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Datlowe Case Study

MORAVIAN BUSINESS COLLEGE OLOMOUC

Datlowe s. r. o.
Case study

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INTRODUCTION

The use of artificial intelligence in healthcare has become increasingly popular in recent years. According to data from the Czech Association for Artificial Intelligence for 2024, some form of artificial intelligence is implemented in 64% of hospitals and healthcare facilities in the Czech Republic. The most common areas of its application include administration, diagnostics of X-ray and tomographic images, ophthalmology, dermatology, and preoperative surgical preparation.

Given the declining demographic trend of recent years, it is clear that the aging population will face a significant shortage of doctors in the near future. Consequently, the automation of hospital processes will be one of the key factors in maintaining the quality and accessibility of healthcare. It can be assumed that as the number of patients per healthcare professional increases, along with the associated time pressure, the risk of errors or overlooking potential complications will also rise. To prevent these situations, it will be necessary to implement artificial intelligence tools that will relieve healthcare professionals of some of their workload while simultaneously accelerating patient care.

Artificial intelligence holds the greatest potential in the processing and analysis of large-scale hospital data related to individual patients. A medium-sized hospital can generate an average of 3,000 standard pages daily regarding patients' health status and the examinations performed. However, this data is scattered across a number of information systems, often takes the form of unstructured text entries, and also includes complex laboratory results. It is therefore becoming increasingly difficult for healthcare staff to obtain a comprehensive overview of each patient without doctors having to spend a significant amount of time collecting, comparing, and analyzing hundreds or thousands of individual data points. With the growing number of patients and the shortage of doctors, this problem will become significantly more acute.

At the same time the precise and effective analysis of this data can significantly help prevent serious complications faced by patients in hospitals, such as nosocomial infections (infections arising in connection with a person's stay in a healthcare facility). Although specialized infection prevention and control (IPC) teams exist in hospitals, virtually no healthcare facility complies with the World Health Organization's recommendation that there should be one full-time IPC specialist for every 250 beds. Given demographic projections, this situation is alarming and underscores the urgent need for the automation and optimization of administrative processes.

The Czech startup Datlowe has decided to offer a solution to this challenge by developing an AI-based system capable of analyzing large volumes of hospital data and alerting healthcare professionals in a timely manner to potential complications in patients. The startup's goal is to provide hospitals with technology that improves the quality of care while simultaneously alleviating the daily workload of healthcare staff.

This case study focuses on the startup Datlowe, from its founding to its current operations and potential directions for future development. It provides a detailed overview of the smart solutions the company has developed for healthcare facilities and highlights their practical benefits and significance within the broader process of healthcare digitization.

1 DATLOWE STARTUP

The startup Datlowe was founded in Prague in April 2014 by Jakub Kozák, a graduate of the Faculty of Mathematics and Physics at Charles University, and investor Michal Jelínek, who also became one of the company's first investors. After completing his university studies, Kozák focused on data analysis, which he applied in the financial sector, among other fields. He also gained experience in the healthcare sector, having worked for several years on a project called the *Drug Encyclopedia*, which compiles information on medications in the Czech Republic and abroad. In 2019, in line with his professional background, he became the CEO of Datlowe. Later, Lenka Vraná joined the team as a product manager, and Radim Janda took on the role of customer satisfaction manager.

The Datlowe team with its founder Jakub Kozák at the front

From the very beginning, the startup's goal was to support the Czech healthcare system not only by improving the accuracy of diagnosis and detection of potential nosocomial infections, but also by alleviating the heavy workload and time constraints that healthcare staff face on a daily basis. Its founders therefore decided to develop AI-based software that would truly provide this relief in practice. However, it is important to emphasize that since its founding, Datlowe has repeatedly stated that its goal is not to replace human labor with machines. On the contrary, it considers the collaboration between technology and healthcare professionals to be the most effective approach.

Datlowe, which employs experts in data analysis and software engineering, did not aim to create a solution based solely on data and numbers, but rather a tool with a deeper understanding of

healthcare issues and the ability to assess real clinical risks. In developing its solution, the startup therefore collaborated with Charles University and Medical Valley in Nuremberg.

After several years of intensive research and testing, the startup's first software solution, called HAIDi (see Chapter 2.1 HAIDi), was officially launched in 2019 at the Jihlava Hospital. Its goal was to improve the detection of nosocomial infections in the hospital setting while reducing the workload on healthcare staff. Since then, the startup has undergone extensive development and refinement of its product and has gained a number of satisfied customers.

Datlowe's software solutions have become widely adopted across many healthcare facilities, not only in the Czech Republic (where they are used by hospitals such as Motol, Havířov, and Benešov), but also abroad. In Slovakia, users include hospitals in Trnava and Michalovce, while in Austria the system is used by the hospital in Ried. Currently, more than 50 hospitals use Datlowe's solution, and its software monitors more than 25,000 beds. In the Czech Republic alone, Datlowe covers approximately one-third of all inpatient capacity, and demand for its innovative technologies continues to grow.

In addition to positive feedback from satisfied clients, the startup Datlowe has also recieved several prestigious awards. In 2020, it placed fifth in the Idea of the Year competition and was also named the overall winner in the Technology Project of the Year category. As part of the prize the company was given the opportunity to present its innovative HAIDi concept at Arch Summit, a major international conference for tech startups in Luxembourg.

After launching the HAIDi solution, the company did not rest on its laurels but continued to innovate its product and explore new opportunities for its expansion. In 2019, Datlowe was selected for the Austrian accelerator program Health Hub Vienna, which supports innovation in the European healthcare system. This allowed the company to establish valuable contacts and gain a deeper understanding of the Austrian healthcare sector, which later facilitated its entry into the local market. The Commercial and Economic Section of the Czech Embassy in Vienna also supported the expansion into the Austrian market by helping the startup establish contacts with local hospitals.

In 2023, the HAIDi system obtained ČSN EN ISO/IEC 27001:2013 certification, which confirms a high level of information security and encryption. Such certification is crucial for working with sensitive data in hospital databases and has significantly contributed to increasing the credibility of the entire solution. In addition, the startup regularly participates in international conferences and healthcare trade fairs, where it presents its product and draws inspiration and insights from industry peers. In 2019, for example, Datlowe presented its HAIDi solution at the Collision conference in Toronto and at the International Federation of Infection Control (IFIC)

conference in Quebec. In the same year, the Datlowe team also attended the International Consortium for Prevention & Infection Control (ICPIC) conference in Geneva, Switzerland. Datlowe also regularly appears at prestigious DGHM professional congresses organized by the German Society for Hygiene and Microbiology and at ÖGHMP congresses organized by the Austrian Society for Hygiene, Microbiology, and Preventive Medicine. In 2023, the startup traveled to the United States, where it also presented its HAIDi product. In November 2024, Datlowe CEO Jakub Kozák presented the startup's innovative solution at the fourth annual Czech-Israeli Innovation Days focused on smart health.

Presentation of the HAIDi solution at the DGHM conference

In 2024, Datlowe introduced its second, long-awaited, innovative solution called MERIE (see Chapter 2.2 MERIE), designed to detect drug contraindications in patients. MERIE quickly built on the success of the first product and became an indispensable tool for many hospitals and healthcare facilities.

Datlowe is currently preparing to expand into new international markets. This effort is significantly supported by investor Tomáš Kolář, CEO of Linet, a company specializing in the production of hospital and nursing beds. Kolář invested in the Datlowe startup in July 2023 and became an 8% shareholder. This move was strategically very significant, as Linet operates in foreign markets across 120 countries worldwide. Kolář thus brings extensive experience with international expansion, which is exceptionally valuable to Datlowe. In September 2025, the startup officially announced its entry into the Polish market. Poland thus became the third foreign country, after Slovakia and Austria, to which Datlowe supplies its products.

At the end of 2024, the startup also secured a significant investment to support its development and international expansion from the investment firm 22 Hor Invest, founded by Radek and Pavla Horváth after they sold their company GeneProof, which specialized in molecular in vitro diagnostics of serious infectious and genetic diseases using PCR. In addition to capital and expertise in the field of healthcare technologies, they also bring experience in research and clinical practice to Datlowe.

In the summer of 2025, Datlowe became a member of the Czech Association for Artificial Intelligence, which allowed it not only to share its know-how but also to actively contribute to shaping an environment in which artificial intelligence is a natural part of everyday healthcare practice. Through this step, the company aims to help establish artificial intelligence as a standard in healthcare and to ensure that it supports patients and professionals worldwide on a daily basis. This intention is well reflected in Datlowe's motto: "We believe that improving even a single life by providing the right data to the right medical specialist at the right time is more valuable than the industry's unrealistic, overblown notions of transforming the healthcare system from the top down."

1.1 Startup Business Model

Datlowe's business model combines several different approaches. It is based on B2B (business-to-business) and B2G (business-to-government) models, targeting customers from among healthcare facilities and hospitals. Datlowe does not work directly with end patients and therefore does not employ a B2C (business-to-consumer) model. The main clients of the software are private healthcare facilities (B2B) and state or public hospitals (B2G).

Datlowe´s customers pay for access to the system, its deployment, integration, and ongoing use through licensing. This is a standard SaaS (Software as a Service) model, in which the software provider is responsible for managing the infrastructure, application, and data. This means that users do not have to install or maintain the software themselves. Under the SaaS model, a subscription is typically paid for a specific period (such as monthly or annually), which includes updates and technical support from the provider. This model enables Datlowe to generate stable and recurring revenue.

Another business model Datlowe relies on is the value-based model. The value provided by Datlowe lies primarily in automating data analysis, detecting risks, and saving healthcare professionals time, thereby helping to improve the efficiency of patient care. In this model, the higher price of the product is justified by the benefits to the clients, namely time savings, reduced error rates, and an overall long-term improvement in the quality of provided care, which often outweigh the initial purchase costs.

Datlowe also has significant ambitions for international expansion and is striving to expand its products beyond the Czech market. It is already operating in several hospitals in Slovakia and Austria, and in the fall of 2025, it also announced its entry into the Polish market. The smooth transition to foreign markets is supported by the features of Datlowe's technological solutions – HAIDi and MERIE. Both products can be easily integrated into existing hospital information systems, eliminating the need to implement new systems or purchase additional hardware. Another significant advantage is their flexible scalability, which allows for deployment in both smaller healthcare facilities and large hospitals. Each client can thus choose an individual solution tailored to their needs, which also significantly expands Datlowe's customer base.

2 DATLOWE PRODUCTS

The startup Datlowe currently offers two software solutions designed for hospitals and other healthcare facilities – HAIDi and MERIE. Both products respond to the growing need for the automation and digitization of healthcare processes. While HAIDi focuses primarily on identifying infection risks in hospitalized patients, MERIE is designed specifically to detect drug contraindications that could jeopardize patient safety. The two solutions complement each other: HAIDi supports clinical decision-making and provides timely alerts about potential complications, while MERIE reduces the risk of medication errors, thereby directly contributing to greater patient safety.

In the following chapters, both products will be presented in detail, covering their functions, benefits for users, and practical applications in a healthcare setting.

2.1 HAIDi

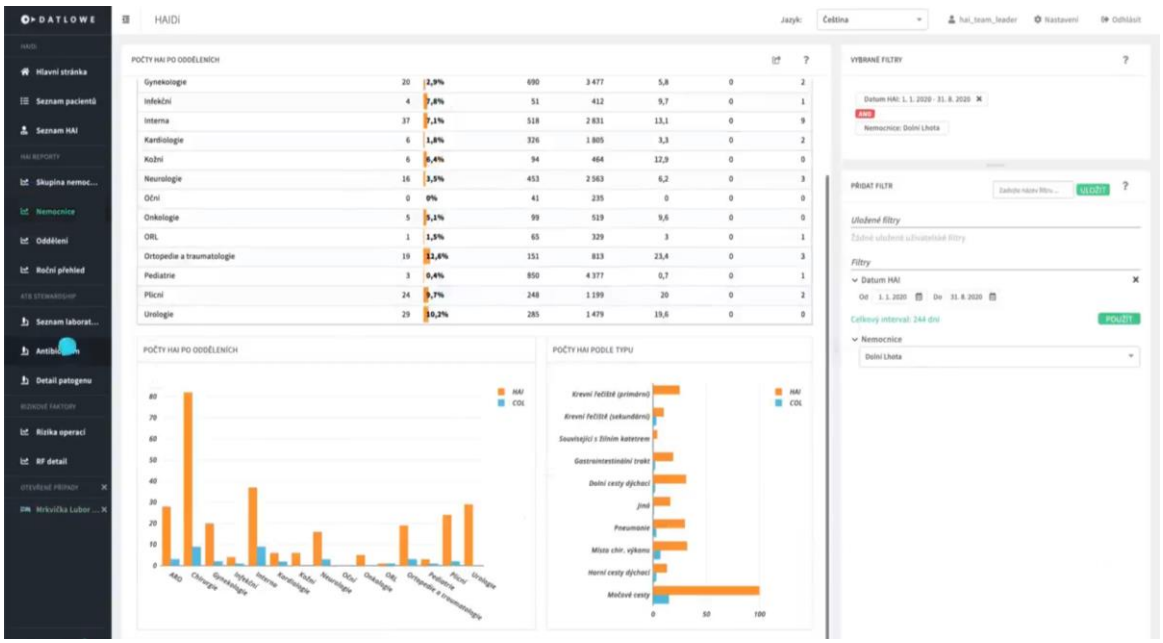
The HAIDi software solution developed by Datlowe was designed for timely and rapid detection of potential risks of nosocomial infections in healthcare facilities and hospitals. Nosocomial infections, also known as hospital-acquired infections (HAIs), are infections that arise in connection with a patient's stay in a hospital setting. These may include, for example, infections that also commonly occur outside of hospitals and were introduced into the healthcare facility due to a worsening epidemiological situation (e.g., influenza, COVID-19), and the patient becomes infected with them during hospitalization. The second category of HAIs consists of infections that arise specifically within the hospital environment in connection with diagnostic and therapeutic procedures (e.g., infections caused by E. coli, streptococci, or pseudomonads). This second group typically exhibits a specific patterns of transmission and is often resistant to standard antibiotic treatment, making it much more dangerous (especially for weakened patients after surgery, the elderly, or those with chronic illnesses). According to the European Centre for Disease Prevention and Control (ECDC), the actual incidence of nosocomial infections in European hospitals ranges from 5 to 10%.

Healthcare-associated infections affect tens of millions of patients each year, and their consequences include not only significant loss of life and prolonged hospital stays, but also enormous financial burdens for national healthcare systems and an increase in the prevalence of antibiotic-resistant strains.

The current hospital protocol for identifying nosocomial infections relies on physical observation, reviewing laboratory results, and generating analyses and reports. However, according to clinical data, this approach is not always 100% effective and is often inefficient. Doctors are not

infallible, and due to being overworked, they can easily overlook a detail. A clinical study found that doctors analyzing the risk of nosocomial infections identified less than 70% of all actual infections that occurred in their departments. Furthermore, 20% of all reported risks were misclassified and did not actually represent nosocomial infections. This implies that roughly one-third of infected patients slip through this screening process, and their infections thus remain undetected. In addition to the risk of errors, this process is also very time-consuming. Doctors must manually review thousands of pages of text to look for connections between individual patients and potential risks. By the time an infected patient is identified, the infection continues to spread and may affect other hospitalized patients.

Datlowe's solution, designed to detect nosocomial infections, aims to identify them at an early stage, before they spread. The HAIDi software analyzes all data from the hospital information system and other internal sources, which can amount to several thousand standard pages of text per day. The software collects all this data like individual pieces of a puzzle and evaluates it in accordance with internationally recognized criteria for symptoms of nosocomial infections. HAIDi reads and understands all medical records written by doctors and nurses and identifies potential healthcare-associated infections based on symptoms as well as indicators hidden in clinical notes. Patient data is then interpreted into an overview of potential risks associated with these infections.



HAIDi user interface

In addition, the software is constantly evolving through daily data inputs, thereby improving its ability to detect risks. If a suspected hospital-acquired infection is identified during the analysis of the hospital data, the software immediately alerts healthcare staff, who then professionally assess the situation. This process precisely reflects the company's aforementioned motto, emphasizing not replacing human work with machines, but creating effective collaboration between people and technology.

HAIDi system uses machine learning and natural language processing algorithms, which help improve the effectiveness of patient care, limit the spread of infection within the ward, and, most importantly, alleviate time burden on healthcare staff. Thanks to the system, staff can devote more time to urgent medical cases.

HAIDi analyzes laboratory results, temperature charts, and patient medical records on a daily basis and can identify potential infection clusters early on. This enables hospital staff to intervene before an infection spreads, while also helping to combat antibiotic resistance, one of the most pressing issues in healthcare today. HAIDi not only detects the occurrence of nosocomial infections but also identifies their causative agents. Using this technology, it matches resistant pathogens to specific infections, generates statistics for each pathogen, and displays the hospital's antibiogram for defined periods (i.e., overviews of suitable antibiotics or their combinations for treating specific infections).

The HAIDi software was first implemented in practice in 2019 at the Jihlava Hospital and has since been adopted by more than 50 healthcare facilities. User feedback has been very positive with doctors particularly emphasizing the time savings HAIDi provides. According to users, the implementation of HAIDi has saved up to 80% of the time previously spent on manually assessing the risks of nosocomial infections, and it has also increased the speed at which healthcare facilities can implement preventive measures against the spread of pathogens. Specialists at the Jihlava Hospital, for example, reported that thanks to HAIDi, they save an average of one workweek per month, which they previously spent actively searching for and collecting data. Users also appreciate the system's user-friendliness, particularly the simple overviews for individual departments, detailed pathogen analysis, and continuous monitoring and oversight of emerging patterns of nosocomial infections.

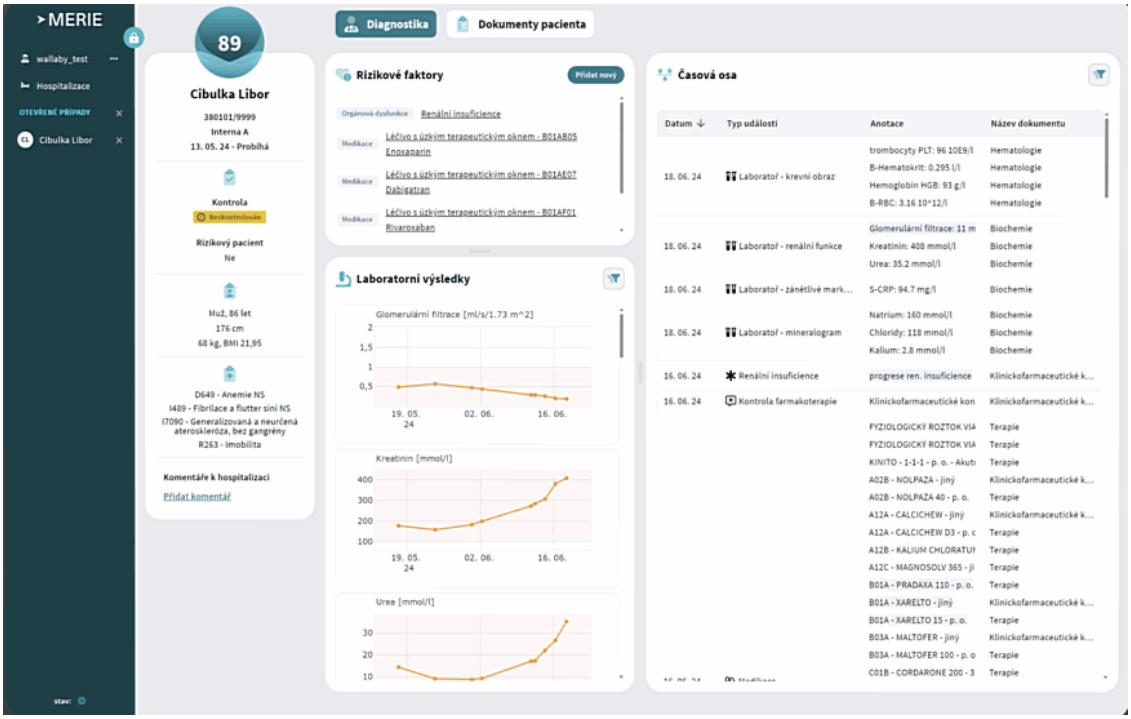
Hospitals that have implemented the HAIDi system have reported a significant reduction in the incidence of nosocomial infections. According to Datlowe's CEO, Jakub Kozák, HAIDi can detect up to five times more pathogens than manual data review alone. For example, the Slovak hospital network Svět zdraví reported a rate of nosocomial infections in 5.5–7.5% of patients over the three years prior to HAIDi's implementation. After the system was implemented, the prevalence

was significantly reduced by more than one percentage point. According to Michael Heinisch, CEO of the Vinzenz Gruppe, which includes the Ried Hospital, the infection rate dropped from 2.2% to 0.9% thanks to HAIDi. Based on these results, HAIDi is now set to be rolled out to all hospitals in the group.

In March 2025, HAIDi underwent a major update, which now allows it to process even larger volumes of data, offers improved user experience, and enables faster, more intuitive work with the system. As a result, it delivers higher-quality results and is easier to use for healthcare professionals.

2.2 MERIE

Datlowe's second product, MERIE, was launched in 2024, with a pilot program conducted at the Benešov Hospital. Similar to HAIDi, MERIE operates on the existing hospital information system and analyzes all patient data. Using artificial intelligence, MERIE helps pharmacists identify high-risk drug therapies and prevent medication-related issues. These may include, for example, drug allergies, contraindications for various medications, or the overall unsuitability of a particular drug for a specific patient.



MERIE user experience

Medication errors pose a serious risk to healthcare facilities, as they can lead to severe complications, prolonged hospital stays, and significant additional costs for hospitals. Incorrectly prescribed medication, erroneous data, or the unintentional administration of incompatible drugs can have life-threatening consequences for the patient. According to Datlowe, MERIE can eliminate up to 90% of tasks related to data collection and analysis, allowing specialists to fully focus on patients who are at actual risk of medication complications and make faster, higher-quality decisions.

In addition to physicians, MERIE technology also holds significant potential for clinical pharmacists in hospitals. These professionals review prescribed treatments, help optimize them, and prevent drug interactions or adverse effects. At the same time, they recommend appropriate alternatives or dosage adjustments to physicians. MERIE enables them to perform this work more efficiently and rely on comprehensive and up-to-date patient data.

CONCLUSION

The implementation of Datlowe's HAIDi and MERIE systems is already showing very good results and has had a positive impact in the facilities where they have been deployed. A key benefit is the early and accurate detection of patient health risks, particularly the prevention of the spread of nosocomial infections and the avoidance of drug contraindications. This directly enhances patient safety and the overall effectiveness of treatment. From the perspective of healthcare professionals, it is particularly important to highlight the significant time savings, which, thanks to automation, allow them to devote their time to actual clinical work rather than administrative tasks. Datlowe systems also demonstrate a lower error rate compared to manual data evaluation.

From an economic perspective, Datlowe's software solutions appear to be beneficial primarily due to the savings resulting from preventive measures based on system alerts, specifically the prevention of the spread of infections among other patients, reducing the need for more intensive care or prolonged hospital stays due to additional complications, and saving costs associated with more effective and safer pharmacotherapy.

A major competitive advantage of these solutions is their simplicity of use and user-friendliness. The software is intuitive to use, requires no specialized training, and eliminates the need for lenghty or complex training sessions, which makes the solution accessible to a wide range of healthcare facilities. This accessibility is further enhanced by high scalability, allowing the system to be tailored to small hospitals, medium-sized facilities, and large teaching hospitals alike.

A key feature of both HAIDi and MERIE is that they operate on existing hospital information systems. HAIDi was developed first; it can read all data in medical records and detect risks of nosocomial infections. Five years later, MERIE was launched, focusing on the detection of pharmacological contraindications. Both systems are based on the same principle: reading medical records and automated data analysis using artificial intelligence tools that Datlowe is gradually developing. Thanks to this technological continuity, it will be possible in the future to build further extensions and modules based on HAIDi, enabling even more accurate and comprehensive diagnostics.

In the future, the introduction of predictive analytics could be of great benefit. Based on continuously collected data, such analytics could predict a deterioration in a patient's condition and thus significantly contribute to early diagnosis. Equally important would be the introduction of tools for predicting serious postoperative complications, such as sepsis or thrombosis, which continue to pose serious risks during hospitalization and can have fatal consequences.

Datlowe's solutions could also be of significant benefit to patients with multiple chronic conditions, as the system would be able to continuously monitor their condition and assess potential risks associated with the combination of their diagnoses.

Another major challenge and opportunity for the future would be integrating the software with hospital equipment such as monitors, sensors, and hospital beds, enabling real-time data transfer into the system. Such integration would allow for faster responses by healthcare staff and more accurate prediction of unexpected complications.

There is also considerable potential in collaboration with health insurance providers, which could use Datlowe's solutions to identify risk trends across healthcare facilities and more effectively plan preventive programs aimed at reducing costs.

A potential weak point is the conservative attitude of some healthcare professionals, who may be skeptical toward new technologies and approaches in medicine and potentially slowing the adoption of such innovations. Another challenge is the growing demands for cybersecurity and legislative requirements associated with the use of artificial intelligence in healthcare.

Despite these challenges, Datlowe represents a significant innovation in the field of medicine, and thanks to its results and technological foundation, it has the potential to become one of the leading European players in the field of artificial intelligence for hospitals and clinical practice.