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JOIN DEVELOPMENT OPERATION
JDO-2025

Who we are

ABINSULA, founded in 2012 by software engineers with over 20 years of experience, has achieved steady growth and technological innovation. With six offices in Italy, Spain, and Saudi Arabia, it serves a global clientele across the US, Europe, the Middle East, China, Japan, and Australia.

KOAN, founded in 1996, specializes in software engineering for the industrial automation sector. Since 2000, the company has focused on Linux embedded and Yocto Project. Today, it is recognized for its expertise as a software provider for embedded Linux and IoT systems.

In 2025, ABINSULA and KOAN joined forces through a joint venture (**JDO**) to offer their clients a unique and comprehensive offer.

170+
Engineers Worldwide

20M$+
Value of Production

250+
Customers Worldwide

Abinsula HUBS

Abinsula Group

ABINSULA : Automotive, Agritech, IoT, Android

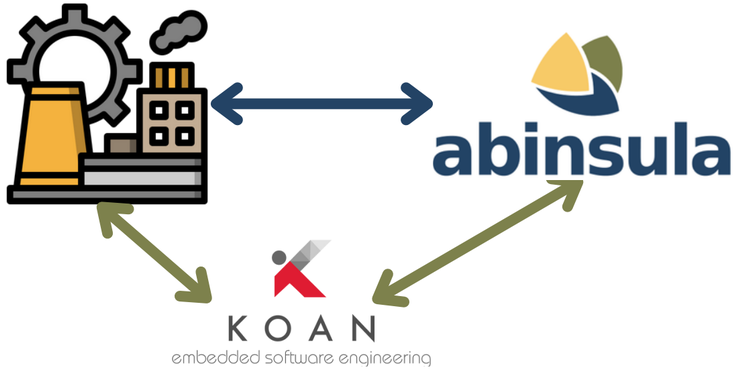
ABISSI : Cybersecurity

ABIKA : Web and mobile development

KOAN : Linux embedded and Yocto Project

Development models

CUSTOMER



CUSTOMER entrusts the work to Abinsula

ABINSULA is responsible for the development,
invoices the work to the client

KOAN supervises the execution of the work done by Abinsula

CUSTOMER

CUSTOMER entrusts the work to Koan

KOAN is responsible for development but **subcontract the work to Abinsula**, invoices the work to the client

ABINSULA is responsible for the development

NDA management

CUSTOMER

abinsula

KOAN
embedded software engineering

DOUBLE NDA for maximum protection

Our Domains & Services

Our technology is adaptable to various domains

Automotive

Linux, I-IoT, Edge-AI

Agritech

Web & Mobile Applications & Cloud Services

Linux embedded, Yocto Project, Cyber Security

Innovation + R&D

Linux embedded & IoT

By utilizing our **own hardware** and software solutions, as well as leveraging **hardware available on the market**, we are capable of supporting our clients, whether they are large enterprises or small to medium-sized businesses, in the digital transformation process. We can also integrate its solutions within complex systems and ensure seamless harmonization of their operation.

Security & I-IoT

Case 1 - Locks producer

Development of a smart gateway solution to manage a network of electronic locks securely using **embedded cybersecurity** techniques and a Linux embedded environment created with **Yocto Project**. The gateway acts as a central hub, enabling remote lock/unlock commands, real-time status monitoring, and secure communication with locks via encrypted protocols (e.g., TLS, AES).
Key features include multi-factor authentication, secure boot, firmware updates with cryptographic signing, and intrusion detection to safeguard against cyber threats.

**Details under NDA*

yocto PROJECT

Industrial Edge

Case 2 - Snow cannon

The project aims to develop a centralized system for monitoring and managing snow cannons using **Linux embedded** and built with **Yocto Project**. The system ensures efficient operation by controlling cannon parameters (e.g., water flow, pressure, temperature) and optimizing snow production based on real-time weather data. Key features include remote control via a secure web interface, automated adjustment of settings for energy efficiency, and real-time fault detection with alerts.

**Details under NDA*

yocto PROJECT

Realtime Robotics

Case 3 - Metrology Probe Robot

The project involves developing a real-time management system for metrology probe robots using **Linux embedded** built with the **Yocto Project**. The system ensures precise control of robotic probes for high-accuracy measurements in industrial environments.
Key features include real-time task scheduling for coordinated movements, data acquisition and processing, and integration with external metrology systems.

**Details under NDA*

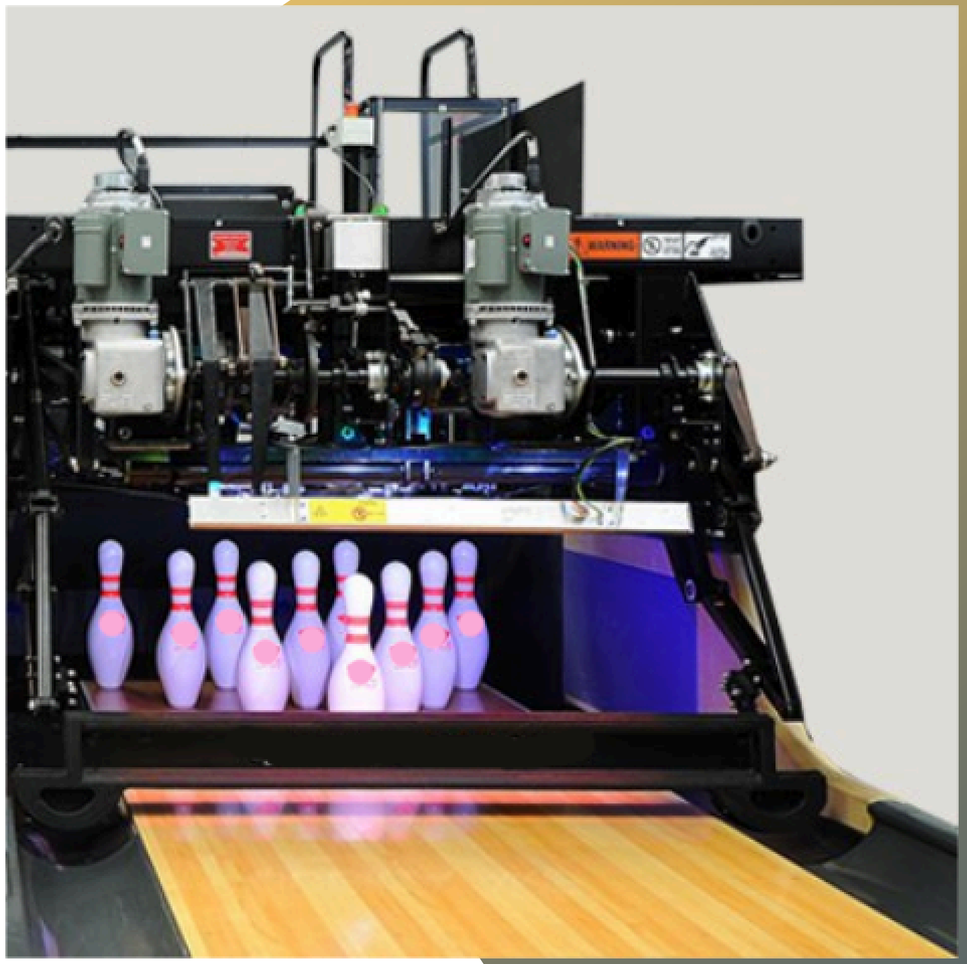
yocto PROJECT

I-IoT & Edge

Case 4 - Bowling Lane Management System

The project focuses on developing a management system for bowling lane equipment using **Linux embedded** built with the **Yocto Project**. The system controls and monitors lane mechanisms, such as pinsetters, ball returns, and scoring displays, ensuring seamless operation. Key features include real-time scheduling for synchronized equipment control, remote diagnostics, and support for automated maintenance alerts.

**Details under NDA*



yocto PROJECT

IoT/Embedded Technologies

Web Services

Cloud Platforms

Operating Systems & Programming Languages



Connectivity


IoT Devices

Custom Hardware developed to meet specific customer requirements.

Iot & Industrial IoT

Customers we have the privilege to work with

... and many others

Automotive

Although we operate in various domains, **automotive** remains the company's main business. Our engineers have over 20 years of experience in **infotainment**, **HMIs**, **digital clusters**, **telematics, ecall, ecall-NG** and also in **body control modules** and **engine control**. In recent years, we have further specialized in the **electric world**, focusing on **BMS control units** and the **management software** for electric charging stations.
Since its enstablishment, we have collaborated with the most prominent Tier-1 suppliers and European and American car manufacturers.

Automotive

In recent years, we have also taken an interest in the emerging market of Chinese **car manufacturers**. The combination of being a young and dynamic company with strong technological expertise, along with the experience gained from working with historical car makers such as **BMW**, **Volkswagen Group**, **Stellantis**, **Maserati**, etc., has allowed us to position ourself as a strategic supplier among the rising Chinese brands.

In 2020, we became the first non-Chinese company to support **XPeng** developing their **emergency call system** for the European market.

Automotive

Case 1 - Thunder Power

We are also active in the development of electronic systems for one-off projects. This car was presented at the **Shanghai Auto Show** in 2017. We were engaged in the development of the **digital cluster** and **infotainment system**, which included three displays controlled by an **ECU** based on **NXP iMX6**. The hardware was created by one of our partner, while the software was entirely developed by us, according to specifications from an Italian design center.

Automotive

Case 2 - Eccentrica

We developed a **complete digital cluster** for the restomod of the Lamborghini Diablo (Eccentrica). Both the **hardware and software were fully designed and implemented by us** according to the specifications provided by the client, Podium. The car made its debut at the **2024 Monterey Car Week**.

Agritech

The agritech market represents for us the perfect union of **automotive technologies** with those of the **IoT world.** The solutions that W offers to its agritech clients consist of both **hardware** to be mounted on-board vehicles, for **data logging** and **HMI functionalities**, and **cloud platforms** for remote control of the vehicles. We also provide and integrate **field sensors** for soil parameter detection, as well as **weather stations** or **satellite data**, with the aim of transforming a traditional farm into a modern factory.

Agritech

Case 1 - Telematics

We have supported several important **agricolture Tier-1 suppliers**, such as **Topcon** and **John Deere**, and **tractor manufacturers**, in creating **low-level** and **middleware software** (including updates over the air, fleet management, etc.) for their **telematics control units**, leaving the client to integrate their own proprietary control softwares. Telematics control units for the agricultural world differ from those in **automotive** in terms of the number of inputs, which are generally greater, and the ability to process a large number of high-speed **CAN ports** to control various plements connected to the tracktor itself.

Agritech

Case 2 - Display

Similar to telematics products, We support our clients in the creation of **control displays for agricultural machineries** (tracktors, harvesters, sprayers, etc). We provides **operating systems** and **middleware software** for display control. Additionally, we have assisted in the porting of various agricultural applications from **Linux** to **Android** platforms and vice versa, even through the use of **hypervisors**.

Automotive & Agritech Technologies

HMI






Applications Framework





Operating Systems





Connectivity




CAN **LIN** **j1939** **Uart**

Broad-R **SOAP** **SOME/IP** **FlexRay**

Hardware

Custom Hardware Design / Tier-1 Hardware

Automotive & Agritech

Customers we have the privilege to work with

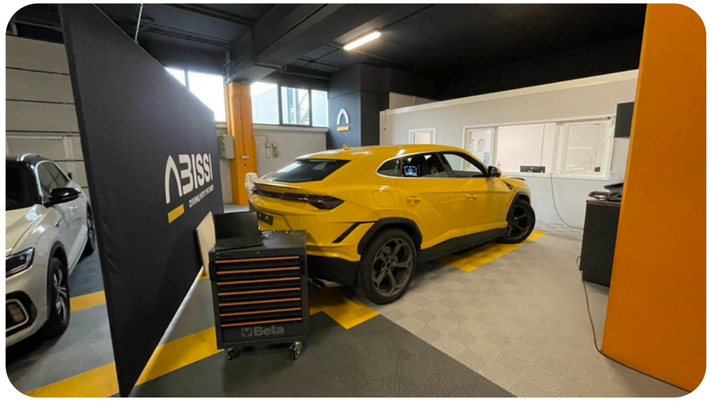
... and many others

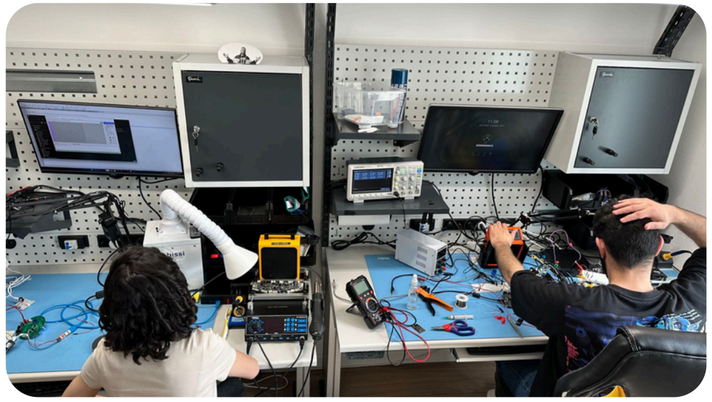
Cyber Security

From the beginning, in 2012, We believed in the importance of cybersecurity within embedded devices and was among the first companies in Europe to invest in these themes with an internal team. As client demands for **security activities** grew, both in implementation and validation, it was deemed necessary to separate the tasks of implementing security from those of attack and validation. The former remained the responsibility of **us**, while the latter were channeled into a new company, **Abissi**.

Cybergarage & Security LAB

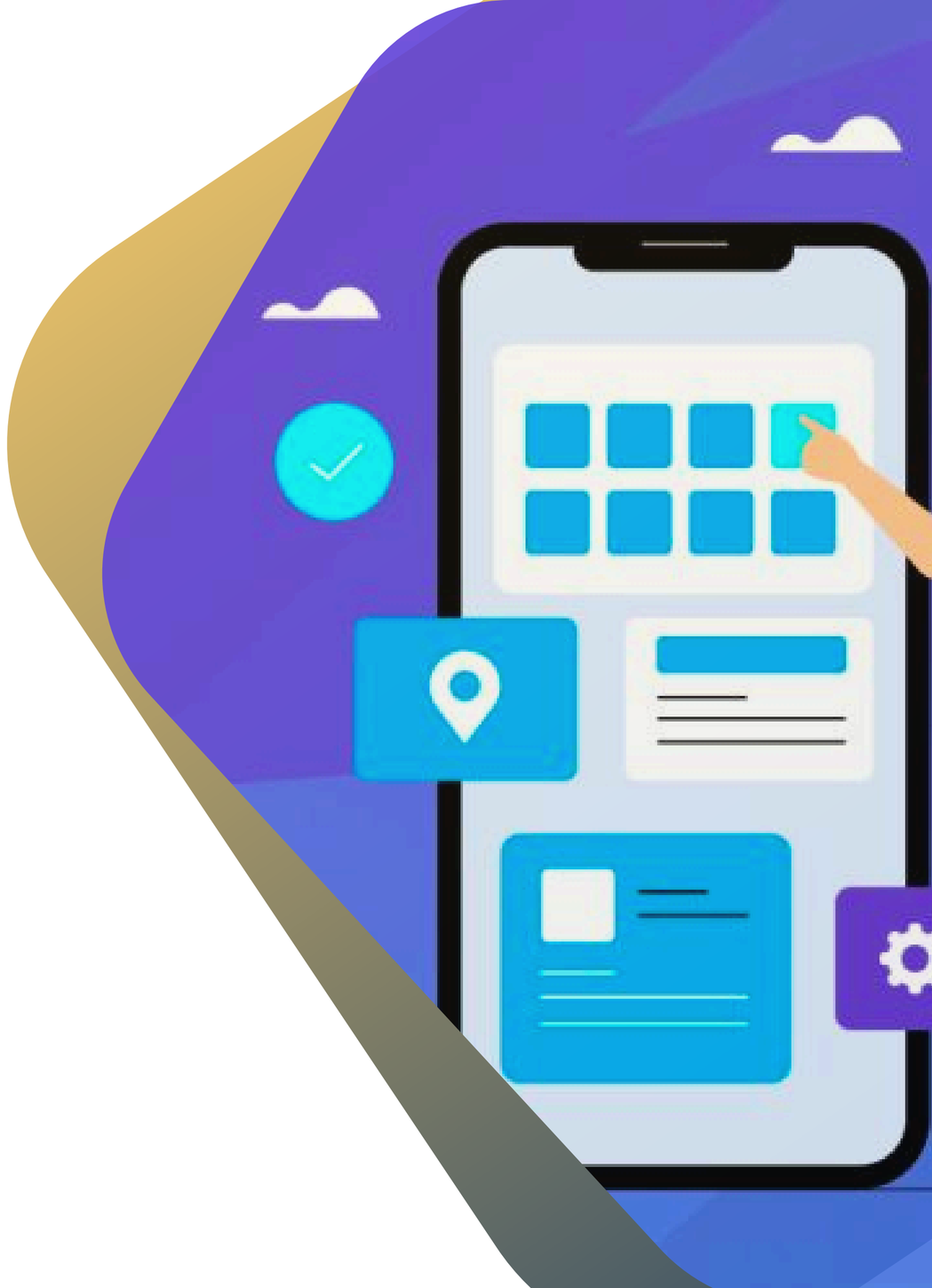
At the end of 2023, Abissi established, within its Security LAB, the first **Cyber Garage** in Europe within its own laboratory, aiming to support its automotive clients in **pre-certification processes**. With the Cyber Garage, Abissi can test an entire vehicle by simultaneously targeting multiple ECUs (Electronic Control Units).





Mobile Apps, Web Platforms, Cloud and Artificial Intelligence

We craft sophisticated and scalable solutions leveraging cutting-edge web technologies (including but not limited to **HTML5**, **CSS3**, **JavaScript**, **React**, and **Angular**), smartphone applications (focusing on **iOS** and **Android** platforms), and cloud computing services (such as **AWS**, **Azure**, and **Alibaba Cloud**) to ensure peak scalability.



Mobile Apps, Web, Cloud and AI

Customers we have the privilege to work with

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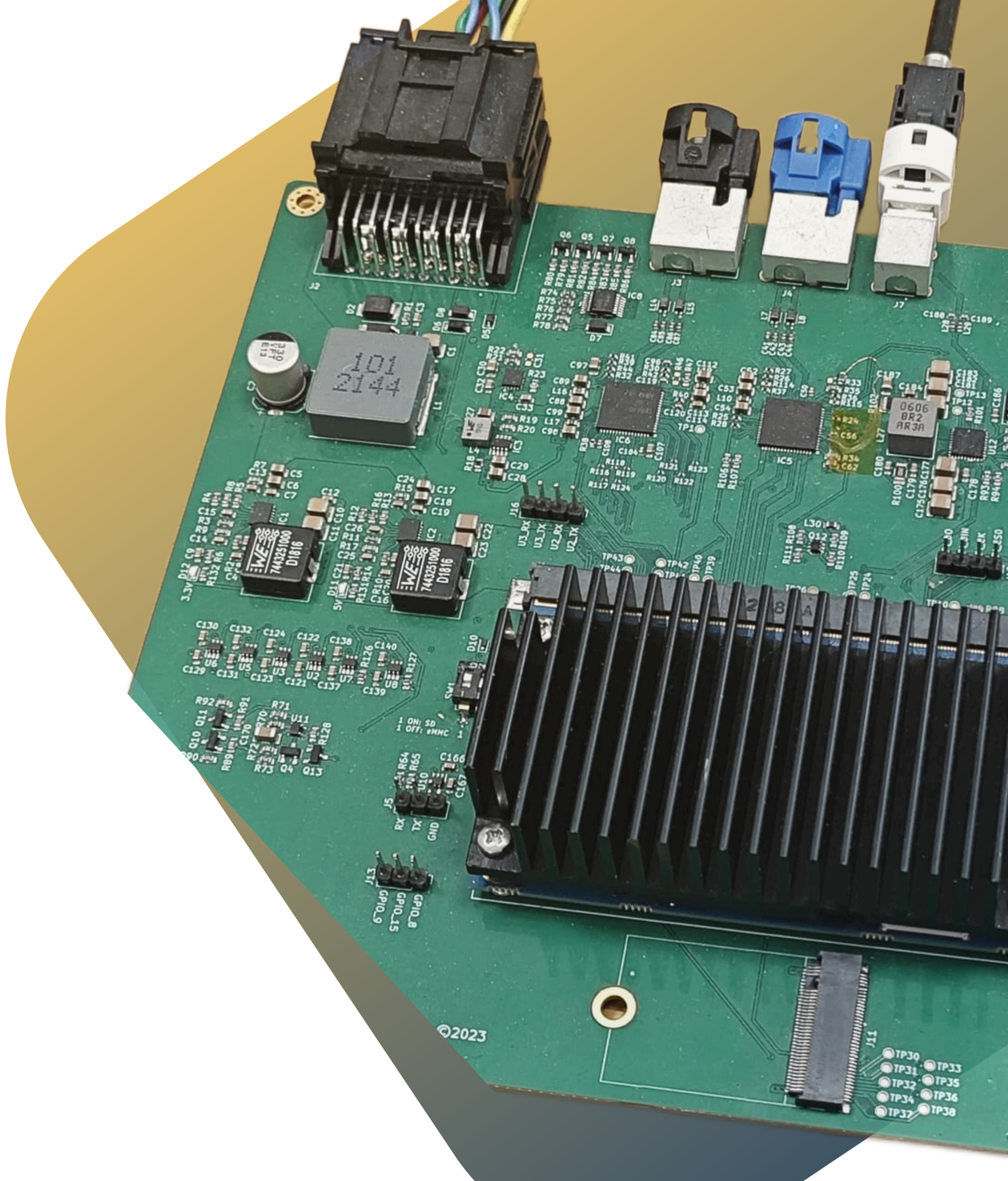
Innovation and R&D

We annually invest approximately 25% of our turnover into research and development projects. This investment enables the company to stay at the forefront of emerging technologies and anticipate market trends, ranging from new software-defined paradigms to **artificial intelligence**.

The **R&D team** not only focuses on developing internal projects but also supports its clients in their innovation activities, including through **partnership programs**.



ab-ab+

latin ablativ stands for a place
(either real or virtual)
which one gets away from

For example:

ab insula: “from the island”

In Zen philosophy,
a **koan** is a problem constructed
with care and ingenuity specifically
to induce the observer
to realize the limits of logic and reasoning
and to highlight
the importance of intuition.!