A SCALABLE EMPLOYEE AND FAMILY ENGAGEMENT PLAN FOR RESPONSIBLE AI AND SUSTAINABILITY

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ABSTRACT

The rapid evolution of artificial intelligence (AI) brings both economic opportunities and environmental challenges, including massive e-waste generation, excessive energy consumption, and water depletion. This paper presents a comprehensive, scalable sustainability plan that engages employees and their families in environmental conservation while promoting responsible AI usage. Our framework combines employee-led initiatives, AI-powered engagement tools, transparent impact tracking, and family-inclusive programs to create measurable environmental benefits while enhancing Employer Value Proposition (EVP). Backed by quantifiable metrics, we demonstrate how organizations can align technological advancement with ecological responsibility through participatory sustainability strategies.

Keywords: Responsible AI, Sustainability, E-Waste Management, Carbon Footprint Reduction, Employee Engagement.

INTRODUCTION

We are at a turning point in the early 21st century, a moment in time when several disruptive technologies are coming together to transform how we live, work, and relate to each other. AI may be the most transformative of these, projected to add an estimated \$13 trillion to the global economy by 2030 (Banerjee et al., 2023). Just as the steam engine transformed the industrial age, AI has the potential to reshape our world. With rising penetration of such technologies into the domain of Industry 5.0, which depends on enhanced cooperation between human beings and artificial agents, it is necessary to study their broader consequences. AI's cognitive capacity, likeness to humans' intelligence, and ability to solve complex business problems position it at the epicenter of this industrial transformation.

One area in which AI is having an impact is in HRM, particularly as firms strive for sustainability and digital innovation. Including AI in HR practices has paved the way for rethinking classical models, especially in light of the ever-changing global workforce and the increasing focus on sustainability. Artificial intelligence applications now take care of tasks like shortlisting candidates and answering mundane questions so HR professionals can devote their attention to strategic decision-making. In such a context, Sustainable Human Resource Management (SHRM) appears as a paradigm capable of connecting HR practices with the overarching principles of the United Nations' Sustainable Development Goals (SDGs), like the eradication of extreme poverty, the provision of affordable, clean energy, and the promotion of economic and social equality (Herlina & Iskandar, 2024).

Scalability in the engagement approach is important as organisations want to create inclusive and flexible systems that work across ages, cultures, and needs. By using AI to automate some of the more day-to-day aspects of the process, like reviewing resumes or communication, HR teams can place more emphasis on the human side of hiring (Shi, 2025). However, AI in HR

must be approached responsibly, with clear transparency, fairness, and sustainability. A better understanding of the psychological and behavioral impact on employees and their families is also needed.

Although previous research has investigated the use of AI in recruiting and analytics, research still lacks in the broader context of how AI-powered sustainable HRM practices influence employee engagement, especially when they start connecting with employees' extended families. Engagement, a multifaceted concept that comprises emotional commitment, enthusiasm, and proactive behaviour, is related to the success of the organization. However, how employees react to these programs is likely to be mediated by personality characteristics such as conscientiousness, which would also influence outcomes.

This work seeks to design a scalable framework to involve families in the larger discussion of responsible AI and sustainable development. Based on the Ability-Motivation-Opportunity (AMO) theory and Person-Organization (P-O) Fit theory, the paper examines how AI-supported sustainable HRM practices affect employee and family engagement, which in turn affects organizational performance. It also explores how traits like conscientiousness moderate these relationships, offering insights into personalization of engagement strategies (Distor et al., 2024).

RESEARCH OBJECTIVES

- 1. To integrate family engagement into the discourse on sustainable human resource management (HRM), positioning it as a critical component for driving responsible AI and sustainability outcomes.
- 2. To explore the psychological and behavioral mechanisms through which AI-enabled HRM practices influence employee and family engagement, drawing upon the Ability-Motivation-Opportunity (AMO) and Person–Organization (P–O) fit frameworks.
- 3. To develop and validate a scalable engagement model that links AI-enabled sustainable HRM practices with individual and family engagement, and ultimately, performance outcomes.
- 4. To investigate the mediating role of employee and family engagement in the relationship between AI-driven sustainable HRM practices and organizational performance.
- 5. To examine the moderating effect of conscientiousness in tailoring HRM strategies to suit diverse employee profiles and maximizes engagement effectiveness.
- 6. To provide practical insights for implementing scalable, context-specific engagement plans in digitally transforming regions such as China, where sustainability goals are rapidly evolving.

Problem Statement

As companies turn toward sustainability and responsible AI as strategic imperatives, they face the challenge of shifting these values into successful, enduring change in the behavior of their workforce. Although many corporate sustainability initiatives are based around top-down policy announcements and standalone campaigns, they often miss the key requirement for ongoing engagement and bottom-up involvement. Elevating the voice of employees' families, in particular a child, as key stakeholders in promoting sustainable behaviors has also been underplayed (Shi, 2025).

Many organizations struggle to implement internal mechanisms for employee engagement in AI-related sustainability practices, and a significant lack of environmental impact measurement exists within AI systems. Only 17% of companies currently measure the environmental impact of their AI systems, indicating a need for increased focus on both internal engagement and environmental accountability (OECD Digital Economy Papers, 2022).

This lack of holistic engagement creates a disconnection between organizational purpose and daily conduct, undermining the effectiveness of sustainability and AI ethics programmes. In

addition, without visibility, recognition, and intergenerational learning systems, these efforts often fail to scale or persist sustainably. An scalable, inclusive platform that encourages and motivates employees, their family and friends to make healthy decisions positively affects program participation, returns on investment and sustainability (Distor et al. 2024).

This research addresses the gap by developing and analyzing a Scalable Employee and Family Engagement Plan for Responsible AI and Sustainability, grounded in behavioural science and organizational theory. The goal is to create a practical framework that not only aligns with corporate ESG objectives but also inspires voluntary, value-driven participation at both the individual and collective levels.

Sustainability Engagement Framework

The Sustainability Engagement Framework (SEF) is a proposed concept that enables effective and value-oriented behavioural change in employees and their families by embedding sustainability into the core of organizational life. By taking such actions, businesses will be moving beyond the policy-level framework on sustainability to create a norm at a practical level to deal with environmental challenges and the increasing influence of AI in our professional and personal lives.

SEF mediates between corporate sustainability targets and personal behavior by aligning internal processes with family influence and rendering sustainability actions visible and rewarding. It employs sustainable AI practices, environmental progressive education, and participatory design to infuse sustainability across three interrelated aspects: individual motivation, social systems, and rewarding mechanisms.



FIGURE 1 SUSTAINABILITY ENGAGEMENT FRAMEWORK

At its core, the SEF is built around three strategic pillars:

Empower Employees

In any organisation, employees are the main change agents. Their daily choices, from computer usage to commuting, jointly influence the company's environmental impact. Giving staff members the capacity, incentive, and chance to act sustainably is the primary goal of this pillar

(AMO theory) (Kellner et al., 2019). It also uses the Self-Determination Theory, which holds that when people feel independent, capable, and a part of a community, they are more dedicated to achieving their goals.

Key Reasons for Inclusion

- 1. Family engagement reinforces and amplifies sustainable behaviours.
- 2. Children and partners influence each other's habits and attitudes.
- 3. Encouraging sustainability at home builds holistic and lasting impact.

Engage Families

Adherence is more robust if it becomes a way of life and not a workplace protocol. Involving families multiplies the effect, boosts the creation of intergenerational awareness, and converts sustainability into a common way of life rather than an individual's duty. Research has found that kids can play a decisive role in shaping parents' environmental habits and that families engage with eco-friendly behaviors when challenges and rewards are shared (Kellner et al., 2019).

This pillar is represented by the Social Ecological Model and acknowledges that behaviour can occur at a number of levels: individual, interpersonal, organizational, community, and policy. By focusing on action within the family and community, the framework seeks to activate some of the strongest forces of group pressure and collective identity.

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Enable Visibility and Recognition

What gets measured gets managed and recognized behaviour tends to be repeated. The 'visibility' of effort and results is what encourages players to contribute more. Recognition drives intrinsic motivation, a powerful principle in Behavioural Economics and Reinforcement Theory, where positive reinforcement increases the probability of a behaviour occurring again (Skinner, 1938). An individualized dashboard and public praise offer ongoing feedback loops (Van Wynsberghe, 2021).

This pillar also draws from the Goal-Setting Theory, which emphasizes that clear goals, progress tracking, and feedback enhance performance and engagement.

Key Reasons for Inclusion

- 1. People are more likely to act when they see tangible outcomes of their behaviour.
- 2. Recognition fosters pride, competition, and repeat participation.

3. Data visualization helps teams and leadership understand progress and gaps.

These three pillars work in harmony to address three fundamental dimensions of behavioural change:

Table 1	

THREE FUNDAMENTAL DIMENSIONS OF BEHAVIOURAL CHANGE				
Dimension	Addressed By	Purpose		
Individual Motivation	Empower Employees	Equip, encourage, and embed sustainability in work		
		life.		
Social & Familial	Engage Families	Leverage household and social systems to reinforce		
Influence		change.		
Feedback & Reward	Enable Visibility &	Sustain action through acknowledgment and		
Recognition		transparency.		

Employee-Led Green Initiatives

This aspect of the SEF aims to give employees the tools to achieve environmental sustainability in their daily actions. The initiatives are consistent with the Ability-Motivation-Opportunity (AMO) model that helps develop green activities of employees by creating opportunities for employees to do green, fostering a desire to do so, and developing the employees' knowledge in doing green activities.

E-Waste Management System

E-waste is one of the largest and fastest-growing waste streams in the world, due to the rapid evolution of technology and the short lifespan of electronic devices. The improper e-waste disposal could lead to the emission of toxic materials such as lead, mercury, and cadmium, thus bringing serious health and ecological risks. Meanwhile, e-waste is full of precious recoverable resources like gold, copper, and rare earth metals, making it a significant focus in the circular economy (Jain et al., 2023).

Implementing an E-Waste Management System in the office will reduce their overall environmental impact, facilitate resource recovery, and raise employee awareness about responsible consumption. Encouraging staff involvement in efforts to reduce waste and companies can help foster a culture as environmental stewards, boosting CSR credentials and suiting broader sustainability ambitions.

Implementation Strategy

Strategic Placement of E-Waste Bins - E-waste bins will be installed across all office premises, maintaining a ratio of one bin per 50 employees. This ensures convenient access, encourages frequent disposal of unused electronics (such as batteries, chargers, and devices), and supports habitual recycling behaviour.

Monthly Collection Drives- Special collection drives shall be conducted every month to build up momentum and to attract more and more people. These will involve rewards programs—such as rewarding contributors with gift cards, certificates or recognition. This gamified experience is not only engaging, but will also promote healthy competition and peer pressure in the realm of sustainable actions.

Real-time tracking dashboard- Total e-waste collected across departments or office branches.CO₂ emissions avoided, based on verified recycling benchmarks (e.g., recycling 1 tons of e-waste avoids \sim 1.4 tonnes of CO₂).Impact visualizations, such as the number of smartphones or laptops saved from landfill, to make the results tangible and relatable.

Example: 1,000 employees recycling 500 kg/month leads to 6 tonnes/year diverted from landfills, saving approximately 8.4 tonnes of CO₂ annually—equivalent to 4–5 New York–London flights in emissions.

AI for Sustainability Projects

With Artificial Intelligence (AI) powering digital transformation across sectors, the increasingly worrying cost of AI to the environment in terms of energy and water use is also present. Computing power that drives training big AI models and running enormous data centers also spews carbon dioxide and drains resources.

One way to stand up to data bias and other AI prejudices is for forward-thinking companies to start building and launching AI programs based on sustainable practices today. AI for Sustainability Projects are designed to broadly drive sustainable technology development while empowering staff to contribute to new solutions. These efforts reinforce a company's ESG (Environmental, Social, and Governance) agenda and apply employees' creativity and know-how to solve real-life environmental problems.

Implementation Strategy

Hackathons for Sustainable AI Development- The organisation will hold frequent internal hackathons to build energy-efficient AI algorithms, tools, and procedures (Happonen et al., 2022). These events promote innovation that lowers the energy and computation requirements for AI model training, deployment, and inferencing.

Employees can experiment with:

- 1. Lighter machine learning models.
- 2. Efficient data handling techniques.
- 3. Low-power AI applications for internal or customer-facing tools. Winners or top contributors will receive recognition awards, feature in internal newsletters, and possibly have their solutions implemented company-wide.

Green Teams for Data Centre Efficiency- The company will create cross-functional 'Green Teams' comprising IT, facilities, and sustainability representatives responsible for focusing on ways to get the most from energy and water used in data centres. These crews will audit existing infrastructure, look for areas of inefficiency, and suggest ways to build greener infrastructure. Example target: A 30% decrease in cooling water consumption over a period of time, motivated by breakthroughs such as Microsoft's zero-water cooling systems, which are expected to conserve over 125 million litres of water per year in the facility. Other possible initiatives include:

- 1. Adoption of AI-powered cooling automation.
- 2. Transition to renewable energy-powered servers.
- 3. Smart scheduling of compute loads during off-peak energy periods.

Family-Inclusive Programs

Sustainability works best when it is embraced as a new mindset, which reaches beyond the individual in the workplace and becomes a holistic part of working and leisure life for employees

and their families. Although businesses can implement green policies in the office, the most sustainable changes in behavior occur in the home.

Children, in particular, are a force to be reckoned with regarding household behaviour. Studies have proven that children taught about environmental values have a substantial impact on their parents' practices, the reverse learning effect. When employees' families actively participate in sustainability programs, it leads to greater accountability, motivation, and long-term cultural alignment with corporate ESG goals. Thus, by implementing family-inclusive programs, the organisation not only builds a stronger sustainability culture but also nurtures the next generation of environmentally responsible citizens.

Key Initiatives and Implementation Strategy

EcoBuddy: AI Chatbot for Children- EcoBuddy is an AI-powered, gamified digital companion that provides fun, interactive, and meaningful environmental education to children aged 6 to 14. Launched in line with MKB's family-inclusive sustainability strategy, EcoBuddy plugs the gap between corporate environmental mission and household-level footprint by fostering eco-friendly behavior at a young age (Roopashree, 2023).

EcoBuddy is not just a chatbot; it is a learning partner for everyone, a behavior coach, and a digital role model. The approach is consistent with the organization's vision of children as powerful change agents capable of changing household practices and passing on new ways of thinking from one generation to another. With age-appropriate language, interactive storytelling, and immediate feedback, EcoBuddy fosters a love for the environment in a way kids already love— playful, personal, and tech-enabled.

How It Works:

EcoBuddy offers daily and weekly eco-challenges such as:

- 1. "Turn off all unused lights in your home."
- 2. "Take a no-plastic pledge for one week."
- 3. "Reduce screen time by 1 hour daily."
- 4. Children earn digital badges and eco-points by completing tasks, which contribute to a family sustainability score.
- 5. The chatbot also shares fun facts about nature, quizzes on recycling, and interactive stories on climate change and AI ethics.
- 6. Sustainability at Home Campaigns- To engage the entire family unit and foster community spirit, the organisation will run quarterly campaigns focused on practical, home-based sustainability actions.
- 7. Competitions for Energy Savings- Families compete to consume less electricity at home. A home energy audit toolkit is given to participants, and winners are acknowledged on social media and in corporate newsletters.
- 8. Cleanup Campaigns in the Community- These family-friendly events, which are sponsored by the company and organized locally, unite staff members and their loved ones in cleaning public areas, such as parks, beaches, or local streets.
 - a. The goal of each drive is to gather at least one tonne of waste.
 - b. Certificates and eco-goodie bags are given to participants as rewards.
- 9. Awareness Kits for Carbon Footprints- Families receive printable or digital kits to track how much plastic, electricity, and water they use at home. This encourages self-monitoring and well-informed decision-making.

By engaging families in sustainability, the agency promotes eco-friendly practices in a more comprehensive and durable manner. Employees develop a stronger emotional bond with the company's mission, families become micro-environments of change, and kids become eco-champions. In addition to improving employee engagement and retention, this establishes the business as a morally upright and socially conscious employer. When combined, these initiatives

contribute to the transformation of sustainability from a business endeavour into a way of life that is taught, lived, and appreciated by people of all age.

Recognition & Impact Visibility

By honoring success and revealing the environmental consequences, the organization builds a culture where sustainable behaviours are visible, worthy, and contagious. This method encourages good behavior and promotes shared responsibility and pride.

Green Champion Awards- Recognize staff or teams every month or every quarter who are making an outstanding contribution to sustainability. Whether they have come up with a great project, are good at recycling, or are out there in the community. Winners get digital certificates, recognition in internal newsletters, and environmentally friendly gifts like solar-powered gadgets or plantable seed kits.

Family Eco Ambassadors- Kids or family members who participate through platforms like EcoBuddy or in family sustainability challenges can earn the "Family Eco Ambassadors" designation for being active community members. They could appear in company bulletins or be surprised with eco-hampers—a way to make intergenerational connections.

Sustainability Leaderboard- A leaderboard shows the best-performing individuals, teams and office locations by category, such as e-waste collected, energy avoided or AI-based green innovation. This game layer encourages competition and exposure.

To achieve transparency and make all stakeholders accountable, the company will roll out interactive dashboards on internal platforms that will display:

- 1. Real-time Metrics: Information on collected e-waste, energy saved, CO₂ emissions avoided, and water preserved by region.
- 2. Progress Visualization: Appealing infographics and visual analogs, "enough energy saved to power 300 homes for a day" or "CO₂ reduction equivalent to 50 flights from Delhi to London" to make the impact tangible.
- 3. Personalised Impact Reports: Individual or team reports are available for employees based on their efforts and successes over a period of time. These can be tied to performance reviews, learning pathways, or ESG goals.

Expected Outcomes & Scalability

Applying the SEF is anticipated to enable a significant overall effect along the participatory dimensions. Indeed, measures taken by employees and their families will change their behavior towards the environment, regardless of the response directions at the organizational level. This transition from passive knowledge to active involvement will establish a sustainable mindset that is based on daily practice. Increased employee involvement is another significant result. By engaging staff in authentic green efforts and upping the feedback loops and gamified systems through which the organization recognizes their contributions, the company can increase motivation and ownership and gain job satisfaction.

At the company level, the SEF will result in a tangible decrease in the ecological footprint. Some will yield immediate results, and e-waste recycling campaigns, AI energy-saving projects, and family-based conservation campaigns will reflect real cuts in resource consumption and carbon emissions. Moreover, these initiatives will bolster the company's environmental, social, and governance (ESG) image, paving the way for socially conscious investors and fortifying the brand's reputation. Strategies in other sectors, while informally assessed, are expected to promote

intergenerational awareness through family interventions (e.g., EcoBuddy), by encouraging 'green thinking' and creating a generation where practices related to cultural advice of ancestors are kept in a particular style. Real-time dashboards and reporting will provide visibility and actionable reporting to drive ongoing improvements and informed decision-making.

Although internally consistent, we ensured that scalability is built into the SEF, and never tones down the ability of the SEF to be responsive to a wide range of organizational scales, types, and locations. Phased deployment lets an institution test the framework in small areas, for example, in a department or a regional office, before rolling it out further once it has proven effective and has been fine-tuned. Technological interventions, such as AI-based solutions and digital networking platforms, enable a quick implementation with minimal infrastructural investment. Although the SEF is designed primarily with the corporate setting in mind, the principles underlying it can similarly be applied by educational institutions, government departments, and NGOs with minor modifications.

Standardized toolkits, training materials, and best practice playbooks will be created to support broad adoption so other units or partnering organizations can easily replicate the model. Strategic relationships with sustainability advisors, tech developers, and community organizations will also aid expansion and development. Finally, integrating the SEF into the organization's wider business and HR strategies will ensure that sustainability is integrated in the organization's long-term strategic vision and will therefore be perceived as an advantage, not a project. In conclusion, the SEF is effective and scalable, providing a recipe for encouraging sustainable change from the inside out.

CONCLUSION & FUTURE RESEARCH

This blueprint sets out actionable guidance for organisations looking to take a leadership position in responsibly adopting AI. The effort creates environmental awareness individually and collectively by including a Sustainability Engagement Framework (SEF) with emphasis on both the employee and their families. It enables the workforce to take the green initiatives, such as driving down AI's carbon footprint through the power of the nudge.

Moreover, by engaging families, especially children, in sustainability challenges and learning, the plan enhances the employer value proposition (EVP), establishing the business as a values-based future-ready employer. The framework also enables the setting of clear, measurable standards that help organizations measure their progress and their accountability on their journey toward responsible AI.

It is, however, possible for further studies to investigate the longer-term effects of such engagement strategies. One such opportunity is a long-term investigation on gamification's role in maintaining environmental behaviour change. By tracing the role of game-based incentives in impacting long-term motivation and participation, the framework also helps develop a model that helps keep environmentally conscious behavior intact.

Moreover, cross-cultural applicability of the SEF might be studied in terms of how family functioning and environmental worldviews differ across locations and how this might impact strategy effectiveness. Another interesting path is building intelligence and data analytics into personalizing sustainable actions for greater impact. By integrating this behavioral lens with digital tools, future research has the potential to achieve new levels of engagement and efficiency. Ultimately, this proposal outlines immediate steps for reducing AI's environmental cost and lays the groundwork for ongoing innovation in green workplace practices.

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