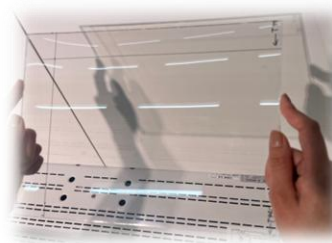


OPTENA**FORTENA**

World's First Biaxially Oriented Ultra high-stiff Polypropylene Sheet and Plate



New OPP Sheet Innovation Department
FP Corporation

Contents

- 1. Overview of New OPP**
2. OPTENA introduction
3. FORTENA introduction
4. Commercialization,
Potential applications

Newly developed: Only 1 in the World



New OPP...High-Performance, Well-Balanced Biaxially Oriented Polypropylene Sheet & Plate



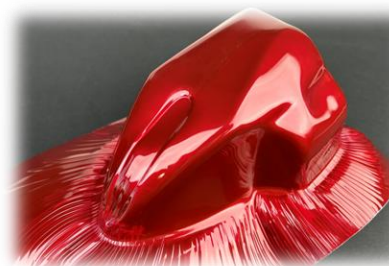
Sheet

- Thickness : 150~300um
- Food container : Withstands a wide range of temperature
- Industrial : Intended for automotive parts, etc



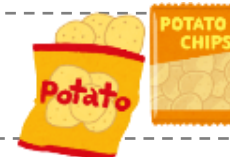
Laminated
plate

- Thickness : 1~3mm
- Industrial : Construction materials, Housing equipment, Solar cells, etc



Conventional OPP

- Thickness : 30~50um
- Applications : Food-grade flexible packaging materials



10 special features

Characteristics of PP

1. Low specific gravity
2. Chemical resistance
3. Recyclability



Characteristics of the Orientation

4. Transparency /High gloss
5. Anti-Scratch
6. High rigidity
7. High toughness
8. Impact resistance at low temp.



Characteristics of developed products

9. Formable OPP
10. Decorative

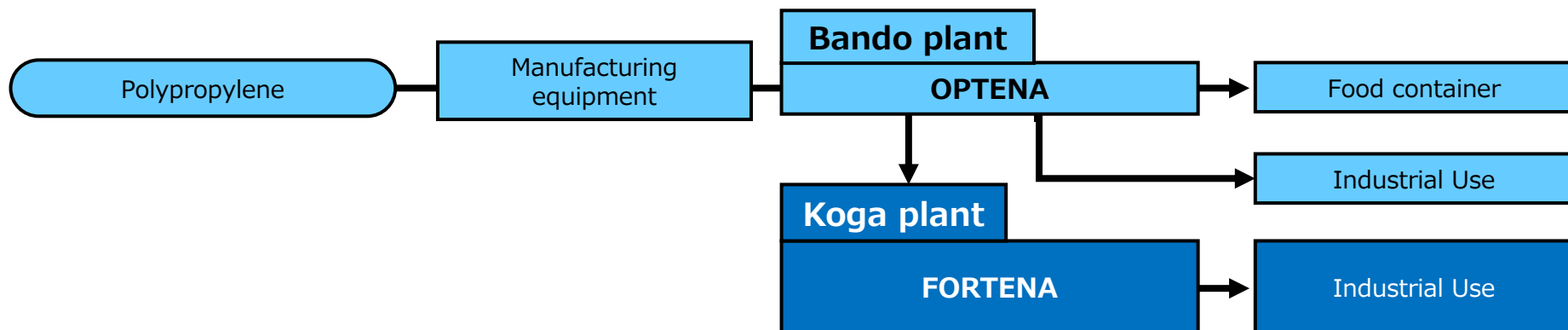


**OPTENA & FORTENA : Mono-material solutions
for a sustainable society and CO2 reduction**

Product flow



Commercialization in 2029



New Bando plant (image)



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Merit of IMD Improve physical properties



Injection molding

To maintain strength...



- Need to be thicker
- Need high value, performance grade
- Difficulties to adopt recycle materials

IMD with OPTENA

Potential to improve rigidity, toughness



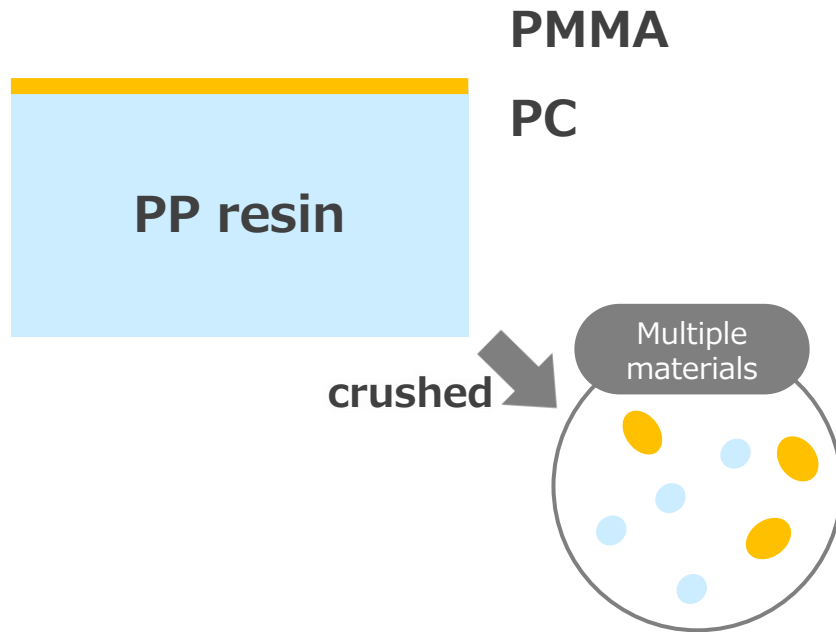
- Thinner, Lighter weight
- Down-grade Injection resin
- Utilize recycled material



OPTENA IMD: Mono-Material

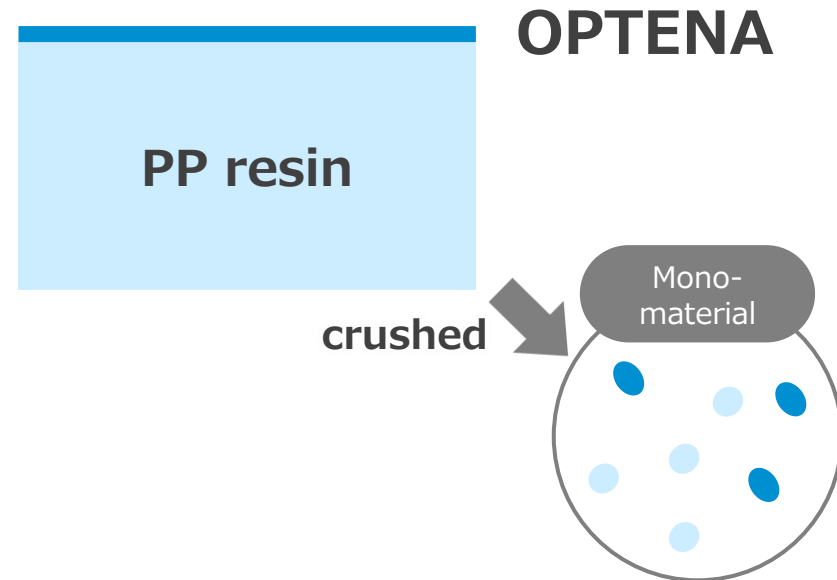


Conventional IMD



✓ Difficult to recycle

IMD with OPTENA

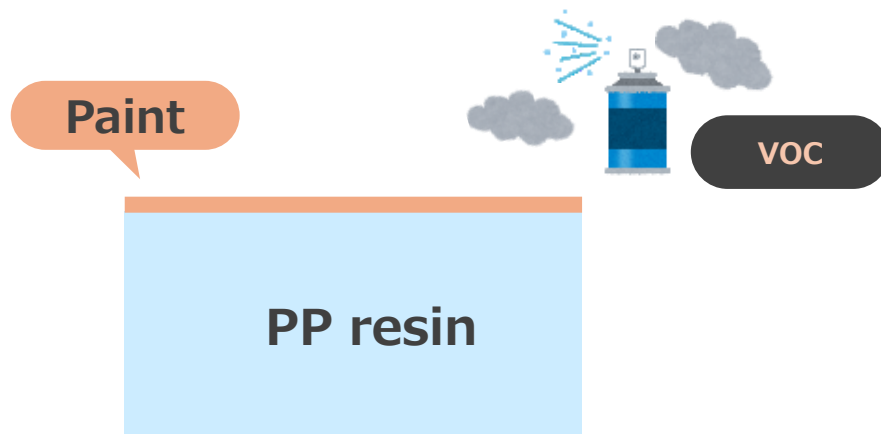


✓ Easy to Recycle

OPTENA IMD: Surface Finish

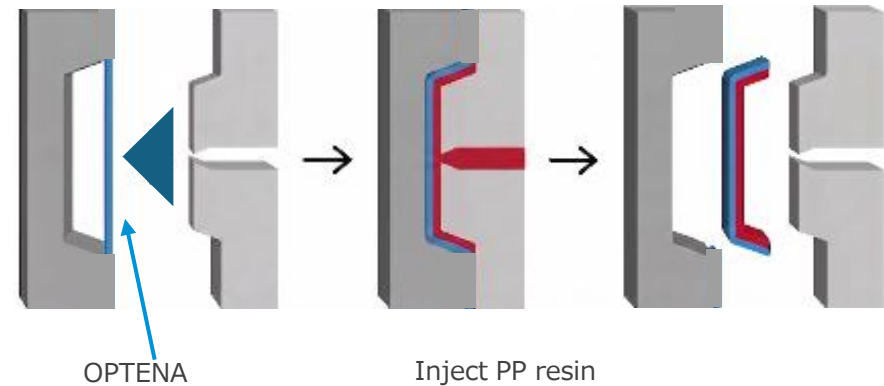


Injection molding + Paint



- ✓ Need paint process
- ✓ VOC
- ✓ Higher total cost

IMD with OPTENA



- ✓ No paint process
- ✓ Decorating when forming.
- ✓ Good surface finish

目次

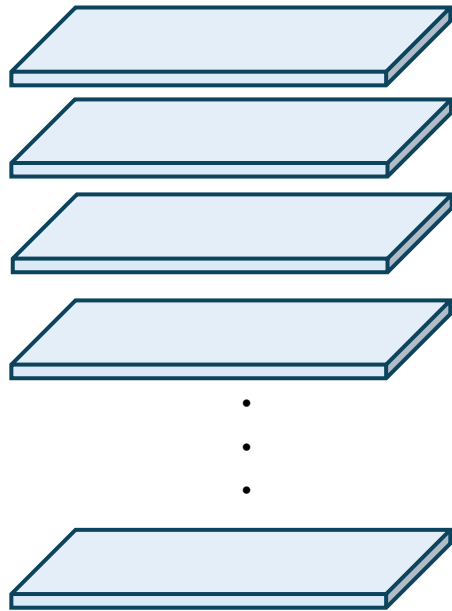
1. Overview of New OPP
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OPTENA to FORTENA



Formable into various via press molding
and vacuum/pressure forming.

Multi-Layering OPTENA



FORTENA



Specialized Processing

Formability & Decorability



Formable into various via press molding
and vacuum/pressure forming.

Max Elongation:
200%

Clear Molded Product



Enables Paint-Free
Process

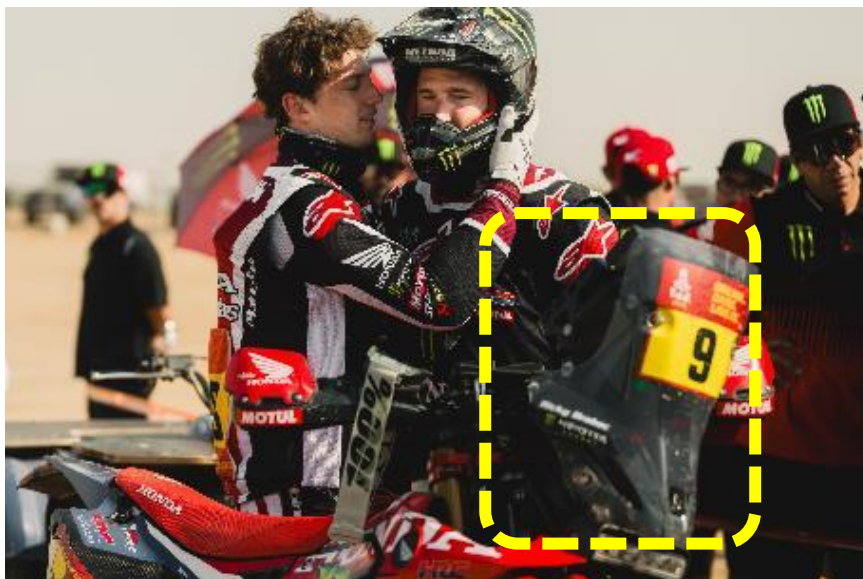
Decorated Molded Product



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Adopted for the Honda CRF450 RALLY Windscreen in Dakar Rally 2026



Key Benefits & Proven Value

01. Significant Weight Reduction leads to Enhanced Maneuverability

02. High Impact Resistance

03. Superior Processability to Prevent Cracking Around Bolt Holes

04. Achieves High Optical Clarity with PP Material

Adopted for Molds for Star-Shaped Watermelons (Aug 2026)



Key Benefits & Proven Value

01.

**Significant Weight Reduction
against the current material (PVC)**

02.

**High Strength to Withstand Internal
Growth Pressure**

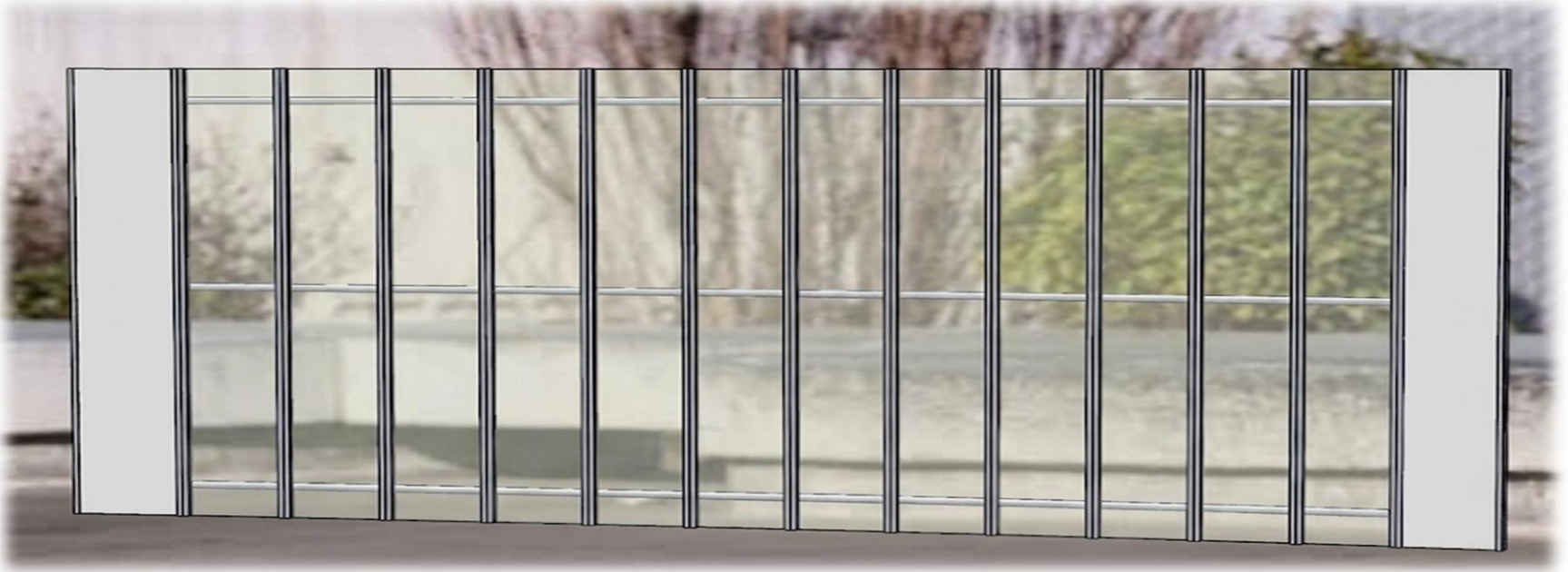
03.

**Excellent Workability for
Bending and Bolting**

04.

**High Transparency Ensures Natural
Sun Exposure for Vibrant Green Rinds**

Potential Application: Temporary Construction Fencing



Key Expected Benefits

01.

Lightweight Design Reduces Workload and Eases Handling

02.

High Transparency Prevents Blind-Corner Collisions

03.

Light Transmittance at Night Enhances Crime Prevention & Site Safety

04.

Resistance & High Toughness Suitable for Harsh Construction Environments

Potential Application: Exterior & Interior Building Materials



Key Expected Benefits

01.

High Design Flexibility through Decorability

02.

Enhanced Workability through Lightweight Design

03.

High Impact Resistance Against Outdoor Collisions

04.

Minimal Fragment Formation Ensures Safety and Peace of Mind

Potential Application: Automotive Interior, Exterior & Accessory Parts



Key Expected Benefits

01.

Weight Reduction Improves Fuel Efficiency

02.

Enhanced Recyclability for Social Sustainability

03.

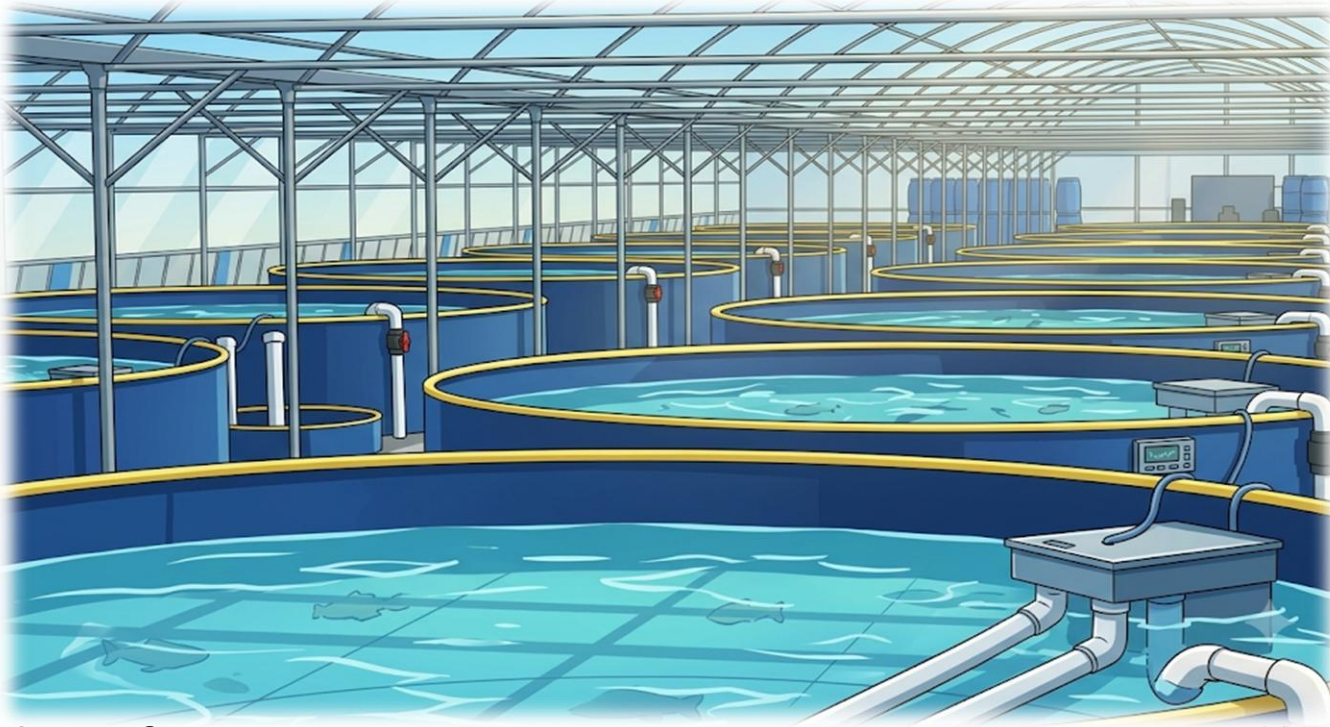
**Enables Paint-Free Process
(Cost & CO2 Reduction)**

04.

**High Rigidity & Impact Resistance
Prevent Fracture from Impact**

Potential Application:

Components for Land-Based Aquaculture



AI生成イメージ図

Key Expected Benefits

01.

High Transparency Enhances Photosynthesis Efficiency

02.

Lightweight Construction Improves Operational Efficiency

03.

Enhanced Safety via Ductile Failure Mode (Prevents Brittle Shattering)

04.

Chemical Resistance Ensures Long-Term Durability

Potential Application: Components for Next-Generation Mobility



Key Expected Benefits

01.

Ultra-Lightweight Design Extends Flight Time and Operating Range

02.

High Impact Resistance & Toughness
Enhance Structural Safety

03.

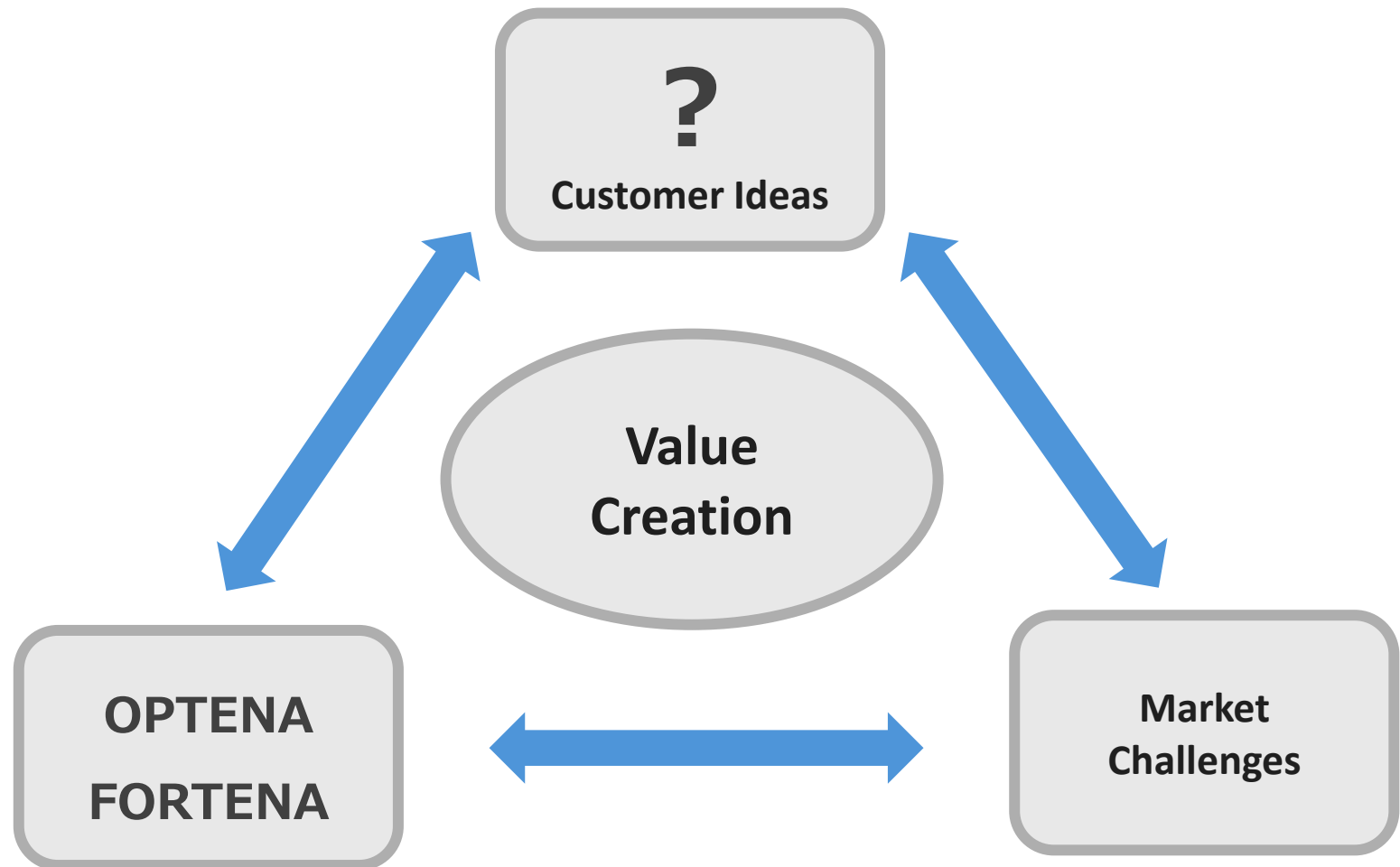
Superior Formability Enables Complex Aerodynamic Designs

04.

High Weather Resistance Built for Harsh Outdoor & Aerial Conditions

Endless Possibilities.

We look forward to exploring new frontiers together with your ideas.



Contact Us

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