

## A Prescription for Change

*How Lincare is leveraging the power of digital and data to upscale its homecare services.*



Last year (yes, that was 2019), one study reported that [90% of the US healthcare sector still relies on fax machines](#) when it comes to communication. It's a statistic that Crispin Teufel, CEO of Lincare – a U.S. Linde subsidiary and the nation's leading provider for respiratory care in the home – knows all too well. “We process around 15 million of them a year,” he explains. That's along with 30 million phone calls and a total of 60 million medical records. A staggering volume of transactions indeed but what is required nonetheless to provide oxygen and other respiratory therapy services to its 1.7 million patients.



**Crispin Teufel**  
*CEO of Lincare and a man  
with a digital vision.*

“When you're talking about working through that many touchpoints and data points, you really need to be thinking about how to constantly ensure the best quality of patient service. You have to be thinking about digitalization,” says Teufel. “That's why, in 2018, we started working intensely with Linde.Digital in 2018 on top of our own – newly created – team of digital and process experts.”

It's a partnership that may, on the surface seem mismatched. Linde.Digital is Linde's very own global digital transformation team; a collection of data-hungry, AI-savvy, ardent technophiles sniffing out opportunities to create value by applying the most modern technologies like machine learning. Meanwhile across the pond, Lincare is operating in an industry that leaves a devastating paper trail as it goes about its daily business: payment from patients or insurance companies often still by check and prescriptions written on paper pads.

Couple that with the antiquated communication technologies previously mentioned and the whole scene isn't exactly screaming “digital.” It is however, crying out for transformation – something Teufel immediately recognized and started as soon as he joined the company back in 2013 as CFO.

## Taking baby steps to digitalization.

“Being a CFO, I was always aware of the value of data and the role it plays in steering the business,” says Teufel. “The problem was, the data wasn’t digitized.” Indeed, the business was built on the manual screening and processing of what became mountains of medical records. “I’d walk into a billing office and two thirds of the space would be occupied by massive storage bins of paper with our employees working in the limited remaining space!” Teufel recalls. Clearly, some initial transformational steps needed to be taken to even reach the start line from which Lincare could race into the world of data and AI together with Linde.Digital.



*Working united with the Linde.Digital team to reduce the amount of paper files and work smarter, not harder.*

Baby steps ensued to ensure that any paper entering the Lincare world was immediately digitized where possible, including checks using banking lockbox technology and physical fax machines being replaced by e-faxes. “These early successes had a knock-on effect in the business,” explains Teufel, “Within a few years, we’d caught up and laid the foundations on which we could begin to think about more advanced data-driven practices. We had a modern Enterprise Data Warehouse, interactive data visualization software introduced across the board and a dedicated team of analysts.”

That said, Lincare could not yet find a way to summit these mountains of medical records. They needed accurate digitization if they were to be mined for data but conventional Optical Character Recognition (OCR) technology from vendors at the time just didn’t meet the desired accuracy threshold. Enter Linde.Digital.

## Getting the taste of blood.

“When we approached Linde.Digital, it was at a time when I had read about some technological advances in the area of computer vision,” explains Teufel. “Dexin and her team suggested a solution and once we tasted the blood and knew what was possible, we knew we wanted more!” Teufel refers to Dr. Dexin Luo, Head of Artificial Intelligence Solutions & Technologies at Linde.Digital, for whom there was also a taste of blood:

“At the beginning of the project, we tested solutions on just a few documents and within only a few days we had some ideas about what could work when it comes to leveraging AI in mining records – so we went back to Crispin pretty excited about the transaction volume,” says Luo.

From this point on, one conversation led to another before the two teams were sitting down together scouring the Lincare business model for more opportunities to add value. “We now have several projects on the go in exploring how we can use AI technologies such as computer vision and natural language processing to enhance operational efficiency and responsiveness or even patient interaction and engagement,” explains Luo.

## A meeting of like-minded “doers.”

Digital transformation is not about the technology; it’s about a mindset. So goes the mantra of Linde.Digital. In this collaboration, Luo not only sees a playground for data-driven solutions and AI technology but sees in Teufel a partner who is willing to play. As Teufel puts it: “We’re open to trying out new things. If it doesn’t work, it doesn’t work, let’s move on. But if it does work, let’s dive deeper.”

It’s music to the ears of Luo and her team who don’t buy into the white elephant approach but rather applies innovative technology in an iterative way: “In AI, we’re in the innovation space - you have to move fast. If you don’t, the moment has passed.” What’s more, both sides are learning as they go: “We can take what we learn from Lincare and apply it in other areas,” says Luo, while Teufel has seen the collaboration as a “driver for upskilling” within his own data team.

In a way, Lincare was always data-driven. But gone are the days of a thousand-page book of historical Profit & Loss data landing on Teufel’s desk to keep him busy for the following days. Through digitalization, Lincare is set to benefit from the opportunities that cutting-edge technologies like AI present. “With AI we can improve traceability, responsiveness and reliability across our business as well as increase patient engagement, amounting to a better customer experience overall,” says the CEO. And in relating this to Lincare’s bottom line, Teufel borrows from Bill Walsh’s famed leadership book that he happens to be reading: “Well...the score takes care of itself.”



*Sorting through the tremendous amount of data digitally for analysis downstream.*

## **About Lincare**

*Lincare is the largest U.S. provider of respiratory care in the home with a broad geographic reach, offering an extensive portfolio of quality products and services: Respiratory Therapy, Sleep Therapy, INR Testing, Nebulizer and Respiratory Medications, Enteral Therapy, and Durable Medical Equipment. Lincare's mission is to set the standard for excellence, transforming the way respiratory care is delivered in the home. We are inspired by a vision to enable patients with chronic conditions to remain engaged in life, with the peace of mind that we are caring for them. Visit [www.lincare.com](http://www.lincare.com).*

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## **About Linde**

*Linde is a leading global industrial gases and engineering company with 2019 sales of \$28 billion (€25 billion). We live our mission of making our world more productive every day by providing high-quality solutions, technologies and services which are making our customers more successful and helping to sustain and protect our planet.*

*The company serves a variety of end markets including aerospace, chemicals, food and beverage, electronics, energy, healthcare, manufacturing and primary metals. Linde's industrial gases are used in countless applications, from life-saving oxygen for hospitals to high-purity & specialty gases for electronics manufacturing, hydrogen for clean fuels and much more. Linde also delivers state-of-the-art gas processing solutions to support customer expansion, efficiency improvements and emissions reductions.*

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