



Accelerating Innovation.

5

5 ways East West Manufacturing™
Québec fast-tracks product development

Your gateway to Scalable Manufacturing.

Companies operating in technically demanding sectors, such as defense, clean energy, critical minerals, and agri-tech, face significant pressure to bring products to market quickly without sacrificing quality and reliability. The ability to prototype, test, validate, and scale efficiently is often what separates commercially successful innovations from stalled concepts.

With dedicated facilities for rapid prototyping in Mirabel and St. Hubert for New Product Introduction (NPI) and low-to-mid volume production, East West Manufacturing Québec (EWQ) is structured to support customers' engineering and operations teams from the earliest design stage through to global volume transfer.

Clients benefit from:

- Access to rapid prototyping and fast-turn printed circuit board (PCB) assembly at Mirabel.
- Onboarding efficiently new customers and projects from Mirabel to St. Hubert and other East West Business units.
- Full-process ownership at St. Hubert, including conformal coating, overmolding, testing, and surface mount technology (SMT) for standard and oversized PCBs.
- Early-stage engineering engagement, including design-for-manufacturing (DFM), design-for-assembly (DFA), and design-for-test (DFT) reviews.
- A process architecture that supports product evolution: from concept to small and medium batch manufacturing and ultimately to large-scale global production.

This model is particularly relevant for organizations with sensitive technologies, high-reliability use cases, or complex design and environmental requirements. Rather than force-fitting products into rigid manufacturing workflows, EWQ works with engineering teams to shape those workflows around the product's needs and the customer's business goals.

This whitepaper outlines five specific ways in which EWQ accelerates product development for companies building high-performance, technically complex products. Each capability is developed in-house, refined through real-world experience, and continually improved through active industry participation. This all contributes to a much faster and more reliable path from prototype to production.

1

Conformal Coating

Enhancing Reliability and Process Control

PCBs used in challenging environments must be protected from humidity, dust, chemical exposure, and mechanical wear. Conformal coatings serve this purpose, but the selection and application of the right coating is often overlooked or handled through outdated, one-size-fits-all processes.

At EWQ, conformal coating is treated as a critical aspect of the design and production process. The engineering team works closely with customers to:

- **Select the appropriate chemistry based on environmental requirements, board materials, and component sensitivity.**
- **Validate adhesion through in-house cleanliness testing and compatibility assessments.**
- **Provide side-by-side comparisons of materials, application processes, and total cost implications.**
- **Ensure coating considerations are incorporated at the design stage through structured DFM/DFA reviews.**

Many customers arrive with a preferred coating already specified, either based on legacy decisions or internal preferences. EWQ acts as an advisor to ensure that the choice is optimal in terms of both performance and manufacturability. From ultra-thin transparent layers to thick, durable coatings using acrylics and urethanes, EWQ tailors each application to your product's needs.

In some cases, EWQ may recommend transitioning to newer technologies such as nanocoating or 100% solids. In others, the customer's original choice may remain valid but will be validated through cleaning analysis, pull tests, and other considerations.

EWQ's engineers actively participate in IPC standards committees and maintain close engagement with evolving coating technologies. This ensures that customer solutions are aligned not only with today's requirements but with emerging industry best practices.



2

Overmolding

Robust Protection in Demanding Environments

For assemblies used in environments where conformal coating is insufficient, such as high-pressure, solvent-heavy, or outdoor applications, overmolding provides an enhanced protection.

EWQ offers in-house low-pressure, low-temperature injection overmolding services tailored for electronics. The process allows for the safe encapsulation of PCBs without stressing components. It also creates a solid barrier against mechanical and chemical intrusion and can be integrated directly into the product design.

The process typically involves:

- A 2–3mm protective layer applied over the PCB and components.
- Early collaboration between EWQ's design engineers and the customer's design team to ensure board layouts are optimized for moldability.
- Access to mold-making partners and a rigorous design-for-overmolding process, including simulation and pilot runs.
- Transition from prototype to production using a defined Stage-Gate model.

Because overmolding is conducted within the same facility as PCB assembly, conformal coating, and testing, the process is streamlined and traceable. There is no need to move product between vendors, and EWQ can ensure that overmolding is applied under tightly controlled conditions.

Case study A U.S.-based agricultural equipment manufacturer that had been producing overmolded modules in Asia faced challenges with quality, communication, and process visibility. EWQ was able to redesign the product protection, improve mold quality, and reduce cycle times, while providing direct access to engineers and process data. The result was a successful transfer, improved performance, and a simplified supply chain.



3

Test Strategy

Aligning Coverage with Lifecycle and Complexity

While testing is a significant cost driver in electronics manufacturing, it's also one of the most misunderstood. Many companies over-test, adding layers of redundant inspection, or under-test, leading to quality issues. EWQ helps customers find the right balance on test strategy.

EWQ's engineering team plays a hands-on role in:

- Conducting early-stage DFT analysis.
- Advising on test strategy selection: ICT, functional, pre-functional, boundary scanning, or fine-probing.
- Helping customers minimize test time and investment without compromising quality.
- Proposing automation where viable and adjusting cost models to reflect takt time rather than overall test duration.

EWQ's senior test engineers bring decades of experience, not only in electronics manufacturing but also in matching test strategy to commercial and operational objectives. As a result, EWQ supports customers in making informed choices, avoiding unnecessary investment, and achieving robust test coverage with minimal complexity.

Case Study One customer integrating multiple PCBs into a boxed system was initially conducting three stages of testing across the assembly. After engagement with EWQ, the strategy was reduced to one test with automated functional validation — cutting cost, eliminating duplicate failure points, and increasing throughput.

4

Design for Manufacturing Building Value into the Blueprint

Design decisions made early in the product lifecycle have a disproportionate impact on downstream cost, quality, and schedule. Too often, critical steps in PCB assembly are overlooked during the early design phases due to the lack of appropriate tools enabling OEMs to effectively assess these manufacturing processes.

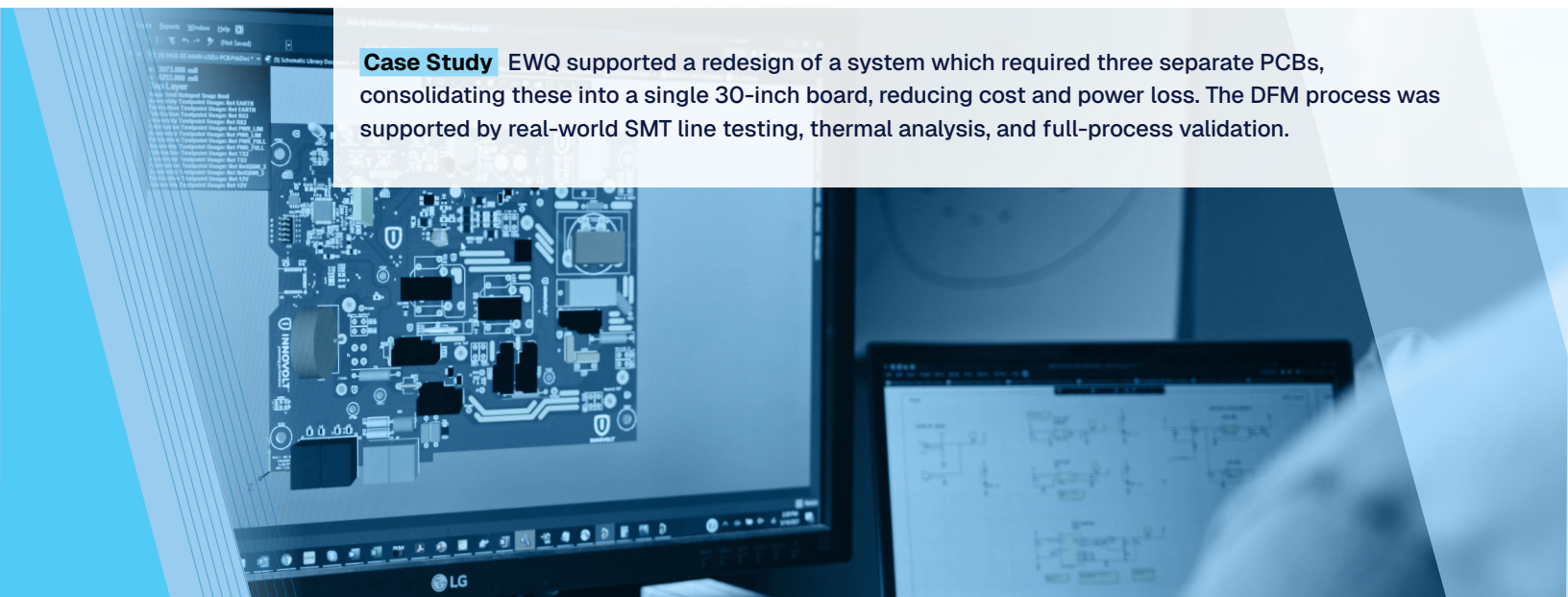
EWQ's DFM/DFA support model is built to help customers identify and resolve manufacturability issues long before production begins. Using advanced simulation tools, we analyze resin flow and geometry before finalizing the PCBA layout. This ensures optimal material distribution and minimizes design risks.

Through formal reviews, EWQ's engineers evaluate:

- Component placement and orientation.
- Material compatibility with coating and overmolding processes.
- Test point accessibility.
- Mechanical fit and assembly sequencing.
- Opportunities to reduce board count, cable usage, and integration complexity.
- PoP (package-on-package) capabilities to optimize space.

The key to success means integrating product design and process planning into a cohesive, interactive activity known as 'concurrent engineering.' Through early engagement, EWQ provides concrete recommendations, documentation, and side-by-side impact assessments, enabling customers to make informed decisions based on real data. DFM is a core part of the EWQ workflow. The sooner customers engage with it, the more value they unlock.

Case Study EWQ supported a redesign of a system which required three separate PCBs, consolidating these into a single 30-inch board, reducing cost and power loss. The DFM process was supported by real-world SMT line testing, thermal analysis, and full-process validation.



5

Large Format Boards Capability Few Others Can Match

Standard PCB sizes in North America typically range up to 24 inches. EWQ is one of the few EMS providers in the region with the ability to produce boards up to 30 inches, including SMT assembly, conformal coating, and full testing, in a single, integrated process.

Key features include:

- Custom SMT lines capable of handling up to 30-inch boards.
- Full conformal coating and test processes for large-format assemblies.
- In-house process development and validation, reducing risk and setup time for new programs.
- Proven ability to transfer large-board processes to global sites if scale-up is needed.

This capability was developed in response to a customer's need for higher power delivery, fewer inter-connects, and a more compact assembly. EWQ's engineering team worked with the customer to design a longer board, then built an entirely new SMT line to support production. Today, the line runs more than 20,000 units annually.

Supporting Global Scale-Up

EWQ serves as a launchpad for innovation, developing stable, production-ready processes that can be replicated globally. Once a product has been validated in Québec, it can be transferred to East West sites in Mexico or Costa Rica for higher-volume manufacturing.

This transfer is supported by standardized process documentation, trained teams at receiving sites, centralized knowledge-sharing across engineering teams, and historical experience in transferring 40–50 product lines across the network.

Every capability described in this whitepaper is structured with transferability in mind. While the Québec site builds the foundation, East West's global operations build the scale.

Technical Partnership that Delivers.

East West Québec empowers engineering and technical leaders to bring complex products to market with confidence. With a foundation of engineering collaboration, in-house process depth and global integration, EWQ removes bottlenecks from the development cycle and provides a realistic, reliable path from prototype to volume.

Whether you are building next-generation sensors for defense, power electronics for renewables or precision modules for industrial automation, EWQ can help you solve technical challenges, avoid re-work and accelerate time to revenue.

Highlights:

- More than 20,000 30-inch boards are produced annually.
- 40-50 product transfers successfully executed to global manufacturing sites.
- In-house engineering with decades of experience in test, coating and assembly.
- Active participation in IPC committees and technology working groups to stay on top of emerging trends.

To discuss your project and explore how EWQ can support your roadmap from development to deployment, contact us for a technical consultation.



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