# ‘Our biggest strength might be our lack of specialisation’

**Patrick Gailer**, Managing Director of Phil-Vision and its Chief Vision Design Officer, on the spectrum of opportunities the company has and the competitive advantage that offers

What vision integration services does your company provide and in what sectors?
That’s a difficult but easy question. We’re only seven years old, and we are continuously changing. We started with pure integration – doing a lot of software – but we saw that we needed hardware to deal with solutions as well. I would say that, today, the most interesting service for us is really doing subsystems. There are bigger machine builders who want an advanced vision system in their machines, but aren’t capable of providing that. So, we provide a subsystem that is very integrated, very connected to communication, and very adapted to speeds and needs.

In terms of markets – this might be our biggest strength, but we don’t have a specialisation. The only thing I can say is we try not to get into the automotive market – all the rest, we do. I would say we follow trends, but there’s no fixed market. We do a lot of electronics, but we also work with money, food, print, parts of this new battery sector – pretty much all markets that need vision systems. We are a highly engineering-driven company, so we can tackle complex projects. We love to do easy stuff, but no one wants us to do that! Usually, we end up doing the challenging stuff, such as resolution. If you do a visual system working at 17 metres-a-second, that’s the kind of thing we handle.

Would you say that this is a unique position to be in? Do you find your competitors tend to specialise more, or is it common for organisations such as yours to have such a broad range of market sectors?
Well, like I said, it’s not perfect. It comes with scale, and we will change – this is changing. Maybe starting back again, the history of Phil-Vision – we’re not as young as we look. I’ve been in the market since 1999, and I’ve seen all the big guys. I saw how Vitronic, Viscom, and Basler all started: most started as integrators. They found that special project and then specialised.

For instance, Basler started doing CD inspection, and when it couldn’t get the cameras, it developed its own and went into the camera market, and now it is one of the leaders. Viscom started with postal sorting and now leads in motorway and vehicle inspection. All these guys were small integrators with specialties that grew. We haven’t found our specialty yet, but being in this floating phase allows us not to have a lot of direct competitors.

We know the competitors we do have, but we never interact with them. If there’s a system on the market that already works, we say: “OK, we won’t copy it.” There are two reasons people come to us: either the existing system has a flaw – it doesn’t work fast enough, it doesn’t look good enough, or it’s not cheap enough – and we may be able to change something; or, we may say the system works fine. We only come to the market when there’s still something missing. And the cool thing about vision systems is that innovation never stops. Since 1999, people have constantly come to us saying: “I want to solve this, and no system exists – can you help me?”

Do you handle projects all the way through, from consultation to installation and ongoing support?
There are machines – let’s say this is the most difficult part for a small organisation. Especially now, things are changing a bit in our favour again. Of course, the market has its phases. There’s a lot of invention needed right now. The automotive market is currently reinventing itself, and many other markets are changing, so there’s a need for more automation if you want to survive in Europe.

People in certain jobs, such as quality control, don’t want to do repetitive tasks anymore, and companies are losing that expertise. They want AI machines to gather that know-how before it’s lost because they believe the next generation won’t have it. This is the part we’re dealing with – it’s changing.

Regarding your question about project scope, when one of our customers is building a machine, they often don’t have the people for ongoing support. Even though we consider ourselves smart people capable of engineering, second-level support, and maintenance, we can’t handle first-level support. It’s the customer’s machine – they have the organisation. But even then, they often don’t have the people, so we end up helping with first-level support. Usually, we’re involved at the second level, handling maintenance, integrating new cameras, and adapting to changes such as when you can’t get a camera due to a situation such as Covid, we design another one. That’s usually what we do throughout the lifecycle of our customers.

What work have you done in the past few years that you believe qualifies you as an IMVE ‘visionary’? Can you share an example of an innovative solution that you’ve worked on?
We work a lot with NDAs, so, with 90% of our projects, we’re not able to disclose them. But we have accumulated some that we can talk about. One example was stopping windmills when birds of prey are approaching them. The technology, especially in Germany, is still interesting because we want to have renewable energy, but there are people who don’t want windmills, especially in Germany. In Germany, there’s a concern that if a bird is killed by a windmill, it’s a big issue, so this project was about not stopping the windmill for half a year when birds are in the area, but just stopping it when a bird

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of prey is approaching. We had a camera system looking 360 degrees, able to see up to 500m, and we could even predict if the bird was approaching or just passing by. This saved 100,000 euros. Unfortunately, our partner didn't want to continue, and since it stopped, the project stopped as well.

I think one that's much cooler is in the house manufacturing sector. In Germany, we build a lot of prefabricated houses based on a wood frame. The walls are built in a highly automated production process, where you can build a house in three days. But the challenge is that each wood frame is unique, designed specifically for the house, and you have to place them with extreme accuracy. If you turn them even by a tenth of a degree, it can disrupt the entire process. We developed a 3D system to ensure that these walls, which are stacked on top of each other, are placed with an accuracy of 0.1mm. This has completely revolutionised the process, but it's slow to roll out because you need to build a whole new production plant for it. Our customer is a big one, but still, you can only do one or two per year.

We have many such projects. One involves producing startup coins; we're the only ones able to do quality control within the stamping process. Another project we're starting is with a startup. They used them a lot for medical products, for coronavirus, when you want to have minus 80 degrees Celsius boxes to transport your vaccine. These boxes are not very ecological because they're often single-use. Our customer wants to stop that and reuse them. We have a system that controls these boxes. This market is just emerging; it doesn't even exist yet. We try to be in these emerging, innovative markets to help our customers become market leaders.

The problem is we can't do it twice, and maybe that's our fault. Once these customers are paying us, we build a system, and we have an agreement not to go to their competitors. Because we're already working with these guys and have agreed not to go to competitors, we have to find different markets to do that again.

**When dealing with a new end user, how do you deal with expectation management in terms of what a vision system can do?**

That's the most difficult thing in our market, and honestly, I don't have a good answer for that. Customers come with big expectations because they know what their mobile phones can do, such as detecting the difference between cats and dogs. But then they come to the industrial market and don't realise that these consumer-level technologies aren't available here.

That's the most difficult thing in our market, and honestly, I don't have a good answer for that. I can give you the answer we're using, but it's not a perfect one. Customers come with big expectations. They know Google; they know mobile phones. They say, "My mobile phone can read everything; it can distinguish between cats and dogs. Everything is feasible; it doesn't cost anything." Then they come to the industrial market….

First, you have to explain to them that all these gimmicks don't exist in our market. When we do something, we ask "do you want to share your data with everybody else?" They say, "No". So we have to work with data that belongs to a customer, and we can't take it from everyone else, like Amazon, Google, and Facebook do. They're giving it for free because they took all the image data from everyone else.

If you want to do that on a smaller scale, on this specified product, we start from scratch. We have the algorithms, but we

have to train them from scratch. Mobile phones are built in variants and exist for two to three years. We're talking about maintenance. I'd be happy to use it, but we have to agree on a lifetime because, every two years, we redesign the system. But if you're ready with the system, the cameras are not existing anymore because they're not produced. The chips, such as in a GoPro, can do image processing; but if you want to buy them, you have to buy them in quantities of 100,000 per month. No one in our market, not even Basler – the biggest company in our market – has that volume. You don't get these chips.

You have to start with what's feasible. It takes longer and does require more development. The system isn't existing; it's development, and development is absolutely unpredictable. We can say: "Okay, we did this, and we have that experience," and, hopefully, we're one of the most experienced companies in the market. Still, we have to develop, so it always takes a bit longer.

We try to explain this to the customer, and they say: "Oh yeah, no problem, we can do that." But in, let's say, two thirds of the projects, you always reach a point where things aren't working as expected: where it's not fast enough, and people underestimate the work involved, such as the number of images you need.

In production, the product range they have is more diverse. For example, coins – you think they're all the same but, if you look with a camera, each coin is different. Then you have to find the significant difference between the differences. We need the customer, we need the experience, we need the production, and only then can we make it happen. We also need our machine builder to be involved.

This is the tricky part: where they all then see how difficult it is and how much they are both involved. It's not just us; it's the whole system, including the mechanical part. Once they see this, then you have them; all expectations fall off. They understand, and it gets easier again. But we have this curve in about two thirds of every customer, and they have no idea. We can get smoother, and we're getting better at that, but it's always a hurdle and I have no idea how to overcome it.

### What are your pain points in designing and sourcing vision components and systems?

I would say this is our strength. I mean, you're always missing something, but we're really deep into the network. We know what's feasible. Even the things that are not feasible for us, we know them, such as a GoPro Smart Camera.

That technology is usually not accessible for us. I can explain, "Okay, this is feasible; this is the technology we can get." But usually, they say, "Okay, billions we don't have. Let's start with what is feasible." Then you look at whatever is available. We can also build cameras from the sensor; we help customers to OEM-ise these things.

I've been to most of the production lines of camera vendors – the German ones, ADT, the Canadian ones. I know what they can do; and I know most of the engineering in the market.

### Has the supply chain affected your operations, particularly after the pandemic?

The funny thing is, we weren't hurt by the difficulties because you always got vendors who could deliver. It was the big ones, the stock market guys, who didn't seem to have stock. But the smaller ones – the 1,500-employee companies – had enough stock. So what we did, we redesigned the camera, the SDK, for our customers, and they changed the camera.

We had delivery times of about two to three weeks, so it was perfect. Right now, just two months ago, I would say it's increasing again. It's increasing finally over all components. We see it in the cameras, we see it in the cables, we see it in the PCs – we see it everywhere. I hope it's a good sign because the market is ramping up; it's happening again. The funny thing is, no one learned anything. In coronavirus, everyone said: "Okay, we have more stock; let's produce in our countries," and then they didn't.

### Where do you now see the greatest opportunity for Phil-Vision in terms of the market sector?

We try to build something unique, but it's difficult to phrase. One key aspect is that while many companies try to integrate finished vision systems themselves to save costs, these systems, although improving, still have limitations. They're not fast or advanced enough in some areas. We encourage customers who are facing challenges with off-the-shelf systems to come to us earlier in their process. The earlier that you involve experts like us, the less expensive and more effective the solution will be.

In terms of market direction, it's getting clearer, but we don't have a single clear market direction yet. So not in the next one or two years...

### What is the biggest challenge for Phil-Vision over the next 12 months?

We hope that innovation will continue to be strong. At the moment, things look extremely good with a positive outlook for the rest of the year, but we can't be certain. During the coronavirus pandemic, there was a noticeable drop in innovation. Typically, in an economic downturn, companies keep their engineers on board to work on the next generation of systems, even if it's costly.

But, during Covid, nothing was invented. When the economy picked up again, engineers were busy maintaining production instead of innovating. This delay, especially in sectors like automotive, has put Europe at a disadvantage. The Chinese are now ahead, and European companies are playing catch-up. Innovation must stay strong if we want to elevate to the next engineering level. Otherwise, Europe will face tough times.

### Given the uncertain economic climate, how have you found working with vendors? Any advice for them?

We're quite happy with our vendors overall, but the supply chain is always a concern. Companies are being acquired and shareholder interests often lead to emptying stock, which is dangerous. It doesn't take much – like some ships stuck in a Chinese harbour – for the whole system to falter. In these times, we rely more on smaller, independently-owned companies because they can deliver consistently. Innovation in this area is fine, and we're happy with that.

### How does Phil-Vision typically find business opportunities?

It's a different approach for us. We try to be very broad because we haven't identified a specific pattern. We need to be found by those seeking what we offer. You can't just cold call everyone, especially in our industry. When a company needs a new innovation and realises vision is the key, they need to find us. We rely heavily on the web and social media and try to be as broad as possible.

### Are you a member of any industry associations, and if so, how do they help you?

I like the EMVA, but it's mainly focused on marketing. Unfortunately, it doesn't help us much with acquiring new business since it's mostly vendors, and we already know them. The real challenge is that most platforms – magazines, MBAs, LinkedIn– are filled with competitors and vendors, not actual customers. Some of the magazines, for example, are for very specific vertical markets, and this is our difficulty. We are not in vertical markets, so we don't have the money to invest in all of these, but this is really the problem. We don't access our customers. Finding a platform to connect directly with customers can be, we find, extremely difficult. i