

A hand is shown from the right, pointing its index finger towards a glowing digital interface on the left. The interface features a stylized 'V' logo inside a circular frame, surrounded by various data lines and patterns. The background is a dark blue space with streaks of light radiating from the bottom, suggesting speed and technology.

GEFOND  
FOR A LONG LIFE  
INDUSTRY

GEFOND

**GEFOND** was first established in 1994. It represents and distributes consumable materials and technological equipments for Italian foundries producing non-ferrous alloys castings.

Over the years, **GEFOND** has developed strategic skills in providing technologically advanced, innovative products and putting them at the disposal of Italian companies which mainly work in the automotive sector.

## OUR CHALLENGE IS TO STAY AHEAD OF THE CHANGING TIME

**GEFOND** has made its mark in high-pressure die casting and represents the market's leading suppliers. It has also earned the trust of its customers thanks to its quality equipments, and its flexible assistance and spare parts service.



## STRATEGIC DEVELOPMENT OF "GEFOND FOR A LONG LIFE INDUSTRY" AND GUIDING PRINCIPLES

### 1 Looking to the future and focusing on technological innovation

Technological innovation is increasingly playing a key part in industry and production processes. It offers a variety of applications and benefits. Since its outset, **GEFOND** has comprised two complementary parts:

- sales and service of technological equipments
- innovation, to meet the needs of increasingly competitive and complex production processes. **Perpetuo**, the first artificial intelligence software for predictive maintenance designed specifically for foundries, is **Gefond's** answer for Industry 4.0.

### 2 Expanding the range of services

Change and flexibility are the principles that drive **GEFOND Servizi**. Its aim is to offer clients a range of additional services alongside its products, to improve and simplify the work of end users.

### 3 Training to increase productivity

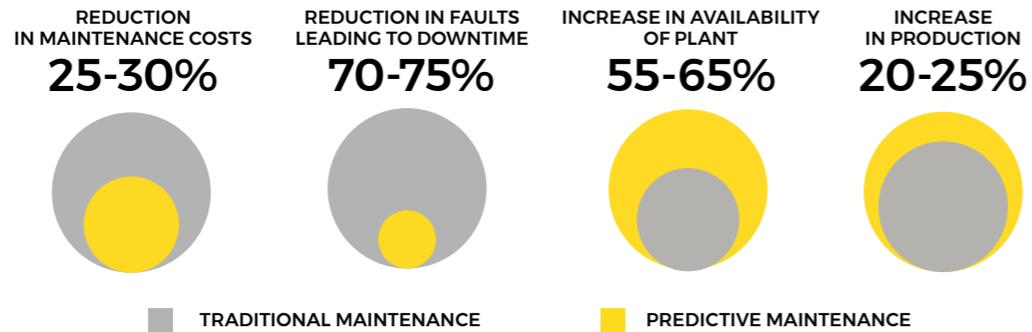
Investing in training increases competitiveness and productivity. **GEFOND Accademia** is an all-round, structured platform for training courses. It offers global consultancy on handling, maintenance and process technology.

**1 Looking to the future and focusing on technological innovation: Perpetuo**

**THE WINNING CARD FOR THE FUTURE OF YOUR SYSTEMS: PREDICTIVE MAINTENANCE**

With the advent of Industry 4.0, maintenance for **production equipments** is no longer limited to just replacing worn parts.

Instead, it has become part of the **production strategy** and the company's ecosystem, alongside mathematical and statistical models that help maintenance staff adopting a new data-based approach.



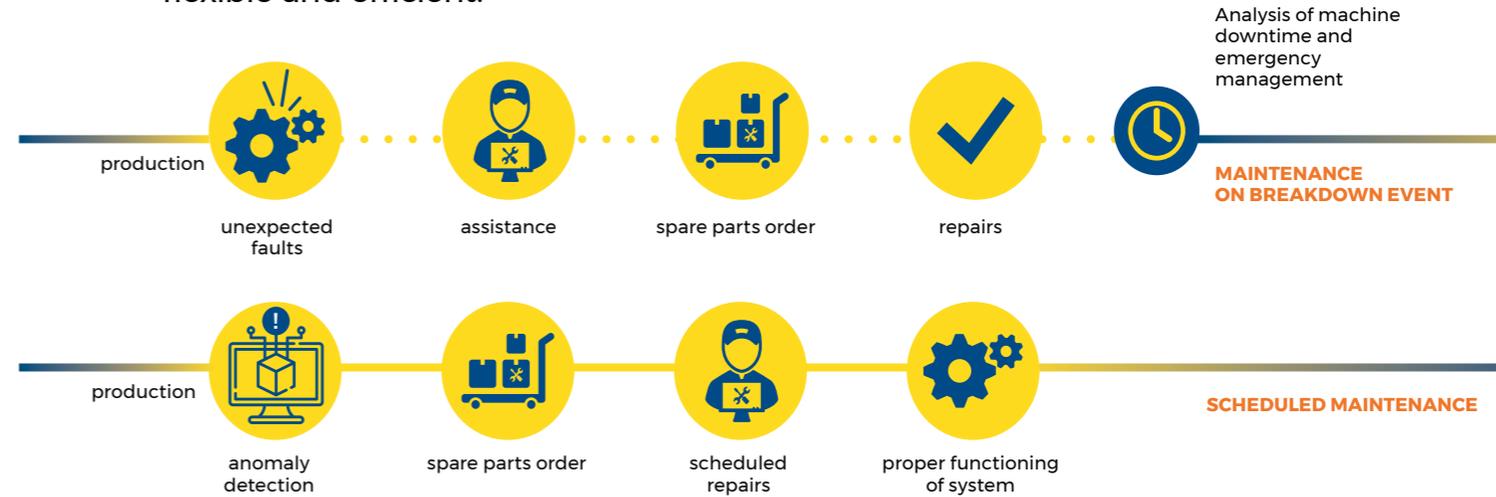
RETURN ON INVESTMENT  
**10 FOLD**



Source: IoT Analytics

There has been a change from replacing parts when faulty, or on a preventive basis, to analysing the “symptoms”. But having information is not enough on its own: we have to know how to understand them to take the right decisions. This analysis crosses frontiers of new technologies such as **Artificial Intelligence, Machine Learning and Big Data**.

The ability to manage this information makes it possible to analyse and adopt a predictive approach to data in real time, resulting in decision-making and production processes that are flexible and efficient.



Thanks to the availability of objective machine data which are collected systemically with an ongoing, reliable approach, maintenance policies are evolving. As a result, machine downtime is being **reduced**, **intervention costs are slashed** whilst **efficiency is maximized**.

Predictive maintenance is based on sophisticated mathematical algorithms that analyse data and calculate the risk that a fault can affect a given component.

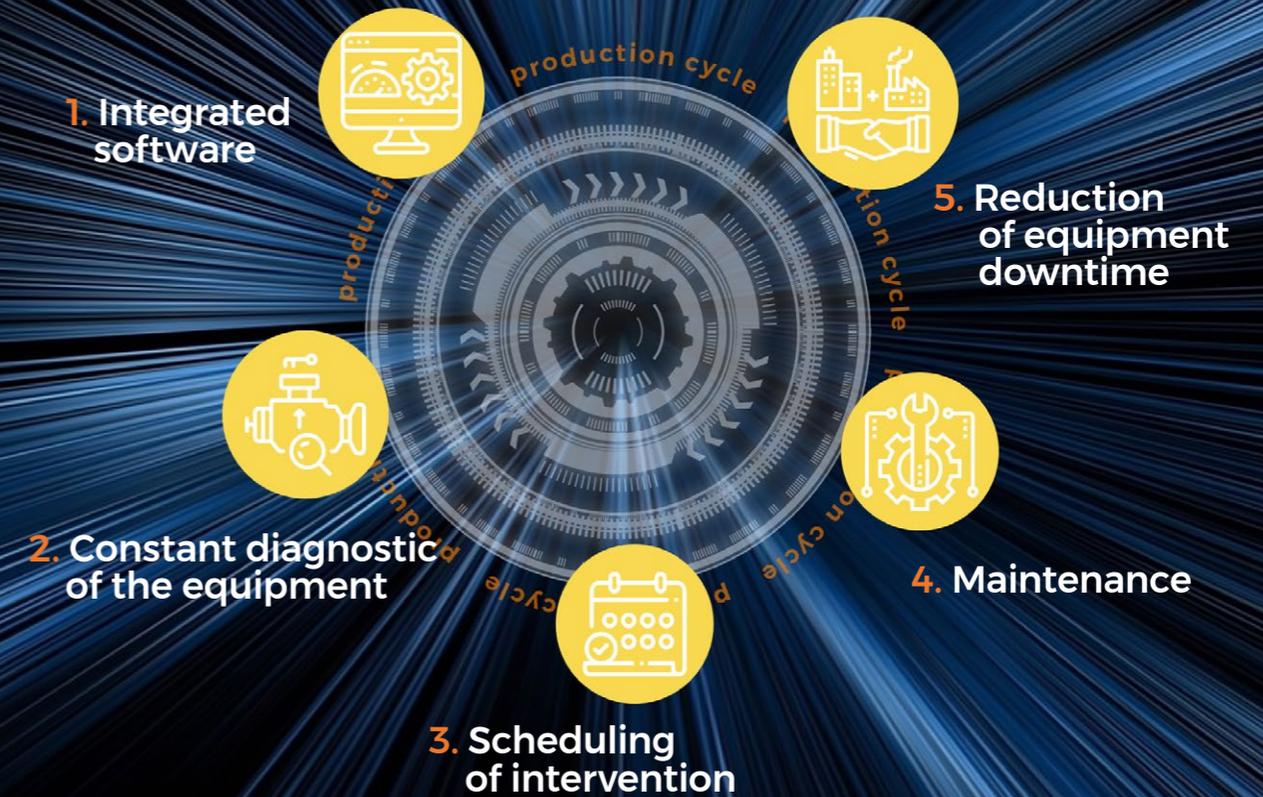
## PERPETUO: THE INSTRUMENT CREATED FOR FOUNDRIES

Predictive maintenance world has now seen the arrival of **Perpetuo**, the first artificial intelligence software, intuitive and easy to use, created in the foundry for the foundry. It is the only software which can talk to any machine and device in high-pressure die-casting cells.

**Perpetuo** is the solution that transforms a wealth of experience in equipments maintenance into a software platform that constantly monitors machines and their trends, using **Machine Learning** algorithms to keep one step ahead of any anomalies.

## THE ADVANTAGES

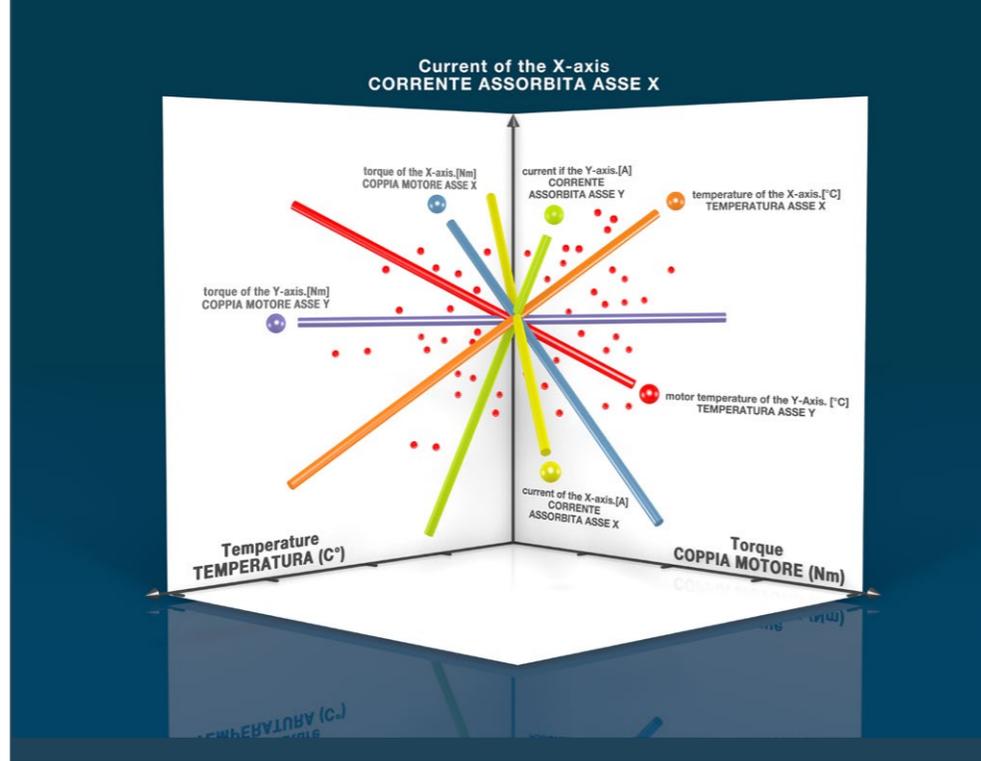
- Anticipate failures by reducing unplanned machine downtime
- Reduce operating costs
- Increase equipment efficiency, safety and quality
- Meet IATF certification requirements
- Open system: flexible and tailor-made



The sensors, which are often already present in die-casting cells, help understand the condition of the various components in real time. This makes it possible to arrange any measures and **organise maintenance before the fault occurs.**

Analysing data collected in real time is of strategic importance when it comes to identifying undesirable performance in mechanical, electrical, hydraulic and pneumatic parts subject to wear or faults.

Flow chart showing outgoing data generated by the functioning of an electric motor



The result is a modular solution that makes it possible to manage preventive maintenance whilst implementing **predictive maintenance**. Perpetuo is easy to integrate with any other management, production or maintenance software on the market.

**Perpetuo** is an essential tool for helping foundries not only with day-to-day maintenance, but also with their strategic development vision.

It is a system which accompanies production without altering the existing organisation in any way. It makes it possible to **optimise schedules and maintenance costs**, whilst at the same time meeting IATF certification requirements.

The software is **flexible, and can be customised**.

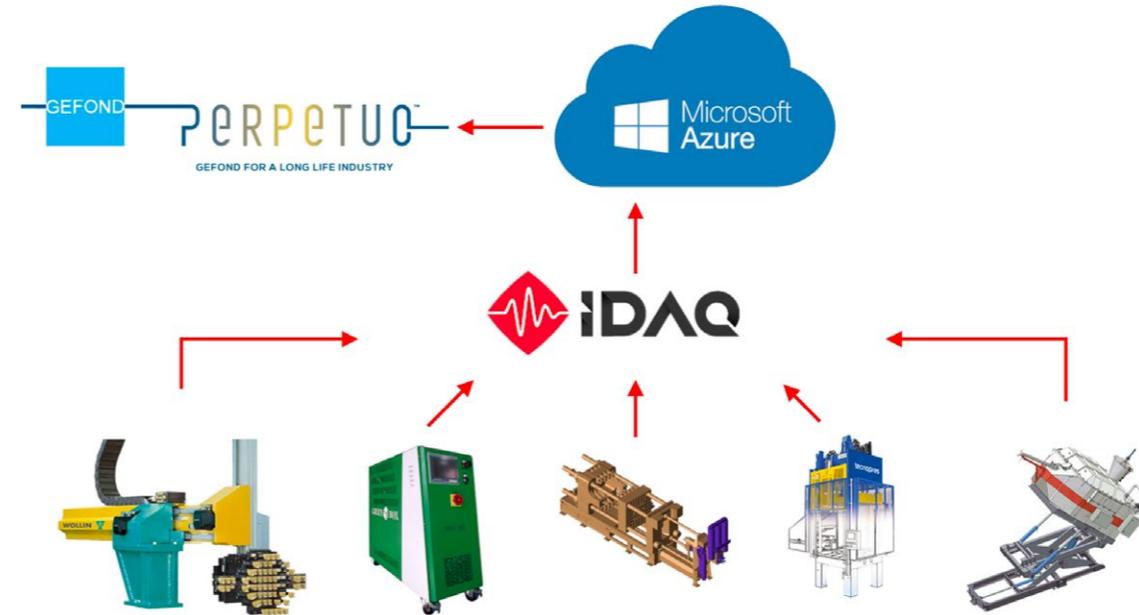
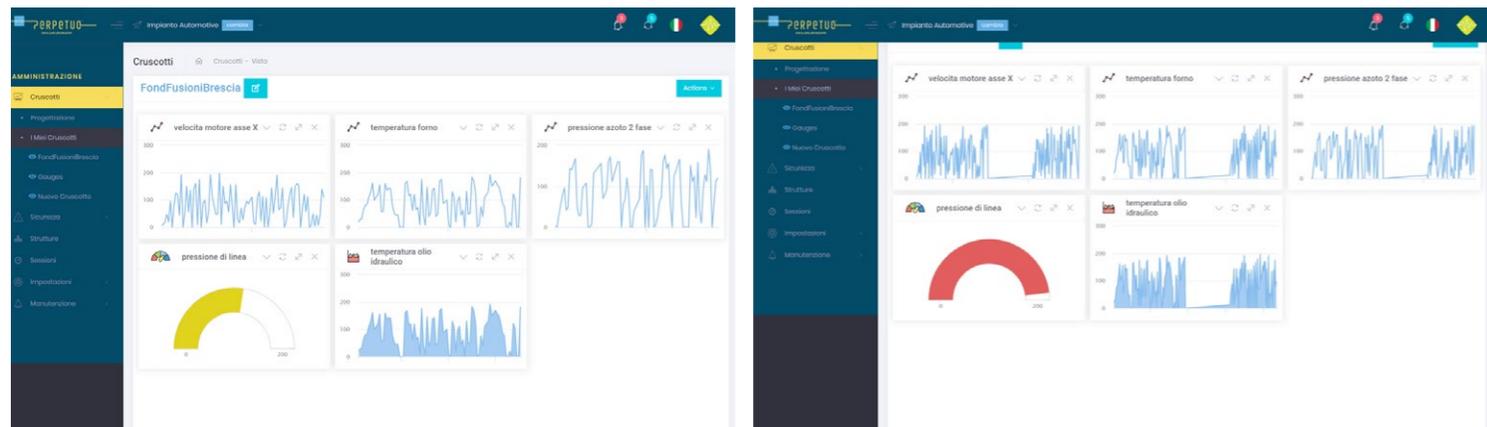


Diagram of how Perpetuo software works in cooperation with T4SM - Tools for Smart Minds, a company specialized in creating predictive maintenance algorithms

Software interface



"We are proud and enthusiastic to be amongst Perpetuo's first supporters. Our company has always placed the accent on production and quality," – states Fabio Voltazza, CEO of Pressofusione Saccense, an automotive supplier for Bosch. This major cutting-edge company offers products of outstanding technological quality that must meet the high standards of the international market. *"Predictive maintenance is a starting point for developing the industry. Our sector finally has the instrument it needs, and it has been developed to suit our needs and requirements."* - Fabio Voltazza, CEO of Pressofusione Saccense

## 2 Expanding the offer: GEFOND Servizi

# ENHANCING SOLUTIONS FOR PLANTS AND PROCESSES

With ten years of experience in the technical field and a consolidated partnership with die-casting machinery manufacturers, **GEFOND** is able to provide **all-round consultancy** on many components used in **die-casting foundry cells**.

New integrations are offered with the target to ensuring the asset is always up-to-date, safe and the most performing on the market. Solutions are developed to **optimise processes**, with particular emphasis on **energy saving**, **cycle time reduction** and **improvement of the casting quality**.

The aim is to accompany clients in their daily production routines, **ensuring the highest productivity standards are achieved whilst cutting management costs**.



## Remote service with Virtual Assistant

**GEFOND** has developed augmented reality systems which allow maintenance staff in the foundry to transmit video images to **GEFOND** technicians and interact **directly with them**.

Remote assistance using augmented reality makes it possible to have **specialist skills on-site**, increasing the quality of the services and the satisfaction of the end user.

Augmented reality has the potential to change the way companies interact with their clients, making for an all-new **Customer Experience**.

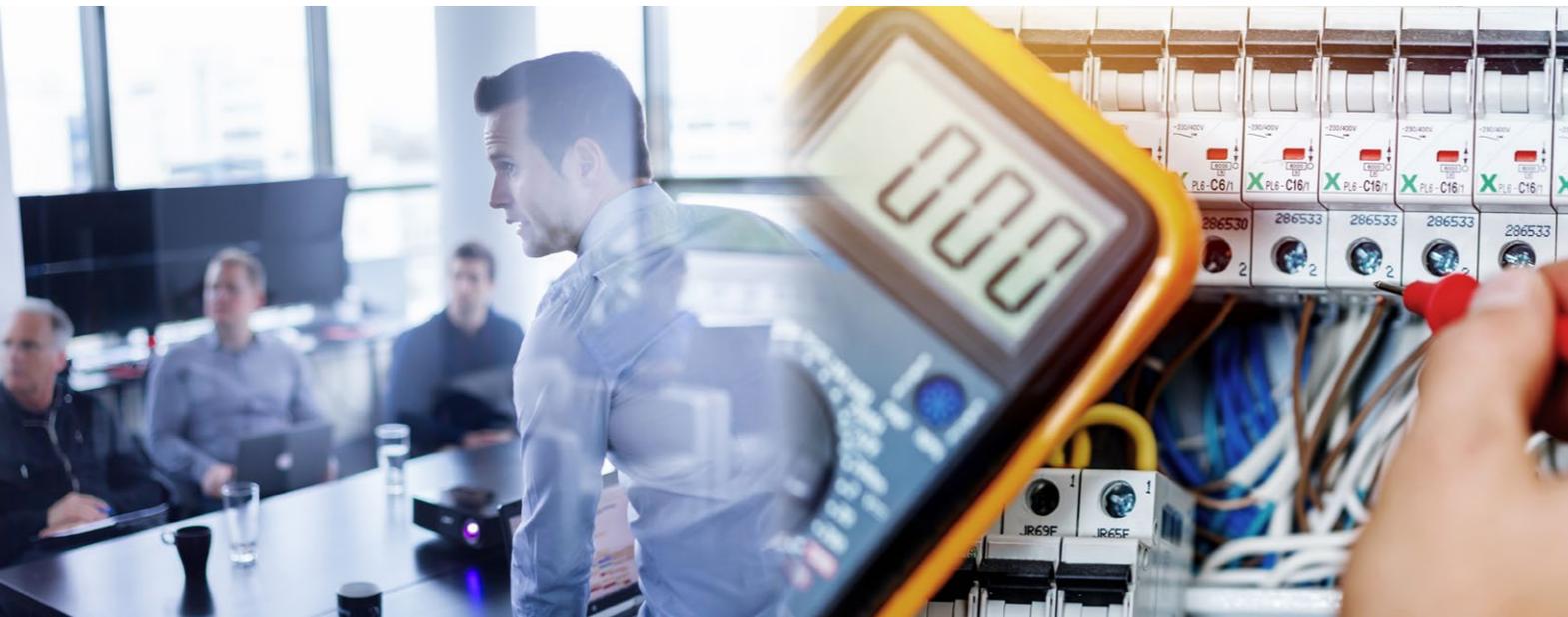


### ③ Training to enhance productivity: Gefond Accademia

GEFOND Accademia offers a training programme to ensure systems are always kept in optimal condition. The courses are oriented towards **running equipments, optimising processes and managing maintenance.**

The trainings are given by **GEFOND** staff and cover both practical and theoretical issues, offering the utmost **flexibility** and optimizing the training times.

The courses are addressed to die-casting and melting operators, process technologists, shift supervisors and foundry managers, maintenance staff and technical office staff.



## YEARS OF EXPERIENCE AND SUPPORT IN INSTALLATION, MAINTENANCE AND OPTIMISATION

- DIE THERMOREGULATION UNITS
- DIE LUBRICATION SYSTEMS
- DOSING FURNACES
- MELTING FURNACES
- CRUCIBLE FURNACES
- LOW-PRESSURE MACHINES
- HEAT-TREATMENT FURNACES
- ROBOTS
- HIGH-PRESSURE DIE-CASTING CELLS

**WOLLIN**   
SYSTEMATIC SPRAYING TECHNOLOGY

**AED**  **AUTOMATION**  
Excellence in Spraying Solutions

 **Frigel**  
Intelligent Process Cooling  
**GREEN BOX**  
more than answers

**ATLANTIC**

**foundry**   
Thermdos GmbH

**MMP**  
MOLTEN METAL PRODUCTS

**KROWN**  
SERVICIOS INTEGRALES DE FUNDICIÓN, S.A.

**Morgan**  
Advanced Materials  
**NOLINA**  
TIEGEL - CRUCIBLES - CREUSETS

# PERPETUO™ TIZIANA TRONCI INTERVIEW

GEFOND FOR A LONG LIFE INDUSTRY

## How did Perpetuo first come about?

It all started by chance. I first heard about Predictive Maintenance at the Aluminium 2018 trade fair. Curiosity has always played a part in my professional life, so I decided to find out more. After doing some research and long discussions with **Gefond's** technicians, I realised that most of our clients request maintenance or emergency intervention once a fault has actually occurred. They get stressed because the machines are at a standstill and production has stopped, and because spare parts are needed: these are not always in stock, and may need to be ordered. And procurement takes time.

It dawned on me that it is really hard to optimise work and be more efficient when we work this way. I tried to find out if there were any devices that would allow clients to reduce the number of callouts for support when a fault occurs. I analysed other industrial fields and realised our own sector also needed to work on preventing faults and consequently cut machine downtime.

## Have the idea and the project itself changed over the course of development work?

At first, we only thought about applying **Perpetuo** to the systems of companies we represent, such as Wollin and Greenbox (of the Frigel group) to name a few. We organised a tour of our suppliers in Italy and abroad, and they were really interested and willing to put their technical knowledge at the disposal of the project. But we also realised that the manufacturers were not interested in being in the frontline; instead it was **Gefond** that would have to take on the challenge in terms of investing time, energy, human and economic resources. They are sizeable investments for a company like ours to shoulder.

So we were faced with a choice. Either we could abandon the dream, or we could bravely place our bets on the project and invest in it. I'm not one to give up, and from that moment onwards the idea acquired a new lease of life: we decided to have an open system that could read any die-casting machine and device.

## When did you first realise Perpetuo could actually be achieved?

It was a vision, a bit like when you are daydreaming, but you are aware of the obstacles facing you. I never lost the will and desire to try to get as far with it as I could. My team and I mapped out a path and a strategy in an attempt to

achieve an ambitious result. Together, we identified the instruments best suited to the objective, instruments which the new millennium and digital development have placed at our disposal. And we needed the right partner. We found it in Claudio Vivante and his company, T4SM. We applied instruments developed for other sectors to the needs of the foundry: Machine Learning algorithms. We were able to pull it off by combining our respective know-how.

## Why did Gefond embark on this new process?

In this new process, **Gefond** has combined two aspects: a cutting-edge vision of the future of the industry, and experience and skill in foundry work spanning almost thirty years, covering both sales of the equipments and technical assistance, installation and spare parts. Pairing this far-reaching business vision with our experience has brought about change.

It has transformed the business model, which has shifted its attention to the needs of the customer and the market. So the offer of services linked to the product is combined with selling the machinery. These days, we get the feeling that customers need solutions over and above just buying the actual machine. We have transformed this need into training, virtual assistance and the Perpetuo software.

## There is lots of talk about Industry 4.0.

### How are foundries meeting these changes?

Industry 4.0 has prompted companies to buy machines that collect data, but the data are rarely checked, analysed and linked together.

This was one of the awarenesses that collect in **Perpetuo**. A cultural change is needed. We need to look after machinery. Not just own it, but actually look after it. This is **Gefond's** mission for a long life industry.

## What are the most innovative key features of Perpetuo?

I think it is a pioneering project for our sector **Perpetuo** is the first artificial intelligence software for predictive maintenance tailor-made for foundries.

**Perpetuo** makes it possible to anticipate needs, to actually lead machine downtime instead of being subjected to it, to manage schedules instead of chasing them. We met up with machine manufacturers and clients, and made a note of their needs, wishes and critical areas. And then we transferred them all to **Perpetuo**.

## Which client needs have you adopted as your own?

Achieving a modular solution. A software whose key feature and value is predictive maintenance, but which can also guide clients where preventive maintenance is concerned.

Flexibility. Every client has its own Achilles' heel, its own weakness and needs. **Perpetuo** is not a closed system that always works the same way. When we sit around the table, we talk to maintenance technicians, the IT department, the owners and the purchasing office. Each of these players has a different role to perform, and different needs. We collect these needs, process them and manage to create solutions we construct together. It's teamwork. It's also the only way we can provide a customised product, a solution that fits to perfection.

## Tell me about the name. How did it come about?

The basic concept is that we work to extend the lifetime of the equipments, and maintain the continuity of the production process. Hence **Perpetuo**.

## What are the next steps for Perpetuo and Gefond?

Our aim is to link up as many machines as possible. Indeed, with a self-learning process based on artificial intelligence algorithms, the system can become increasingly reliable by connecting machines, recording and interconnecting countless data. Along the way, I hope to meet visionary entrepreneurs who want to continue this journey with us.

Tiziana Tronci, daughter of GEFOND founder Pierluigi Tronci, has been with the company as External Relations and New Product Development Manager since 2016.



[www.gefond.it/perpetuo](http://www.gefond.it/perpetuo)

PERPETUO

GEFOND FOR A LONG LIFE INDUSTRY

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