futures. Rather than reacting to short-term pressures with incremental shifts, these foresight competencies seek to drive proactive structural, strategic, and systemic transformations aligned with the university's preferred future.

- Layer 4 - Whole-of-Institution Implementation: Rather than serving as the unexamined starting position of planning, implementation becomes the final, surface layer of the strategic stack. Across four core dimensions, operations, education, research, and engagement, the HEI executes integrated actions to realise its preferred future, informed by frameworks by Sanches, Campos, *et al.*, (2022) and Christou *et al.*, (2024). Embedded data management systems, KPIs, and impact analysis tools generate empirical insights that serve as the framework's evaluative engine, flowing downward to refine all underlying layers.

Running vertically alongside all four layers is the FT and Anticipatory Competency Support Pillar. This structural element establishes that executing the framework requires an ongoing institutional commitment to building anticipatory capacity. It ensures the organisation is continually equipped with the cognitive tools necessary to engage with long-term futures, feeding targeted methodological support into each layer as needed. CLA type deep analysis

can be used to conceptualise preferred futures aligned with critical sustainability in Layer 1 while efforts to scale institutional imagination can be applied in Layer 3.

6.6.3 Framework Application.

By resolving value conflicts and definitions early in the planning process, the framework reduces strategic ambiguity barriers (Aleixo, Leal, & Azeiteiro, 2018), granting sustainability leaders the conceptual security to envision long-term futures while reserving operational complexities for Layer 4. Crucially, to avoid institutional stagnation where execution is entirely frozen until lower-layer decisions are finalised, the framework permits concurrent action across all strata. Leaders can map short-, medium-, and long-term actions simultaneously across independent layers, ensuring choices remain systemically conscious of adjacent downstream and upstream impacts. For instance, an HEI can deploy immediate operational coordination fixes at Layer 4 while deep, long-term critical discussions regarding institutional paradigms remain ongoing within Layer 1.

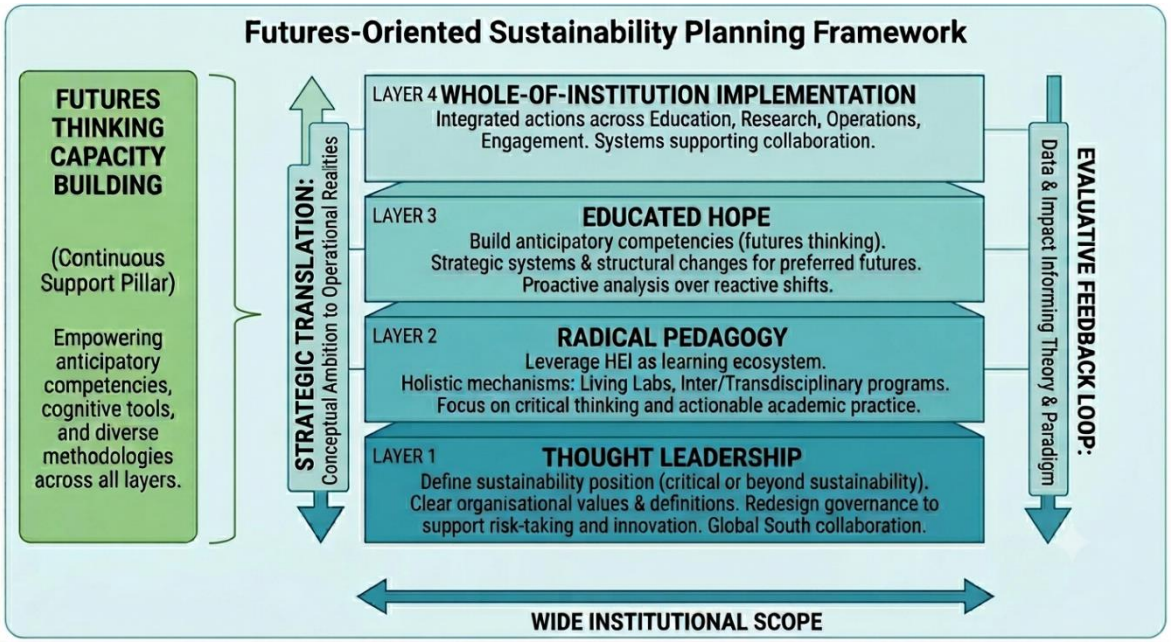


Figure 6-2: Futures-oriented sustainability framework for HEIs.

7 Chapter 7 – Conclusions and Recommendations

7.1 Introduction.

This research was motivated by the urgent need for HEIs to move beyond incremental, compliance-driven sustainability initiatives toward transformative, whole-of-institution change. Against a backdrop of the global climate crisis and evolving mandates within the Irish HE sector, the study set out to explore sustainability planning in Irish HEIs, and ways in which FT might support sustainability leaders in navigating systemic complexity and breaking free from Inayatullah's (2008) "used futures". The research journey followed a two-phase qualitative design. Phase 1 provided a national baseline, indicating that while commitment to sustainability is high, institutional strategies remain predominantly fragmented, environmentally focused, and defined by short-term planning cycles. Phase 2, a case study intervention at the CSHEI, demonstrated that FT methodologies, such as CLA and backcasting, can act as powerful disruptive forces, enabling leaders to move beyond present-day frustrations to articulate preferred sustainable futures.

The preceding discussion in Chapter 6 synthesised these findings, culminating in the proposed Futures-oriented Sustainability Planning Framework. This framework represents a move from reactive institutional planning to a proactive, integrated model where sustainability is built-in to the institution rather than being a bolt-on to existing administrative structures. The purpose of this concluding chapter is to present the overarching conclusions of the study and to evaluate its contribution to the field of sustainability planning in HE. Firstly, the original contributions of the research are considered. This is followed by a consideration of the limitations of the study, reflecting on the context-specific nature of the case study and the researcher's positionality. A series of recommendations for policy and practice, specifically aimed at HEI

leadership teams, national policy-makers, and researchers are then presented. Finally, a concluding reflection from the researcher is provided.

7.2 Conclusions.

The primary aim of this research was to examine how Irish HEIs frame their sustainability strategies, and to explore the potential for FT to support and transform sustainability planning. The conclusions are framed within the responses to the three research questions which guided the research study, and an overview of contributions to research and pedagogy.

7.2.1 RQ1 "How is sustainability characterised within strategic planning in Irish Higher Education Institutions?"

In examining how sustainability is characterised in strategic planning, the focus is on how sustainability is understood, framed and positioned within institutional strategies. The overall characterisation of sustainability within strategic planning can be explained along a continuum ranging from narrow characterisation (focus on single pillar of sustainability - environmental aspects for example, operational focus, compliance driven, short term initiatives and isolated projects) to broad characterisation (whole institution transformation, strategic and cultural focus, values-driven, long term systemic change, and an integrated institutional approach).

Overall, the Irish HEIs in this study fall under the umbrella of having a narrow characterisation of sustainability within their strategic plans, which is summarised under the following five dimensions:

- Conceptualisation of sustainability: There is evidence of differing understandings of sustainability and SD within and across Irish HEIs, which is influencing fragmentations of sustainability, and the preponderance of environmentally focused actions. This issue

is reflected in other studies also (Schopp, Bornemann and Potthast, 2020; Cerón *et al.*, 2022)

- Strategic positioning of sustainability: There is fragmentation of efforts at a sectoral and institutional levels with only five of the 17 Irish HEIs having a sustainability strategy. This study found that Irish HEIs are experiencing barriers that impact the strategic positioning of, and plans for, sustainability including inadequate resourcing, internal silos, slow pace of curriculum revision and sustainability being viewed as a luxury. These are similar to barriers experienced by HEIs in other jurisdictions (McCowan, 2023b; Suklun and Bengü, 2024; Abello-Romero *et al.*, 2025).

- Scope of institutional integration: This study found that Irish HEIs' sustainability planning consistently foregrounds environmental and operational sustainability, which aligns with findings from studies from other jurisdictions (Lozano *et al.*, 2019; Bautista-Puig and Sanz-Casado, 2021; Pinheiro *et al.*, 2024).

- Orientation and purpose: The orientation and purpose dimension speaks to the rationale for pursuing sustainability, which differed across the Irish HEIs strategic planning. Sustainability leaders categorised their HEI as either reformative or progressive, according to the framework used by Bieler and McKenzie (2017). Broadly sustainability perceptions aligned with the reality evident from the document analysis, suggesting a critical reflection on progress to date. Exceptions include two responses who consider their HEIs as being accommodative yet, from the document analysis, these HEIs exhibit characteristics aligned with a reformative/progressive position.

- Implementation and accountability: This dimension relates to how sustainability commitments in strategic plans and policies are translated into actions. Given that Irish

HEIs are mandated to compile Climate Action Roadmaps, and report on progress against Climate Action Mandates, it is unsurprising that there was very strong articulation of environmental sustainability actions across the HEIs in this study. The other pillars of sustainability (social, economic, cultural) were either poorly addressed, or not addressed at all, in terms of both strategic plans and action plans at the institutional level in the Irish HEIs.

7.2.2 RQ2 "In what ways might FT approaches contribute to sustainability planning in HEIs?"

In this study of Irish HEIs, sustainability planning has been shown to follow traditional predictive planning approaches, informed by policy compliance, conservative, low risk planning approaches that lack the significant innovation and transformation required to see HEIs being classified as a sustainable HEI (Christou *et al.*, 2024; Rotondo, Giovanelli and Lozano, 2024). Those HEIs with sustainability strategies provide greater evidence of having considered temporal and intergenerational dimensions of sustainability, but only one Irish HEI was seen to apply FT methodologies in framing possible sustainability futures. The Irish sustainability leaders participating in this study demonstrated strong pro-ecological worldviews and commitment to SD but lacked extensive experience or knowledge of FT, suggesting that there is a competency gap to be addressed.

This study has concluded that engagement with the FT interventions enabled the sustainability leaders to move beyond reacting to operational pressures, enabling them to envision and imagine possible and preferred futures for sustainability (Moore and Milkoreit, 2020). Thus FT fostered participants' ability, during the interventions, to distance themselves from colonised or used futures (Inayatullah, 2008; Robertson, 2017), advancing their agency to propose new and transformational solutions. Sustainability leaders consistently articulated a

lack of agency due to current constraints suggesting that FT catapulted them over this challenge.

7.2.3 RQ3: How do sustainability leaders perceive the effectiveness and usability of FT methods in enabling them to develop a sustainability strategy?

This study showed that while engagement within the FT interventions was perceived by sustainability leaders as an act of escape, systematic and structural barriers need to be considered in its wider integration into sustainability planning in Irish HEIs. Calls by participants for the application of FT in other strategic planning exercises are welcomed but will require capacity building and organisational commitment to maximise impact. Building anticipatory and FT competencies across the organisation will be critical. This study enabled participants to progress on the journey towards Giroux's educated hope, avoiding vague hopefully narratives in the pursuit of a preferred future. It also exposed concerns and fears of possible futures, informed by dystopian futures projected by discourses associated with the polycrisis (Bierwisch and Schmitz, 2024). The tools and methodologies utilised in this research, informed by the seminal work of Dator, Yeh and Park (2013) and Inayatullah (2008) were deemed effective by participants. Participants confirmed Inayatullah's conclusion (Ahmid, 2020) that the application of FT can be constrained by an inability to imagine new futures and a cultural tendency to solve problems in the present.

While Cortese (2003) argued that HEIs possess a profound moral responsibility to model systemic sustainability, the findings from this research demonstrate that, despite the progress made with respect to sustainability planning, Irish HEIs predominantly remain stuck in operational compliance modes. The Futures-oriented Sustainability Planning Framework arising from this research offers a pathway to bridge the gap between the present position and

Cortese's vision of an integrated, sustainable HEI. The Framework's foundational layer responds to Giroux's call for HEIs to reclaim their positions and spheres of critical thought and civic courage (Giroux, 2020). It also seeks to enable stakeholder agency and hope as tools for change, avoiding Slaughter's (2020) dystopian future which is replaced by Mbembe's (2023) re-imagining of education with a new planetary consciousness. The study has demonstrated that FT can support sustainability planning in HEIs as a disruptive approach to the growth oriented, environmentally focused sustainability planning prevalent in Irish HEIs. FT methodologies allow leaders to move beyond linear, business-as-usual projections to navigate the systemic complexity of the polycrisis. The research findings agree with Stein's (2024) contention that for HEIs to achieve genuine transformation, they must shift from reactive, short-term planning cycles (mainstream sustainability) to a long-term, futures-oriented approach adopting critical sustainability approaches.

7.3 Contributions to research and pedagogy.

In addition to responding to the aforementioned research questions, this study has important contributions relating to the research process and FT intervention.

From a theoretical perspective, this study bridges the gap between sustainability planning and FT in the context of higher education. It contributes to the field of Futures Studies by providing empirical evidence of FT's utility as a disruptive tool to challenge used futures and institutional models that no longer serve ecological needs. The primary theoretical output is the proposed Framework, which shifts the conceptualisation of sustainability from a reactive add-on necessity to a proactive, integrated priority informed by thought leadership and futures informed systematic change.

Methodologically, the study demonstrates the efficacy of a two-phase qualitative design that combines document analysis with participatory FT interventions. The successful application of methodologies such as CLA and Backcasting proves that these tools can foster safe intellectual spaces required for advancing strategic meaning-making. The research also highlights the value of RTA in capturing the complexity and subjectivity of sustainability leadership.

Practically, the findings offer a framework for HEI leadership teams to move beyond symbolic environmental reporting toward consideration of deep-rooted institutional transformation. While the research identifies a possible gap in futures literacy and anticipatory competencies among sustainability leaders, there are opportunities to address this. The Framework also seeks to provide an integrated model connecting governance, WoI and holistic approaches and FT methodologies providing a high level framework for HEIs to follow. By visualising a preferred future (the "Greenhouse" metaphor), this study empowers leaders to reframe sustainability as a core pedagogical and operational principle rather than a peripheral compliance requirement. The findings should also be of value to HE policy makers in informing future sustainability policy initiatives.

Practical outcomes arising from this research include the CSHEI introducing FT into its next institutional strategic planning cycle, with a view to exploring a range of possible futures in the next phase of the organisations development. Furthermore, a new Certificate in Futures Thinking for Sustainability has been developed and will commence in September 2026.

7.4 Recommendations.

This study proposes several recommendations in relation to future sustainability planning in HEIs. The recommendations seek to inform future policy and practice in HEIs informed by the outcomes and conclusions from this research.

7.4.1 Moving from mainstream sustainability to critical sustainability.

This study, through its review of the literature and research findings, demonstrates that Irish HEIs are working within narrow understandings of sustainability, and within this context primarily concentrating on environmental sustainability (Stein, 2024). Wider social, economic and cultural dimensions of sustainability are frequently absent from institutional strategies, policy or action plans and the overpowering neoliberal growth agenda appears to be constraining transformation (O'Neill and Sinden, 2021; Schulte, 2022). The polycrisis now demands HEIs move beyond mainstream sustainability where accepted norms are challenged. HEIs need to adopt, at a minimum a critical sustainability stance to influence and inform alternative futures which are framed by equity, climate justice, social cohesion and cultural insights and not just driven by economic imperatives. HEIs need to re-assert their thought leadership roles in this regard, reclaim their positions as spaces where critical thought and civic courage is nurtured and developed (Giroux, 2002, 2020). Initiatives such as the emerging Climate Justice University Union may facilitate such critical debate and discussion.

7.4.2 Sustainability planning frameworks.

Rotondo, Giovanelli and Lozano (2024) concluded that there is a scarcity of studies investigating integration of sustainability in HE from a strategic perspective, while also pointing to a lack of theoretical frameworks which support HEI management in systematically designing and implementing strategic initiatives in line with the principles of a sustainable

university. This study has revealed a variety of responses from Irish HEIs to sustainability. Only one HEI was found to have futures-oriented sustainability reports, five HEIs have comprehensive sustainability strategies, while limited or no sustainability documentation was found for two. While the literature presented a number of frameworks which can inform WoI or holistic sustainability planning (Casarejos, Frota and Gustavson, 2017; Sanches, Campos, *et al.*, 2022), evidence of their consistent adoption across Irish HEIs is limited. The fragmentation of sustainability planning in Irish HEIs is influenced, and reinforced, by the multiple, siloed policy and regulatory agendas which HEIs are required to respond to.

National governments and their agencies need to work with HEIs to develop common sustainability planning frameworks. Such frameworks must go beyond current metrification of sustainability reporting with performance frameworks and CARs, with a view to adopting common approaches to integrating connected policy agendas. Such an approach would enable a series of common principles to be adopted and support those HEIs who have yet to develop sustainability strategies gain the insights from more experienced HEIs. Such frameworks also provide the opportunity to take futures-oriented approaches to sustainability planning, providing structures and approaches for HEIs to implement FT initiatives and methodologies. The Framework arising from this study may form the basis for such sectoral collaboration.

7.4.3 Resourcing and enabling transformation.

To enable this shift towards critical sustainability HEIs should be supported, through resources and capacity building, to deploy WoI and holistic approaches to sustainability. Disparate approaches to resourcing sustainability exist across the HEI landscape with Irish HEIs facing similar resource challenges to HEIs internationally (Leal Filho, Pallant, *et al.*, 2018; McCowan, 2023b; Suklun and Bengü, 2024). Insights from sustainability leaders in this study

highlight an insufficient level of investment in expertise, infrastructural transformation and long-term sustainability planning. While evidence of a level of mimetic isomorphism is emerging (Zdonek *et al.*, 2025), the current resource constraints faced by HEIs will restrict the transformation from the current mainstream sustainability paradigm. At a policy level Governments need to work with HEIs to enable adequate resources (human, capital and other) to incentivise and facilitate transformation away from status-quo, business as usual approaches.

7.4.4 Educated hope for the future.

Inspired by FT capacity building provided to Malaysian HEIs (Ithnin *et al.*, 2018) futures literacy capacity building for HEI leadership and sustainability teams, could inform sustainability planning within Irish HEIs, and contribute to countering environmental dominance and compliance-driven agendas. Formally embedding FT approaches and futures-oriented thinking into institutional strategic planning cycles, as envisaged in this study's proposed Framework, could contribute to imagining possible futures for higher education and HEIs, thus potentially triggering the innovation and transformative thinking required to address sustainability challenges. By developing and enhancing anticipatory competencies and futures-oriented planning processes, HEIs can imagine novel solutions to face the polycrisis. Adopting a position aligned to Giroux's (2020) philosophy of educated hope and integrating FT processes with decision-making systems within HEIs (Muiderman *et al.*, 2020) can foster alternative futures aligned to critical sustainability outcomes.

This study has demonstrated that by releasing sustainability leaders from an operationally and temporally constrained culture, FT methodologies can enable a critique of current systematic challenges and worldviews, while also enabling imaginings of a range of possible futures. HEIs

can help foster this sense of educated hope amongst their students, staff and stakeholders by proactively integrating FT approaches across the dimensions of the institution.

7.5 Limitations.

While this study provides valuable insights into sustainability planning and FT in Irish HEIs, several institutional and geographic boundaries apply. Because HEIs are dynamic systems, the document analysis represents a temporal snapshot, capturing espoused theory within formal text rather than evolving implementation insights (Lidstone, Wright and Sherren, 2015). Furthermore, being situated within Ireland and the Global North, the findings may have limited transferability to jurisdictions with differing policies or funding structures (Merriam and Grenier, 2019). This Western-centric scope also means the study does not account for the unique cultures, resource constraints, and sustainability worldviews characteristic of HEIs in the Global South (Hassan and Ahmad, 2025).

Methodologically, data collection constraints and the study's paradigm bounded the findings. Survey recruitment coincided with academic vacations, and the small population size (66 leaders) precludes statistical generalisability. However, in alignment with the constructivist and subjectivist paradigm, the objective was context-specific depth rather than statistical replication (Clark *et al.*, 2021; Denscombe, 2021). The qualitative outcomes are linked to the participants' unique social positions and as such cannot be exactly reproduced. Additionally, relying solely on public-facing documents omitted the internal power dynamics and informal creation processes that shape institutional politics.

Finally, boundaries exist regarding stakeholder representation and the execution of the FT interventions. Engaging exclusively with senior leaders omitted the perspectives of the wider staff and student body, whose sustainability worldviews would likely differ (Wiek,

Withycombe and Redman, 2011; Kligyte *et al.*, 2025). Regarding the interventions, the research utilised a purposive set of FT frameworks (Inayatullah's Six Pillars and Dator's Four Archetypes). Senior leader availability necessitated a compressed timeframe, restricting the depth of interrogation within complex exercises like Causal Layered Analysis (CLA). Lastly, because the study explored the immediate utility of FT rather than evaluating a completed strategy, it lacks a longitudinal perspective to measure long-term impacts on leadership behaviour or institutional outputs over time.

7.6 Recommendations for further research.

While this study utilises a dual case study approach to provide a foundational national assessment of sustainability planning in Irish higher education institutions (HEIs), its qualitative scope establishes several critical trajectories for future inquiry.

Future research should transition from a macro-sectoral overview to a granular, operational level. Investigating how sustainability strategies are implemented on the ground would uncover localised success factors, institutional barriers, and emerging innovations. This granularity would significantly expand the sparse literature concerning Irish HEI sustainability planning (O'Dowd Lohan *et al.*, 2020; Sun *et al.*, 2024; Cullen, 2026).

The documents reviewed in this research were bounded to include only existing institutional strategies, sustainability strategies, plans and policies. It is acknowledged that HEIs possess strategies and plans which respond to other priorities which have a sustainability impact, including access and EDI (social dimension), healthy campus (environmental), research (all pillars), engagement (social, economic). By conducting research which encompasses all relevant strategies, plans and policies deeper insights into holistic and whole-of-institution contributions to sustainability could be unveiled.

Irish HEIs should pursue future studies which establish collaborative research agendas between Irish HEIs and institutions in the Global South. This cross-jurisdictional approach would challenge prevailing Western, neoliberal sustainability paradigms, fostering a holistic conceptualisation that integrates climate justice, culture, and inter-generational equity. Research inspired by initiatives like the "seeds of a good Anthropocene" (Bennett *et al.*, 2016) would directly address the empirical deficit regarding sustainability within Global South higher education contexts (Hassan and Ahmad, 2025; Osman, Sheikh Farah and Abdi, 2025).

The boundaries of the FT interventions deployed in this study present fertile ground for expansion. Future inquiries should move beyond text-based exercises to incorporate multimodal methodologies, such as narrative, art, and gaming, to deepen anticipatory imagination. Longitudinal designs are also required to evaluate the enduring impacts of FT on participants' long-term anticipatory competencies and strategic choices. Furthermore, applying these foresight interventions to alternative HEI leadership cohorts outside the sustainability domain would test their broader institutional utility.

Future scholarship must explicitly address the exclusion of student voices. Investigating how students engage with FT and sustainability would capture their distinct worldviews and anticipatory competencies, directly informing the co-creation of alternative institutional futures.

While this study adopts a qualitative, constructivist stance, opportunities exist to operationalise the proposed Framework into practical evaluation tools. Future research should develop mixed-method instruments capable of evaluating institutional strategies across holistic and futures-oriented planning dimensions. Specifically, investigating the evaluation and feedback loop would provide HEIs with qualitative and quantitative insights, offering a robust,

transformative alternative to the reductive metrification demanded by current higher education policies.

7.7 Final Reflection.

In framing and conducting my research I reflected upon and considered how my experience might contribute to and inform my interpretation of data and insights gained during the research (Creswell, 2012; Clark *et al.*, 2021; Denzin *et al.*, 2024). Specifically I reflected on the multiple conventional strategic planning processes within organisations and HEIs in which I have worked, nationally and internationally. Additionally I reflected on my HEIs institutional strategic planning process and efforts to influence how it addressed sustainability. These factors have influenced my research topic and informed my attraction to FT as an alternative approach to framing sustainability planning within HEIs.

The research has profoundly affected me at both a professional and personal level. Professionally, it has enabled me to critically explore HEIs approaches to sustainability including getting beneath the litany layer exposing systematic and structural challenges constraining significant transformation within Irish HEIs. Also at a professional level it has enhanced and reinforced my commitment to contributing to transformational change in my HEI and across the sector. Emboldened by Giroux's call for radical pedagogy and the need to facilitate educated hope I plan to use the learnings from this research to inform my professional work into the future.

At a personal level it has provided hope and encouragement to find like-minded people who care deeply about the planet, society and climate justice. However, in considering the fears articulated by others it has sharpened the focus I place on my own fears for the future. I have a greater awareness of the conscious and sub-conscious anxieties I hold in relation to climate

and possible societal collapse. FT has provided me with a means to both acknowledge these fears and anxieties but also address and control them.

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9 Appendices

Appendix A: Ethical Approval - DCU

Appendix B: Sustainability Leaders & SCom – NEP Scores

Appendix C: Sustainability Leaders & SCom –Competency Scores

Appendix D: Sustainability Leaders – Semi Structured Interview Guide

Appendix E: SCom – Pre FT Intervention: Semi Structured Interview Guide

Appendix F: SCom – Post FT Intervention: Semi Structured Interview Guide

Appendix G: Futures Thinking Interventions – Activity Outline

Appendix H: Codebook – Extract from NVivo

Appendix A: Ethical Approval - DCU

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Séamus Hoyne

School of STEM Education, Innovation and Global Studies

IoE F-REC Reference: 2024/004

Proposal Title: Exploring a futures-oriented framework for sustainability planning in higher education

20/12/24

Dear Séamus,

Thank you for your recent submission to the Faculty Research Ethics Committee (FREC). Further to its review by the committee and resting on the assumption of information accuracy and completeness, IoE F-REC is pleased to issue ethical approval for this research project.

Researchers are responsible for ensuring that the research project to which this ethical approval refers is carried out as specifically described in the application form. Should modifications to the research project be required at a later stage, researchers must submit a research amendment application form to F-REC for approval, prior to the implementation of modifications.

Please note that it is the responsibility of the PI to ensure that any other DCU compliance requirements relevant to the research project, such as those related to data protection, insurance, health and safety, or legal issues, are fully met in advance of initiating the project.

IoE F-REC wishes you every success in your research.

Yours sincerely,

Darina Scully

Dr Darina Scully
Chair of Faculty Research Ethics Committee
DCU Institute of Education
DCU St Patrick's Campus,
Drumcondra,
Dublin 9, Ireland

Note: Please retain this approval letter for future publication purposes.
Research students should include this letter as a thesis appendix.

Appendix B: Sustainability Leaders & SCom – NEP Scores

Sustainability Leaders: Revised New Ecological Paradigm - % Agreement

NEP Statement	Strongly Agree	Somewhat Agree	Unsure	Somewhat Disagree	Strongly Disagree
1. We are approaching the limit of the number of people the Earth can support.	25%	32%	18%	14%	11%
2. Humans have a right to modify the natural environment to suit their needs	4%	25%	4%	21%	46%
3. When humans interfere with nature it often produces disastrous consequences	32%	57%	7%	0%	4%
4. Human ingenuity will ensure that we do not make the Earth unlivable	0%	21%	21%	25%	32%
5. Humans are seriously abusing the environment	71%	21%	0%	4%	4%
6. The Earth has plenty of natural resources if we just learn how to develop them	11%	25%	11%	25%	29%
7. Plants and animals have as much right as humans to exist	54%	29%	14%	4%	0%
8. The balance of nature is strong enough to cope with the impacts of modern industrial nations	0%	4%	0%	25%	71%
9. Despite our special abilities, humans are still subject to the laws of nature	61%	29%	11%	0%	0%
10. The so-called "ecological crisis" facing humankind has been greatly exaggerated	0%	4%	0%	14%	82%
11. The Earth is like a spaceship with very limited room and resources	25%	50%	7%	14%	4%
12. Humans were meant to rule over the rest of nature	0%	0%	11%	14%	75%
13. The balance of nature is very delicate and easily upset	32%	50%	14%	4%	0%
14. Humans will eventually learn enough about how nature works to be able to control it	0%	7%	18%	21%	54%
15. If things continue on their present course, we will soon experience a major ecological catastrophe	71%	25%	4%	0%	0%

SCom: Revised New Ecological Paradigm - % Agreement

NEP Statement	Strongly Agree	Somewhat Agree	Unsure	Somewhat Disagree	Strongly Disagree
1. We are approaching the limit of the number of people the Earth can support.	22%	11%	33%	22%	11%
2. Humans have a right to modify the natural environment to suit their needs	0%	44%	0%	22%	33%
3. When humans interfere with nature it often produces disastrous consequences	44%	56%	0%	0%	0%
4. Human ingenuity will ensure that we do not make the Earth unlivable	0%	33%	0%	44%	22%
5. Humans are seriously abusing the environment	67%	11%	0%	22%	0%
6. The Earth has plenty of natural resources if we just learn how to develop them	22%	11%	22%	33%	11%
7. Plants and animals have as much right as humans to exist	67%	22%	0%	11%	0%
8. The balance of nature is strong enough to cope with the impacts of modern industrial nations	0%	0%	0%	44%	56%
9. Despite our special abilities, humans are still subject to the laws of nature	89%	0%	11%	0%	0%
10. The so-called "ecological crisis" facing humankind has been greatly exaggerated	0%	0%	0%	22%	78%
11. The Earth is like a spaceship with very limited room and resources	33%	33%	11%	0%	22%
12. Humans were meant to rule over the rest of nature	0%	11%	0%	33%	56%
13. The balance of nature is very delicate and easily upset	22%	56%	11%	11%	0%
14. Humans will eventually learn enough about how nature works to be able to control it	0%	33%	22%	11%	33%
15. If things continue on their present course, we will soon experience a major ecological catastrophe	56%	22%	11%	11%	0%

Appendix C: Sustainability Leaders & SCom –Competency Scores

Sustainability Leaders: Competency Scores

Resp#	Total	Normative	Inter-personal	Strategic	Systems Thinking	Anticipatory
SL_1	4.67	4.7	5.0	4.7	4.7	4.3
SL_2	4.27	3.7	5.0	4.3	4.0	4.3
SL_3	3.73	3.3	4.0	3.7	4.0	3.7
SL_4	3.80	3.7	4.3	3.7	3.7	3.7
SL_5	4.00	4.0	4.0	4.0	4.0	4.0
SL_6	2.67	3.7	2.3	2.7	2.3	2.3
SL_7	3.87	4.0	4.0	4.0	4.0	3.3
SL_8	4.20	4.3	4.3	4.3	4.0	4.0
SL_9	4.80	4.7	5.0	5.0	4.7	4.7
SL_10	4.13	3.7	4.7	4.0	4.3	4.0
SL_11	4.47	3.7	5.0	4.7	4.7	4.3
SL_12	3.67	3.3	4.0	3.7	4.0	3.3
SL_13	3.87	3.3	4.3	3.3	4.0	4.3
SL_14	3.87	3.7	4.0	4.0	3.7	4.0
SL_15	4.47	3.7	5.0	5.0	4.3	4.3
SL_16	3.40	2.3	3.3	4.0	3.7	3.7
SL_17	4.00	4.0	3.7	4.0	4.0	4.3
SL_18	3.87	4.0	4.0	4.0	3.3	4.0
SL_19	5.00	5.0	5.0	5.0	5.0	5.0
SL_20	3.73	3.7	4.3	4.3	3.7	2.7
SL_21	3.73	3.0	4.0	3.7	4.0	4.0
SL_22	4.13	4.3	4.3	4.0	3.7	4.3
SL_23	3.73	3.7	4.0	4.0	3.7	3.3
SL_24	4.20	4.0	4.7	4.0	4.3	4.0
SL_25	4.53	4.3	5.0	4.0	4.7	4.7
SL_26	3.93	3.7	4.7	4.0	4.0	3.3
SL_27	3.80	4.0	3.7	4.0	3.7	3.7
SL_28	4.40	4.7	4.3	4.0	4.7	4.3

SCom: Competency Scores

Resp#	Total	Normative	Interpersonal	Strategic	Systems Thinking	Anticipatory
CSHEI_1	3.73	2.7	4.7	4.0	3.0	4.3
CSHEI_5	3.73	3.3	4.0	3.7	4.0	3.7
CSHEI-6	3.47	2.7	3.3	4.0	3.3	4.0
CSHEI_7	1.73	2.0	2.0	1.7	1.3	1.7
CSHEI_8	3.80	3.0	4.0	4.0	4.0	4.0
CSHEI_9	3.73	3.3	4.0	3.7	3.7	4.0
CSHEI_10	2.80	2.7	4.7	1.3	2.0	3.3
CSHEI_11	3.93	3.7	4.3	3.7	3.7	4.3
CSHEI_12	3.67	4.0	4.0	4.3	3.3	2.7

Appendix D: Sustainability Leaders : Semi Structured Interview Guide

Thanks for completing questionnaire and taking time for interview.

For the purposes of records could you please state your name, name of your university and your role in that university. This is just for the purposes of the transcribing. As noted in the PIF all data will be anonymised in the final research outputs.

As you are aware my research is focused on how universities develop their responses to sustainability, and I'm looking at this through the prism of their sustainability strategies/plans. Our discussion will focus on approaches taken in [HEI Name] to develop its responses to sustainability while also gaining insights and your thoughts on futures thinking.

<u>Sustainability planning</u>

- I'm interested to understand how your university has organised itself to develop its responses to sustainability from a strategic and action planning perspective. Could you describe your universities approach?
  - What are drivers/what guides it
  - Who is involved
  - How are things organised
  - Evidence of WoI/Holistic/SDGs

- Would you say that your university has a particular definition or aligns itself with a particular definition of sustainability/sustainable development, or a particular aspect of sustainability.

- One of the questions in the questionnaire asked, "In your opinion, which of the following statements best fits how your HEI addresses sustainability across the 5 dimensions of governance, education, research, operations and engagement (select 1)." In your response to the questionnaire you noted that you felt that your university's response to sustainability could be categorised as [from survey]

    - Could you expand on that a little and why you selected that categorisation?

If they don't have a document(s)

- My research indicates that you don't have a published sustainability strategy or action plan. Is this correct? Does your HEI plan to produce one? – if so could you describe what is happening in developing such a strategy.

- I'm interested to know if you feel if there are areas within your university which are not sufficiently addressing sustainability or different aspects of sustainability which are not covered?...and why

- What would you consider are the most challenging aspects of developing your universities response to sustainability in the university? And the most rewarding aspects?

<u>Futures Thinking</u>

- When you hear the phrase “futures thinking”, what comes to mind?

- Have you experience of using futures thinking approaches in your work? If you have could you please describe what approaches you used and what for?

- Futures thinking involves considering different possible futures (probable, preferrable and even dystopian) and normally you are considering timeframes beyond that of a typical strategic plan. Would you have any thoughts on different possible futures for sustainability within [HEI Name]

- What are the challenges of creating longer term visions/plans within your HEI?

- Any dystopian visions emerge?

<u>Conclusion</u>
- Is there any concluding comments you would like to make?

Thanks for your time and engagement.

Appendix E: SCom – Pre FT-Intervention: Semi-Structured Interview Guide

For the purposes of records could you please state your name, name of your university and your role in that university. This is just for the purposes of the transcribing. As noted in the PIF all data will be anonymised in the final research outputs.

As you are aware my research is focused on how universities develop their responses to sustainability, and I'm looking at this through the prism of their sustainability strategies/plans. Our discussion will focus on approaches taken in the CSHEI in responding to sustainability challenges while also gaining insights to your thoughts on futures thinking.

Personal views
Did you complete the short on-line questionnaire ? Any thoughts after completing it?

Would you consider that you have a particular perspective that you take on sustainability?

Sustainability planning
- Do you have any thoughts on how CSHEI is currently responding to sustainability issues ?

- Many Universities are developing specific sustainability strategies. Do you have any thoughts on how CSHEI might approach developing a sustainability strategy?
  - What should drive or guide it
  - Who should be involved
  - Should it take a particular perspective/focus
  - What should it cover?

- I'm interested to know if you feel if there are areas within CSHEI where we are doing well in terms of addressing sustainability? Are there areas which are not sufficiently addressing sustainability or different aspects of sustainability which are not covered? Any examples specifically from your area of responsibility

- What would you consider are the most challenging aspects of developing a sustainability strategy in CSHEI

Futures Thinking
Futures thinking is an approach which can be used to consider visions for possible futures.
- When you hear the phrase "futures thinking", what comes to mind?
- Have you ever undertaken training in futures thinking/foresight planning? Explain.
- Are you aware of any futures thinking methodologies/tools?
- Do you have a "preferred" or "desired" future vision of how CSHEI should deal with sustainability? Discuss/Explain. Do you have a "dystopian" vision?
- What do you think are the main challenges in developing a sustainability strategy within a HEI which is futures-oriented and is designed to take a WoI and holistic approach? Discuss/ Explain.

Appendix F: SCom – Post FT Intervention: Semi Structured Interview Guide

Thanks again for participating in the interventions. This interview is aimed at gathering reflections from SCom members on the interventions and futures thinking.

- What was your opinion of the interventions which used the futures thinking methodologies/tools?

- Do you feel the interventions helped you to consider sustainability from a whole-of-institution and holistic perspective?

- Which of the exercises posed challenges for you to engage with ?

- Which of the exercises were you most comfortable with

- What was your opinion of the types of futures that emerged?

- Do you feel that interventions will inform the SCom/CSHEI in preparing a futures-oriented sustainability strategy

- Do you feel that you would consider utilising futures thinking methodologies in other areas of your work within CSHEI.

- What benefits did you thinking could arise from using futures thinking in sustainability planning or other areas of activity in CSHEI.? What are the challenges within using futures thinking approaches.

Appendix G: Futures Thinking Interventions - Activity Outline

Introduction
The Futures Thinking interventions were a component of a wider research framework. The interventions were held with members of the CSHEI SCom. There are a total of 13 members on SCom (including the researcher) and all SCom members were invited to attend. The interventions employed a number of Futures Thinking (FT) approaches to explore their application within a HEI considering the development of a sustainability strategy.

Aim
The main aim of the interventions was to evaluate the effectiveness of FT methods in supporting sustainability leaders within an Irish HEI, to conceptualise a sustainability strategy. A secondary aim was to see if the participants can identify a preferred future where sustainability is addressed in a whole-of-institution and holistic manner within CSHEI.

Intervention Implementation
- There were two interventions, 1 on the CSHEI Campus A, 1 on CSHEI Campus B.
- Intervention 1: 18th November: 2 to 5pm; Campus A
- Intervention 2: 4th December 10-1pm; Campus B
- All SCom Members were invited to attend.
- Lunch and tea/coffee was be provided for participants. No other incentive provided.

Facilities for the interventions
- Room with space to move around and have small group exercises
- Camera to record
- Projector and PC
- Flip Charts sheets, Post-Its and Markers
- Paper and Pens
- Instruction sheets for each activity/task
- Tea/Coffee and Water
- Ensure adequate ventilation, heat and light in the space

The sessions were audio/video recorded. Audio and video recording was needed to facilitate accurate representation of the engagement of participants in the FT interventions. The FT intervention processes involved participants dividing into smaller groups and also moving between groups across the 3 hour intervention. The level and nature of interaction of participants was important to capture in terms of understanding the dynamics of engagement and was not possible to capture by a sole doctoral student (researcher) in the role of observer. The most practical option was video and audio recording, which provided fuller coverage of these interactions.

Intervention Facilitator
MR acted as intervention facilitator. The facilitator was provided with the details of the intervention activities and supported the participants in engaging in the various tasks during the intervention. The facilitator was able to engage with the researcher during the intervention as required. The researcher provided relevant introductory or theoretical information associated with intervention activities while the facilitator supported participants in engaging and completing activities.

Intervention "Ground rules"
It was important to acknowledge that participants approach to strategic planning is likely to be grounded in previous experiences with strategic planning i.e. Vision/Goal setting, short term timeframes etc. Interviews which were held with SCom members prior to the interventions indicated that the level of knowledge of FT, or experience of the various differing methodologies was limited.

The following "Ground Rules" were be set to inform the interventions and sought to support the participants in engaging in the FT approach.
- While all of the activities are low risk if any participant was feeling uncomfortable or specifically challenged with any aspect of the interventions they were free to take a break or step out
- The facilitator encouraged them to park current work priorities and give space to the engagement in the intervention.
- No metrics or KPIs: The intervention activities were not focusing on any metrics or KPIs in relation to sustainability but rather qualitative descriptors
- The timeframe in which possible futures was considered was 2050 and thus the majority could assume that they would no longer working in the CSHEI
- The ambition was NOT to predict the future but to explore or build visions/scenarios of the future
- Participants were encouraged to avoid using technology (laptops/phones etc.) if at all possible during the interventions. It was acknowledged that some participants may have to take urgent calls.
- A possible definition of sustainability was provided at the outset to provide a framework for participants to consider a whole-of-institution and holistic approach.

Intervention Design
The intervention design was informed by Inayatullah's 6 pillars approach (Inayatullah, 2008) but also drew from (Dator, Yeh and Park, 2013). It is acknowledged that the interventions had a time constraint and not all aspects of Inayatullah's or Dators approaches could be covered in detail. As much time as possible was allowed to engage in the activities, and for observation of this engagement.

The interventions had a limited number of presentations to provide context and background.

The participants were provided with a brief introduction to the interventions via email prior to the events. This included a short description of the intervention, an outline of the "ground rules", confirmation of time/location and that they did not need to bring any materials to the interventions.

Intervention 1 (18th November)

1. Introduction to FT and Futures (15 mins)
- Welcome and introductions (SH and MR)
- Brief outline of FT, Introduction to Futures Cone (Voros, 2017), Introduction to 6 pillars and the intervention(s) design (SH)
- Reminder of Ground Rules (MR)

2. Shared History Activity – (20 mins) (Pillar 1 – Mapping)

The first activity engaged the participants in a task where they collectively reflected on a shared history in relation to sustainability within the CSHEI. The majority of participants have been involved in the various organisations for significant periods of time and therefore may have had some milestones which they could identify.

"Shared history asks: what are the continuities in our history, what is discontinuous? Has change been stable or have there been jumps in time? This opening tool creates a framework from which to move to the future."(Inayatullah, 2008, p. 7)

- SH gave a brief introduction – pointing to the sheets which are placed on the wall or boardroom table.
- A series of Flipchart sheets were available showing a timeline from at least 1990 to present. Participants used post-its to position their item at the particular time point. A small number of examples were already in place to prompt engagement e.g. Kyoto Protocol, 1st ESD Strategy etc.
- The entire group plotted out any sustainability policies, interventions, social indicators, key milestones, signals e.g. 1st ESD Strategy, LIT PV panels etc. which they considered relevant
- MR encouraged them to identify signals across social/economic/environmental pillars and/or items which are both internal within the organisation or external e.g. Government/international policy
- Participants were given 10 mins to place their post-its.
- There was a 10 minute discussion of the outcome to gather specific reflections or insights from the activity.

3. Future Persona in 2050 exercise (30 mins) (Pillar 2 - Anticipation)

Having focused on the past/present in the earlier component of the intervention the next phase encouraged the participants to move into the future. As a step into the future each participant was encouraged to imagine a persona/character in the CSHEI in the future in 2050.

They were encouraged to create a character of someone who is in the CSHEI (staff or student). They selected a number between 20 and 65 (from a bucket) and this was the age of their persona in 2050. They defined their character under a number of specific headings, thinking of their persona in the context of sustainability in particular. They had to consider the following questions.

- *What is your character's name, gender and briefly describe their role in the CSHEI*
- *Where is your character from? Where were they born, where did they grow up?*
- *Does your character have a particular political, philosophical, religious view/position?*
- *Does your character have a particular ambition?*
- *Does your character have a particular fear?*
- *What does your character value most about the CSHEI at present?*
- *What does your character most dislike about the CSHEI at present?*

Participants had 10 mins to prepare their persona and were given a 1 page template on which to write notes.

Each participant was then invited to share their persona/character with the group and a discussion held on perceptions of the future, and challenges in imagining a persona/character in the future. The group were asked to consider any specific aspects in relation to sustainability which emerged from the shared personas e.g. worldviews, fears, values etc.

The individuals were asked to return their worksheets to the researcher with confirmation that it was ok to retain them for the research activity.

4. Tea/Coffee Break (20mins)

5. CLA – (40 mins) (Pillar 4 – Deepening the Future)
Participants were introduced to CLA and its approach by the researcher. The facilitator worked through an exercise where the participants considered the present under the CLA layers. A number of examples were provided from e.g. Inayatullah or the researchers own work to inform the activity. The focus of the CLA remained on sustainability within the CSHEI. The attendees worked in two groups – established by the facilitator. A template document was provided to participants to record their responses to each CLA Layer.

This was followed by a discussion on how sustainability is currently framed within HE/the CSHEI with a view to exploring relevant frustrations, challenges, opportunities that the participants identified. The main focus on discussion was on the metaphors and where these came from. This also informed future discussion on what a preferred metaphor may be for the future.

6. Creating Future Scenarios (40 mins) (Pillar 5 - Creating Alternatives)
The next session involved scenario planning. A number of scenario archetypes (Continued Growth; Collapse; Steady State; Transformation) were used to inform discussion based on (Dator, Yeh and Park, 2013). The conditions informing each of the scenarios were outlined. While normally participants would spend time considering what the status of the 7 driving forces might be in 2050, given time constraints the participants were provided with a simplified framework for each force, as outlined in the following table. These force indicators were informed by Dator, Yeh and Park (2013).

Scenario	**1 Grow**	**2 Collapse**	**3 Steady State**	**4 Transform**
Forces				
Population	Increasing	Declining	Diminished	Posthuman
Energy	Sufficient	Scarce	Limited	Abundant
Economy	Dominant	Survival	Regulated	Trivial
Environment	Conquered	Overshot	Sustainable	Artificial
Culture	Dynamic	Stable	Focused	Complex
Technology	Accelerating	Stable	Restricted	Transformative
Governance	Corporate	Local	Strict	Direct

The participants were assigned a scenario. Participant 1 to 4 were assigned Scenario 1-4 respectively, participant 5 Scenario 1 etc. Participants were provided with an A3 Template to complete. For each Scenario, the Population Force was pre-populated by the researcher as an example. For the remaining 6 forces participants were required to input insights for the Culture

and Governance forces and select a minimum of 2 others of the remaining 4 to complete. They could complete all forces if they had sufficient time. The ambition for this exercise was to facilitate imagination of different alternative futures rather than exact prediction.

Participants spent 20 minutes seeking to develop a sentence which describes each particular force for the scenario they were examining. The sentences should articulate what the scenario might be in Ireland and any particular specific features relevant to the CSHEI.

There was a 20 minute discussion/sharing across the participants on the emerging scenarios where participants highlighted anything they noticed or wished to reflect on, challenges encountered or comment on other participants insights.

7. Conclusion and reflection, FT intervention 1 (10mins).

At the end of intervention 1 there was a 10 minute window at the end for participants to highlight any particular issues/challenges/reflection on the intervention as well as opportunity for individual discussion with researcher. The facilitator encouraged the participants to respond to the following.

- *Name one issue or idea that has caught your attention today*
- *Name Something that you are uncertain about*
- *What is your reflection on the overall intervention itself and how it was for you?*

Intervention 2 (4th December)

1. Introduction and Refresh – (15 mins)

The 2nd FT intervention began with a welcome and brief introduction to FT (for anyone who was not in attendance for intervention 1) along with a reminder of ground rules (MR). A short summary/reminder of what was completed in intervention 1 was provided (SH).

2. Creating Future Scenarios (60 mins) (Pillar 5 - Creating Alternatives)

SH gave a short introduction to the activity and MR introduced the process and exercise. The participants were divided into pairs. Pairs were allocated randomly. Each pair was assigned on of the scenarios from Dator (Grow, Collapse, Transform) with the focus now being on what the CSHEI looks like in 2050 within that scenario.

For their specific scenario they had to briefly describe what the CSHEI might look like under the following descriptors/headings

- Metaphor
- Assumption,
- Mission,
- Participants,
- Resources,
- Pedagogy,
- Campus.

The pairs were provided with the Tables summarising their findings from the scenario activity during Intervention 1. Pairs were provided with an A3 template to complete for their assigned scenario. They had to develop an alternative metaphor and outline their key assumption(s) informing their scenario. They could then complete a minimum of 3 out of the remaining 5

descriptors. The groups were also informed that they could use an image/graphic to illustrate their future scenario if they wished.

Each of the pairs were given 30 mins on their scenarios and the facilitator prompted where participants had challenges or need assistance. There was a sharing of alternative futures at the end of the activity with each pair presenting the metaphor, assumptions and two descriptors.

Tea/Coffee (20 mins)

3. Towards a Preferred Future (45 mins) (Pillar 6 - Transformation)

The full group convened to consider a preferred future for sustainability in the CSHEI. Participants had a discussion and sought to develop a Preferred Future and briefly describe what sustainability in the CSHEI might look like under the same headings used in the previous exercise.

- Metaphor
- Assumption,
- Mission,
- Participants,
- Resources,
- Pedagogy,
- Campus.

1 person acted as a scribe while MR facilitated the group to address the various headings and sought consensus where necessary. There was a final discussion and confirmation that the group were happy with the preferred future at the end of the activity.

4. Backcasting (30 mins) (Pillar 6 - Transformation)
Participants considered what needs to happen to enable their preferred future. "what happened in the last 20 years to bring us to today? What are their memories of the last 20 years? What needed to happen? What were the trends and events that created today?" (Inayatullah, 2008, p. 18).

Participants had a series of boards with a timeline from 2050 back towards 2025. The preferred Future Description was available for all to see. Participants considered critical tasks, milestones etc under the headings of Participants, Resources, Pedagogy, Campus etc. They also considered external factors e.g. funding, governance and were encouraged to identify if there are issues within the CSHEI control or beyond the CSHEI control. MR and SH had to intervene at one point to avoid group moving directly to 2025 to begin identifying tasks, rather than working backwards.

5. Conclusion and wrap up (15mins)
MR summarised the work that has been done and thanked all for participation and facilitated a general discussion and reflection on the interventions, process and participants reactions.

Appendix H: Codebook – Sample Extract from NVivo

Codebook Extract: Sustainability Futures: Activating anticipatory and futures-oriented planning.

Name	Description	Files	References
1 Weak futures orientation in sustainability planning		21	68
DA_T4 Weak futures orientation in sustainability planning		21	68
General references to possible futures	Possible futures and future impacts in DA	14	37
FT methods	References to any general methods used in FT (historic timelines, horizon scanning, Foresight, CLA, Futures Wheels etc) in DA	4	6
Long term strategy time frames	References to strategy plan timeframes	10	14
Future Leaders, intergenerational	References to future leaders and future generations in DA	2	4
Hope, Innovation and Change	References to hope and change with DA	3	7
SL_T4 Limited FT Knowledge and Capacity		0	0
Awareness of FT Concepts and Methodologies	Awareness of FT and methodologies, previous use or knowledge	6	73
Perceived benefits of FT for SD Planning	References to potential benefits of FT, countering short-term	6	43
Perceived challenges of FT for SD planning	Challenges raised or considered in how FT could be applied	5	63
2 FT can foster hope while also acknowledging fears of the future		15	162
SCom_T5 FT can foster hope while also acknowledging fears of future	Fostering hope for the future, and countering dystopia, while also managing fear of the future	15	162
Positive perceptions of FT	Possibility for FT to generate positive reactions and responses	8	61
Fears and hopes for the future	Balancing fears of the future (negative futures) with hope	12	58

Name	Description	Files	References
Contrast between negative and positive futures	Different perspectives and reactions during the FT interventions - positive and negative	7	22
Conscious and sub-conscious influences	Possible conscious and sub-conscious influences on approaches to FT	5	21
3 FT can release you from the present to imagine new future possibilities		12	126
SCom_T6 FT can release you from the present to imagine possible futures	Imagination, different ways of thinking and freedom from operational constraints	12	126
Being able to imagine	Peoples ability to imagine varies	8	45
Freedom from operational constraints	Being released to think about futures and not concentrate on the present	5	18
FT is counterintuitive	FT is not how we normally think	11	63
4 Futures-oriented planning is a process and not just a skill		19	519
SCom_T7 Futures oriented planning should be viewed as a process and not a skill	Theme constructed to reflect that if FT is to be applied it is not just a series of interventions but a way of thinking/working	19	519
External controls and limits	External factors which may limit people being able to apply FT in a useful way	9	40
FT could be disruptive	Acknowledging the if FT is applied it may cause disruption which some people may not welcome	7	24
Planning and finding time for FT	FT means people have to be able to set time aside for thinking	8	19
Supporting people to think differently	How people think about time and imagine new futures	13	87
New ways to do planning in the future	Thinking about strategic planning in different ways	11	35
Possible opportunities for FT to be used	New opportunities identified where FT might be able to be applied	11	82

Name	Description	Files	References
Thinking about future generations	Evidence of inter-generational thinking and planning for their futures	8	28
Futures literacy and FT capacity	Developing Futures literacy and FT capacity will be important and will take time and resources	15	52
Differing emotional responses	Emotional responses during/after FT interventions	9	40
FT intervention planning and activities	Reactions to FT activities and how FT intervention was implemented	7	112