# Continuous Improvement in Higher Education – The Validation of a Design Thinking Framework as applied in a Case Study of Academic Restructuring

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## Abstract

*Higher Education (HE) is facing an unprecedented demand for continuous improvement and adaptability to change from policy makers, quality assurance agencies, partners in industry and enterprise, from staff and from students. The numerous factors driving the need for change can often result in a reactive, firefighting' approach rather than a strategic and intentional direction. This study has a focus on design thinking as a method of continuous improvement in HE. The methodology is a single case study of academic restructuring at Ireland's newest university, South East Technological University (SETU). SETU championed a design thinking approach to continuous improvement and change. The academic executive team engaged in a series of facilitated organizational transformation design-led workshops utilising an SETU framework incorporating design thinking. The objective was to develop a new academic structure with a coordinated management team in the context of an institutional merger. The challenge was how to achieve this in a meaningful and appropriate way that would provide credence and acceptance from executives and staff and result in an ease of transition. The findings show the use of a design thinking approach was successful in meeting the objective by ensuring the experiences of the executive team and staff were applied to both understanding the challenges and creating the solutions, which supports ownership and accountability in the outcomes resulting in a greater ease of transition. The design-led framework provides consistency in approach, is replicable and can be applied to any organisation to unify people and fortify adaptability to change. The originality of the study is in the interpretation of the theoretical process of design thinking into a comprehensive framework and application to support organizational transformation as demonstrated through a case study of academic restructuring in HE.*

## 1. Introduction

Since 2011, Irish Higher Education has undergone significant structural transformation. In that time, amongst other changes, the entire Institute of Technology sector (comprising 13 institutions) has been consolidated into five new universities, the Technological Universities (TUs). The merging of existing institutions into new universities was, as declared in the National Strategy for Higher Education to 2030 [1], to elevate academic performance and impact, to create critical mass in areas of research and to form region-based institutions of significant scale. The South East Technological University of Ireland (SETU) was established following a merger in May 2022. The challenge in merging any organisation is the bringing together of people, processes, and technology. Processes and technology are explicit and easier to capture, communicate and measure whereas the knowledge around people is implicit and more difficult to capture, communicate and measure and it is the 'people' element that is largely overlooked in merger activity as well as in policy and legislation when it comes to the TUs. The traditional methods of supporting merger activity in this respect are often fragmented in approach with the 'people part' reduced to training needs analysis whilst technology experts support processes and technology changes. However, it is the human elements that play a significant role in the success or failure of organisational transformation and strategy implementation. It is also the people who, in the main, carry with them the memory of the legacy organizations, and establish the ground work for the success of the merged organisation [2].

A tension exists within each of the mergers created by the TUs between, on the one hand, recognizing the policy aspirations and building structures, processes and system to realize them and, on the other, honoring the legacy of the original institutions and, especially, respecting the organisational cultures as well as (more specifically) the terms and conditions of existing employees (which were, in any case typically agreed in pre-merger agreements with trade unions). To address this, SETU has championed a framework based on a design thinking approach to change and transformation. Design thinking is a human centred, innovation-based approach that prioritises the

 | DOI: 10.20533/ijibs.2046.3626.2024.0092 

experiential knowledge of stakeholders in developing solutions. The specific challenge for SETU to address was merging academic units that were linked to individual campuses into larger cross campus units. In doing so, there was a need to ensure that any changes made sense operationally and academically and could be the vehicle for advancing a coherent, non-campus specific university vision, while at the same time respecting cultural allegiances, long standing terms and conditions of employment, and deep institutional ownership stretching back for some individuals, the length of a career. In some cases, there were exact duplicate individual campus-based units, in others less exact duplication and overlap. The case study below is a single-case case study based on the introduction of the SETU framework of design thinking to support the academic restructuring required to meet the needs of a modern university.

## 2. Literature Review

Continuous Improvement refers to a range of methodologies which aim to improve and/or, optimize a situation or process and/or introduce an adaptability to change. They include such methods as Lean, Six Sigma, Design thinking, Change Management, Prosci, Total Quality Management (TQM) etc. which can be applied independently but have recognized synergies [3]. Continuous Improvement [CI] in higher education has garnered significant attention across Europe as institutes strive to enhance their academic and administrative processes. Several studies highlight the benefits of CI in higher education, for instance Hogg and Hogg [4] discuss the application of total quality management (TQM) principles in higher education emphasizing the importance of data-driven decision making and reducing errors and waste in processes.

The American institutes for research conducted a comprehensive review of empirical studies on CI and education. The review identified supportive leadership opportunities for collaboration and professional development as key facilitators of CI [5]. Qadhi, and Al-Thani [6] also propose that sustainable higher education requires leaders who can engage all stakeholders in the mission of improvement and development. They highlight the importance of relational and transformational leadership paradigms in achieving this goal.

In Ireland, the National Strategy for Higher Education to 2030, known as 'the Hunt report' [1] outlines a program of significant change for Irish HE. The effort outlined is to generate greater impact from HE, especially in the light of the significant public investment in these institutions, given that the strategy emerged from the 2008 economic crisis. It is unsurprising that the plan is for greater efficiency in the HE sector and, in building consolidated critical mass in key areas, especially in research, for enhanced impact. There is recognition of the change challenge associated with significant structural change and the strategy signals the introduction of critical thinking and innovation being introduced into Ireland's higher education system and in turn the future workforce in a bid to evolve an adaptability to change in a sector which is confronted with novel challenges [7].

*"The capacity of higher education has doubled over the past twenty years and will have to double again over the next twenty. Those entering the system now and, in the future, will have very diverse learning needs, and many will be 'mature' students. Higher education itself will need to innovate and develop if it is to provide flexible opportunities for larger and more diverse student cohorts. It will need to do this while simultaneously enhancing quality and relevance and connecting better with the wider needs of society and the economy, while operating in a more competitive globalised environment* [1].

Design thinking is a long standing method recognized for addressing human centred complex and often undefined issues it is unsurprising to see such a report followed by a series of Irish National Government reports such as Winning By Design (2005) [8], Together for Design (2009) [9] Designing for Government (2022) [10], as precursors to the latest Action Plan (2023) [11] which clearly promotes design thinking as an innovation, people centred approach across Ireland's public sector.

## 3. Case Study

The reorganization of university academic units at SETU was highlighted as a priority in the organization's strategic plan and was perceived as a critical vehicle for advancing the university's drive towards operational unity and consistency as well as towards clarifying and enhancing the university's overall academic proposition. A governance structure was applied to the project of academic restructuring which incorporated a Steering Group, an Academic Design Board, and ten Academic Design Groups. The steering group consisted of the University President and members of the President's Directorate. The Academic Design Board consisted of ten executive heads of academic units and four representatives from the Professional Management Support Services (PMSS) staff. The ten design groups consisted of Heads of Departments and management from within the existing academic units. The remaining staff in the university were invited to a series of all staff in-person briefings for discussion and feedback. The case study focuses specifically on the activity of the design-led workshops of the Academic Design Board. The theoretical design thinking process of 'Discover, Define, Develop, Deliver' [12] was interpreted into an SETU framework to support organizational

 | DOI: 10.20533/ijibs.2046.3626.2024.0092 

transformation (Figure 2). This was to provide the context of a HE organization and bring relevancy and ease of understanding to the stakeholders. The framework included the four stages of Mapping, Framing, Ideating/ evaluating, and Actioning. Four large A0 posters were designed and produced as six sets (Figures 3-6). The posters enabled a large visual landscape for the executive members to input their ideas in markers or post-it notes and provided consistency in approach. The workshops were facilitated by a Senior Change Management Professional who supported the participants in moving through the four-stage process, breaking out into new Faculty groups and coming back together for peer exchange discussions. The case study presents what happened in each of the four stages of the process, highlighting that the results are more than the sum of the data in the posters, but includes the overall experience of working together, developing solutions together and the resulting impacts of that process.

### 3.1. The Challenge

Following the merger, the University took the decision to structure itself as a single, unified, multi campus entity. In other words, it resisted more 'federated' models for how the university would function whereby individual campuses would preserve a certain autonomy in favour of a unitary model with autonomy vested in cross-campus with activities on multiple sites. Once the decision was made to pursue a unitary model, it followed that the university needed to restructure its academic units into single cross-campus units. It was decided that there would be six new units, and that they would be called 'Faculties' and would be organized largely along disciplinary lines. However, the new university had inherited structures referred to as 'Schools' on one campus and 'Faculties' on another. For example, there was a School of Engineering and a Faculty of Engineering which needed to merge in some form. In other instances, there was School of Business and School of Humanities on one campus and a combined Faculty of Business and Humanities on another. The overall objective was to create six new Faculties as the principal units of the university (Figure 1).

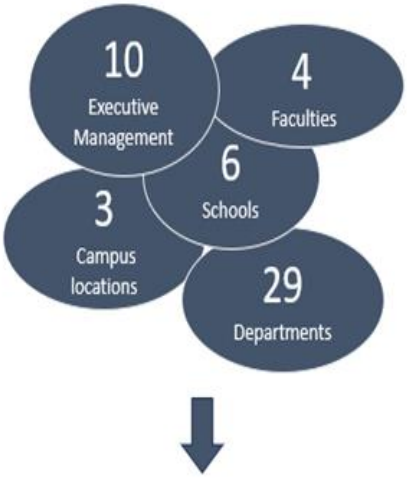


Figure 1. The Challenge

The first step was to remove the executive team away from the boardroom and bring them together at the same time into a workshop environment. The boardroom provides the space and environment for general knowledge sharing, exchanging information and progress reporting and was familiar to executives as the venue for regular Executive meetings (Image 1). A workshop environment, on the other hand, was largely unfamiliar yet is ideal for problem solving, idea generation and creating actionable outcomes (Image 2).

Image 1. SETU Boardroom

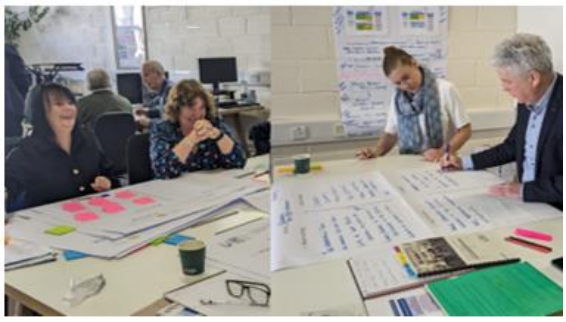

Image 2. SETU Workshop

### 3.2. The SETU Framework

The objective for the workshops was to bring the executives together to discuss and design a structural stability and a co-ordinated management team for a new six Faculty model. To support this workshop activity, the SETU framework was used (Figure 2). The SETU framework was designed within the university as a method to support change through a design thinking approach. It incorporates a four-stage design process which is applied to understanding the 'what and why' and is repeated with the use of slightly different tools when implementing the 'how'. This

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application of the four stages has interconnected knowledge transfer points to create an ongoing loop of adaptability to change, this is the SETU framework (see Figure 2).

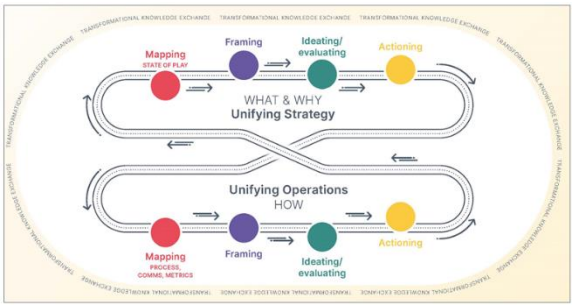


Figure 2. SETU Framework for Organisational Transformation, with design led four stage process

The case study supports the validation of the Framework as a means of supporting people through change and the benefits of a design thinking approach in doing so. The first stage of the framework supports the development of unified strategy. The approach aims to develop a shared context of each other's roles and through collaboration build a cohesive working environment and support critical thinking around how we do things and why we do things. By engaging in the workshops, the participants will have the opportunity to step outside of everyday activities to look at the big picture together, innovate together, navigate challenges together.

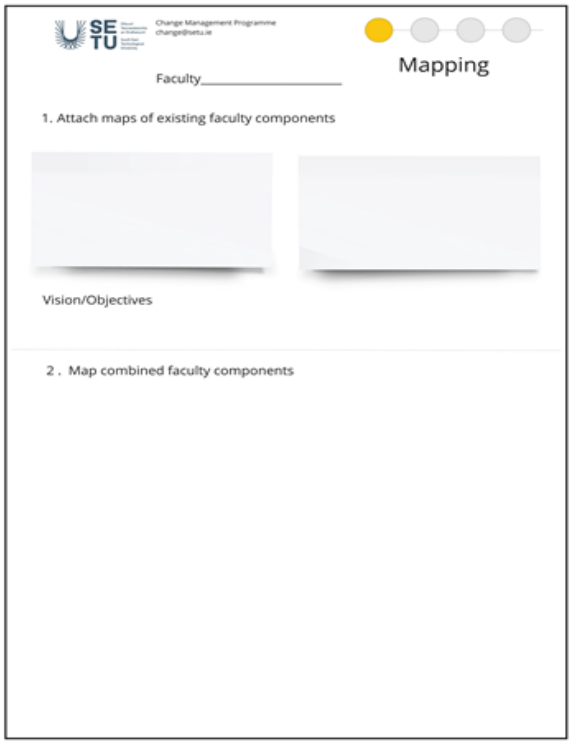


Figure 3. Poster 1- Mapping

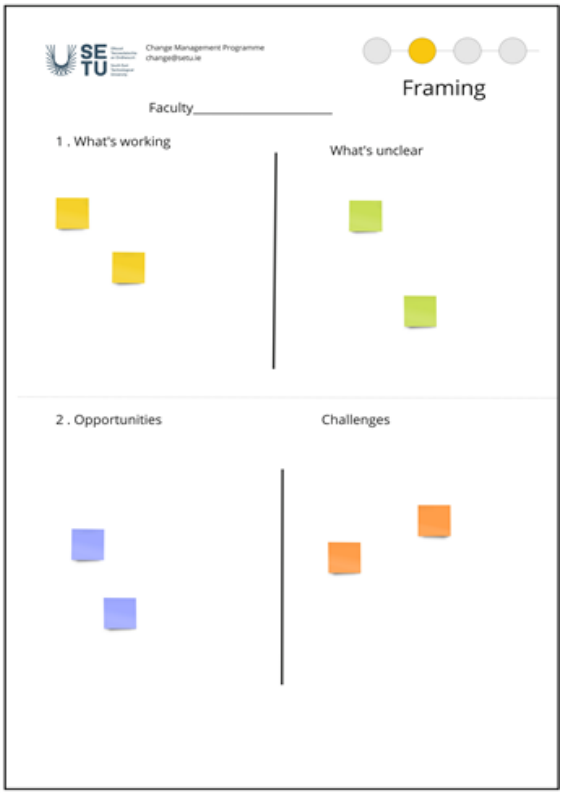


Figure 4. Poster 2 – Framing

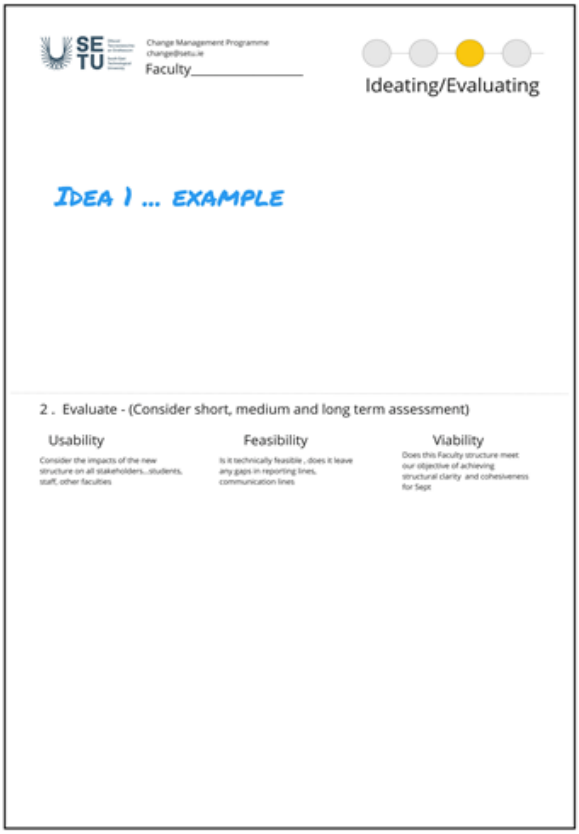


Figure 5. Poster 3 – Ideating/Evaluating

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In preparation for the workshops the four-stage process was prepared into six sets of four extra-large posters (Figures 3-6). The posters were pre-printed with relevant prompts or questions from the SETU toolkit which supports the four-stage process. The prompts or tools are questions to focus the discussion and encourage critical thinking about the project in a constructive and actionable way. In this instance we are at the beginning of the SETU Framework in developing a unified strategy and structural stability for each of the six faculties through input from the relevant executives.

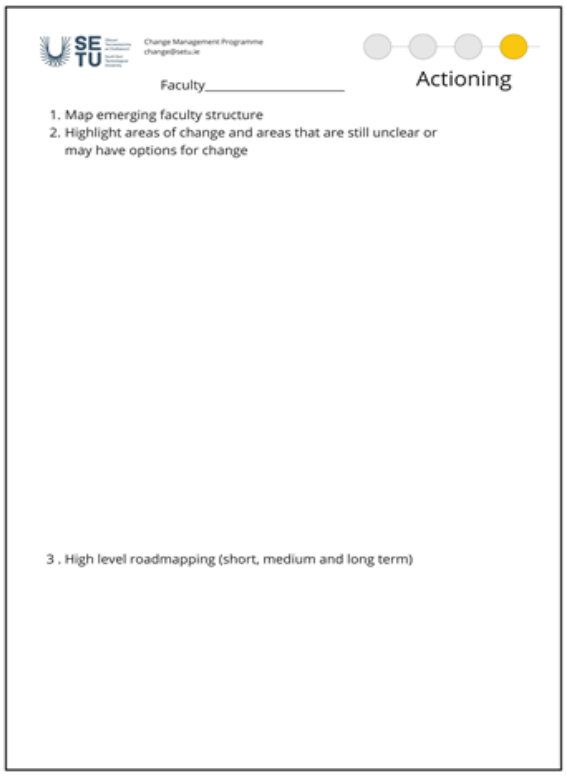


Figure 6. Poster 4 – Actioning

### 3.3. Stage 1 of the four-stage process – Mapping

The six Mapping posters were laid out in the workshop and the executives grouped around the faculty poster(s) that was relevant to them. They each mapped their existing school or faculty in its current state of play. The mapping was approached in a consistent way to ensure the information was accessible and easily comparable for discussion. This resulted in each poster having two or three maps in total of existing schools/faculties that may now become one new faculty (Image 3). This also provided the opportunity to see a visual representation of all existing schools and faculties in totality as they can be displayed on the wall or laid out together (Figure 7).

Image 3. Posters in application

At this point the executives come together in a group discussion around the implications of bringing the existing academic units together. This is the beginning of the broader peer exchange to support the conversations within any new faculty management group that may otherwise be difficult on their own. They break out to discuss details for short periods and come back as a large group for peer input. The added value of the mapping stage is that it provides a safe

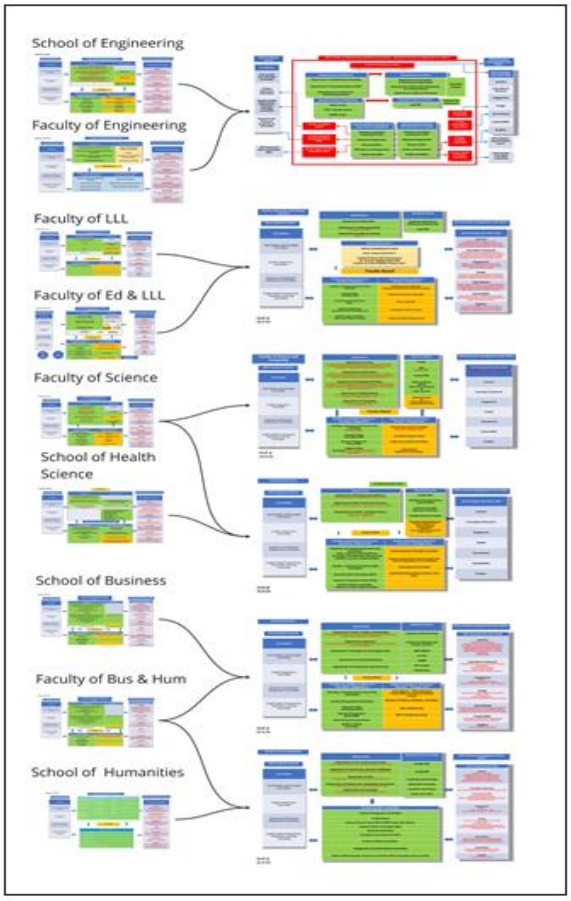


Figure 7. Illustration purposes only, designed not to be read- Faculty mapping demonstrating the complex merger of existing units into six new structures

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step into a workshop environment with those who have not experienced it before as it deals with information that is well known to the individual in this starting point. The final stage of the mapping is to create a sketch of the single faculty model on the same poster by beginning to put departments and programmes together under the new single Faculty heading. In Figure 7, it is possible to see the first stage of emergence of the six faculties from a previous mix of ten schools and Faculties.

Figure 7 also demonstrates the complexities of some new Faculties being made from two existing, becoming two different and new faculties or three existing becoming one new faculty. The use of the design approach demonstrates the benefits of visualisation of data to support sense making of these complexities.

### 3.4. Stage 2 of the four-stage process-Framing

The objective of the framing stage is to reflect on the mapping in its entirety and in individual faculties and begin to critically assess. The tools selected to conduct this stage are known as dialectic tools.

In other words, they look at opposing sides to support and introduce critical thinking. These tools ask what is working, what is not, what opportunities can be identified and what challenges (Figure 8). This stage of the process is an important point in supporting the executives in flushing out any potential issues that they can see.


Figure 8. Example of Poster 2 Framing Stage of Four Stage Process

The framing stage is critical in ensuring a targeted focus before moving towards idea generation. In this instance the executives captured the framing exercise on the single poster relevant to that faculty. All six framing posters were then reviewed together to consider commonalities and nuances. Examples that were common across the group in relation to what's working were elements such as staff collaboration, management integration and interaction across the TU sector. Examples that were common across the group in relation to challenges were elements such as faculty autonomy, academic contracts, infrastructure and space resource, and the distributed model of cross campus management. Figure 8 demonstrates an example of the framing poster.

### 3.5. Stage 3 of the framework four-stage process – Ideating/Evaluating

Stage 3 of the process is where innovation is introduced through the generation of new ideas. This is also where the benefits of having completed stages 1 and 2 become fully apparent as there is now a clear focus on which problems we are trying to solve. Whilst there was a broad range of challenges identified, the initial focus of the ideation session is based on our objective of achieving structural clarity and stability. Therefore, the elements which were brought forward from poster 2 (Figure 8) in relation to what is unclear or challenges, were faculty model/ autonomy, and cross compass management. In relation to opportunities, the focus was on achieving stabilization, and collaboration.

The ideas generated responded to these prompts, for example, in relation to stabilization and collaboration, one idea was for the development of a consistent group of key Faculty committees, such as Research, International, Health and Safety, and Teaching and Learning, which would all share a consistent terms of reference. Another prompt from a challenge item identified in Poster 2 as 'distributed model of cross campus management' generated the idea of the development of a faculty forum to begin the sharing of ideas across the co-ordinated management teams as a first stage of integration. At this point all the ideas focus around the six individual faculty models which are captured as the top half of their third poster see Figure 9. The ideas were still treated as proposals or suggestions to this point. There was still the challenge, however, of deciding which ideas to implement and who makes the decisions. This is where the evaluation came into play to ensure all things were considered and to support decision making.

The design thinking approach to evaluation is to consider each idea under usability, feasibility, and viability [12] captured on the bottom half of their third poster (Figure 9). Usability in this instance refers to the human factors around any idea, how it might impact staff, students, and stakeholders. The aim is

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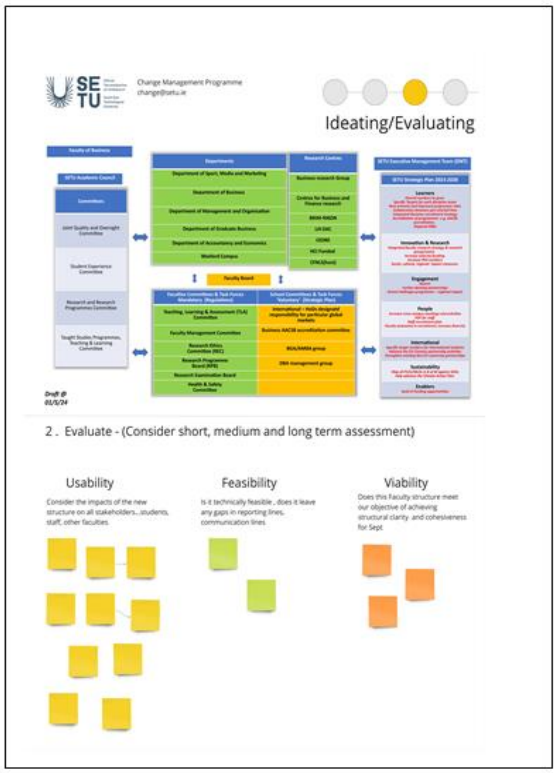


(illustration purposes only, designed not to be read)

Figure 9. Example of Poster 3 Ideating/Evaluating stage of the four-stage process

to avoid any unintended consequences wherever possible in relation to any of the proposed change actions. Feasibility in this instance refers to technical feasibility, to assess if it is technically possible to implement the idea. Viability in this instance refers to checking in with the strategic plan, does this idea or direction align with the strategic objectives. To evaluate as a group using this approach removes the subjectivity of decision making as all things are considered and a clear rationale can be presented. For example, when considering the usability factors of the new faculties, the consideration of communications arose, and additional ideas were developed around a 'Frequently asked Questions' communications piece. Another example of the evaluation in relation to the feasibility factors, related to the co-ordinated management team and highlighted the potential challenge for executives who may now sit across more than one Faculty impacting on their capacity to attend the multitude of committee meetings that may arise from the proposed new structures.

### 3.6. Stage 4 of the framework four-stage process- Actioning

The executive team completed the first three stages which achieved a visual mapping and representation of the current state of play of all academic structures, a framing of challenges and opportunities, generated ideas and made decisions as a group and as new faculty teams. The final stage is to ensure the decisions are actioned in an agreed way. A roadmap of sequencing steps to implementation was prepared and agreed. This involved the preparation of a Frequently Asked Questions communications piece for all staff. The proposed new academic structures were also prepared in an infographic for all staff consultation (Figure 10). This was delivered through a series of open discussion all-staff briefings which took place in person across all campuses. Final iterations and adjustments were made to conclude this as the first phase of Organisational Design – Stabilizing Academic Structures.

## 4. Findings and Conclusion

The use of a design thinking framework was successful in meeting the objective of creating six new faculties under coordinated management teams within a recently merged university model. This is evidenced by the fact that not only were the new faculty structures created, but that they were created by the stakeholders, ensuring their experiences were applied to understand the challenge and create the solutions thus providing ownership and accountability in the outcomes.

The workshops helped to identify key strategic alignments and to develop new initiatives which will tap into the opportunities that the University vision, mission and values create. Working together developed a shared understanding and a transformative approach towards common goals. The framework ensured a people-centered co-design approach, acknowledging the breadth and depth of expertise of the staff in contributing to the advancement of the new university vision. The process is one of innovation and provides the opportunity for generating and evaluating new ideas together. The tools used in the process provided a holistic way to ensure the capture of both tacit and explicit knowledge and the use of visual prompts and methods to easily exchange information and support the flow of knowledge. For example, the visual mapping of complex data provided a shared context for all stakeholders when undertaking a new direction. It also enables quick changes going forward as everyone can see where the change is required and why and who it may impact.

Critical thinking was supported using multiple dialectic tools which looked at different perspectives of the same problem. The overall framework provided a comprehensive, structured and replicable process to support change and transformation which contributes to building a new unified SETU culture as the approach becomes embedded. The SETU design-led framework is replicable and can be applied to any organization to unify people and fortify adaptability to change.

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