



# A PARADIGM SHIFT IN AUTOMOTIVE ASSEMBLY AUTOMATION

HOW NOVUS DEVIATED FROM  
CONVENTIONAL THINKING TO  
AUTOMATE HARD-TO-FIXTURE  
PARTS ASSEMBLY



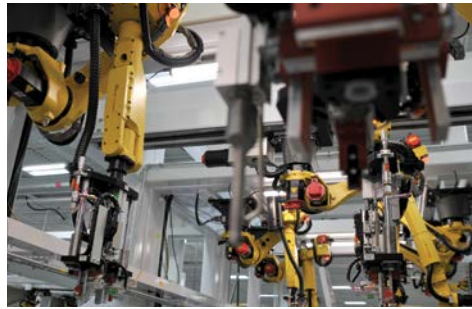
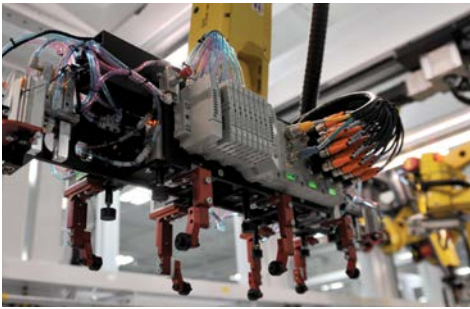
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Wes-Tech set a new industry standard by demonstrating an ability to seamlessly integrate with the client's dynamic development environment.

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[Wes-Tech Automation Solutions](#) routinely sets a high bar for innovation in manufacturing automation systems. It often embraces—and successfully delivers solutions for—high-VUCA (volatility, uncertainty, complexity, and ambiguity) automation challenges. Wes-Tech's exceptional abilities are demonstrated with the “NOVUS Project” (as code named and detailed in the book [No Excuses Innovation](#) by Bruce Vojak and Walter Herbst), a project that involved a new client, who was in a new market, with a new product, desiring to develop a never-done-before assembly process.

Challenged to develop an automated assembly system for a groundbreaking company's new electric vehicle launch, Wes-Tech drew on its decades-old, systems engineering expertise to meet a distinct set of challenges that mobilized the team's experience, innovation, and resilience, while in the process further strengthening the team itself. The project required the team to take a pioneering and risky approach to embracing the undefined, creating a dynamic engineering process, while adhering to a demanding timeline.



## THE PROJECT:

NOVUS, an innovator in the electric vehicle market, presented Wes-Tech with a task that markedly deviated from conventional automation projects. While most automation suppliers work with two process models—“made to design” or “made to specification”—NOVUS requested a more dynamic approach as the ideas and design were still a work in progress. Despite their significant internal capacity and technical expertise, they lacked experience with the traditional automated assembly process of the automotive industry in general and with something this novel in particular.

The fragile components Wes-Tech was tasked with assembling were part of the vehicle's fascia—an

JASON ARENDS, PRESIDENT OF WES-TECH, EXPLAINED THE UNIQUE NATURE OF THIS PROJECT. UNLIKE TYPICAL PROJECTS THAT WORK WITH WELL-DEFINED, TOLERANCE-SPECIFIED METAL COMPONENTS, WES-TECH WAS PROVIDED WITH JUST A CAD MODEL FOR A PART THAT WASN'T DESIGNED FOR AUTOMATED ASSEMBLY:

“ This challenge required a paradigm shift—developing a system that could dynamically adapt to the component's unique characteristics, ensuring accurate assembly without the need for exhaustive analysis that could lead to unnecessary component rejection.”

assembly notorious for its challenges due to variations between matching parts and their respective aspect ratios. Up to this point, NOVUS had only assembled these components by hand in pilot production and the parts were inherently hard to fixture. (Wes-Tech team members referred to the components as a “wet noodle” challenge.) Wes-Tech had to create an automated assembly system that could accommodate relatively wide, undefined, in-spec variations, while ensuring that each piece was utilized, efficiently assembled at a predictable production rate and high quality, while also minimizing waste.

Compounding the challenge was an aggressive timeline to meet the demands of a one-year systems release versus what would typically be a 3–5 years systems timeline in automotive.



## CHALLENGES:

While NOVUS's ambitious requirements diverged sharply from industry norms, the project presented the following routine challenges:

- **Accelerated Timeline:** The client required a one-year turnaround on an automated process that would typically span 3–5 years in the automotive industry. Success would require dedication, innovation, and daily communication with the internal team and other external component creators.
- **Automation versus Human Assembly:** Under the project parameters, NOVUS required a fully automated assembly line for both the front and rear fascias—a delicate task previously done entirely by hand.
- **Material Complexity:** The project involved transitioning the material from metal to durable plastic—likened to handling a “wet noodle” due to flexibility and variability.
- **Intricate Control Systems:** The endeavor called for complex part control systems with advanced data requirements, further compounding the system's complexity.

And one, **unique** challenge:

- **Alignment with the Client's Strategic Objectives:**

The building of a new production line, involving new manufacturing methodologies, many undefined parameters, coordination with upstream/downstream automation suppliers, and resiliency to iteratively converge on the solution without impacting the one-year deployment deadline.

## ADDRESSING THE CHALLENGES:

Wes-Tech addressed **routine challenges**—those kinds of challenges that are normally encountered on any project—with robust project management systems, rigorous in-house controls, and solid engineering capabilities, all of which are qualities that had been developed over many years and throughout many complex projects.

Wes-Tech's response to the **unique challenge** was both systematic and innovative. Integrating the project team to work as a single unit—with leadership having full faith in the team's capability, experience, and ability to execute the challenge. The approach wasn't solely about creating the right technical solution but also the right active mindset to pivot quickly and collaborate effectively.

From a technical standpoint, the interdisciplinary experience and creativity of the Wes-Tech team led to an innovative solution, which revolved around a mechanical system engineered to accommodate variations. The system precisely aligned each component for assembly without relying on vision guidance technologies, which the client viewed as potentially unreliable due to maintenance and complexity.

From a principal perspective, NOVUS required Wes-Tech to tap into its customer-centric DNA and “tech startup” mentality, which aligned well with NOVUS's own company culture. Further, more than a point person (routinely assigned on any project), a Wes-Tech team member was embedded with the NOVUS team for near-daily communications. They were immersed in the project to address each new detail, challenge, or update, in real time—even proactively addressing impacts.

The Wes-Tech approach proved a technical success and resonated deeply with engineering professionals as an example of leadership and adaptation. The NOVUS project highlighted the importance of an innovative entrepreneurial spirit as Wes-Tech approached each project challenge with an unparalleled ability to deliver robust, flexible, and efficient automation.

## CRITICAL SKILLS FOR MEETING THESE CHALLENGES:

Wes-Tech's unique, customer-centric culture seamlessly aligned with NOVUS's own approach to innovation and creation with key skills to meet each challenge:

- **Team Flexibility:** By leveraging the team's flexibility, communication, and intuitive approach to innovation, Wes-Tech aligned closely with NOVUS's internal culture and requirements.
- **Creative Solutions:** The Wes-Tech team devised solutions to address the unique technical challenges of automating the assembly of delicate components without established tolerances.
- **Customer-Centric Communication:** With dedication and clear, ongoing communication, Wes-Tech mobilized

REFLECTING ON THE PROJECT'S IMPACT, JASON ARENDS NOTED THAT THE SUCCESS OF THE FASCIA ASSEMBLY LINE WAS A CRITICAL COMPONENT IN NOVUS'S BROADER PRODUCT LAUNCH STRATEGY:

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The efficient and timely execution of the assembly line was instrumental in ensuring that NOVUS met its launch deadlines, which in turn played a significant role in the company's financial performance and stock price stability. This project was more than just a technical triumph; it was a testament to Wes-Tech's strategic foresight, technical skill, and ability to innovate under pressure, solidifying its place as a trailblazer in the automation industry.”

to meet a loosely defined, technically challenging requirement, within an extremely aggressive timeline, and all while collaborating with other suppliers working on other aspects of the assembly process.



## PROJECT SUCCESS AND TAKE-AWAY VALUES:

The success of the NOVUS project had far-reaching implications beyond the immediate technical achievements. Wes-Tech set a new industry standard by demonstrating an ability to seamlessly integrate with the client's dynamic development environment.

NOVUS recognized the project's success and Wes-Tech's unique contribution while this project exemplifies the Wes-Tech innovative engineering ability to integrate parts, "at tolerance extremes," into high-quality products while minimizing waste.

Most importantly, the ability to align with the client's strategic objectives through the team's resilience and ability to integrate with and to those objectives underscores how Wes-Tech tackles the challenges of evolving manufacturing trends and highly complex projects.

## TOTAL VALUE DELIVERED

The project's success translated into significant value for NOVUS and solidified Wes-Tech's already proven industry track record:

- **Productivity and Safety:** The Wes-Tech automated assembly system increased productivity, enhanced safety, and improved quality.

- **Risk Mitigation:** Wes-Tech averted potential delays in the new model launch while introducing systems that were flexible and re-deployable for future projects.
- **Collaboration:** Wes-Tech worked alongside other automation suppliers and NOVUS's internal team with close communication and flexible solutions to meet shifting goals and timelines.
- **Financial Impact:** Wes-Tech's innovative approach to automation enabled a solution that led to a high ROI, improved quality, waste reduction, labor reduction, and opportunities for system re-deployment.

## NOVUS PROJECT: A DEMONSTRATION OF WES-TECH CAPABILITIES:

The NOVUS project met and exceeded the stringent acceptance criteria and received high praise from the client. NOVUS commended Wes-Tech's significant role in its successful EV launch and ensuing success with manufacturing this new model specifically and by extension, their success in their market.

The NOVUS project showcased Wes-Tech's capabilities to adapt and deliver robust solutions in today's fast paced product development environments, setting a new level for automation excellence and responsiveness. The NOVUS Project also highlights Wes-Tech's ability to lead and collaborate within the custom automation systems industry while delivering value for all stakeholders.

[Reach out today](#) to navigate your next automation project with confidence. Trust our wealth of experience to guide you through challenges and ensure a successful ROI and smooth roll-out.



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