infopulse

MHP

Azure-based Data Platform Helps MHP Drive Smart Precision Agriculture_

Industry: **Agriculture** Location: **Ukraine** Employees: **32,000+**

Client Background

Website:
https://mhp.com.ua/en/glorytoUkraine

Founded in 1998, MHP is a large international food and agro-technical company comprising more than 30 enterprises and having more than 32,000 employees throughout Ukraine and other countries. MHP is the leading producer of poultry products not only in Ukraine but also in the Balkans (Perutnina Ptuj Group).

Executive Summary_

Goals

MHP aimed to consolidate data from distributed systems, digitize manual data management tasks, and drive precision agriculture across 6,000 crop fields through data-driven decisions.

Solution

Infopulse engineered a modern data platform powered by Microsoft Azure, which serves as a one-stop-shop for data aggregation, storage, and analysis.

Benefits

The solution helped MHP establish a unified data ecosystem, optimize time and costs, improve decision-making with insightful analytics, mitigate equipment downtime, and achieve more accurate crop field operations.

Services delivered

Custom development, BI and Data Analytics, Advanced Analytics, Data Lake and Big Data, Microsoft Power BI, Microsoft Azure.

Business Challenge_

Every year MHP executes a large-scale sowing campaign that involves crop planting, growing, and harvesting at more than **6,000 fields across 11 regions in Ukraine.** The client decided to digitize and maximize automation throughout all processes related to the sowing campaign – from planning to outcomes analysis. To achieve its strategic goal, MHP launched a series of ambitious digital transformation projects, one of which was intended to reimagine the existing approach to **agricultural data management.**

MHP uses numerous standalone industry-specific systems to store various types of data, such as crop field maps, soil quality, precipitation data, etc. Although the client has a centralized data warehouse (DWH), it was designed to work with ERP systems but not with agricultural software, meaning that MHP employees had to manually extract and align data from the distributed systems.

Thus, the client's key business challenge was to **rapidly gather, consolidate, analyze, and transform large volumes of agricultural data from diverse sources** into **valuable insights.**

Other challenges that MHP had to tackle include:

- Relieve employees from time-consuming manual data extraction and entry tasks
- Build robust data analytics to make informed agronomic decisions and effectively manage large volumes of agricultural data across **6,000** crop fields
- Enable flexible agricultural data processing that would suit the company's dynamic business needs

Infopulse has a long history of collaboration with MHP, which includes a portfolio of successful digital transformation projects. Previously, Infopulse helped MHP streamline crop yield planning with a custom Grain Balance app and automate SKU management with an elegant RPA solution. Knowing that Infopulse is a reliable IT partner with extensive BI & Data Management expertise, MHP approached us to develop a **modern cloud-based data platform.**

Solution & Business Value_

Infopulse developed a **robust data platform powered by Microsoft Azure** that serves as a centralized data hub, integration gateway, and business intelligence powerhouse for MHP.

By leveraging the end-to-end data management capabilities of the solution, the client enabled smart precision agriculture across 6,000 crop fields, and received a broad range of tangible benefits:

- A **single source of truth** that aggregates and integrates structured, unstructured, and IoT data from **10 diverse sources**, such as industry-specific and ERP systems, relational databases, etc.
- Data extraction and entry tasks **are fully automated**, which significantly **improves time and cost-efficiency**, and lets employees focus on valuable tasks
- **Ultimate flexibility in data processing** – the platform can be configured to collect and process data every month/week/day, or even every hour
- Any changes in the source systems are instantly reflected and aligned in the data platform, which **reduces data inconsistencies and human errors**
- **Powerful analytics** that enables agronomists to make **swift data-driven decisions**, and **mitigate equipment downtime**
- Historic, current, and anticipated weather data gathered across **6,000** fields geometry centroids each day, which allows **planning and optimizing agricultural activities according to the weather**
- **Minimized carbon footprint** due to reduced waste and precise crop field coverage

Satisfied with the project outcomes, MHP plans to form a dedicated team of data scientists who will use the platform to build custom AI/ML models and apply them to foster the company's innovation and growth.

Technical Details

At the beginning of the project, MHP shared their vision of the solution and provided a list of functional requirements to the Infopulse team. After a series of discussions and assessments, Infopulse developed **the architecture** for a modern data platform powered by **Microsoft Azure**, which was perfectly tailored to the client's infrastructure and met all the required business needs.

Consequently, Infopulse proceeded with end-to-end solution engineering in an iterative approach. Our team gradually deployed new features to showcase, test, and confirm all the **data management** capabilities and **process automation** options with MHP.

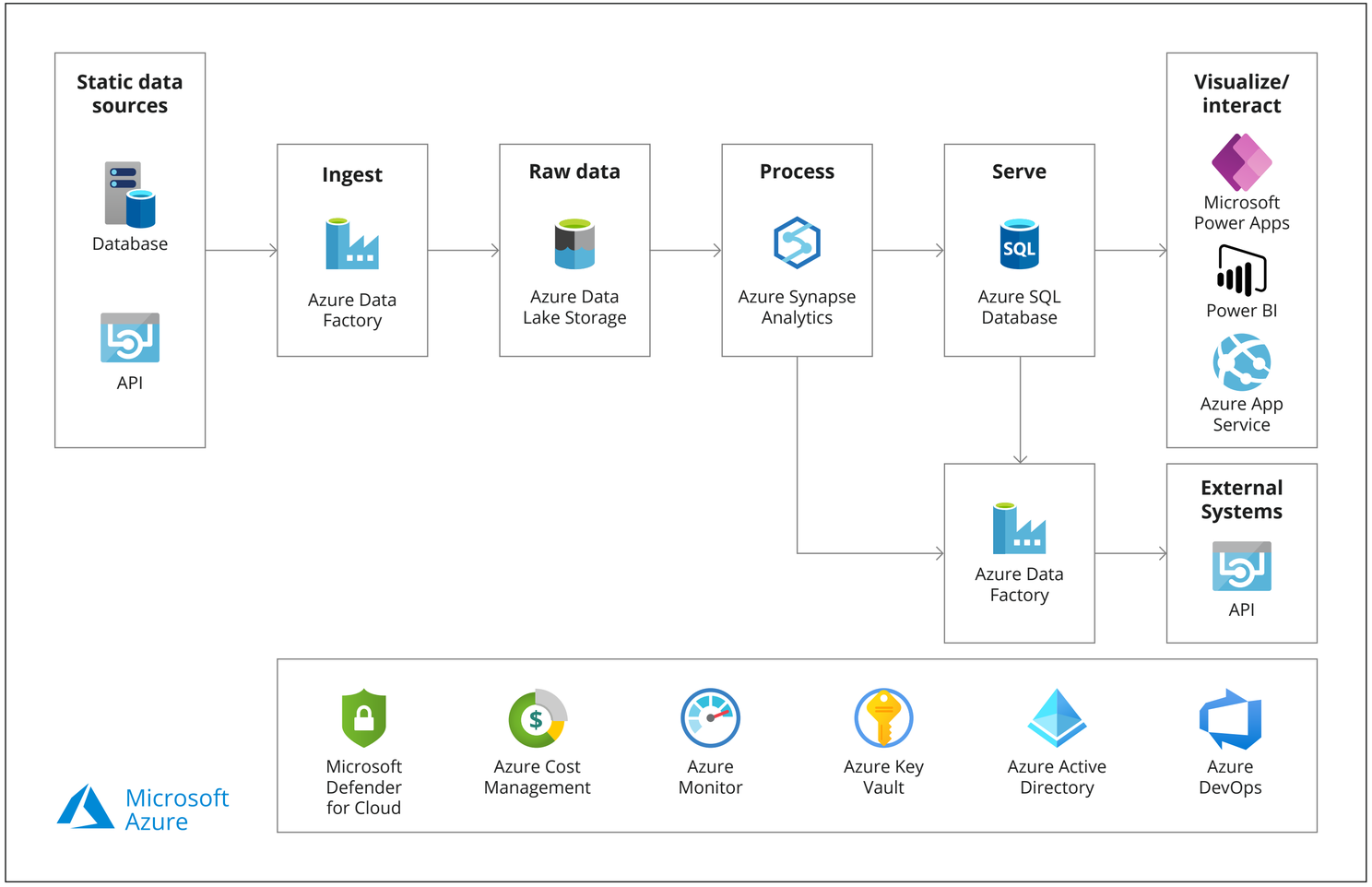
The platform aggregates large volumes of structured (crop field IDs, agricultural expenses) and unstructured data (geo-spatial, weather data) from the client's agrochemical laboratories, ERP systems, and other sources. Special emphasis was placed on the collection of weather data – it is gathered and updated several times

a day and can be broken down into historical, current, and predictive (forecast for the next 6 days). The solution consolidates all the agricultural data and automatically transfers it to the client's third-party systems for further processing and virtualization via API-based integrations.

In addition to data management, the platform also features **advanced analytics capabilities.** The solution analyzes the processed data and generates BI dashboards for agronomists, who can use them to track agricultural operations in near real-time and make timely decisions. For example, MHP employees can monitor how the machinery performs the tillage operations, what type and quantity of fertilizers were applied at a specific field, etc.

The solution is also related to a **major IoT project**, developed by Infopulse for MHP. The platform captures data from IoT sensors placed on tractors and combine harvesters, processes it, and compares the results with the tillage operations plans stored in MHP's ERP. If the machine breaks down or runs out of fuel and does not complete the tillage plan, the data platform forms an incident and sends it to a custom mobile app to notify the agronomists.

Azure-based Data Platform Architecture for MHP



Technologies & Tools_

Azure Synapse Analytics

Azure Data Lake

Microsoft Power BI

Apache Spark

About Infopulse

For 15+ years Infopulse has been providing end-to-end engineering and support of Business Intelligence systems, Data Platforms, DWHs and Data Lakes, Advanced Data Analytics, and Big Data solutions to empower enterprises with data-driven strategy and decisions. Our expertise is supported by long-term partnerships with Microsoft and AWS and is recognized through Azure Expert MSP Status, as well as Microsoft Gold Partner status and numerous Azure Specializations, including Analytics on Microsoft Azure.

Infopulse is trusted by many established brands, such as Allianz Bank, BICS, Bosch, Credit Agricole, Delta Wilmar, ING Bank, Microsoft, Metinvest, Offshore Norge, OLX, OTP Bank, SAP, UKRSIBBANK BNP Paribas Group, Vodafone, Zeppelin, and others.

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