Press Release

September 4, 2019

Bilfinger and Akselos Form Partnership: Digital Twin of Complex Structural Assets for Near Real-Time Integrity Assessment

- **Extend remaining lifetime of complex assets**
- **Lower inspection and maintenance costs**
- **Near real-time integrity assessment improves assets' integrity and safety**
- **Improved plant design saves Capex**

Industrial services provider Bilfinger and deep tech start-up Akselos have signed a Memorandum of Understanding (MoU) to implement Akselos' breakthrough Digital Twin technology for complex assets in the offshore and process industries. A digital replica of a large and complex asset's civil structure ensures a near real-time assessment, based on its current integrity status. These cutting edge "reduced basis finite element analysis" (rb-FEA) simulation technologies combined with Bilfinger's strong expertise in integrity assessment make it possible to assess an asset's current condition in a precise and fast way, and to predict potential failures or damages before they occur.

The MoU will allow Bilfinger to make Akselos' next-generation Digital Twin models available to customers in all of its core industries, with large and complex fixed and floating assets in the offshore industry an initial focus. Bilfinger can thereby make its customers a unique offer combining Akselos' high-fidelity finite element solution with Bilfingers' engineering and integrity inspection capabilities.

"The partnership with Akselos enables us to expand our digitalization offering for industrial assets and deliver improved integrity assessment services to our customers", says Tom Blades, Bilfinger CEO. "It makes it possible for us to extend the remaining lifetime of platforms and reduce maintenance costs while at the same time enhancing asset integrity and safety. As an integral part of our range of digital services, we thereby offer our customers a digital solution for their valuable complex assets combined with strong competences in engineering and asset integrity inspection."

Thomas Leurent, Akselos CEO, said: "Bilfinger's reputation for efficiency and innovation makes the company an ideal partner for Akselos. We are very pleased to be working with such an experienced team of technical experts to bring our emerging technology to its customers. Our technology, based on MIT-licensed algorithms, builds something far beyond the capability of a

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conventional Digital Twin. It allows operators to not only monitor an asset's condition in real time, but helps them to foresee potential future failures."

Bilfinger intends to use the advantages of this Digital Twin technology for both brownfield and greenfield plants. Key competences in engineering, inspection and maintenance are brought together to extend the assets' remaining life and availability. Comprehensive finite element models are updated with inspection or condition monitoring sensor data in near real-time, shortening inspection intervals and providing information about assets' integrity to ensure their safe and efficient operation. Moreover, by applying Akselos' software to greenfield projects and plant modifications, plant design can be improved and investments can be better evaluated. Investment costs can thereby be reduced and functionality can be improved at an early stage.

The integrity focused Digital Twin powered by Akselos is a perfect addition to the cloud-based Bilfinger Connected Asset Performance platform (BCAP). BCAP brings together data from various sources such as engineering, operation, maintenance and e.g. condition monitoring sensors. By combining the different data, applying data analytics and AI technologies, BCAP provides new insights for asset operators into plant operation and how to improve it through predictive maintenance solutions.

Blades continued: "By combining BCAP with Akselos' technology, we can further reduce unplanned downtime and system failures, while carrying out both maintenance and repairs in a more targeted manner. Our experience has demonstrated that our digitalization solutions can reduce maintenance costs by up to 30 percent and lower unplanned downtimes by up to 25 percent while both plant effectiveness and work productivity can be increased by up to 15 percent."

Akselos' Digital Twin technology will be presented at the Bilfinger Salamis UK stand (2D60), at the SPE Offshore Europe Conference & Exhibition from September 3 to 6 in Aberdeen, UK.

From its headquarters in Aberdeen, Bilfinger Salamis UK has for many years supported customers in the oil and gas industry with the planning, inspection, optimization and maintenance as well as the final decommissioning of offshore assets. Bilfinger Salamis UK teams up with finite element experts from Bilfinger Tebodin in the delivery of the inspection and maintenance services. This technology is also transferrable to maintenance on pressure pipes, mechanical equipment and wind turbines. Services for offshore wind farms are a growing part of Bilfinger's portfolio in the North Sea.

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About Bilfinger

Bilfinger is a leading international industrial services provider. The Group enhances the efficiency of assets, ensures a high level of availability and reduces maintenance costs. The portfolio covers the entire value chain from consulting, engineering, manufacturing, assembly, maintenance, plant expansion as well as turnarounds and also includes environmental technologies and digital applications
The company delivers its services in two service lines: Technologies and Engineering & Maintenance. Bilfinger is primarily active in the regions Continental Europe, Northwest Europe, North America and the Middle East. Process industry customers come from sectors that include chemicals & petrochemicals, energy & utilities, oil & gas, pharma & biopharma, metallurgy and cement. With its 36,000 employees, Bilfinger upholds the highest standards of safety and quality and generated revenue of €4.153 billion in financial year 2018.

You can find additional information, photos and videos at

About Akselos

Akselos is a digital technology company headquartered in Switzerland, with operations in Europe, the USA and South East Asia. The company has created the world's fastest and most advanced engineering simulation technology, the predictive digital twin, to protect the world's critical infrastructure today and tomorrow. The technology has the power to revolutionize how we build and manage our large-scale assets, and pushes the boundaries of what modern engineering and data analytics can achieve. Developed by some of the world's best minds, the MIT-licensed technology builds something far beyond the capability of a conventional Digital Twin that allows operators to not only monitor an asset's condition in real time, but helps them to see the future with predictive analytics, allowing operators to not only monitor an asset's condition in real time, but also to see the future.

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