

Delivering on a global scale

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The expertise and ethos of Netherlands-born business with a strong British heritage, Arcadis will drive change, as MD of Infrastructure UK, Mahmoud Alghita, explains

As the many scholars across rail will be aware, **Arcadia** is an idea of life that is perfect, and one that is in harmony with its surroundings. As the rail network enters a new renaissance with massive investment in infrastructure projects, and tackles decarbonisation head-on, Arcadis is a fitting name for a business ideally placed to lead the charge towards a better world.

Arcadis dates back to 1739 (through legacy companies), is a global business that employs in excess of 27,000 people – or Arcadians as it describe its workforce – in 40 countries worldwide.

All of its work is underpinned by a clear and unshakable sense of purpose, as the Managing Director of Infrastructure UK at **Arcadis**, Mahmoud Alghita, explains.

He said: “What differentiates us is our ability to focus on creating positive outcomes for our clients. Crucially, and everyone at Arcadis is clear on this, our purpose is to improve the quality of life for people. That has never changed through the years and is now even more pressing and prevalent.

“We focus on embedding sustainability in everything we do, creating positive outcomes for our clients through digitalisation. We can add a lot of value in design and engineering, programme management and the integration of major projects and programmes.”

Vast skillset

Arcadis provides consultancy, design, engineering and management services in infrastructure, water, environment and buildings. The Arcadis offer to rail sees the company provide global expertise in the design and delivery of rail solutions, HV and power projects and the use of advanced automated digital design simulation tools.

Arcadis combines strategic advice with multi-disciplinary technical knowledge to help clients and partners plan and build sustainable Total Mobility concepts. The business has been at the forefront of this expertise for over a century, ensuring the reliability and safety of rail networks worldwide.

In Australia, for Queensland Rail, Arcadis has utilised the best available technology to enable substantial long-term cost savings in terms of high voltage power usage. The use of static frequency converters as part of an optimised design process has enabled faster installation and start-up, higher efficiency, faster response to faults, along with reduced maintenance costs.

For ProRail in the Netherlands, where Arcadis maintain and manage a large section of rail including its high voltage power systems, the company has introduced a strict performance-based maintenance regime that has reduced whole-life project costs and simultaneously reduced the maintenance demands for this infrastructure.

Major Arcadis projects in the UK include delivery on the central section of HS2, Crossrail (providing systems and tunnel systems for Whitechapel Station), and Thameslink (London Bridge Station).

Beyond power

Arcadis has a broader focus than HV Power alone, on the Intercity Express Program for example the company delivered up-front stakeholder liaison, strategy planning and procurement support, followed by project management, commercial management and associated services during the construction and completion phases.

Arcadis also delivered the Grip 5 detailed design for TfL on the recent Barking Riverside rail extension which included an entire replacement of the HV power supply and railway systems.

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Through Grip 5 for TfL, Arcadis designed the Barking Riverside rail extension, and provided design support through Grip 6.

Under a major existing commission for HS2 Arcadis leads a design joint-venture with Setec and Cowi (known as ASC) to deliver all detailed civil and structural designs for the 80km central section of HS2's first phase from London to Birmingham, between the Chiltern tunnel and Long Itchington Wood.

Clearly, Arcadis is making its mark on UK rail infrastructure projects and, given its ethos to be at the forefront of addressing the mega-trends affecting the world – climate change, digitalisation, societal expectations and urbanisation – it would appear that the planets are aligning to allow Arcadis to play a major role in the industry response.

Mahmoud said: “The world is changing. The industry is looking at its collaborative, commercial and contractual approaches, the greater integration of design and construction, front-end loading project speed, faster, more certain delivery and, most importantly, value-based and outcome-based procurement.

“There is an increased emphasis on data KPIs and transparency along with a focus on innovation, digitalisation, automation and standardisation. This is what the industry, the UK government and the whole world is asking us to do.

“Playing its part in Arcadis’ ability to create positive outcomes and transparency in infrastructure programmes has led to the development of innovative, bespoke modelling tools.

Getting to grips with ARIES

The Arcadis Rail Integrated Engineering Simulation (ARIES), is able to integrate the design of complex multi-discipline systems and accurately assess required levels of power consumption. This tool allows for the development of the best available sustainable design solutions, taking into account the most recent available technologies and whole-life asset maintenance systems, that ultimately result in a substantially reduced carbon footprint for major projects. This approach, using ARIES, was proven on recent rail power upgrade work at Old Oak Common in London.

In Holland, Arcadis has also developed a modelling tool called Xandra which has the capability to simulate entire rail networks thus when combined with ARIES are able to provide substantial network-wide reductions in overall financial and environmental costs, through reductions in hardware, manpower, management, and maintenance.

Mahmoud added: “The client can make really critical decisions and we can provide value-based solutions that make a difference, not just to efficiency and the appropriateness of the solution but also to the environment and whole-life costs.

“Our solutions are assured and data-led. We embed model-based systems engineering into our approach to capture the requirements of a project, set our desired outcomes and monitor those. This is integrated into the design programme and schedule. With 5D Building Information Modelling and digital tools we are able to give lagging indicators and, with data analytics, leading indicators.

“Bringing all of this into play leads to faster, better and greener investment programmes. We need to accelerate the transition from fossil fuels to renewables, this is very important for those of us that work in

transport. HV power schemes will be vital as we address the issues the world is facing.

“If we are creating assets we must design intelligent buildings and intelligent infrastructure that is capable of getting us to net zero carbon emissions.”

Combining the **Arcadis** approach with the skills and talent of Linxon and SSE Enterprise Contracting and Rail by forming a new consortium is a logical step for a company committed to changing the way it works and collaborate with like-minded partners in order to transform society for the better.

This united front is a perfect match of skills and expertise, according to Mahmoud, and the three businesses have already worked together previously, with both Linxon and Arcadis contracted by SSE on the Seagreen offshore wind project and Linxon and Arcadis both delivering on Crossrail.

Mahmoud added: “We are three strong players in our specialist areas. The combination of our collective skills and unique individual expertise will bring clients the best value for money solution across the full design, delivery and maintenance lifecycle of major HV power investment projects. We have the potential to create something long-term, together, and offer the industry something very special, especially when it comes to HV power solutions.

“When I speak with passion about the mega-trends and important issues that need to be addressed with our counterparts at Linxon and SSE there is an exact synergy. It is clear that this is what we are here to do.

“We’re here to provide smart, intelligent solutions capable of removing carbon from the equation and improving positive outcomes for the environment and, ultimately, to improve the quality of life. This is why we’re so passionate about this partnership, there is huge potential to provide something very different.”

Visit www.arcadis.com/en/united-kingdom for more details.

