



Engineering the Future of Structural Composites

Advanced Multiaxial NCF and Prepreg
Solutions for Global Supply Chains

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NotebookLM

The Composite Mandate: Beyond the Limits of Legacy Textiles

[The Limitation]



[The Limitation]

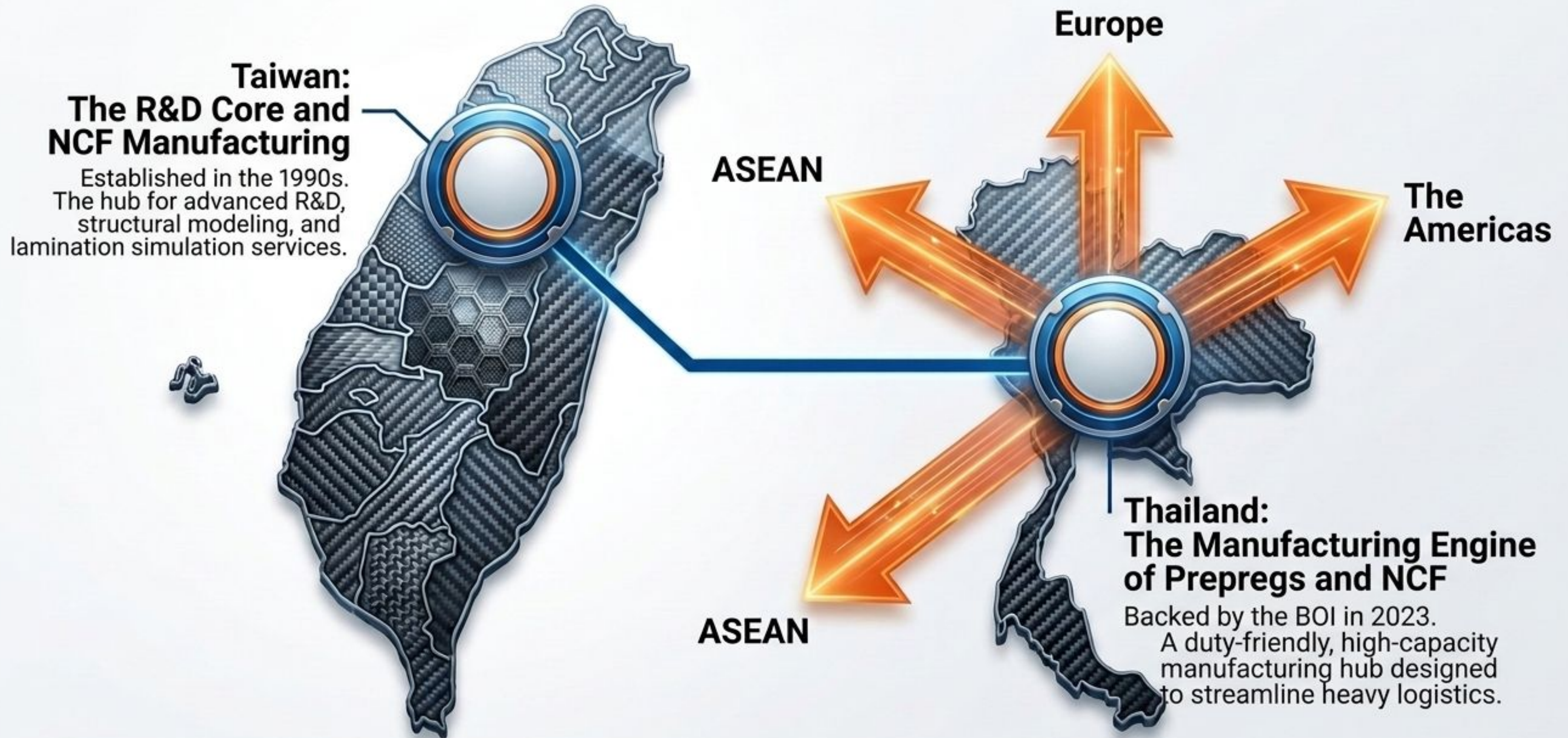
Traditional woven fabrics inherently introduce microscopic **structural weak points**. The physical “**crimp**” limits resin wet-out efficiency and creates indirect, **compromised load paths**.

[The Mandate]

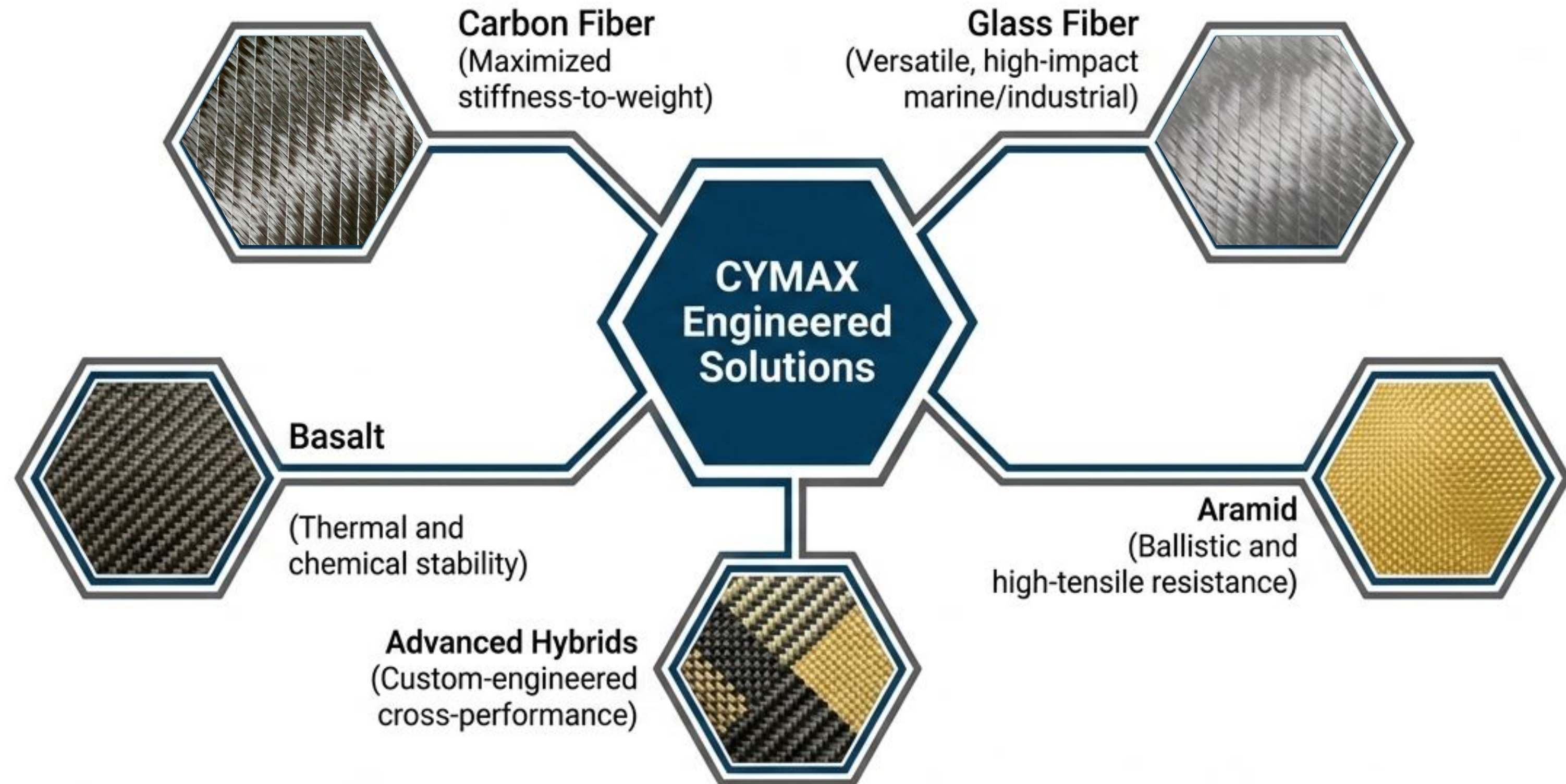
Over the last 40 years, the global requirement has shifted from a luxury to an **absolute industrial mandate**. Modern aerospace, marine, and EV sectors require materials that are simultaneously:

- **Lighter**
- **Stronger**
- **Stiffer**
- **Cost-Effective**

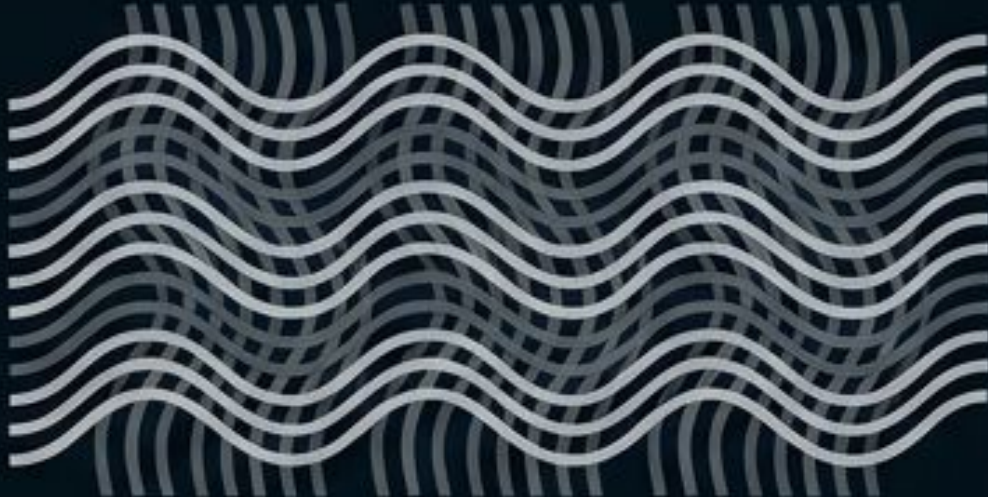
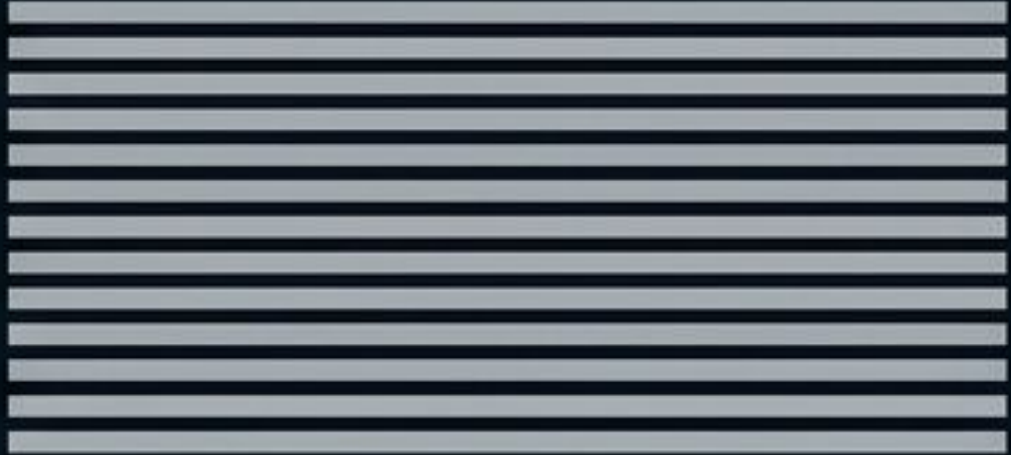
Bridging Asian Innovation with Global Manufacturing



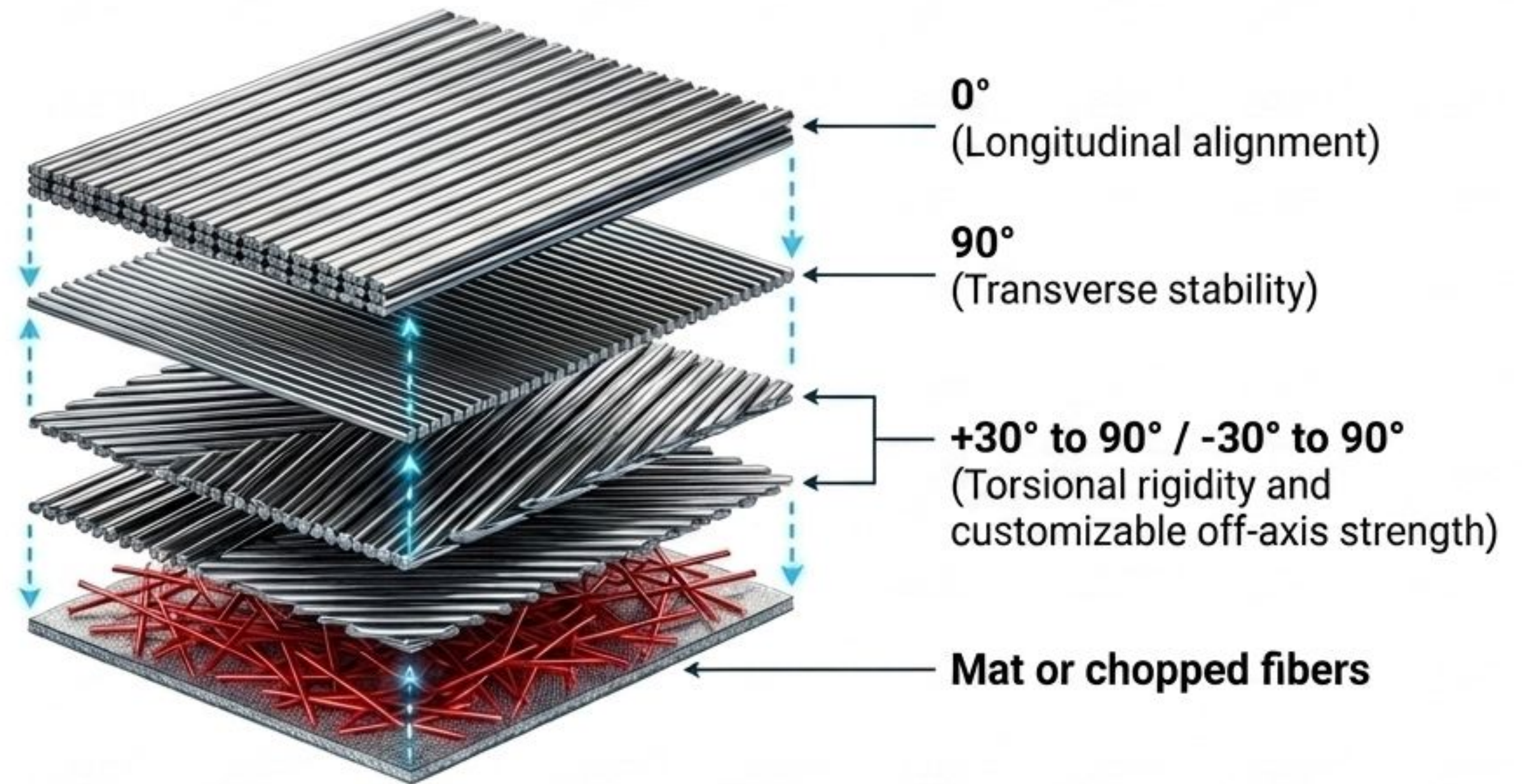
A Comprehensive Arsenal of Base Reinforcements



The Physics of Performance: Woven vs. Multiaxial NCF

	Traditional Woven	CYMAX NCF
Architecture Visual		
Stress Concentration	High – Localized stress clusters at the crimp points.	Zero – Perfectly straight fibers bear loads directly.
Resin Wet-Out	Limited by dense physical intersections.	Optimized for rapid, even liquid saturation.
Strength-to-Weight Ratio	Compromised	Maximized

Tailoring Strength: The Anatomy of Multiaxial NCF



Fibers are laid completely straight and stitched precisely at custom angles. By aligning the fiber direction exactly with the principal stress direction, we **eliminate structural weak points** and prevent costly material overbuilding.

Advanced Hot-Melt Carbon Prepreg Systems

Delivering consistent resin-to-fiber ratios for immaculate aesthetics and uncompromising mechanical traits.

Plain & Twill Weaves

Engineered for complex curvature drapability while maintaining a signature premium visual finish.

Spread Tow

Ultra-lightweight architecture with minimized crimp angle, providing superior surface smoothness.

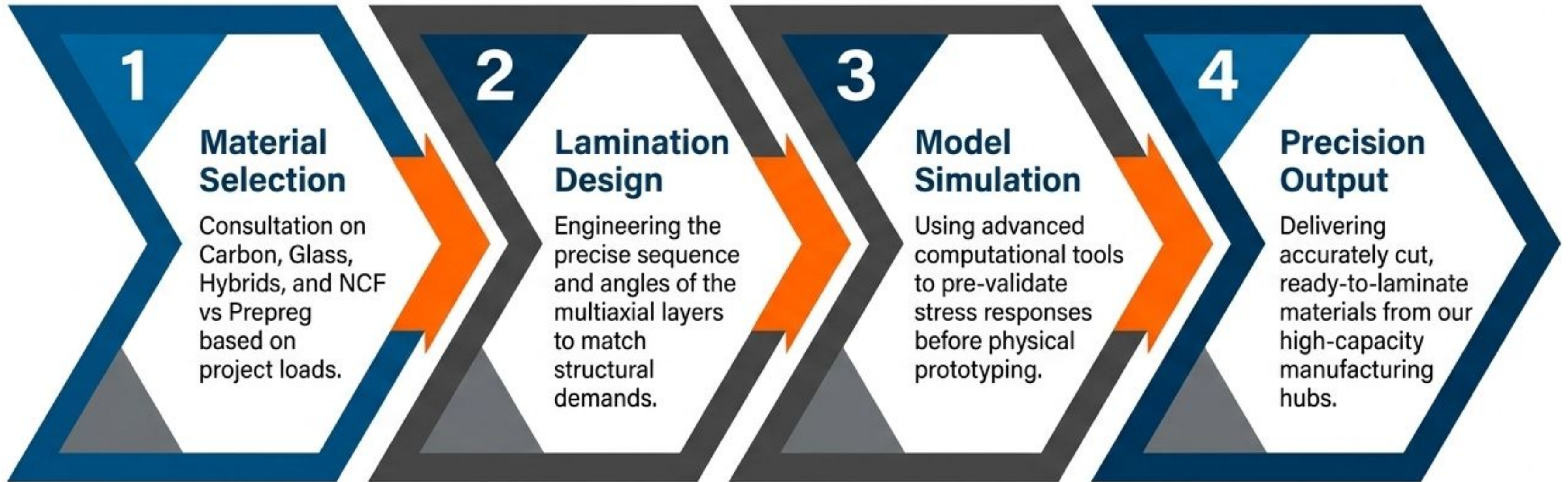
UD Tape (Unidirectional)

Maximum localized stiffness, ideal for targeted chassis reinforcement and directional load bearing.

The Hot-Melt Advantage

Clean, solvent-free impregnation process ensuring entirely void-free final structural laminates.

From Blueprint to Build: The Co-Engineering Process



We do not just sell fiber; we simulate, design, and co-engineer side-by-side with your teams.

DOMINATING THE ELEMENTS: MARINE APPLICATIONS

THE CORE CHALLENGE:

Constructing hulls that are faster, stronger, and highly fuel-efficient in a region dominated by vast coastlines.

THE CYMAX SOLUTION:

- » Multiaxial NCF aligns perfectly with the principal stress directions of the hull.
- » Completely avoids “overbuild” by eliminating material waste in ineffective directions.
- » Result: Drastic weight reduction without sacrificing hydro-dynamic impact resistance.

ACCELERATING MOBILITY: TRANSPORTATION & EV

THE CORE CHALLENGE:

The automotive pivot to electric vehicles makes massive weight the primary enemy of battery range.

THE CYMAX SOLUTION:

Strategic deployment of structural prepregs and UD tapes for chassis and body panels.

Empowers automotive engineers to achieve massive lightweighting metrics.

Crucial Result: Extended EV battery range without altering mandatory crash-safety ratings.



Scaling Performance: From Turbines to Snowboards

Green Renewable Energy



Enabling the regional energy transition. CYMAX composites provide the massive stiffness and fatigue-resistance required for large structures.

Proof Point: Featured in the “Wind Challenger” project, successfully reducing fossil fuel use and CO2 emissions in tanker operations.

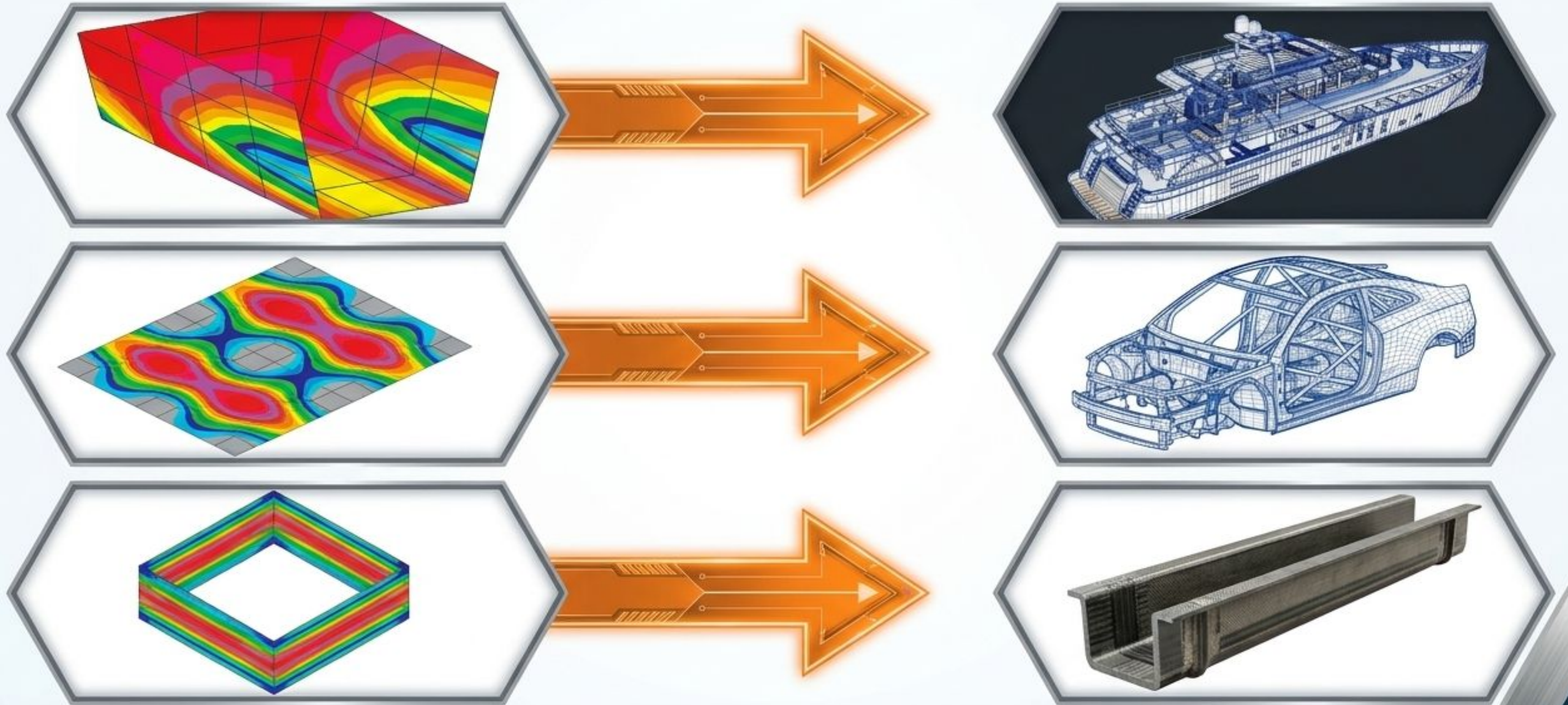
Sporting Goods



Powering high-end bicycles, wakeboards, and advanced recreational gear manufactured across Asia.

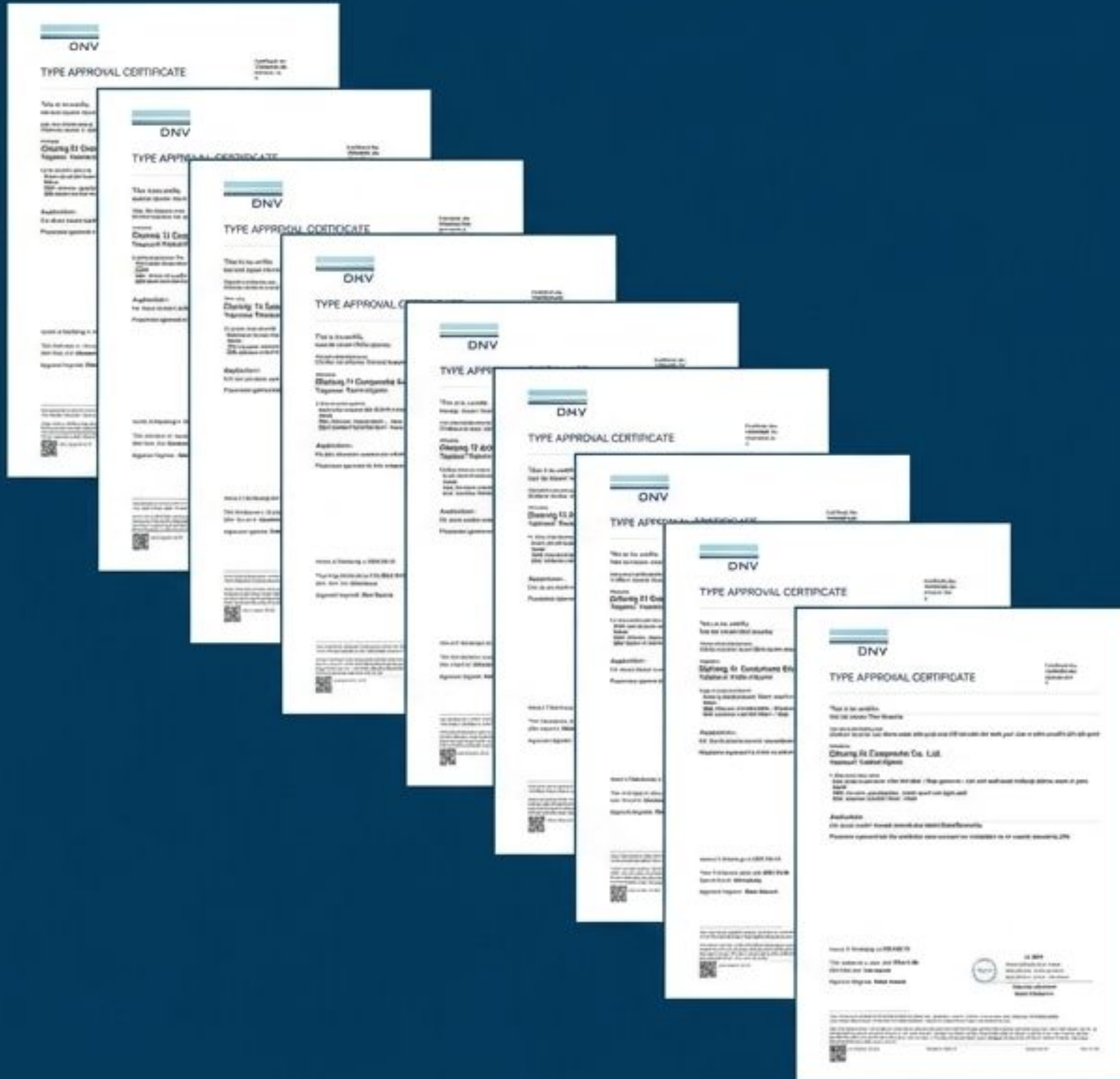
Proof Point: NCF and special pattern fabrics deliver the signature premium aesthetics and “snappy” mechanical performance demanded by global consumer brands.

Digital Validation: From Simulation to Reality



Predictive structural modeling guarantees that our multiaxial reinforcements perform flawlessly in the physical world, eliminating costly trial-and-error.

De-risking the Supply Chain: Certified Excellence



Innovation requires execution and absolute reliability.

Operating under rigorous ISO 9001 Quality Standards.

Materials carry world-renowned Type Approvals from DNV and ClassNK Register.

The Result: Unquestioned compliance for global marine, aerospace, and industrial deployments.



The CYMAX Advantage: Beyond Raw Materials



You are not just procuring yards of fabric. You are integrating pre-validated, weight-optimized performance into your supply chain.



Let's Engineer the Future Together

Whether your goal is lightweighting an EV, improving marine fuel efficiency, or sourcing localized, high-tier carbon prepreg with short lead times—CYMAX is your manufacturing partner.

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