

The background features a complex digital aesthetic. On the left, a wireframe human figure is shown from the waist up, with a bright, glowing light emanating from the head area. The figure's arm is extended towards the right. The background is a light blue gradient, overlaid with various white and yellow icons and data visualizations. These include a bar chart in the top right, a network diagram with nodes and lines, a dome-shaped building (resembling a capitol building) on the right, and several smaller icons representing different concepts like a house, a person, and a document. The overall theme is digital transformation and human-machine interaction.

EMBRACING DIGITAL TRANSFORMATION

ARE WE READY FOR DIGITAL HUMANS?

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THOUGHT LEADER

DIGITAL HUMANS AND THE FUTURE OF PUBLIC SECTOR INTERACTION

As digital technologies evolve, the concept of digital humans interactive avatars powered by artificial intelligence (AI) and natural language processing (NLP) is transforming how citizens interact with services. Digital humans combine the convenience of chatbots with lifelike interfaces, enabling public sector organisations to deliver more personalised, accessible, and responsive services. By simulating human interaction, digital humans can provide information, assist with applications, and even offer emotional support, making public services more user-friendly and engaging. But are we losing the Humanity that people need by this imposter technology?

This article explores the potential of digital humans in the UK public sector, examining their applications, opportunities, and challenges. Digital humans could revolutionise citizen interaction by providing round-the-clock support, automating routine tasks, and making services more accessible to all. But are we as a society ready to embrace such technology, or do we actually want to talk to a real person?

WHAT ARE DIGITAL HUMANS?

Digital humans are hyper-realistic, AI-driven virtual beings that mimic human behaviour, communication, and interactions. They combine advanced technologies such as artificial intelligence (AI), computer graphics, natural language processing (NLP), and machine learning to create lifelike digital representations capable of engaging with users in real-time. Digital humans are often designed to appear, sound, and behave as realistically as possible, replicating the subtleties of human expression, speech, and gestures.

The concept of digital humans has evolved significantly with advancements in 3D rendering and AI, leading to their integration into various industries, including

customer service, healthcare, training, and entertainment. These virtual beings can take on many forms, from digital customer service agents that assist users online to interactive avatars used in training simulations or therapy sessions.

Digital humans are designed to enhance the user experience by providing personalised, interactive communication. Unlike traditional chatbots that rely solely on text-based interfaces, digital humans can engage in voice conversations, express emotions, and respond to users in a way that feels more natural and engaging. This human-like interaction can create stronger connections with users and make digital services more accessible and user-friendly.

In public services, digital humans have the potential to revolutionise how government agencies interact with citizens. They can be deployed as virtual assistants to answer questions, guide individuals through administrative processes, or provide information about public programs. Digital humans can also play a role in education, offering personalised tutoring and support, or in healthcare, where they could assist with patient intake, triage, and follow-up care.

Despite their advantages, there are challenges associated with implementing digital humans, including the significant resources required for development and the ethical considerations of their use. Ensuring data privacy, managing bias in AI algorithms, and maintaining transparency about interactions with digital humans are key to fostering public trust and avoiding potential pitfalls.

As technology continues to advance, the capabilities of digital humans will only grow, making them more adaptable, intelligent, and integral to various public and private sector services. Understanding what digital humans are and how they can be utilised effectively can help organisations navigate the future of digital interaction, creating more engaging, efficient, and personalised user experiences.

Key elements that enable digital humans include:

- **Natural Language Processing (NLP):** Allows digital humans to interpret and respond to spoken or written language naturally, making interactions more intuitive.
- **Emotion Recognition and Response:** Advanced AI can analyse user tone, sentiment, and body language (in video interactions), adjusting responses to convey empathy and understanding.
- **Machine Learning:** Enables digital humans to learn from each interaction, improving responses over time and tailoring conversations to individual users.

APPLICATIONS OF DIGITAL HUMANS IN THE UK PUBLIC SECTOR

Digital humans, with their lifelike behaviour and advanced AI-driven interactions, are emerging as innovative solutions for enhancing public services. Combining the capabilities of artificial intelligence (AI), natural language processing (NLP), and high-fidelity computer graphics, these virtual beings can communicate with users in a human-like manner. Their use in the UK public sector opens up a range of possibilities for improving service delivery, making interactions more engaging, and streamlining processes across various public services.

One key application of digital humans is in **customer service and citizen support** where virtual agents with human-like features can provide 24/7 assistance on public sector websites, guiding citizens through complex processes such as tax filings, benefit applications, and service registration. Unlike traditional text-based chatbots, digital humans can respond with empathy, use natural language, and engage in conversational dialogue, enhancing the user experience and increasing satisfaction.

Healthcare services stand to benefit significantly from the integration of digital humans with virtual assistants being used for patient triage, providing initial assessments and guiding individuals through symptom checkers or intake processes. They can also offer post-consultation follow-up and reminders for medication, creating a more patient-focused and supportive healthcare environment. By automating repetitive tasks and interactions, digital humans free up healthcare professionals to focus on more complex patient needs. There is also significant opportunities in helping deal with mental trauma, as well as helping vulnerable people engage.

In **education**, digital humans can act as tutors or training facilitators, offering personalised learning experiences to students of all ages. Through AI-driven adaptive learning, these digital beings can adjust their teaching style to match individual learning paces and needs, making education more inclusive and tailored. Public sector training programs can also incorporate digital humans for staff onboarding and professional development, offering interactive training that simulates real-world scenarios.

Public information and outreach are further areas where digital humans can be valuable where government agencies can deploy digital representatives to deliver updates, answer public queries, and provide consistent information during crises or significant events. For instance, during public health campaigns, digital humans can communicate important guidelines and address frequently asked questions, reaching a broad audience in an interactive way that supports comprehension and trust.

However, the deployment of digital humans in public services is not without challenges. Technical requirements and costs can be high, necessitating significant investment in infrastructure, development, and maintenance. Ethical considerations such as data privacy, bias in AI algorithms, and transparency about interactions with digital humans must be prioritised to maintain public trust. The public sector must ensure that digital humans are used Ethically, Responsibly, Sustainably and Inclusively to avoid reinforcing inequalities or misinformation.

The potential applications of digital humans in the UK public sector are vast and varied and with careful implementation and strategic investment, these AI-powered beings can enhance public service delivery, improve citizen engagement, and support more effective and responsive interactions. As the technology continues to evolve, embracing the benefits of digital humans can help the UK public sector lead in creating a modern, interactive, and citizen-focused service landscape.

CITIZEN SUPPORT AND INFORMATION SERVICES

Digital humans can serve as virtual assistants on public sector websites, providing citizens with immediate answers to frequently asked questions. These digital avatars can assist with queries on benefits, tax services, healthcare, and more, offering users a personalised experience.

Opportunities: Digital humans enhance accessibility, providing round-the-clock support without the need for live agents. They can answer routine inquiries, reducing the load on human support staff and improving response times for citizens.

Challenges: Digital humans must be equipped with comprehensive knowledge to answer complex queries accurately. Regular updates and content management are essential to ensure information remains accurate, relevant, timely and correct.

VIRTUAL APPLICATION ASSISTANCE

Public sector applications, such as those for social services, housing, or permits, can be complex and time-consuming. Digital humans can guide citizens through the application process, answering questions, explaining requirements, and helping fill out forms in real time.

Opportunities: By guiding users step-by-step, digital humans reduce errors in applications and improve user experience. They also increase accessibility for citizens unfamiliar with digital applications, providing a more supportive experience.

Challenges: Ensuring data privacy during application assistance is crucial, as digital humans often handle sensitive information, AI must be adept at understanding diverse user needs and adjusting its guidance accordingly.

MENTAL HEALTH AND EMOTIONAL SUPPORT

Digital humans are also being developed to provide low-level mental health support by offering a comforting, non-judgmental presence. For example, a digital avatar could help individuals experiencing stress or anxiety by suggesting coping strategies, directing them to resources, or simply providing empathetic conversation.

Opportunities: For mental health services, digital humans offer accessibility to users hesitant to seek traditional therapy or in need of immediate, informal support. They provide a bridge to mental health services, potentially easing demand on healthcare systems.

Challenges: Effective mental health support requires sophisticated emotional recognition and response. Public sector organisations must ensure digital human interactions are sensitive and do not replace, but rather complement, professional care.

LANGUAGE TRANSLATION AND ACCESSIBILITY

Digital humans equipped with multi-language support can make public services more accessible to non-English speakers, providing translations and helping bridge language barriers. They can also aid citizens with disabilities by offering text-to-speech and speech-to-text capabilities, making information more inclusive.

Opportunities: By breaking language barriers, digital humans help make public services more equitable and accessible. They support inclusivity by offering services to diverse populations and individuals with specific accessibility needs.

Challenges: Language translation technology must be highly accurate to avoid misunderstandings or misinterpretations, this includes the nuances of dialect. Ensuring inclusivity for users of varying abilities requires continuous adaptation and testing.

VIRTUAL COMMUNITY ENGAGEMENT AND PUBLIC CONSULTATIONS

Digital humans can serve as virtual hosts during community consultations, guiding citizens through discussions on local issues, policies, or urban planning initiatives. They can answer questions, collect feedback, and provide explanations of complex policies or plans.

Opportunities: Digital humans encourage civic engagement by making consultations more accessible and interactive which can lead to better-informed citizens who feel more connected to community decisions.

Challenges: Building trust is essential for successful public consultations, and citizens may be hesitant to engage fully with a virtual entity. Digital humans must convey transparency and ensure that citizen feedback is respected and incorporated.

OPPORTUNITIES FOR DIGITAL HUMANS IN UK PUBLIC SERVICES

The integration of digital humans into UK public services offers numerous opportunities to modernise service delivery, enhance citizen engagement, and improve operational efficiency. Leveraging technologies such as AI, natural language processing (NLP), and advanced graphics, digital humans can simulate lifelike interactions, offering a human-like presence in digital environments. This opens up new possibilities for how public services can be offered, making them more accessible, responsive, and engaging for citizens.

The opportunities for digital humans in UK public services are vast, offering the potential to transform how citizens interact with public institutions. By investing in and responsibly developing this technology, the public sector can create more efficient, user-friendly services that meet the needs of a digitally connected population.

IMPROVED ACCESSIBILITY AND INCLUSIVITY

Digital humans can make public services more accessible by catering to different languages, literacy levels, and accessibility needs. By providing support in multiple languages and formats, they make public services more inclusive, allowing individuals from diverse backgrounds to interact comfortably and effectively.

Opportunities: Greater accessibility supports the UK public sector's mission to serve all citizens equitably. Digital humans provide services that adapt to user needs, increasing engagement and trust among underserved communities.

24/7 SUPPORT AND INCREASED EFFICIENCY

Digital humans operate around the clock, providing assistance without requiring human intervention which enables public sector organisations to deliver consistent, timely responses and reduces wait times for citizens seeking information or support.

Opportunities: 24/7 support improves user satisfaction and lightens the workload for human staff, who can focus on complex tasks rather than routine inquiries. It also allows for flexible service access, accommodating citizens with varying schedules.

PERSONALISED, DATA-DRIVEN INTERACTIONS

Leveraging AI and machine learning, digital humans can tailor interactions based on user history, preferences, and needs. This level of personalisation helps citizens feel

more valued and understood, which can strengthen relationships between public agencies and the communities they serve.

Opportunities: Personalised interactions improve engagement and satisfaction, particularly in complex services like healthcare or social support. Digital humans that adapt to user behaviour can guide citizens more effectively, enhancing the quality of service.

COST-EFFECTIVENESS AND SCALABILITY

Once implemented, digital humans can scale easily to serve large numbers of users, making them a cost-effective solution for high-demand services. Public sector organisations can deploy digital humans across departments without needing additional staff, offering an economical approach to expanding service capacity.

Opportunities: The scalability of digital humans allows public agencies to meet fluctuating service demands without significant investment. This is particularly valuable for organisations facing budget constraints or staff shortages.

CHALLENGES OF USING DIGITAL HUMANS IN THE PUBLIC SECTOR

While digital humans present exciting opportunities for enhancing public services in the UK, their implementation is accompanied by a set of significant challenges. Combining AI, natural language processing, and advanced graphics, digital humans are capable of simulating human interactions in a digital space, offering new ways to engage citizens and streamline service delivery. However, integrating these technologies within the public sector requires careful consideration of several critical issues, including costs, data security, ethical implications, and user acceptance.

One of the main challenges is the **cost of development and deployment**. Creating digital humans that are lifelike and capable of complex interactions involves significant investment in both hardware and software. Public sector organisations often operate under tight budget constraints, making it difficult to allocate the necessary resources for building, implementing, and maintaining such advanced technology. Ongoing costs related to system updates, staff training, and technical support can pose long-term financial hurdles as they are much more complex to manage over time.

Data security and privacy are paramount concerns when implementing digital humans. These virtual beings often handle sensitive information during interactions, which raises the stakes for cybersecurity measures. Ensuring that data collected by digital humans is protected against breaches and misuse is crucial for maintaining public trust and complying with data protection regulations such as the UK's Data Protection Act and GDPR. Any lapse in data handling or security could lead to significant repercussions, both legally and in terms of public confidence and individual safety.

Ethical considerations must be taken into account when deploying digital humans with potential for bias in AI algorithms affecting how digital humans interact with users, which could lead to unintended consequences or discriminatory behaviour. Ensuring fairness, transparency, and ethical decision-making within the AI systems that power digital humans is essential for equitable service delivery. The public sector must establish clear ethical guidelines and practices for developing and managing these tools to avoid reinforcing social biases or violating principles of inclusivity.

Public trust and user acceptance present even more challenges with citizens hesitant to interact with digital humans, particularly if they perceive them as less reliable or personable than human representatives. Building confidence in these tools requires transparent communication about how digital humans function, what data they

collect, and how interactions are safeguarded. The success of digital humans hinges on their ability to deliver consistent, accurate, and helpful service experiences.

Finally, **technical and operational readiness** are real barriers where the public sector relies on legacy systems that may not integrate smoothly with advanced AI and digital human technologies. Ensuring compatibility and seamless functionality across platforms requires strategic planning and investment. Moreover, public sector employees need training to effectively manage, monitor, and troubleshoot digital human interactions, which can be resource-intensive and time-consuming.

Despite these challenges, the use of digital humans in public services holds substantial promise. By addressing issues related to cost, data security, ethical practices, and public acceptance, the UK public sector can leverage digital humans to enhance service delivery, improve accessibility, and engage citizens in new, impactful ways.

DATA PRIVACY AND SECURITY

Digital humans interact with potentially sensitive citizen information, especially in services like healthcare or social support. Ensuring data privacy and protecting user information is paramount to maintain trust and comply with data protection regulations.

Solution: Adopting strong data encryption, secure storage, and access controls can protect user data, and regular privacy audits and transparent data policies ensure digital humans handle data responsibly.

PUBLIC TRUST AND ACCEPTANCE

As with any AI-driven technology, public acceptance of digital humans depends on trust. Some citizens may be uncomfortable interacting with virtual agents, particularly in cases involving sensitive or personal information.

Solution: Public sector organisations should clearly communicate how digital humans operate, what data they collect, and how privacy is maintained. Building familiarity through small-scale rollouts and user education can help foster trust.

ENSURING ACCURATE AND RELIABLE INFORMATION

Digital humans need accurate and up-to-date information to respond reliably to citizen inquiries, ensuring that content is accurate and that digital humans can access the latest information is essential to prevent misinformation.

Solution: Implement regular updates, quality control measures, and information sources that digital humans can reference to maintain accuracy. Monitoring responses and collecting user feedback also improve response reliability.

TECHNICAL AND ETHICAL CHALLENGES IN EMOTIONAL RECOGNITION

While digital humans can simulate empathy, accurately recognising and responding to emotions requires complex AI that respects ethical boundaries. Over-reliance on digital empathy can also blur the lines between virtual and real support, particularly in areas like mental health.

Solution: Ethical guidelines should govern the use of emotional recognition in digital humans, ensuring AI responses remain appropriate and transparent. Digital humans in sensitive areas should focus on initial support and guidance rather than replacing human professionals.

FUTURE OPPORTUNITIES FOR DIGITAL HUMANS IN THE UK PUBLIC SECTOR

As digital transformation continues to reshape the landscape of public services, digital humans offer exciting future opportunities for the UK public sector. As outlined above, integrating advanced technologies like AI, natural language processing, and hyper-realistic 3D rendering, creates a new technology capability which can simulate human interactions and provide personalised, accessible, and scalable public services. Their potential applications span across all aspects of the public sector and provide a promising new era of efficiency and inclusivity in public service delivery.

Collaborative partnerships with technology providers and academic institutions can help overcome challenges and accelerate the development of digital human capabilities. By fostering innovation and investing in up-skilling public sector employees, the UK can prepare its workforce to manage and optimise the use of digital humans effectively.

Embracing these technologies thoughtfully and responsibly can lead to public services that are more efficient, personalised, and inclusive, ultimately creating a stronger, more responsive connection between government services and the citizens they serve.

EXPANDING INTO HEALTHCARE AND SOCIAL SERVICES

Digital humans can play a supportive role in healthcare by providing virtual assistants for patient queries, initial assessments, and reminders for medication or appointments. In social services, digital humans can guide users through applications and help individuals access resources.

Opportunities: Digital humans enhance accessibility in healthcare and social support, offering consistent and reliable assistance to individuals who may face barriers to traditional care.

ENHANCING PERSONALISED EDUCATION AND SKILLS DEVELOPMENT

In educational programs, digital humans can provide students with interactive learning experiences, guiding them through modules, answering questions, and offering personalised feedback. This approach could also support adult education and skill-building initiatives.

Opportunities: Personalised digital assistants make learning more accessible and responsive, enhancing engagement and retention. By adapting to individual learning needs, digital humans support more inclusive educational programs.

PROMOTING TRANSPARENT GOVERNMENT COMMUNICATION

Digital humans can serve as virtual representatives in public sector communications, explaining policies, answering questions about government programs, and simplifying complex information for citizens. This approach fosters transparency and accessibility.

Opportunities: Interactive digital representatives can improve citizen understanding of government policies and services, creating a more transparent and accessible public sector building trust and enhance citizen satisfaction.

BUILDING DIGITAL LITERACY AND INCLUSIVITY

Digital humans can guide users through online public services, helping those unfamiliar with digital interfaces. This support reduces digital literacy barriers and improves access to essential services, particularly for underserved populations.

Opportunities: By making public services more user-friendly, digital humans help bridge the digital divide. This inclusivity aligns with the UK's commitment to equal access to services for all citizens.

CONCLUSION

Digital humans represent a transformative opportunity for the UK public sector, making citizen interactions more intuitive, personalised, and accessible. By adopting AI-powered virtual assistants, public sector organisations can provide consistent, empathetic, and effective support, streamlining service delivery and enhancing user experiences. However, challenges related to data privacy, public acceptance, and ethical considerations must be addressed to maximise the positive impact of digital humans.

There are areas of service need which this technology has the potential to be a radical game changer if done correctly. In support for Mental Health one of the biggest issues we face is enough trained and certified people to provide the support individuals need, and the support is not a one-and-done meeting - it can be lifelong. Using this technology can provide a long-term support mechanism to supplement the human carer and for the person who needs support they know it's available anytime.

Digital Humans don't need to be virtual representations, they can be physical as well which can again offer more services and capabilities to those more vulnerable in society. Cognitoys have been shown to be highly effective with children who have been subjected to situations they shouldn't have, they feel more comfortable talking to a none human thing.

We are only just starting to explore the potential of this technology, yes there are all the ethical debates which are needed. Is society ready, in some instances yes where it can be truly shown as bringing value, but where it is used to replace humans there will be considerable backlash from the public.

As digital human technology advances, the UK public sector can lead the way in creating a future where citizen interactions are seamless, supportive, and responsive. By fostering trust, safeguarding data, and prioritising inclusivity, digital humans have the potential to reshape public sector interactions, creating a more connected, efficient, and citizen-centred public service framework.

Neil Catton is an experienced strategist and recognised thought leader on the ethical and structural implications of emerging technologies. Through his *Next Evolution* series, Neil explores how legacy institutions must adapt to remain relevant in an era shaped by AI, spatial computing, quantum systems, and digital transformation.

He is a trusted voice on responsible innovation, with a distinctive narrative style that blends systems thinking, moral foresight, and practical governance insight. Neil's work spans public service redesign, cyber resilience, digital ethics, and ambient technology — always grounded in purpose, people, and long-term value.

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