

"ABI envisions that in 2022, about 2.7 billion active AI-enabled devices will be doing data learning on-device."

ABIresearch®

The Short Story

Ekkono means *cognition*, and that is what we add to IoT (Internet of Things). We make connected things smart by embedding advanced edge machine-learning – that runs onboard the connected device. This empowers IoT to realize its true potential, where companies save and make money through predictive maintenance, automation, performance optimization, self-configuration, intuitive products, and new data-driven business models.

Ekkono's uniqueness, which is the result of seven years of research at the University of Borås, Sweden, is a lightweight machine-learning engine that can run on small hardware platforms. It runs close to the data source, i.e. the sensors, on the device, where it can see and process *all* data, in real-time, and take instant actions. This reduces network load, make things less dependent of connectivity, and improves data integrity.

But most importantly, this enables individual learning per device. A vehicle learns the climate and traffic in which it operates, a machine learns its surroundings, and a robot mower learns your specific garden. This opens up for a lot of new features, and it makes Ekkono's edge machine-learning a powerful complement to your cloud solution, as it feeds good, enriched, individualized and relevant data.



IoT holds the promise of everything becoming smart – machines, vehicles, cities and devices. Reality is that most of them are still just connected. Smartness is capped at uploading raw data to a big-data haystack and showing historical averages for the entire installed base. With Ekkono you can deliver on IoT's promise of making things genuinely smart. Smart IoT is central to all product companies' digital transformation. Ekkono enables companies, in all industries, to improve their business and make it more sustainable.

The Product

Ekkono is an embedded edge machine-learning library, purpose-built for IoT. The unique design makes it resource efficient with a small footprint. Still, Ekkono does not compromise on functionality:

- Prediction and Forecasting
- Batch and Incremental Learning
- Change and Anomaly Detection
- Predictions with Confidence
- Attribution/Sensitivity Analysis
- Simulation of Alternative Scenarios
- etc.

Ekkono's product is 100% software and totally platform-agnostic. The core is a C++ library. The product is designed for programmers and the API offers bindings to several programming languages (e.g. C# and Python), and the option to generate C code. The SDK (software development kit) is a comprehensive toolbox to support implementation and integration. Tools that help with algorithm selection and optimization enable a programmer with limited data science experience to deploy advanced edge machine-learning.

Ekkono does learning on streaming (sensor) data. The product supports execution of pre-trained models, as well as incremental learning at the edge, where the data pipeline is automated and built into the process. It supports a number of machine-learning techniques, including decision trees, random forest, and neural networks. Besides incremental learning, Ekkono also offers unique features such as conformal predictions, efficient techniques for anomaly and change detection, and more.

This comprehensive product lets companies harmonize on one solution. Machine-learning is a lifelong journey where every feature improves its capabilities. Ekkono empowers companies with a programmable tool to rapidly implement edge intelligence – yourself.

