

KAPE

COST-EFFICIENT THERMOPLASTIC ENDLESS FIBER-REINFORCED COMPOSITE SANDWICH WITH A MOLDED FOAM CORE VIA IN-SITU POLYMERISATION WITH RECYCLED E-CAPROLACTAM (PA6)

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SOLVING THE 3 BIG PROBLEMS OF THE COMPOSITE INDUSTRY.

Our solution: A new composite technology called like this → → → → →

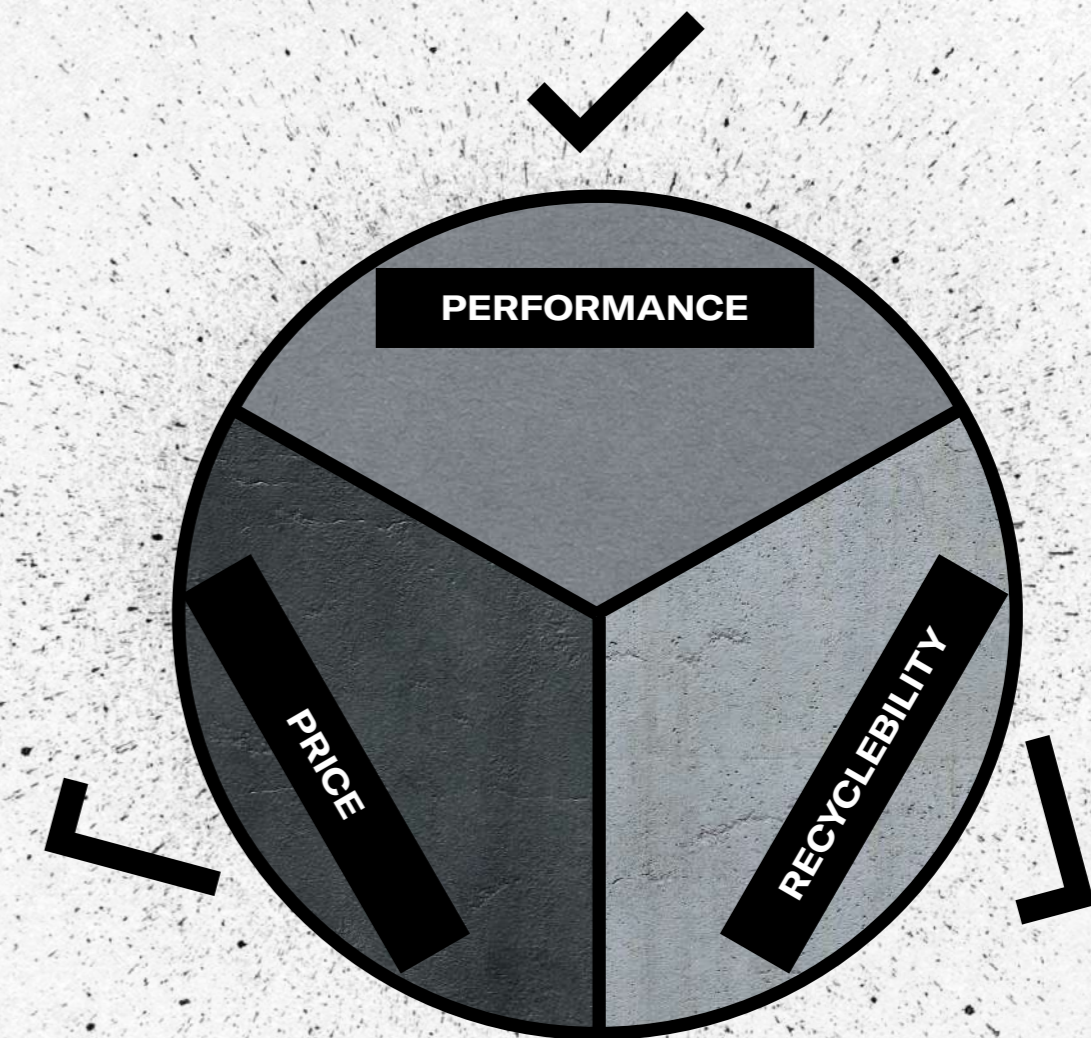
We have dealt with a new plastic process that has only been around for a few years and combined it with a material that didn't exist yet.

By doing so,

- we can produce fully automated **endless fiber reinforced performance parts**;
- we use a cast material with about **half the price of epoxy resins**;
- we allow **easy recycling** based on using a thermoplastic material.

PATENT PENDING

» COST-EFFICIENT THERMOPLASTIC ENDLESS FIBER-REINFORCED COMPOSITE SANDWICH WITH A MOLDED FOAM CORE VIA IN-SITU POLYMERISATION WITH « RECYCLED E-CAPROLACTAM (PA6)



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„ENDLESS" IS THE FOREFRONT OF FIBER REINFORCED TECHNOLOGIES.

In general:

The longer the fibers, the better the performance.

But the price also usually increases sharply.

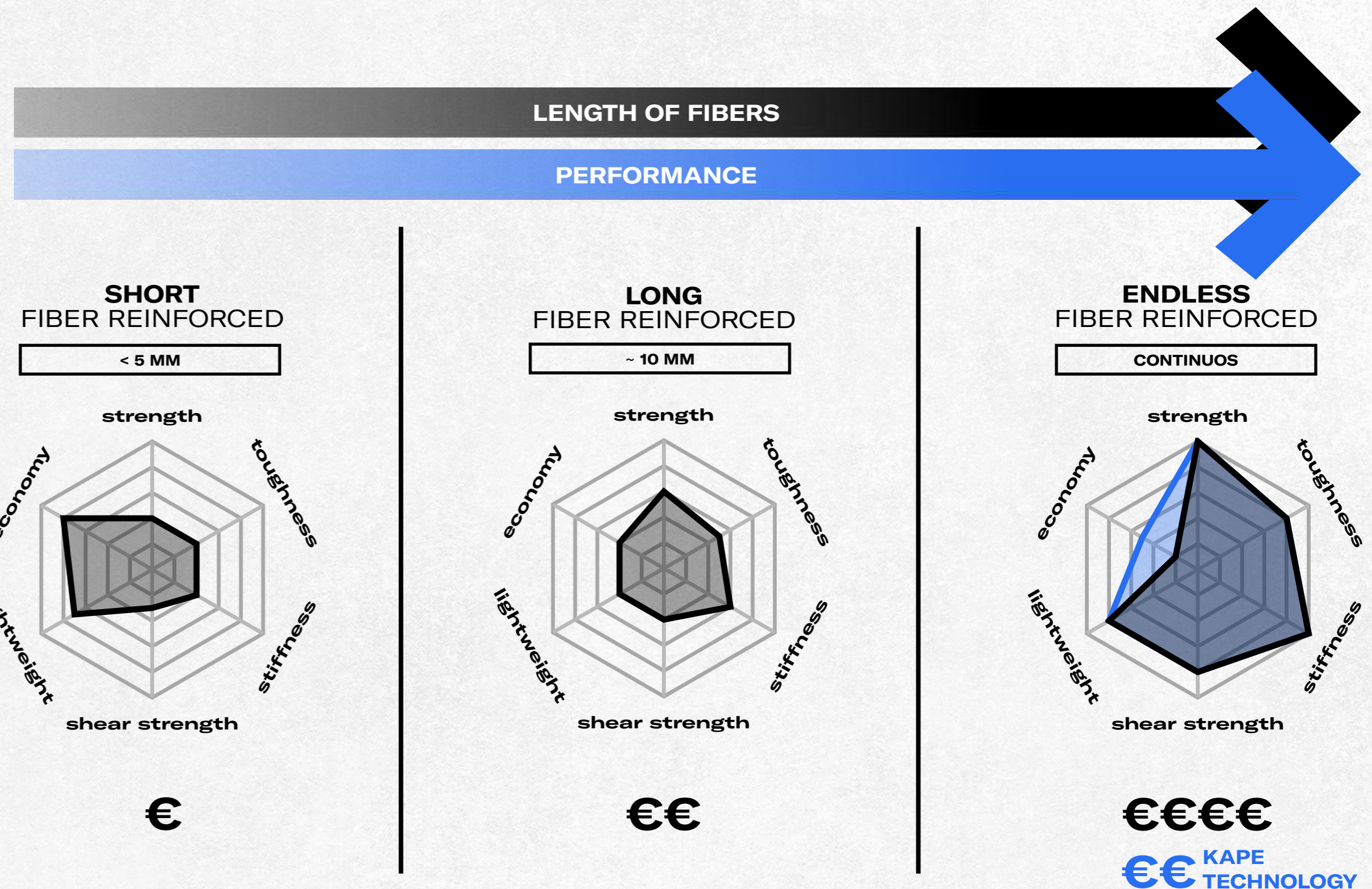
Our technology **allows great performance & recycling** at **low cost** as we **can produce fully automated** and **in one single machine step**.



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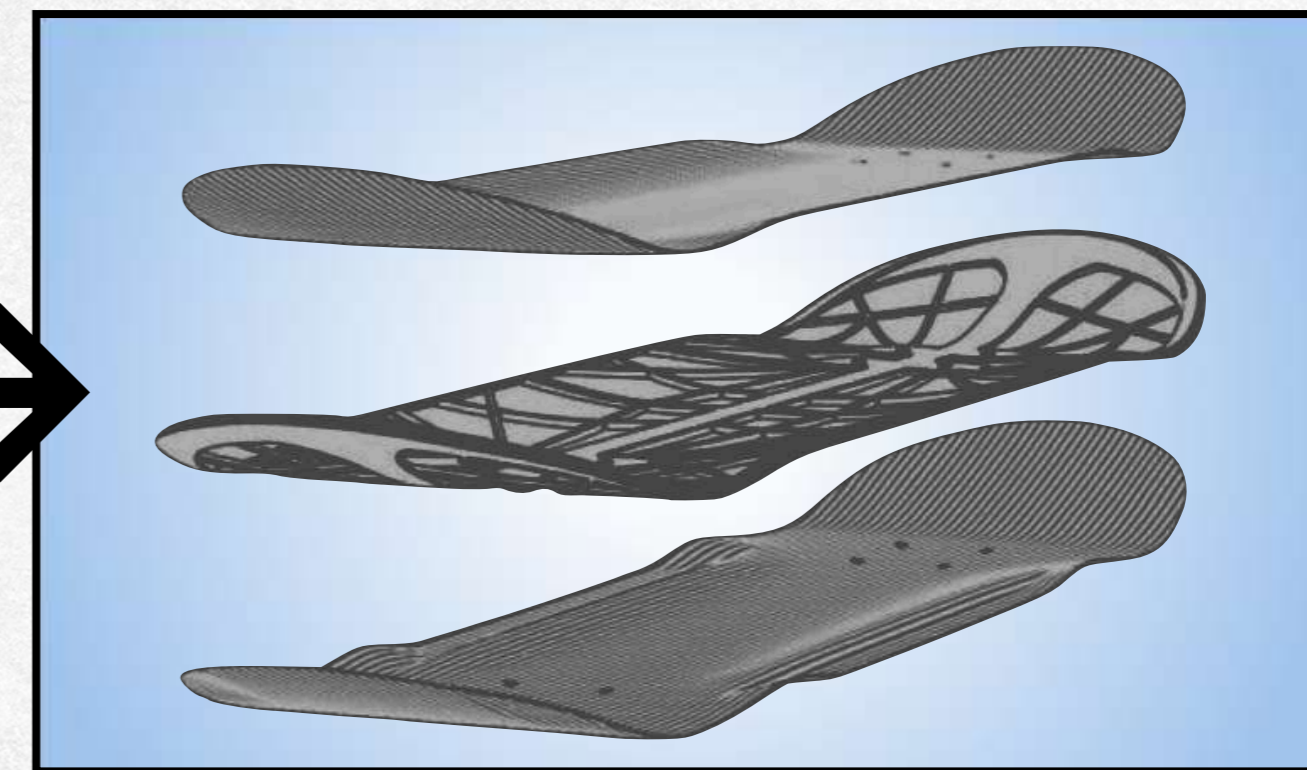
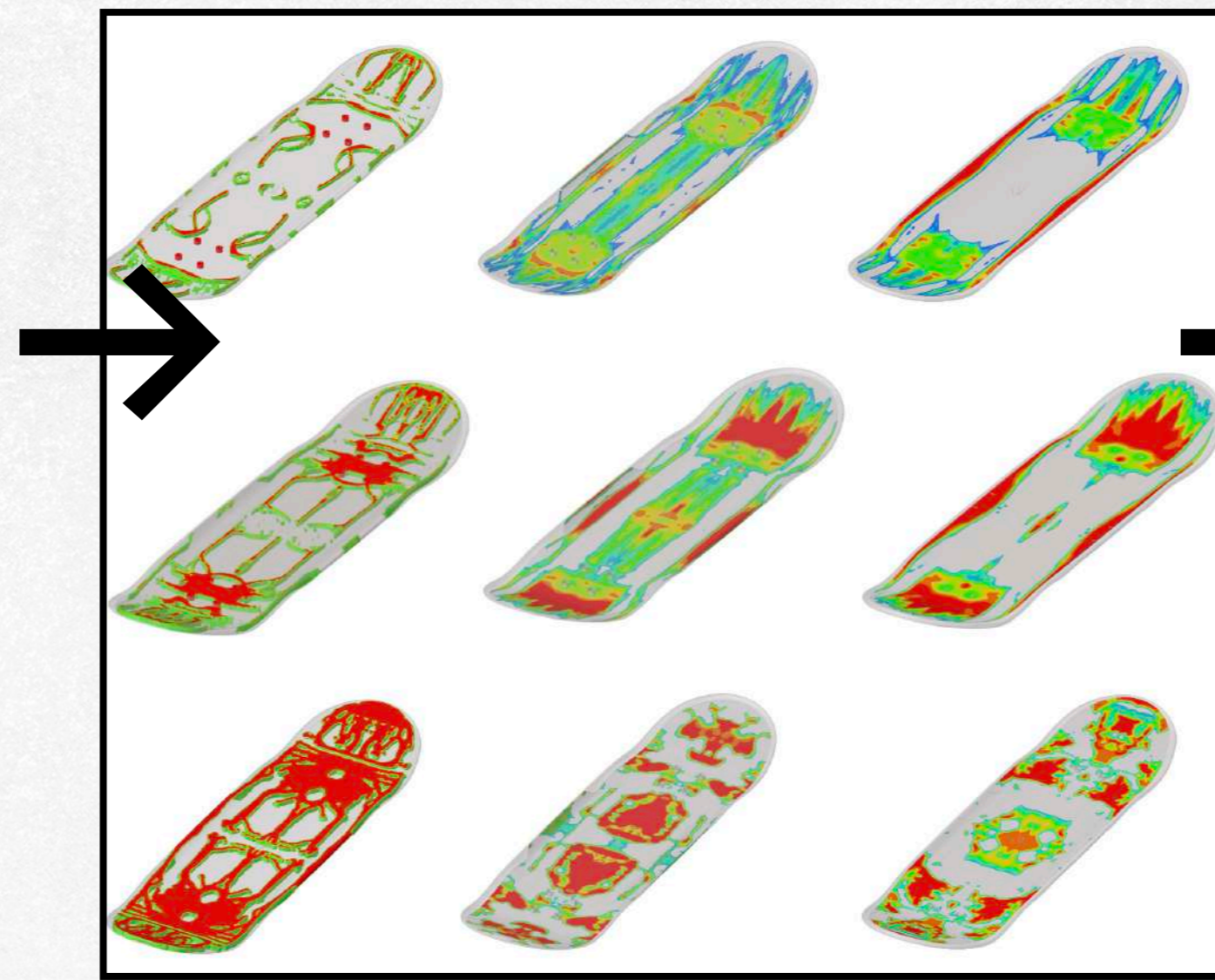
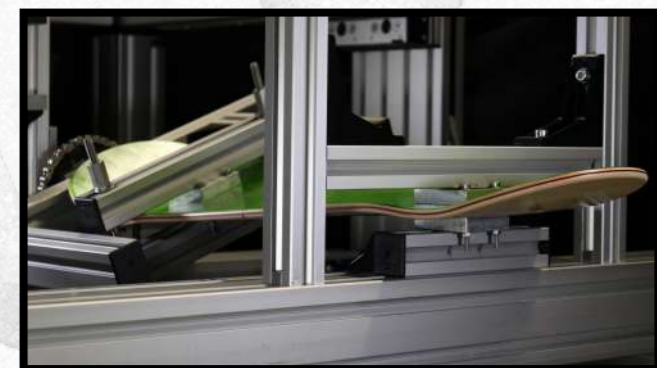
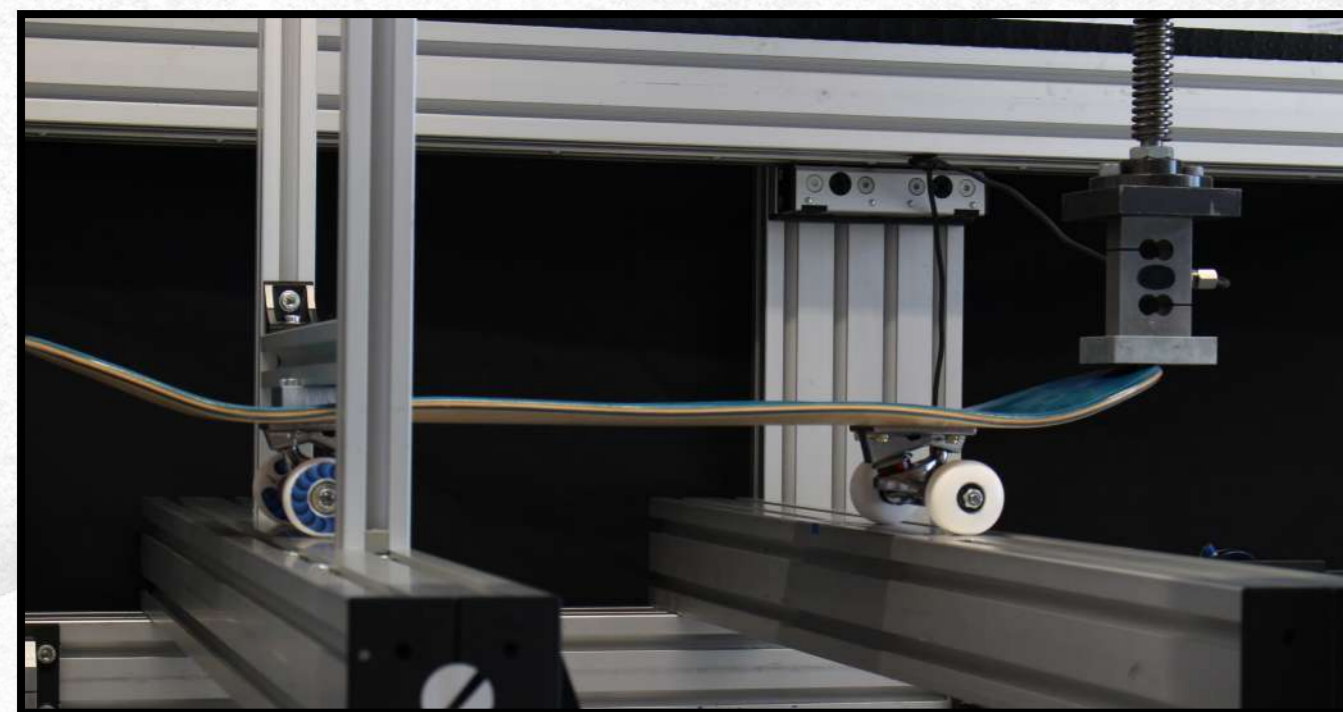
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TESTS & FEM ANALYSES FORMED THE CORE CONSIDERATIONS

Even though it is standard in other industries, for the skateboard industry this approach is very unusual.



✓
MAX WEIGHT
1350 g

✓
MIN / MAX WIDTH
8 - 10,5 mm

✓
FLEX & STIFFNESS

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FULL CIRCULARITY MADE WITH MONOMATERIAL COMPOSITE.

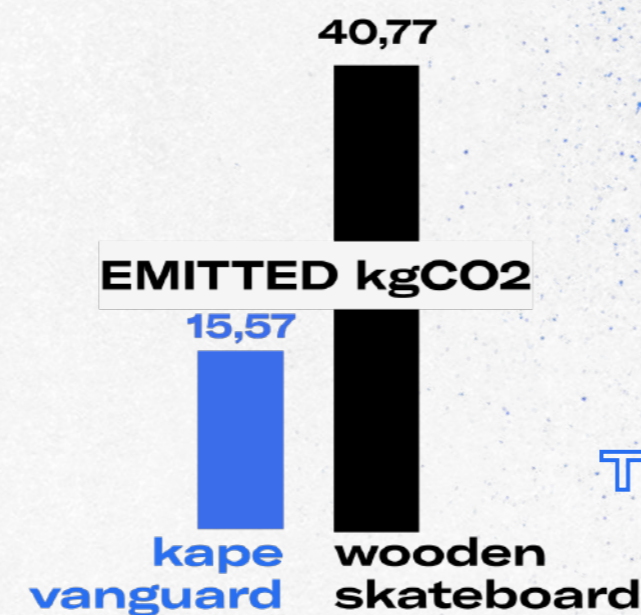
Currently, the glass fibers are separated out during the recycling process and processed on their own. But we are already working on **replacing the glass fibers with polyamide fibers** to make the recycling process even easier. This solution would be the world's very first polyamide monomaterial composite of this kind.

And for full circularity, those **polyamide fibers** are **based on recycled material** as well.

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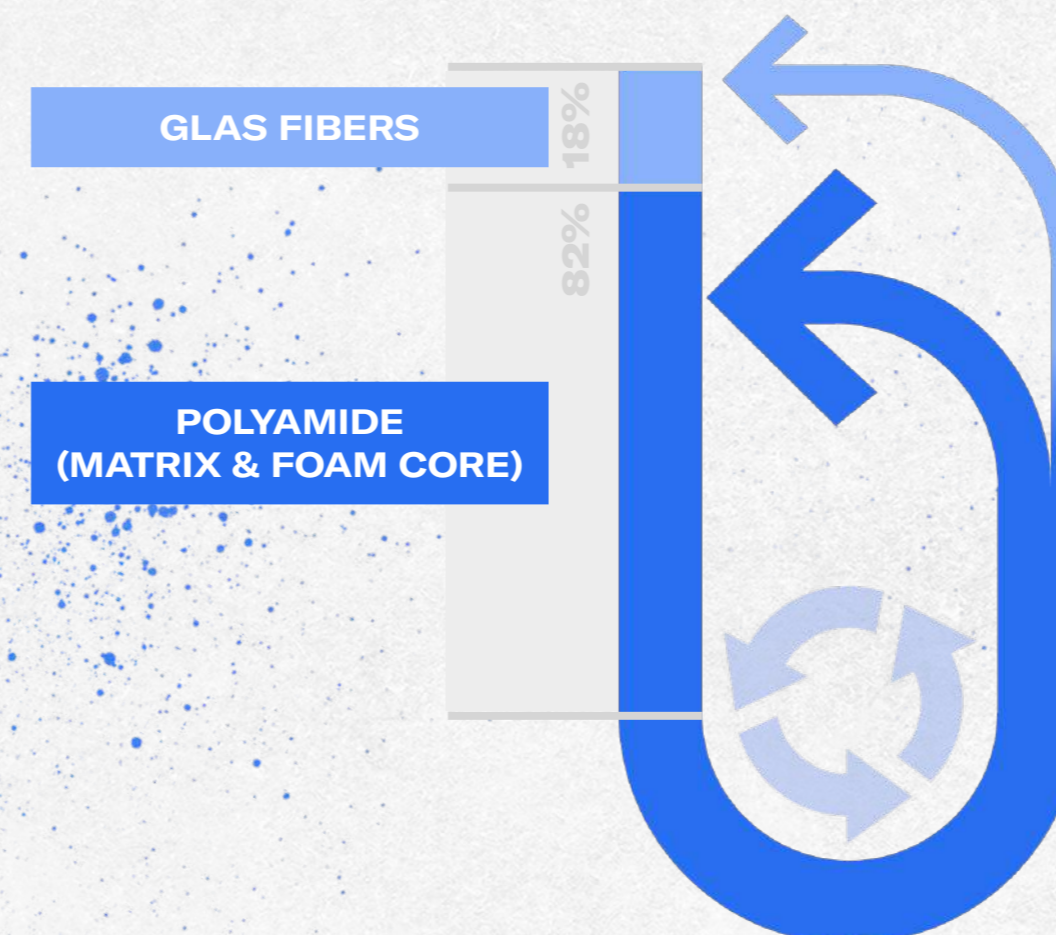
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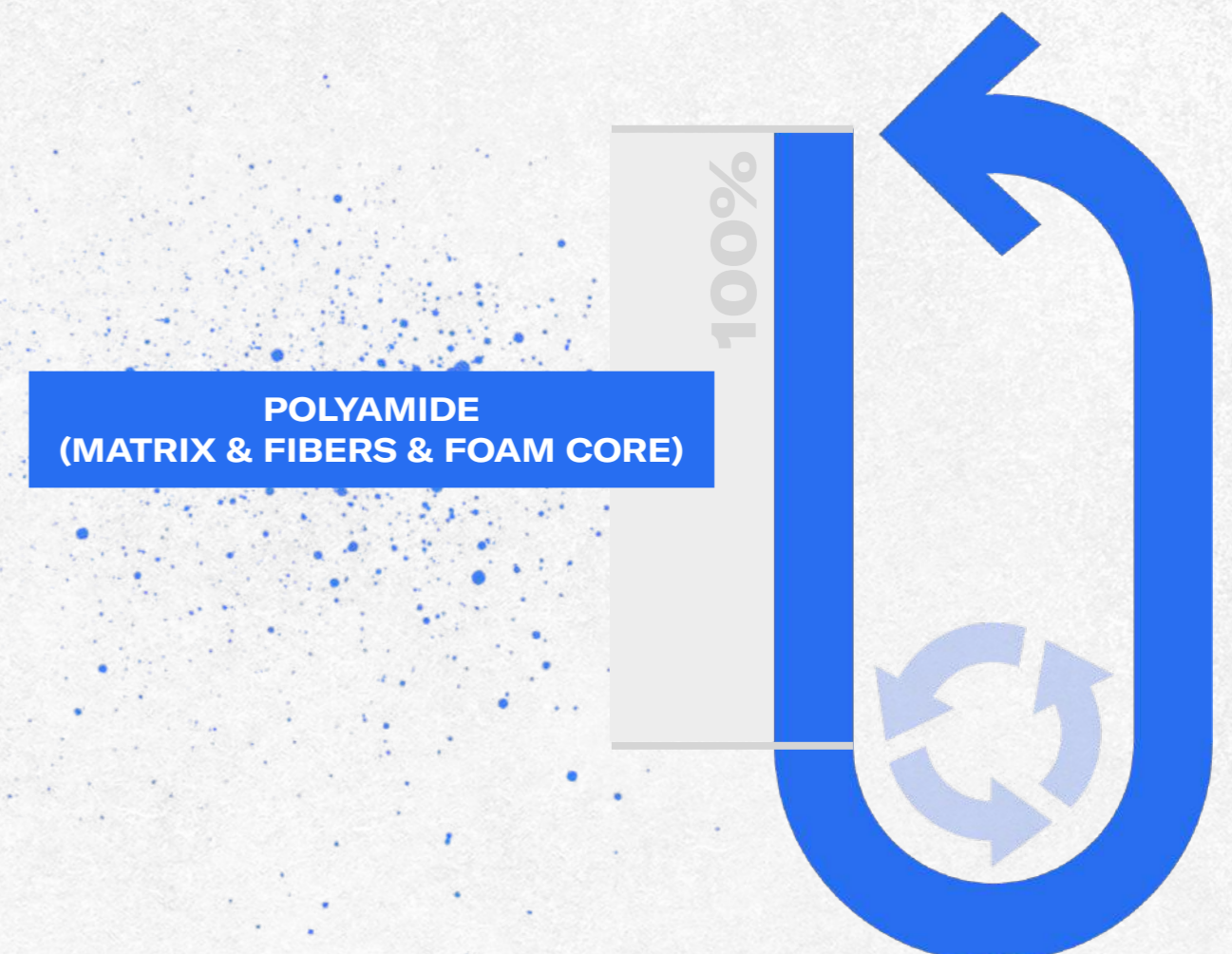
THE WORLD'S FIRST POLYAMIDE CORE + CAST PRODUCT

PATENTED, PRODUCTION STARTING Q4 2023



THE WORLD'S FIRST POLYAMIDE MONOMATERIAL SOLUTION

PATENTS IN PROGRESS, PROTOTYPING STARTING Q1 2024





FIRST TO IN-SITU CAST A FOAM CORE WITH ENDLESS FIBERS.

We did not invent the T-RTM process, nor the novel PA6 foam, but we are the inventors of some essential details to be able to combine these two technologies.

So we are the first to cast continuous/endless fibers with a foam core via in-situ molding to form a lightweight thermoplastic sandwich component.

Patented, of course.

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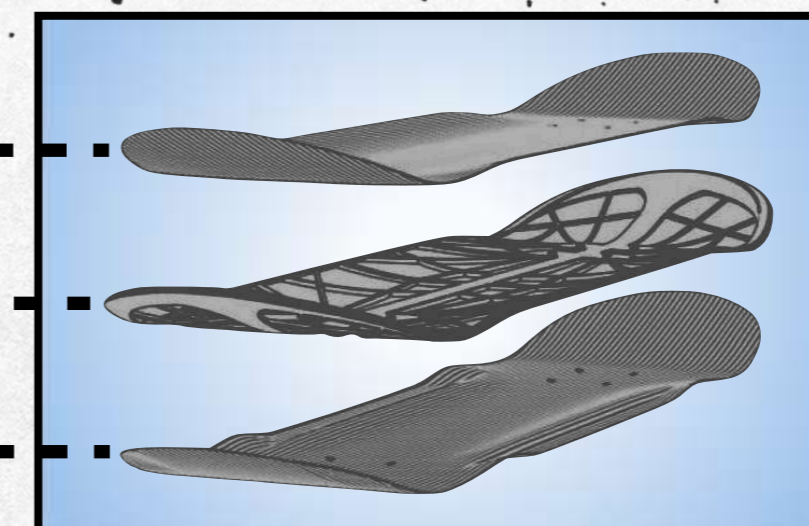
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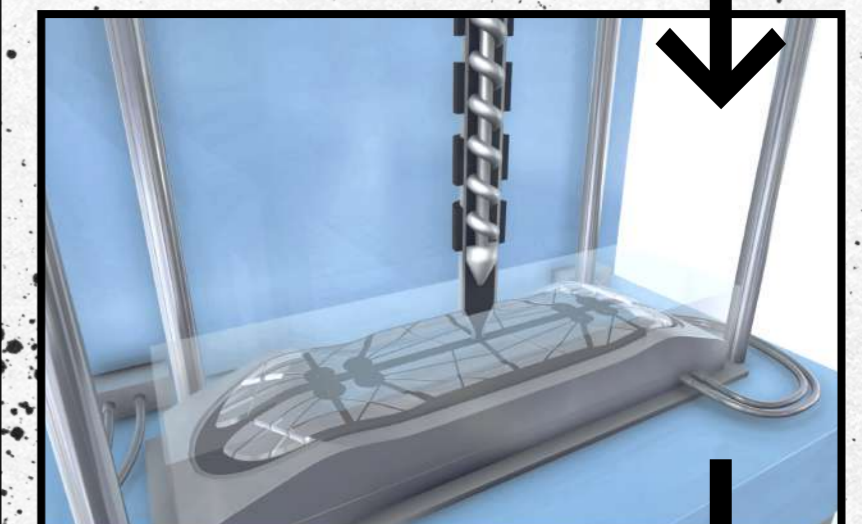
1. PREPARE THE COMPONENTS



2. PUT THEM TOGETHER



3. CAST IT TOGETHER



INNOVATION & OUR KNOW-HOW



A NEW WAY OF SKATEBOARDS AS A PROOF-OF-CONCEPT.

There is a story behind it that drives us and explains how we got there:
Skateboarding is the companies background and that's where all things started.

In order to build better skateboards, we have developed different technologies of how
a skateboard could be made, with our technology being the most superior by far.

A skateboard is actually **a complex product** if you want to optimize the performance
characteristics to modern skating and therefor **serves perfectly as a proof-of-concept.**

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MADE
WITH
OCEAN
PLASTIC





A COMPARISON SHOWS ALL OF OUR ADVANTAGES.

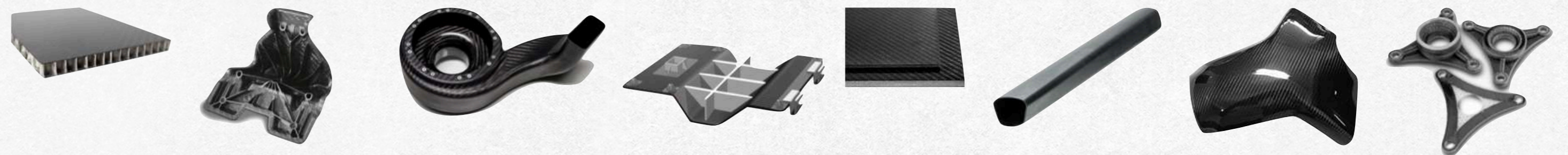
Our process is fast and enables many advantages compared to other **endless** fiber reinforced technologies → → → → →

	PAPER, ARAMID, ALUMINIUM HONEYCOMB SANDWICH PLATES	ORGANOSHEET / UD-TAPES + INJECTION MOLDING	LOST CORE / CAVUS	CONEXUS	FOAM PLATES SANDWICH	BLADDER MOLDING	PREPREG + VACUUM	MARKFORGED 3D PRINT	KAPE TECHNOLOGY
Material bond		✓	✓	?		✓	✓	✓	✓
Compression resistant	✓	?		?	✓			✓	✓
Impact resistant		✓		?				?	✓
Recyclable		✓						✓	✓
3D geometry possible	?	✓	✓	✓	?	✓	✓	✓	✓
Sandwich construction possible	✓			?	✓			✓	✓
Short cycle times for large wall thicknesses	✓	✓		?	?				✓
Integration of inserts		✓	?	✓	?		?		✓
Low material costs									✓
Low process costs	?	?			?				✓

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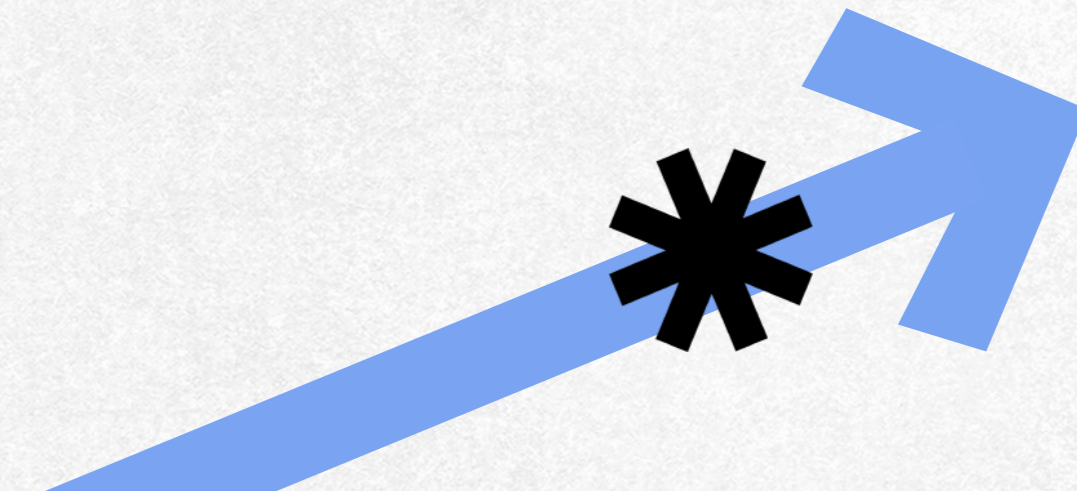




EXCITING OPPORTUNITIES IN SEVERAL AREAS AND INDUSTRIES.

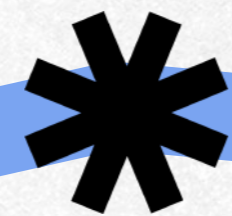
From other obvious sports equipment to the aircraft industry, saving time and money + becoming recyclable is interesting for every industry.

Aircraft industry
Structural components



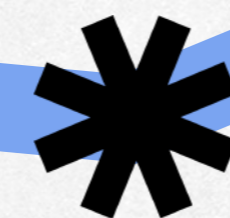
Board Sports

Long, Wake, Surf, Snow, Kite, Skim, River, Foil, ...



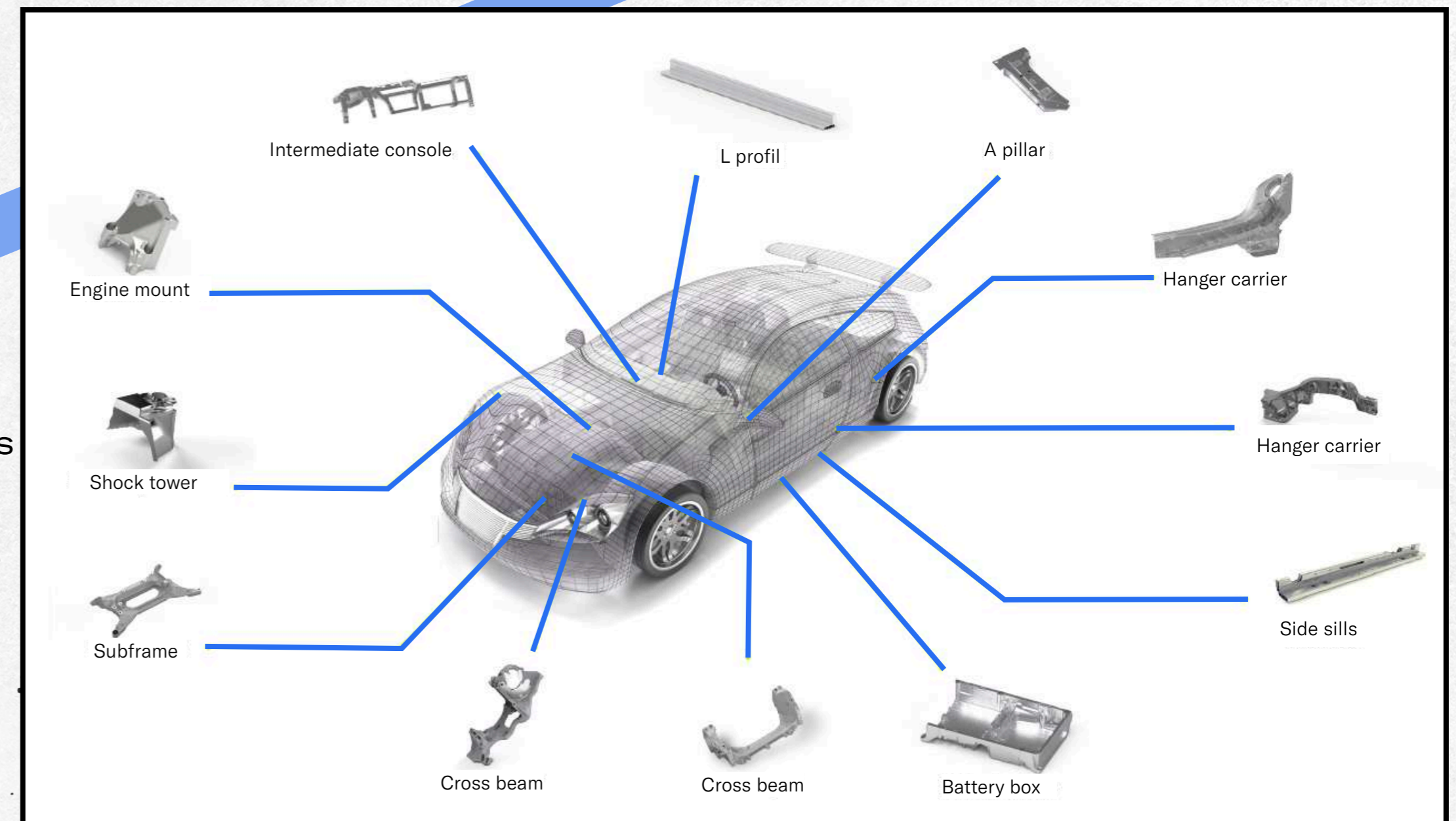
Sports equipment

Protective equipment, lightweight parts for weight optimization, ...



Automotive industry

Structural components



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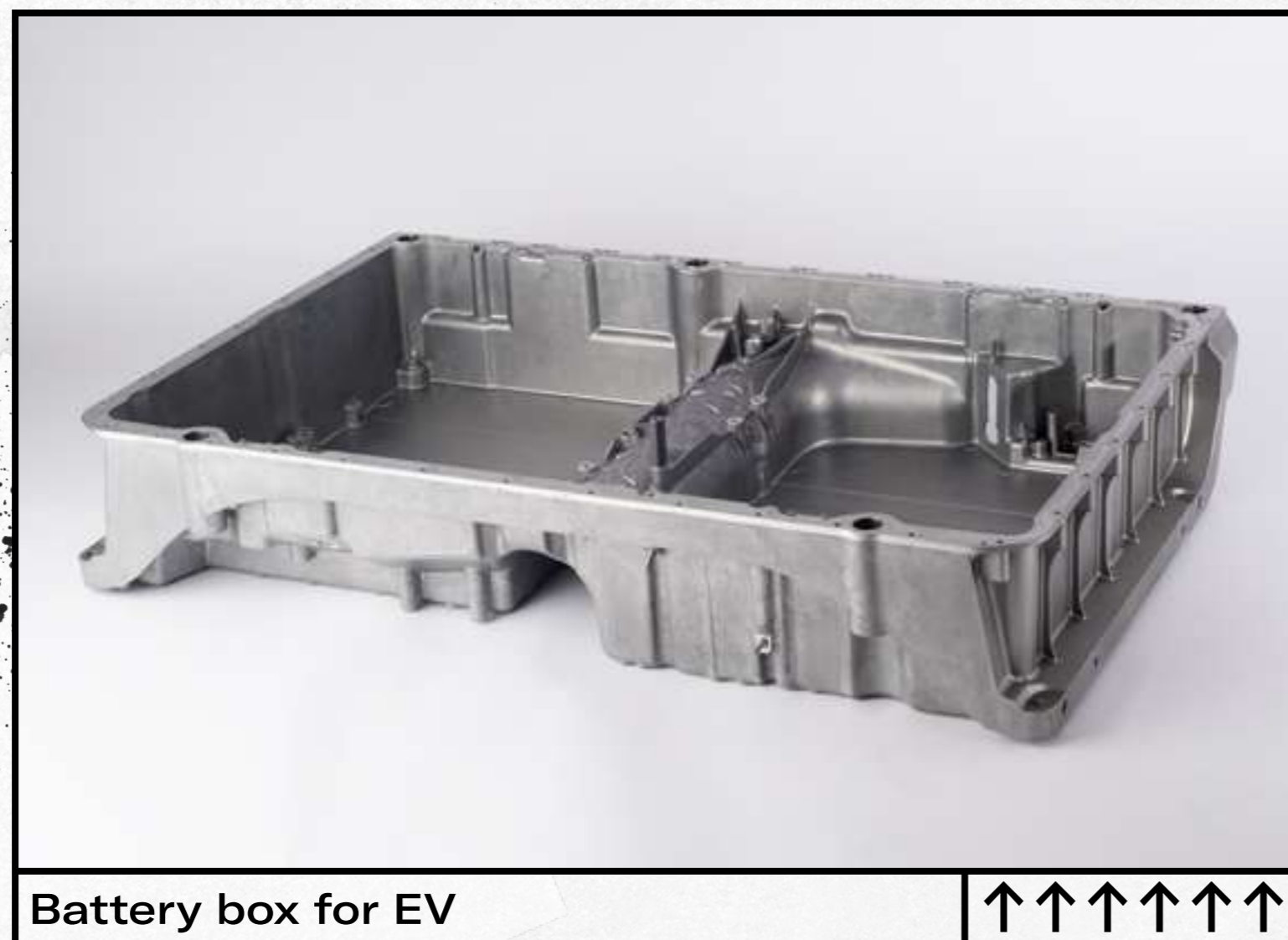
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THE KAPE TECHNOLOGY CARRYING A CAR'S BATTERY.

Even though electric vehicles are fundamentally much less complex, some components have completely new kinds of requirements. Such as the battery box:
Here, aluminum is currently the market standard; replacing it with our technology would ...



Battery box for EV

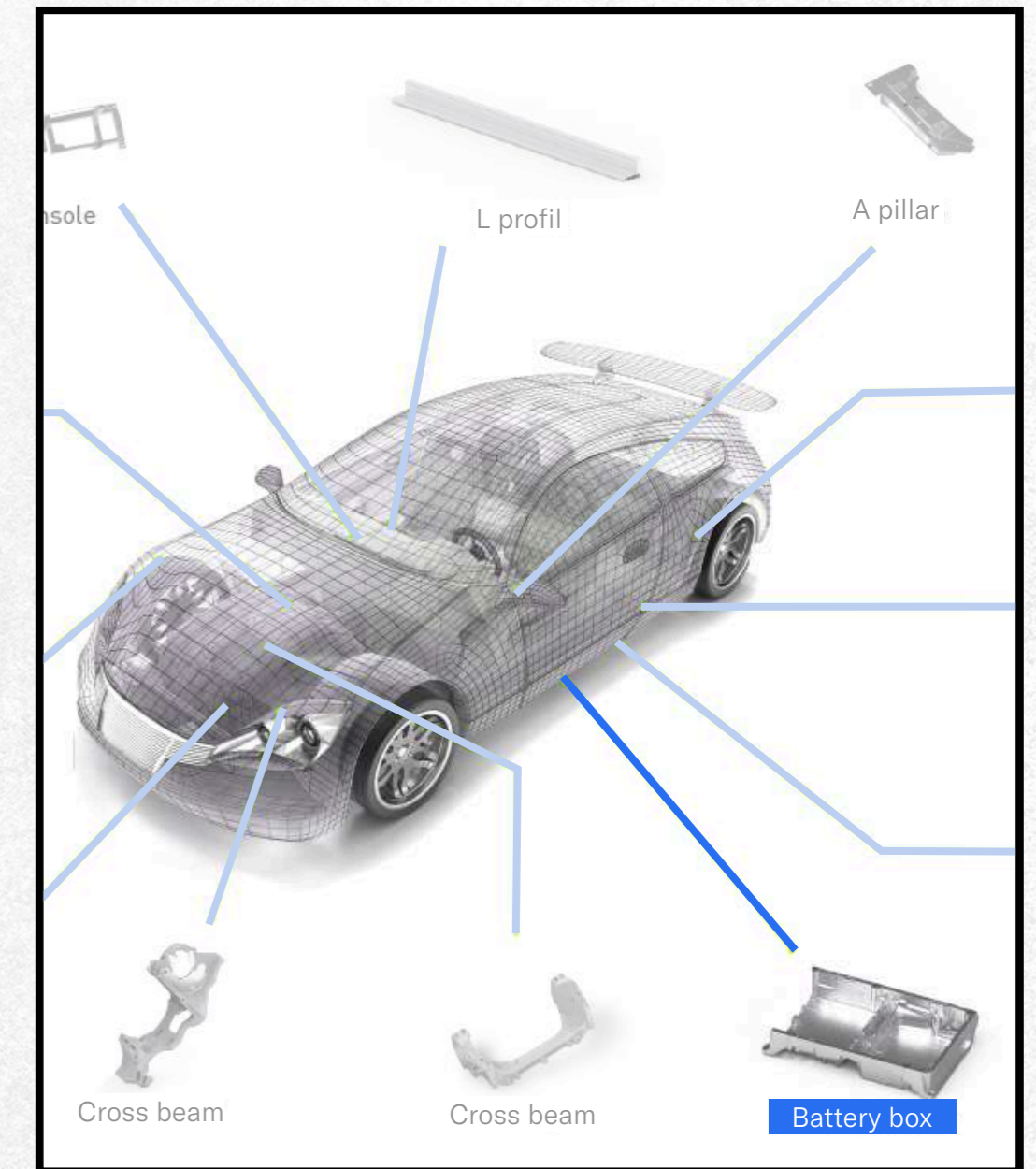


HAVE THE FOLLOWING ADVANTAGES:

- Lower thermal conductivity than aluminum
- Lower emitted CO2 for producing parts
- Lower price on main material
- Adjustability of flame-retardant properties

OFFER NEW OPPORTUNITIES ...

- in part geometry, such as providing strength where needed in the part
- for parts consolidation, reducing assembly steps
- for integration of sensors, electronic components and EMI countermeasures
- in sound design and control of vibration through targeted influence on density
- to reduce risk at battery leakage by molded-in, rather than welded-on mounting points



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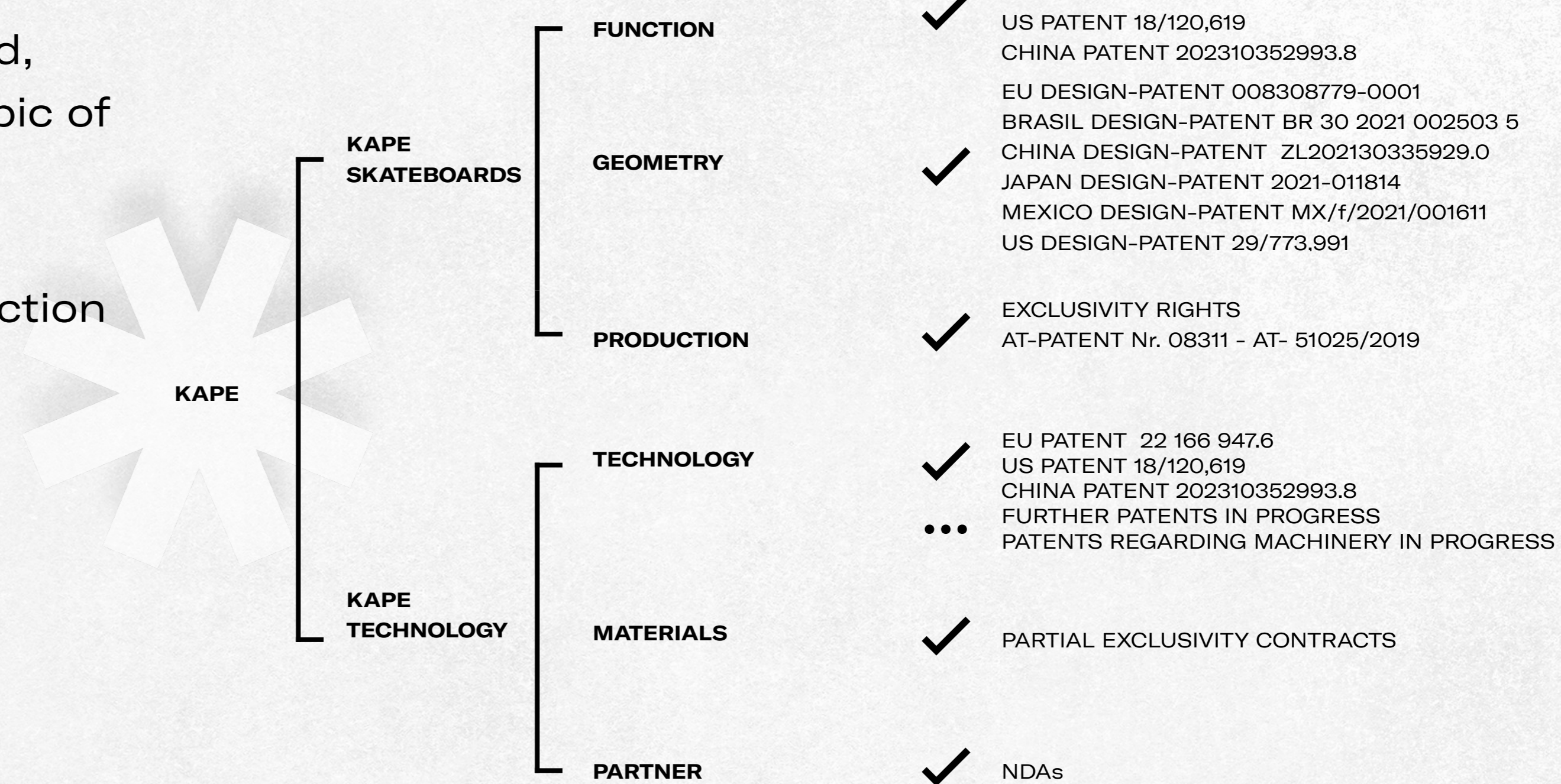
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SKATEBOARD & TECHNOLOGY IS PATENTED, MACHINERY IS NEXT.

Since the Vanguard is not only an innovative skateboard, but there is also this novel technology behind it, the topic of "IP" is high on our agenda.

As we are currently setting up the machines and production line, **the next patents will be focussed on our modular system we use for all our machines.**



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OPERATING AS KAPE GMBH SINCE 2020.

In 2014, development work began in Peter's parents' garage, developing compound skateboards as a single person company and selling over 2000 of these carbon skateboards.

Since late 2019, Peter and Daniel are working on the new technology as a team, meanwhile gathering numerous supporting partners.



PETER KARACSONYI
CEO & FOUNDER

STRATEGY & PRODUCT DEVELOPMENT



DANIEL JAHN
COO

ORGANIZATION & FINANCES



BERNHARD UNGERBÖCK

Board member
Director of eQventure



HEINZ MOITZI

Board member
Former AT&S CTO



GERFRIED SCHULLER

Board member
BlueTomato founder



CHRISTIAN WOLFSBERGER

Technical advisor
Plastic Innovations & ENGEL



STEFAN LEBLHUBER

Technical advisor
KeyMix Systems



JÖRG SCHLIPFINGER

Financial advisor
tech2b



NINA GRUBER

Organisational advisor
tech2b



DAVID HUMMELBERGER

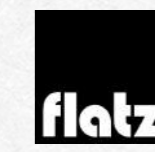
Technical advisor
Bumblebee Innovation

INVESTORS



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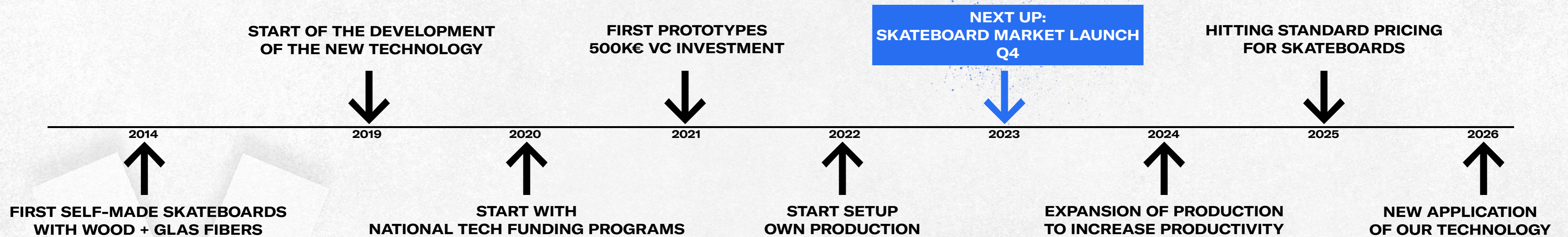
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SUPPORTING PARTNERS



FOCUS SET ON THE SKATEBOARD TO SHOW IT WORKS.



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EDISON PRICE 2020 SILVER AWARD WINNER

GIN GO TOKYO 2020 SELECTED STARTUP

HOTTEST UPPER AUSTRIA STARTUP WINNER 2019

AUSTRIAN STARTUP WORLDCUP OVERALL WINNER 2021

So we are

RAISING 1,5 MIO EUR

to scale the production, the team and our marketing.

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RESTRICTED FOR

PEOPLE WHO LOVE SKATEBOARDING