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Trust and Real-Time Processing: SGX and Streaming Data in the NEARDATA Ecosystem

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Europe's digital transformation is advancing towards a new paradigm where **privacy, immediacy**, and **technological sovereignty** are essential. In this context, the European project **NEARDATA** represents a decisive step toward a modern data architecture capable of tackling today's major challenges: **protecting sensitive information and enabling real-time decision-making**.

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SGX and Data Streaming:
Technologies for a New Data Economy

Two emerging technologies stand out for their ability to revolutionize data processing: **Intel SGX (Software Guard Extensions)** and **data streaming platforms**.

Intel SGX enables **confidential computing** through hardware-based secure enclaves that protect data even during processing. This feature is critical in sectors where data privacy and integrity are essential, such as **healthcare, finance, and public administration**.

Meanwhile, **data streaming platforms** make it possible to manage massive flows of information in real time—an essential capability for applications with high temporal sensitivity, such as **urban mobility, smart logistics, or precision agriculture**.

The combination of these two technologies not only ensures **secure and trustworthy environments**, but also enables **operational agility and immediate responsiveness**, overcoming the limitations of traditional batch processing and rigid cloud architectures.

KIO España: Critical Infrastructure for a Trusted Ecosystem

Within the NEARDATA ecosystem, KIO España plays a key role as a provider of advanced infrastructure, offering the virtual environments on which confidential computing and real-time processing technologies are deployed.

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With data centers located in **Murcia and Valencia**—including **Tier IV-certified facilities**, among the most advanced in Europe—KIO delivers the **resilience, availability, and security** required to support high-impact technology use cases.

KIO has contributed actively to the **implementation of SGX in real-world environments**, allowing project partners to validate **confidential computing solutions** on physical hardware under production-level conditions.

> NEARDATA demonstrates that the combination of trusted infrastructure, emerging technologies like SGX and streaming, and public-private collaboration can position regions like Murcia and Valencia as digital innovation hubs in Southern Europe. This shared vision lays the foundation for a data economy that is faster, safer, and citizen-centric.

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