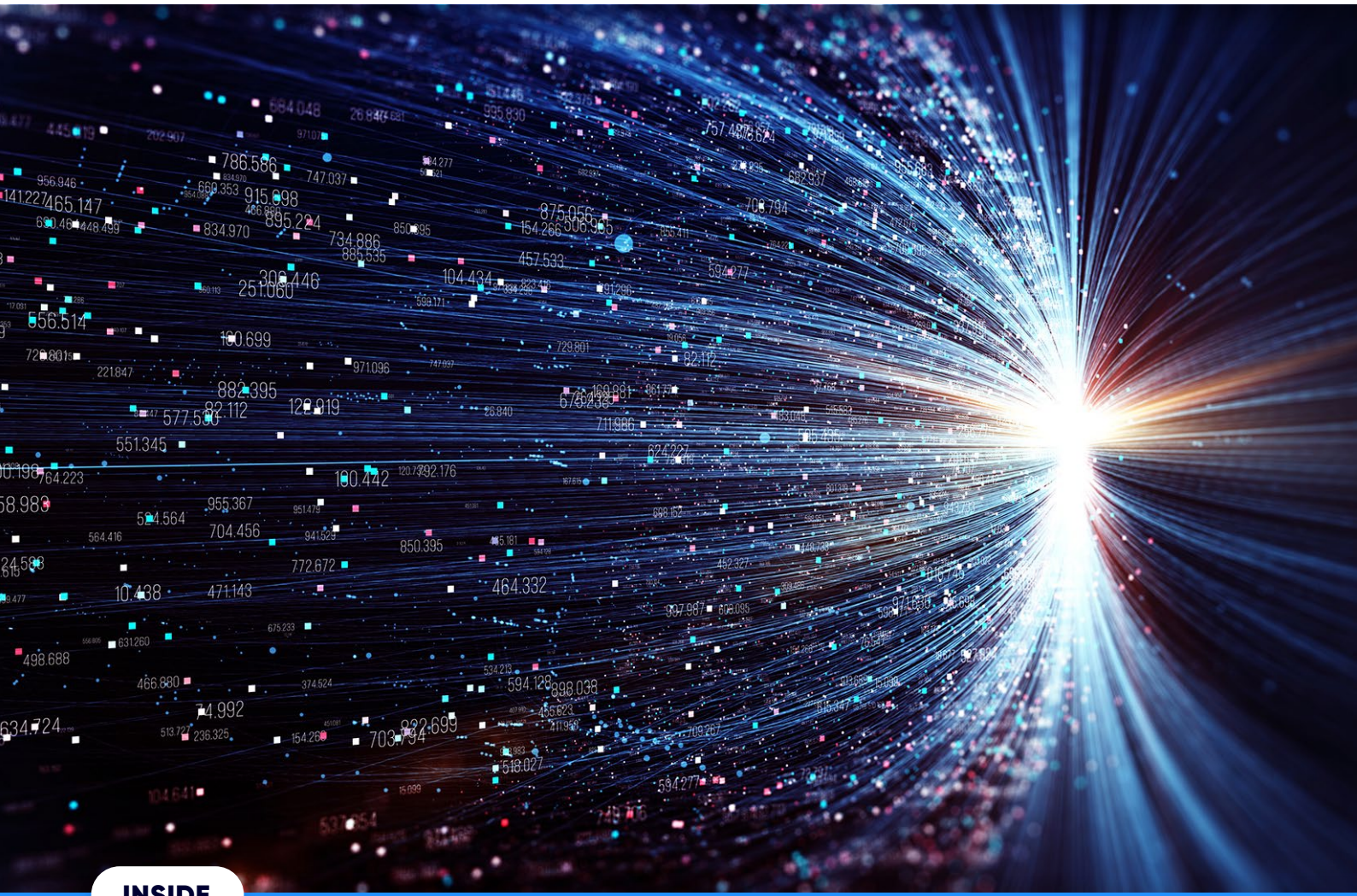
2024 Industry Report

PEX PROCESS EXCELLENCE NETWORK

HARNESSING BUSINESS INTELLIGENCE AND DATA ANALYTICS

How business intelligence and data analytics drive modern businesses to enhanced processes, operations and efficiency



INSIDE

- The trends shaping the business intelligence and data analytics landscape
- Case studies from Copenhagen Airport, Formula E and the International Myeloma Foundation
- Business intelligence and data analytics success factors and challenges

What is business intelligence and data analytics?

Modern organizations have enormous amounts of valuable intelligence and data circulating within the enterprise. Business intelligence and data analytics offer a solution for understanding, assessing and improving even the most complex and dispersed business processes.

Business intelligence refers to the use of software that ingests business data, presenting it in user-friendly forms such as reports, dashboards, charts and graphs. The process enables businesses to access various forms of information including historical/current, third-party/in-house and structured/unstructured data.

Data analytics – the process of inspecting, cleansing, transforming and modeling raw data – aims to make information-based conclusions that provide detailed insight into how a business is performing. This can be used to optimize operations and processes, increasing the overall efficiency of a business or system. It can also offer predictive insights, using previous data to create predictions about future events to identify risks and opportunities.

Business intelligence and data analytics serve as a mirror revealing an organization's current state, past performance, future aspirations, areas for improvement and the contextual factors influencing it, says Debashis Sarkar, managing partner at Proliferator Advisory & Consulting and *PEX Network* Advisory Board member.

"The benefits of business intelligence and data analytics extend far and wide," Sarkar adds. "They include informed decision-making, process improvement, cost optimization, effective problem-solving, improved customer experiences, personalized offerings and insight into customer and employee behavior."

PEX Network's Global State of Process Excellence 2024 report found that business intelligence and data analytics are the second most used methodologies/solutions for supporting operational excellence projects, behind only change management.

Neither business intelligence nor data analytics are new concepts, but emerging technologies, changing business requirements and evolving customer demands play a continuous role in shaping the landscape. This creates both new opportunities and challenges for harnessing the potential benefits of business intelligence and data analytics.

"CPH strives to use cutting edge technology in our pursuit to operate the most efficient and sustainable airport operation possible."

Carsten Jensen

Lead IT asset manager, Copenhagen Airport

Trends shaping business intelligence and data analytics

AI advancements

The rapid advancement of artificial intelligence (AI) is a game-changer in the realms of business intelligence and data analytics. Both have increasingly relied upon the application of progressively sophisticated autonomous technology, but more recent developments such as the immergence of generative AI insert significant, new considerations into the equation.

Generative AI is transforming the business intelligence and data analytics landscape, enabling businesses to gain deeper, real-time insights. From data collection and augmentation to generating visualizations and supporting business decisions, generative AI's ability to analyze vast datasets and produce human-like insights is highly significant. AI governance – systems and models that ensure the correct use of AI technologies – is therefore becoming increasingly important.

Sustainability

Sustainability is another trend impacting business intelligence and data analytics. Organizations are under increasing pressure to meet sustainability and carbon footprint reduction goals driven by both legal requirements and customer expectations. Additionally, sustainability/carbon footprint reduction can have a strong effect on revenue and profit opportunities.

Business intelligence and data analytics can provide the insight needed to develop sustainable processes, make greener decisions and implement environmentally conscious, eco-friendly practices. By tracking important metrics like energy consumption, gas emissions and supply chain performance, organizations can extract valuable insights to guide their sustainability journey.

Real-time data analysis and DataOps

Real-time data is information that is made available for use as soon as it is generated. Real-time data analysis is becoming more advanced as businesses prioritize the ability to observe and analyze data almost immediately, providing instant insights. This data analytics shift helps organizations make informed decisions based on the most current information.

Data operations (DataOps) is considered a significant evolution of data analytics designed to create greater business value from big data. It refers to practices and technologies that combine an integrated, process-oriented perspective on data with automation and methods from agile software engineering to promote continuous improvement to drive optimization. Data Ops combines DevOps, Agile, Lean and Total Quality Management (TQM) methodologies. Organizations are increasingly looking to DataOps to enhance their analytics postures, requiring new ways of working and different data tools.

Governance, legal and compliance

Data governance is increasingly prominent in business intelligence and data analytics. Businesses that collect data must remain compliant with evolving data protection regulations, legal frameworks and standards. The trend places great demand for transparent data governance, requiring companies to carefully monitor and control their data flows, minimizing risks by establishing clear guidelines for handling data, defining responsibilities and ensuring that their data quality meets the highest standards. Incorrect or outdated data can not only lead to inaccurate analyses but also to legal risks.

Other trends shaping the business intelligence and data analytics landscape include data security, data sharing, continuous intelligence, data literacy and predictive/prescriptive analysis.

> **"Choose the right data, identify its sources and demonstrate its potential business value."**
>
> **Debashis Sarkar**
> ***PEX Network* Advisory Board**

Case studies:
Business intelligence and data analytics in action

Copenhagen Airport: Improving operations and reducing emissions

In 2023, Copenhagen Airport (CPH) – the biggest and busiest airport in Scandinavia – rolled out an airport-wide AI-powered data analytics and intelligence project to improve its operational efficiency. The project was led and implemented by Carsten Jensen, the airport's lead IT asset manager, and Mehdi Motaghiani, CEO of Smarter Airports, a venture co-created by CPH to drive digitalization of the Danish airport.

The aim was to significantly increase the airport's maximum passenger capacity and create new opportunities for airport mapping by integrating huge amounts of data on traffic handling, flight times, check-in and security to optimize processes.

"CPH strives to use cutting edge technology in our pursuit to operate the most efficient and sustainable airport operation possible," Jensen tells *PEX Network*. "This is to the benefit of our passengers, key stakeholders and the environment around us."

However, it lacked a central ecosystem that could provide the operational traffic system and modern, technology-focused data and intelligence support needed for holistic optimization, says Motaghiani. "That's where we started – to create that one source of truth when it comes to data – one that is punctual and reliable."

It is a significant advantage to have all data and information consolidated into one system, to which CPH and its numerous partners in the airport have shared access, adds Jensen. "The more business intelligence we have, the better and more efficient we can run our operations in cooperation with and to the benefit of our key stakeholders, but always with a strong focus on safety and the environment."

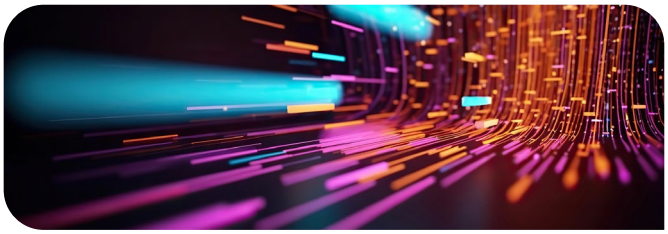
Project AIRHART has enhanced CPH's handling of the huge amount of data needed to run the very complex operation of the airport, involving a large number of stakeholders including air traffic control, airlines and ground handlers, Jensen says. "We can now optimize our turnaround times for airlines and handlers, improving total turnaround and travel time for passengers, but also reduce CO2 emissions while aircrafts are parked, landing or taking off in CPH."

For example, the airport can use business intelligence to ensure that aircraft are only cleared for taxiing once the team is sure they won't be parked on the apron, using unnecessary fuel. Likewise, it has a more efficient, automated process for verifying and linking key flight information, which was previously handled manually, as well as sharing information with the network of airports it collaborates with, Motaghiani says.

International Myeloma Foundation: Improving patient care and experiences

The International Myeloma Foundation (IMF) is an American non-profit organization serving patients with myeloma, a cancer of plasma cells in the bone marrow. The IMF's reach extends to more than 525,000 members in 140 countries worldwide, dedicated to improving the quality of life of myeloma patients while working toward prevention and a cure. The IMF also provides support and information for family members, caregivers, physicians and nurses.

The organization recently sought to use data analytics to reduce the time to diagnosis for patients and improve their experiences and care, Yelak Biru, president/CEO of IMF, tells *PEX Network*. Prior to IMF, Biru served as the senior director of data analytics at Walmart and as global director of advanced analytics and business intelligence architecture at PepsiCo.



Case studies: Business intelligence and data analytics in action

"Traditionally, patients rely on meetings with their providers to fully understand the context of their situation and what their next steps are. The IMF wanted to empower patients to take more control over their own health journeys and provide them with a predictive analytics-based platform that offers guided knowledge about their disease's stage, meeting patients where they are in their journey," Biru says.

In 2023, the IMF implemented the project, building a platform and AI-powered tool to collect, track and analyze real-time data to influence patients' recovery progress, enhance their plan and improve communication with care providers. The key benefits of the project include improved quality of care and a more efficient process for patients. Specifically, the platform enables patients to:

- Access a personalized learning path through a centralized virtual portal based on patient provided health data and cohort analysis.
- Plan and execute a six-month journey toward knowledge, care and treatment.
- Leverage a digital dashboard for real-time communication and informed medical decision-making.

It also allowed providers and the foundation to greatly improve efficiency across the organization by ensuring that all relevant information was shared with patients at scale, driving decision-making and operational excellence, Biru says.

Formula E: A data-driven business

Formula E, a single-seater motorsport championship for electric cars that debuted in 2014, operates as a data-driven business, Matt Roberts, VP of business intelligence at Formula E, tells *PEX Network*. "For the past three years, all decisions have been informed by the most robust data available whereas previously Formula E had a much more 'finger in the air' approach to making decisions."

The business uses business intelligence and analytics in several areas including:

- **Spectator and sponsor analysis:** Understanding movement of fans around race circuits via Wi-Fi analytics as well as using survey data to understand satisfaction and enjoyment of events. Also using data to prove effectiveness and media value for sponsors.
- **Media and fan reporting:** Understanding how well the company is performing across a range of metrics such as TV audiences, digital performance, fan and brand metrics. Also using data to gauge how many global fans the sport has compared to other sports leagues/events, deducing potential fans and increasing engagement.
- **Sporting decision making:** Using data to help make certain sporting decisions (e.g. changing qualifying or introducing charging pit stops).

"All key decisions/changes now have the input of data to prove and justify them," and the benefits are significant, Roberts adds. For example, Formula E has used data to understand pinch points in its TV broadcast where fans switch over, using this to inform the broadcast team about ways to maintain viewer engagement (in particular, recommending when they use on board driver cameras, replays and different camera angles).

"Business intelligence/data were responsible for designing the Formula E growth plan and the key performance indicators (KPIs) for each season between now and 2030. This growth plan was shared with all teams and partners, as well as prospective investors," Roberts says. Data is also used to determine the optimal locations for trackside advertising for sponsors, improve events/races from a fan perspective and inform marketing briefs for new campaigns.

Business intelligence and data analytics success factors

Identify and define your goal(s)

The most important elements of any implementation of business intelligence and data analytics are 1) to identify the problem the project is designed to solve and 2) to create parameters and key metrics for successfully addressing it, Biru says.

For the IMF, a "why, where and how" approach was a key driving force of its mission. The why focused on reducing "time to hope" for patients, addressing pain points in their diagnosis and treatment. The where enabled the team to use AI and machine learning to offer intelligent insights into healthcare journeys to reduce stress. The how focused on understanding what type of data to use and where to collect it to drive a personalized and automated solution.

This approach helped the IMF overcome its biggest hurdle. "The major challenge with implementing data analytics is rooted in the fact that non-profits are typically further behind on the digital transformation journey compared to other industries and companies. Organizations must consider patient/customer behavior to create a platform that can successfully collect necessary data at scale," Biru says.

Data quality and accuracy

Access to clean, accurate and consistent data is the foundation of successful intelligence and analysis. Careful management of data quality and accuracy is an indispensable cornerstone. Through data quality management, organizations will be better positioned to not only maintain the integrity of their data but also strengthen the trust of their customers and stakeholders. "Choose the right data, identify its sources and demonstrate its potential business value," says Sarkar. "This ensures the analysis uses relevant and reliable information."

Data quality management also helps to ensure compliance with data privacy and protection regulations and frameworks, another key piece of the business intelligence and data analytics success puzzle. The IMF put specific focus on complying with the Health Insurance Portability and Accountability Act (HIPAA) to ensure sensitivity and proper use of patient data, using voice assistance and QR codes for protected access, Biru says. Likewise, CPH had to ensure that their endeavors were handled in line with airport collaborative decision-making (A-CDM), a European standard that aims to improve the efficiency and resilience of airport operations by optimizing the use of resources and improving the predictability of air traffic, Motaghiani says.

Stakeholder buy-in and business alignment

Buy-in from key stakeholders and strong relationships that reveal their objectives/needs are key to business intelligence and data analytics success, Roberts says. "You can then ensure that the insight you are producing has value and is being used to drive key decisions in the business." It's also important to understand how stakeholders want the data/insight to be shared, he adds. "You can't assume everyone wants a 30-slide PowerPoint presentation or a business intelligence dashboard. By getting to know your stakeholders, you can deliver in the way which suits them and will be most effective at driving decisions."

Securing buy-in and stakeholder is a significant challenge though, Roberts adds. "Many people are not particularly data literate (particularly in sports) so it is key to ensure that you are able to educate and present the results clearly and simply to help them understand the insight which is most important to them. Simplifying data and educating stakeholders at Formula E has made our team successful as people are now much clearer about the insight/message which is being shared by the data."

Be prepared for potential challenges, as data-driven decisions may shift focus or require behavior changes, adds Sarkar. "Generating meaningful insights that resonate with business needs is crucial. Focus on aligning data analysis with specific business goals and providing actionable recommendations to various departments. This is critical for the success of the program."

Business intelligence and data analytics success factors

CPH used reference and focus groups with business stakeholders to communicate the capabilities that would be beneficial for all parts of the business operation. "You need to include everyone in the ecosystem if you want to figure out the true optimization areas," Motaghiani says. "You also start people thinking about how they can evolve their own use of the platform."

Change management

With the benefit of large amounts of data being collected and analyzed comes the need to revisit and optimize standard operating procedures (SOP), says Jensen. "This takes some getting used to. Organizational change management should not be underestimated when you have thousands of users dependent on the data collected and shared over many entities." CPH worked purposefully to implement its new traffic platform, but had a backup system running at all times that it could switch to if required. "In an airport, safety comes first, so there has been a significant focus on that."

Driving cultural change towards data-driven decision-making can be challenging, agrees Sarkar. "Develop effective communication strategies, training programs and incentives to encourage employees to embrace data-driven practices and new ways of working based on the insights gained."

Investment and organizational structure

Investing in the right tools and technologies is also essential for efficient business intelligence and data analysis. "However, budget limitations can be a barrier. Explore cost-effective solutions, prioritize essential tools and demonstrate the ROI of data analytics to secure additional funding," says Sarker. There's also the scarcity of skilled data professionals to consider, particularly those with strong statistical and mathematical expertise, he adds. "Building the right data organization requires a dedicated team comprising data scientists, solution architects, business analysts and campaign experts. Develop the necessary skills within the company to interpret and utilize the insights generated by the data."

Balanced use of AI

AI offers vast potential in business intelligence and data analytics. However, a carefully managed and balanced approach to implementing AI technology is important, says Motaghiani. Crucial to this is managing the extent to which you allow AI technology to make critical decisions, he adds. "The key is bringing AI across the board but to not let it make any significant decisions. For example, we apply AI-driven intelligence as recommendations for air traffic operators. Putting the suggestions to the operators and letting them make a decision about whether to trust the information coming from the AI."

AI is just another source – another opinion, Motaghiani says. "That's the approach we have taken as we didn't want to pull anything over anybody's head through automatic decision-making." If, over time, you come to find that AI recommendations are always accepted and can be trusted, you can look to explore the option of AI-driven decision making, he adds.

"For the past three years, all decisions have been informed by the most robust data available whereas previously Formula E had a much more 'finger in the air' approach to making decisions."

Matt Roberts

VP of business intelligence at Formula E

Conclusion

Business intelligence and data analytics are at the epicenter of the digital enterprise. With customers expecting increasingly customized and personalized experiences, businesses of all sizes are no longer asking if they need access to business intelligence and data analytics, but rather questioning what the best options are for their needs. Successfully harnessing business intelligence and data analytics requires a sustained, multifaceted data transformation project, anchored by well-defined aims, guardrails and effective governance structures.

The most important thing is that the data/insight gleaned is actionable and can help drive decisions within a business, otherwise it is much less useful. Companies need to make data-driven decisions and use data to predict risks and gain a competitive edge. With several key trends continuing to shape the landscape, its clear that the future of business intelligence and data analytics is playing out right now.

"Focus on aligning data analysis with specific business goals and providing actionable recommendations to various departments"

Debashis Sarkar

***PEX Network* Advisory Board**

Editorial Calendar 2024

JAN

MARKET REPORTS
Agile for OPEX

FEB

ALL ACCESS
Future of BPM

MARKET REPORTS
Business Intelligence and Data Analytics

MAR

ALL ACCESS
Process Mining

MARKET REPORTS
IDP

APR

ALL ACCESS
Low Code

MARKET REPORTS
BPM

MAY

ALL ACCESS
AI in PEX

MARKET REPORTS
Intelligent Automation and RPA

JUN

ALL ACCESS
Intelligent Automation

MARKET REPORTS
Digital Adoption

JUL

ALL ACCESS
- OPEX Financial Services
- Change Management For Business Transformation

MARKET REPORTS
Generative AI for OPEX

AUG

MARKET REPORTS
2025 PEX Industry Report

SEP

ALL ACCESS
BPM

MARKET REPORTS
Change Management

OCT

ALL ACCESS
Digital Adoption

MARKET REPORTS
Process Mining and Process Intelligence

NOV

ALL ACCESS
OPEX Week

MARKET REPORTS
Low Code

DEC

MARKET REPORTS
Top OPEX trends 2025

If you are interested in **becoming a PEX Network contributor**, please get in touch with our editor Michael Hill: **Michael.Hill@iqpc.com**

If you would like to be **positioned as a thought leader, promoting our offering to PEX Network's extensive database** of process and operational excellence experts and professionals through reports published throughout the year, please get in touch with our head of partnerships Ed Wells: **edward.wells@iqpc.co.uk**

@PEXNetwork_Team

PEX Network

PEX PROCESS EXCELLENCE NETWORK