REDSTONE · FOUNDER STORIES

“Everyone in this industry will tell you to pick two: fast, precise, or affordable. We just refused to pick.”

How a morning in a bakery outside Innsbruck convinced us that the era of expensive lightweight is over.

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Florian Wilfinger and Ben Scheidt
fibionic · Götzens, Tirol

The valley pulls you in

The woman at the rental desk in Munich asked whether I wanted the upgrade, and I said no, because you do not need much car to get to Tirol. Ben climbed into the passenger seat with two coffees and a briefing folder, and we began our journey south.

You feel the Alps before you see them. The autobahn runs flat and businesslike for the first hour, business parks and rapeseed fields and the occasional furniture warehouse the size of a village. Then, somewhere past Rosenheim, the ground stops pretending. The mountains come up out of the horizon all at once, and by the time you cross into Austria at Kufstein the road has narrowed into the Inn valley, grey rock standing close on both sides, old and completely uninterested in you.

Innsbruck sits at the bottom of that valley the way a coin sits in a cupped hand. The Nordkette rises almost vertically off the northern edge of the city, you can stand on a shopping street and look straight up at alpine pastures. We did not stop there. Götzens is a few minutes higher, on the sunny terrace along the southern shoulder, one of those villages where the road folds back on itself twice and then the whole valley drops away beneath you. It is not a place you would find by accident. You have to be going there.

Which is, in a way, the whole point. The best hardware in Europe is very often being built somewhere you have never heard of, by people who prefer it that way.

Three founders and a leaf

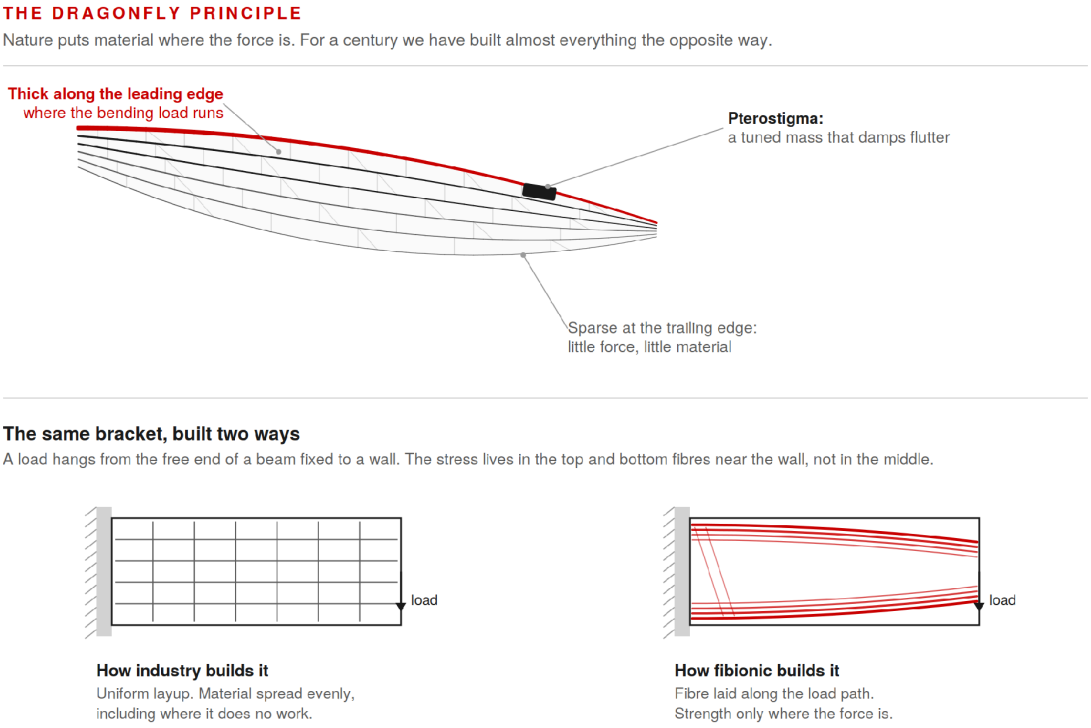
We met the three of them in a small bakery on the main road, the kind with four tables, a glass case of Krapfen, and a coffee machine that was paid off a decade ago. Thomas Rettenwander, Johannes Mandler and Elias Hirschbichler. No pitch, no laptop. Thomas ordered for the table, and then, before anyone had asked a single question about the company, he started talking about leaves.

Thomas is the one who sees the shapes. He grew up here, in the mountains, and he has the particular relationship with the natural world that people who grew up inside it tend to have, unsentimental and very close. He doesn't look at nature as a backdrop or a piece of scenery. To him, it's a system perfected over hundreds of millions of years: flawless, functional, and completely solved.

He spent his childhood summers by the mountain streams, watching hours slip away as he moved rocks in the rushing water. He noticed how the current instantly adapted to the changes, and how the pebbles took on smooth, precise shapes over centuries just to survive the friction. Stacking those stones on the bank, he realized their geometry wasn't an accident. The water had carved away everything except the most efficient possible shape. To him, the stream wasn't a playground. Instead, it was a place where physics spent thousands of years getting the answer exactly right.

"*Pick up a leaf and hold it to the light,*" he said, and half of us actually glanced toward the window. "*The veins run where the load runs, and nowhere else. A dragonfly wing is built the same way. Nature has been solving the lightweight problem for a few hundred million years, and the answer never changes. Put strength only where the force actually is.*"

He took a paper napkin and drew a wing. Then he explained the thing I have not been able to stop thinking about since. A dragonfly wing is not a uniform sheet. The big vein along the leading edge is thick, because that is where the bending happens. The veins thin out toward the back, where there is almost nothing to carry. Near the tip sits a small dark cell, the pterostigma, a deliberate lump of extra mass whose only job is to stop the wing from fluttering itself apart at speed. Nothing is even. Nothing is decorative. Every gram is either doing a job, or it is not there.



A dragonfly wing carries its material where the force is: heavy along the leading edge, sparse at the trailing edge, with the pterostigma near the tip tuned to damp flutter. The same idea, translated into a loaded bracket, is the whole of fibionic's argument.

"*We have known this for a hundred years,*" Thomas said, "*and we build almost everything the opposite way. Beams. Plates of even thickness. Material smeared across places where it does no work, because that was the version a machine could turn out. The clever version, the one that copies the leaf, we kept for the few places where money is no object. A satellite. The frame under a Tour rider.*"

I said it reminded me of Gaudí, and Thomas grinned like I had passed a small test. Antoni Gaudí used to hang chains from the ceiling of his studio, let each one settle into the curve a chain naturally takes under its own weight, then photograph the model and turn the image upside down. The arch he built in stone was simply that hanging curve, inverted. He worked this way for decades, most famously on the crypt at Colònia Güell, a testing ground he treated as a monumental model for the Sagrada Família itself. Instead of forcing a shape onto the architecture, he listened to what the physics demanded and got out of the way. You can still see the same logic standing in Park Güell today, where the viaducts run on columns that lean and branch the way tree trunks do, built from rough stone taken straight off the hillside, carrying carriage roads overhead without a straight line or a right angle anywhere in the structure. Nothing there was decided at a drafting table. It settled into place the way water finds its channel, and then someone

built it in stone. That is the entire idea here. Do not decide where the material should go. Let the load decide, and follow it.

By now we had been in the bakery forty minutes and nobody had mentioned a valuation, a market size, or a competitor. Ben caught my eye over his coffee. We both already liked them. That is not diligence, and it does not survive contact with a spreadsheet, but it matters more than the industry likes to admit. You're going to be in the trenches with these three for the next eight or ten years. When their names pop up on your phone, you actually want to feel good about answering.

Johannes is the one who turns the idea into a customer. Where Thomas talks in centuries, Johannes talks in purchase orders. He has the slightly scarred patience of someone who has heard "*very interesting, send us your deck*" a hundred times and has learned to hear it, correctly, as a polite no.

He is tired of one comparison in particular. "*Someone picks up one of our parts and says, ah, so you do 3D printing.*" He said it with the weariness of the tenth time that week. "*And I have to explain that no, we do not. 3D printing had a beautiful idea, material only where you need it, and then it ran that idea one slow part at a time, for prototypes. We took the idea and built it for real series production. It is the step that comes after additive manufacturing.*"

Elias is the one who has to be honest about money, and he is the least interested of the three in making any of this sound easy. He runs the finances, which in a company like this means he is the one who knows exactly how long the runway is on any given morning.

> *"Deep tech does not scale because the idea is good. It scales because you survive every step, one after another. Technical proof, customer trust, financing, and teaching a market that did not know it had a problem. Each one of those can kill you, and they never arrive at the same time. It is slower than software and it eats more capital. Anyone who tells you otherwise has not built one."*
>
> Elias Hirschbichler

Above the hall

Then they walked us over to the office, which turned out to be a single room on a mezzanine directly above the production floor. You could feel the machine through the soles of your shoes before you saw it. Two desks, a whiteboard carrying the sediment of old arguments, and a window looking down onto the hall. This is my favourite kind of company office. Nobody has spent a cent on it, because every cent has gone downstairs. You can feel the founder spirit in a room like that; it is the physical proof that the company still puts everything into the thing itself.

Standing at that window, they explained how it actually works, and the market opened up in front of us as they talked.

The process has a deliberately unglamorous name, Fastest Fiber Placement, and one number that does all the arguing. As little as a minute. That is the cycle time they hit on a shallow part, fibre laid along the load path the way the leaf lays it, which they call a world record and which nobody has yet beaten.

That number is the entire line between a science project and a business. A part you lay up by hand over an afternoon belongs in a wind tunnel. A part that comes off the line every minute belongs in a catalogue, at a price an ordinary product can carry. "*Carbon fibre has been extraordinary for forty years,*" they said, "*and the reason it never reached your car or your running shoes was never the fibre itself but that nobody could lay it down fast enough, cheaply enough, or cleanly enough to make the arithmetic work. A production problem wearing the costume of a material problem.*"

Fix the production, Johannes said, and the logic flips. Suddenly the leaf-shaped part is not the expensive option. It is the cheap one, because you have stopped paying for all the material you used to waste. Stand at that window and start multiplying, every beam, every plate, every bracket built the dumb way, and the size of the thing becomes slightly hard to breathe around.

They had gone hunting for real demand in sport, on purpose. The performance requirements are real, the barrier to entry is lower than it is in aerospace, and the customer can feel the difference in their hands: a stiffer bike part, a surf fin tuned between flex and rigidity, a sole that springs back. With Selle Italia they put reinforcement structures into series at thousands of parts a month, and kept them there.

> *"That is the moment it stops being research. When a real manufacturer rebuilds part of their product around what you can do, and then reorders. You are not running a pilot any more. Instead, you are a supplier."*
>
> Johannes Mandler

Investors had been wary, Elias admitted, the way the whole market is wary of anything with a machine in it right now. Hardware reads as risk. What eventually moved the conversation was not a sharper pitch. It was a reorder.

The other edge of that patience is quieter, and it is the part that made me lean in at the window. Once the process runs and the patents hold, what protects the company is not a line of code a rival can rewrite over a weekend. It is years of physical reality that nobody else has lived through yet. A slow moat. And these three seemed genuinely comfortable with slow, which is rarer than it sounds, and hard to separate from where they sit, a village outside Innsbruck ringed by firms that have stayed relevant for decades.

Elias framed it as a European point more than a Tirolean one. "*Europe has the ideas and the people,*" he said. "*What it too often lacks is the nerve to industrialise them at home, instead of selling the patent and watching the factory get built somewhere else. We kept*

all of it here. Design, machines, production. Partly stubbornness. Mostly a bet that the next decade rewards the people who can actually make things."

The machine

Then we went downstairs, and I stopped taking notes.

I will not pretend I can describe the mechanism properly, partly because they are careful about what they show, and partly because a good deal of what makes it work is not visible at machine speed. What you see is fibre being placed, fast, along curved paths, the material fanning and turning the way it had on the finished part Thomas handed me in the bakery, dense in one corner and almost bare in another. From a step back the surface looks less manufactured than grown. It does not look like a printer patiently building up a prototype. Instead, it looks like a production line that happens to be laying down exactly the pattern a leaf would.

You develop, in this job, a physical reaction to the moment a demo stops being a demo. Something in the room changes when the thing on the bench is obviously not a trick. Ben and I did not say anything to each other. We did not need to.

The road back

We drove out of the valley in the late afternoon, the light going long and gold across the rock, the Inn grey and fast on our right. Ben talked for the first ten minutes and I drove and mostly listened.

You spend a great deal of this job being sold to. People arrive rehearsed, having decided in advance which version of themselves you want to meet. What we had just spent a morning with was the opposite. Nobody had inflated anything. Elias had spent as much energy telling us why it was hard as why it would work. Thomas spoke about the company as something that simply needed to exist. It's the kind of project you pursue because it is too important to leave unbuilt, no matter how steep the odds or how distant the payout. Johannes had a customer who reorders, which is the only sentence in a pitch that cannot be faked.

The honest tell of a good founder is what they admit they have not cracked, and here it was not technical. It was the shape of the company. Fibionic does not want to stay a part maker. The longer game is to sell the whole logic, the machines, the software, the optimised material, and let other manufacturers run the process inside their own lines. That is a far harder company than the one quietly turning out bike parts in Götzens. It asks an entire industry to rebuild its production around your idea, and that kind of trust is not won with a demo.

Crossing back over the German border, we weren't debating the viability anymore. We were just arguing over the scale of it, and how fast we could move.

"*We are not building for a story,*" Thomas had said, back in the bakery, turning the part over in his hand. "*We are building because something needs to exist. A leaf does not*

waste material. We just want to stop doing it everywhere else, at scale, at a price people will actually pay." Plenty of companies can make a beautiful optimised part. Almost none can make it at the price of the dumb one. That last clause is the whole company, and it is the reason we drove home knowing we had stumbled onto something that could rewrite the rules of manufacturing.

Alpine SICAF (Euregio+ & Redstone Adviced) invested in Tethys because the company systematically solves the "first-mile problem" of maritime data acquisition: a structural, multi-decade bottleneck that has been continuously ignored even as global reliance on subsea infrastructure intensifies. Tethys arrives at the precise historical inflection point where physical AI and ruggedized autonomous systems transition from expensive experimental luxuries to absolute civilian necessities.

Redstone is one of the most active European early-stage VCs and holds top decile track record across the sector funds.