

REFERENCE: VIVIX

From paper processes to a digital glass factory

Vivix transformed its operations from isolated paper-based processes into an integrated, low-code-driven digital factory within just a few years.



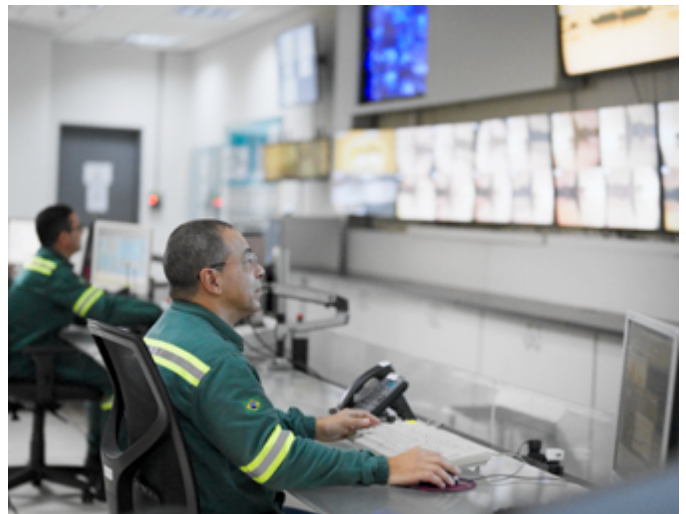
By drawing up a clear strategic transformation roadmap and pursuing it rigorously, Vivix Vidros Planos in Brazil has taken just a few years to successfully make the leap from isolated paper-based solutions to an integrated low-code-driven digital factory. The result is better data quality, greater efficiency, and an organization that is now systematically driving innovations in its glass production operations. Siemens also played a role by supplying technology, advising the company, and laying the necessary foundations for automation, digitalization, and energy management.

Vivix Vidros Planos – the only flat-glass production plant in Brazil that is fully funded by Brazilian capital and operates its own raw materials plant – has a strong strategic position. However, the company identified a number of areas where there was potential to further enhance the organization of its factory. By embracing digitalization in key areas, Vivix set out to boost the speed and quality of its decision-making and fine-tune levels 3 and 4 of the automation pyramid.

In 2021, Vivix, with the support of its Industrial Top Leadership and Innovation department, launched a strategic digital transformation roadmap. Its goals were to reduce operating costs, boost the industrial teams' productivity, make the organization data driven, and improve resilience to global changes. In 2022, after evaluating more than 18 options, the company opted for the Mendix low-code platform. It did so because the platform covers complex industrial requirements, operates on-premises and at the edge of production, and can be closely integrated with the existing Siemens and SAP-S/4HANA ecosystem. "The Mendix platform is easy to learn and speeds up how quickly you can add value," says Aristoteles Terceiro Neto, Industrial Transformation Manager at Vivix.

A short time later, modular applications were created throughout the value chain. These include digital checklists that reduce manual maintenance and monitoring processes by several hours per shift, an application for real-time monitoring of furnace temperatures, and the Glass DNA solution that links quality data on thickness, color, and defects with process and layer information to massively boost transparency in production. Integrating these apps with Data Lake, Power BI, and SAP replaces paper-based processes, creates end-to-end traceability, and enables active management of anomalies and damage.

At the same time, Vivix professionalized its IT and development culture. Now, industrial engineers become productive Mendix developers in just a few weeks, agile methods and microservice architectures are reducing the time-to-value,



For Vivix, the transformation represents a clear step toward the future of glass manufacturing – production operations that are more transparent, more efficient, more resilient, and increasingly powered by data and industrial AI.

and cloud-native deployments (initially Azure, subsequently AWS) are providing flexibility in the infrastructure. Vivix then took the next step by building its Virtual Engineer AI chatbot, which is based on foundation models such as Claude and is embedded in the Glass DNA application. As a result, customer complaints and internal issues are now resolved within hours rather than days.

This transformation has received significant external recognition. In 2026, Vivix was awarded Brazil's National Innovation Award (PNI) in the Digital Transformation category. Siemens Digital Industries Software also presented Neto with the Innovation Leader Award at the Siemens Techcellence Awards, held during Realize LIVE Americas 2024 in Las Vegas.

The leap from isolated paper-based solutions to data-driven production

"By drawing up this clear transformation roadmap and pursuing it rigorously, we have taken just a few years to successfully make the leap from isolated paper-based



“With a clear roadmap and Siemens as part of a broader ecosystem, the company moved from paper-based silos to an integrated digital factory.”

Aristoteles Terceiro Neto,
Industrial Transformation Manager
at Vivix.

solutions to an integrated low-code-driven digital factory. The result is better data quality, greater efficiency, and an organization that is now systematically driving innovations in its glass production operations,” says Neto with satisfaction. “What’s more, thanks to Siemens, we managed to do that as part of a large ecosystem,” he continues.

Besides choosing the Mendix low-code platform, Vivix also opted early on for a whole range of Siemens solutions and technologies for its digitally transformed glass production plant. Examples include Simatic PCS neo, the completely web-based distributed control system for process plants. This automation solution offers Vivix web-based engineering, operations, and monitoring, without any local software installation, thus enabling remote access from any location. The architecture is object-oriented, scalable, and designed for both maximum efficiency and global collaboration.

Vivix also has Siemens Advanced Process Control (APC) at its disposal – an advanced method within the automation system that optimizes processes through intelligent control

algorithms. It reduces fluctuations, boosts quality and productivity, minimizes energy consumption, and makes it possible to operate plants closer to their optimum limits.

Simulation is another important part of Vivix’s transformation journey. Using Simcenter STAR-CCM+, which is the Siemens comprehensive simulation software for computational fluid dynamics, heat transfer, and multiphysics applications, Vivix engineers can analyze and visualize complex physical phenomena related to glass production, such as fluid dynamics, heat transfer, combustion, and process behavior.

One important example is the development of a furnace digital twin, designed to simulate and provide a better understanding of the thermal and operational behavior of the glass melting process. By combining physics-based simulation with industrial data and advanced AI capabilities, Vivix is exploring how technologies such as physics-informed neural networks, in collaboration with NVIDIA, can help create faster, more adaptive, and more intelligent simulation models.

This approach has the potential to support better engineering decisions, improve process understanding, accelerate scenario analysis, and optimize furnace performance, energy efficiency, and product quality.

Vivix uses Siemens Senseye as part of its asset performance management strategy. By applying predictive and prescriptive maintenance capabilities, Senseye supports the monitoring of asset health, the early identification of potential failures, and the prioritization of maintenance actions based on risk, criticality, and operational impact. Through this approach, maintenance teams can make better-informed decisions, reduce unplanned downtime, improve asset availability, and strengthen the connection between operational data, maintenance planning, and industrial performance.

Besides focusing on automation and simulation technology, Vivix also prioritizes intelligent energy management. Thanks to open energy intelligence from Siemens, the Brazilian company is saving on energy costs and reducing its emissions. At Vivix, comprehensive, scalable Simatic solutions track consumption data system-wide and automate key controls to conserve energy, meet reporting requirements, and achieve the company’s sustainability goals.

Rigorous ongoing transformation

Vivix is delighted with its technological achievements in terms of automation, simulation, digitalization, and energy

management. “We greatly value the industry-specific expertise provided by Siemens. Our contacts give us practical help and advice, including when it comes to discussing promising glass products for the market,” says Neto.

At the same time, Vivix is continuing on its industrial transformation journey this year, too. In 2026, Vivix’s industrial transformation journey is moving on from the digital foundations to implementation at scale. The company’s focus is now on applying its industrial data, automation, and digital capabilities to high-impact use cases, including generative AI and industrial agents, robotics and physical AI, and digital twins and plant simulation.



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Besides taking the use of AI agents to the next level to support decision-making, knowledge management, and operational workflows, Vivix is also exploring robotics and physical AI, including humanoids and quadrupeds, to support industrial inspection and field operations. In addition, it is expanding digital twin and simulation capabilities to improve process understanding, scenario analysis, energy efficiency, emissions, and production performance.

With Siemens technologies and its broader open ecosystem of partners – including Snowflake, Highbyte, AWS, and NVIDIA – Vivix is strengthening the connection between industrial data, automation, simulation, cloud infrastructure, and artificial intelligence. Together, these capabilities are helping Vivix build a more connected, intelligent, efficient, and sustainable glass manufacturing model, where data, AI, simulation, and automation work together to create measurable operational value.

For Vivix, this transformation represents a clear step toward the future of glass manufacturing – production operations that are more transparent, more efficient, more resilient, and increasingly powered by data and industrial AI.

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