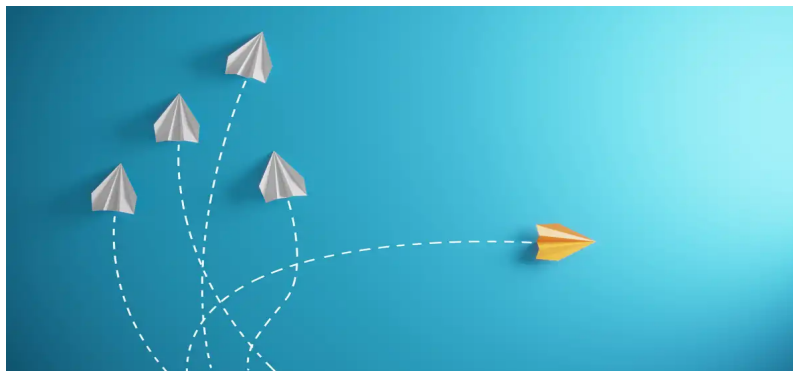


# Human-Centred Data-Driven Change Management Plan

## BUSA8030 Assignment 3

### Future of Work



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## Executive Summary

This report presents a change management plan addressing the AI integration into the game development industry. By understanding game developers' perspectives, we have identified the key issue: balancing the transition to AI while ensuring job security and work-life balance for developers, and mitigating fears around upskilling.

- **Upskilling Programs:** Comprehensive AI-related training for developers to equip them for the changing industry landscape.
- **Role Adaptation:** Redefining job roles to integrate AI skills, thus maintaining creative expertise while leveraging AI efficiencies.
- **AI Tools for Developers:** Providing AI tools tailored to assist developers, enhancing productivity and work-life balance.

Communication and change management strategies are crucial for the successful implementation of these solutions. The ethical implications of AI integration and responsible AI usage guidelines should also be considered.

Overall, the proposed plan presents a balanced approach to AI transition in the game development industry, fostering a culture of continuous learning, collaboration, and innovation to secure a prosperous future.

# Introduction

Work environments and roles are constantly changing as new technologies continue to evolve. These new technologies enable them to provide competitive advantages for each organisation or individual. They also push everyone to stay updated and agile to keep up and stay caught up with it.

Currently, digital tools are crucial in every organisation, making work processes more efficient. The most popular tools nowadays are Enterprise Resources Planning, Office Package, etc. Another aspect that needs to be considered is emerging tech which is a technology in the beginning phase but has massive potential to change the whole technology landscape. One emerging technology is Artificial Intelligence (AI). From its definition, it can act like a human brain but is being trained with programs and systems. However, as AI improves, it is often seen as a threat as it might replace humans in specific roles.

Interestingly, the rise of AI also opens a new avenue for people to work with it, not against it. As a result, using AI can help reduce the time spent on tasks and improve efficiency, leading to a better work-life balance. This is beneficial for both employees and organisations.

Consider game developers. They rely heavily on technology, designing and creating products using various programming languages. One of the biggest challenges in this industry is the lengthy development process, followed by a tight schedule set by the decision-makers. This often leads to stress and pressure among developers. But with the help of AI, the workload can be reduced, fostering a healthier work culture.

In this paper, we will discuss how game development organisations can create a change management plan to handle the rise of AI. We will propose solutions, based on a data-driven focus while being supported with a human centred approach that will be incorporated to our change management plan.

# Challenge Justification and Problem Statement

## Challenge Justification

Workers often hear about the potential of AI to replace specific job roles, creating a climate of fear and uncertainty. Research conducted by Presbitero and Calleja (2023) has stated that AI taking over jobs has been a source of psychological distress in tech companies after conducting factor analysis on interviews with employees of various tech companies. However, there are also success stories of how AI has streamlined operations and created more opportunities for creativity and innovation. For example, in Portugal, complimentary effects of automation are felt where workers in mundane jobs like bank tellers felt more creative in their work and enhanced problem-solving skills as ATMs took over their jobs as money dispensers and allowed them more time to think for themselves. (Bacao et al.2022, pp.356).

While developers might fear the implications of AI for their job security, they might also be intrigued by the potential to reduce their workload, particularly during crunch periods. They may feel anxious about learning new skills but are also excited about the potential to innovate in their field.

Game developers are likely beginning to learn about AI, taking courses or participating in training programs. They may experiment with AI tools, testing the waters for a possible shift in their job roles. Developers are worried about job displacement and the mental and physical toll of crunch periods. The idea of constantly updating their skills to keep pace with technological advancements can be overwhelming. On the positive side, developers stand to gain significantly from AI integration. They can envision more streamlined workflows, less stress during crunch periods, and a more balanced work-life schedule. The possibility of focusing more on creative aspects of game development instead of routine tasks is also a compelling prospect.

## Group 10 - The Mystery Machine

### **Problem Statement: The AI Shift and Its Implications**

With our understanding of game developers derived from the empathy map, we have identified a critical issue in the gaming industry: integrating Artificial Intelligence (AI) technologies. This emerging trend holds the potential for a significant shift in job roles within the gaming industry.

The advent of AI brings along a raft of changes. For one, the manual coding and bug-fixing demand may decrease as AI technologies advance and take over these repetitive tasks. This has implications for job security as fears of AI replacing human roles become more tangible.

This shift towards AI integration in the gaming industry presents a steep learning curve for game developers. Learning new skills and adapting to a swiftly evolving technological landscape can be daunting for many. In addition, the potential displacement of employees and the pressure to acquire new skills creates uncertainty and anxiety among game developers.

Furthermore, the pressure of crunch periods, and intense bursts of work to meet set deadlines, is prevalent in the game development industry. The AI shift can significantly alleviate this problem by automating routine tasks and, thus, reducing the workload on developers. However, the effective implementation of AI technologies to address this problem is still a work in progress.

This problem has far-reaching consequences, directly impacting employees' well-being, job satisfaction, and career progression. It also influences the industry's talent acquisition strategies and future readiness to leverage AI technologies optimally. Therefore, we propose a holistic solution to this problem where a Data-Driven focus solution will be supported with a Human Centred approach to balance the human and technological elements.

# Potential Solutions and Solution Development

Getting real-time data with high quality and accuracy enables them to have trustworthy and valuable insights through AI implementation. Gaining insights for critical decisions in the gaming industry can be achieved with advanced analytics. It will provide different analyses required, such as descriptive, predictive, prescriptive, diagnostic, and autonomous analytics, which will offer continuous improvements to the game, such as testing whether the new game can be marketable, bug fixing, updates based on feedback, and advertising relevant social media advertising. AI algorithms will be able to reduce time spent on repetitive tasks by helping them with programming language generation, data mining, and policy breach detection, allocating more time to focus on creative and high-level aspects of game development, resulting in player experience enhancement.

Game engines are the backbone of game development, and adaptation in AI-based game engines will optimise the current capabilities. It can assist with graphic rendering, providing an asset library, networking library, cross-platform support, and virtual/augmented reality, leading to more visually impressive games and personalised gaming experiences as developers have more time with game engine improvements rather than creating from scratch. Changing audio development to AI-powered can enhance sound design and improve gaming experiences. AI can help develop required audio, such as audio triggers, audio effects, voiceover, dynamic music, and cutscene music sequencing, reducing the manual workload of creating audio before resulting in a streamlined audio production and enabling developers to create rich and interactive audio environments. Graphic design's role in the gaming industry can be leveraged with the emergence of AI. Essential workloads in graphic design, such as artwork/3D modelling, game animation/visual effects, user interface, and level and world design, can be automated with the help of AI-generated content, improving the process of workload and reducing the manual labour required. Hence, developers can focus on the game's artistic vision and storytelling aspects.

Game development companies can use technologies to improve current business processes and workflows to streamline the process from ideation to production. This will change the current role and organisation culture, leading to more intimate connections and trust between employees. Technologies also enable the company to provide learning opportunities/training based on past mistakes to mitigate them in the future. Suitable collaboration is vital to ensure the game can be marketable when released. Emerging technologies such as AI can help with these internal collaborations, such as communication, supportive work environments, online communication platforms, reorganising people based on their similarities, and providing overlap zones, leading to promoting productivity and a positive work environment. In addition, external parties can collaborate with customers and streamers for better advertising strategies.

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In the solution development phase, we have identified two solutions that address the challenges posed by the AI shift in the game development industry. These solutions have been carefully selected based on their significance in addressing the needs of stakeholders, the socio-economic issue at hand, and their alignment with data-driven approaches.

### **Human-Centred Approach: Role Adaptation**

Human-Centred Approach works by incorporating human decision with the change management plan. By positioning themselves from the point of view of the employee, managers can define a new way to adapt AI technologies in the workplace. From the discussion above, we proposed two solutions from the perspective of a human-centred approach. The first one is job role redefinition, which means that all conventional job descriptions are now re-engineered by considering the presence of AI in them. Zhao et al. (2022) stated that effective and fluent AI collaboration with humans came from the degree of its adaptability to human behaviour. With this adaption, game developers can maintain their contribution while leveraging the benefits offered by AI. This solution aims to address the stakeholder's need for job security and align with the industry's socio-economic issue of skill transformation.

Another implementation based on our discussion is individual adaptability to the new innovating technologies. Based on the research from Trenerry et al. (2021), adaptability in the workplace requires resilience and personal characteristics. Therefore, companies can help programmers to engage more with the AI transformation by creating comprehensive upskilling programs for game developers. These programs can equip developers with AI-related skills and knowledge to navigate the industry's changing landscape.

Additionally, Jaiswal et al. (2022) also added that the management should not ignore the need to upscale the soft-skill side of employees, such as leadership and communication. It was believed that it would enforce employees' empathy and intrapersonal relationship with others, which will remain relevant to assess the effect of AI at the workplace in the future. Furthermore, it addresses the socio-economic issue of job displacement by empowering developers to remain competitive in the AI-driven era.



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### **Data-Driven Focus: AI Tools for Game Design**

Our data-driven recommended solution focuses on developing and enhancing AI tools tailored explicitly for game developers. First, we focus on the game's adaptivity through machine learning. Adaptivity aims to improve the transformation of information within the gaming context, which has not been included in the existing model based on the characteristic of the player and gameplay (Vandewaetere et al., 2013). By adopting machine learning, the interaction between the current player and Non-Playable Characters' (NPC) artificial intelligence will match the previous player's performance, automatically collected and adapted to the game content (Lopes, 2020). Therefore, by considering player preference automatically through machine learning algorithms, game developers can design a game with a better gaming experience and increase their productivity and efficiency simultaneously, leading to work-life balance and reducing stress.

Game developers also rely on technical aspects of technology that can help in their field of development, such as audio engine and graphic design software. Audio engines are responsible for audio/sound effects, music playback, and voiceovers, where modern technology can assist in dynamic audio mixing and effects processing. Graphic design software enables artists and designers to create visually appealing characters, worlds, and visual effects. Advanced tools like 3D modelling software allow models and characters to be designed and amplified through the artists' creativity and imagination (Firat, 2021). Audio and graphics go hand in hand in the sense that it needs to have real-time 3D audio positioning, which is synchronised with the video animation to create an immersive experience for its users.

Both the audio engine and graphic design software are powered by the game engine, which serves as the technology that also powers the game and everything that makes a cohesive gaming experience. In addition to these, having a solid game engine also means its capacity to facilitate and support collaborative gaming experiences, such as features like multiplayer capabilities, cross-platform compatibility, and virtual reality support (Firat, 2021). These modern-day features can help game developers have a state-of-the-art game deployment at the same time, helping them save time and human error.

In summary, the recommended solutions of upskilling programs, role adaptation, and AI tools for developers are strategically aligned with the stakeholders' needs, the socio-economic issue of the AI shift, and the utilisation of data-driven approaches.

# Conclusion

In conclusion, the future of work in the game development industry is undergoing a transformative shift with the integration of AI technologies. This shift brings opportunities and challenges for game developers as they navigate the changing landscape of their roles and skill requirements. Our human-centred data-driven change management plan aims to address these challenges and harness the potential of AI to create a positive and sustainable future for game developers.

Our recommended solutions include comprehensive upskilling programs, role adaptation, and the development of AI tools for game developers. These solutions empower developers with the necessary skills, provide flexibility in job roles, and leverage AI technologies to enhance productivity and work-life balance. In addition, effective communication and change management strategies will ensure successful adoption.

In implementing our change management plan, it is essential to consider the ethical implications of AI integration and establish guidelines for responsible AI use. By prioritising mental health support, fostering a sense of community, and investing in foresight activities, we can create an environment that nurtures the well-being and growth of game developers in the AI era.

Overall, our human-centred data-driven change management plan presents a holistic approach to address the challenges and opportunities the AI shift brings to the game development industry. By embracing these solutions, game developers can thrive in a technologically advanced landscape, ensuring the industry's sustainable and prosperous future.

As we move forward, it is crucial to continually evaluate and adapt our strategies to stay at the forefront of emerging technologies and industry trends. By fostering a culture of continuous learning, collaboration, and innovation, we can shape the future of work in the game development industry and ensure that AI technologies are leveraged responsibly for all stakeholders involved.

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