

A whole of university approach to embedding graduate attributes: A reflection

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This paper reflects on the processes in managing a curriculum mapping exercise aimed at integrating graduate attributes across CQUniversity's undergraduate programs. Most of these programs are offered via distance education. Due to the complexity of program offerings and the dispersed campus locations, a whole of university approach was needed to address quality and consistency of graduate outcomes. In order to achieve this, an audit of existing course graduate attributes was conducted using an online mapping tool. While the whole of university approach served to provide cohesion within the project, there were some challenges regarding the perceived top-down approach. This paper serves to inform senior management of the complexities of managing resistance to change within an academic community. It is envisaged that this reflection will assist with future projects that require a whole of university approach.

Keywords: graduate attributes; undergraduate; engagement; communication; reflection; resistance to change; higher education.

1.0 Introduction

The emergence of the knowledge economy has required employees to possess skills in addition to those typically associated with their chosen discipline (ACNielsen, 2000). These skills include the ability to work in teams, to solve problems, to behave ethically and to be life long learners. Such skills are now common place across the higher education sector and have become known as graduate attributes. The development of these skills and attitudes is now accepted as a core outcome for university graduates.

The term 'graduate attributes' has been described by Bowden, Hart, King, Trigwell and Watts (2002) as:

“...the qualities, skills and understandings a university community agrees its students would desirably develop during their time at the institution and, consequently, shape the contribution they are able to make to their profession and as a citizen” (p. 2).

Universities have traditionally been responsible for the development of skills related to discipline. However, due to various forces acting across the higher education sector including the call that universities produce more employable graduates, universities are now being required to go beyond disciplinary content and include graduate attributes as a condition of funding (Barrie, 2006). A review of literature indicates that most universities across Australia are in various stages of graduate attribute flux (Barrie, 2004 and 2006; Green, Hammer & Star, 2009; Crebert, 2002; Sumison & Goodfellow, 2004). Barrie (2006, p. 218) notes "...the overall picture in higher education systems around the world is one of patchy implementation and uptake of ... graduate attribute initiatives".

Green, Hammer and Star, (2009) recommend that a whole of university approach is required for institutions to successfully embed the development of graduate attributes

with their programs and courses. A scan of the literature and university websites has found limited evidence of the use of a university wide approach. The recent national forum sponsored by Australia Learning and Teaching Council (ALTC) on graduate attributes identified twelve strategies for potential collaboration (Oliver, 2010). One of these strategies supported the deployment of a whole of university approach when embedding graduate attributes across the curriculum.

The aforementioned appears to indicate that universities have underestimated the cultural, institutional and policy changes required to implement graduate attributes. This paper describes the whole of university approach that CQUniversity has adopted in terms of progressing the graduate attribute agenda. Further, this paper reflects on the process of engaging academic staff, as custodians of the curriculum, in an online mapping exercise that benchmarks existing course graduate attributes.

2.0 Context

CQUniversity was established in Rockhampton as the Queensland Institute of Technology (Capricornia) in 1976 and became a university in 1992. Since its inception the university has established regional campuses in Bundaberg, Emerald, Gladstone, Mackay and Noosa and city campuses which service international students in Brisbane, Sydney, Melbourne and the Gold Coast.

CQUniversity has a complex learning and teaching environment with approximately 20,000 students across its campuses. In reports submitted by the University to the Department of Education, Employment and Workplace Relations (DEEWR) in 2009, 42.45% of CQUniversity's students were enrolled as distance education students (CQUniversity, 2010). Such complex teaching and learning environments create a challenge for institutions when designing approaches to the systemic embedding of graduate attributes (Green, Hammer & Star, 2009).

The most recent round of AUQA audits of universities focused renewed attention on the processes undertaken to achieve generic learning outcomes in their graduates. In most cases, the audits revealed the need for a more systemic approach to embedding generic attributes in curricula (Barrie, 2006). Specifically, the CQUniversity 2005 AUQA audit recommended the development of strategies to systematically embed its nominated generic skills and attributes into the curriculum, teaching and assessment practices of the institution (AUQA Report, 2006).

As part of this reform, in 2008 CQUniversity reviewed its generic skills, attitudes and values and adopted the following eight graduate attributes:

- (1) Communication
- (2) Critical thinking
- (3) Problem solving
- (4) Information literacy
- (5) Information technology competence
- (6) Teamwork
- (7) Cross-cultural competence and
- (8) Ethical practice (CQUniversity, 2009)

Since the adoption of these graduate attributes, CQUniversity however, has had a similar “patchy implementation and update of...graduate attribute initiatives” as that noted by Barrie (2006, p. 218).

Recognising the need for a university-wide strategy to address the perceived gap in courses and programs regarding the development of some graduate attributes, a strategic decision was made by senior management to assign additional resources to support the embedding of graduate attributes in courses and programs. Initially a small working party was convened to develop an implementation plan. This was supported by the engagement of a consultant for this initial phase of development.

The Pro Vice-Chancellor (Learning and Teaching) launched the project with a seminar for staff where it became apparent that, in some disciplines, there were concerns within the academic community regarding:

- A lack of conceptual clarity about what was meant by some of the graduate attributes.
- The processes around implementing and assessing graduate attributes.
- A lack of clarity around the project and some of the key deliverables
- A perceived ‘top-down’ approach.
- Superficial and ineffectual approaches to the development of graduate attributes.
- A lack of ownership of the implementation plan by the wider academic community.

Members of the project team recognised the importance of developing a common understanding of each discipline’s graduate attributes. Consequently, the project team recommended that a more coordinated and consultative approach was required to increase the level of academic staff engagement. Adopting such an approach had the potential to ensure that, in the first instance, individual courses were mapped consistently and that any changes made to courses within programs would reflect that consistent contextualisation of each graduate attribute.

This paper will now reflect on the processes used to engage academic staff with the graduate attributes project.

3.0 Approach

The implementation plan set out a staged process beginning with academic staff mapping their courses to determine the current situation with respect to graduate attributes. These stages consisted of:

- An initial mapping exercise to establish the level of graduate attributes in each course.
- Aggregation of this data to identify where a program was not developing the university’s graduate attributes.
- A pilot which trialled the teaching and assessing of graduate attributes.

The project implementation group considered that it was not necessary for all individual courses to develop each of the eight attributes. However, the group emphasised that all eight attributes were required to be developed across programs.

The pilot was conducted in response to the literature that indicates academic staff have yet to develop clear strategies for developing and assessing attributes within their specific disciplinary contexts (cited in Green et al, 2009). The objective of the pilot was to gather data regarding how students perceived the development of graduate attributes specific to their course. Course Coordinators were asked to trial processes for providing feedback to students on the development of at least one graduate attribute in their course.

3.1 Key activities

The project implementation plan identified a number of activities associated with the project. These activities were developed in consultation with key stakeholders including senior management, academic staff and educational developers and are detailed in Table 1.

Table 1. Key dates and activities associated with the implementation project

Date	Activity
2008	Adopted existing eight graduate attributes
April 2009	Established graduate attribute working party
May 2009	Engagement of consultant
June 2009	Graduate attributes implementation plan accepted by Academic Board
February 2010	Implementation plan was adopted using CQUniversity project management framework (CQUniversity, nd)
April 2010	Establishment of the graduate attributes project implementation group
April 2010	Project launch
April – July 2010	Development of online mapping tool
July 2010	Implementation of online mapping tool
April – September 2010	Visits by project team members to schools to provide updates on the development of the mapping tool
June 2010	Establishment of Academic Reference Group
June 2010	Call for Pilot expressions of interest for term 2 from Course Coordinators
July 2010	Term 2 Pilot commences
June – November 2010	Development and refinement of program mapping component

4.0 Deployment

There were two significant components of deployment for the graduate attributes project. These were the development of an online mapping tool and a communication and engagement plan. These components were integral to the success of the project in terms of engaging academic staff.

4.1 Online mapping tool

The project team recognised that the processes adopted in the design and implementation of a tool to conduct an audit of existing course graduate attributes needed to be inclusive and collaborative. This was an important consideration due to its potential impact on engaging academic staff. Consequently, a scoping exercise was undertaken to identify the key requirements for a mapping tool. This analysis determined the following key considerations:

- The impact on academic staff workloads should be minimised.
- Where possible use existing data sources.
- An easy to use mapping tool is more likely to engage academic staff.
- An iterative design strategy would enable the mapping tool to evolve as a consequence of user feedback.
- The technology utilised needed to be available to academic staff across geographically dispersed campuses.

With this in mind, a number of technological options were discussed. The development, maintenance and amalgamation of complex spreadsheets were rejected due to the additional workload it placed on academic staff. A web-based approach was the preferred choice based on a number of benefits. These benefits included:

- The ability to minimise staff workload through the importing of data from existing data sources. This was done by pre-populating the online mapping tool with data related to program structures, learning outcomes, assessment items and teaching allocations.
- The utilisation of collaborative prototyping (Gulliksen, et al., 2003). This approach was adopted because of the associated benefits in developing a sense of academic staff ownership of the mapping tool. Collaborative prototyping allowed for ongoing modifications to be performed after collaboration and consultation with academic staff, thereby incorporating feedback into the mapping tool.
- The ability to generate dynamic reports, which could be made available to all users. A number of report formats were pre-designed in order to meet the different needs of senior management, heads of program and course coordinators.
- Ease of access for academic staff. The nature of a web-based approach meant that all staff had access to the mapping tool via their web browser. A well-designed web-based approach did not require academic staff to have specialised software or to develop further skills.

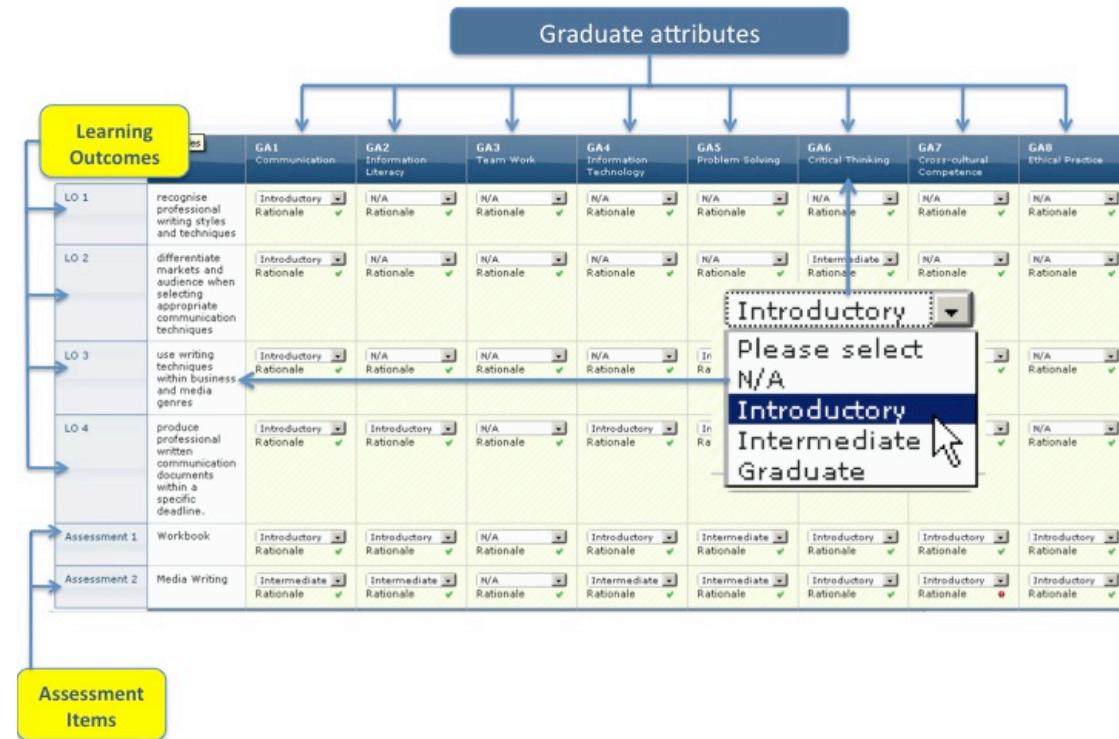
In view of the benefits outlined above, the project team in consultation with academic staff, developed an online mapping tool to audit existing course graduate attributes. This approach formed part of a whole of university approach to address quality and consistency of graduate outcomes.

Course Coordinators were presented with existing learning outcomes and assessment items related to the course, as detailed in Figure 1. For each learning outcome and assessment item, Course Coordinators were asked to indicate whether or not a graduate attribute was being developed. If the graduate attribute was being developed,

Course Coordinators were then asked to select the developmental level as introductory, intermediate or graduate.

An optional text box was included to enable Course Coordinators to add a rationale that supported the selection.

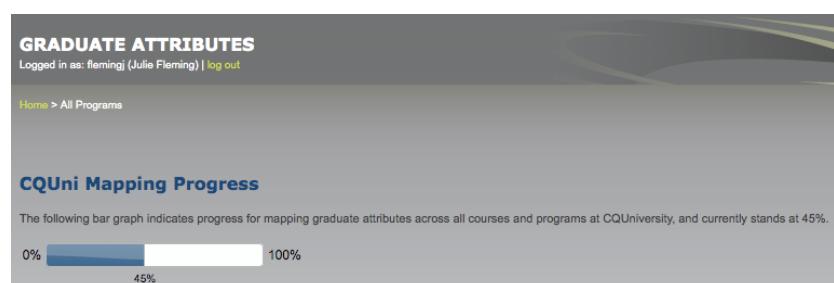
Figure 1. Graduate attribute mapping tool



While the mapping tool was not changed substantially after July 2010, ongoing refinements were made to the interface in August. These refinements included a page with a table showing all of the University's programs together with the status of the mapping progress of all courses across the university.

These refinements included the addition of a bar graph showing the current progress for mapping graduate attributes across all courses and programs. This progress of the mapping was expressed in percentage form. The addition of these features provided a high level of transparency and was available for viewing by all course coordinators. The bar graph is shown in Figure 2.

Figure 2. Graduate attribute mapping progress



The establishment of the Pilot for Term 2 2010 was a key deliverable in the Implementation Plan and was designed around providing feedback to students regarding their development of one of the graduate attributes. Academic staff participating in the pilot were asked to undertake the following:

- (1) Inform students that their course was participating in the pilot.
- (2) Focus on the development of at least one graduate attribute in their course.
- (3) Develop or select a feedback instrument designed to provide feedback to students on the development of at least one graduate attribute.
- (4) Share their learning regarding teaching and assessing graduate attributes with the wider academic community at the university.

Prior to the establishment of the graduate attributes Implementation Group, staff in the Strategy, Quality and Review Division were reviewing processes around course approval. As a result, changes were made to operating procedures and other documents and processes which required compliance with the graduate attributes policy.

4.2 Communication and engagement plan

In accordance with CQUniversity's Project Management Framework, a communication and engagement plan was developed to increase the awareness of graduate attributes within the academic and student communities. It was also designed to encourage collaboration with the development of the online mapping tool.

A number of activities were designed to promote engagement with the project. These included:

- Learning and teaching seminars
- Articles in UniNews and other internal publications
- Distribution of an internal newsletter
- Production of video clips of employers supporting the development of graduate attributes.

While the communication and engagement plan was updated to reflect the ongoing information and resource needs of the academic staff and other stakeholders, members of the project team identified a number of potential risks. These risks are listed in Table 2 and were classified according to their significance. After conducting the risk assessment, strategies were identified and implemented to reduce each risk.

Table 2. Identified project risks

Item	Risk	Significance
1	Academic staff workload	High
2	Lack of a common understanding of the discipline's contextualisation of each graduate attribute	Medium
3	Some of the generic statements of level in the Graduate	Low

	Attributes Fact Sheet are not suited to all programs	
4	The online mapping tool uses data taken at a point in time – as courses are changed and program structures are revised there will be a requirement for these changes to be captured. Changes will need to trigger a graduate attribute re-mapping should elements of the courses change.	Medium
5	Some programs require extensive mapping of graduate attributes against their accrediting body's requirements. Staff can perceive the mapping of the university's graduate attributes as unnecessary workload.	Low

As an example, to address the lack of a common understanding of each graduate attribute, a range of activities were initiated. These activities provided a forum for staff to have their voice heard, and included:

- Visits to each school
- Development of resources
- Alignment of strategic initiatives.

4.2.1 Visits to each school

The project team members arranged for visits to each of the twelve schools within the university and provided opportunities for the project team to interact with academic staff in a more informal way. These meetings provided staff with information on project activities and also enabled staff to view the online mapping tool and to provide feedback. This feedback was considered and in some cases was incorporated into the mapping tool.

4.2.2 Development of resources

As the project progressed, a range of resources and support mechanisms were developed. Support included members of the Educational Developers team who provided software development, facilitation and project management skills; professional staff who provided assistance with communication strategies, administration and other support; librarians who conducted literature searches for appropriate resources; and members of the Implementation Group.

Resources were developed to provide information for academic staff. These resources included websites, which provided background information on the reasons for the introduction of graduate attributes into courses and programs. The websites also included resources such as fact sheets and multimedia resources such as podcasts.

4.2.3 Alignment of strategic initiatives

The graduate attributes project aligned with a number of University strategic initiatives. One of these strategic initiatives involved administrative and procedural changes to the program review and course approval process. These changes involved the identification of graduate attributes being developed within individual courses and across programs.

A further strategic initiative included the development of new programs. These programs included the Bachelor of Law, Bachelor of Medical Imaging, Bachelor of Medical Sonography, Bachelor of Paramedic Science and Bachelor of Medical Science. In the initial developmental phase the respective program development teams ensured that learning outcomes, assessment items and content were aligned with the university's graduate attributes. Establishing this alignment at the initial program design phase provided the development teams with an opportunity to align specific graduate attributes within the curricula as it was being developed.

5.0 Reflections

This section focuses on reflections relating to the objectives of the project and whether the intended outcomes of the project were achieved. This section will also include a discussion on the dissemination of the outcomes within the institution.

The observations noted by the researchers included an initial increase in the awareness of academic staff regarding the Graduate Attribute Implementation Plan. As noted earlier, a number of presentations at faculty and school meetings provided opportunities for academic staff to develop an understanding of the objectives of the project.

An additional observation noted by the researchers was related to the faculty conversations around how individual courses fit within the broader program environment. The importance of the faculty conversations was also noted by Barrie (2004) in his research concerning the development of a generic university policy around graduate attributes.

A further observation was the concern articulated in some school meetings, which related to the requirement to map the University's graduate attributes when they had already undertaken a similar mapping exercise for their professional accrediting body. These concerns may have negatively impacted on the level of early engagement of academic staff. As the school meetings continued, however, academic staff increased their level of engagement. This could have been related to an increased awareness of the whole of University approach to this project.

The implementation and ongoing refinement of tasks and activities associated with the project contributed to a number of successful outcomes. These successes included the development of an online mapping tool and its successful implementation. Once changes were made to the tool, the developers, at subsequent meetings, provided immediate updates that the tool had been enhanced. These discussions demonstrated to the academic staff that the developers valued their suggestions and built trust between the project team and academic staff. As a possible consequence, these discussions also could have reduced the resistance to the perceived 'top down' approach.

6.0 Whole of university approach

The whole of University approach appeared to provide a number of benefits to project. These benefits are associated with the development of shared institutional knowledge, skills and attitudes regarding the teaching and assessing of graduate attributes. This shared institutional knowledge was developed as a result of ongoing communication between the various stakeholders.

The whole of university approach ensured that senior management, deans of school, and academic staff were involved in mapping and reviewing their curriculum concurrently. This provided opportunities for collaborative approaches to the planning and negotiations of program mapping.

Similarly opportunities for developing knowledge, skills and attitudes related to graduate attributes occurred at implementation group meetings, at school meetings, meetings of the project team, at training events and at other formal and informal meetings. In these situations, academic staff could explore and develop an understanding of graduate attributes within the context of their discipline area and could come to a shared understanding of the relevance of and the necessity to develop ‘workplace ready skills’ in today’s graduates.

7.0 Improvements and recommendations

As noted earlier, the focus of the project has been to engage academic staff in a collaborative way to increase the knowledge and awareness of graduate attributes in both academic staff and students. While the project has met most of its key objectives to date, on reflection, there are a number of improvements and/or recommendations that could enhance similar projects undertaken at the University. These improvements and recommendations may also be useful for other institutions wanting to utilise a whole of university approach. These improvements and recommendations are in the areas of:

- * Resistance to change
- * Developing ownership
- * Contextualising graduate attributes at discipline level
- * Rewarding commitment
- * Accrediting body compliance.

Resistance to change

Ford and Ford (1995) describe four types of conversation that can be utilised sequentially and can constitute phases of an approach to change.

The first phase had been described as initiative and is used to focus attention on the need for change and on how to effect the change. It can be a response to a strategic initiative or it can be a change that is imposed on the organisation as a result of external pressures. This type of conversation is utilised in the early stages of a project involving change.

The second phase requires the ongoing development of a conversation designed to develop understanding of the project. There may be confusion around the project itself or regarding the key deliverables. There may also be concerns as to the resourcing of the project. This phase requires the project team to demonstrate active listening skills and respond appropriately to the needs of the stakeholders. Ford and Ford (1995) note that this phase often requires participants to solve problems. This process enables them to make sense of the change for their own particular context.

The third phase of conversations around change requires the project team to specify the actions or the required level of performance. These performance conversations

however, require the development of understanding in the previous phase and clearly stated conditions for success. In some cases it requires the establishment of accountability processes to ensure that the actions are carried out and are of the appropriate quality. However, where there is significant resistance to implementing the action plan, it may be necessary to repeat the second phase and to develop the required understanding of the project.

The last phase of the project provides a sense of closure to the conversations around change. It requires the project leader to acknowledge and celebrate the achievements and to reward those involved. The conversations around closure provide participants with a sense of completion and can also lead into new initiatives.

In the development of this project, these phases are could have been made explicit and could have been used as a framework to increase buy- in and engagement in the project. As an example, the project team in their reflections after the school meetings could have identified the change conversations that were appropriate for the specific situation. While the project team did respond to the concerns that were raised by academic staff, the team members could have been more focused on ensuring that a common understanding was established before moving to the subsequent phase. Alternatively, the project team could have flagged the need for further conversations with a particular group of stakeholders with a view to developing clarity around the project.

The project team has however noted some resistance to the introduced changes within some disciplines. This could be due to workload pressures or alternatively the resistance could be related to the need for training in this area. Research conducted by de la Harpe et al (2009) found that while academic staff agreed with the notion of teaching graduate attributes they believed that they did not have the skills and confidence to teach and assess those graduate attributes.

Developing ownership

In any change process the involvement of stakeholders is crucial to the engagement of staff and ultimately the success of the project. In a major review of a medical course, Elizondo-Montemayor et al (2008) found that developing the changes from the 'bottom-up' enabled academic staff to develop a sense of ownership and assisted in reducing the resistance to change. While the graduate attributes working party represented a range of stakeholders, additional consultation with the wider academic community could have established more 'buy-in' with the project.

Contextualising graduate attributes at discipline level

It appeared to the project team that some academic staff were unclear regarding the contextualisation of graduate attributes within their discipline. This is in contrast to Barrie's (2006) finding that staff viewed graduate attributes as integral to disciplinary knowledge rather than being outcomes that sit alongside discipline knowledge.

While the University's graduate attributes had been introduced in 2004, the development of these attributes appeared to be variable across the University. This inconsistency in application could have been related to a perceived lack of a common understanding of the graduate attributes in the context of each discipline. Green et al

(2009) found that the confusion around the contextualisation of the graduate attributes within the particular discipline was a potential risk to the success of the project.

Rewarding commitment

The embedding of graduate attributes requires an ongoing commitment to the development of resources that support quality curricula, teaching activities and assessment tasks. Appropriate recognition and reward mechanisms need to be in place across the institution that assists in encouraging this commitment (Radloff, de la Harpe, Dalton, Thomas & Lawson, 2008).

Accrediting body compliance

In programs that required professional accrediting compliance, some academic staff were resistant to complete a second mapping process given that they had already mapped their courses for the accrediting body. Consequently, in reviewing the process of mapping, the researchers recommend developing a model that enables academic staff to compare the University's graduate attributes with the accrediting body's graduate attributes. Had a consultative process been adopted initially, it may have resulted in academic staff being more engaged in and supportive of the process.

8.0 Summary

The authors have used a reflective approach to articulate a whole of university approach to the graduate attributes project. It is hoped that this reflection can be used for similar projects involving change. It is also hoped that this reflective process will assist other higher education institutions with the complex task of embedding graduate attributes within their own curricula.

It seems clear that the embedding of graduate attributes in courses and across programs requires a whole of university approach to the planning, communication and implementation thereof. With government funding hinging on demonstration of meeting graduate attributes, projects such as the one described here are increasingly important. Despite the urgency, attempts by universities and stakeholders to implement change have been difficult. The complexity of this project, as outlined in this paper, requires an understanding of cultural and organisational change along with the allocation of appropriate resources.

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