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The Dignity Lens: Advancing Human-Centred Protective and Proactive Algorithmic Responsibility

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ABSTRACT

Practically exercising responsibility when developing algorithms is a non-trivial activity. The plethora of perspectives on responsible AI often leaves practitioners overwhelmed and confused about how to start and how to ensure efforts are embedded in ongoing practice, not just one-off activities. Further, leaders who are concerned about the role of human-centred values, like dignity, are often disappointed about a lack of guidance to practically make this prioritisation a reality in technology development. This paper presents a framework—the Dignity Lens—for reflecting on how technologies developed and/or implemented impact (human) relationships. The Dignity Lens is the outcome of multi-year design science research undertaken in three organisational contexts. In this article, we describe the journey of the Dignity Lens from inception to now and an in-depth application of the Dignity Lens in the most recent organisational context within which it was developed. We illustrate how this organisation has begun to embed the Dignity Lens into their everyday practices and the benefits of doing so. We argue that the Dignity Lens offers a unique way for practitioners to exercise protective and proactive responsibility and tangibly engage with concepts of dignity while building algorithms, offering space for constructive reflection, innovation and accountability in line with human-centred commitments.

1 | Introduction

Alongside the explosion of artificial intelligence (AI) into nearly every industry are calls for responsible AI. Responsible AI is seen as a response to long-held concerns about the potential and reality of AI to discriminate, disenfranchise and disempower (or worse) (see Benjamin 2019; Cinnamon 2017; Eubanks 2017; Noble 2018; O'Neil 2016 for long-standing concerns and Marjanovic et al. 2021, 2022; Mikalef et al. 2022 for more recent discussions). Many leaders are committed to enacting responsible AI,[1] however, how to make it real in practice is difficult and, unsurprisingly, yet to be fully embraced.

Currently, organisations lean towards two approaches to responsible AI. The first common approach is to focus on selecting and committing to 'common' responsible AI principles. Although there appears to be a coalescing of principles around transparency, privacy, accountability and fairness in the literature (see e.g., Khan et al. 2022), what principles to focus on is far from settled in practice. In recent times, streamlining and standardising responsible AI principles to a limited set has been seen as desirable. However, we adopt the position of critics that narrowing what to focus on, in the name of simplicity, efficiency and benchmarking, is a form of colonisation (Adams 2021; Gerdes 2022). As such, we posit that

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principles chosen need to reflect cultural, organisational and other contextual diversity in recognition that responsible AI is not a static endeavour, but dynamic and in flux (Orr and Davis 2020).

We aim to foreground more neglected, human-centred principles such as dignity. Dignity is a principle that *was* initially considered important in the responsible AI conversation and in digitisation and technology development conversations more generally. Back in 1986, Mason highlighted the importance of dignity in his discussion around the ethical issues of the information age:

> Our moral imperative is clear. We must insure that information technology, and the information it handles, are used to enhance the dignity of mankind (Mason 1986, 11).

Further, in 2018, Royakkers et al. (2018) identified dignity as one of six themes at odds with digitisation more generally and needing specific attention and Leidner and Tona (2021) developed a CARE theory of dignity in the context of personal data digitization. In 2019, Jobin et al. (2019) identified dignity as one of 11 overarching principles from their content analysis of 84 AI guidelines and since then, there have been considerable attempts to operationalise some of the principles identified and the relative neglect of dignity. In addition, there have been heightened calls for human rights-based approaches to AI development (where treatment of dignity would be central) (Fukuda-Parr and Gibbons 2021; Latonero 2018) and a reframing of diversity and inclusion conversations to foreground dignity (Davis 2021; Saxon 2021). Directly tackling the challenge of creating a responsible AI instrument that centres dignity is an overdue endeavour.

The second common approach to responsible AI is for organisations to adopt compliance-based frameworks, mindsets and activities; that is, checklist approaches that ensure algorithms developed do not infringe on a law or act against some other regulatory measure. We refer to this style of responsibility as protective/remedial forms of responsibility—preventing liabilities, avoiding blame, minimising or hopefully eliminating harm, and remedying harms created (see Cane 2002; van de Poel 2011; van de Poel and Sand 2021). However, as discussed in Stahl et al. (2021), compliance is only part of what constitutes responsible information systems; alongside it is proactivity, that is, an active attention to do good. Some leaders also take on this more forward-looking proactive responsibility. They are concerned with questions in the grey area where laws may not be so clear, may not apply, may fall behind the pace of technological change or may feel insufficient. In fact, their operations may not even be considered sufficiently 'high risk' to oblige them to act at all.[2] Instead, they are motivated to optimise for the best possible outcome for a range of stakeholders, raising the standard across the sectors and communities they work in.

The Dignity Lens takes a different approach to the two common ones discussed above—it helps developers, designers, managers and leaders involved in algorithmic development pay attention to a currently neglected human-centred value (dignity) and enables organisations to take action in line with both protective and proactive responsibility. This represents a significant shift from other frameworks that primarily attend to responsibility through the lens of liability and compliance and preference values such as transparency, privacy, accountability and fairness and, in the process, abstracted, computational and/or technical responses. The Dignity Lens is designed to help organisations uphold and hold themselves to account to their commitment to human-centredness in practice, at all stages of the algorithmic development process. Consequently, this approach could become supplementary to compliance and legal requirements that organisations might face in the future such as General Data Protection Regulation (GDPR). It can also have ancillary benefits of leading to product and process innovation in team environments. See Figure 1 for an overview of the Dignity Lens.

2 | Background

Practitioners and academics alike often refer to responsible AI, but rarely define it. It is assumed knowledge when discussing responsible AI practices (Berman et al. 2024; Figueras et al. 2022; Liu et al. 2021; Mäntymäki et al. 2022; Minkkinen et al. 2023; Zimmer et al. 2022), context-specific responsible AI frameworks (Tutun et al. 2022), catalogues of best practices (Lu et al. 2023) or responsible AI principles such as fairness, privacy, transparency, accountability, and so forth (see e.g., Fjeld et al. 2020; Jobin et al. 2019; Khan et al. 2022; Mikalef et al. 2022). For the purposes of this paper, we draw upon Vassilakopoulou et al.'s (2022) definition:

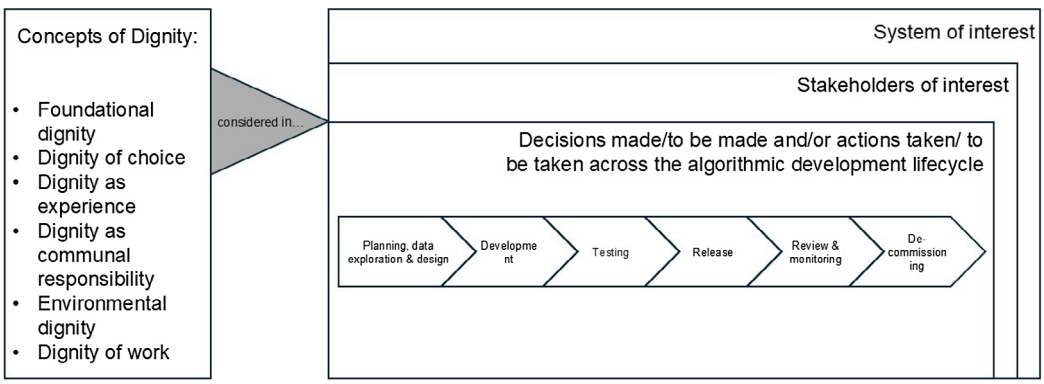

FIGURE 1 | Overview of Dignity Lens.

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> Responsible AI is the practice of developing, using and governing AI in a human-centred way to ensure that AI is worthy of being trusted and adheres to fundamental human values (p. 7).

Many responsible AI frameworks have been developed to date. They can be classified as principles—which remain abstract, guidelines—more concrete and 'quickly translatable into design constraints or choices' and tools—'able to verify the compliance towards one or more principles and/or support practitioners in the implementation of principles or guidelines' (Barletta et al. 2023). Although we do not subscribe to the idea of a tool solely being about compliance, the Dignity Lens is certainly supporting practitioners in the implementation of dignity and, as such, will be considered as a tool in Barletta et al.'s (2023) classification.

From reviewing the responsible AI tools in Barletta et al.'s (2023) rapid review,[3] we make the following observations (see Table A1 for more information). Firstly, the majority of responsible AI frameworks developed focused on principles and guidelines and neglected tools; indeed, only 10 of the 148 sources in the rapid review were identified as tools. Secondly, of these tools, around half had a mention of a human-centred approach in some shape or form, generally as an overarching preamble and not the focus of the tool. Only one of the tools overtly mentions dignity but fails to operationalise it. Thirdly, most of the tools are used in the development or review phases of the algorithmic lifecycle only and none were cited as being used across the lifecycle. Finally, the majority focus on a protective stance; that is, primarily concerned with risk management. This is a challenge because there is increasing evidence that as people use more and more AI-enabled tools, their sense of proactive responsibility diminishes (Titah 2024). Given developers of AI-enabled products also use a lot of AI-enabled tools in the development process (e.g., GitHub's Co-Pilot or Cursor), this provides a perfect storm of factors that encourage people to take less responsibility in the creation of AI.

In contrast to other responsible AI tools, the Dignity Lens engages in both protective and proactive responsibility, operationalizes a core human-centred principle—dignity—and can be used across the development lifecycle.

3 | The Dignity Lens for Protective and Proactive Algorithmic Responsibility

3.1 | An Overview of the Dignity Lens

The Dignity Lens is a framework that helps organisations reflect on how they are protecting and upholding dignity in their algorithmic development. It can also create pathways for innovation towards further embedding dignity in products and organisational processes. Concepts of dignity have been synthesised and integrated from cross-disciplinary and cross-cultural sources. An overview of the concepts of dignity drawn upon in the Dignity Lens is found in Table 1.

Often, we think of dignity as 'foundational dignity'; the unique value and inherent vulnerability of individuals. This worth is not connected to usefulness; it is equal amongst all humans from birth regardless of identity, ethnicity, religion, ability or any other factor. Dignity is also connected to independently making decisions, having autonomy and taking risks—'dignity of choice'. 'Dignity as experience' refers to a desire to be seen, heard, listened to and treated fairly; to be recognised, understood and to feel safe in the world.

Particularly in non-Western cultures, dignity is not just an individual endeavour, there is a responsibility associated with promoting collective dignity which, in turn, reinforces individual dignity ('dignity as communal responsibility'). Living a life worthy of dignity is also connected to having an environment of quality that permits such dignity ('environmental dignity') and 'dignity of work' also needs to be recognised. Dignity—whether it be foundational dignity, dignity of choice, dignity as experience, dignity as communal responsibility, environmental dignity or dignity of work—is influenced in positive and negative ways by others' behaviours and/or by technologies and other factors and at the same time, people have inviolable dignity. See Table 1 for references associated with each concept of dignity.

The Dignity Lens holds three levels of focus. Firstly, it takes an ecosystem view on dignity; that is, dignity is ever-present and at the same time, influenced by and influencing a much wider (technological) system. The Dignity Lens makes explicit the roles that can be played by practitioners:

- Protective roles: mechanisms created and/or actions taken to prevent dignity violations from occurring and/or remedy dignity violations if they do occur.
- Proactive roles: mechanisms created and/or actions taken to actively promote dignity.

All roles are underpinned by acknowledging dignity. It is important to note that protective roles generally manage to a predetermined threshold, whereas, proactive roles embrace the idea that there may be a limitless upside. The different dynamics underlying the roles ultimately create a productive tension within the dignity ecosystem; the Dignity Lens takes a stance that practitioners and organisations need to play both types of roles if they are committed to valuing dignity. See Figure 2.

Secondly, the Dignity Lens enables a focus on dignity during all aspects of the product development lifecycle, not just in algorithmic review (though it also supports those interested in the review phase only). Finally, the Dignity Lens can be used within part of a wider organisational context that values non-judgmental reflective practice. Ensuring that the Dignity Lens does not become another source of blame or overwhelm is critical.

Practically, the Dignity Lens consists of two groundwork activities that create the foundation for a consideration of the concepts of dignity throughout the algorithmic development lifecycle. There are (at least) three ways in which consideration of the concepts of dignity can take place by organisations—these are described in turn below. The framework also encourages active learning and reflection throughout. Figure 3 shows the components of the Dignity Lens and their interactions.

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TABLE 1 | Concepts of dignity that are included in the Dignity Lens.

Dignity concept		Description	Ways to think about this concept of dignity
#1	Foundational dignity	Dignity is unique to humans. No one can give it, no one can take it away (Nordenfelt 2004, 2021). Highly aligned with concepts around intrinsic dignity (Leget 2013; Sulmasy 2006); Menschenwürde (Hailer and Ritschl 1996), Kantian dignity (see Killmister 2010; Schroeder 2008), dignity as universal rights (Kim 2021) and dignity as justification for rights (Mattson and Clark 2011).	*1A Acceptance of Identity*[a]: having our identity accepted, no matter who we are *1B Recognition*[a]: recognition of our unique qualities and ways of life
#2	Dignity of choice	Everyone needs to be afforded a dignity to choose, to make independent decisions and to take risks (Kim 2021; Schroeder 2008; Wolemonwu 2020).	*2A Independence*[a]: feeling in control of life and experiencing a sense of hope and possibility *2B Dignity of risk*: the right of people to decide to take (reasonable) risks
#3	Dignity as experience	Dignity is a desire to be seen, heard, listened to, recognised and acknowledged and to feel safe in the world (Hicks 2013; Kim 2021; Leget 2013; Mattson and Clark 2011). Highly aligned with concepts around 'dignity as interpersonal care' (Kim 2021), 'experienced or subjective dignity' (Leget 2013), dignity as non-humiliation (Hicks 2013).	*3A Acknowledgement*[a]: to be seen, heard, validated and responded to *3B Inclusion*[a]: a sense of belonging and feeling included at all levels of relationship (family, community, organisation and nation) *3C Safety*[a]: being physically and psychologically safe and secure *3D Fairness*[a]: being treated in a fair and even-handed way *3E Understanding*[a]: actively listening, being given the chance to share perspectives *3F Benefit of the doubt*[a]: treat people as if they are trustworthy and operate with integrity
#4	Dignity as communal responsibility	We have a responsibility to use capabilities to promote collective dignity, which in turn also promoted individual dignity (Ikuenobe 2016, 2018).	*4A Accountability*[a]: taking responsibility for actions, apologising when harm has been done and committing to change hurtful behaviour
#5	Environmental dignity	The right to an environment of quality permits a life of dignity and wellbeing (Daly and May 2016).	*5A Value of the environment*: a recognition of the intrinsic value of the environment
#6	Dignity of work	Work has inherent value no matter the type or status of work and should be conducted in dignified conditions and dignity is also earned through undertaking specific work contributions. Organisations and managers have a duty to protect and promote dignity at work (Hodson 2001; Lucas 2015; Lucas et al. 2017; Pirson 2019; Sison et al. 2016).	*6A Value of work*: All types of work have inherent value and contribute to our overall society. Every job deserves respect *6B Value of worker*: All workers should work under dignified conditions (fair wages, safe working conditions and opportunities for growth and development), no matter their job

[a]From Hicks' (2013) 10 essential elements of dignity.

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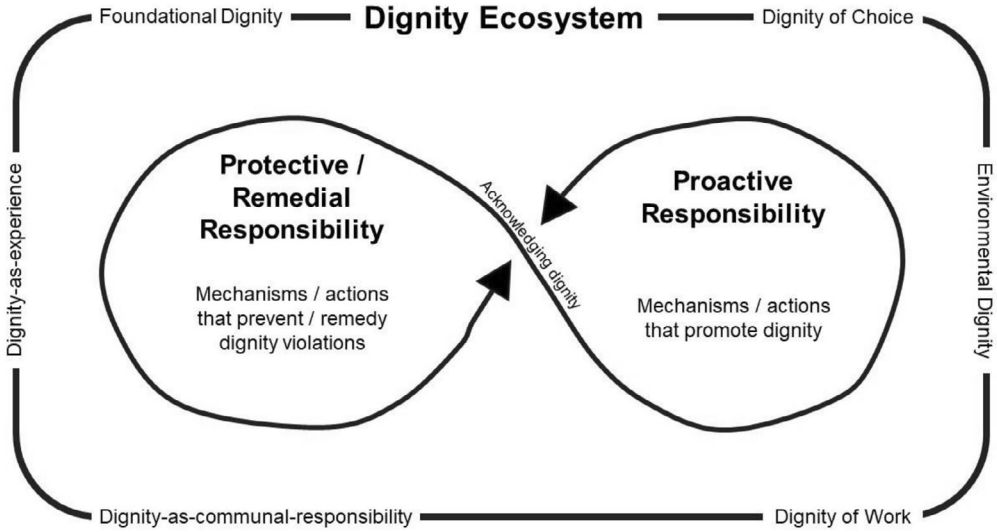

FIGURE 2 | Dignity as an ecosystem of protective/remedial and proactive mechanisms and actions.

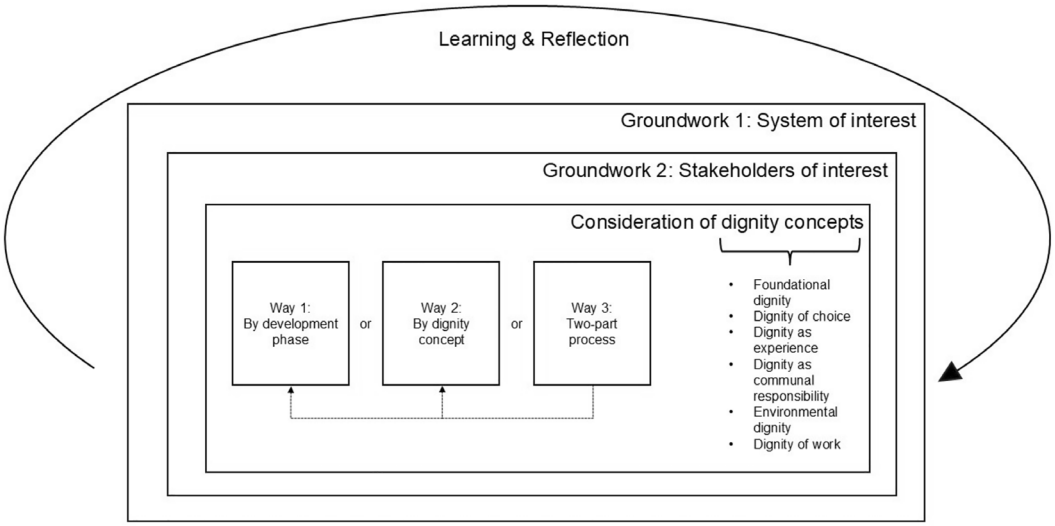

FIGURE 3 | Dignity Lens components.

3.2 | The Dignity Lens Step-by-Step

The organisational context determines how the Dignity Lens is applied. We suggest starting with two groundwork activities and then choosing a particular way to consider the dignity concepts (we provide three different ways as examples, though there may be others). The Dignity Lens also incorporates explicit learning and reflection.

3.2.1 | Groundwork Activity 1: Identify the System the Dignity Lens Will Be Applied to

The first groundwork activity involves writing down which product or parts of the product the Dignity Lens will be applied to, the relevant time period and any geographical or other sorts of boundaries that may be relevant. Any clear exclusions are also important to note.

It builds on a common practice of boundary drawing found in systems sciences (see e.g., Meadows 2008; Midgley 2000). 'There is no single, legitimate boundary to draw around a system. We have to invent boundaries for clarity and sanity; and boundaries can produce problems when we forget that we've artificially created them...It's a great art to remember that boundaries are of our own making, and that they can and should be reconsidered for each new discussion, problem, or purpose' (Meadows 2008, 97–99).

3.2.2 | Groundwork Activity 2: Mapping Stakeholders

The second groundwork activity is to identify stakeholders and their interest(s) in the defined system. Identifying stakeholders across the different phases of the product development lifecycle (that are in scope) is suggested. This may include the users and creators of the product, that is, those directly impacted, and

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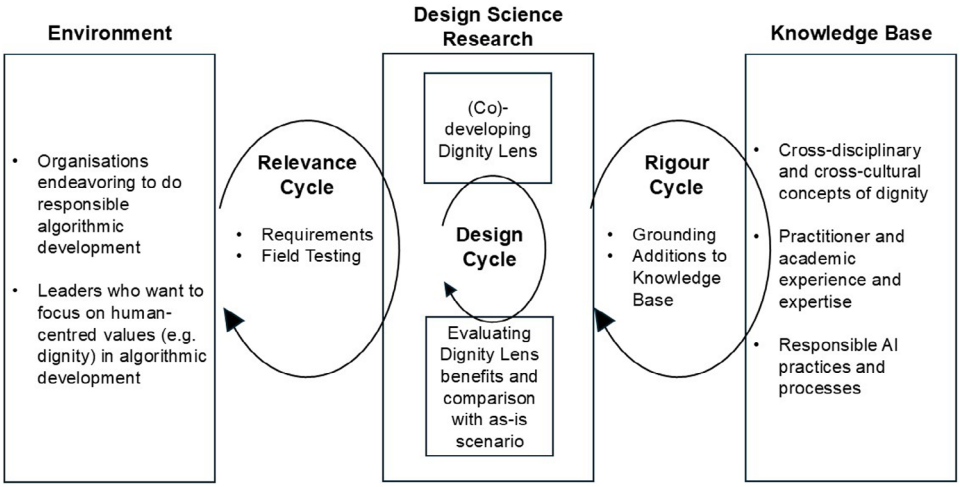

FIGURE 4 | Three-cycle view of design science research (Hevner (2007) model adapted to current research context).

stakeholders that are indirectly impacted or may not even be aware that they have a stake in the product/service. Although not the focus in this case, it is also possible to consider non-human stakeholders in this phase, such as the environment, or resources that are impacted. The stakeholders may change over time, so this map is a living document.

3.2.3 | Consideration of Dignity Concepts

3.2.3.1 | Way 1: Organised by Algorithmic Development Phase. Way 1 is organised by algorithmic development phase. The tool asks practitioners to identify decisions made at each stage of the algorithmic development process and then link these to dignity concepts and whether they were decisions made from a protective and/or proactive stance. Practitioners then reflect on dignity concepts that were emphasised and neglected. Way 1 is well-suited for using the Dignity Lens in algorithmic review. See Table A2.

3.2.3.2 | Way 2: Organised by Concepts of Dignity. Way 2 is organised by concepts of dignity. It asks practitioners to consider each concept of dignity in turn and identify decisions made or mechanisms created across the development lifecycle that relate to this concept of dignity. Way 2 is well-suited for using the Dignity Lens throughout the product development lifecycle, where the concepts of dignity can be revisited several times. Way 2 was the format used in the case of the SmartyGrants Innovation Lab (further discussed below). See Table A3.

3.2.3.3 | Way 3: Two-Part Process. Way 3 is a two-part process. The first part involves an overall brainstorm of actions already taken or decisions already made or that *could* be made in the future to promote dignity or prevent a dignity violation. The second part uses these broad brainstorms as inputs into Way 1 or Way 2. This format may suit teams that want to think as widely as possible through their own perspectives on what dignity is and then use the second step to create more structure and order. It may also suit those who are unsure where to start or who want to gather a flavour for the process (in Part 1) before committing to a more systematic approach (in Part 2). See Table A4.

3.2.4 | Learning and Reflection

The entire process of using the Dignity Lens can be considered a form of reflective practice. Having said that, we found value in explicit reflection questions:

- What have I learned from reflecting on the concepts of dignity?
- What questions am I holding?
- What actions will I take/have I taken as a result of considering concepts of dignity?

The intention is for these reflections to then feed into future development phases or projects.

4 | The Approach—Design Science Research

The Dignity Lens is infused with a sociotechnical view (Dolata et al. 2022; Sarker et al. 2019) and has been developed in alignment with the principles of design science research, specifically Hevner's (2007) three-cycle view of design science research.

See Figure 4 for the three-cycle view applied to this research.

The research takes place in the environment of organisations endeavouring to do responsible algorithmic development and wishing to prioritise human-centred values such as dignity. The knowledge base it draws upon is cross-disciplinary and cross-cultural concepts of dignity and combines practitioner and academic experience and expertise through collaborative design and iteration of the Dignity Lens. The Dignity Lens presented in this paper is version 3; it has gone through two prior design cycle iterations before the instantiation used in this case. The first author of this paper was responsible for all iterations of the Dignity Lens and drafting papers, talks and conference proceedings. The second author was involved in field testing and iterating the Dignity Lens, resulting in versions 2 and 3. The third author has contributed supervisory expertise throughout the different iterations, drawing on her extensive expertise in governance, design and participatory processes.

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The first version of the Dignity Lens was created in 2021, building on Hicks's (2013) 10 essential elements of dignity to understand the extent to which dignity was reflected in the document analysis of AI ethics instruments of the Australian, Canadian, and UK governments (see Ruster and Snow 2021).

The second iteration of the Dignity Lens occurred in 2022 through its use in two organisational contexts. One was with a very early-stage sustainability startup that wanted to think through the potential implications of embedding AI into its product roadmap. Around the same time, the first test was done at SmartyGrants Innovation Lab, applying the Lens to CLASSIEfier—an automated classification algorithm—in algorithmic review. This version of the Dignity Lens adopted similar ways of thinking about dignity to the first version (i.e., highly influenced by Hicks' (2013) model). The main innovations in this second iteration centred on how organisations could practically engage with the tool, for example, by providing template tables with descriptions for the different ways of thinking about dignity as guidance and shifting the framing of the tool away from abstracted views about dignity and towards reflecting on the different decisions made at each stage of the product development lifecycle and their connection to concepts of dignity.

From these two application cases, two groundwork activities were added to the Dignity Lens process in version 3: an activity that specified the 'system of interest', or the boundaries within which the Dignity Lens would be applied, as well as a stakeholder mapping activity. This paper presents the third iteration of the Dignity Lens. It has taken the lessons from the previous two versions and substantially broadened the concepts of dignity considered, drawing upon conceptualisations of dignity from other disciplines and non-Western cultures. After using the Dignity Lens in review in Design cycle 2, Design cycle 3 trials using it in earlier phases of product development, particularly in design, 'because once you have made the mistakes, it's hard to fix them' (Director of Data Science[4]).

See Table 2 for an overview of the Dignity Lens Versions.

5 | Using the Dignity Lens in SmartyGrants Innovation Lab

5.1 | The SmartyGrants Innovation Lab Case

The Dignity Lens was field tested and iterated upon in collaboration with the SmartyGrants Innovation Lab (referred to as the Lab), a team within SmartyGrants and one of several enterprises in Our Community. See Figure 5.

Our Community is a social-purpose business operating in Australia since 1999 with a mission to build stronger communities by facilitating better connections and smarter technology. A pioneer in the social enterprise sector,[5] Our Community, and its enterprises, are guided by the company's Manifesto (Our Community, n.d.) which describe 'how we work' with 'ethics, inspiration and innovation' at the core (see Figure 6 for an excerpt of the Manifesto).

SmartyGrants, an enterprise of Our Community, was launched in 2009 to tackle a deep pain point: the complex and inefficient grants management process. Specifically, SmartyGrants is a 'hosted grants management solution that simplifies the process of receiving, assessing, managing and communicating about applications, automates tasks and allows grantmakers to track, report on and visualise the flow of data and grantee outcomes' (SmartyGrants, n.d.-a). SmartyGrants is developed in-house and used by more than 700 funders and 1.2 million grant applicants primarily across Australia and New Zealand (and across other countries too), processing over AUD 9 billion in grants per year (SmartyGrants n.d.-b, 2024).

The Lab is a seven-person data science team within SmartyGrants. The Lab is 'where we seed ideas to do old things better or new things first' (SmartyGrants, n.d.-b). It leads the design, building, testing, deploying and, in some cases, decommissioning of data-fueled algorithms and AI features in SmartyGrants and Our Community more broadly (see Figure 5). The Dignity Lens iteration that is the focus of this paper was field tested with members of the Lab.

5.2 | The Relevance Cycle: Identifying Requirements

Numerous practitioner motivations exist for using the Dignity Lens; these can also be referred to as requirements.

Firstly, the Lab was looking for a tool that enabled them to uphold their organisational commitment to 'be human' (articulated in their service pledge) and to ethics, inspiration and innovation (reflected in the Our Community Manifesto). The Director of Data Science looked at a range of tools but found them too focused on theory, difficult to transform into practice and without the human element, which is considered of utmost importance to the SmartyGrants organisational culture and mode of operating:

> There is a significant number of frameworks ... with industry jargon. But there's not much about human-centred [approaches], it was more about—is the tool doing what it's supposed to do? Is it efficient? [Making sure] it's not harmful ... What we were attracted to [with the Dignity Lens] was the human-centred idea (Director of Data Science).

Secondly, the Lab wanted a tool that was dynamic and could be used during the lifecycle of algorithmic development, not just as a review tool at the end:

> I really like having a framework to really get that conversation going ... to make sure that we're regularly talking through the team (Data Scientist 1).

Thirdly, the Lab hoped for a tool that would enable team reflection and encourage team members to see human-centred values and reflection as part of every person's role and decision-making processes:

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TABLE 2 | Overview of characteristics of Dignity Lens iterations over time.

Characteristics of Dignity Lens	Design cycle 1: version 1 (2021)	Design cycle 2: version 2 (2022)	Design cycle 3: version 3 (2024)
Elements of dignity included	Highly influenced by Hicks' (2013) 10 essential elements of dignity	As per version 1	Integrates additional views on dignity from cross-disciplinary and cross-cultural sources
Application case	Understanding the extent to which dignity is upheld in Australia, Canada and UK governments' AI ethics instruments	Understanding the extent to which dignity was upheld during the development of SmartyGrants CLASSIEfier algorithm	Ensuring reflecting with the Dignity Lens becomes a part of the business-as-usual operating processes of the SmartyGrants innovation lab
Collaboration partners	Centre for Public Impact	SmartyGrants Sustainability Tech early-stage startup	SmartyGrants
Application focus	Publicly facing policy documents	Product development lifecycle—algorithmic review	Product development lifecycle—all phases (initial focuses on algorithmic design and review)
Application method	Document analysis	Interviews and participatory workshops	Interviews and participatory workshops
Additions/modifications made during the test	Creation of mapping tables	Explicit identification of stakeholders as a preliminary step Reframing of the Dignity Lens to make less abstract by considering decisions made at each stage of the product development lifecycle Mapping tables with different views: one that shows the Dignity Lens by product development phase. One that shows the Dignity Lens organised by element of dignity	Integration of activities into existing processes: wiki pages and JIRA epics Inclusion of explicit reflective practice questions as an activity
Learnings to incorporate into the next iteration	Need to improve the usability of the tool for external audiences	Groundwork activity prompts and templates to be done before engaging with the Dignity Lens Stakeholder identification—system boundary drawing	Inclusion of dignity-as-embodied praxis (Mahalingam 2019) Consideration of elements that are mandatory versus optional, tailored to different contexts Mapping Dignity Lens to GDPR requirements
Roles of authors of this paper	Primary author—responsible for framework development, iteration, data collection and analysis and paper drafting Second author—no role Third author—responsible for review and supervision	Primary author—responsible for framework development, iteration, data collection and analysis and paper drafting Second author—participates in design cycle, provides use cases and feedback as required Third author—responsible for review and supervision	Primary author—responsible for framework development, iteration, data collection and analysis and paper drafting Second author—participates in design cycle, provides use cases and feedback as required Third author—responsible for review and supervision
Sources	Ruster and Snow (2021)	Ruster et al. (2022)	This paper

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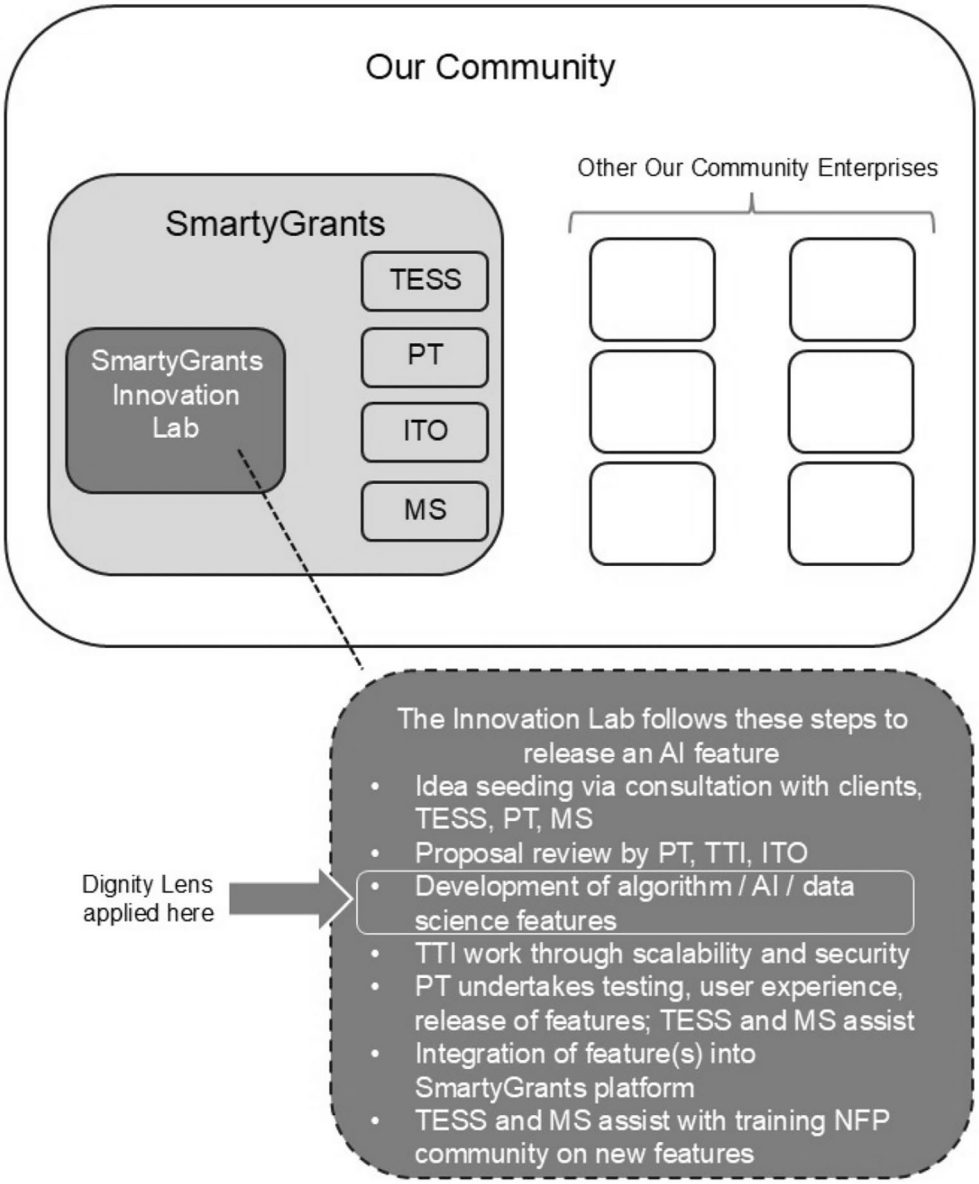

FIGURE 5 | An overview of where the SmartyGrants Innovation Lab sits as a team within SmartyGrants, one of the Our Community enterprises. The Dignity Lens iteration that is the focus of this paper was co-developed with members of the Lab. ITO: IT Operations team; MS: Managed Services team; NFP: not-for-profit; PT: Platform Transformation team; TESS: Training, Education and Support Services team; TTI: Technology, Transformation and Impact team.

> In tech companies (especially the large ones), silos are easily created, and developers become a small part of a big puzzle; it's easy to defer ethics to other roles and not take responsibility for the decisions made. Developers might expect that someone else had done the thinking before coming to them. 'I was just told to do it this way' ... It might be that the developer was told to do it this way because the other person didn't even consider it in the first place. But [here at SmartyGrants] you are the right person to flag it at any role ... documentation and checkpoints help to reinforce this responsibility (Director of Data Science).

Fourthly, the Lab hoped to incorporate different perspectives through using the tool:

> Making connections outside of Our Community [by using the Dignity Lens] will be important, and internally as well ... to keep that learning and discussion going (Data Scientist 1).

Finally, the Lab wanted a way to communicate and document decisions to hold themselves to account:

> It is common in the tech industry to make continuous small decisions when developing software, and

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> in some cases we might not be 100% sure if that's what the user would want … in some cases those decisions might not feel natural to some developers … and they might question if that is the right way to go. And so, I feel like when we hit those points, documenting the grounds on which the decision was made, even if it had limitations, is super important … if we had a strong framework or way to measure that we were doing the right thing, that would make the development process easier and more accountable (Director of Data Science).

These motivations formed the basis of the requirements for the Dignity Lens. See Table 3 for a summary.

5.3 | The Design Cycle: Operationalising the Dignity Lens in the SmartyGrants Innovation Lab Context

Of core concern to the Director of Data Science was how to ensure that the Dignity Lens was embedded into practices and organisational culture and not just considered a one-off, additional (and burdensome) activity. Two existing infrastructures—internal wiki pages and JIRA 'epics'—were targeted for this purpose, and one new type of interaction was created—a reflection conversation.

Internal wiki projects are used within Our Community and SmartyGrants to document project methodologies, decisions made along the way and streamline approaches within the team. A master 'Ethical Frameworks' wiki page was set up to:

- Explain why the Dignity Lens is important and being adopted.
- Describe what the Dignity Lens is.
- Compile a list of projects that have used the Dignity Lens and links to those wiki pages as examples.
- Outline simple steps to get started, including a Dignity Lens template to be included in individual project wikis.

Project owners then added a new 'Ethical Review' wiki page within individual project wikis. The Ethical Review page follows the Dignity Lens, including sections for:

- Example tasks to do at each development stage.
- Systems analysis (Groundwork Activity 1).
- Stakeholder mapping (Groundwork Activity 2).
- Decisions/mechanisms table (Way 2: organised by concepts of dignity).
- Learning/reflections for next time.

See the snapshot of the table of contents below (Figure 7).

In addition, we leveraged JIRA, a commonly-used platform for product development, facilitating agile project management of new products. In the Lab, project delivery is broken

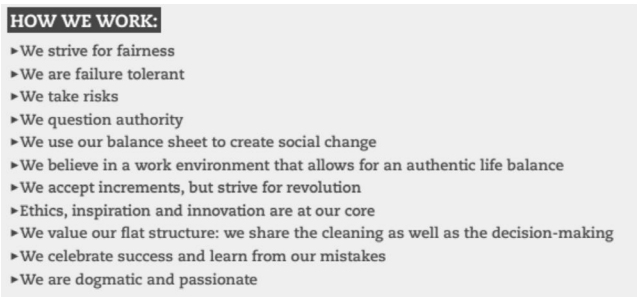

FIGURE 6 | Excerpt of Our Community's Manifesto.

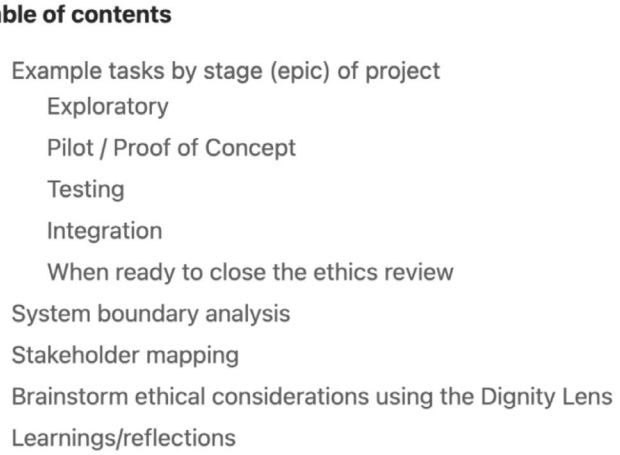

FIGURE 7 | Wiki page table of contents.

TABLE 3 | Overview of Dignity Lens requirements.

Requirements for the Dignity Lens
A way to
1. Uphold our organisational commitments to human-centredness in all that we do
2. Enable checkpoints for ethical review as we build data science features and products (not just at the end when it is potentially too late)
3. Create a space for team reflection and individual responsibility, building ethical muscles or intuition in our team over time
4. Prompt different perspectives while developing features, leading to innovation
5. Hold ourselves to account, providing documentation on the decisions taken over time that we can refer to, learn from and showcase to others

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into JIRA 'epics' which can be thought of as stages within a finite timeline. Project Owners are to start an epic in JIRA called 'Ethical Review'. Sample 'ethical review' activities were included as tasks to consider within each epic, with a clear call to action that '[epic] tickets should not be restricted to the examples provided'. Anyone in the wider Lab team could see the actions taken over time in the project and the results from the tasks served as inputs into an Ethical Review wiki page within a project wiki. It is suggested that team members spend up to 2 h on the Dignity Lens at the end of each phase of development; after the first stage, it may take as little as 15 min to update and adjust.

Finally, the Lab hosted a reflection conversation about experiences using the Dignity Lens on a particular project. Co-led by the project owner, questions about the Dignity Lens in the project context were discussed, and additional perspectives were shared from other team members and the primary researcher. In contrast to existing meeting structures, which were called on an ad hoc basis to discuss a specific issue that had emerged, this meeting was proactive in nature and focused on the project as a whole.

It must be noted that embedding the Dignity Lens in the Lab is in its infancy, and ensuring it is considered part of regular operations is ongoing. Currently, the Director of Data Science plays an important role in holding team members accountable for using the Dignity Lens. In the future, this role could be assigned to another team member.

Using the Dignity Lens has the potential to provide an evidence trail for other SmartyGrants processes, for example their upcoming endeavour to become General Data Protection Regulation (GDPR)-compliant. It might also be applicable to achieving International Standards Organization (ISO) certifications (International Standards Organization 2023) or demonstrating compliance with country-wide AI regulation (e.g., the Australian National Artificial Intelligence Ethics Framework; Department of Industry Science and Resources 2024). In addition, the Dignity Lens may be embedded into other existing infrastructures of SmartyGrants including existing approval processes that occur at each development stage, risk management processes and documentation around risk registers, as well as with existing regular check-in meetings between developers and managers and the Lab's interactions with other teams in SmartyGrants, especially those in the product team who undertake most of the customer-facing feedback processes.

5.4 | The Design Cycle: Evaluation of the Dignity Lens

This study undertakes an observational evaluation—studying the Dignity Lens in the Lab environment—as well as descriptive evaluation through consideration of scenarios with and without the Dignity Lens; these two methods are consistent with Hevner et al.'s (2004) design evaluation guidelines.

We evaluate the Dignity Lens against the requirements stated in Table 3 in turn below. For an overview see Table 4.

5.4.1 | Criterion 1: Uphold Our Organisational Commitments to Human-Centredness in All We Do

Before using the Dignity Lens, the Lab demonstrated their commitment to human-centredness in two main ways. Firstly, through their recruitment process; they will say no to an otherwise excellent applicant if values alignment is poor. Secondly, they have documents such as data policies and frequently asked questions which attempt to describe how they put human-centredness into practice. Both of these avenues are considered good foundations but do not go far enough to make the commitments concrete in algorithmic development. Also, the language used in policies might not be easy to digest by users.

The Dignity Lens, in contrast, prompts members of the Lab to have more thorough and targeted conversations about human-centredness in algorithmic development:

> Especially the idea of recognition and acknowledgement [in the Dignity Lens made me realise] ... I could have had more thorough conversations with [stakeholders] rather than having this idea about what it would look like and then sort of just tweaking it on the sides (Data Scientist 2).

In addition, the Dignity Lens format is considered more 'user friendly and digestible' than the previously existing avenues and enables reflection at a project level which has been previously overlooked.

5.4.2 | Criterion 2: Enable Checkpoints for Ethical Review as We Build Data Science Features and Products

Before adopting the Dignity Lens, the Lab had two types of checkpoints when developing new products. The first is reactive in nature: an ad hoc meeting was called when an issue arose. The second occurs in large projects (more than three to five people) where a stage-gate development approval process is undertaken. Although the Dignity Lens is yet to be trialled at every stage of the product development lifecycle, where it has been used, it was found to provide a complementary space to engage proactively and holistically that the existing spaces could not achieve. In the future, it is hoped that reflections from using the Dignity Lens will be integrated as inputs into the stage-gate approval processes for larger projects. For smaller projects, there are generally fewer explicit project management-style processes, and in these cases, the Dignity Lens may give structure to creating checkpoints. As such, the Dignity Lens is seen as a potentially useful, complementary approach to exercising responsibility, but is yet to be fully realised and tested.

5.4.3 | Criterion 3: Create a Space for Team Reflection, Building Ethical Muscles/Intuition in Our Team Over Time

Criteria 2 and 3 have a lot of similarities, with the focus of Criteria 3 around building 'ethical muscles' and 'intuition'

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TABLE 4 | Overview of the evaluation of the Dignity Lens.

Criteria	As-is scenario (i.e., what the lab did before using the Dignity Lens)	Benefits achieved using Dignity Lens
• Uphold our organisational commitments to human-centredness in all that we do	• Values-based recruitment processes; for example, all staff have volunteer roles outside of work • Data policies and frequently asked question documents	• More thorough, targeted conversations about human-centredness in algorithmic development specifically • More friendly and accessible for including diverse stakeholders than jargon found in data policies • Focused on the project as a whole
• Enable checkpoints for ethical review as we build data science features and products (not just at the end when it is potentially too late)	• Hold meetings reactively, to discuss challenges as they come up • Approval processes at each stage of development (for large projects)	• Encourages proactive engagement to discuss challenges at each stage of the development process, even in small projects *Note:* To date, the Dignity Lens has not been trialled at every part of the development process, but has a suite of proposed activities at each stage
• Create a space for team reflection, building ethical muscles/intuition in our team over time	• Hold meetings reactively, to discuss challenges as they come up • Approval processes at each stage of development (for large projects)	• Encourages proactive engagement to discuss challenges at each stage of the development process, even in small projects
• Prompt different perspectives while developing features, leading to innovation	• Approval processes at the end of development stages (for large projects) • Ad hoc inclusion of user perspectives, for example, from people visiting the building	• Structured approach • New ways of thinking • Engaging stakeholders as part of the process, not ad hoc
• Hold ourselves to account, providing documentation on the decisions taken over time that we can refer to, learn from and showcase to others	• Decision register, risk register in larger projects • Wiki pages with progress reviews • Show and tell activities—podcasts, talks and social media sharing • Partnerships and blogging or whitepapers about partnerships	• Robust evidence trail of valuing human-centredness in decision-making that is sharable with clients and to learn from internally • Engaging stakeholders as part of the process, not ad hoc

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over time, with an underlying understanding that 'just tick[ing] the boxes [for example with GDPR] doesn't guarantee we're doing the ethical thing'. When asked to reflect on the extent to which the Dignity Lens is encouraging ethical muscles and intuition-building over time, the Director of Data Science shared:

> As you work on [Product A], you're thinking about [Product B], and then the next one. It becomes a way of thinking ingrained in the back of your brain, that initially needed all these prompts, but later on it's just there and it's actively working for you. And I think that's exactly what we are seeing [with the Dignity Lens] ... we're going to be learning from one project to the next one. And that creates that proactive learning ...when you come to the next [project] you already have two in the past with lessons learned and mistakes that you don't want to repeat.

Ethical muscle-building was also evident when asked what could be done differently in the next project because of reflecting using the Dignity Lens:

> ... more rigorous views on consultation ... for the next project ... I think we would want to engage users from the very start and be very transparent ... it would be very interesting to have a sort of standing meeting ... with grantees and grantmakers (Data Scientist 2).

Understanding the full extent of the Dignity Lens in achieving this requirement will take a longer period of time to fully ascertain; however, the early signs are promising.

5.4.4 | Criterion 4: Prompt Different Perspectives While Developing Features, Leading to Innovation

To date, beta testing or user acceptance testing (UAT) within large projects were avenues for different perspectives, especially from users. For small projects, the user engagement is ad hoc (and opportunistic sometimes). For example, inviting visitors to the building (where a lot of not-for-profits are based) to give feedback on certain product features through roundtables with clients and others.

The Dignity Lens provides structure and avenues for considering new perspectives, which was deemed valuable because 'it is hard to see more than you know'.

Data Scientist 2 reflected:

> You are asked to look at the product from a number of different angles that you may not otherwise have the same rigour when you're just thinking on your own ... I hadn't really thought of how does my product lead to acceptance of identity, recognition ... independence and benefit of the doubt.

5.4.5 | Criterion 5: Hold Ourselves to Account, Providing Documentation on the Decisions Taken Over Time That We Can Refer to, Learn From and Showcase to Others

Before using the Dignity Lens, documenting practices centred on project wiki pages with progress-to-date commentary and, in larger projects, decisions made were mainly documented within decision registers and risk registers, noting decisions made for technical, business or customer reasons; decisions made based on values may or may not be included. In smaller projects (which constitute around 80% of developing time for the Lab), a wiki is the main source of documentation, and the majority of knowledge is transferred through informal interactions. In terms of sharing knowledge with others, the Lab members leverage talks, podcasts, blogs, social media, whitepapers and partnerships as ways of demonstrating transparency and collecting feedback.

With the Dignity Lens in place, the Lab has a more robust evidence trail of the work they are doing to uphold dignity:

> The best part for us was to have those breadcrumbs ... have we done this? Have we done that? ... It definitely helped us to have transparency and accountability with the work ... so that we feel good with the work we are doing and also to show government and clients that we work with ... that we're trying our best (Data Scientist 2).

The Dignity Lens was also seen as a way to help the Lab fulfil a responsibility to educate their clients on the risks of using the tools:

> I don't think we can really escape the LLMs [Large Language Models] and the AI world ... but I think we've got a lot more on us to educate on where the gaps are ... trying to educate grantmakers—here's a summary tool ... [sharing where] it might hallucinate ... these are the sorts of things that you should also be doing (Data Scientist 3).

The Director of Data Science also sees this trail as important for upcoming GDPR compliance efforts:

> Many of the questions arising from the GDPR tracker request evidence for ethical and private AI product development ... With the Dignity Lens I can show that we are compliant and that we have comprehensive processes in place.

5.5 | The Rigour Cycle: New Knowledge Acquired From the Process

This section shares success factors associated with embedding the Dignity Lens in algorithmic product development.

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5.5.1 | Frame the Use of the Dignity Lens as a Way of Enacting and Holding Self Accountable to Existing Organisational Values

SmartyGrants is a values-led business, and the team is continually finding new ways to demonstrate how they live out their commitment to human-centredness in everyday decision-making. The Dignity Lens assists with this goal:

> We want to use the Dignity Lens framework to embed an ethical way of thinking that evolves with each project. The first project might require checklists, check points and continuous consultation with experts, but with time this practice will become the default way to develop AI features (Director of Data Science).

5.5.2 | Minimise Barriers to Uptake by Flexibly Including the Dignity Lens in Existing Product Development Processes

Transitioning from one-off use of the Dignity Lens to team use required thinking about how the Dignity Lens could be integrated into existing ways of working and making it an expectation within the project and its completion. 'I want it [the Dignity Lens] to be part of the scheduling for the project. It's something that needs to happen if you want to complete the project. If you haven't done it, the project is not completed' (Director of Data Science). In addition, an internal champion for continually refining the organisational culture and envisioning how culture and ethics can be brought to life through the application of the Dignity Lens is crucial to the project's success.

5.5.3 | Engage With the Primary Researcher to Facilitate Learning and Reflection

There are limited worked examples of how to use the Dignity Lens in practice at the moment; it is hoped that this will change over time and that this paper serves as an initial starting point for others who are interested. Those considering use of the Dignity Lens may wish to reach out to engage with the primary researcher who can accompany them throughout an initial instantiation of the process. Over time, a bank of examples and online resources could be developed to enable guidance at scale.

5.5.4 | Empower Team Members to Trial the Dignity Lens and Share Their Experiences

The way in which the Dignity Lens was trialled within the Lab is also an important consideration. Team members trialled using the Dignity Lens and then co-led a reflection conversation with the wider team. A strong emphasis on the use of the Dignity Lens as part of a learning and reflection space encouraged other team members to ask questions and share thoughts and responses amongst the team (in addition to asking questions of the primary researcher). This collaborative environment focused on curiosity and learning, which is particularly important to ensuring the process does not devolve into blame and judgement, which would ultimately undermine its purpose.

5.5.5 | Use the Learnings to Improve Subsequent Projects

Many decisions will be taken along the lifespan of algorithmic development, and in some cases, the decisions made may be inadequate. Further, some key biases can be missed or seen as low priority at one time but then emerge as more important later. Keeping in the spirit of continuous learning, these experiences can inform subsequent projects. For example, while developing an algorithm that leverages AI for internal use, the team found some security concerns that could have a larger impact if the algorithm were available to external audiences. This was not a concern for the current (internal) project but became a starting point of evaluation while planning the next generation of the algorithm, meant for external audiences.

6 | Learnings for Practitioners Considering Algorithmic Responsibility Approaches

Undoubtedly there are many ways in which practitioners can consider enacting their algorithmic responsibility in practice; the Dignity Lens is but one way that suited SmartyGrants because of their commitment to human-centred approaches. Having said this, taking a step back from using the Dignity Lens specifically, we offer several wider learnings that may be relevant for other algorithmic responsibility approaches. See Table 5 for a summary.

6.1 | Ensure Your Organisational Culture Is Aligned With Responsible Action

One of the reasons we were able to test and trial the Dignity Lens in SmartyGrants was because responsibility is considered foundational to their organisational culture and the Dignity Lens was seen as a way of enacting existing values. Without strong

TABLE 5 | Overview of learnings for practitioners considering algorithmic responsibility approaches.

Learnings for practitioners considering algorithmic responsibility approaches
1. Ensure your organisational culture is aligned with responsible action
2. Practice algorithmic responsibility at all stages of the development lifecycle, not just in review
3. Practice algorithmic responsibility even on (or especially on) small projects
4. Complement tendencies to think of responsibility as 'do no harm' with opportunities for upside
5. Question standardisation of responsible AI principles; be bold with choices that align to your organisation

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organisational values that are aligned to responsibility more generally, it is likely that any efforts to implement an algorithmic responsibility approach will be unsuccessful. Keeping in mind that there are often 'many hands' (see Schiff et al. 2021) involved in embedding a responsible approach in practice, having a few leaders bought in to trial the approach, while necessary as a minimum, may be insufficient over the long term. An aligned organisational culture provides a solid and far-reaching foundation for making any algorithmic responsibility approach a sustained reality.

6.2 | Practice Algorithmic Responsibility at All Stages of the Development Lifecycle, Not Just in Review

Many approaches to algorithmic responsibility focus on review and/or auditing processes. Although these are undoubtedly important, the experience with SmartyGrants highlighted the value of considering questions related to responsibility at all phases of the product development lifecycle.

6.3 | Practice Algorithmic Responsibility Even on (or Especially on) Small Projects

There is a tendency for organisations to believe that it is a waste of time and resources to apply the Dignity Lens or other algorithmic responsibility approaches to small (often internally-facing) projects. However, the experience with SmartyGrants highlights how decisions made in these smaller projects often serve as building blocks for much larger projects. 'One reason we've been talking about it [these smaller algorithmic projects] is it's kind of a precursor in some ways to potential language-oriented features that might appear in our main product, externally' (Data Scientist 2).

Consistent with approaches in complex adaptive systems theory, 'starting conditions' are important (Roundy et al. 2018) and applying the Dignity Lens to small projects can be thought of as creating miniature blueprints for much larger products and services. With this perspective in mind, the investment required is more palatable. Further, it builds important responsibility muscles in low-risk settings that can be transferred to higher-stakes contexts later.

6.4 | Complement Tendencies to Think of Responsibility as 'Do No Harm' With Opportunities for Upside

Protective and remedial ways of thinking about algorithmic responsibility (like 'do no harm') are necessary but insufficient when it comes to exercising responsibility. Many tools focus solely on these more risk-based, compliance-focused approaches to responsibility. The Dignity Lens makes a specific effort to complement these approaches with what we are calling proactive forms of responsibility—considering how to engage with the positive upside of using the technology, beyond limits set by others or by regulations or laws. A full consideration of algorithmic responsibility must engage with both protective/remedial forms of responsibility as well as proactive ones.

6.5 | Question Standardisation of Responsible AI Principles; Be Bold With Choices That Align to Your Organisation

Alongside the emergence of algorithmic responsibility is an attempt to streamline the principles deemed attention-worthy. If, similar to SmartyGrants, the 'usual suspect' principles—transparency, privacy, accountability and fairness (Khan et al. 2022)—do not quite capture your vision for what algorithmic responsibility means in your context, look for alternative views. The Dignity Lens is one such example, but there may be others more aligned to your context.

7 | Future Research

Future research could take place along a variety of axes. Firstly, future research could extend the plurality of dignity concepts considered to include notions like 'dignity-as-embodied praxis'. This concept of dignity acts as a litmus test or mindfulness thermometer, allowing for feedback on how much we act in accordance with the interconnectedness of our lives (Mahalingam 2019) and would add a somatic dimension to understanding the impact of algorithms on different stakeholder groups.

Secondly, additional avenues for embedding the Dignity Lens into operational practices such as risk management, strategy and innovation could be considered. The Lab has already begun to identify where the Dignity Lens could be invoked to demonstrate compliance with parts of the GDPR; this work could be expanded by mapping the Dignity Lens to the GDPR and providing this guidance in the templates.

Thirdly, the application of the Dignity Lens could be expanded from within the data science team at SmartyGrants towards other non-technical teams, particularly those who are responsible for selling to clients and gathering feedback. Embedding the Dignity Lens in practice will, over time, be a whole of organisation endeavour and face challenges associated with scale, communication structures and dispersed decision-making that would need to be explored and addressed.

Finally, the Dignity Lens has been trialled within specific technologies—algorithms and automated decision-making—and within a specific organisation type—a social enterprise. These contexts are the study's current limitations. There is ample space for testing and trialling the Dignity Lens in other types of technologies and organisations and for developing more extensive evaluation frameworks to measure its impact.

8 | Conclusions

The staggering growth of AI development and its uptake has led to a variety of concerns regarding how to exercise responsibility. For leaders who want to exercise a proactive sense of

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responsibility in addition to compliance and risk management-based approaches, guidance is slim and even slimmer for practical advice on how to move beyond one-off reviews towards ongoing practices. These challenges are compounded for leaders who are driven by human values, such as dignity, and want to ensure these are reflected in their algorithmic development and/or implementation.

This paper presents the Dignity Lens, in its third iteration, as a way of tangibly engaging with the impact of technologies on relationships—relationships with ourselves, with others and with the environment. Through design science research, we develop the Dignity Lens and demonstrate how it can be embedded into product development processes. We find value in its ability to provide a pathway for upholding organisational commitments to human-centredness, in creating space for team reflection, building responsibility intuition over time and in prompting discussion from different perspectives, leading to innovative ideas. Further, it enables teams to hold themselves to account for their own sense of responsibility and allows for documentation on decisions made that can be learned from over time.

For those wishing to use the Dignity Lens in their own work, we recommend integrating it into existing processes and framing it as a way of upholding existing organisational values. In addition, we suggest embracing the tool's learning and reflection focus, engaging with the primary researcher and/or previous examples and encouraging team members to lead reflective practice around their use of the tool and learning for future projects.

We also make broader recommendations for organisations considering the use of other algorithmic responsibility tools, recognising that the focus of the Dignity Lens may not be fit-for-purpose for all organisations. We recommend that organisations practice algorithmic responsibility at all stages of the development lifecycle, not just in review and on even seemingly small projects, as these will likely form the basis for larger projects in the future. We encourage organisations to view any algorithmic responsibility approach as part of a much wider commitment to organisational values and to ensure that tools are chosen that do not reduce responsibility to compliance and risk minimisation, but also engage with exercising proactive senses of responsibility. Finally, although we recognise a push to standardise responsible AI principles, we implore organisations to seriously consider the principles that are of most relevance to their context and organisational culture.

We hope to exemplify information systems research that contributes to a better world (Davison et al. 2023) and inspire leaders to exercise protective/remedial and proactive responsibility in their AI development and/or implementation with human-centred values, like dignity, at the centre.

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Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

Research data are not shared.

Endnotes

[1] IT executives believe that AI is the number one technology that should be receiving more investment and is the second most personally worrisome area after cybersecurity (Johnson et al. 2024). However, recent data shows that despite 84% of IT executives in companies with over $100 million in revenue believing that responsible AI should be a top priority, only 56% report that it is, in fact, a top priority and only 25% claim to have a mature responsible AI programme in place (Renieris et al. 2022). It is a similar story for startups, where a recent survey showed 58% of AI startups surveyed had AI ethics principles but far fewer showed evidence of ever acting on them in practice (Bessen et al. 2022).

[2] The EU AI Act is the world's first comprehensive law on regulating AI and is being used as a model for AI regulation in various jurisdictions. Its approach is to provide obligations depending on risk level; activities considered 'unacceptable' or 'high' risk carry the most obligations. For example, AI systems classified as 'unacceptable risk' include emotion recognition and social score systems and as 'high risk' are medical systems and recruitment systems (European Parliament 2023).

[3] Note that we also considered Mirbabaie et al.'s (2022) 12 fundamental manuscripts in AI and ethics but concluded that none were tools, they were all principles or guidelines.

[4] Note that the SmartyGrants Director of Data Science is also a co-author of this paper. The paper is primarily written by the primary researcher and first author, with the Director of Data Science providing additional nuances where required. The first author retains full autonomy over the way in which the case is presented.

[5] Our Community is one of the first to embed in its constitution responsibilities to its employees and to the community it serves, and one of the first to trial (and subsequently adopt) a 4-day workweek (Our Community 2023).

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Appendix A

TABLE A1 | Overview of responsible AI tools and their characteristics, compared to the Dignity Lens.

Organisation	Name of tool[a]	Website	Human-centred focus	Supporting tool?	For technical people (T) or non-technical (N) or both (B)?	When to use the tool in the development lifecycle	Protective and/or proactive stance
	Dignity Lens	N/A	Yes	Yes	B	Throughout lifecycle	Both
Google	Tools & Platforms	https://pair.withgoogle.com/tools/	No	Yes	B	In design, in development	Both
TensorFlow	Responsible AI in your workflow	https://www.tensorflow.org/responsible_ai	Partially	Yes	B	In development, in review, in deployment	Both
IBM	Trustworthy AI	https://research.ibm.com/topics/trustworthy-ai	Partially	Yes	B	Various	Both
Microsoft	Microsoft smartnoise differential privacy machine learning	https://smartnoise.org/	No	Yes	T	In development, in review	Protective focus
Amazon	Amazon Sagemaker	https://aws.amazon.com/sagemaker/	No	Yes	T	In development	Protective focus
Banco Interamericano de Desamollo	Responsible use of AI for public policy: Data Science toolkit	https://publications.iadb.org/en/responsible-use-ai-public-policy-data-science-toolkit	Partially	No	T	In development	Protective focus
Centre for Data Science and public Policy at University of Chicago	Aequitas: Bias and fairness audit toolkit	https://www.datasciencepublicpolicy.org/our-work/tools-guides/aequitas/	No	Yes	B	In review	Protective focus
University of Toronto, Google	Model Cards	https://arxiv.org/abs/1810.03993	Partially	Yes	N	In review, in deployment	Protective focus
University of Texas, Austin	CERTIFAI	https://arxiv.org/pdf/1905.07857	No	Yes	T	In review	Protective focus
Grad School of Engineering, University of Tokyo	Designing ethical artefacts results in creative design	https://link.springer.com/article/10.1007/s00146-020-01043-6	Yes	Yes	T	In review	Proactive focus

[a]Pega Responsible AI page also reviewed. It was categorised as a guideline/tool by Barletta et al. (2023). Upon review, could not find a tool, so have not included it here.

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Appendix B

TABLE A2 | Way 1—Dignity Lens organised by development phase.

In this phase	A decision *was made* to…/we *may make* a decision to…	The dignity concepts upheld through this decision include	The activity/ies enacted were/would be protective because it/they…	The activity/ies enacted were/would be proactive because it/they…
Planning, data exploration & design				
Development				
Testing				
Release				
Review & monitoring				
De-commissioning				
Other				

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Appendix C

TABLE A3 | Way 2—Dignity Lens organised by concepts of dignity.

			Decisions made/mechanisms enacted at different stages of development						
Dignity concept	**Ways to think about the dignity concept**	**Protective/ proactive stance**	**Planning, data exploration & design**	**Development**	**Testing**	**Release**	**Review & monitoring**	**De-commissioning**	**Other**
Foundational dignity Dignity is unique to humans. No one can give it, no one can take it away	*1A Acceptance of identity* Approach people as being neither inferior nor superior to you; give others the freedom to express their authentic selves without fear of being negatively judged; interact without prejudice or bias, accepting that characteristics such as race, religion, gender, class, sexual orientation, age and disability are at the core of their identities	Protective Proactive							
	1B Recognition Validate others for their talents, hard work, thoughtfulness, and help; be generous with praise; give credit to others for their contributions, ideas and experiences	Protective Proactive							
	Other	Protective Proactive							
Dignity of choice Everyone needs to be afforded a dignity to choose, to make independent decisions and to take risks	*2A Independence* Encourage people to act on their own behalf so that they feel in control of their lives and experience a sense of hope and possibility	Protective Proactive							
	2B Dignity of risk The right of people to decide to take (reasonable) risks	Protective Proactive							
	Other	Protective Proactive							

(Continues)

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TABLE A3 | (Continued)

Dignity concept	Ways to think about the dignity concept	Protective/ proactive stance	Decisions made/mechanisms enacted at different stages of development						
			Planning, data exploration & design	Development	Testing	Release	Review & monitoring	De-commissioning	Other
Dignity as experience Dignity is a desire to be seen, heard, listen to, recognised and acknowledged and to feel safe in the world	*3A Acknowledgment* Give people your full attention by listening, hearing, validating and responding to their concerns and what they have been through	Protective							
		Proactive							
	3B Inclusion Make others feel that they belong, at all levels of relationship (family, community, organisation and nation)	Protective							
		Proactive							
	3C Safety Put people at ease at two levels: physically, so they feel free from the possibility of bodily harm, and psychologically, so they feel free from concern about being shamed or humiliated and free to speak without fear of retribution	Protective							
		Proactive							
	3D Fairness Treat people justly, with equality, and in an even-handed way according to agreed-on laws and rules	Protective							
		Proactive							
	3E Understanding Believe that what others think matters; give them the chance to explain their perspectives and express their points of view; actively listen in order to understand them	Protective							
		Proactive							
	3F Benefit of the doubt Treat people as if they are trustworthy; start with the premise that others have good motives and are acting with integrity	Protective							
		Proactive							
	Other	Protective							
		Proactive							

(Continues)

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TABLE A3 | (Continued)

Dignity concept	Ways to think about the dignity concept	Protective/ proactive stance	Decisions made/mechanisms enacted at different stages of development						
			Planning, data exploration & design	Development	Testing	Release	Review & monitoring	De-commissioning	Other
Dignity as communal responsibility We have a responsibility to use capabilities to promote collective dignity, which in turn also promoted individual dignity	*4A Accountability* Taking responsibility for actions, apologising when harm has been done and committing to change hurtful behaviour	Protective							
		Proactive							
	Other	Protective							
		Proactive							
Environmental dignity The right to an environment of quality permits a life of dignity and wellbeing	*5A Value of the environment* A recognition of the intrinsic value of the environment	Protective							
		Proactive							
	Other	Protective							
		Proactive							
Dignity of work Work has inherent value no matter the type or status of work and should be conducted in dignified conditions	*6A Value of work* All types of work have inherent value and contribute to our overall society. Every job deserves respect	Protective							
		Proactive							
	6B Value of worker All workers should work under dignified conditions (fair wages, safe working conditions and opportunities for growth and development), no matter their job	Protective							
		Proactive							
	Other	Protective							
		Proactive							
Other		Protective							
		Proactive							

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Appendix D

TABLE A4 | Way 3—Two-step process. Step 1 is to brainstorm mechanisms/actions/decisions that prevent and promote dignity (in the past to now and in the future). Step 2 is to undertake Way 1 or 2.

Mechanisms/actions/decisions *already completed* that prevent dignity violation(s)	**Mechanisms/actions/decisions *already completed* that proactive promote dignity**
•	•
Mechanisms/actions/decisions *to be completed* that may prevent a dignity violation in the future	**Mechanisms/actions/decisions *to be completed* that may proactive promote dignity in the future**
•	•

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