# Civil engineering sector faces transformative challenges and opportunities



The civil engineering sector in the UK is currently navigating significant transformation, driven by the necessity for greater efficiency in infrastructure project delivery and the pressures of climate change. This evolution coincides with the emergence of artificial intelligence (AI) technologies, which are challenging traditional methodologies in the industry.

A collective of early career civil engineers from leading firms including AtkinsRéalis, Balfour Beatty, Arcadis, and Binnies shared insights about these changes during a discussion with New Civil Engineer (NCE). These professionals, equipped with recent training, are positioned to identify inefficiencies in current practices and propose innovative solutions for the future.

The consensus among the engineers is that while there is a desire for the rapid adoption of new technologies, the pace of change is hindered by a low risk appetite within civil engineering firms. Dylan Powell, a graduate civil engineer at Binnies and winner of the NCE Graduate of the Year 2023 title, remarked, “I don’t think it’s because of a lack of willingness. I think everybody wants these technology changes to be implemented.” He attributed the slow transition to security concerns and ambiguous legislation which complicates the introduction of digital tools and AI.

Nusayba Abaas, an apprentice at Balfour Beatty and ICE President’s Future Leader for 2023/2024, echoed Powell's sentiments, stating, “Everyone’s on board with innovation, but people are being careful about implementation.” She highlighted the need for a measured approach when integrating AI technologies, pointing out that direct application without safeguards could pose significant risks.

Alexis Solomou, another Future Leader and graduate engineer from Arcadis, commented on the industry's reluctance to adapt, citing a pervasive mentality that prioritises getting projects right the first time. He acknowledged a more pronounced push for technological integration from private supply chain companies than from public sector clients, advocating for a ‘startup mentality’ that could accelerate innovation and direct more resources towards research and development.

Ellie Carter of AtkinsRéalis noted the impact of resource constraints on the digitalisation efforts in civil engineering, advocating for a balance between productivity and the time needed to explore new innovations. She commented, “To start developing tools and looking into automation or how you can make things better, you’ve got to take time out of your day to dedicate to that.”

On the sustainability front, the engineers highlighted the increasing emphasis on reducing environmental impacts at both project and corporate levels, often spurred by legislative measures and public pressure. Powell lamented that cost considerations frequently overshadow sustainable practices, stating, “With cost currently being such a huge focus in the water sector... one of the first things that goes is sustainability.”

While progress has been made towards sustainability, Abaas suggested that the sector must accelerate its pace of change, urging a more innovative mindset. The disconnect between the valuation of natural solutions, such as trees, versus built structures was highlighted, indicating the need to better integrate nature-based solutions into engineering practices.

The discussion also touched on broader issues such as diversity within the sector. The latest Engineering UK report indicates a decline in the proportion of women in engineering roles, emphasising the need for improved representation to attract a more diverse workforce. Many of the early career engineers expressed a commitment to fostering diversity, recognizing that attracting talent from varied backgrounds is crucial for the sector’s growth and innovation.

Looking ahead, the civil engineering industry is set to face considerable demands due to ambitious projects put forth by the new Labour government. As initiatives like the Great Grid Upgrade and Sizewell C gain momentum, there will be increasing pressure on civil engineers to deliver results more efficiently and at a larger scale.

Highlighting the need for better coordination between clients and the industry, Solomou remarked, “How can the industry become more productive in terms of delivering work? It feels like construction projects are always late.”

Despite the challenges, Powell conveyed optimism regarding the future of the sector, acknowledging its historical resilience. He emphasised the global recognition of the UK’s civil engineering capabilities, particularly in the water sector, which is noted for providing high-quality services internationally.

The insights gathered from these early career professionals outline a civil engineering landscape at a critical juncture, balancing the adoption of innovative technologies, sustainability initiatives, and the necessity for diversity as it navigates an evolving infrastructure landscape.

Source: [Noah Wire Services](https://www.noahwire.com)

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