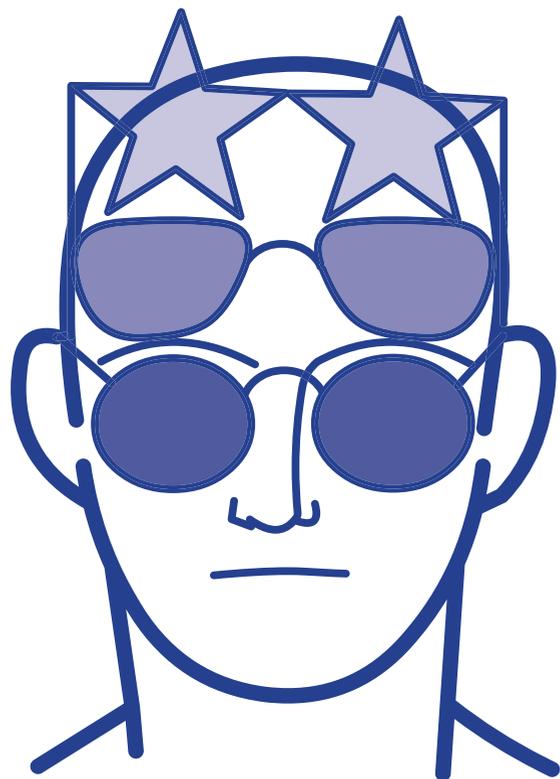


# Co-creators without borders



“You cannot depend on your eyes when your imagination is out of focus.”  
– Marc Twain

“A fight is going on inside me,” said the boy.

“It is a terrible fight and it is between two wolves.

One is evil – he is anger, envy, sorrow, regret, greed, arrogance, self-pity, guilt, resentment, inferiority, lies, false pride, superiority, and ego.”

“The other is good – he is joy, peace, love, hope, serenity, humility, kindness, benevolence, empathy, generosity, truth, compassion, and faith. The same fight is going on inside you – and inside every other person, too.”

“Which wolf will win?” asked the boy.

“The one you feed,” replied the grandfather.

- Cherokee parable

There's a compelling scene in *Skyfall*, the latest James Bond movie, in which the villain Raoul Silva (superbly played by Javier Bardem) first reveals how disfigured he is.

In the scene, Silva had just been captured by James Bond and the other agents of MI6, the British Secret Service, and placed in a high security glass cage. Silva, looking dapper in a white linen suit, sits on a chair, and tells Bond of his ordeal. A former agent of MI6, Silva was captured and traded to the Chinese. In a suicide attempt to elude torture, he bit on a cyanide capsule. He survived, but the poison ate away at his mouth, upper jaw, and a part of his eye socket. To show the damage the cyanide caused, he slowly pulls out the prosthetic that keeps half his face intact and reveals a horrid, nightmarish face.

## For the Silvas of this world

In the life of Fried Vancraen, there are many Raoul Silvas – individuals who have suffered severe disfigurement caused by car accidents, shootings or disease. Unlike Silva though, these people are real. Fried is the CEO of Materialise, one of the world leaders in additive manufacturing services – sometimes known as 3D printing, a new technology at the forefront of many medical innovations, including, cranio-maxillo-facial reconstruction surgery, similar to the one Silva had done on his face. Radical facial surgery owes much to 3D printing, because surgeons can basically reconstruct a part of the patient's skull or jaw using this technology. With 3D facial scanner data, surgeons can now have companies like Materialise produce a replacement part of a skull or jaw. Using the same technique, Materialise can produce 3D models of the head of a patient to allow surgeons to prepare in 3D the complex operations needed to remove a tumor that is deforming the jaw or the skull.

Cranio-maxillo-facial surgery is only one of the applications of a technology that has evolved rapidly since Fried created Materialise in 1990. Ten years ago, the idea of producing a prototype of a new tool or mechanical part through a 3D printer sounded futuristic. The machinery still has that feel: behind glass doors, layers and layers of thin powder are put

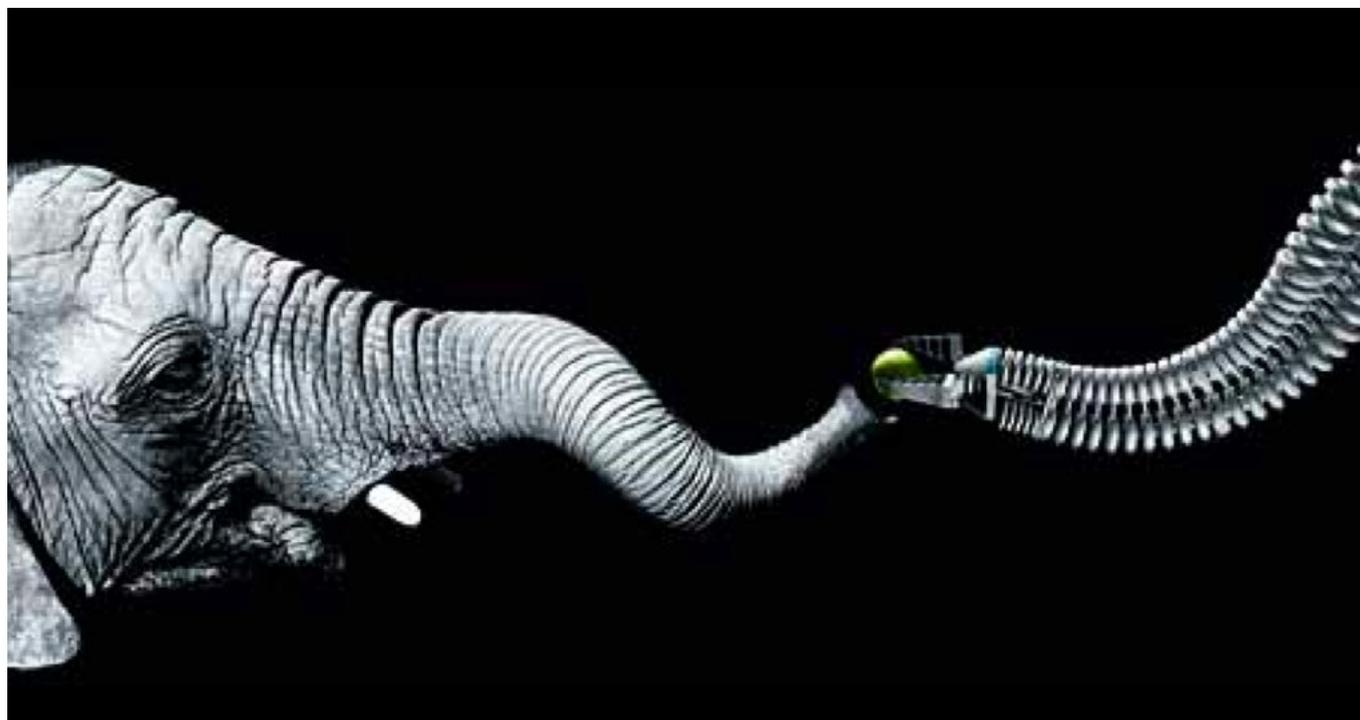
in place gradually. In minutes, a shape appears. Heat solidifies the shape, and the most intricate object – complete with fully operational moving pieces – appears. Today, any designer knows he can take possession almost instantly of the exact prototype version of his fashionable fruit crusher, the delicate hinge of a Maserati door, or a set of interwoven designer bangles.

Originally called “rapid prototyping”, 3D printing has gradually gone beyond prototypes, to producing high added-value short series, or pieces modeled for a single person.

In dental surgery, dentists now order 3D-printing implants routinely, with their patients benefiting from a precision that manual work can hardly achieve. In orthopedic medicine, surgeons use 3D printing to craft replicas of the bones they will work with, and prepare implant material. In the automotive industry, high-end brands leverage the flexibility of 3D printing to produce some of the parts of their most exclusive car series.

But as yesterday's futuristic applications become the standard, today's new applications inform tomorrow's. For instance, hearing aids are commonplace today, and yet are often imperfectly adapted to the patient's ear. The most recent technology allows embedding complex sound electronics into a tiny shell modeled precisely to the patient's ear – suppressing vibrations and discomfort. Tomorrow's hearing aids will be done through 3D printing – just as all joint replacements.

And it continues: producing 3D models combining different substances offers new possibilities, as objects combining softer, flexible parts and hard pieces will be produced in the same machine. These new objects are today's exceptions – they will be tomorrow's everyday reality.



## More than just a high-tech leader

Materialise was born out of a failed dream to work in Africa, where Fried's wife Hilde, with her qualifications as an agronomic engineer, could also contribute to development programs. The couple searched a long time for a place where both could be employed - but had to give up: Hilde's specialty qualified her for a job in the countryside, while Fried's landed him offers in the city. Refusing to live far from each other, they finally gave up, staying in their native Belgium instead where Fried in turn set up his own dream for independence.

Fried trained as a biomechanical engineer. He lives and breathes technology yet he is no techno freak. He talks about his work in a soft, almost hesitant manner and with almost manic modesty, exchanging glances and comments with his wife, Hilde, who has worked with him at Materialise almost since it started. There is passion in how they work, but it is hardly the type you would expect from the CEO of a high-tech company.

There are other sides to the business of Materialise, aspects that nurture that passion. In Kiev, Materialise supports surgery projects that allow children with malformations due to the Chernobyl nuclear pollution to walk and play again. In Iraq, it supports surgery projects for victims of war, couriering skull parts overnight that will be implanted on a wounded child the next morning.

"We arrived in Iraq almost at the same time the Americans did and we've worked with the US army," explained Hilde.

"But only to heal, we refuse to take on work that has to do with weapons; we are not here to shoot people."

So Fried and Hilde are on a journey - a journey to build a company, as much as a journey to make a difference. But can both really co-exist?

## A better and healthier world

Materialise has been a purpose led company from the start. At the birth of the company, Fried had already defined a mission statement for Materialise and stuck with it.

He defined it as follows:

*“Through our activities we want to contribute to a better and healthier world. We believe we can do this by innovating product development. Our software know-how, hardware infrastructure, and in-depth knowledge of Additive Manufacturing help us realize this mission”.*

This mission statement was sometimes reworded to better reflect the naming of its technologies, but fundamentally, it remained the driving force behind the growing Materialise team as years and decades went by.

## Caring for a world with more of a personal touch

Of course, Materialise is more than Fried and Hilda. It is a daring but caring company of nearly a thousand people in 14 countries across Europe, Asia and the Americas. This group of engineers is socially more engaged than most groups we have worked with and they value the fact that their company acts with social passion and practicality. They are proud to tell the story of how their company went into Iraq to help war victims, having no idea on how they would be able to provide their services in these war-like conditions: they found the ways, and five years later they are still there.

At a point in their development, they lacked the narrative to connect the dots between ‘who they are as a group’, ‘what they provided as a business’ and ‘why it made a difference to the world’. They knew that they had the ability to make products “to the power of one” without

the costs required to do so with the traditional ways of making goods. They knew they were on a mission to contribute to a better and healthier world. But they struggled to imagine what this “better” could be, and how their day-to-day efforts contributed to it. Fried asked us to help give wings to their purpose.

Talking to the people at Materialise, we realized that what they needed most was a story, and an identity idea that could represent the best of who they wanted to be. They constructed their identity as high-tech engineers. The narrative of their company was about opening new possibilities. That identity and that narrative conflicted with their purpose.

To change that, we helped them change their focus, shifting away from the world of technology to the world of the people for whom these technologies made a difference. By letting them feel and imagine the possibilities of how they could create value for people as people, by getting them to apply more human logic to their business instead of applying business logic to people, we helped them express and leverage the bigger impact of their business on a human level.

With them, we imagined a world where doctors can be better doctors because they heal patients with more of a personal touch.

We imagined a world where designers can engineer better products because they create solutions for individuals with more of a personal touch.

We imagined a world where people can share the best of themselves because they create objects and gifts with more of a personal touch.

We imagined a world where companies can better serve and support their customers because they bring products and services to market with more of a personal touch.

If Steve Jobs wanted to change the world by empowering creative individuals with the same computing power that big companies have, or Bill Gates wanted to give more people the right tools to make them and their organizations more productive, Fried and the people of Materialise wanted to liberate organizations, professionals and individuals from the constraints of mass production that forces us to be the same. They wanted to give them back their ability to design and produce objects that serve every individual better, because they are made specifically for the individual.

Whether in the domain of design, of medicine, or of fashion, they wanted to be the enablers of a world with a personal touch.

## A passport that recognizes the tribe

This vision of a world with more of a personal touch was an idea that was felt to be obvious in this culture of practical care. It represented what the people at Materialise valued but could not express.

Fried's engineering mind naturally wanted to put the purpose-idea of enabling a world with more of a personal touch into an objective, a goal, or as he refers to it as "Big Hairy Audacious Goal - BHAG". Where people just moments before were inspired by a meaningful purpose-idea, they now had to step into a counting game. Fried feared that letting this purpose sound too poetic, or just like empty words, would not get people to commit to the purpose, so he set a BHAG of materializing one billion cases of 'real personal touches' by 2020. In one decision, he moved people from a world of possibilities to a world of measurement.

Was that better?

In 1965, Intel cofounder Gordon Moore wrote an article noting a trend in microchips. His observation, popularly known as Moore's law, stated that the number of transistors on a chip would double approximately every two years. Moore's law is not really a law at all. It's an uncanny observation that some would suggest has driven the entire tech industry and remained true to prediction for over thirty years. But many believe, like Moore, that the prediction became the industry standard only because scientists used it as the measure of competitiveness, creating a self-fulfilling prophecy.

Fried, by putting his vision in numbers, wanted to nourish the ambitions of his engineers. He wanted to make their story clearer, feed a sense of identity in them that would bring to life that vision.

An identity purpose allows a group to know what they stand for, and it has the capacity to energize the members of the group in service of a common purpose: it offers them both a sense of collective self-belief, and a collective to believe in. As the Mandela story already suggested, forging new, shared social identities has the power to motivate the collective forging of new worlds. Having a sense of "tribe" matters, and Fried sensed this.

As typical makers, Fried and his team created a Materialise "passport to a world with more of personal touch". A passport filled with personal stories that represented and brought together the group. It documented the things that mattered to them, and gave tribute to the group. Fried is a charismatic leader, and very much the soul of Materialise. But the passport is not about his heroic work: it is about the struggles and triumphs of the group.



## Co-creators without borders

The “better world” exercise helped revive Materialise’s belief in their values and ways of operating. As an engineering group it strengthened their common convictions of loving challenges, of being committed as individuals and as a team to making the impossible possible, and having the common sense to get the job done. They are an anchor company who can be counted on to support companies and individuals to innovate and get the job done.

But to let this revived sense of “we-ness” be more effective in achieving the mission and purpose of the Materialise company, they needed more than language and stories. They needed to find new “formats of doing”, new ways to embody their purpose into action.

This “format of doing” we discovered together when one of the business unit called Additive Manufacturing Services [AMS] called upon us to help them find relevant ways to position their services within a new context.

Up to that point, 3D printing was mainly about prototyping, but their technology had advanced so much that it could be applied within the context of direct manufacturing. In other words, 3D printing could be used for production in small batches.

This had proved, however, a difficult sale.

Obviously we suggested going with Fried and his team to their customers to take part in their discussions with some key potential customers. After visiting several customers, the problem started to be clear.

The Materialise people would demonstrate to clients the unbelievable promises and technologies of 3D printing, but the more they showed, the more resistant the engineers on the other side became. The problem was not that no one saw the potential of this technology within the context of manufacturing; in fact all parties could see the potential of AMS in producing final parts. What Fried’s team could not see was that they were forcing their clients to challenge everything they knew about production methods, and asking for their nod. The people of Materialise were asking production engineers to embrace their culture, rather than weaving Additive Manufacturing into the culture of the people they spoke to.

These discussions were going nowhere, so we suggested a change of strategy.

We proposed a challenge to the engineers on the customer side. We would have them identify the practical possibilities of the technology, instead of defending their customary practice. To do so, we asked them not to think of AMS in the context of their products, but in the context of their colleagues or even other companies. We asked them to become co-creators of applying 3D printing possibilities for others. It was pushing them to make a switch from reason to imagination.

Inventing a good challenge – imagining it, naming it as such – is in many cases more effective than bringing a solution. People create a solution, rather than buying into a good one. We asked the participants to swap roles and outlook. We asked them to inhabit a new identity – not just any identity, but an identity of solution crafter that both parties identified

with and deeply wanted to engage in. We asked them to give the engineers on the other side what the Materialise engineers valued most.

As engineers and individuals, they needed to solve problems, not just evaluate solutions. This opened their imaginative scope and their capacity to empathize.

For the people of Materialise, it was also an imaginative switch. To take the role of their clients, they had to step into their ways, their language, and their culture. That switch would give them the ability to weave their propositions into that culture.

This is the magic of empathy and imagination. Each of us comes with body-swapping goggles in our brain. Batteries included. It's all about using them.

The results were amazing: in a matter of minutes the conversation changed in scope and tone. The Materialise team stopped talking and started listening. The team on the customer's side of the table who were digging trenches of defense and building mountains of critique just moments before, suddenly saw promise and possibility everywhere and could not even imagine a future without the possibilities of using 3D printing technology in manufacturing. All participants were imagining a better world of manufacturing, considering the wider environment of possibilities in a context where no conventions were sacred anymore. They stopped battling it out to prove to each other they could improve manufacturing as is, but together they were painting a picture of a future they wanted to contribute to, and help others contribute to. In pursuing that goal, they were simply better able and willing to question and reinvent everything; including the way they did manufacturing in their own environment.

This switch of imagination sparked a totally new way for Materialise to approach potential manufacturing customers. Clearly a broader base of engagement was needed on both sides of the table. The company needed a friendlier format to discover how the possibilities of 3D printing technologies could be applied beyond the more traditional context of prototyping and within the context of production. Both contexts, prototyping and manufacturing, are constrained by a culture and by conventions that needed to be re-considered to allow for

creativity and innovation. Every creative journey starts with a problem or challenge, but Materialise needed to move beyond the borders of their own company and product realities to engage in the culture of the people they talked to, and become part of that culture.

Based on the positive experience of Fried's team when they swapped roles during the customer meeting, we went further, extending this experience to engineers from several companies who were interested in the possibilities of 3D printing in manufacturing. Not only did we bring them together, we got them to work on each other's problems. It is amazing how much easier it is to find opportunities for new solutions when we do not have to find them for our own products or within our own contexts. Distance allows us to slip off those mental handcuffs because we worry less about the outcomes. We are freer to unleash the full capacity of our creativity together.

We designed work sessions where people from different companies (or different departments or business units) came together to improve each other's product solutions using 3D printing possibilities. We referred to this process as "Co-creation Without Borders". We took great care in placing the participants in an open and trusting environment where they could all be heroes of invention. We separated inventing from deciding. We dived into the realities, the culture and the language of the people we worked with. The engagement and the willingness to commit as people and as customers grew. In fact, these co-creation sessions became the key approach at Materialise for converting prospects into partners. It was not just a rebranding of an existing practice, but a new format for working together and building trust with customers, turning them into partners and co-creators.

A new Materialise practice was born.

## Another way of enabling meaningful growth

With Materialise, we realized we could not “teach” anything new: All we could do was enable the people we worked with to see the human side of their business better, and help them define a purpose of greater relevance for their customers and their employees. We helped tell their tale better – a tale that could touch the person in every client or employee. We helped bring to light a purpose that could transcend the boundaries of their expertise or their industry. As Peter Drucker says: “If you want to know what a business is, you have to start with its purpose, which must be found outside the business itself – in society, since a business enterprise is an organ of society.” But with Fried’s team, the purpose was already present – even if at a latent level. What was critical was to give it wings to fly.

For us, Materialise was also an occasion to redefine the way we engage with the people we work with. Marketers and business people – or people in general – have always wanted “magic, mystery, and authority” from their gurus and guides. This is human. When we desire magic, mystery, and authority, we are comforted by the thought that there is a wise and omniscient figure to help us out, and as “occasional gurus” we must admit that we liked to be put in that role.

But to create value for people requires more bravery. We have been lucky to work with many business people who put all their passion in the quest of making their brands and their businesses relevant on both the practical and human levels. They helped us realize that being wizard-like is fine up to a point, but that we as helpers were more effective if we become fellow travellers, joining them on their journeys rather than offering ready-made solutions.

As fellow travelers our task is at most to help our clients to remove obstacles blocking their way to realize their own potential and make a contribution to a better world. Be it a more “Live Positively” world for Coca-Cola, a more caring world for Johnson & Johnson, or a

world with more of a “personal touch” for Materialise. These visions of a better world can feed the better wolf that is within each of them... and obviously we believe that the better wolves will perform better in the marketplace.

Another way of crafting brands and doing marketing requires not only that business leaders and marketers feel, think and do differently, but also that the consultants, helpers or guides they call upon think, feel and behave differently.

This journey together did not only build a great friendship between Christophe and Fried, it also led to the start of a new company. A company called Africa Drive, a company that aims to unlock more entrepreneurial potential in Africa, by improving the mobility of people in the more rural parts of the continent.

The joint desire of Fried, Christophe and many others, to bring back business to its basics, to create value where it matters more and their proactive ambition to use the machinery of business to create both business and social value sparked this new venture. Africa Drive operates in Africa under the brand “The Baobab Express” and it is a business built to be social by design and socially innovative.

It is one more pair of new wings to Fried’s purpose.