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Human-Centric and Sustainable Digital Transformation: Are Higher Education Institutions Ready to Manage and Develop Talent in the Age of AI?

This paper examines whether Higher Education Institutions in SA are ready to strategically implement Human-centered and sustainable digital transformation in the age of Artificial Intelligence, together with its potential opportunities as well as challenges. The paper uses a qualitative research methodology using secondary sources searched from various databases and identified using carefully selected keywords. Findings show that adopting HCAI can significantly transform Higher educational outcomes along with administrative efficiency, but that its successful integration requires firstly addressing limitations such as those of infrastructure, ethical concerns, leadership, existent organizational culture as well as other strategic frameworks. The paper ends by showcasing implications for both policy and practice, as well as areas for further research.
Keywords: Artificial Intelligence (AI), Human-centric AI, Higher Education Institution, HEI Administrator, Talent management
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Introduction

In the long history of human development, efforts have been continuously sought to extend our physical and mental reach to go beyond our current limitations, by means of developing technologies that meet our needs and satisfy our desires (Han, Kelly, Nikou & Svee, 2021). As a result, Artificial intelligence (AI) has grown explosively over the past few years. The definition by Berente et al. (2019) suffices, which states that "… AI is machines performing cognitive functions that we typically associate with humans, including perceiving, reasoning, learning, and interacting with others."
The higher education sector is currently undergoing profound shifts driven by digital transformation and artificial intelligence (Kayanja, Kyambade & Kiggundu, 2025). It is important to note that AI is not confined to one or a few applications in the higher education sector, but rather, it is a pervasive economic, societal, and organisational phenomenon (Tundrea, 2020). Artificial Intelligence (AI) is reshaping our lives, and in the HE landscape, by accelerating change which promises among other things, enhanced learning experiences and administrative efficiencies (Gattupalli & Maloy, 2024; (Department of Communications and Digital Technologies (DCDT), 2023). At its core, education is about people. It is about relationships between students and lecturers, mentors and mentees. An institution of Higher Learning is not just a place of knowledge transfer; it is a community where students develop holistically - as individuals, citizens, and professionals. It therefore remains undisputable that the human element is critical, and AI must be adopted while taking cognisance of this.
In spite of the promised administrative efficiencies of adopting AI in HEIs, a major challenge exists-that of talent management. Talent management in HEIs traditionally focused on hiring, appraisal, promotion, and retention; but in this era, the focus has shifted to include digital and AI competency, leadership with digital literacy, continuous professional learning, and change management (Vashist, 2025).
While there is prolific literature on how HEIs are adopting AI and other digital transformations, a gap exists in how it can be possible to adopt AI in manner that is both human-centric, sustainable

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as well as ethical. It also remains to be established how HEIs can manage and develop their talent in order to support such adoptions and still thrive in this era of AI

Existing research has by-passed the examination of digital transformation, sustainability, human-centricity as well as talent management in higher education institutions, hence this research paper seeks to answer: How do HEIs recruit, develop, retain, and even lead academic as well as administrative staff in a manner that supports sustainable and ethical AI adoption? Do HEIs have the capacity to make sure that their human capital is AI-literate, in a manner that is aligned with human-centrism as well as sustainability? Do they have in place policies, culture, governance, as well as resources to support such readiness?

Literature Review

A brief description of the keywords is necessary to put the study into perspective. *Human-centric Artificial Intelligence* (HCAI)I is the development of artificial intelligence (AI) technologies that prioritise human needs, values, and capabilities at the core of their design and operation, and emphasises the central role of the human element in the AI revolution (Interaction Design Foundation, n d). In other words, this transformation emphasises the centrality of human values: fairness, ethics, well-being, inclusivity, human oversight and emotional intelligence. HEIs adopting AI need frameworks for ethical AI, governance, oversight, transparency, bias mitigation (Radanliev, 2025).

Sustainable Digital Transformation (AI) in HEIs- why it matters

Sustainability in this context means long-term institutional resilience, socially equitable access, environmental impacts of technology, and balancing innovation with responsible practice. HEIs are being challenged to lead by example.

We find ourselves at the convergence of three seismic forces, namely: the rapid evolution of artificial intelligence, the need to preserve the human essence in higher education amidst the rising AI, and the increasing urgency to address sustainability in everything we do. In our pursuit of technological progress, we cannot lose sight of the issue of sustainability – it is not just an environmental concern (although reducing the carbon footprint of our digital infrastructure is a major priority). Rather, it is also about social and economic sustainability - but in what ways?

- Environmental sustainability: Reducing carbon footprint via online learning and efficient technological use
- Economic sustainability: Long-term cost savings through AI-driven efficiencies
- Social sustainability: Ensuring equitable access to AI resources and tools
- Sustainable development goals (SDGs) alignment in higher education

Higher Education Institutions (HEIs) have an important responsibility towards society's sustainable development (Kräusche & Pilz, 2017), more so in the education of future generations in sustainability awareness (Amaral et al., 2015). It is noteworthy that access to knowledge is not only restricted to the physical space of HEIs; but is also found in different platforms, applications and open-source browsers that are available to people who wish to learn about different subjects (Valdés et al., 2021). Given this background, HEIs - which have traditionally been the center of knowledge production and dissemination for a long time - are experiencing profound changes brought about by the social and technological trends of digital transformation (Nikou & Aavakare, 2021; Nurhas et al., 2021). This calls for a paradigm shift across institutions, and a redefinition of their business models (Rodríguez-Abitia & Bribiesca-Correa, 2021; Benavides et al., 2020). The future of AI in higher education must align with the principles of sustainability by developing technologies that not only propel us forward but also preserve the planet and create opportunities for all members of society. HEIs are therefore encouraged to support sustainable development through their physical infrastructure, decision-making processes, as well as in their pedagogical issues (Fuchs et al., 2020) so as to guide deliberations towards sustainability throughout the entire

university system, which is inclusive of education, research, campus operations, community outreach, as well as assessment and reporting (Lozano et al., 2013; Kapitulčinová et al., 2018).

Talent Management and Human-Centered Artificial Intelligence (HCAI) in Higher Education

Artificial Intelligence (AI) has enabled HEIs to explore Human-Centered Artificial Intelligence (HCAI) approaches to support the strategic development, retention, and engagement of their administrative staff in order to achieve their goals (Funda, 2023). In this way, human needs are prioritised, and technology enhances rather than replaces the human being and his judgement (Shneiderman, 2020). Human beings are left in control, and this means maintaining human oversight, decision-making authority, and intervention capabilities over AI systems. This ensures that AI only acts as a tool to assist humans, rather than replacing or operating independently of human judgment; AI should augment human capabilities rather than replace them. Users should have control over AI tools and their applications, so that they remain empowered to make final decisions and use AI only as a supportive tool.

- HCAI can assist in talent acquisition processes in HEIs by providing data-driven insights while maintaining human oversight. For example, while recruitment platforms that are AI assisted can help to identify suitable candidates, a human-centered approach remains critical to ensure that selection is guided by the human element (Brynjolfsson & McAfee, 2017).
- Within the HEIs, HCAI platforms can check performance and work engagement to come up with developmental plans, a process which allows employees to upgrade themselves whilst aligning their personal growth with institutional goals (Lukin et al., 2016).
- As regards Talent management, Human-centered AI promotes ethical considerations in all applications, such as removing bias in areas such as performance evaluations, or in making decisions for promotion or retention. Maintaining human autonomy thus upholds fairness and inclusivity, which can bring about both trust and engagement amongst employees as well as management (Crawford, 2021).
- By incorporating the human element to recommendations that are proposed by AI, institutions of higher learning can improve on their strategic workforce planning, such as in timeously identifying where there are skills gaps, and in predicting what future talents will be needed as the educational landscape continues to evolve. This ensures that AI simply informs but does not necessarily replace or usurp the decisions of leadership, thereby balancing human judgement and technological support.

Figure 1 below is a diagrammatical representation of how HCAI can drive HEIs Talent management towards the accomplishment of the goals of Higher Education.

Tools that are AI-powered assist in processes such as recruitment and training, which in turn promote enhanced employee and student outcomes as well as operational efficiency, leading to a more skilled workforce which performs more efficient administrative functions, and students who are better-prepared for the job market-all contributing towards the success of the HEIs (Moola, 2024).

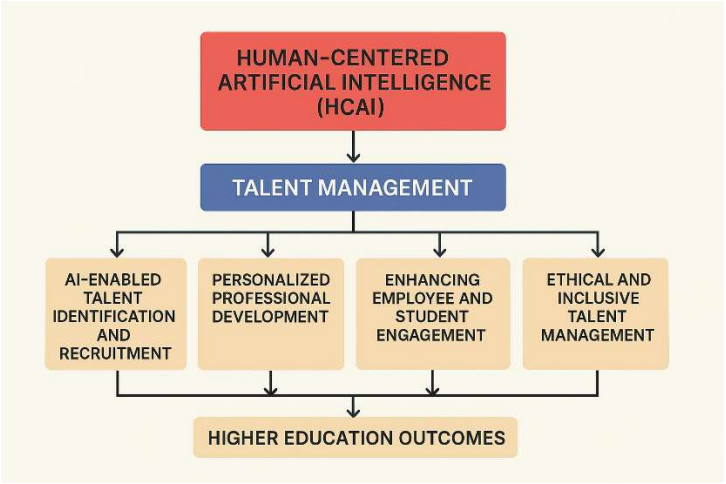

Figure 1: Interplay between HCAI, Talent Management and HEI outcomes
Source: Adapted from PMI's Business Analysis Guide

Challenges and Considerations

While the adoption of HCAI in HEIs presents tremendous opportunities for talent management, the acquisition and use of such advanced technologies in HEIs have generally remained low due to several emerging challenges (Ade-Ibijola & Okonkwo, 2023), inclusive of digital illiteracy, staff unpreparedness, and lack of integration with existing HR systems. Effective implementation of HCAI is not only about securing technological infrastructure but also entails organisational policies that prioritise ethical use, human oversight, and continuous evaluation of AI's impact on talent development (Shneiderman, 2020). According to Barnes and Hutson (2024), there is an apparent absence of strategic planning as well as of institutional frameworks to enable effective harnessing of AI in transforming HEIs. As a result, many HEIs end up adopting AI tools in an ad hoc manner, which leads to fragmented and inconsistent implementation, a phenomenon which is only reflective of a serious lack of cohesive strategy in this regard.
These challenges also include the problem of acquiring the necessary skills, the absence of a structured data ecosystem, ethical considerations, government policies, inadequate infrastructure and network connectivity (Ade-Ibijola & Okonkwo, 2023). As such, these challenges could balloon out of the HEIs and significantly affect continental economic development if left unaddressed (Chatterjee & Bhattecharje, 2023; Wang'ang'a, 2024).

HEI readiness to navigate Human-Centric AI in Talent Management

Integrating AI into HEIs can enhance administrative efficiency, improve student services as well as data-driven decision-making, but in South Africa, the adoption of AI in education remains limited (Patel & Ragolane, 2024). There is therefore a need for more and diversified research to bring about a deeper understanding on this subject of AI integration in workspaces.
As mentioned earlier, the question that needs to be answered is: Are HEIs ready to navigate AI in Talent management in a way that is both human-centric and sustainable? The answer lies in their ability to embrace both innovation and responsibility, and some of the best practices for AI integration are:
HEI Administrators and managers can embrace Human-Centered AI (HCAI) by actively integrating AI technologies that align with human values, ethics, and the specific needs of the educational environment, such as fostering an ethical and transparent AI culture, investing in AI literacy and training for staff and other faculty members; ensuring stakeholder involvement in AI

adoption as well as Human-AI Collaboration in decision-making. At national level, support for this exists through several key policy documents as well as frameworks, which are only waiting to be implemented.

Methodology

The study employed a qualitative research methodology using secondary sources which included academic journal articles sourced from various databases such as Google Scholar, JSTOR, SCOPUS, university repositories, as well as government gazettes and frameworks. These sources were identified using the following keywords: "AI," Human-centric AI, "Higher Education Institution," HEI Administrator and Talent management. The aim was to use these concepts, their components, as well as their relationships to come up with adequate information on the adoption and implementation of HCAI in HEIs in South Africa.The population comprised 104 hits of articles that closely resembled the topic as accessed from the afore-mentioned databases, but only 28 were very close to the topic under discussion. This low number is because the topic of AI has rarely been researched on in tandem with sustainability, ethical issues as well as human centeredness in HEI settings. This therefore became the sample, and the documents were from the years 2020 to 2024. Thematic analysis of direct citations gleaned from the reviewed articles was done, with the most relevant and recurring verbatims being from the works of scholars such as Czerniewicz et al. (2020); Lubinga, Maramura & Masiya, 2023; Valle-Cruz, Garcia-Contreras & Munoz-Chavez, 2024), which are mentioned under the results section, and further analysed as themes under the discussion section. Data were reported as accurately as possible in keeping with the research code of ethics (Tripathy, 2013). The study is geographically limited to universities in South Africa.

Results- are institutions ready to manage talent?

A number of studies have shown that, in spite of the numerous academic discussions on the opportunities and challenges of AI adoption in HEIs, several obstacles still exist, mostly bordering on the issue of strategic readiness. This is inclusive of resistance from both students and staff, with one of the primary concerns being the lack of adequate infrastructure and resources. For instance, as mentioned by Czerniewicz et al. (2020), many universities and TVET colleges in South Africa, more so those located in rural areas, face the acute challenges of insufficient technological infrastructure, which in turn impede the effective implementation of AI systems. Such a technological gap presents a significant problem, since access to reliable internet and modern computing facilities are essential prerequisites for leveraging AI in Higher education.
Results also show that a lack of awareness as well as of an understanding of AI's potential benefits significantly impedes the adoption of AI. Members of staff may be reluctant to adopt AI technologies due to unfamiliarity with these tools-they may never have been trained to use them (Lubinga, Maramura & Masiya, 2023) or it could be because of fear of the unknown. Lubinga et al., (2023) mention that this fear could stem from not only the apprehension about learning new technologies but also about the almost certain potential displacement of traditional teaching roles as they have known them, as well as the perceived threat of AI replacing human educators, which this paper is addressing.
The aim of this research article was to establish how HEIs can recruit, develop, retain, and even lead their academic as well as administrative staff in a manner that supports sustainable and ethical AI adoption; to establish if HEIs have the capacity to ensure that their human capital is AI-literate, in a manner that is aligned with human-centrism as well as sustainability, and to establish if these HEIs have in place policies, culture, governance, as well as resources that support such readiness. From the results, strategic readiness comes in as a remedy. HEIs can position themselves to stand ready by putting in place the relevant and necessary strategies as well as infrastructure, which will enable them to transform their staff members to be AI-ready. In their quest for such readiness,

HEIs are strongly supported at national level, through policy documents such as the National Digital and Future Skills Strategy (2020), the National Development Plan (2030), as well as the DHET Strategic Plan / Revised Strategic Plan (2025–2030), amongst others. These are documents that focus on developing digital skills and preparing the South African workforce for the Fourth Industrial Revolution. Such policy documents compel HEIs to develop curricula that are aligned to national goals and thus enabling them to be AI-ready.

Discussion

Literary sources that were consulted in the writing of this paper reveal that AI adoption is influenced by many factors, such as existent perceptions and other practical obstacles (lack of resources, indecisive views on the benefits of AI, the digital skills gap existent in HEIs, as well as fear of the unknown). For the value of adoption of AI to be clarified and embraced, and for the existent challenges to be ironed out, there is need for establishing an awareness of the implications of adopting AI, more so when it becomes human-centered. This will do away with the fear of human beings being replaced by machines. There is also a need to adequately train members of staff on AI adoption, as well as look into their professional development, which will enable them to embrace AI in their daily operations, with more efficiency, all to the benefit of both the institution and the communities that they serve (Lubinga et al.,2023a)

Yet another significant challenge is the cost of implementing AI technologies. The ability of many South African HEIs to invest in AI technologies is held in check by budgetary constraints which prohibit investment in advanced AI systems as well as the accompanying support infrastructure (Czerniewicz, 2020).

Training for successful adoption and integration of AI technologies is an expensive venture, while on the other hand, the absence of managerial support (and strategic direction) can cause the manifestation of resistance towards adopting AI technology. Where strong and supportive leadership is not visible, any efforts to adopt AI technologies will be futile and held in contempt by staff members (Valle-Cruz, Garcia-Contreras & Munoz-Chavez, 2024). This underscores the need for AI to be human centered so that it will be easily embraced by the users.

Implications

This paper has implications for policy makers within the HEIs. They must carry the burden of making AI skills mandatory before hiring, for promotional purposes as well as in the periodic performance reviews. For the staff that is already within the employ, the policy makers need to establish training to ensure that they at least obtain the basic or core AI literacy, which must be compulsory, and not just taken up as elective modules. Furthermore, policy makers must ensure that they invest in adequate AI infrastructure, reliable internet as well as power, especially for HEIs that are situated in more remote areas.

The paper also has implications for practice. At HEI level, intensive capacity building could be implemented, such as on-going professional development and workshop attendance that conclude with meritorious certification of successful participants, not just certificates of attendance.

A culture of experimenting with AI technologies can be established, and safe spaces created where new AI tools can be tried out without fear of repercussions or reprisals.

Areas for further research can be on existent staff perceptions and beliefs about AI, why they resist it (where applicable) and the possible support that they need to fully embrace and trust AI, especially when it centers human needs as well as their values.

Conclusion

There are strong indications that AI has the potential to usher in more benefits when compared to any other technology ever introduced in the last century. Incorporating HCAI into talent

management enables higher education institutions to strategically develop and retain their human capital while promoting fairness and ensuring employee engagement in the age of AI.
For HEIs to successfully navigate the age of AI in a sustainable and human-centric manner, talent management is critical. Literary evidence suggests that while many HEIs are aware of the opportunities presented by AI, actual readiness is mixed, as some institutions stand ready, while others are dogged by inadequate infrastructure, staff (in)competence and prevailing organisational culture.
In conclusion, success will only meet with those HEIs that not only adopt AI technologies but also take time to invest in people, align their policies and offer rewards to deserving employees. Particular attention needs to be given to under-resourced institutions so that they measure up and not get left behind.

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