



# COLLABORATIVE EFFICIENCY:

## HOW **COSTA RICA** IS SOLVING **GLOBAL MEDICAL DEVICE** MANUFACTURING CHALLENGES



Many medical device manufacturers struggle with extended lead times, rising costs, and distant production facilities that hamper direct involvement and leave teams disconnected from their product lines.

Add in multiple suppliers, time zones, regulatory challenges, and shipping hurdles, and it's easy to see how a single misstep can inflate budgets or torpedo schedules, causing headaches for everyone.

A dedicated manufacturing "cell" in Costa Rica, where your operations run in parallel yet still feel like your own, can give your organization greater control, shorter lead times, and a meaningful drop in complexity.

In this report, we'll examine the benefits of this compact, efficient manufacturing model and hear from some of Costa Rica's success stories in the medical device sector.



## ZOOMING IN ON THE CELL MODEL IN COSTA RICA

Sometimes confused with contract manufacturing, the cell approach is much more collaborative and closer to the shelter model of outsourcing.

Under this model, clients can house their medical device manufacturing processes in shared clean rooms or dedicated spaces, depending on privacy and IP requirements. This approach ensures that while processes and production lines are physically in a Costa Rican facility, the OEM retains total control. It's essentially an extension of your existing manufacturing sites.

Each cell mirrors a customer's processes, equipment, and quality standards. Local manufacturing companies manage the day-to-day operations, from hiring and training operators to sourcing materials, but the client retains a sense of ownership and oversees key decisions.

These cells allow for a tight feedback loop—the Costa Rican team and the client's engineers often collaborate, making improvements and corrections faster than a distant offshore setup might allow. Costa Rica's proximity also shortens transit times, simplifies on-site visits, and keeps shipping costs reasonable, especially compared to manufacturing in Asia, for example.

Each cell runs according to the client's forecast and evolving needs so organizations can quickly manage future shifts or spikes in demand. You also gain Costa Rica's advanced engineering support, whether refining a process step, suggesting a more robust coating method, or establishing a tighter turnaround.

Ultimately, this model merges the benefits of an in-house line with the conveniences of an outsourced partner but without losing control or visibility. In a single move, the cell model allows you to expand production without building a new plant or hiring an entire team.

*Let's take a look at two companies that are delivering these benefits to US medical device clients, as well as some of their success stories along the way.*

# PARTNER SPOTLIGHT: TICO ELECTRONICS

Tico Electronics operates in Alajuela, Costa Rica, in one large facility that is approximately 110,000 square feet. By the end of 2024, the company employed almost 800 people, having doubled its headcount in ten years. Tico's core focus is on advanced manufacturing, particularly for medical devices, aerospace, and energy. The company grew over 20% in 2024, pushing its revenue past US\$30 million.

A hallmark of Tico's approach is its client-specific manufacturing cells, which serve as dedicated production lines. Within each cell, Tico replicates the client's processes—sometimes sourcing or even relocating equipment—so that production feels like an extension of the client's operation. The clients retain crystal-clear oversight, yet Tico contributes its expertise in motor technology, electronics assembly, and process improvements.

Over the years, Tico has developed distinct knowledge in producing complex motor assemblies—rotors, stators, windings (AC, DC, sensors, actuators), and related subcomponents. The company doesn't design these motors from scratch, but the team helps clients optimize manufacturing steps, leaving them with a stable production arrangement that meets stringent medical device standards.

The company swears on its optimized approach to project management, which involves coordinating everything from NDAs and quotes to quality validations. Tico also offers deep-rooted experience with handling diverse customers in high-stakes industries. Tico's clients also appreciate how the company collaborates on process challenges—traveling to the client site, training with their teams, transferring or replicating the processes in Costa Rica, and scaling operator groups as needed.

On the employee side, Tico runs a “kanban” system of pre-trained operators who are ready to jump onto a new project at a moment's notice. All of Tico's new hires undergo a thorough training program that combines classroom instruction, lab simulations, and mentorship before joining the manufacturing line.

Forming close relationships with tier-ones and medical device OEMs, Tico's willingness to engage in iterative engineering—from small sample runs to large-scale validation—lets them run quickly but also carefully. As such, the company has been expanding its capability year by year, becoming a thriving advanced manufacturing provider recognized for collaborative, high-quality production.

## TICO'S SUCCESS STORY: AN 52% DECREASE IN LEAD TIME

In one example of the cell model in action, Tico partnered with a medical device manufacturer that was experiencing a persistent short-circuit problem in a compact motor assembly for a surgical robot.

The client initially relied on perylene coating for the stator lamination but faced constant electrical failures. Tico suggested a powder-based “fluidizing” approach combined with vacuum impregnation to get a thicker insulation layer without crowding out the copper windings.

The process required hands-on engineering. Every adjustment in coating thickness changed the motor's dimensions, so Tico worked side by side with the client's design team, iterating until they reached an ideal balance. They operated like an R&D lab, prototyping new samples, confirming electrical performance, and tweaking the samples' dimensions and shapes in real time.

Tico dedicated an entire manufacturing cell to this motor, bringing in 70 new hires for the project. That swift ramp-up cut the client's lead time from 56 weeks to a half the time, equating to an 52% decrease and proving how the manufacturing cell model can transform speed and quality. The client quickly transitioned the entire project to Costa Rica, enabling Tico to grow by 25% during the 14–16 months it took to stand up that fully equipped operation.

Today, the client is still bringing other product lines to the country, thanks to Tico's open-door policy, close communication, process improvements, and adaptable workforce.

# PARTNER SPOTLIGHT: ITEK

Operating since early 2017, ITEK is a specialized medical device manufacturer based in the La Lima Free Trade Zone in Cartago, on Costa Rica's eastern side.

ITEK launched its first facility with approximately 16,000 square feet and expanded in 2023 by tripling its capacity to close to 48,000 square feet. Within that space, ITEK has four clean rooms (a total of about 11,000 square feet) that support Class II medical devices and various assembly processes.

The workforce—more than 150 employees—caters to a broad spectrum of clients, especially smaller OEMs that otherwise lack the resources to establish full-scale production abroad.

Costa Rica has a deep bench of medical-device expertise built across two generations of industry presence, going back to Baxter in the late '80s. ITEK is closely aligned with this talent pool and the industry at large, drawing on an established supply chain of raw materials, packaging, and sterilization to offer nearshoring advantages.

ITEK's clients include global organizations with international operations, smaller firms with a modest product line, and startups that need pilot runs, clinical trials, and eventual scale-up. All benefit from ITEK's in-house quality system, which is cloud-based and thoroughly digitized and grants them immediate access to production data—sometimes more data than they have in their facilities.

The company boasts a fast-paced workforce culture. Engineers and operators are cross-trained for several clients and might split their workday among multiple projects, helping ITEK remain cost-competitive and flexible.

Overall, ITEK—founded by professionals with extensive know-how in the medical device sector—offers medical manufacturers a chance to scale production quickly while preserving the sense of “ownership” that more conventional partners might sacrifice.

## ITEK'S SUCCESS STORY: **REDUCED COSTS, RISKS, AND LEAD TIMES**

The manufacturing cell model worked perfectly for a global US manufacturer shipping a weekly container of large, space-consuming components from New England to Costa Rica. At any given moment, five or six of these containers were usually in various stages of transit or storage. One might be in Boston, ready to depart, another halfway across the ocean, another arriving at a port, another waiting in a local warehouse, and so on.

While somewhat inefficient, the main issue was that if the oldest container proved defective in any way (say, a labeling mix-up or a materials issue), several more were already in transit, each potentially carrying the same mistake.

When that client opted for a manufacturing cell in ITEK's facility, they were able to send one container of raw materials each month instead of shipping finished parts once a week. ITEK took responsibility for processing those materials, building the final assemblies, and delivering them “just in time” to the nearby OEM in Costa Rica.

This approach cut lead times from four to six weeks down to roughly a single week—sometimes even less—and essentially eliminated the need to keep weeks of inventory floating around the globe. If a small problem cropped up (like an incorrect label on a box), ITEK could catch it immediately, well before the OEM got involved, because production was happening only a short drive away rather than hundreds of nautical miles.

Beyond the lead-time improvements, the client discovered a marked drop in inventory costs and transit risks, given that fewer containers were in motion at any one time. Overall quality also benefited: issues that once went unnoticed until the parts had traveled thousands of miles were now resolved on the spot, reinforcing the client's confidence that no costly or unexpected delays would derail the process.

By localizing manufacturing and letting ITEK handle final assembly, the company gained a reliable, streamlined pipeline for delivering goods to the OEM. It also gained the security of receiving better-controlled, consistently labeled products from one week to the next.

## COSTA RICA MANUFACTURING CELLS: **VALUABLE TAKEAWAYS**

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Ultimately, this model merges the benefits of an in-house line with the conveniences of an outsourced partner but without losing control or visibility. In a single move, the cell model allows you to expand production without building a new plant or hiring an entire team.



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