This book has been designed for the exhibition from Sketch to Scale held in Cyprus in 2026 in the Art Space of ARUCAD (Arkin University of Creative Arts and Design).

It contains a collection of conferences and talks with Tobia Repossi, who designs for clients who have the ambition to develop new concepts and products with high standards of design and execution.

These projects have been developed for young startups from the Valley, India and China. It features electronic appliances, accessories and many iconic products sold in major chains worldwide.

It's a unique approach to the process, built upon accurate research and analysis from those with strong mechanical and industrial backgrounds, to aid at the best innovators and startuppers.

ARUCAD
Arkin University
of Creative Arts and Design

FROM SKETCH TO SCALE Industrial design strategies to bring your physical product to life

TOBIA REPOSSI + AMANDA RICHARDSON

FROM SKETCH TO SCALE

Industrial design strategies to bring your physical product to life



ARUCAD Press



Tobia Repossi

Tobia Repossi studied Architecture at Politecnico di Milano and Product Design at Kunstakademiets Arkitektskole in Copenhagen. His grandfather was a painter, his father is a sculptor. Tired of breathing art at home, he studied architecture.
He is a registered architect with years of experience in industrial and product design.
He worked for major European and Asian market-leading companies as well as European and American brands and for startups from China and Silicon Valley.
He designed products for interior and outdoor, as well as furniture, electronic appliances and accessories.
His works have been selected for the Compasso d'Oro Prize, Design Index, Mediastars, Modern Decoration Award, A'Design Award, Red Dot Award and published in magazines, newspapers and in the web.
He's been teaching Design at Politecnico di Milano, IED, ITS Academy, ARUCAD (Arkin University of Creative Arts and Design) and created the Arkin Innovation Hub.
He co-founded IDA (Italian Design Association) which unites all the Italian professionals in China and promotes the culture of Italian design.
He has given speeches at many Universities, Design Conferences and TED events.
He established successful design companies like ZonaUno design Agency, Tobia Repossi & Partners in Shenzhen and Bologna.

AN HONEST SAMPLE

Look at whatever is within reach as you read this: a phone, a chair, a pen. Each began as a drawing, and each crossed a stretch of ground almost nobody sees, where a sketch must become ten thousand identical objects at a price someone will pay. Most ideas do not survive the crossing. We never meet those, so we conclude that making things is easy.

As a scientist I was trained to distrust samples made only of successes. This book is a rare account of the crossing by someone who has made it many times, and much of what he reports will surprise you. A product must sell for about four times what it costs at the factory gate, or the arithmetic fails before the first customer arrives. You go to China for skill and speed, not for low prices, and once there, trust comes before the contract. The usual cause of death is a good product sitting in a warehouse with no shop to sell it.

Tobia Repossi learned all this in the factories of Shenzhen and then brought it to Cyprus, where he directed our Arkın Innovation Hub and taught industrial design at ARUCAD. An island with few factories needs that knowledge more than most, and our students had it first-hand.

I began with the objects we never meet. What I value most here is that Tobia lets us meet some of them. Beside the products that sold in their thousands you will find a children's watch that never left the concept stage, a drone still in development, and his own folding bicycle, which he plainly calls a commercial failure. That makes these pages an honest sample, the only kind worth learning from.

PROF. DR. SINAN ARKIN
Head of the Board of Trustees of ARUCAD (Arkin University of Creative Arts and Design)



FROM IDEAS TO IMPACT

Industrial design begins with an idea, but its true value emerges when that idea can be transformed into something meaningful, functional and real. Between the first sketch and the final product lies a complex process of research, experimentation, technical development, collaboration and decision-making. From Sketch to Scale explores this process through the professional experience and distinctive perspective of Tobia Repossi.

Tobia's work represents an approach to industrial design that is particularly relevant today. His practice moves fluidly between creativity and technology, design and engineering, experimentation and production. Working across different countries, industries and scales, he has developed products ranging from furniture and consumer electronics to appliances, accessories and to outdoor applications. At the same time, his collaborations with entrepreneurs and startups have given him direct experience of one of the most challenging dimensions of our profession: transforming an innovative concept into a product that can actually be produced, communicated and brought to market.

This intersection between design, engineering, research and production is increasingly important. Industrial design does not exist as an isolated creative activity. Ideas must engage with technology, materials, manufacturing processes, resources, users and the realities of the market. Creativity needs technical feasibility; innovation requires processes through which it can be realised; and a compelling concept must ultimately respond to the people and contexts for which it was created.

For students of industrial design, understanding this journey is particularly important. Design education develops the ability to imagine alternatives and question existing solutions, but professional practice demands that these ideas also engage with users, materials, manufacturing processes, technological possibilities, economic realities and questions of responsibility and sustainability.

PROF. DR. BURCU TOKER
Dean Faculty Industrial Design ARUCAD (Arkin University of Creative Arts and Design)
Vice-Rector for Research and Development



A successful designer therefore needs more than creativity.
Designers must learn to research, test, communicate, collaborate and continuously refine their ideas.

This is where From Sketch to Scale, both as a book and an exhibition, becomes particularly meaningful. By bringing together Tobia Repossi's projects, experiences and reflections on product development, it offers a view beyond the finished object and into the processes that shape it. The works presented reveal the decisions, constraints, experimentation and collaboration that take place between an initial idea and its realisation. In doing so, the exhibition and this accompanying publication invite us to consider industrial design not simply through its outcomes, but through the thinking, development and continuous refinement that make those outcomes possible.

The title From Sketch to Scale therefore carries an important message. The sketch represents possibility: the first visible expression of an idea. Scale represents the much more demanding process of turning that possibility into reality. Between the two, designers must repeatedly ask not only what they are designing and how it can be produced, but also why it should exist and what value it can create for people.

This publication accompanies the From Sketch to Scale exhibition at ARUCAD Art Space and brings together ideas and experiences developed through Tobia's extensive professional practice. More than a presentation of products, it offers insight into a way of thinking about design—one that connects imagination with implementation, research with innovation, and creative ambition with the realities of production.

At ARUCAD, we believe that design education should encourage students to imagine boldly while providing them with the knowledge, skills and confidence to transform those ideas into reality. Bringing professional practice, research and education together is fundamental to creating an environment in which new ideas can develop into meaningful innovation.
In this sense, the journey from sketch to scale is much more than a product development process. It is the journey from an idea to innovation, from possibility to realisation, and ultimately from creativity to impact.
I hope this book encourages our students, young designers and entrepreneurs to begin that journey with curiosity, courage and, above all, a clear sense of why.

BEFORE THE OBJECT

Art shows us that it is possible to think otherwise. Design explores how that thought might exist in the world.
For me, the most compelling part of the creative process begins precisely at this point of transition. While an idea exists only in the mind, it is free; it has no fixed scale, material, or boundary. With the first sketch, it becomes visible. From there, it begins its encounter with the conditions of the real world.

The space for free thought opened by art continues to expand through science, technology, and new knowledge. New materials, new technologies, and new modes of production change not only how an object can be made, but also how it can be imagined. Every new piece of knowledge redraws the boundaries of form.

This is why I have never seen design as merely a field of functional problem-solving. Art often imagines what is not yet possible; science and technology expand the limits of what can be; design takes form at the point where these forces meet.

What interests me most in From Sketch to Scale is not simply the finished object, but the transformation of the thought behind it. When an idea encounters reality, it must change, adapt, sometimes surrender, and sometimes resist. Perhaps the strength of good design lies precisely here: in its ability to transform without losing the essence of the original thought.

In the exhibition space, this journey opens once again. The object is no longer read only through its function, but also through its form, its position in space, and the relationship it establishes with the viewer.
For me, then, From Sketch to Scale is not simply a journey from sketch to product. It is a space for reflecting on the forms that can emerge when imagination meets knowledge, creativity meets technology, and thought meets reality.

OYA SILBERY
Arkin Group Art Director and Curator



FIND YOUR WHY!

How do you turn a stroke of genius into a product?

This is the question that obsesses every inventor, designer, and dreamer who wakes up in the middle of the night with an idea that seems capable of changing the world. But before we talk about electronics, enclosures, or software, we need to talk about something much deeper and, in some ways, intangible. We need to talk about the heart of your venture.
It is a matter of fact that successful companies and great leaders communicate in the exact opposite way from everyone else. Looking at the market, the vast majority of startups try to sell you a "what."

They tell you: "We built this new gadget, it has these specs, buy it."
But the great ones, the ones that last, start from a diametrically opposed point of view. Both categories start with the "why," then explain the "how," and finally the "what."

This is *Simon Sinek*'s famous *Golden Circle of communication*: Start with Why. It's a concept I repeat like a mantra to anyone who walks into my studio: your customers will never buy how you do it or what you do; they will buy your dream. The physical product is merely the tangible proof of that dream. To build a successful startup, before you even touch a mouse, you must be crystal clear on why someone should buy your product and what dream you want to share with them.

Ask yourself: why do you care about that problem? Why are you the one holding the solution? And, above all, why should anyone out there care about your battle? If your answer is "I want to make money" or "I want to sell my shares to a multinational in two years," stop right there. That isn't a "why"—that's just a financial result. The authentic goal of a designer, of a hardware entrepreneur, is always to sell to people who share your "why", who believe in the same things you believe in.
If you manage to communicate in this way and to these people, they will be the ones lining up to buy your product, because they care about the exact same things you do. They won't just be customers; they will be allies. Anyone can tell you what they sell: a car with four-wheel drive, six speeds, zero to sixty in a few seconds. Some can tell you how they do it: sometimes citing proprietary technology or innovative manufacturing solutions. But very few—and only the winners—can tell you the why behind their startup's existence.

If you can answer these questions, your communication is already halfway done. Try thinking about this framework applied, for instance, to the computer industry. Apple doesn't tell you what they sell, nor how they do it technically (they never lead with RAM or processors). If they did, no one would buy their laptops at that price point. Instead, Apple immediately communicates their why, saying: "We believe in challenging the Status Quo (Think Different); we do this by making beautifully designed, easy-to-use computers; we happen to have a new laptop—want to buy one?"

Put this way, you wouldn't just be ready to buy a laptop from them, but also a phone, a TV, or a music subscription. Because you aren't buying an integrated circuit; you're buying rebellion against the mundane. Nobody will buy your product just because you want to get rich; everyone will buy it if they believe in the same things you do.
Allow me a personal example—a dream I've carried with me forever. As a child, I had a dream of enabling women to urinate standing up, liberating them from the tyranny of public restrooms. It was a pure dream, not a cash grab. It was the drive to solve a biological and social injustice through design. One day, it's a project I want to pull out of the drawer, and when I do, I won't be selling a plastic funnel; I'll be selling freedom and dignity.
If you're a startup founder staring at a blank page, try starting with the words: "I

believe that...", "I have a dream...", "I am convinced that...". If you can't complete these sentences with passion, you're going to have a massive problem. I've seen dozens upon dozens of founders fail because they lacked a why, a dream, a belief. It's always the first question I ask: "What is your why?"

Apply this exact same method when choosing the people you surround yourself with. It's a myth that startups mostly fail due to market or financial conditions. Failure is mathematical if they lack a why or if the co-founders and employees don't share the same dream. The people working with you will pour blood, sweat, and tears into the project only if they feel it's their own. If you don't have a clear dream, they will only work for a pay check, and at the first technical glitch or production delay, they'll turn their backs on you.
In fact, startups that lose their way and vanish almost always do so because of co-founder disputes, not necessarily because their products were failures. This is the only magic recipe you need: most of your initial work will be convincing your stakeholders that your dream is achievable. Forget about the blueprint, the design, or solving technical bugs for now.
Focus on how to persuade investors, partners, employees, and suppliers. They will work with you only if you can convince them that your battle is worth their risk, their money, and their time. Only then can you head into battle confident in the loyalty of your team.

In a world saturated with electronic gadgets, the difference between success and oblivion doesn't lie in the number of transistors, but in the ability to trigger a response in the consumer's limbic system.
Let's imagine two fictitious hardware startups producing the same device: a connected security camera with 4K resolution, night vision, long battery life, and a gray polycarbonate body. Both manufacture in the same industrial district and have access to the exact same professional resources, expertise, and funding.

Company A follows the market. Their marketing is driven by engineers and salespeople staring at an Excel spreadsheet of technical specs.
The "WHAT" (Starting point): "We make the best security cameras on the market."

The "HOW": "They feature ultra-high-definition 4K resolution, an infrared motion sensor, and a smartphone app compatible with iOS and Android. The battery lasts 12 months without recharging."
The "WHY": (Implied or absent) "Because we want to sell 50,000 units and make an exit."
Company A is shouting a list of technical specs to the world. The customer compares their camera with ten others on Amazon. If a Chinese competitor sells the same "What" for €10 less, Company A loses the sale. Their communication is a shopping list. It's rational, but rationality doesn't create loyalty.

Company B has the exact same product, maybe it came off the very same assembly line. But the founder of Company B is an entrepreneur who gets the Why.

The "WHY" (Starting point): "We believe home should be the one place in the world where you can feel completely vulnerable and safe at the exact same time. We exist to protect your peace of mind, not just your belongings."
The "HOW": "We do this by designing invisible, intuitive technology that silently watches over your private space without ever being invasive in design or complex to use."
The "WHAT" (Outcome): "That's how our new connected camera was born. Want one?"

Company B isn't selling a piece of plastic and silicon. It's selling "Peace of Mind." The customer isn't buying 4K resolution; they're buying the right to sleep soundly while on vacation. If Company A slashes its price, Company B's customer remains loyal because they share the value of protecting domestic vulnerability. In fact, in reality, Company B's customer doesn't even factor price into their purchasing decision.



NASOMETER AND PACIFIERS

When dreams meet science and determination, they become projects that change people's lives. In 2022, we met Sandra Kahn.

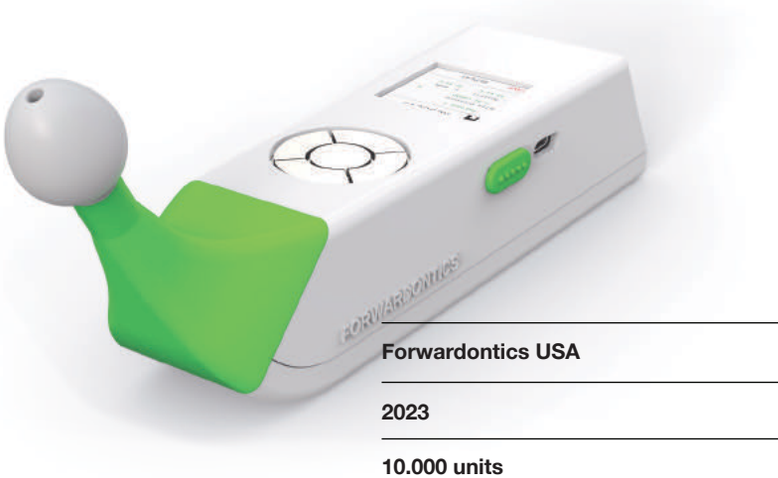
Sandra is a luminary in orthodontics and, like any true innovator, she has a dream. Sandra's "why" is to aid in the diagnosis of mouth-nose pathologies, which are often responsible for so-called crib deaths (SIDS) and can help children and athletes resolve chronic conditions of the respiratory system.

She argues that medicine has long underestimated the nose as a mere conduit to the respiratory system, losing sight of the problems that can arise from deviations, polyps, or occlusions that, over time, alter breathing, speech, and even the very shape of the face. For her, the rise in the use of orthodontic appliances in children is not merely the emergence of an aesthetic issue, but above all, a laziness in solving respiratory system problems at their root.

Sandra showed us the rhino manometers currently on the market: incredibly expensive and bulky equipment only within the reach of large clinics and hospitals, but out of reach for an individual doctor or, much less, a family. She asked us for the impossible: to try to shrink the instrument so that it could fit into the pocket of every general practitioner, just like a thermometer or a sphygmomanometer.

The Nasometer pictured here is the result of two years of work with the company Forwardontics, which distributes it today. It is a product born from the collaboration of a global ecosystem: an Italian firmware and PCB design company, a company that manufactures and assembles electronic boards, and a Chinese manufacturer of healthcare products. It fits comfortably in a jacket pocket and sells for just a few hundred dollars.

Together with a set of pacifiers designed to enhance suction the Nasometer is the perfect companion for healthy breathing, jaw and mouth growth for infants and athletes as well.



Forwardontics USA

2023

10.000 units

global market

BABY BOTTLE NUTRIFLO

Nutriflo is more than a bottle. It is a feeding system designed to support healthy development from the very first feeds.

Many problems with jaw growth, breathing, and sleep begin with how babies are taught to feed.
Feeding is not just about nutrition. The way a baby sucks and swallows helps shape their jaws, airway, and even how well they breathe and sleep. These early movements guide how the face grows and how much space the airway has as the baby develops.
When babies breathe well, they sleep better. And good, deep sleep is essential for healthy brain development, learning, and growth—especially in the first years of life.

During breastfeeding, babies use active suction. Their lips seal tightly, the tongue lifts to the roof of the mouth, and the jaw moves gently forward and back. This natural motion helps the jaws grow forward, opens the airway, and creates space for teeth to grow in properly.
With most regular bottles, milk flows by gravity, the lips often do not seal fully, and the jaw tends to move downward instead of forward. The tongue does less of the work, and the muscles of the cheeks and lips compensate. Over time, this can limit natural jaw growth and airway development.
Nutriflo's soft, collapsible nipple allows the tongue to move and adapt freely and do the work it is meant to do.



Forwardontics USA

2026

20.000 units

global market





DO THE MATH

The Harsh Reality of Numbers in Hardware.

If you haven't been discouraged by the previous chapter and still have the flame of your "Why" burning, then you are ready to be transported into the magical—and often brutal—world of numbers. Manufacturing hardware isn't like writing code. If you make a mistake in a line of code, you debug it and push an update. If you mess up a thirty-thousand-dollar mold, you have a physical, heavy, and expensive problem that can sink your company in a week.

Let's start with the data. Most crowdfunding sites claim success rates ranging from 20% to 60%, depending on the category. The highest numbers are seen in comics or board games. The lowest—look how lucky you are—happen to be in consumer electronics or tech startups. But the challenge doesn't end when you hit your funding goal on Kickstarter. Remember that roughly 10% of these startups die later over the course of a few years, even after a wildly successful campaign.

And what about accelerators and incubators? The survival rates remain tragically the same. The reasons are clear. First: if you need an incubator, it often means you don't fully understand the manufacturing processes, or worse, you lack a solid "Why" and hope someone else will find it for you. Second: today, for many incubators, the main customer is you, not your end consumers. They make money off your presence, off your hope. They see you as someone who will attract investors and thus early cash flow; if your product actually ends up selling, to them, that's just a bonus, not a vital necessity.

Many of the startup founders I talk to come from the software world. They are great at creating apps, mastering complex programming languages, and building elegant user interfaces. However, they know very little about the "physical" hardware world, and that's where the pain starts. A hardware product has an unforgiving supply chain: there will be enclosures (the casing) holding the electronics, the electronics themselves, maybe a screen, perhaps some batteries. In terms of design, the phases are clear:

Industrial Design: the shape and usability of the outer enclosure.
Firmware: the low-level software that controls the electronics.
PCB (Printed Circuit Board) Design: the layout and engineering of circuit boards.
App - Software: any potential interface on the user's phone.
All of these phases have design and prototyping costs that are relatively low compared to mass production. Let's look at a real budget example to understand where most startups fall into the abyss:

Expense Item	**Estimate Cost (USD)**
1 Product Design	$ 10.000
2 PCB Design & Firmware	$ 10.000
3 Software App	$ 10.000
4 Molds (Tooling)	$ 30.000
5 Prototyping	$ 6.000
6 Production (MOQ 5000 units)	$ 6 per unit
7 Distribution Channel	40% of final retail price
8 Transportation / Custom Duties	15%

Most startups believe they only need to cover costs up to point 6 (the production of the first batch) and assume that, with a working prototype in hand, securing funding is automatic.

This NEVER happens. It doesn't happen because investors will want to poke around the finished product, and if they are putting up their money, they will demand changes that send you right back to the design phase—erasing the value of your initial work. Furthermore, nobody is going to fund the most expensive part of a product you own intellectually just to take a tiny percentage, effectively taking on all the business risk themselves.
So, if you don't have the capital to produce your first batch (your initial supply), look for funding right away—before you start spending money on design, never after. The first batch is critical because it leads to another make-or-break financial consideration: distribution.

The second reason why hardware startups with fantastic ideas fail is item 7 on our list: the distribution channel. Without a channel, your product will sit in a warehouse. Period. And the cost to reach the shelf (physical or digital) often doubles the retail price. Many forget that a traditional retailer will ask for a 30% to 50% discount off the final retail price. If you haven't done the math properly with your multipliers, you'll find yourself selling at a loss.

As a general rule of thumb, to be safe, the final retail price must be at least four times the FOB (Free On Board / Factory Gate) cost. If it costs you $10 to make, you have to sell it for $40. Sometimes, even that isn't enough. Put yourself in the customer's shoes: will they buy a product whose perceived value has to be four times its manufacturing cost? It's a massive challenge, and it's won only during the early design phases—by optimising every millimetre of plastic and every electronic component.

Keep in mind, too, that profit margins on the first batch will be razor-thin. You'll have to amortise the cost of tooling (those $30,000 you spent before ever seeing a finished part) across that initial minimum order quantity. You'll only start to breathe easier from the second batch onward. This should make you think carefully about the volume of products you need to sell, especially if you're building a single-product startup: you don't have other items to cover fixed costs. You are a tightrope walker with no safety net.

CAMERAS
VISTA Z

Coolr Group is an American company based in Virginia that sells cameras to major retail chains. Using Artificial Intelligence, these cameras can recognise when and what item has been removed from a shelf or cooler in a bar, restaurant, or supermarket. This data is then sent to a management system that can automatically generate reorders for the warehouse.

The system also detects product "contamination"—for example, if a major beverage company provides a cooler on free loan, they need to ensure it isn't being filled with competitors' products.
This is crucial for major beverage brands because, today, they have little direct insight into their end customers and struggle to develop new products. Supermarket chains and distributors, on the other hand, possess this data—making it incredibly valuable to beverage companies.
In the future, when cross-referenced with loyalty card data or smart carts, the system will be able to generate personalised recommendations for individual shoppers.

When we stepped in at Coolr Group, the company was using a device with two cameras that merged into a single wide-field-of-view image, along with a sea of accessories so it could be mounted in different positions across various shelves and cooler types. Not only does every retail chain have its own refrigeration setups (upright or counter units in different sizes), but aisle widths vary dramatically too.

We envisioned a product that could streamline this bloated catalog into a single system. It featured two cameras that, during assembly, could be set at different angles to adapt to various conditions. This led to a significant reduction in costs and drastically cut the number of SKUs (Stock Keeping Units) required for production.

In its current version, the device uses a single lens thanks to advances in AI and micro-cameras, and it features special solar panels powered by ambient LED lighting—which is now standard across retail stores.



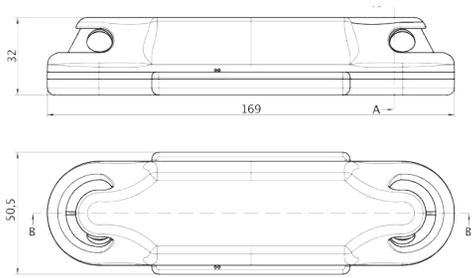
Coolr Group USA

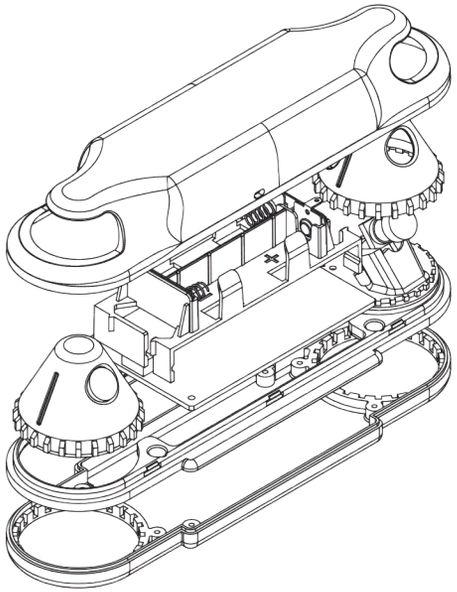
2025

10.000 units

global market


coolR


32
169
A
50,5
B
B











CONTEXT IS EVERYTHING

Why "Where" Determines "If"

Great cultural environments, world-class universities, and major enterprises have always grown out of fertile soil tailored to their development. No genius is an island, and no hardware startup can flourish in a desert. Think of the Florentine Renaissance or Silicon Valley in the 1970s: innovation isn't an isolated event, but the result of a critical density of brains, capital, and above all, infrastructure. While Europe surrendered its industrial and manufacturing fabric long ago, China today is the place to be, stay, or pass through if you want to build a successful startup. It's not just about cost; it's about oxygen. If you want to run the hundred-meter dash, you go to a running track; if you want to build hardware, you go where the pulse of global manufacturing beats.

Shenzhen is the quintessential startup city. It is a living organism, engineered for speed. For decades, the Chinese government—with a vision that we in the West struggle to even comprehend—has been cultivating entrepreneurs, prototypers, IP lawyers, angel investors, and consultants who eat, sleep, and breathe hardware every day. This ecosystem transformed a planned city (let's debunk the myth: it was never just a sleepy fishing village, but a deliberate political and economic decision) into the new Silicon Valley.

While we in Europe debate bureaucracy, Foxconn in Shenzhen manufactures virtually all the smartphones on the planet, and BYD is building the largest gigafactory in the automotive world, redefining the very concept of electric mobility. It's a place where companies completely unknown to the West go public just a few years after launching. In short, it is an exponentially growing organism where moving from idea to store shelf isn't measured in years, but in months or weeks.

The Educational Desert: Designers Without Factories

But the problem starts much earlier, right in our university classrooms. The struggle that the current generation of European university students has in understanding technology comes from the fact that they can no longer see it, because it's simply no longer there. We didn't just offshore manufacturing; we off-shored the hands-on knowledge that comes with it.

Our generation of industrial designers was perhaps the last to have the privilege of walking into real factories, talking to machine operators who know the limits of a press, arguing over tenths of a millimetre with suppliers, and physically "being" on the factory floor, breathing in the smell of lubricant and molten plastic. Unfortunately, the generation of industrial designers we are graduating today no longer has contact with this reality. They study design on Retina displays, but have no idea how a polymer behaves under pressure.

Reclaiming that knowledge means physically moving to where this ecosystem has been cultivated and self-replicated into a web of services and support that allow ideas to sprout. For a startup to succeed, being in the right environment—and seeking out where that environment is most advanced—is essential. You cannot design the future if you don't know how the present is built.

Europe and the Mirage of Innovation

There have been, and still are, brave European attempts to rebuild the innovative environment we had in the 1960s and 70s—the golden age of Olivetti and iconic Italian design. France and Germany have structured government programs to foster technological innovation. In Italy, there are faint signs of life in Trentino, where efforts are being made to create a protected ecosystem. But as of today, the overall picture is grim.

We are up against sporadic funding, fragmented across thousands of bureaucratic tenders, and the occasional trade mission abroad organised by trade agencies or chambers of commerce—which, however well-intentioned, feel more like school field trips than market-entry operations. It's far too little to play in the same league as Chinese startups. They are playing chess with supercomputers; we are still trying to figure out how the knight moves.

The Virtual Solution: Building Your Own Ecosystem

So what do you do if you can't move to Shenzhen tomorrow? If you can't be in the right environment or physically go there for extended periods, you have to build it virtually around yourself. Today, remote communication technologies—standardised and mainstreamed by the Covid-19 era—offer possibilities that were unthinkable a decade ago. You can have your office in Milan or Berlin and your production line in Dongguan, talking in real-time with engineers via video calls, sharing massive CAD files in seconds, and reviewing sample builds via express air freight.

But be aware of the price you pay. Will it be riskier? Yes. Will you be slower? Absolutely. Will you have less of a competitive edge compared to someone living ten minutes from the factory? Without a doubt. But context—whether physical or built digitally through a network of reliable partners—will make or break your success. You cannot ignore it. If you ignore context, context will ignore you, and your "stroke of genius" will remain trapped in a beautiful, but lifeless, rendering.

New context can bring Innovations

Major innovations are not a linear improvement upon was already there. There's a peak when we decide it's innovative.

Look at Uber: they didn't improve the experience of cab riding, they took out the anxiety of waiting for the cab through GPS geotagging.
Apple did not focus on what computer could do and how quickly, they asked a completely diagonal question which was "how do you feel when you do that on a computer".

Innovations require marketing because the need the customer to stop using the old framework to evaluate a product. So innovations are often things that nobody asked for because they weren't looking at that, they are noticed later.

VR HEADSET 3RD EYE

Back in 2014, we were already working with a Chinese client on a VR (Virtual Reality) headset project. It was a time of intense excitement; the technology finally seemed ready for the big leap, even though content was still scarce and low quality. Around that time, a few expat friends and traveling colleagues—newly hired by the giant Facebook (which wasn't called Meta yet)—were in Shenzhen. They were working feverishly on what would eventually become Facebook's first VR headset.

I remember that evening with absolute clarity. Flouting every rule of corporate ethics and ignoring the strict secrecy protocols that usually govern these worlds, we decided to meet for dinner at one of the city's many chaotic restaurants. The pact was simple and reckless: show each other what we were working on. They were risking their jobs; I was risking ending up inside a concrete pillar.

I recall—with a touch of embarrassment, but also an immense sense of satisfaction—the American colleagues pouncing on our prototype, firing questions at us in rapid succession. They were utterly shocked by how many years ahead our Chinese client, a complete unknown at the time, was in optical technology, lightweight materials, and overall product design.

That day, I realised that the shift I had anticipated—and, to some extent, feared—had already happened. It was no longer China copying the West; it was the West standing open-mouthed before Chinese execution and capacity for innovation. Today, Shenzhen is a spaceship of a city where everything, from public transit to micro-component logistics, is engineered to serve business. If you want to build a hardware enterprise and you grasp the importance of context, it is the one place you have to pass through.



3rd Eye

2014

concept



SMARTPHONE COOL

This simple phone has been designed for COOL, a ZTE spinoff.
The phone doesn't have a SIM card but only Wi-fi connection. ZTE, with its provider Asia Cloud, is very strong in the Pearl River Delta area where they have a dense Wi-fi network. That area is typically a factory area where the workers spend most of the year outside, going home just for Chinese New Year.
This phone takes advantage of the Wi-fi network and it's capable of making and receiving phone calls through it reducing to zero the monthly bill.



COOL China

2017

30.000 units

China







HEADPHONES SAHD1-BT

In 2011, I met James Bertuzzi in a bar in Shenzhen. James is an audiophile and musician who, through his startup Status Audio, wanted to create Bluetooth headphones that could break out of the audiophile niche and end up in a manager's briefcase or a student's handbag.
At the time, we were living in a world of bulky over-ear cans with coiled cords, where everyone looked like TV Quiz contestants with giant ear cups covering their ears. Beats was just emerging, still far off Apple's radar—though Apple would acquire them a year later.
Working with an enlightened Chinese supplier, we developed a revolutionary pair of headphones—standout not only for their internal drivers, but also for their foldability, vibrant colour schemes, and clean, minimalist exterior in a market filled with intricate flourishes and busy patterns.
The Chinese supplier brought ideas, innovation, and, above all, helped solve problems we thought were unsolvable—leaving us free to focus on what we could accomplish in truly innovative ways.

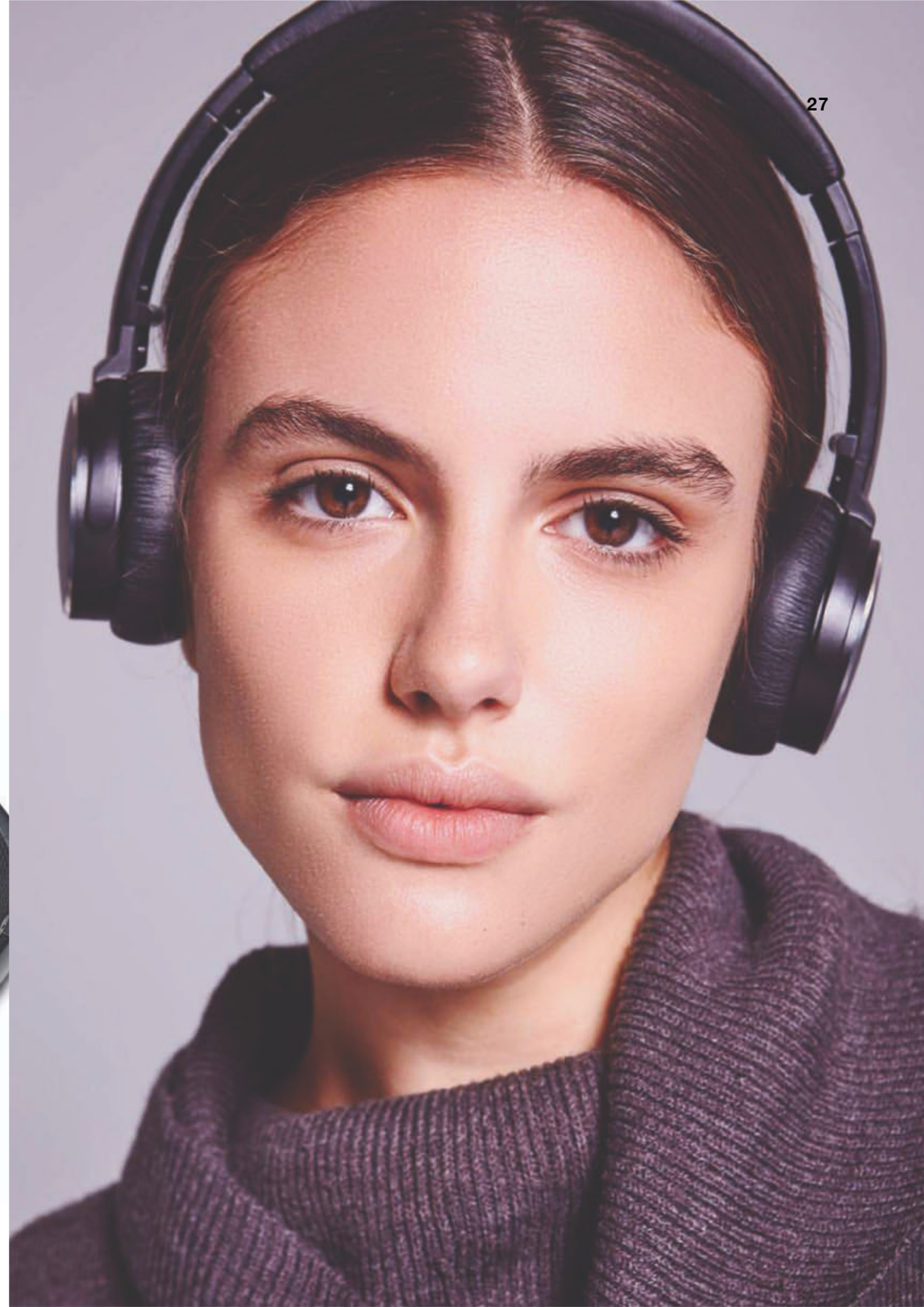
Status Audio USA

2022

2.500 units

global market





BT SPEAKER



Portable Bluetooth speakers have rapidly become must-have devices as outdoor companions for days at the beach, nights out by a bonfire and picnics in the park. Rapid advances in Bluetooth connectivity and miniaturisation plus economies of scale have resulted in this class of mini-speakers becoming extremely affordable. This has encouraged a burst of creativity in the design of the speakers, where a certain novelty of style or function is added to the basic function of the speaker. This speaker, for example, is also a phone holder for both portrait and landscape positioning. The exterior shell has been coated with a special rubber finish for extra grip.

Kerry Audio Vietnam

2016

10.000 units

global market



PACMAN SPEAKER



The clamp device which holds the phone gives this speaker the appearance of a friendly Pac Man. It's been the greatest market success and inspired other companies.

Kerry Audio Vietnam

2016

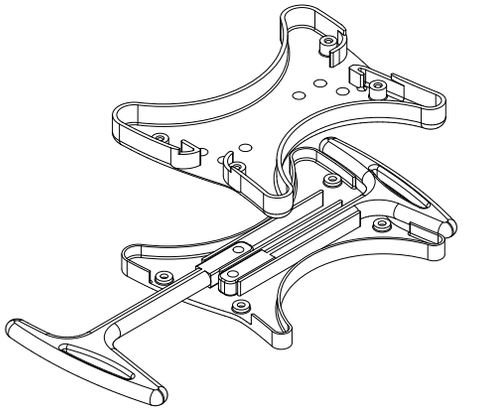
10.000 units

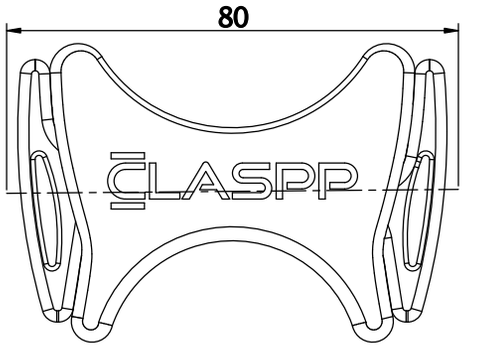
global market





PHONE CLAMP CLASPP





This Phone Clamp Claspp has been designed for Creative Gizmos, a company based in Cupertino California USA.
It solves the problem of using the phone with just one hand giving full freedom to the thumb to reach every corner of the screen even in pro phones. The Phone clamp has been designed to be specifically used on the new iPhone 13 in combination with the Apple Mag Safe but it fits many other different smartphones models.
The phone clamp fits right and left-hand use and has two different positioning for small and bigger hands. It gives freedom to hold the phone tightly without using your thumb muscle of the hand for the grip.
The iPhone Clamp for Creative Gizmos is a revolution in the way people will hold and use their phones in multitasking activities.
We based the design of the Claspp phone grip on the ergonomic engineering principles used for hand tool design. The first principle is to distribute the force – in this case, the weight of the phone – across the hand instead of letting it become concentrated in one or two areas. The second principle is the size of the handle should be sufficient to allow the user to find an optimal grip position. The third principle is to avoid applying concentrated force over soft tissue, such as the palm of the hand.
We also studied how people hold their phones. We questioned why people who use their phones for several hours for work or play end up suffering from tendentious – commonly known as 'texter's thumb, wrist problems and even back problems caused by bad posture commonly referred to as the 'smartphone slump' or 'tech neck'.

Creative Gizmos USA

2022

1.000 units

global market

UNDERSTAND CHINA

Don't go to China, understand China, instead

Beyond the Low-Cost Myth: Technology, Trust, and "Original Copies"
When you find yourself having to decide where to develop the hardware side of your product, the possibility of manufacturing in China will inevitably creep into your mind. It's an almost magnetic pull for anyone making hardware. Your compass will likely point straight to the Pearl River Delta, that golden triangle made up of Shenzhen, Dongguan, and Guangzhou. It is the workshop of the world, an ecosystem so dense that a statistic bordering on a logistical miracle claims one out of every three items you are wearing, carrying in your bag, or keeping in your house right now comes from that very area.

I lived in Shenzhen for seven years. I wasn't a business tourist, but a resident who breathed the smog and the energy of those streets. I still return regularly because I left pieces of myself there: I have consultants, longtime collaborators, and loyal clients. In short, my work remains rooted in the Middle Kingdom. I know the market and the suppliers well, and I will clarify one fundamental thing right off the bat: you don't go to China for low prices. If you are only looking to save a few pennies, you have already lost from the start. Prices are good, sure, but they are no longer as competitive as they were twenty years ago.

The Myth of Labor Costs
We need to dispel the popular myth that Chinese labor is cheap. If you factor in the risk of communication errors (which can cost thousands of euros in scrapped parts), transoceanic shipping, and potential customs duties, you'll likely end up paying figures similar to those in your home country. Labor costs in China have skyrocketed, and along with them, quality has risen. A Chinese engineer in Shenzhen earns, on average, twice as much as an Italian engineer. You read that right: double.

So why go all the way there? You choose China for skills and technology. In that golden triangle, you can select from countless specialised suppliers and consultants with a depth of experience in materials (plastics, alloys, composites) that we simply no longer have in Europe. They are capable of working with a level of precision and reliability that has become a rare exception in Italy. We no longer possess those processes, those machines, or that speed of response.

Another revolutionary aspect is flexibility. Thanks to technological innovations in molding processes and CNC machining, China has drastically lowered minimum order quantities (MOQs). You no longer need to order a million pieces to be taken seriously. China can flex its manufacturing capacity to become, depending on your needs, a small garage for prototypes or a massive facility for mass production.

Supplier vs. Partner: The Culture of Cooperation
It is vital to understand a fundamental cultural and stylistic difference between Western and Chinese suppliers. In Italy or Germany, a supplier quotes a price and cares relatively little about the commercial success of the product: they sell a service, you buy it, end of story. In contrast, a Chinese supplier will act like a partner. Because of this, just as you would with an investor, you have to convince them of the project's viability. You must motivate them to spend time and invest energy in your idea.

Don't get frustrated if, during initial meetings, you are asked questions that seem entirely unrelated to technical manufacturing. If the supplier wants to talk at length to get to know you, to learn who you are and where you come from, they aren't wasting time: they are building Guanxi, the network of relationships. The first rule of doing business in China is that you must be friends, and trust precedes the contract.

You will often hear the term "cooperation" instead of "supply." To them, if your product fails, they fail too. If it wins, everyone wins.

The Illusion of Contracts and the NDA Trap

This is where almost every Western startup stumbles. One fundamental mistake is pushing a Chinese supplier to sign miles of NDA (Non-Disclosure Agreement) contracts or exclusivity clauses written by European lawyers. The supplier will laugh at it (perhaps internally, out of politeness), and that will be the first step toward a relationship of mutual distrust. A non-disclosure agreement is often the first step toward getting copied.

In China, the legal value of a piece of paper signed under a different legal jurisdiction is minimal. Your partner will be far more concerned about "losing face" (Mianzi) or the social shame of having cheated you than about failing to comply with a civil contract. Their business ethics are based on personal loyalty. If you sign an aggressive contract, you are saying: "I don't trust you." And if you don't trust them, they have no reason to protect you.

This cultural difference also reflects in the management of intellectual property and tooling. Molds, for instance, are almost always owned by the supplier, not by you—contrary to Western practice. You will often find the cost of mold production baked into the quote for the first batch. It's a way to bind you to them, but it's also their way of guaranteeing that production happens under their quality control.

Will They Copy You? Only If You Play Dirty

The fear of having their idea "stolen" haunts every startup founder. Will they copy you? As a rule, no—unless you behave dishonestly or arrogantly. Chinese suppliers are loyal and demand the same respect. However, there is a dangerous temptation: the proposal of a parallel market. It's the mistake that ruined many Italian and European fashion brands in the '80s and '90s.

It works like this: seeing that the project is interesting, the supplier offers to produce more copies than you need, discounting the unit price in exchange for the right to release those extra products into the domestic Chinese market. It's an alluring hook, but I strongly advise against taking the bait. Once upon a time, China was a distant market; today, it is global. What are called "Original Copies" (copies made by the exact same supplier, using the exact same molds and materials) destroy a brand's reputation. The Chinese public no longer accepts paying crazy prices for a branded product if the identical object can be found at the street stall down the road.

The Vital Role of the Product Developer (The Middleman)

To navigate these waters, you need a helmsman. Hiring a Product Developer who resides in China or has deep experience with the local language and culture is mandatory. They act as the middleman. If you don't hire one yourself, the factory will supply you with one anyway (whom you'll still pay for on the P&L statement), but they will be working for the factory, not for you.

Their role is to translate requirements between suppliers and your consultants. They will handle contract negotiations, mediation, and often financial logistics, since many excellent manufacturers lack the paperwork to receive foreign currency. Choose a good one and don't push them into uncomfortable positions. If they do their job well, they will be the one telling you to stay home and focus on new products instead of wandering through dusty industrial zones visiting factories that, frankly, aren't thrilled to open their doors to Westerners just to "see how things are going."

Years in China have taught me that you go out to dinner a lot, talk a lot, drink a lot (Ganbei!), and eat strange things, but you visit factories very little. Because—and here is the bitter truth—we Westerners are now considered the ones who copy and take photos.

The Last Mile of Engineering

One final concept to grasp is that your Chinese supplier must also be your partner in engineering. My studio takes product engineering up to 95%, but the

last mile has to be walked by the supplier. They know their machines, their tolerances, their human resources. Let them put their touch on the technical details: they certainly know their technology better than you do.

I remember when I arrived in China in the 2000s: suppliers looked at us Westerners with reverence, trying to steal our technical secrets. Hotel lobbies were filled with young women sent by factories, to whom Western managers handed samples to replicate. Just nine years later, in the very same hotel, the scene had flipped. Those same people were returning to the managers with finished products, saying: "Your Logo Here."

That's when I realised Shenzhen had become the new Silicon Valley. For and within that ecosystem, we have designed and signed off on more products than an average European designer would produce in three lifetimes. Today, we buy Chinese machines that are like spaceships compared to European competitors. Soon, "Made in China" will be an absolute guarantee of superior quality. It will happen just as it did with Japan, Hong Kong, and Taiwan. And while the world moves at breakneck speed, back in Italy we continue to talk nostalgically about a "Made in Italy" that is often just an empty shell—a memory of the good old days when "things were better back then"—without any real industrial backbone left behind it.



UNDERWATER DRONE

This cutting-edge underwater drone is a marvel of modern product engineering, designed specifically for advanced aquatic exploration and monitoring. Unlike traditional models, this drone features only two gyroscopic motors, a significant innovation that enhances its manoeuvrability and efficiency underwater. These motors allow the drone to perform intricate 360-degree movements in all directions, providing unparalleled agility and precision in navigating through diverse underwater environments.

Sharan Sami

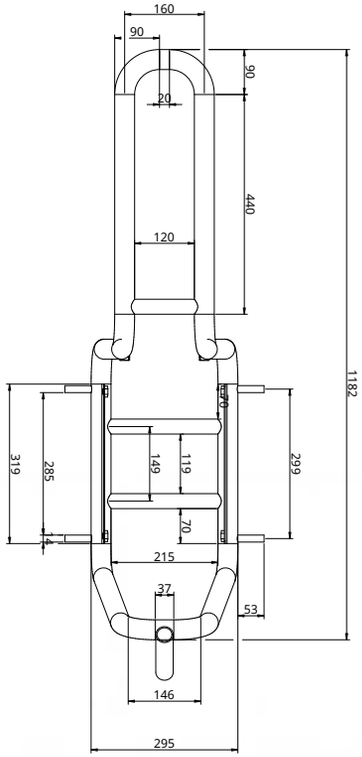
2024

under development

global market







ELECTRIC SCOOTER

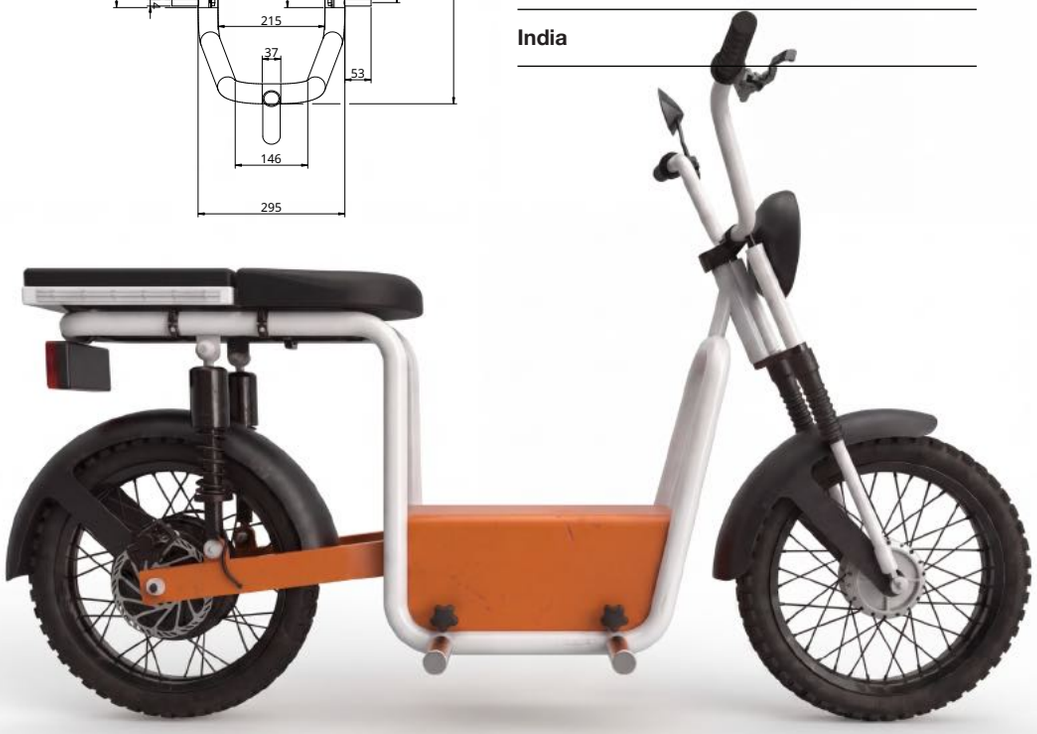
Electric Scooter designed for an Indian company. The Scooter is minimal and simple, extremely easy to build and inexpensive. It is made of a one-piece bent tube that creates the entire structure.
It can be accessorised with a second seat that becomes a loading platform.
The 48 V 30 Ah battery is a standard so it can be recharged or changed in an emergency or extra power.

Saini India

2022

3000 units

India





EARBUDS

The quality of music in any headphones depends upon the drivers used in the headphones. For most audiophile and bass headphones, dual-drivers ensure the quality of the sound, especially superior bass enhancement and a richer audio experience known as ‘deep sound’. Hi Sound's colour-coding of the ear-buds also made for great simplification of use and their presentation box was a huge step up in functional and aesthetic quality.

Hi Sound Audio

2013

10.0000 units

global market











E-SCOOTER

Electric Scooter concept designed for a company dealing in the promotional market.
The scooter's design extensively uses carbon fibre for shell parts and for the structure and reorganises the handlebar integrating the rear brake into the handle.
It's intended to have generous surfaces for logos and brand customisation and has been designed with an eye to the environment of sports cars.

Angels and Demons

2022

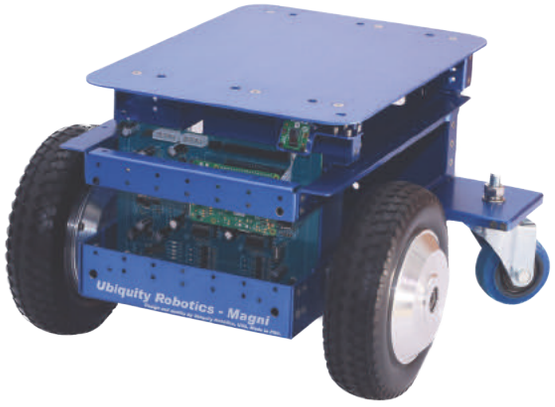
100 units

United Arab Emirates



AUTONOMOUS MOVING ROBOT

Autonomous Moving Robot (AMR) designed with Nicolò Castagnini on the Magni Base Opens Source robot produced by Ubiquity Robotics.
The machine is useful for dark factories and is able to transport goods in automated warehouses. The robot comes out of the box almost fully formed – navigation, computation, mobility, power and a loading capability of 100 kg.
A Lidar sensor enables the robot to map the room by measuring the distance to the nearest reflective surface using a laser avoiding collisions with objects or humans.



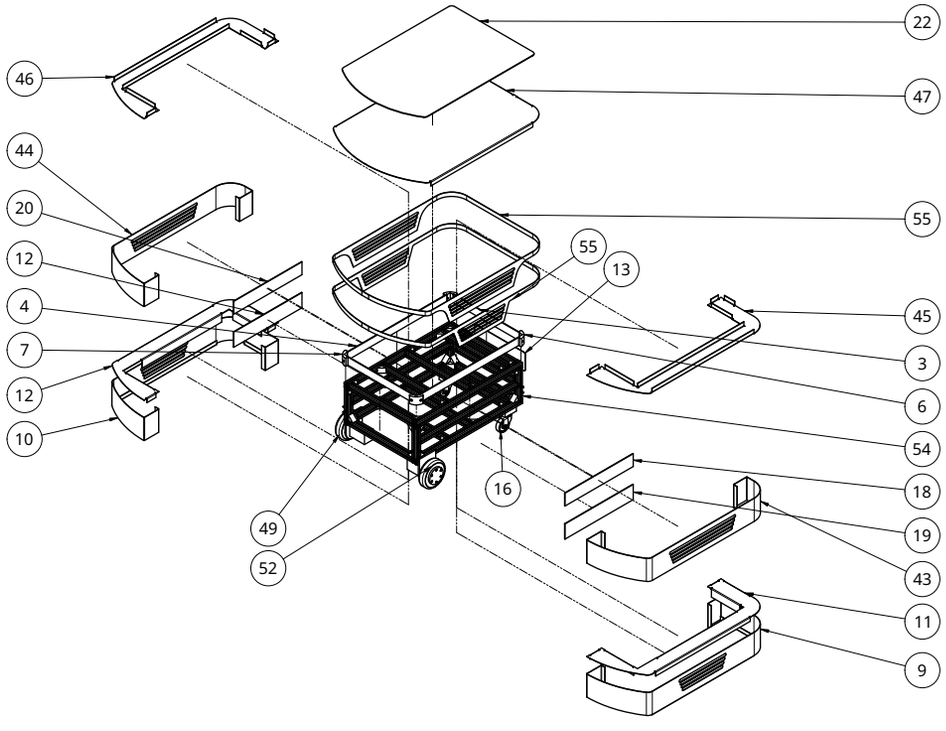
Magni USA

2022

900 units

global market









ROBOT NALA

Autonomous moving Robot Nala designed for Eceon GmbH with Nicolò Castagnini. The device is a full metal body mounted on a steel frame that guarantees reliability and a payload of 450 kg and 12 hours of autonomy.
With its Lidars and sensors, the robot can “see” obstacles and humans and move with ease in “dark factory environments”. The robot charges itself in its docking station and doesn’t require human intervention.

Eceon Germany

2023

100 units

global market



LAMP CALLA

This speaker-lamp is one of the first bluetooth-enabled colour-changing lamps with integrated speaker produced before the 'Internet of Things' revolution. The E27 attachment device allows for multiple mounting possibilities - as a pendant lamp, a floor lamp or even as a table lamp. The product has received several design awards and became available in Apple Stores worldwide in 2013. The device that you see here is the battery-powered mini version that was produced one year later.

Relexement

2022

20.000 units

global market





BT SPEAKER

This oddly shaped speaker was designed as a trial by a Bose supplier.
It can be placed either horizontally or vertically and, with its Bluetooth 2.0 capabilities, is able to form a multiple audio array system.
Due to both a lack of a proper distribution channel and an exclusive agreement with Bose, the company ceased production of the speakers.

Kerry Audio Vietnam

2016

10.000 units

global market



DUMB PHONE

This is the design of a so called "Dumb Phone"f especially targeted for the African market. A simple phone that costs less than 20$ is a great design challenge about reductions of components and production automation.



BMP Somalia

2025

10.000 units

Africa





CONNECTED DESIGN

Connected Design of Connected Objects
The Liquid Geography of Hardware and the "Made Between" Paradigm

We live in a connected world—a statement that borders on cliché by now, but whose implications for hardware creators are deep and often underestimated. The physical objects hardware startups produce today are almost always connected objects. It's what, with a touch of cynicism but a lot of intellectual honesty, I call the "connected crap" you find by the bucketload on Amazon or Taobao. Once upon a time, it was simply called "consumer electronics," as if to distinguish it from things that don't wear out or can't be consumed. Today, the word "consumer" has taken on a literal meaning: objects with ridiculously short lifespans, ready to be replaced by the next version even before the original battery completes its charge cycles.

In less than a decade, we've moved from the useless Bluetooth-enabled toilet seat—the epitome of the superfluous—to professional drones that have literally revolutionised how we consume imagery, cinema, and spatial surveillance. Moving between these two extremes is the modern designer.

The End of Physical Geography
If there are 9,591 km between Silicon Valley and Milan, 6,129 km between Milan and New Delhi, and 12,418 km between New Delhi and Silicon Valley, then the objects I've designed over the years cover all these kilometres, and many more. In this context, physical distance has become background noise, almost irrelevant compared to the power of the network. Files cross oceans in seconds; heavy, complex 3D models bypass geographical borders with a single click.

Ideas travel thousands of miles through a world contained entirely within the dimensions of a screen. For years at the start of my career, people would ask me where I was physically based, as if an office address were a guarantee of quality. Today, the hardware startup world follows a very different rule of etiquette: nobody asks where you are anymore, but what time zone you're in. It's an operational curiosity rather than a geographical one. What truly matters is specialised knowledge, technical expertise, flexibility, and above all, response speed.

The "Made Between" Cycle
The modern production cycle is as dynamic as it is contemporary. I want you to look at the ideal map of a startup product's life today, because it describes a reality that no textbook from ten years ago could have envisioned.

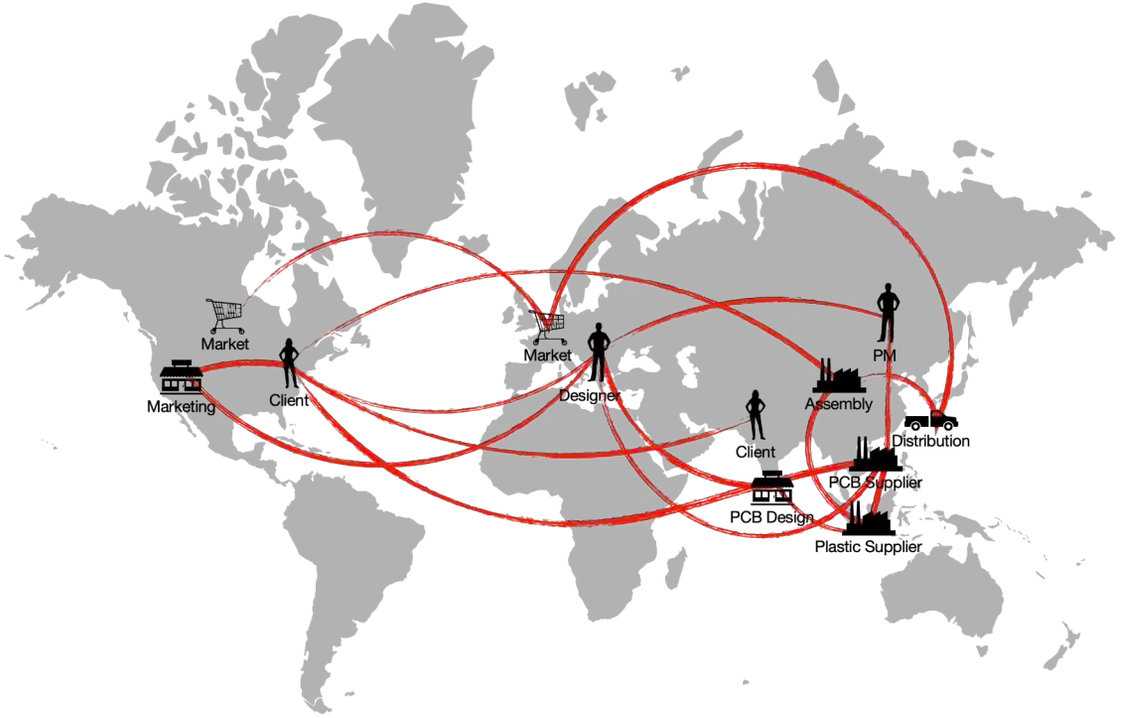
Imagine this scenario, which is everyday reality for me:

The Concept: conceived by an Egyptian entrepreneur residing in the United States.
The Design: product development takes place in Italy, in my studio.
The PCB (Electronics): the printed circuit board design is entrusted to engineers in India or Vietnam.
Electronics Manufacturing: the PCB is physically printed and assembled between India and China.
Plastics and Assembly: Final prototyping and enclosure manufacturing take place in Shenzhen, China, under the watchful eye of a local Product Developer.
Distribution: The finished product ships out of warehouses in Hong Kong to reach the entire world.

In the blink of an eye, the idea has circled the globe. The contemporary designer is no longer just someone drawing a line on a piece of paper; they are a concrete intermediary, a figure standing "halfway" between an idea on the drafting table and the industrial production chain, with an assembly line as long as the Earth's circumference. In a world where success or failure is always around the corner,

effective communication is the only glue that breaks down geographical, cultural, and religious borders.

The local or national concept of "Made in..." thus takes on a new meaning: "Made Between." That is, something made across different continents. This concept brings together distinct cultures and technical aspects, creating a hybrid that is greater than the sum of its parts. Today, objects no longer need a fixed geography or origin: in a global market, they are made everywhere and are accessible to everyone.



The Tyranny of Time: The Red Button of Production

All these ingredients—design, electronics, logistics—are mixed into a recipe where time is the essential ingredient, especially in the startup world. While people talk about Agile in software, time in hardware is even more ruthless because it involves physical matter. In a world where, paradoxically, execution speed matters more than patents, Time-to-Market is the deciding factor.

Whoever gets there first wins and sets the standard; whoever arrives later, even with a slightly better idea, is left picking up the crumbs left behind by the pioneers.

From the Industrial Revolution up until the 1950s, bringing a complex product to market took an average of about five years. That time was necessary for research, setting up production lines, and physical distribution. By the time the first iPhone launched in 2007, that window had already shrunk to about two years.

Today, we live in an era of extreme time compression: we hit the "red button" on the production chain within weeks of the initial brief. This acceleration has fundamentally changed how we design. There is no longer any room for error or for aesthetic reflection purely for its own sake. Every line we draw must already contain the answer to the question: "How will this curve be manufactured fourteen days from now in Dongguan?"

Beyond Patents: Speed as a Defence

Many startup founders spend crazy amounts of money on international patents, thinking they are protecting their "stroke of genius." But the reality of connected design is different: while the patent office is logging your application, someone in Shenzhen has already seen your prototype on a crowdfunding platform and started figuring out how to improve it or make it at half the price. I recall that patent law in China has a famous amendment that effectively requires the first patent filing to be made in China. Oversimplified, this means that if a product is seen or patented in another country, it becomes fair game for copying. I know I'm painting in broad strokes here, but it's not far from reality; framed as a law more restrictive than those in other countries, in practice it becomes a way to gain free rein to draw "inspiration"... and then some.

The only true protection is speed: the ability to move from CAD file to shipping the first batch before the market gets saturated with clones—or learning to view being cloned as an honour reserved only for the best ideas. "Made Between" is not just a logistical choice; it is a survival strategy. It means leveraging the best of every territory—Italian design, Indian engineering, Chinese manufacturing power—to fast-track execution and reach the market with a product that is, for one brief, magical moment, unique.

USB DRIVES
POWER BANKS

I met the team at Maikii back in 2013 in Shenzhen. The company operates in the promotional products market, and at the time, power banks and USB flash drives were the absolute main drivers. Standing out in that space is tough—usually, these items end up serving as little more than a sponge for a corporate logo rather than a desirable, functional product in their own right.
Maikii took a completely different approach: they wanted products with an iconic, distinctive personality. We designed a line of power banks and flash drives for them that mimicked cosmetic products—items that built a genuine emotional connection, crafted with metallic, rubberised, or wooden finishes. These were objects designed to fit right into a woman's handbag (in a market where bags were getting smaller and smaller) and to be proudly displayed rather than hidden away like an ugly necessity you couldn't live without.



Maikii Italy

2018

30.000 units

global market







IPHONE COVERS

This cover design has been developed for Pitaka, a Chinese company that specialises in carbon production, and with them, at an astonishing 0.3 mm, we produced the thinnest cover with magnetic mounting ever made.

Pitaka China

2017

10.000 units

global market

PHONE CHARGER

This phone charger concept was designed for Pitaka, the company famous for its carbon fibre accessories. The induction Qi charger works with the Pitaka exclusive magnetic cover.

Pitaka China

2017

5000 units

global market



ROUTERS

This prototype routers - more a futuristic concept than a real product - were designed for the giant ZTE Corporation and was part of shape research on office routers that didn't look like internet appliances. They never left the prototype stage but they inspired the design of the production units for many years.

ZTE China

2014

concept

none















PASSWORD MANAGER

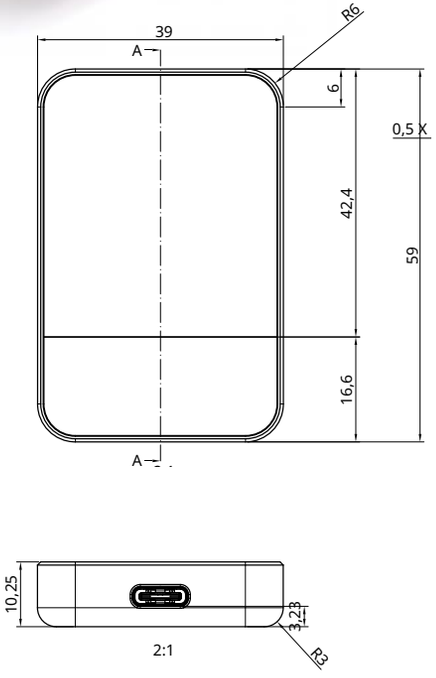
This product was designed for Ereverse, an American company that specialises in web security solutions.
The unit memorises the user's passwords and payment methods and, when connected via USB, sends the information to any designated device (computer or tablet).
When not in use, the connected device is not able to access personal information. It is especially useful for flexible office environments or for situations, such as in families, where computers and tablets are shared by different individuals.

Ereverse Usa

2020

1.000 units

Usa





GPS TRACKER

The iTraq is a credit card-sized GPS card that can determine its position using cellular triangulation that allows it to be located anywhere in the world where cellular service exists. It defines a virtual boundary in the app allowing iTraq to keep track of your loved ones and your valuables.
Once iTraq moves out of the security zone, the mobile app sends an alarm and a notification. iTraq is easily chargeable with a wireless induction charger and it has been an Indiegogo best seller.

iTraq Russia

2017

20.000 units

global market



DOG BIN
BAU BAU

Bau Bau has been designed with Marcello Ziliani, it is a dog litter Bin for Holzhof. It's a new way to take care of our pets. It has been designed like a multifunctional bin, with litter bag dispenser, fountain and water pot for dogs.

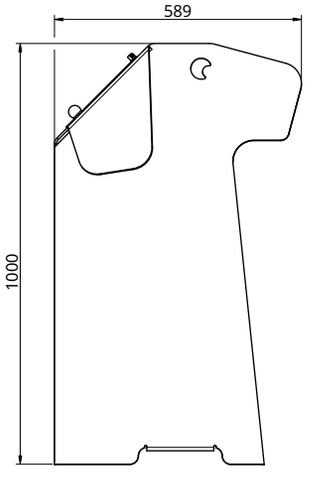
Holzhof Italy

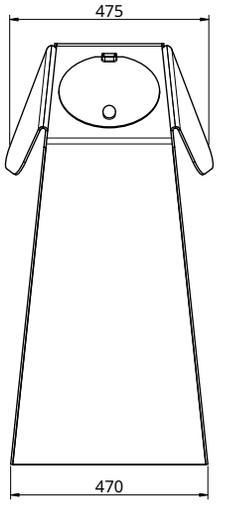
2021

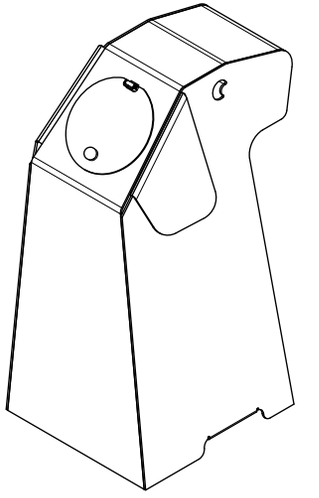
1.000 units

Europe











DOOR HANDLE

Interior Door Handle designed for BHD in Shenzhen China

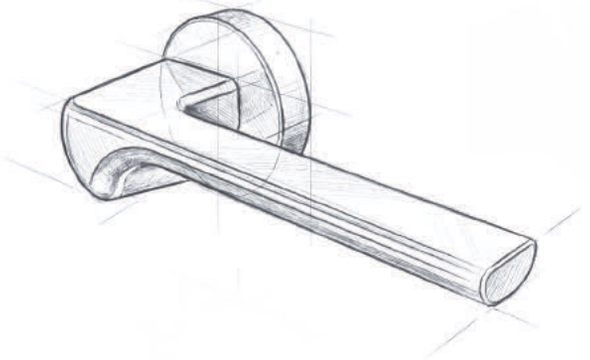
BHD China

2022

10.000 units

global market







SLIM E-CIGARETTES

E-Cigarette producer Kangertech in Shenzhen requested a concept design for a new slim e-cigarette.
Through a rigorous process of market research, four 'basic' user types were identified; businessman, career woman, technician/worker and millennial.
Designs addressing the aspirations and desires of these four types were created, hence the 'power tool' style of the e-cigarette aimed at the technician/worker, or the chic, sophisticated style aimed at the career woman, etc.

Kangertech China

2017

50.000 units

global market







E-CIGARETTE

This e-cigarette was designed for Eson, the Chinese producer of top-rated e-cigarettes and vaping accessories for all of the best-known worldwide brands.
The revolutionary handle gives the consumer a more comfortable experience and an easier way to charge the battery.

Eson China

2015

50.000 units

global market



STREET LIGHT

These sleek street lights, based on LED technology are designed for Shenzhen Eastfield Lighting and intended for the American Market.
The top has a fin for affixing pigeon spikes and cooling radiator fins.
A top-mounted light sensor allows for automatic on/off switching and the streamlined design is in stark contrast to traditional street lights.

Eastfield China

2017

9.000 units

USA



HARDWARE IS HARD

Beyond Code: The Challenge of Matter, Logistics, and Distribution

If you are reading this book, you probably have an idea burning in your hands. Maybe you're a programmer, a dreamer, or a designer. But let me tell you right now, plain and simple: designing for hardware startups isn't easy. It's hard, hard—in fact, it's so damn hard.

I often hear people say that "hardware is the new software." It's a catchy phrase, but it hides a brutal truth. In a software startup, the main challenges revolve around user interface (UI) design, user experience (UX), and writing code. If something goes wrong, you push a patch, debug it, and in a few minutes, the problem is solved. In hardware, on top of all that (because every physical object has a software soul these days), you have to add: PCB (circuit board) design, firmware development, industrial design of the enclosure, crazy tooling costs, physical prototyping, lab testing, and an endless list of variables that, by Murphy's Law, will go wrong at the absolute worst possible moment.

The Bottomless Pit of Financial Costs

Many startup founders think that once they've paid $30,000 or $40,000 for injection molds, the heavy lifting is done. Nothing could be further from the truth. The cost of tooling isn't the end of the financial burden; it's just the appetiser.

As soon as the molds are ready, the real cash haemorrhage begins:

The First Batch: You have to pay for the production of the first five thousand units, often upfront.

Packaging: never underestimate the cost of a box. It has to look great, be durable, and protect the product.
Accessories: cables, power supplies, adapters. Every extra component is another SKU and another cost eating away at your margin.
Documentation: user manuals, legal certifications, and translations.
Logistics: shipping, customs duties, warehousing.

Every square centimetre of container space has a price tag. Every gram of weight affects air freight costs. If your product is too big or too heavy, you might discover that shipping costs eat up all your profits.

The Ultimate Startup Killer: The Distribution Channel

People always say startups fail because they're underfunded or due to co-founder disputes. Well, in my years of hands-on experience, I've almost never seen a failure caused purely by those reasons. Hardware startups almost always fail for one main reason: the distribution channel.

You can have the most brilliant idea of the century, a flawlessly functioning product, and an Oscar-winning design, but if you don't reach store shelves, you're dead. Or, even worse, you reach the market too late (because the tech is already obsolete) or too early (because the audience isn't ready).

For a hardware startup, distribution is everything. You don't have the shortcut of the App Store or Google Play, where you upload a file and are instantly in front of billions of people. Here, you have to reach real people in real stores. You have to sign deals with flesh-and-blood human beings, pay listing fees just to be displayed, fight for eye-level shelf placement, scramble for faster delivery times, and figure out pricing that doesn't make you vanish when compared to the giants. It's trench warfare, inch by inch.

The Nightmare (and Charm) of Geographic Complexity

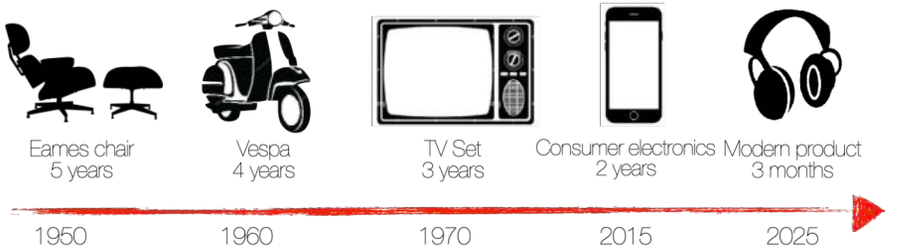
Picture this scenario: an Indian client based in Silicon Valley calls a designer in Italy. The designer has to coordinate with a PCB design company in India, which

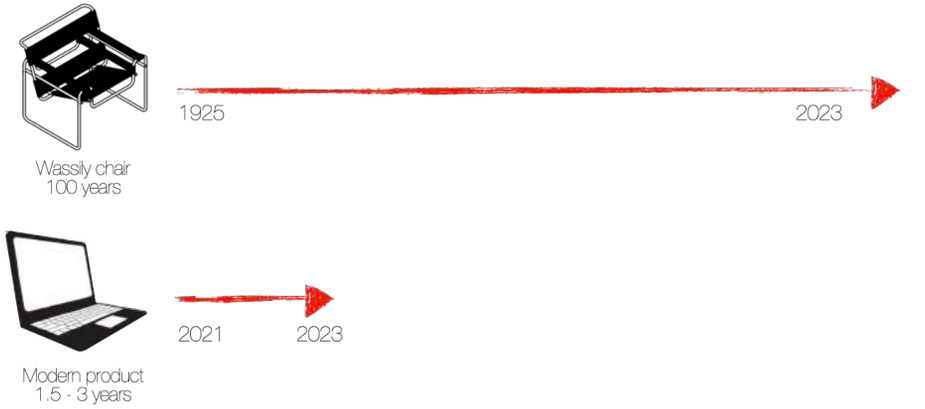
in turn manufactures the boards in Vietnam. Meanwhile, the plastic enclosure is molded in Malaysia, only to be assembled at a factory in Shenzhen and distributed from a warehouse in Hong Kong.

All of this happens under the supervision of a Product Developer who must speak fluent English and Chinese, mediating between opposing cultures and time zones. Working with Chinese partners is no walk in the park; it requires endless patience and a deep understanding of communication codes you won't learn in textbooks.

And what about time? Hardware's time-to-market today has gotten insane, almost catching up to software. At the turn of the last century, it took 5 years to bring a chair to market. In the 1970s, it took 4. Just yesterday, in 2015, it was around 1 to 2 years. Today? Today we're asked to "hit the red button" on production within a few weeks of the initial brief. It's a frantic pace that leaves no room for second thoughts. It's a movie set where every shot has to be a "one-take win."

Add to that that the longevity of the products we design is drastically reduced. You have to be able to see the market six months or a year ahead. If you can predict where consumer taste will be two years from now, then you're a genius.





The "We're Software People" Factor

I want to introduce another character into what might be starting to feel like a horror movie: the vast majority of hardware startups are made up of people from the software world. Programmers, coders, software engineers. The idea often originates with them: a physical device is needed, but to them, it's a secondary detail, subordinate to the code.

This means design is often treated as a mere "packaging service"—just "putting a plastic shell" around a piece of iron and silicon that someone else has already locked in.

Nothing could be more disastrous. If the PCB design and product design don't go hand in hand, you end up with square products when they should be round, or worse, large ones when they need to be small, or vice versa. Getting people who have never developed a physical product in their lives—and who don't understand material constraints, plastic cooling times, or millimetre-level tolerances—to communicate effectively represents yet another massive hurdle.



SMART BRACELET MAYA

This bracelet is designed for users with a heart attack risk. It detects a possible heart attack and makes an emergency call to a previously specified number. It also detects strong impacts or falls.

Maya Malaysia

2016

5.000 units

Malaysia





SMART WATCH

This is a smartwatch, specially designed for kids between 3 and 9 years old, which unfortunately never left the concept stage. The technological part is a plastic shell that can be removed and inserted in different silicon rubber cases that suit different ages and uses. The product contains a nano sim card to call two previously recorded numbers and a third number for help. It also receives SMS messages and is easily chargeable via MicroUSB. The Android and iOS App can check the position of the watch at any time and send personalised instructions or vibration alerts.

SGL China

2014

concept

none









COSMETIC PACKS

This series of products was born out of a new fashion, popularised by YouTubers known as “depotting”.
This is simply the practice of removing a makeup product from its original container and placing it into a more practical pack- aging.
The first commercial cosmetic packaging was designed with ‘depottable’ pans.
Women and professional make up artist can now create their own colour palettes and play with different sizes of packaging. This product has contributed to creating the commercial success of the company that started selling more pans and less packaging.

Kiko Italy

2010

30.000 units

global market



FOOD TESTER

This device tests the sugar content and radiation levels in fruit, vegetables and meat. Connected with its own Android and Apple app, it tells the user if the product is safe for consumption. Conceived for hospitality and restaurant facilities in China after recent food industry scandals, it has also been successful as a consumer product in Europe.

Sinofly China Italy

2017

5.000 units

global market





FINGERPHONE

This strange device is a phone for people who don't want to carry a phone. Suitable for outdoor sport or for children, the device is only able to receive calls, call three emergency numbers and play music. The ring has raised pins, like Braille and the shape is asymmetrical, both of which allow interaction with the device without actually looking at it. It was designed before the iPod Shuffle.

Fingerphone China

2012

30.000 units

China



AIR PURIFIER

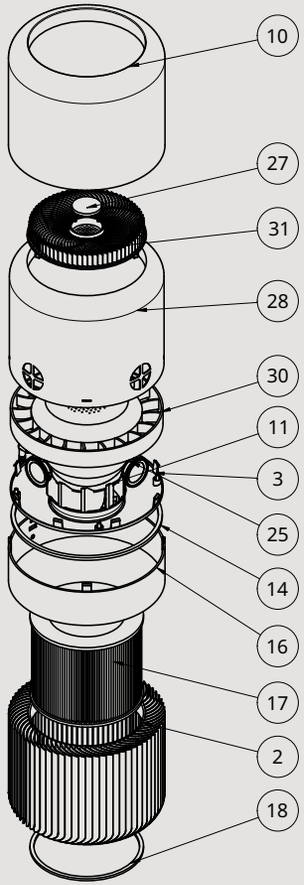
Air Purifier for the European and North American markets. A state-of-the-art air purification system. This sleek and stylish device not only cleans the air in homes or offices but also features a built-in speaker array and LED ambient light for added convenience and enjoyment. The SunLed Air Purifier uses advanced filtration technology HEPA to effectively remove airborne pollutants, allergens, and other harmful substances from the air. With its powerful suction and high-efficiency filters, the air purifier can clean the air in rooms of up to 500 square feet in just minutes. In addition to its air purification capabilities, the Air Purifier also has a built-in speaker array. This allows listening to music, podcasts, or audiobooks while enjoying clean, fresh air. The speaker array has Bluetooth and Wi-Fi connectivity, so it can easily stream audio from smartphones, tablets, or computers. It also features LED ambient light, which can be set to various colours and brightness levels to create a relaxing and comfortable atmosphere in any room. The LED light can be controlled using the included remote, or you can use the device's voice control function to adjust the light settings using simple voice commands through Alexa® or Siri@.

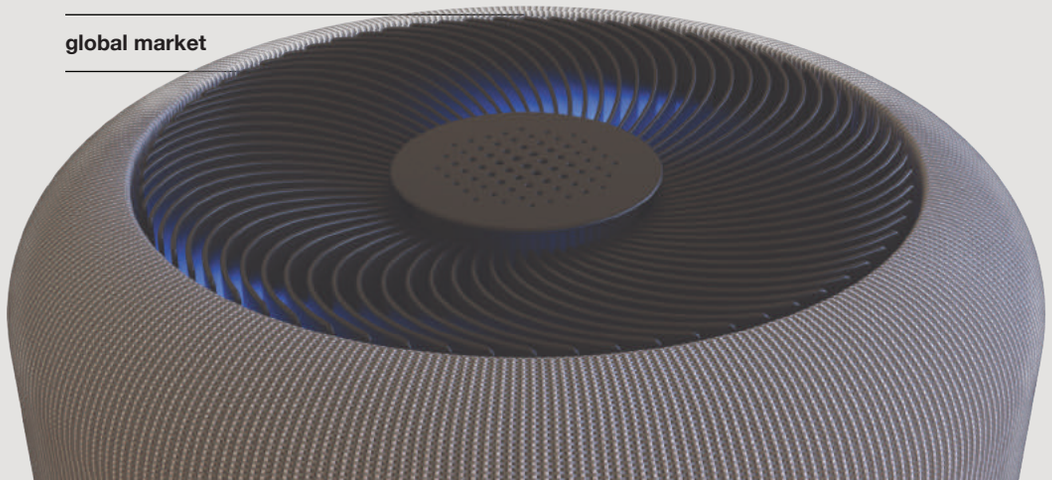
SunLed China

2025

10.000 units

global market







PORTABLE STEAMER

Portable Steamer designed with Nicolò Castagnini for SunLed Shenzhen.
The garment steamer has a unique design with a capable back water tank. It can be used at home or during travelling. It has no-spilling holes, it is light, compact and durable.

SunLed China

2022

10.000 units

global market

WARMER COASTER

This device has been conceived for SunLed Shenzhen and designed by Tobia Repossi and Nicolò Castagnini. The warmer coaster is a USB type C powered platform that keeps the liquid in the mug always hot. Dedicated to the Asian market, the Warmer Coaster is a perfect office desk companion.

SunLed China

2022

10.000 units

China



ELECTRIC KETTLE

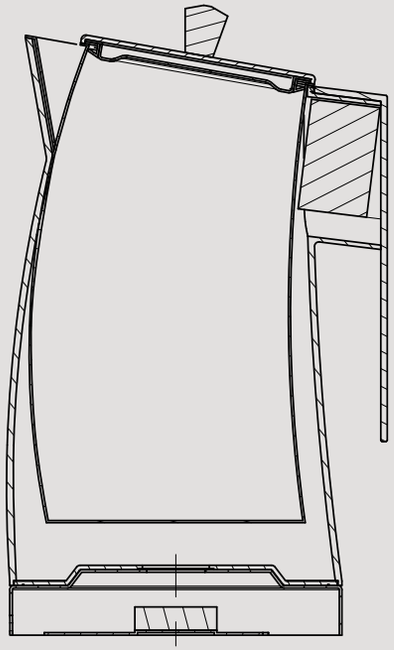
Electric Kettle designed with Batu Gündal for the Chinese company SunLed. The device is packed with all the most updated technologies.
The Kettle is a plastic shell with a steel interior, has quick-boil time, 360-degree rotating base, digital water level and temperature marking, touch controls, cool touch body, limescale filter, multiple temperature settings for tea and coffee, keep warm, boil-dry protection and Wi-Fi with App control.
The PCB is extremely small and hidden in the handle, it is connected to a bendable o-led touch screen that takes advantage of the translucency of the plastic shell in order to show the temperature.
It comes in three funny different gradient colours and will be distributed soon on the European and North American markets.

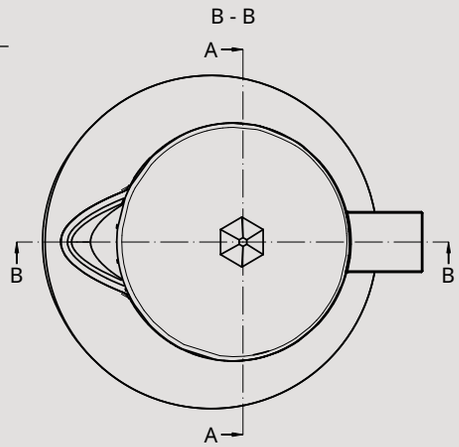
SunLed China

2022

10.000 units

global market







ELECTRIC SPACE HEATER

Electric Space Heater for the Chinese company SunLed. Suitable for small-medium rooms it can pivot around the base, it has digital colour display with auto-mode, presence sensor, and ambient light.
Currently under development it will be distributed soon on the European and North American markets.

SunLed China

2023

10.000 units

global market







TRAIN SERIES

This was a new series of train ticket machines for Beijing MSHD Technology Co., technically a startup, but a actually a spinoff of a traditional supplier for Chinese train station machinery.
The company wanted to redesign all their products: a desktop ticket printer, ticket emitter and, most important, the platform entrance gate.
All the machines were rethought as a series with common characteristics.
New features like LCD screens and LED strips were introduced to guide the traveller through the entire process.
With this new design, the user can insert the ticket into the machine from every direction, thus saving precious time.
The company intends to install the machines in thirty new train stations all over Asia and in some years expects to enter the European market.

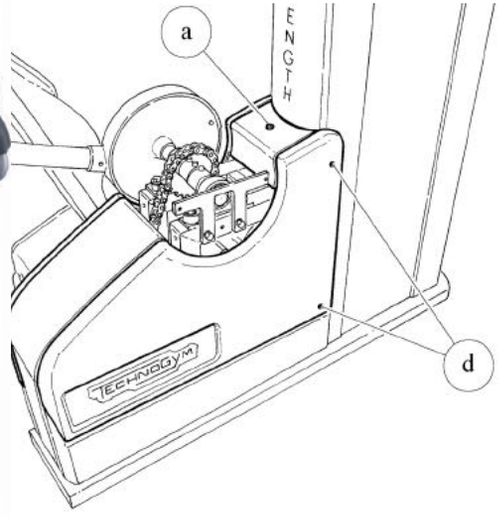
Beijing MSHD China

2016

630 units

China







BIOSTRENGTH

Designed with Cristiano Mino (Head of Design) and Claudio Monti, these machines have been a pivoting point for Technogym. This series projected the company into a brand new market segment, opening the doors to SPA and Hotels around the world.

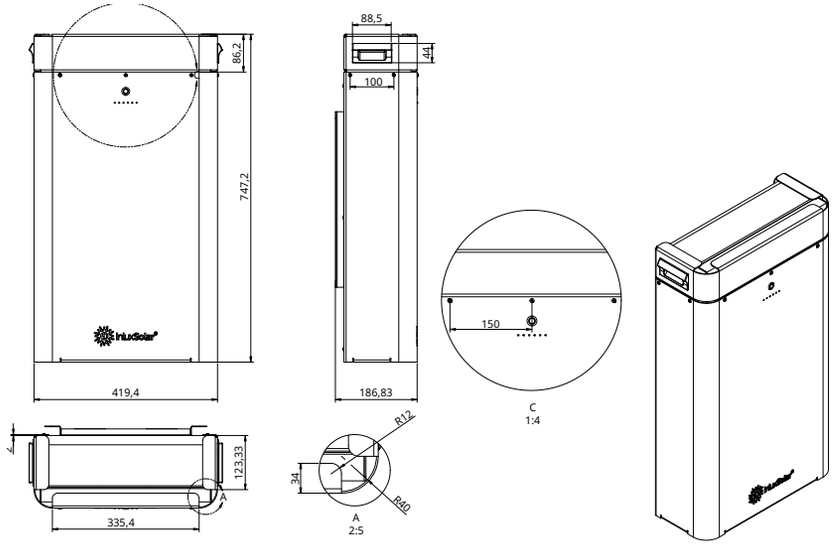
Technogym Italy

1997

12.000 units

global market









WALL BATTERY INLUXSOLAR

Wall Electric Battery designed for Inluxsolar. The device is a rechargeable lithium-ion battery stationary home energy storage product manufactured in China.
The battery stores electricity for solar self-consumption, time of use load shifting, and backup power.

Inluxsolar China

2023

5.000 units

global market

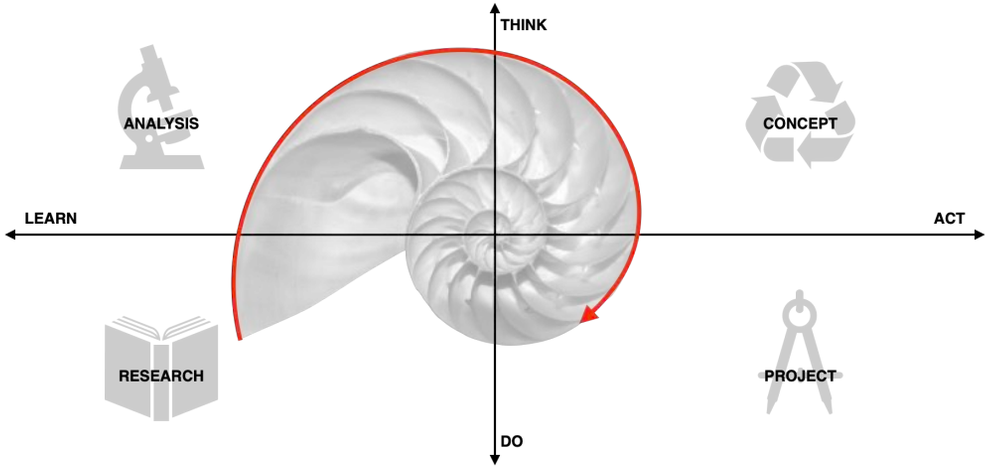
DESIGN THINKING

Some Design Thinking always works

The Founder's Toolkit

A dose of good old Design Thinking has never let anyone down, and here I want to present what I call "Italian-Style Design Thinking"—drawing inspiration from the concepts described by Bruno Munari in his famous recipe for Green Rice in Fantasy.

The framework was developed in the 1990s at the Politecnico di Milano's School of Design—then a newly founded faculty looking for a methodology that could be applied to all areas of study.



Research and Analysis (or: Do Your Homework)

It is vital to understand your battlefield. You must know everything about the playing field you are competing on, and you need to become more expert than the experts if you want to create real innovation. Remember that the experts created what is on the market today; if you claim to build something better, you have to be better.

Field Research: trade shows, events, conferences, books, podcasts, the web—conduct interviews with consumers and industry experts. Every competitor, every stakeholder, every major player in that field must be known to you. Social media and video conferencing tools will help you connect with consultants and industry experts—don't be shy; be bold. Social platforms and cloud tools will serve you well if you need to create surveys or focus group interviews. You wouldn't believe how many projects emerge half-baked from this stage; I'll give you a few examples later on.

Desk Research: today this largely means artificial intelligence—to be taken with a grain of salt, but great things can come out of it if you know how to ask the right questions.

Insights (Find Your Eureka Moments!)

Remember that during this process, you are searching for what Design Thinking methodology calls "insights." In short, you are trying to truly see, not just look.
Generally speaking, within the framework of Design Thinking, an insight is not a simple piece of information, but a deep, non-obvious, and actionable revelation about human behaviour.
It is the "Eureka moment" born from data observation and empathy with users.
If data tells you what is happening, the insight explains the deep why.
Here are the core pillars that define an insight:

1. The Difference Between Data, Observation, and Insight

To understand what an insight is, you have to understand what it isn't:

Data: A quantifiable piece of evidence (e.g., "80% of people use their smartphone in bed"). It is a cold statistic.
Observation: A description of a behaviour (e.g., "People hold their smartphone very close to their face when in the dark"). It is what you see.
Insight: The discovery of the underlying motivation (e.g., "People use their smartphone in bed not to get news, but to delay going to sleep because they feel they lacked control over their workday").

2. The Anatomy of an Insight
A true insight in Design Thinking is recognisable because it typically connects three elements in narrative tension:
The Observation: What the user does.
The Motivation: Why they do it (the need or desire).
The Friction (or Conflict): What obstacle or paradox prevents the need from being met.
3. Key Characteristics
For an intuition to be defined as a design-useful "insight," it must satisfy these criteria:

Non-obvious: If you already knew it before starting your research, it isn't an insight; it's a confirmed bias.

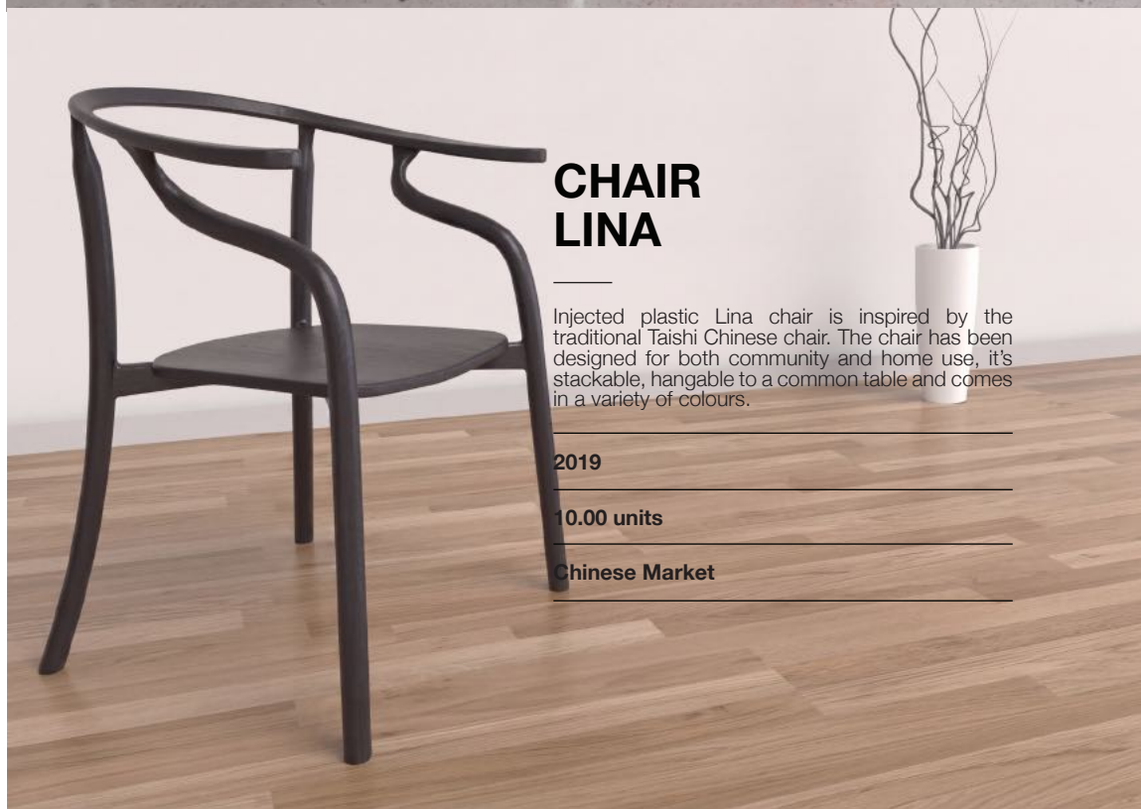
Human: It doesn't talk about technology or products, but about emotions, fears, aspirations, or habits.

Generative: It must open the mind to new solutions. A good insight reframes the problem into a question like: "How might we...?"

Succinct: It is a truth that, once stated, feels obvious, but nobody had articulated it before.

The insight is the bridge between the research phase (Empathy) and the creation phase (Ideation). It is the turning point where you stop looking outward (at the users) and start looking inward (at the solution).





SCIENCE PARK

The Science Park, featuring an innovative collection of over 20 high-quality play equipment pieces, embodies the convergence of interactive learning and aesthetic design. Each piece, crafted in Italy by Modo - Holzhof and now Legnolandia, showcases the integration of durable materials like stainless steel, known for its sculptural qualities. This park is not only a playground but a dynamic educational hub where scientific principles come to life through hands-on activities.
Awarded an Honourable Mention at the 2004 Compasso d'Oro Prize, the Science Park stands as a testament to cutting-edge educational tools designed to foster interaction and learning through play.

Modo - Holzhof - Legnolandia

1996 - 2026

8.000 units

global market











BENCH ETERE

The Etere bench features a bent steel frame that supports various types, shapes, and materials for its seat and backrest.
Its versatile structure allows for customisation in design and comfort, making it suitable for a wide range of outdoor settings.

Modo

2003

10.000 units

Italian market



BENCH ARCADIA

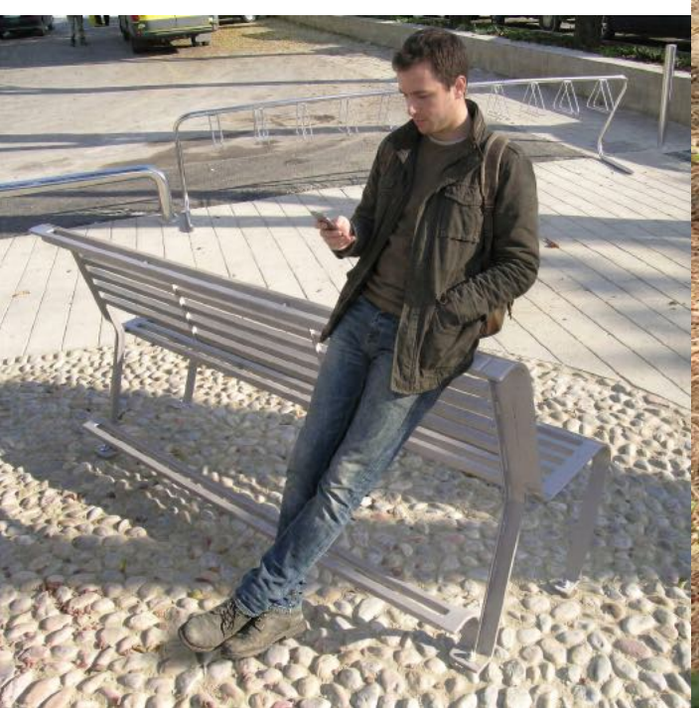
The Arcadia Bench is crafted from welded aluminium. Its soft, subtle colour and gentle form allow it to blend discreetly into both natural and man-made environments. It has a back space for ischiadic seating.

Modo

2003

500 units

Italian market





BENCH SPRING

The Spring Bench is constructed from extruded tubular steel shaped into parallelepipeds with curved edges. This design creates a playful movement with sinuous forms, offering a comfortable and durable seating option for outdoor use. It's ideal for those seeking a bench with a modern and sleek aesthetic.

Modo

2003

100 units

Italian market



BENCH DECÀ

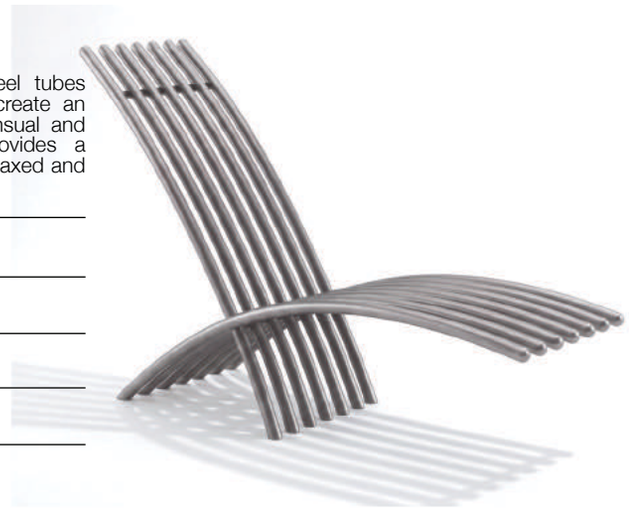
The Decà Bench is composed of steel tubes intersecting in opposite directions to create an outdoor chaise-longue that is both sensual and eye-catching. This unique design provides a striking visual element while offering a relaxed and inviting seating experience.

Modo

2003

50 units

global market







THE KNOT

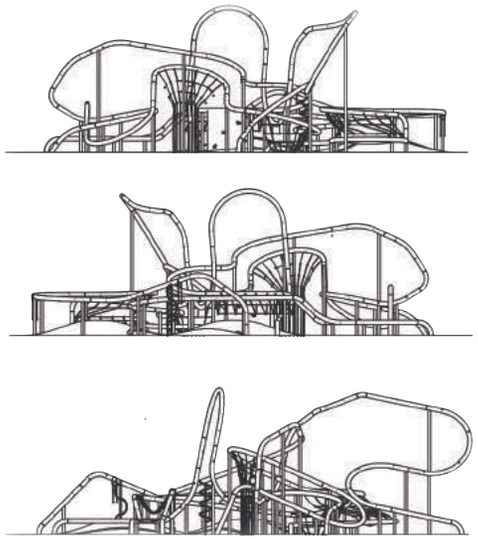
An innovative playground named "The Knot", developed by TR & Partners for Riyadh in preparation for Expo 2030.
The design concept is based on the idea of a knot that creates connection and unity. The playground creates an intricate assembly of modular tubular elements: this entanglement is not merely ornamental but serves a functional purpose as a framework to which various play elements and structures are attached, creating an interactive and engaging play space.

Riyadh Joyous Gardens

2023

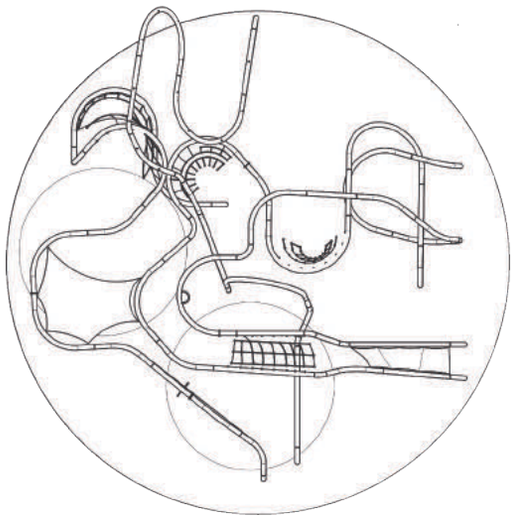
5 units

UAE market











CONCEPT CAR OPERA AUREA



This concept design illustrates an advanced hybrid hyper-car, engineered specifically for racing.
The vehicle is crafted to accommodate three passengers and integrates a high-performance hybrid powertrain. Its sleek body is constructed entirely from carbon fibre, ensuring optimal strength and reduced weight for enhanced speed and agility on the racetrack.
This innovative design merges cutting-edge technology with sophisticated aerodynamics to deliver unparalleled performance in competitive racing environments.

Opera Aurea Italy Spain

2023

prototype

global market











SYNESTHESIA

The Myth of Fake Innovation and the Power of Cross-Fielding

The truth is, most companies have no clue how to design innovative products. True innovation feels like El Dorado or the Chimera—everyone is chasing it, but nobody seems to know the recipe. Yet, on the consumer side, it's effortless to recognise when a product is genuinely innovative the moment you hold it in your hands. It's a limbic, gut feeling.

Remember when Steve Jobs introduced the iPad? If anyone had told you the day before that you needed a giant phone that couldn't fit in your pocket and couldn't even make phone calls, you would have said: "Why on earth would I buy that?" If explained in words, consumer feedback would have killed it instantly. Five minutes after the presentation, sales skyrocketed.

So how do we actually achieve real innovation? It isn't about waiting for an apple to drop on a romantic genius's head. I strongly believe in structured processes, and the secret spice to add to any design methodology is Synesthesia—or what you might call cross-fielding or appropriation.

What Standard Design Books Don't Tell You
Every standard design methodology follows the exact same textbook stages, just wrapped in different buzzwords:

Research the battlefield - formulate a Concept - refine the concept - test and release.

Boring critics and academic textbooks tell you what the stages are, but they never tell you how to actually cross the bridge from research to a breakthrough idea. How do you go from analysing data to finding that elusive "Eureka" moment?

This is where Synesthesia comes in
Borrowed from rhetoric and poetry, synesthesia is the figure of speech that blends different senses or fields of significance—like saying "the silence was as thick as a forest." One sense is described using the vocabulary of another.

Psychology knows it well—think of the classic experiment showing two abstract shapes and asking which one is Maluma and which one is Takete. You instantly know which sound belongs to which shape. Hollywood knows it too: think of Sergio Leone's iconic spaghetti westerns, where spoken words and visual standoffs morph seamlessly into Ennio Morricone's musical score.

So how do we apply this cognitive trick to design?

Cross-Fielding: Looking Outside Your Battlefield
To create true innovation, you must expand your research far beyond the vertical niche you are designing for. You have to look into entirely different industries where the interaction problem you are trying to solve has already been solved.

The Non-Contact Thermometer: During health crises, non-contact thermometers flooded the market. But almost all of them looked like small handguns. Pointing a gun-shaped device directly at someone's forehead triggers immediate, negative psychological friction. So where else do we point objects at our faces without negative feelings? Cosmetics, perfumes, and beauty care.

By cross-fielding from the perfume industry, we designed a revolutionary thermometer shaped like an elegant spray bottle rather than a weapon.

THERMOMETER

Visiomed is famous for its non-contact thermometer that is widely used in both the consumer and professional market.
Their original thermometer resembled a gun and it was immediately understood that a less 'threatening' redesign was required.
The product proved to be revolutionary in its field and set a new design standard for competitors as well.
Together with the oximetry and blood pressure monitor, it is the ideal kit for patients to monitor their own condition which they can then relay over the Internet to doctors.
This can be particularly significant in rural areas of China where hospitals are few and far between.

Visiomed France

2014

80.000 units

global market







VR GLASSES REVEL

VR Glasses are often cheap pieces of plastic that users keep in their drawers. Revel was the first luxury product in this market. Covered in Primo Fiore leather from Florence, these were the first truly stylish VR glasses.
Revel also solved the mechanical problem of holding the phone by means of a nano-technology-based sticky pad instead of the usual heavy mechanical spring-based clamps. This keeps the headset comfortable and light for longer use.

Twisted Reality Holland

2016

5.000 units

global market



If you want to design a breakthrough gaming controller, don't just look at existing gamepads. Look at high-end hand tools, where the hand-object relationship, grip ergonomics, and tactile feedback have been perfected over centuries.



VR Headsets: Instead of making yet another piece of cheap, clinical plastic destined to be hidden in a drawer, look at luxury leather goods or sports cars. We designed VR headsets featuring the finishes, craftsmanship, and tactile warmth of a luxury handbag—creating immediate emotional desire and affection.

Predicting Trends and the Nostalgia Loop

Synesthesia is also a powerful tool for predicting the future. If you want to know what materials, finishes, or colour palettes will dominate your industry next year, look at more evolved, faster-moving fields like automotive, high fashion, or personal computing. Design choices ripple from the most dynamic industries downward.



Furthermore, design operates on a predictable 20-to-30-year nostalgia cycle. Think back to when you were a kid: you loved the jacket your father wore or the shoes your mother had because of what those parent figures represented. But as a kid, you had no money. Decades later, when you finally enter your peak consuming years, smart companies hand those exact shapes, colours, and aesthetics back to you. It is a deeply effective emotional driver.

Stop Asking the Patient for a Diagnosis

This brings us to one of the biggest traps in modern hardware development: over-reliance on traditional market research.

Market research is a useful tool, but it is strictly a picture of the present. It asks consumers what they want today, which is useless for building the future. Consumers don't know what they want until you show it to them.

Relying solely on market research to dictate your product design is like walking into a doctor's office and having the doctor ask you: "So, what do you think you have? What medicine should I prescribe?"

You'd reply: "I don't know—you're the doctor! You tell me what I need!"

As designers, we are the doctors. It is our job to prescribe the solution the user actually needs, not to ask them to design it for us.

Innovate or Stop Polluting

Finally, true innovation requires respect for the market and the planet. Copying is criminal. When a giant corporation lazily copies a Kickstarter startup's idea, it doesn't just kill the dream of two young entrepreneurs—it pollutes the planet with redundant garbage.

We do not need another generic chair design. There are already more chair designs on this planet than there are asses to sit on them!

Unless your new product brings real, synesthetic innovation to the table—solving a real problem through cross-field inspiration—don't press the red button of production. The world doesn't need more "connected crap" destined for a landfill; it needs thoughtful, innovative objects that solve real human needs.

Keep it in mind.

CAR HANGER

This project was developed in collaboration with a company based in Abu Dhabi, UAE.
Arabian thobes are long and delicate garments, often requiring cleaning and ironing at laundry shops. They are then delivered with metal hangers in plastic bags for transportation.
Due to their considerable length, the dresses are challenging to accommodate in Western cars and cabinets in their entirety.
This specially designed hanger enables the folding of men's thobes or women's abayas twice, allowing them to fit inside cars for transportation or storage.

Arabic Start Up

2024

5.000 units

global market





HAIRDRYER

Designed for Lady Merry, based in Shenzhen, this cutting-edge hairdryer combines compact, market-driven technology with user-centric ergonomics. The device features an angled handle for ease of use at home, integrating professional-grade elements like overheating sensors and a variety of accessories. It also includes a smart mode with presets specifically tailored for different hair types, ensuring versatile and safe styling options.

Lady Merry China

2024

10.000 units

global market





PRODUCTS
A-LIGHT

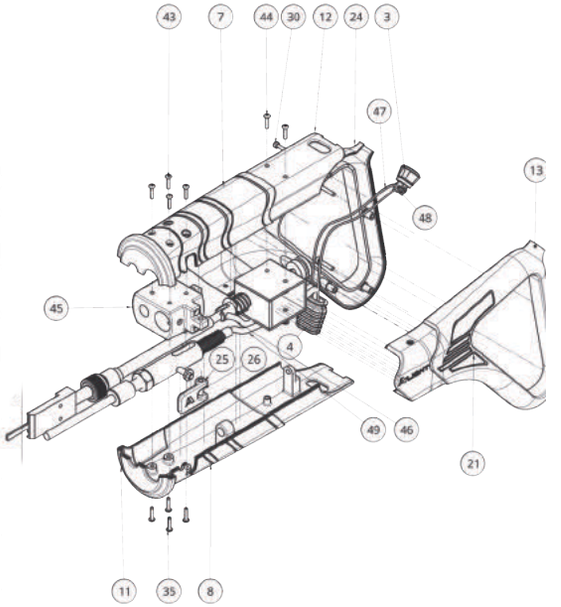
Recent project with Giacomo Pala for A-Light, a leading manufacturer of equipment for auto body shops, we dedicated ourselves to a comprehensive redesign of their main product line.
Our efforts encompassed not only the functional redesign of the tools but also a thorough revamp of the corporate visual identity.
This cooperation aimed to enhance both the usability and aesthetic appeal of A-light's offerings, aligning them with contemporary standards and market expectations.

A-Light China

2024

3.000 units

global market








LIGHT
LIGHT
LIGHT

HIT THE BRAKES

Why We Must Hit the Brakes on Hardware

The three "R's"—Reduce, Reuse, Recycle—are brilliant pillars of the circular economy, but I want to propose a fourth concept that is even more fundamental: Slow Down.
We need to slow everything down, across every single level of our industry. We need to slow down industrial scrap, slow down consumer appetite, slow down product shelf life, slow down the design process, slow down general project timelines, slow down time-to-market, and perhaps even slow down design education itself. Do we really need this endless flood of new designers entering the market every single year?

I come from a slower era—back when dinosaurs still roamed the earth. We studied architecture because dedicated design faculties didn't even exist yet. Italy, despite being home to the legendary masters of design, was ironically the last major country in Europe to formally establish a Design Faculty, right around 1999. Back then, an architect took on a client, designed their house, and because they also handled the interior and product design, they personally designed the twelve dining room chairs and the living room table. It wasn't mass industrial manufacturing; it was pure product design. That history probably explains why Italian designers still hold such a deep, romantic affection for the furniture world.

The Death of the Central Designer
Today, design is vastly more complex and fractured. I have colleagues who specialise exclusively in chairs, others who design only sanitary-ware, lighting, or automotive concepts (those strange, hyper-specialised aliens). Above all, the supply chain has become immensely intricate, crowded with dozens of stakeholders. The designer is no longer the central auteur; we are just one node in a massive, global team.
So what is the meaning of sustainability in this complex, fast-paced environment?

I have a radical conviction that true sustainability doesn't lie in greenwashing marketing campaigns, but in four key structural shifts:

Heavily Fine Design Errors and Industrial Scrap
Industrial waste and design blunders shouldn't just be taxed as waste management; they should be heavily fined.

I've suffered through this firsthand. We broke our backs trying to design safety helmets by replacing expanded polystyrene (EPS) cores with bio-polymers made from potato starch—a material that made the entire factory floor smell like a decaying corpse. After all that effort, we had to watch 15,000 finished units burned because the Chinese supplier, unfamiliar with European typography, printed the wrong graphic files.



On another project—a highly successful medical device in the United States—a bizarre European regulatory mandate prevented us from importing the product as-is because it lacked a physical slider to interrupt the battery's magnetic flux. The result? 25,000 perfectly good molded plastic shells dumped straight into a landfill.

We need competent legislators who actually understand product engineering and global markets. Designing for disassembly sounds lovely on paper, but cars at the end of their lifecycle don't look like neat exploded diagrams; they are crushed metal wrecks. In the past, old vehicles were exported to Eastern Europe or the Middle East, where a mechanic with a screwdriver kept them running for another thirty years. Today, with complex onboard electronics, that is impossible—so we crush them far sooner.

Or look at everyday packaging: we applaud using FSC-certified recycled cardboard for a toothpaste box, when everyone knows that secondary box shouldn’t even exist in the first place.



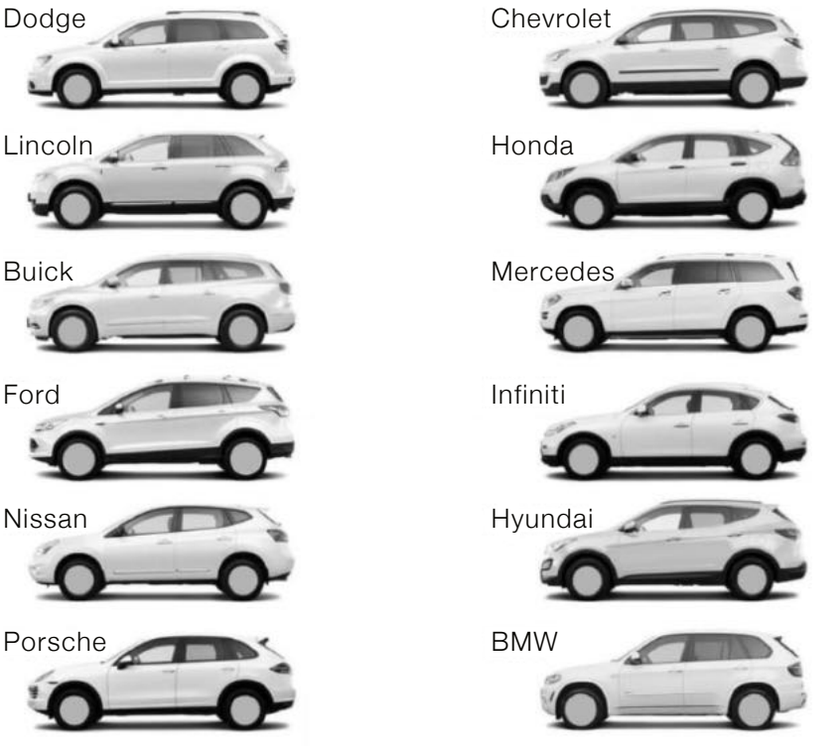
Ban Overproduction and Constant Facelifts

I challenge anyone to run a Life Cycle Assessment (LCA) that doesn't prove a 50-year-old Citroën 2CV wins hands-down on long-term sustainability compared to a 430-horsepower Tesla owner who swaps their electric vehicle every three years.

The automotive industry is legally mandated to manufacture spare parts for at least fifteen years—so why not prohibit mid-cycle car facelifts every two years? If you designed ugly headlights, live with them for five years!

On-demand production and fast-tracked manufacturing cycles kill genuine innovation. When the supply chain is so fast that you produce strictly for immediate market whims, why bother taking the risk to design a visionary car for five years down the road? You just build the instant, on-demand vehicle requested at the dealership today. As a result, we all drive the exact same car with the exact same engine silhouette, and carry the exact same rectangular phone.

We possessed a fantastic tool for longevity: software updates. Instead, we treat hardware like disposable fast fashion, replacing smartphones every twelve months—taking an indestructible material like plastic and treating it like single-use trash.



Regulate the Design Profession

I am not typically a fan of rigid professional licensing boards, but consider the evolving role of the designer.

People used to say: "If an architect makes a mistake, the building collapses and kills people. If a civil engineer makes a mistake, the bridge falls. If a designer makes a mistake... well, the product is just ugly, who cares?"
Except it does matter when that product goes into your child's crib, or when it's a vehicle component driving 200 km/h on the highway, or when a million units of a poorly engineered product end up accelerating environmental damage in a landfill.

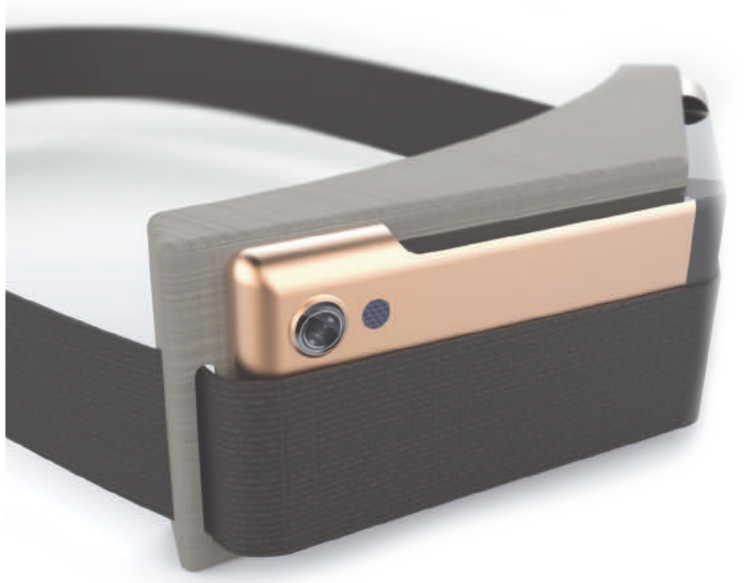
Establishing professional accountability and standards as a real deterrent is long overdue. Schools, architectural boards, and design institutions must sit down at the same table to define structural standards—because we cannot expect the open market to regulate itself.

Demand Platform Accountability

Platforms like Amazon or Kickstarter won't fix these problems for you. On Kickstarter, a mind-boggling one out of twenty-seven hardware startups survives into its second fiscal year. To these platforms, you—the founder—are simply the product they monetise.

Curiously, Chinese e-commerce giants operate under a very different dynamic. On platforms like JD.com, Taobao, or Suning, the government steps in aggressively to enforce quality standards. They verify product quality before items hit the platform because, in their framework, the consumer is the ultimate priority.

We must champion true craftsmanship, embrace genuinely sustainable materials, and learn from global operational strengths. But above all, we must recognise that real innovation and sustainability begin with a single, courageous choice: we must slow down.







SMARTPHONE VR/AR

This Smartphone concept, among others, has been designed for one of the largest phone manufacturers in Shenzhen and represents a conceptualisation of the future market of smartphones. There is a strong accent on multimedia with twin external cameras, two selfie cameras, panoramic view, a double screen for multitasking and a lateral touch bar that changes status according to which Apps are running, VR/AR functionality (due to the folding mechanism, the space of the VR Headset is sensibly reduced). Elements of this design will be used to develop new products later the years.

ZTE China

2015

concept

global market

SERIES MESSAGE

The Message series includes a table, a bench, a trash bin and chaise-longue, all designed with a consistent style that combines wood seats with bent aluminium frames. This series balances natural and industrial aesthetics, providing a durable yet elegant option for outdoor spaces.

A unique feature of this series is the ability to attach custom aluminium plaques, allowing clients to personalise each piece with messages, branding, or decorative elements.

Holzof

2024

1.000 units

global market



TABLE
CP 21

Designed with our partner Claudio Pironi, a new marble and steel table for Galli Marmi, which marks the first in a series of products emerging from their renewed collaboration.
The table is available in various sizes, with the largest featuring an expansive 240 x 90 cm marble surface. It has a stable double Y-shaped steel base that comes in three distinct finishes: brushed steel, black-painted steel, and brass.
The table's top showcases luxurious Italian marble options, including Verde Alpi, Calacatta, Rosso Francia, Nero Marquinia, and Arabescato Corchia.

Galli Marmi

2022

70 Units

global market







BICYCLE RACK ARCAS

This metal bicycle rack Arcas features a spring-like shape with a support that securely anchors the structure to the ground.
Its unique design has inspired similar projects worldwide, demonstrating its versatile and functional appeal.
Ideal for urban settings, this bike rack not only provides a secure spot for bicycles but also adds a touch of creativity to the environment.



Modo

2000

10.000 units

Italian market







DELIVER

A Shipped Product Beats an Idea in a Drawer

I have seen so many startups fail due to the hubris of wanting to overdo things—cramming their devices with endlessly expanding features—or out of the sheer insecurity of adding functionality because the core reason for the product's existence is shaky.

The golden rule for any startup founder is simple: **deliver, deliver, and deliver.** No time-wasting.

Don't Waste Time on Paperwork

Obsessing over the traditional patent system is a colossal waste of time. In a world as dizzyingly fast as hardware technology, the legacy patent framework completely loses its meaning. In an ecosystem where the first to ship wins, trying to protect your idea with bureaucratic sheets of paper will only drain your time and money.

Often, paperwork becomes the very obstacle that prevents you from producing in the first place. While you are lost in legal minutiae and patent loopholes, the market moves on, customer needs shift, or worse—someone else shows up at the starting line ahead of you.

Today, a digital web timestamp or a blockchain-based record is more than enough to establish priority and ownership of an idea should a judge ever need to consider it.

Understand this, though: by the time you actually step into a courtroom for a patent or copyright lawsuit, the game is already over. Your product's lifecycle has likely ended, and the lawsuit will be little more than an economic bloodbath fought over pride rather than commercial reality. Dramatically speaking, the rule of the bigger fish always applies: whoever has more time, deeper pockets, and more lawyers will win, regardless of who was right. If your goal in court is to stop a parallel clone that is draining your cash and stealing market share, it simply means you are late launching Version 2.0 of your product.

The Feature Creep Illusion

I've watched countless founders burn through their remaining runway trying to stuff features and gimmicks into a product that already did its core job brilliantly. Cramming features and integrating endless add-ons is typical of a mature product reaching the end of its lifecycle, where the core function has lost its novelty appeal. Think of old cell phones that used to just make calls, now bloated with photography software, music player ecosystems, and endless apps. Think of traditional watches—once tools for telling time—now stripped of that singular purpose toward luxury status, or packed with fitness and health metrics in smartwatches. Or smart glasses, currently undergoing life extension via AI models and micro-displays.

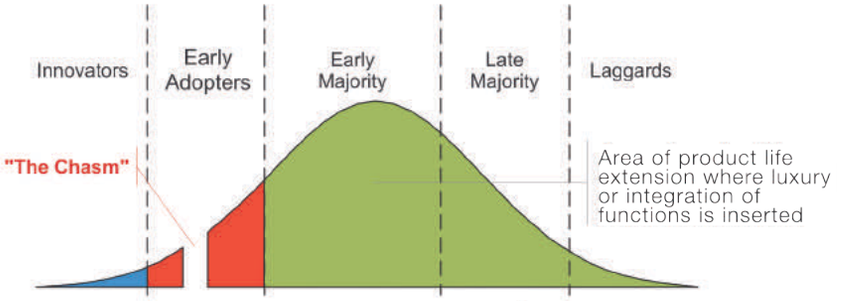
This isn't just my personal opinion; it is dictated by Everett Rogers' Law of Diffusion of Innovation, which follows a Gaussian bell curve. Innovators sit at the far left, the early and late majorities occupy the middle, and laggards sit at the tail end. A product's lifecycle mirrors this curve. A smart startup founder always targets the market at the very beginning—the **Innovators**—never the tail end where mature products are stuffed with features just to artificially extend their lifespan.

So, if your team is asking, "Should we add a Bluetooth chip to connect to an App that lets users do three other things?" the answer is: ship, ship, ship.

Finish a product that does one single thing extraordinarily well, rather than holding a half-baked device that attempts ten things poorly. Remember: more features mean more failure points, more technical headaches, and endless software maintenance.

A well-designed product does one thing exceptionally well—the very thing it was born to do, at least at the beginning. It does it so well that it sells itself purely on that strength, not on secondary features. If you need convincing, remember that

those extra feature ideas are what will allow you—once the first batch ships—to sit back down at the drafting table and immediately create Version 2.0 and 3.0.



Trial and Error and the Crowdfunding Trap

If you are still stuck in the trial-and-error phase when you should be in production, you are already late on deliveries. You are obsessing over useless details that true innovators won't care about—and will happily tolerate anyway. Innovators know they are buying early-stage, sub-standard tech. They buy it to be first, not for a titanium-coloured finish, hyper-luxurious materials, or the ability to choose between five colours and three tiers (De Luxe, Premium, Standard). They buy it to declare that they live in the future—and they know the future is messy, unpredictable, and far from "perfect."

If you keep taking two steps forward and one step back, realise that you should have delivered yesterday. Somewhere across the globe, someone is already outpacing you. In a Chinese factory parking lot right now, there might already be shrink-wrapped pallets loaded with boxed units ready to ship ahead of you. Or worse, someone spied on your public patent drawings and thought: "Interesting. .."

This is the tragic inexperience of founders on crowdfunding platforms. You should launch a campaign when the product is already engineered, funded, and entering the scaling phase—not before. Launching earlier means exposing your unprotected idea in a shop where ideas are stolen and copied, rather than a shop where finished products are bought.

The AI Trap

If you're asking an AI to generate "product ideas of the future" for your startup, know that you are simply buying a ticket in a massive lottery—a lottery where almost everyone loses. Everyone has access to the exact same AI model, the exact same prompts, and the exact same outputs. You aren't building a unique hardware startup; you're just doing glorified drop-shipping, and you are miles away from building a category-defining product.

Where AI is immensely valuable is in solving hyper-specific technical and engineering problems. For instance, when designing outdoor fitness equipment for Legnolandia, AI suggested using stacked Teflon pack joints for moving components instead of traditional bearings. That single engineering tweak drastically reduced maintenance, slashed manufacturing costs, and gave the product a decisive competitive edge in a saturated market.

True Professionals vs. Accelerators and Incubators

Who can actually help you? A seasoned professional and a proven methodology. Real industry professionals cut through AI's hyper-optimistic noise and tell you the blunt truth. They look past an easy fee and tell you: "Your product doesn't work," saving you from catastrophic errors they've witnessed a dozen times before. They minimise trial-and-error loops and help you fill shipping containers as fast as possible before an external factor kills your momentum.

In that same vein, a word on accelerators and incubators: while everyone understands that a university degree gives you a methodology rather than a guaranteed job, people often forget the business model of incubator programs. Let's be clear: incubators and accelerators don't make their money off your product royalties—they know most startups die on the road. They make money off "you"—off program fees, educational courses, and service partnerships. Never join an incubator hoping they will hand you a successful product. Go to learn *how* to build; *what* to build will always remain your responsibility, for better or worse.

What About Me?

After listening to my rants about hardware startups, people always ask me: "Why don't you run a startup right now?"

I tried. I launched *Mobili in Cartone* (Cardboard Furniture), a company selling 100% recycled and recyclable cardboard furniture for trade shows and events. It was a huge success, particularly when sustainability awareness was spiking and physical trade shows were booming.

Then I tried *Ciclipede*, which was a commercial failure. It was a folding bicycle with full-sized 26-inch wheels designed to fit into a car trunk for weekend getaways. We made the fatal mistake of getting distracted by building a companion social-networking app for cyclists and integrating an early-stage GPS tracking system when the underlying technology simply wasn't ready.

Years later, I managed to sell the project to a large Chinese corporation and broke even, but we paid a heavy price for failing to ship the core physical product on time when it was ready.

Today, I am still searching for my next personal product. As an industry professional, I want to pick it carefully, refine the execution, and find the right idea before stepping back into the startup arena. I have an unbeatable global network of suppliers, consultants, IP lawyers, prototypers, and distribution channels ready to go.

Day in and day out, my studio helps startups from Silicon Valley to China turn their hardware dreams into physical reality—so in many ways, I am already living one step ahead in the chain.

In the next edition of this book, let's hope this final chapter is dedicated to my own new successful startup.

Thank you for coming along on this journey... and good luck!

IPHONE DOCK



This product was created at the time when everybody was fighting over the sizes of Apple accessories because the iPhone Plus series had recently been released onto the market. As well as a stand, this dock also acts as a memory booster for the phone and solves the size problem as it can be used on both sides.

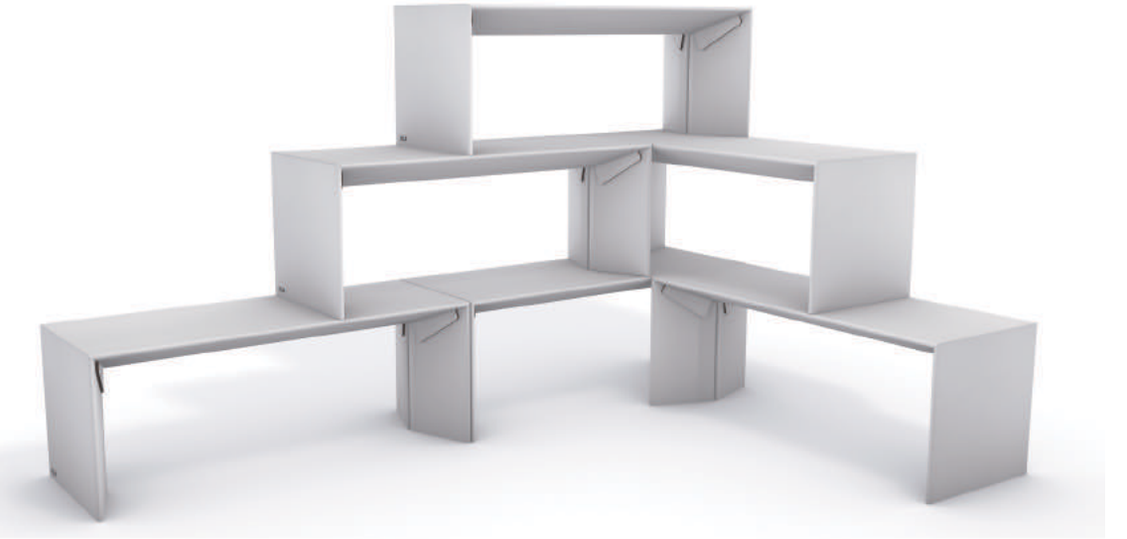
+ Dot Switzerland

2013

10.000 units

global market







CARDBOARD FURNITURE

Triple cardboard is a very light material, easy to transport and assemble and environmentally friendly because it's completely recyclable.
It's ecological, recycled, light and cheap.
In organising events and designing booths and the furniture to be used in them, the question is, how can fairs, events, temporary shops and showrooms be built avoiding a huge waste of material?
The solution is really quite simple: use cardboard!
One of its many beauties is that cardboard can be readily and easily customised with pre-spaced, digital prints.
The series of products that this example belongs to, is entirely made from 80% recycled and 100% recyclable cardboard.
So, when you buy or use cardboard furniture, you have done something extremely good for your planet.

Mobili in Cartone Italy

2005

10.000 units

Europe

FOLDING BICYCLE CICLIPEDE

Ciclipede was a startup venture which was never a commercial success although there are still a few prototypes used by beta testers in Milano today.
Ciclipede was supposed to be the first 26" foldable bike made to fit into the trunk of a car, designed in Italy and produced in China.
Although the foldable bike concept with big wheels has been around for a long time, their folding systems always pivot in the centre of the bike, making the movement difficult, the product heavy and space-wasting.
Ciclipede had a new 'sliding' folding system that folded the bike automatically making the product perfect for commuting.

Ciclipede Italy

2012

none

none

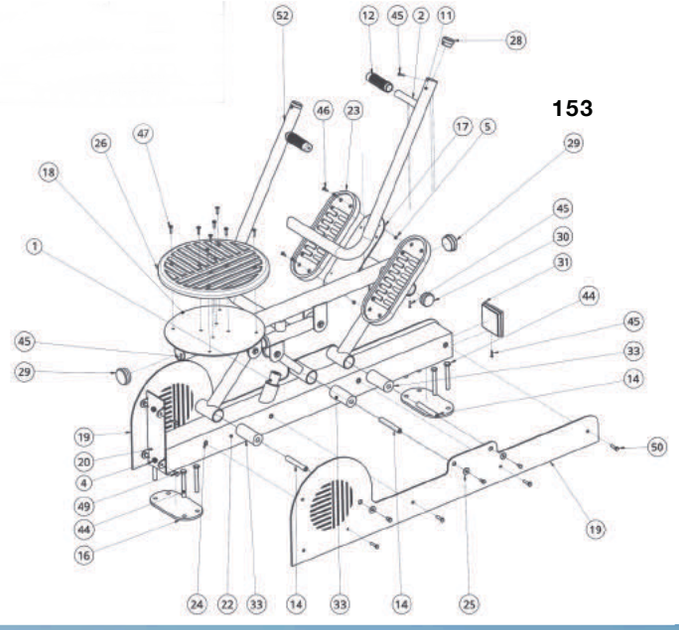














TOP FITNESS

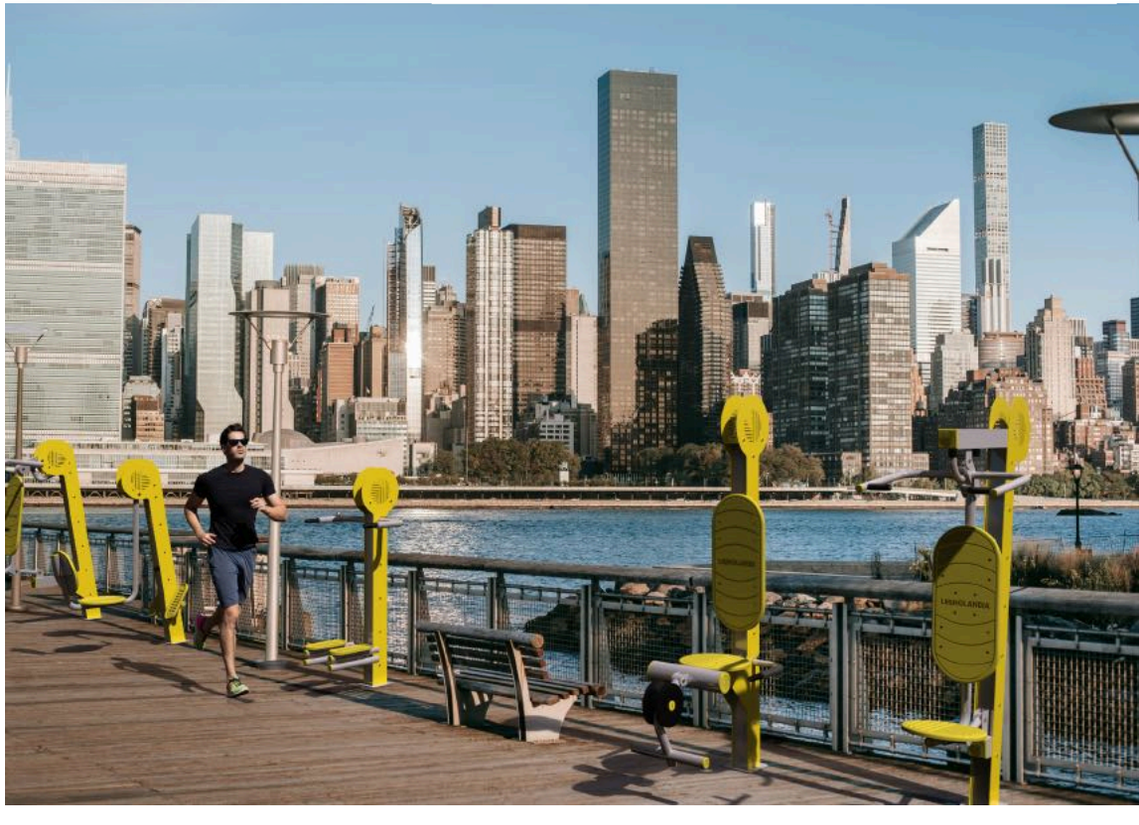
Designed with Diego Zanchetta and Giacomo Pala, the Top Fitness series of outdoor gym machines uses the user's weight to create friction. A complete workout for all the muscular groups of the body. The machines are not using the usual bearings but teflon joints. This solution was suggested by AI and makes them more durable and cheaper to assemble and produce.

Legnolandia Italy

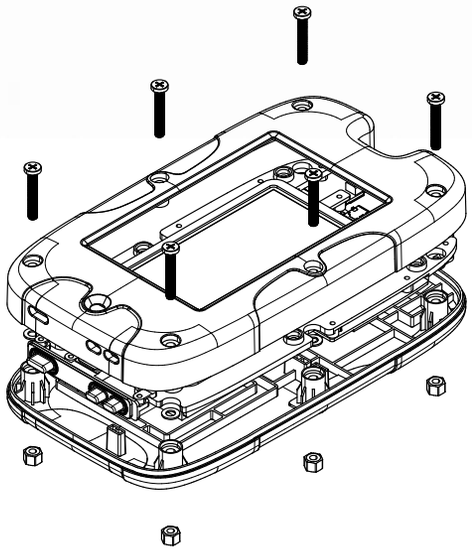
2026

1.000 units

global market







TABLETS INMATES

These Tablets were born to inspire progression in the criminal justice system for incarcerated individuals by providing resources, support, and opportunities that can change lives in correctional facilities in the USA. They can be used by the inmates to communicate with their friends and relatives but also for educational or recreational purposes.
Naturally, they are splash and shockproof and they come in different colours; at the end of the day, the inmate can put back the tablet in a special charging tray for the night.

Combined Public Communications USA

2024

20.000 units

USA

AI WILL TAKE YOUR JOB?

We're witnessing a historic shift in industrial and product design. Artificial Intelligence is stepping out of the lab and into the studio, bringing with it promises of automation, optimisation, and mind-blowing speed. CAD software now autocompletes, generative tools sketch hundreds of iterations in seconds, and market-fit analyses are driven by predictive models.
It feels like a revolution. But here's the truth designers need to hear: AI is brilliant at improving what already exists — and almost useless when faced with the unknown. Let's unpack that.

AI Is a Master of Patterns, Not Possibilities
AI is, at its core, a pattern recognition engine. It learns from the past — images, objects, preferences, metrics — and creates variations based on that data. Feed it 10,000 examples of phone stands, and it will generate the most ergonomic, optimised, cost-effective phone stand the market has seen.
But ask it to design a new category of object — something that hasn't existed, with a use case no one has imagined — and it stumbles. Not because it's slow or inefficient, but because there's no pattern to draw from.
Innovation requires creative intuition. Risk. The ability to say "What if we didn't need a phone stand at all?" AI doesn't do that. Humans do.

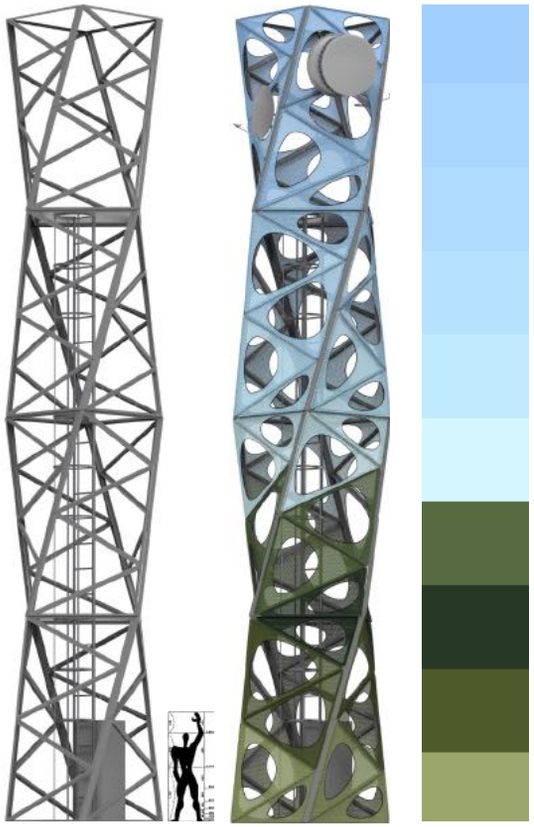
The AI Advantage: Redesigning the Wheel, Better and Faster
Let's not downplay the upside. For designers working on existing products, AI is a godsend:
Rapid iteration: From form factors to colour palettes to structural variations.
Simulation & testing: AI can stress-test components, simulate usage conditions, and even forecast failure rates.
Supply chain integration: AI optimises for material availability, cost, and logistics in real time. This makes AI indispensable for incremental design — that is, making better versions of things we already know. Think appliances, packaging, seating, or car interiors.
If your job is to redesign rather than invent, AI will become your co-pilot — or, in some cases, your competitor.

The Innovation Gap: Where AI Can't Follow
But when it comes to designing what doesn't exist yet — speculative products, disruptive objects, entirely new user behaviours — AI becomes less useful, and sometimes dangerously misleading.
Because it can't think laterally: AI explores within the box, not outside it.
Because it doesn't challenge the brief: It fulfils it, it doesn't dream: It remembers.
Designers who create cultural shifts, new rituals, or interface paradigms don't ask AI what the answer is — they shape the question themselves. These designers thrive not on precedent, but on provocation.
A new type of musical instrument, a tactile language for the visually impaired, or a social object that connects isolated communities — these are not optimisations, but inventions. And AI, for all its power, lacks the human irrationality to conceive them.

A Future of Dual Speed: The Machine and the Mind
The future of design will split into two speeds: the Fast Lane – AI-driven, data-rich, efficiency-focused. This is where everyday objects are optimised endlessly. Think toothbrushes, chargers, packaging, interface tweaks.
The Wild Unknown – Human-led, intuition-driven, culturally disruptive. This is where innovation thrives, unbound by precedent or dataset.
And guess what? We need both.
The designer of tomorrow won't compete against AI — they'll know exactly when to partner with it, and when to leave it behind to walk off into uncharted terrain.

AI Will Evolve What Exists. You Will Invent What Doesn't.
If you're an industrial designer fearing AI, ask yourself:
Am I designing the future, or just designing in it?
Because while AI will automate the craft of shaping known things, the soul of design — the messy, poetic, unreasonable drive to create something never seen before — remains deeply, defiantly human.





ANTENNA TOWER

Designed with Marcello Ziliani this is a 5g antenna for the regional network provider. Antennas are a commodity that everyone wants, but not in their garden because they are ugly and some misconceptions persist. This tower is shaped by the wind and blends with nature with its gradient colours from green to blue.

Lepida Italy

2024

5 units

Italian Market



SOFA NEXT

In a market where the hardware of transforming sofas slides the armrests and backrest towards the back, Next is probably the first seating system where the seat slides towards the front, allowing a wall positioning.

Gims Italy

2005

100 units

Italy



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Translation: **Jenan Selçuk**
Photography: **TR & Partners**
Publisher: **ARUCAD Press**
Print: **Okman Printing**
First Edition: **October 2026**
Published in Cyprus 2026
ISBN: **978-625-91527-0-7**

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Special Thanks: Erbil Arkın, Sinan Arkın, Amanda Richardson, Burcu Toker, Tahir Pirgalioğlu, Oya Silbery and all the ARUCAD family.