

**APGAR.**

# ApgarIA:

## OPTIMIZING PRODUCTION PLANNING AND SCHEDULING AT SCALE

Discover how Logoplaste is using ApgarIA, our Intelligent Agent to optimize production planning and line scheduling across its global plants and business lines.

With the collaboration of

**Bernardo Dias**  
Digital Operation System Director,  
Logoplaste

**Mario Duarte**  
Group Head of Advanced Analytics, APGAR

# INTRODUCTION

## REVOLUTIONIZING MANUFACTURING WITH ARTIFICIAL INTELLIGENCE

Manufacturing enables our daily lives. From consumer goods like food, beverages, and care products to the production of specialized parts and machinery, we rely on various processes that turn raw materials into finished goods. These complex manufacturing processes come with complex challenges, like production planning and line scheduling, especially for large companies with multiple lines and facilities.

When it comes to production planning and scheduling, planners need to consider various data inputs and available technical and human resources to meet demand and optimize costs in the best possible way.

Today, most manufacturing companies use either rudimentary tools such as Microsoft Excel or legacy planning solutions. These legacy solutions don't account for manufacturing complexities; are difficult to maintain; and require human experts – both to use the tool and in the manufacturing processes themselves.

ApgarIA, Your Intelligent Agent for Production Optimization takes these legacy tools to the next level, leveraging the power of artificial intelligence to generate optimized production plans and granular schedules in real time, and in a user-friendly way. Thanks to its advanced capabilities in resource scheduling optimization, it is transforming manufacturing operations across large plants in the USA and Europe, driving efficiency, reducing costs, and promoting sustainability. We are thrilled to witness the remarkable impact our solution is making in data-driven manufacturing companies, such as Logoplaste. And we're delighted to share more about our journey together.



### WHAT IS APGARIA?

A comprehensive Data and AI framework that includes a suite of AI-driven solutions, such as Demand Forecasting, Production Scheduling and Capacity Planning, Predictive Maintenance, Real Time Anomaly Detection and Advanced Analytics for Supply Chain. Anchored on a manufacturing supply chain digital twin and data lake, ApgarIA Intelligent Agent was designed to seamlessly integrate with your core systems (MRP, MES, CRM, etc.), facilitating streamlined, data-driven, and optimized supply chain operations.





# MEET LOGOPLASTE

## VISION

Founded in 1976, Logoplaste is a revolutionary packaging manufacturer and the inventor of wall to wall embedded manufacturing. With 67 plants in 17 countries, their business lines put 11 billion units on the shelves each year, with a broad range of popular consumer goods from sauces to homecare. Logoplaste has always been a forward-thinking company, with a trajectory built on a series of innovations in materials, design, and efficiencies.

## MISSION

While the company manages high demand and massive production quantities, its embedded manufacturing model ensures zero transportation costs and no CO2 emissions related to transport. Through its manufacturing processes, Logoplaste shapes its customers' products, creating final versions of the goods that are recognizable to consumers around the world.

67

Plants

17

Countries

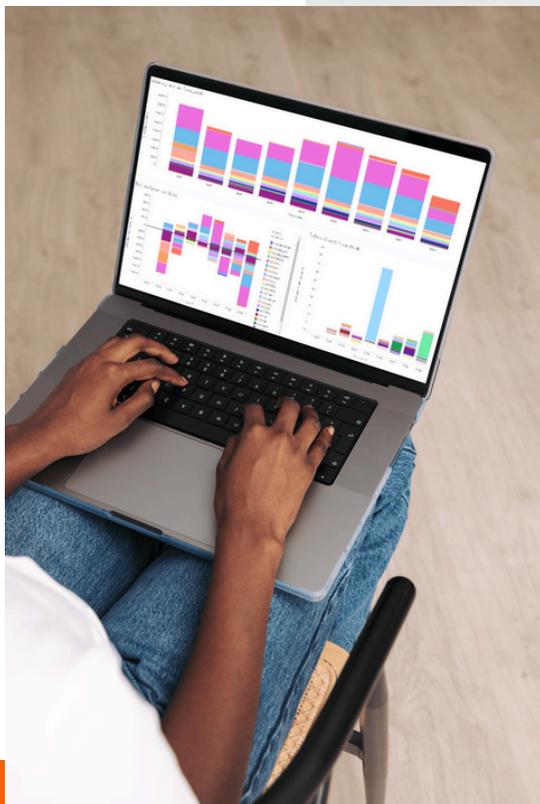
11

Billion units per year

# INNOVATE IN PRODUCTION PLANNING & SCHEDULING

## LOGOPLASTE'S UNIQUE MANUFACTURING MODEL

Logoplaste is located across several markets and geographies, positioned directly inside their customers' facilities. This unique embedded manufacturing model comes with specific challenges, in particular, scheduling lines and line changeovers across multiple locations. Logoplaste needs near real-time calculations to be able to buy and allocate resources in a fast-moving world, in order to maximize space and minimize waste, delivering the highest level of service to its customers.



## THE NEED FOR A NEW SOLUTION

Looking for an alternative to the available legacy tools (which are difficult to maintain, vary from site to site, and require an expert to define optimum runs and safety stocks), Logoplaste turned to APGAR for a better data-driven solution. Over the course of several conversations, the challenge was defined: to implement a smart, efficient optimization tool that would work across all the plants and business lines, accessible and usable by everyone for planning purposes. Overall, Logoplaste was looking for a paradigm shift. And APGAR was ready to deliver.

“We need a change, embracing what technology has to offer and putting it to good use. We had a very specific challenge to resolve, and the market has nothing suitable, nor efficient, nor user-friendly. APGAR understood our needs and delivered a solution to help our teams, our managers and our clients.”



**Bernardo Dias**, Digital Operation System Director, Logoplaste

# THE PROJECT



## Goals

Logoplaste's goals were clear: to improve operational efficiency and customer responsiveness, and at the same time, to level their planning abilities across geographies, even in plants without onsite planning teams. They were seeking a data-driven tool that could be used by employees with differing levels of experience and expertise, and one that could be used 24/7, with near real-time impact. They wanted to focus on resources (such as machines, molds, space, etc.), not constraints, keeping in mind a high level of efficiency, quality and service.

## SET UP OF APGARIA FOR PRODUCTION OPTIMIZATION

\* The companies were introduced through their mutual network. A series of conversations between Logoplaste and APGAR began in 2022 to present the solution and discuss Logoplaste's challenges and goals, leading to an initial Proof-of-Value (PoV) in early 2023 in one business line at one of the largest plants in the US, ensuring that the successful technology could be scaled to other Logoplaste business lines and sites across the globe.

\* After two discovery sessions to gather the details of the manufacturing process, a multiple-objective goal was defined: to minimize unmet demand, to minimize work center changeovers, and to minimize stock amounts.

\* Using APGAR's agile methodological approach, the initial trial of ApgarIA for Production Optimization was implemented within 2 months, and then ran for 1 week, followed by 1 week of assessing and analyzing the results.

ApgarIA Intelligent Agent  
Implementation phase

1 run week

1 assessment  
week



With just one week of results, the produced line schedules matched or even exceeded those of human planners.



## OUTCOMES & INSIGHTS

With just one week of results, the produced line schedules matched or even exceeded those of human planners. These visible, measurable results led to the decision to a roll out of the solution to other business lines at the same US plant and ultimately to other plants in Europe.

As expected, ApgarIA for Production Optimization was able to generate granular, accurate, and optimal production plans and resource scheduling in near-real-time, supported by a digital twin and data lake open data models, explorable using any Advanced Analytics tool.

It takes only about 5 minutes (or up to 20 minutes for integrated planning) to upload files into ApgarIA. This means less time and more agility, leading to improved scheduling and increased efficiency compared to the current planning tools, as well as the ability to run several iterations and validations.

Thanks to real-time data from shop floors, ApgarIA Intelligent Agent for Production Optimization supplied valuable, actionable insights for line scheduling. Through the various iterations, Logoplaste has a high level of confidence in the tool.



**“The APGAR solution has shown us results from Day 1.”**  
**Bernardo Dias, Digital Operation System Director, Logoplaste**

# SCALING FOR FUTURE

## MID-TERM GOALS

### Expansion of AI

Overall, Logoplaste is confident in ApgarIA for Production Optimization and is expanding the use of the solution, scaling it across facilities and making it into a real group tool, with the goal of deploying the solution in a new plant every two months over the course of 2024. The company wants all teams to be familiar with and able to use the tool, even remotely, for other plants.

### Maximizing Workforce Efficiency

A broader roll out across sites increases the availability of skilled employees, like planners, for other higher value tasks within the company, and it also brings skills and expertise to other roles, such as production managers.

### Capacity and Standardization

Additional goals include: conducting capacity studies and building a framework to standardize data collection across the board.



“We are confident that this kind of tool can and should be used. We’re taking it one step at a time, never losing focus on growth and scale. That is the clear path to success. Only scaling will bring real value.”

**Bernardo Dias, Digital Operation System Director, Logoplaste**

# CHANGE MANAGEMENT



## CHALLENGES IN USER ADOPTION

As the solution has been rolled-out to new plants, critical success factors include user adoption and the AI's ability to mimic the planning capacity of a skilled human planner.

ApgarIA for Production Optimization, tailored to Logoplaste's needs and specifications, is straightforward and easy to use, taking standardized ERP files and creating automation flows visualized in a user friendly web interface.

## Understanding AI Scheduling

Though adoption of the tool was smooth and teams were encouraged to "iterate," human planners remained curious. Since they are the ones accountable for the line scheduling and production planning, they wanted to understand why the AI created particular schedules, in addition to being able to validate the results that it generates.

## CHANGE MANAGEMENT STRATEGIES

As ApgarIA for Production Optimization is implemented in more of the company's business lines, change management is a key topic and an important critical success factor. While only the planners are directly impacted by the solution at this stage, it is important to make all teams aware of its benefits (both to teams and clients). It is also vital to express that while the AI agents are making things more efficient, they are not replacing planners or planning teams. That was not, and is not, Logoplaste's goal in implementing the tool.

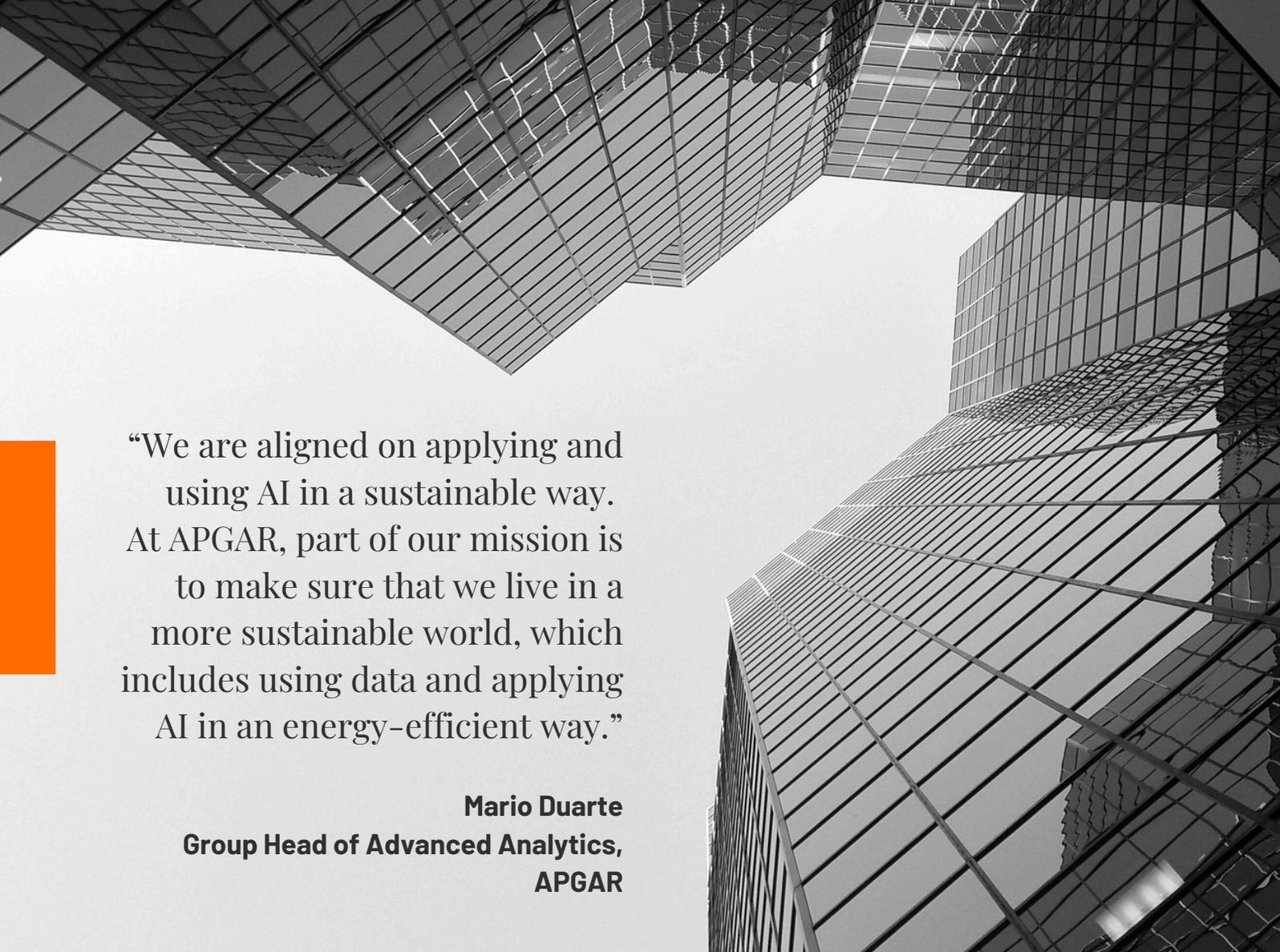
By scheduling regular time with planners to discuss the solution and address any questions or concerns about how it works, Logoplaste is building confidence among teams. These vital touchpoints, turning planners into advocates, will facilitate a larger scale deployment of ApgarIA for Production Optimization.

To address schedulers' concerns about how AI schedules, some additional data analyses were added. In particular, showing the suggested plans and the human schedule plans side by side was of significant importance.



*“We were seeking a solution to increase efficiency, not a replacement of people. We are leveraging this efficiency to do things that we were not able to do before. The planning tool is not a replacement of human talent, it’s an enhancement of our abilities overall.”*

**Bernardo Dias, Digital Operation System Director,  
Logoplaste**



“We are aligned on applying and using AI in a sustainable way. At APGAR, part of our mission is to make sure that we live in a more sustainable world, which includes using data and applying AI in an energy-efficient way.”

**Mario Duarte**  
Group Head of Advanced Analytics,  
APGAR

# SUSTAINABILITY

## SUSTAINABILITY & APPLIED AI IN MANUFACTURING

Applying artificial intelligence and machine learning in manufacturing has significant applications in sustainability. The solutions consume energy when deployed, as well as when they generate, analyze and store data. Though digital by definition, data collection and consumption have a carbon footprint.

Logoplaste has sustainability as a cornerstone, where no decision is made without careful consideration of the impacts it has in the environment, the local communities, in the future and in the teams. When it comes to data, it too has to be sustainable, and must be handled responsibly. The idea is not to generate and store endless amounts of data, but to create and use data in a conscious and governed manner.

# AI & ML IN MANUFACTURING

## HOW AI AND ML INTERVENE IN PRODUCTION LINE OPTIMIZATION?

Powered by advanced artificial intelligence, APGAR's ApgarIA automates the highly specialized tasks of production planning and resource scheduling, reducing reliance on human intervention and freeing up valuable human resources for strategic tasks.

Designed to optimize industrial operations and boost efficiency, the ApgarIA leverages advanced analytics and AI to analyze complex data and provide actionable insights that drive operational excellence.

## ADDITIONAL POTENTIAL FOR AI & ML IN MANUFACTURING

ApgarIA for Production Optimization belongs to a set of versatile APGAR AI solutions that can be used at Logoplaste and other manufacturing companies for other AI use cases in Operations.

The use cases include:

**1**  
**Real-time advanced analytics**

APGAR solutions feature cutting-edge event stream processing capabilities and employ machine learning models to detect abnormal patterns hidden in data. This is further enhanced with live dashboards and intelligent alerts, providing immediate insights, and facilitating swift, operational data-driven decision-making in real time.

**2**  
**Demand forecasting**

Understanding and satisfying fluctuating customer demands is essential for manufacturing companies, with broad implications for operations. ApgarIA implements machine learning to help identify any patterns around demand, which can help improve and optimize the procurement process.

**3**  
**Generative AI**

An AI assistant that uses a natural language interface is a powerful resource for users, providing detailed and important information and responses to FAQs. This is an easily accessible and comprehensive database that can be set up for all teams.

# OUR PROVEN AI METHODOLOGY

To ensure our AI solutions deliver tangible results, APGAR follows an agile and business value-oriented methodology, that includes the following phases:





# WHY CHOOSE APGAR

APGAR is a leading data advisory company supporting its customers in their journey to build a foundation for trusted data. Built with strong values, APGAR aims to provide sustainable advisory services. APGAR acts for small & large companies, in Europe, North America, Australia and the Middle East.

APGAR gives our international clients the expertise to make the best use of their data. For themselves. For their ecosystem. And for a better world.

## 3

### Reasons to choose APGAR

**We're a human-sized company,** with a team that sits "between two worlds," engaged to bring technology and users together.

**With 10+ years of expertise and experience,** we've earned the trust of major companies and organizations in addressing their complex challenges.

**We provide end-to-end guidance** when it comes to your data needs, from conception to launch and beyond.

## GET IN TOUCH

Have a specific project or challenge when it comes to production optimization?  
Get in touch now!



**Mario Duarte**  
Group Head of Advanced Analytics  
APGAR

