The Digital Transformation of Irish Non-Profit Organisations

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Abstract. Irish Non-Profit Organisations have embarked on an exciting Digital Transformation journey in support of the sector's wider reform and renewal agenda. This coincides with the ambitious plans of the technology industry to deploy its Artificial Intelligence capabilities to tackle societal problems. This research investigated the current in-use experiences of AI-based and related systems in various non-profit organisations both in Ireland and internationally to determine how a non-profit organisation can become more effective and strategic in its journey to fully leverage technology. The qualitative research approach employed a series of exploratory practitioner-based interviews guided by Grounded Theory methodology to examine the technology barriers and challenges faced by the non-profit sector. The findings revealed some inspirational exemplars of practice but also found that a comprehensive transformation of the sector facilitated by emerging technologies remains outstanding, frustrated by challenges including limited funding, resource constraints, skills gaps, donor reporting requirements and sectoral tendencies to 'reinvent the wheel'. The practitioner interviews also highlighted discontinuities and a lack of synergy between the digital transformation ambitions of the sector and the Corporate Social Responsibility programmes of the technology sector.

Keywords: Non-Profit Organisations, Digital Transformation, Artificial Intelligence

1 Introduction

1.1 Context to Research

Irish non-profit organisations (NPOs) have commenced an ambitious reform and modernisation journey as the sector seeks to recover from recent scandals. The sector is working to transform its operations and service delivery to drive efficiency and to leverage the possibilities afforded by digital channels and other emerging technologies such as Artificial Intelligence (AI). This technology-led imperative, which has been described by Peppard [1] as **Digital Transformation**, sees organisations developing digital capabilities to transform both their internal operational processes and to revolutionise the channels through which they engage with their customers and stakeholders. This is a journey filled with creative possibilities for the NPO sector but one which remains frustratingly incomplete, notwithstanding some inspiring exemplars and pockets of excellent practice which are noted later.

1.2 Challenges and Barriers to Digital Transformation for Non-Profits.

Three primary factors inhibit Irish NPOs in executing on the digital transformation agenda:

1.2.1 Short Term and Restrictive Funding Models

Research by The Wheel [2] shows that the NPO sector represents just under 6% of Irish GDP with a reported income of €16bn. The majority of its funding comes via annual government grants which the NPO organisations are contractually bound to apply directly to social purposes or service delivery. This funding model constrains the sector in undertaking the longer-term capital investment required to modernise its technology infrastructure.

1.2.2 Public Perceptions: Low Trust, Expectation to see donations spent at front-line

The Charities Institute of Ireland [3] found that trust in Irish charities remains exceptionally low, presenting challenges as the sector seeks to recover from damaging governance scandals at Rehab, Console and the Central Remedial Clinic. At the same time, the public also want charities to be more transparent, to maximise the proportion of donated funds spent on service delivery and to minimise administrative costs, including technology expenditure.

1.2.3 NPO Management: Cautious Incrementalism rather than Transformation

The budgetary and low trust contexts noted serve to exponentially increase project risk and to amplify the potential reputational consequences of a major failed project initiative. These are factors which have coalesced to necessarily foster a relatively cautious and risk-averse management stance to strategic technology investment within the Irish NPO sector to date.

1.3 Research Question

Based on the above, the primary research question examined was as follows: **How can non-profit organisations leverage the transformational opportunities afforded by digital and emerging technologies, including Artificial Intelligence, for social good?**

2 Background

Analysis into related works highlighted this area of investigation as a critical but hitherto under-examined topic in the research literature, especially in an Irish context. The areas of previous work noted below provided a theoretical grounding informing the qualitative investigation undertaken.

2.1 Research into the Non-Profit Sector's technology journey to date

In Burt and Taylor's case study [4] within U.K. NPOs, they showed that centralised imperatives to implement technology programmes can founder when they come into conflict with

the decentralised and volunteer-led nature of local operations. Carnochan et al. [5] note that a lack of internal expertise can inhibit NPOs in leveraging the full capabilities of digital technology, observing that the specific internal competencies to support successful innovation are not the same ones which are conducive to technological deployment. Jaskyte [6] highlights the need for leadership support for technology within NPOs, noting that newly appointed CEOs may be more open to transformational change than long-established ones.

2.2 Theoretical Approaches to Technology Adoption

Volkoff and Strong [7] examined the social process of NPO technology development and deployment through a critical realist lens to derive a practical framework, envisioning ICT as a dynamic process linking technology uptake to affordance actualisation. A related and substantial body of work concerning ICT4D (Information and Communications Technology for Development) pertains to international charities operating in the developing world. ICT4D has sought to combine implementation insights from the Information Systems domain with Development theories concerning transformational impacts emanating from the Social Sciences. However, some commentators (Marcus and Silver [8]) have described the attempt by ICT4D to fuse and cross-pollinate disciplines as only partially successful to date.

2.3 Strategic Alignment of Technology Plans to Overall Strategic Plan

The degree of strategic alignment between functional ICT teams and the leadership team within NPOs often serves as a major enabler (and predictor) of successful digital transformation. Collins [9] sets out three alternative pathways for NPOs to achieve digital transformation which depend on the chosen internal operating model (see Figure 1 below).

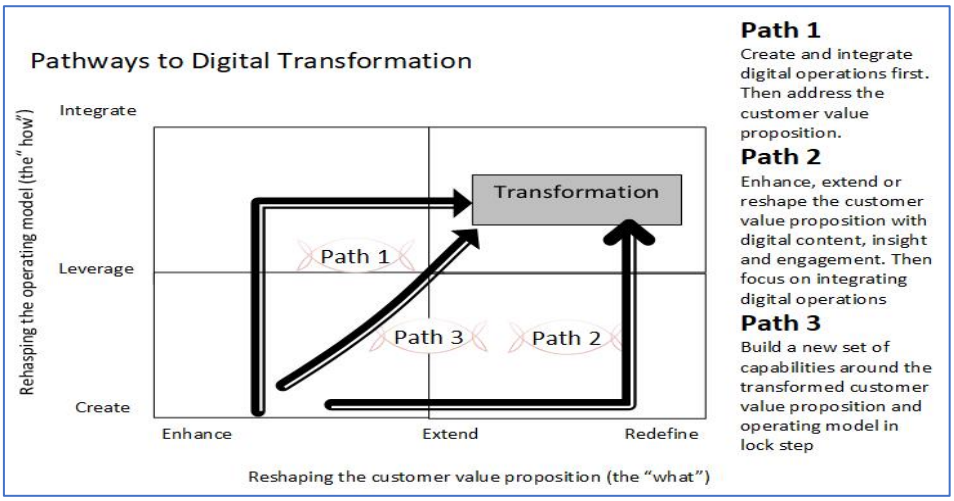

Figure 1 Pathways to Digital Transformation (adapted from [Collins [12])

The preceding framework closely echoes the mainstream digital pathways developed in the strategic management literature by Weill and Woerner [10] examining the process of digital

transformation within commercial organisations. They term '**Future Ready'** companies as being fully ambidextrous: focussed on improving their customers' experience relative to competitors while iteratively simplifying operations, reducing cost, and driving efficiency.

3 Exemplars of NPOs in the use of AI and related tools

A detailed survey of the literature was undertaken, and a representative sample of individual relevant organisations was chosen to identify existing exemplars of practice which can inform the wider sector's transformation journey. Notwithstanding an acute awareness of the growing potential of emerging technologies such as artificial intelligence and data science to support NPOs in working to address societal issues, it rapidly became clear that completed deployments of emerging technologies which had been fully mainstreamed into the core operations of the NPOs were relatively rare. The reasons for the limited adoption of AI and other emerging technologies and some solutions to address this are explored further in the sections that follow. However, before examining the research data in detail, some promising sectoral 'green shoots' from the wider NPO sector are briefly noted here:

- Friends of the Earth launched the highly successful Great British Bee Count programme [11], which enables local activists to use mobile apps to gather information on local bee populations. They have also explored the use of machine learning to aid classification of the bees photographed using the mobile app.
- Oxfam, one of the largest global charities, is developing DataHub, a project to manage central repositories of local programme data and support local teams to use data science tools to analyse that data. A particularly beneficial aspect is that the management of critical data privacy risks is embedded centrally within the core data management process. As a result, Oxfam has now begun working with Microsoft to develop an open source version which will serve as a data privacy tool to support data analysis for use across the wider NPO sector.
- Technology companies such as Microsoft and Google are partnering with the World Bank, U.N. and global relief organizations to use AI to predict future disasters which will require humanitarian aid and to streamline the planning and logistics processes which underpin the rapid delivery of emergency aid.
- NetHope, a technology focussed partnership between global NPOs and the technology industry, has launched the **No Lost Generation** [12] programme which provides access to digital e-learning tools localised for use by Syrian refugees.
- Irish Wheelchair Association, Ireland's largest provider of Assisted Living Services to people with disabilities is developing VERA (Virtual Employee Relations Assistant), an employee-focussed chatbot agent to provide support, guidance and a point of 24-7 contact for its front-line care workers who work in the community.
- A poverty organisation interviewed for this research is currently considering the development of a predictive machine learning tool to examine patterns in the use of homelessness services to identify those individuals who may be at particular risk of homelessness and to plan for appropriate early support interventions.

4 Methodology

The primary research methodology used a qualitative interview approach to develop a practitioner-centric view of the current status, challenges and opportunities faced by the Irish NPO sector on its journey to leverage the power of digital technology, a research area which has not been extensively explored or documented to date. As the topic was not well documented to date, a qualitative approach informed by Grounded Theory (Glaser and Strauss [13]) was selected as the primary research design as it facilitated an exploratory approach.

4.1 Sample Selection

Using the Irish Charity Regulator's Public Register of Charities [14], an initial sample of 7 Irish NPOs (interviews 1-7 in Table 1 below) with a collective turnover of €650m was generated using a purposeful sampling approach to ensure a mix of different organisation types including overseas development charities, those combatting poverty in Ireland and those supporting people with disabilities or other specific health conditions. Subsequently, directly informed by the exploratory Grounded Theory approach, the research lens for the final three interviews (interviews 8-10 below) broadened to include interviews with non-technology stakeholders, a senior technology executive at a large global international organisation and to include two U.K. based conservation organisations, a sector which was not previously represented in the data. This broader focus greatly increased the richness and diversity of the qualitative data gathered. However, it must be noted that there is a challenge in comparing the available resources and technology approaches of organisations which operate at such different scales and it would be inappropriate to conflate the contexts.

4.2 Data Analysis.

With the consent of participants, the interviews were recorded, transcribed, coded and analysed using Dedoose, a Computer-assisted qualitative data analysis software (CAQDAS) tool. Reflective memos were created by the primary researcher after each interview to record and explore the emerging insights from the data. A recursive approach was used so that the data emerging in early interviews highlighted new research themes which in turn informed the nature of the topics explored and the selection of participants in later interviews.

Table 1 Overview of the 10 Interview Participants and their organisations

Interview #	Interviewee Role	Charity Area	HQ Location	Annual Budget
1	Head of ICT	Poverty/ Homelessness	Ireland	€75- €100m
2	IT Manager	Disability	Ireland	€0- €25m
3	Project Manager	Overseas Development	Ireland	€150- €200m
4	Director of Corp. Services	Overseas Development	Ireland	€75- €100m
5	Director of Corp. Services	Poverty/ Homelessness	Ireland	€25- €50m
6	Head of ICT	Overseas Development	Ireland	€100- €150m
7	Head of ICT	Disability	Ireland	€50- €75m
8	CIO	Overseas Development	Global NGO	> €1bn
9	Director of Digital Disruption	Environmental	UK	€0- €25m
10	Head of ICT	Environmental	UK	€0- €25m

5 Research Findings

The interviews conducted for this research revealed a clear consensus that emerging technologies including AI can and must radically transform how non-profit organisations deliver services, manage operations and engage with stakeholders in order for the organisations to remain relevant in the modern economy. Interviewees saw a strategic imperative for the sector to modernise, with developing their technology capability linked as a pivotal support pillar to the wider sectoral reform agenda. As the research interviews progressed, various operational challenges and resource constraints in executing digital transformation as well as a variety of fascinating solutions came to light.

5.1 ICT Strategy Status

Considering the range of NPO organisations investigated for this research, it became clear that they were at very different stages in planning their technology journey. Some had well-developed technology plans linked to the overall strategy, while at others, the development of an ICT strategy has commenced but remained incomplete. This state of being "between strategies" was noted at several organisations and the resulting lacuna incubated a cautiously incremental technology strategy which served as a holding position while waiting for a leadership mandate for more radical technology transformation to emerge. Interview participants noted that resource constraints and operational challenges meant the sector would have to follow and belatedly emulate the private sector's technology journey, especially in relation to automation and AI. Conversely, it was noted that the timing of this journey could also potentially enable them to "leap-frog" larger enterprises as they would not need to migrate legacy applications.

Each participant was asked to benchmark their own organisation against the wider sector, which yielded fascinating results. Those organisations which had a cautious technology strategy were quick to accentuate their modest achievements while the most innovative organisations were also those more likely to understate their own technology journey, highlighting gaps, resource constraints and outstanding areas of work. This indicated that those organisations which had the most advanced understanding of the transformative potential of emerging technologies were also those who were the most likely to conceptualise their long-term technology journey as evolutionary, open-ended and a work-in-progress.

5.2 Leadership and Strategic Alignment Perspectives

Interviewees also noted that the organisation's historical experience with technology investments directly impacted on the willingness of the Board or Leadership team to commit substantial resources to technology investments. Failed previous projects cast a long shadow over the organisation's future technology ambitions while successful exemplars created a mandate for more transformative and ambitious undertakings. Where an organisational impetus for further automation emerged, this frequently coincided with a change within the senior management team. This worked most effectively where energetic visionary leadership was matched by an innovative and creative technology team which focussed

on strategically supporting the wider business and growth objectives of the organisation. Cross-referencing the interview data with the strategic plan documents for the ten organisations was revealing. In the published strategic plans, two organisations made no reference to technology; four included a one-line technology reference without specifics; two more noted some specific initiatives while the final two included a comprehensive list of their technology project priorities within their strategic plan.

5.3 Executive Representation for the ICT function

Many interviewees saw the head of the technology function being represented on the leadership committee for their organisation as increasingly critical to ensuring the alignment of their technology capabilities with the broader execution of the organisation's strategy. However, to date, it had only happened at the four largest organisations examined in the research. There, it was noted that the elevation to the leadership team afforded the technology executive extended opportunities to engage in ongoing dialogue with executive peers concerning the capacity of technology to add value to strategic initiatives. In this regard, the most enterprising and progressive technology leaders across the organisations emphasised that one of their most valuable contributions to their organisation was to act as what one interviewee termed 'horizon gazers', an activity which was perceived as a strategic remit to maintain a constant weather eye on the ever-changing technology landscape to identify technology opportunities which the organisation could exploit and to align these to the organisation's overall strategic implementation. This vital function of ICT teams is particularly apposite in relation to emerging technologies such as Artificial Intelligence, machine learning and data analytics.

5.4 Funding Issues

Inevitably, a significant challenge concerned the lack of funds required to invest in technology. As noted above, the sector relies on government grants which are rarely structured to encourage or support long term transformational strategic projects. A related barrier noted was a constant requirement to demonstrate the prudent use of donated funds and grant income which can make it difficult to finance major technology initiatives, especially for strategic projects which necessitated costly external consulting. As one interviewee noted:

> "Our sector is driven so heavily by the demands of our donors. When you buy an iPhone or a Ford car you don't tell Ford that you want to know exactly how much they funded in overheads in making that car. Our sector has the unique challenge to actually do that."

5.5 Data Issues

The need to comply with funder requirements could also directly block or inadvertently inhibit the organisation's desire to upgrade its technology processes. Several organisations provided examples of funder compliance requirements to simultaneously update two information systems- the internal and the funder-mandated systems- with the same data. Another case concerned an Irish international aid organisation which had successfully piloted a fully

digital beneficiary payments system using blockchain. The success of the pilot had clearly demonstrated the feasibility of the digital solution and the project benefits in terms of auditability, fraud reduction and security over the current paper process. However, the initiative had stalled because of the funder's requirements for the organisation to continue to provide paper-based evidence of payments via beneficiary fingerprints.

5.6 Data Analytics

Participants noted the benefits of collecting improved data in assessing the effectiveness of each programme area, helping to drive decision making and resource allocation. Participants at two different Irish NPOs had built an activity tracking system on their CRM platform. Prior to this, neither organisation had a comprehensive means to measure the overall impact of their local programmes. When they began formally and consistently gathering this data, they discovered that the real quantum of their activity was considerably higher than previously estimated. Referencing trust and reputational issues, interview participants highlighted data capabilities as enabling the construction of a clear narrative to show the beneficial impact of their activities, noting particularly that developing a compelling graphical visualisation of their impact can be extremely valuable in bringing activity data to life.

5.7 Partnerships and Capacity Building with the Technology Sector's Corporate and Social Responsibility (CSR) Programmes.

There was palpable excitement among the interviewees about the opportunities presented by the technology sector's donations of technology to non-profits. The software donation programmes meant that the licensing cost of new technology had largely been removed as a financial barrier. However, the internal teams often still faced challenges in getting funding for the additional consulting and professional services to support the implementation of the donated technology platforms. Limited budgets and small teams necessitated team members acting as technology generalists with a paucity of specialist technology roles. Each of the large technology companies have significant Corporate Social Responsibility (CSR) and philanthropy programmes to support the NPO sector, primarily via software donations. The Irish charities examined were all availing of the non-profit Microsoft Non-Profit Cloud programme which makes Office 365, SharePoint and other related tools available to charities free or at a substantial discount, with partnerships with Google and Salesforce also noted as significant support relationships, particularly among the larger global organisations. Consistent with the literature, several organisations had sought to build partnerships with the technology companies to explore technologies such as AI and data science, viewing this as an exciting opportunity to fuse the sectoral knowledge of NPOs with the proprietary product knowledge of the technology sector but the NPOs noted disappointment that the initiatives had largely failed to deliver on the expected potential.

5.8 Collaboration and Knowledge Sharing Opportunities

A striking finding was that there was limited dialogue or collaboration around technology between the Irish non-profit organisations even though many of them were using identical

technology platforms. Allied to this, the need for sectoral research on the reasons for the prevalence of failed and compromised technology projects emerged as a critical requirement so that the underlying causes can be identified and addressed. This was noted as a tricky and sensitive area for the sector where greater transparency and openness are needed.

5.9 Implementation and Project Delivery Challenges

Participants noted that the sector had longer lead times for technology project delivery than the private sector. As well as funding challenges, this was because of the slower consensus-based nature of decision making in NPOs as well as a lack of specialist business analysis skills within some of the organisations. Setting clear, realistic and achievable project objectives for the available technology resources to deliver on was viewed as vital to success. Bearing in mind the difficulty of ICT teams delivering new technology projects while also having a requirement to support the delivery of ICT operations and manage legacy technology, interviewees noted the benefit of disaggregating the technology function into discrete functional sub-units which focussed on ICT operations and on project delivery respectively.

5.10 Unique Approaches to Innovation and Prototyping

Irish NPOs have long been innovative and agile in designing adaptive responses to societal issues. A unique characteristic is the prevalence of volunteers, often retired from the workforce, who may have less familiarity with technology. This requires a more inclusive, participative and nuanced approach to implementing technology. Multiple interview participants stressed the importance of early meaningful engagement with relevant stakeholders to establish a clear and shared sense of purpose about the expected deliverables for the project. The existence of a supportive business champion outside the technology function was frequently cited as a critical enabler of project success. This was especially valuable where the project sponsor had the local knowledge and organisational standing to clearly articulate and "sell" project benefits in terms that were comprehensible and meaningful to local teams while also having the vision to maintain an unrelenting focus on driving the overall delivery of the project objectives.

A common phenomenon observed was that the deployment of a technology-based solution across the organisation often inspired a broader initiative to standardise processes which had previously been ad-hoc and subject to local variation. All interview participants recognised the necessity of piloting new solutions which afforded project teams the capability to demonstrate an early prototype, to test the fit and scalability of the proposed solution and to assess the performance in some of the challenging field-based scenarios encountered, an informal and iterative approach which echoes Agile approaches to technology delivery.

5.11 Planning and Governance Issues

However, some of the larger organisations noted that an unstructured technology approach to project initiation and portfolio management could be a recipe for mounting chaos, increasing the overall levels of project and governance risk if unchecked. As their IT delivery

capabilities progressively matured and became better resourced, they found it necessary to formalise IT planning processes to maximise business alignment and reduce project risk. Several organisations had implemented highly effective ICT Governance or Change Boards where representatives of the operations and technology leadership teams came together to prioritise projects and align technology plans to the overall organisational strategy, particularly where technology requirements to support operations exceeded available resources.

5.12 Mainstreaming Innovation and Digital Disruption

An interesting and unforeseen finding emerging from the interviews related to the fact that the most innovative (and disruptive) technology initiatives within NPOs often took place well away from core operations. This created challenges in mainstreaming even relatively straightforward pilot projects. The reasons for this somewhat siloed approach to technology innovation differed across the sector. A primary explanation was the understandable need to avoid negative or disruptive impact on key operational activities as well as to take advantage of partnerships and funding opportunities so as to foster and publicly demonstrate a culture of innovation. However, even where the pilot projects were overwhelmingly successful, a clear plan to leverage and operationalise this new capability on a wider operational scale was often missing and the post-pilot mainstreaming approach had often not been explicitly addressed or prepared for during the planning of the pilots.

6 Research Learnings and Limitations

6.1 Research Limitations

A limitation of the research findings is that they represent the individual views of the participants who were interviewed, rather than the considered position of the organisations for whom the individual participants work, or a comprehensive picture of the entire NPO sector. While the research yielded valuable original data, and demonstrated the effectiveness of Grounded Theory as an effective exploratory research approach, further validity and rigour could have been added to the research by extending the approach to combine qualitative interview data with an additional quantitative survey covering all of the non-profit organisations in the sector. A wider survey could possibly have served as a confirmation exercise once dimensions of the research topic had been initially scoped through interviews.

6.2 Reflection on the Research Contribution

Notwithstanding the limitations noted in section 6.1 above, many of the findings (for example, concerning leadership issues, strategic alignment as well as funding and data issues) proved remarkably consistent with the international research examined in the literature review. However, the research also revealed some new insights concerning discontinuities between the technology sector's CSR initiatives and the needs of the NPO sector as well as challenges in mainstreaming successful innovation projects into the NPO's core operations which had not been examined in detail within the literature to date. This underscores the

considerable and original value of the interview data gathered, the full richness of which can only be hinted at in this short paper. It represents a sincere and accurate articulation of practitioner experiences within NPOs concerning their recent technology implementations, albeit firmly situated at a single point in time and primarily within the specific context of the Irish non-profit sector. A welcome and positive direct outcome of the research has been the establishment of new knowledge sharing structures where technology leaders within the Irish NPOs meet to collaborate and share insights from their technology journeys.

6.3 Further Work

It would be very worthwhile to delve deeper into the unexpected disconnect identified between the technology sector's CSR programmes and the NPO's technology and modernisation agenda. A full understanding of the underlying causes of this discontinuity remained quite fragmentary at the conclusion of this research. Additionally, a more comprehensive analysis of best practice exemplars from larger international NPOs would be likely to provide a range of implementation insights and repeatable modalities of practice which smaller Irish NPOs could emulate in their digital journey with AI and other emerging technologies.

7 Conclusions

7.1 Need for IT Governance Processes to align with Strategy

Critically, an unambiguous correlation emerged from the interview data between the amount of progress that an organisation had made to date in its journey towards digital transformation and the extent to which it had implemented effective processes to align the work of the technology function with the overall strategy agenda of the organisation.

7.2 Need for ICT to be supported/represented at the Leadership/Executive level

It was notable, too, that there was a disparity between the technology maturity and ambitions of smaller and larger organisations. International and larger Irish NPOs were much more likely to appoint a CIO role to lead the technology function, granting this role membership of the executive leadership team. Where this had happened, it was correlated directly with the level of strategic technology awareness and ambition, and with the progress made to date on the implementation journey at those organisations. This finding is entirely consistent with previous research in the literature (in particular Jaskyte [6]) which highlights the importance of executive support for the digital agenda.

7.3 Sectoral Capacity Building/ Development of new Partnership Models with the Technology Sector

Capacity building as an urgent prerogative within the sector surfaced frequently in the interviews. There are plentiful models from the international NPO sector such as the NetHope skills framework [15] for digital transformation which can readily be emulated in a local

Irish context. Ireland's non-profit sector should proactively engage with the technology corporates to develop new partnerships to explore mutually beneficial innovation opportunities. No other sector can replicate the intimate first-hand knowledge of Ireland's societal problems and the deep understanding of the needs of stakeholders which the non-profit sector already possesses. Rather than seeking to reinvent the technology wheel, the sector should articulate its challenges and requirements as problem statements and work with the technology sector to develop partnership approaches and co-create appropriate solutions.

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