

## Editorial from Witekio leaders



### ***How do you move beyond the hype?***

*Edge AI, Blockchain, Machine Learning, IoT platforms. We are blasted every week with new “disruptive” technologies that will “change our world”. While it’s true that tech like this will have long term impacts on R&D stakes and focus, my 15 years in the field tells me that these impacts never happen as fast as expected and that the gap between “promising” and “industrial grade” is big.*

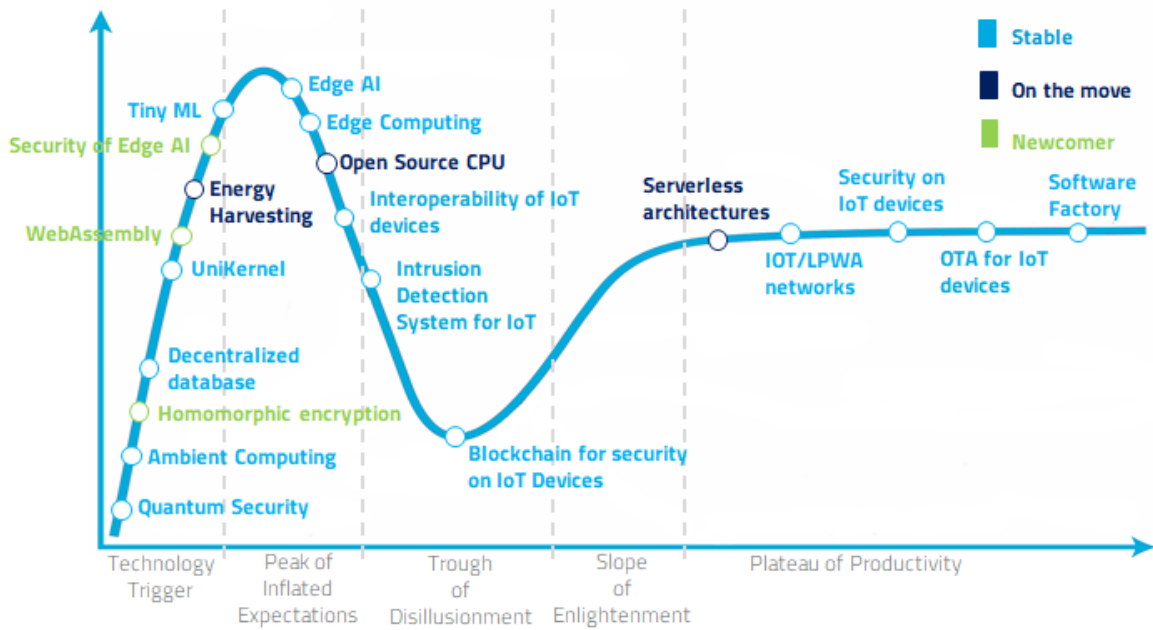
*That’s why we have decided to share our views, experience, and open our books so decision makers can decode the hype. This edition of **Perspective** includes an updated hype curve, tech curation, and a specific focus on tailor-made versus off-the-shelf – a hot topic for all decision makers like you. I’ll use my years of experience with OEM customers to help you take savvy decisions.*

Pierre Gal, Senior Tech Director

## What is happening in the world of software?

- ✓ **Microsoft has just announced Power Fx, a new open-source low-code language.** Will the low-code trend grow into the embedded and IoT worlds as well?
- ✓ **Google’s cloud business reported operating losses** of \$5.61 billion in 2020. Is it the normal J curve as they invest, a sign of an overhyped IoT platform business, or a lack of competitiveness by the third major cloud provider of the IoT industry?
- ✓ Not a month goes by without a new scary hacking effort that affects the real world. **A hacker tried to poison a Florida city’s water supply** and appeared to compromise the water treatment plant's TeamViewer software to gain remote access to the target computer.
- ✓ **The Qt company is moving away from open-source releases** on the LTS branches. Practically, it means that for open-source development it is mandatory to move to Qt 6.0 (you can still use the older versions, but you will not get any bugfixes from QT).
- ✓ Dataiku and UAVIA’s collaboration **successfully deploys machine learning models for Edge Computing on drones**
- ✓ **A silicon chip shortage is causing big issues in various sectors from videogames to automotive and beyond.** In fact, it's getting so bad that a number of OEMs, including Ford and General Motors, have had to go as far as idling shifts and even entire factories.

# Our updated software hype cycle curve



## Security for Edge AI

**Security for Edge AI** could become one of the new trends in the coming years. Wondering why? Well, neural networks are already used for secure authentication, facial recognition, predictive maintenance and more. But when moving those networks from the Cloud to the Edge, it makes physical attacks possible.

For instance, if you have an iPhone, you probably use face ID to unlock it. The neural network used to identify you is running on your phone. If someone steals your phone, they get physical access to it and can open the box to measure the power consumption, spy on buses, etc. All these side channels can be used to predict the architecture and the weights of the neural network running on the device. But what does it mean to reverse engineer the network? Everything! If you get access to a neural network, you can start feeding the network with any kind of images until you find inputs triggering the right output. In other words, you can find faces that could be used to unlock your phone without being the owner

## Web Assembly

This technology was mostly developed as a replacement for Javascript for use cases where performance was key. **Web Assembly** is blending concepts from Java (the VM) with a bit of containerization like Docker (direct reuse of the host hardware like in a container). The execution of the code aims to be as fast as native execution. In 2019 it created quite a bit of a buzz when Solomon Hykes (Docker Founder) tweeted about it: <https://twitter.com/solomonstre/status/111004913222324225>

If you read the replies to the tweet, you will see quite a few about the JVM bytecodes 🤔. Yes, it's the same idea but JVM is not limited to a single language. That said, how about the IoT part of it? There are couple of options to run Web Assembly on Linux: [https://liux120.github.io/ECE202\\_WASM/](https://liux120.github.io/ECE202_WASM/) Or you can even run Web Assembly on Baremetal: <https://github.com/lastmjs/wasm-metal>

# Tailor Made or Off-the-Shelf?



Heavy vehicles, medical devices, consumer goods, handheld, industrial machines, utilities, and more. As long as you have software embedded in a device, we all know that there is no one-size-fits-all approach.

As developer, then an architect and now senior tech director at Witekio, I've helped hundreds of customers in the latest 15 years the same questions still arise at the early stage of every development project: **my exec board is expecting me to provide multiple scenarios leveraging both off-the-shelf or tailor made approaches – how can I approach the topic? Is there a simple answer?**

The answer? Not really, mainly because there are multiple dependencies – and that makes it a big job.

But as they say, the best way to eat an elephant is one bite at a time. And so, based on my experience, here are the five most important variables to consider for every technology block:

**CORE VALUE + DIFFERENTIATION:** the key in terms of the IP and business value

**BUSINESS MODEL + COST STRUCTURE:** comparing upfront development against recurring costs

**TTM + RISK:** how fast can you get to market, and how important is it

**CULTURE + SKILLS:** will I develop in-house or manage an external development team?

**VENDOR LOCKING + OWNERSHIP:** can I afford to be locked into a technology stack?

To make the decision easier and even more objective, we've been creating a canvas along with a rating grid that will help in driving thoughtful and factual reflection on this important decision.

Want to know more? Witekio is hosting a webinar on the topic in May 2021 – Registration opening soon.

## Dive Deeper

Why We're in the Midst of a Global Semiconductor Shortage: <https://hbr.org/2021/02/why-were-in-the-midst-of-a-global-semiconductor-shortage>

A Hacker Tried to Poison a Florida City's Water Supply, Officials Say: <https://www.wired.com/story/oldsmar-florida-water-utility-hack/>

Dataiku and UAVIA collaboration successfully deploys machine learning models for Edge Computing on drones: <https://uavia.eu/dataiku-and-uavia-collaboration-successfully-deploys-machine-learning-models-for-edge-computing-on-drones/>

Google Cloud lost \$5.61 billion on \$13.06 billion revenue last year: <https://www.cnn.com/2021/02/02/google-cloud-lost-5point61-billion-on-13point06-billion-revenue-last-year.html>

A Silicon Chip Shortage Is Causing Big Issues for Automakers: <https://www.wired.com/story/silicon-chip-shortage-automakers/>