

NUCLEUS
RESEARCH

Annual ROI: 77%
Payback: 1.7 Years

QLIK

EWALS CARGO CARE

ANALYST

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THE BOTTOM LINE

Ewals Cargo Care (Ewals) created a new data and business intelligence (BI) architecture using Qlik Data Integration, Snowflake Cloud Data Platform, and Microsoft Power BI. Replacing the legacy architecture allowed Ewals to meet BI project deadlines, support more requests for new reports, and more easily add new data sources to its analytics infrastructure. Using Qlik solutions, Ewals reduced the time to add new sources to the data warehouse and improved data mart deliverability by 400 percent. It also retired an Oracle database and the need for accompanying third-party Oracle support. With the new architecture, Ewals is prepared for the future and well-positioned to expand its BI usage. With the payback period at 1.7 years, Ewals will easily recoup the costs of the deployment within the three-year subscription period.

THE COMPANY

Ewals Cargo Care is a family-owned logistics and shipping company that was founded in 1906 in the Netherlands. It operates in 35 locations across 15 countries across Europe and handles 3400 cargo loads per day on average. It ships both its own and subcontracted loads by road, (short-)sea, and rail. The company has approximately 2350 employees and runs its own fleet of trucks and trailers (500 and 3400, respectively) with the goal of delivering the most resilient, adaptable logistics products possible to customers.

THE CHALLENGE

Ewals' data architecture includes four primary source systems: an administrative system, a transport planning system, a non-conformity reporting system, and an accounting system. The first three sources were loaded into an Oracle data warehouse where data marts were built using Informatica. All three sources were loaded into SAP Business Objects Universe Designer (now called Information Design Tool) where a semantic layer was applied for modeling. SAP Business Objects was the reporting tool used for all four data sources.

Ewals' realized this architecture needed to be modernized and identified a number of key issues with the legacy architecture. There was a lack of data lineage throughout the data warehouse which necessitated complex logic in Business Objects. This logic was difficult to validate and slowed down performance for reporting significantly; at times a report was run the day before and still hadn't loaded by the next morning, affecting business all up the chain who depended on the report to drive their actions. There were also data quality-related business questions and without the proper data lineage, answering these questions accurately was impossible.

For the upgraded data warehouse, Ewals outlined two key requirements. First, it would solve the data lineage issue with a data vault which sits on top of a data warehouse storing all changes made to the data warehouse – perfectly suiting the architecture Ewals' has which is based on the four primary source systems mentioned above. The data vault would keep track of what data was uploaded and when, providing the data lineage that had been missing. There should also be a modeling strategy with facts and dimensions clearly outlined.

In 2016 it began building this new data warehouse with the goal of delivery to production in six months. Since 80 percent of its reports are based on the administrative system, this was the system chosen for the project. Since the legacy data warehouse was Oracle, this modernization effort was also built with an Oracle data warehouse, using an Oracle data integrator for ETL (extract-transform-load). A third-party consultancy was used to create a manual change data capture (CDC) process and a data vault, which successfully solved the data lineage problem.

It took 2 years to deliver the data warehouse to production and getting the other source systems implemented would not be possible. Ewals identified these key factors that contributed to the project failure: the CDC process that was created had errors that took nearly a year to rectify; adding new tables to the data warehouse took over 20 days; the data warehouse could only run after 2:00 pm, and it was required to be updated by 8:00 am the next day, which was impeded by performance issues.

Other items for consideration were future digital initiatives and how those technologies would integrate with the data architecture; for instance, a new ERP system was planned for delivery in 2020, and the company had begun exporting some reports to Microsoft Power BI. It needed an architecture that was agile and flexible to integrate with new systems in the future. It wanted to be able to perform its own development and configuration without depending on third-party integrators or consultants. It also wanted to increase the scalability to accommodate new data sources and not be forced to choose between database performance and development effort.

**Cost : Benefit
Ratio** | **1 : 1.5**

THE STRATEGY

In 2019, Ewals piloted several CDC tools including Microsoft SQL Server Replication, Oracle Golden Gate, and Qlik (formerly Attunity) Replicate. Both Microsoft SQL Server Replication and Oracle Golden Gate were heavily dependent on external database administrators, which came with service agreements and delays for every change request. Qlik allowed for custom configuration once licenses were acquired and did not include the service costs of the other solutions. Ewals decided to build a proof-of-concept (POC) to modernize their architecture to solve the challenges and performance issues that it had been facing.

Since loading their data into their existing data vault would also require extensive involvement from third-party consultants, Ewals also decided to pilot Qlik's data warehouse automation solution. Concurrently, Ewals discovered that it was not able to scale the Oracle database to handle additional data warehouse workloads, without also affecting performance of its instance. Therefore they decided to abandon Oracle in favor of Snowflake. Snowflake's on-demand ability to scale as needed was attractive, with Ewals only paying for what was used. Ewals business users for the POC requested Microsoft Power BI as the reporting tool replacing SAP Business Objects.

The POC proposal anticipated 75 percent cost reduction on creation of CDC processes, data vaults, and 75 percent cost reduction on data warehouse development. The time required to add new source systems to the data warehouse would also shrink. Additionally, the time to create new data mart facts and dimensions was also expected to reduce. The goal was to be able to deliver new data marts from scratch within two weeks. The proposal was accepted and work on the production-ready system began in December 2019.

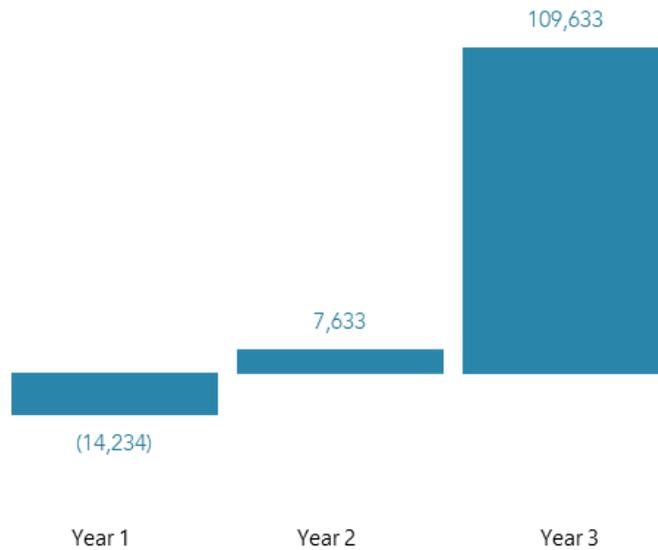
Within three months the first phase of the POC went into production. Data was replicating reliably from Ewals nonconformity reporting system into Snowflake. Lessons learned from the POC ensured that when the new accounting system arrived in 2020 it was seamlessly integrated with the new architecture. In addition, a future finance system is also anticipated to be incorporated. Ewals is realizing the anticipated benefits of the POC by meeting reporting deadlines, and has gained the agility to support new BI requests as and when they arise.

KEY BENEFIT AREAS

Key benefit areas seen as a result of the Qlik deployment include reduced development costs, cost savings from retired legacy systems and support, and increased business agility and futureproofing from modernized data architecture.

- Reduced development costs for setting up data marts and data vaults. The time needed to add new sources to a data warehouse and setup data vault facts and dimensions went from over 20 days to 5 days on average. This allowed for the delivery of a new data mart from scratch within 2 weeks.
- Cost savings from retired Oracle infrastructure and third-party Oracle partner for IT help. Ewals was able to retire legacy Oracle database licenses and discontinue working with a third-party consultant to manage and update the Oracle technology. With the new architecture, Ewals is not dependent on outside database administrators or integrators.
- Increased business agility for data management and analytics. On the old architecture, meeting the regular reporting deadline was a near-impossible challenge. The system wasn't built for flexibility to handle new sources or ad-hoc business intelligence (BI) requests. With the new Qlik-based architecture, Ewals can handle incoming BI requests as they pop up and incorporate new data sources as-needed such as the new ERP and financial systems.
- Modernized data architecture to enable ongoing innovation. With the new architecture, Ewals can add new data sources to the system as needed with much greater ease than before. As digital needs change and new technologies are adopted, having an architecture that will not be made obsolete and can integrate with new solutions to preserve the value of past technology investments.
- Improved developer productivity. With the ability to deliver data marts and data vaults so much more quickly, developers are able to redirect time toward supporting new and ad-hoc BI requests, along with other value-add development tasks. With so much more flexible architecture, adding new sources and preparing reports was also streamlined by the Qlik deployment.

CUMULATIVE NET BENEFIT



KEY COST AREAS

The largest cost area of the deployment is the cost of Qlik licenses for its data integration platform. Other cost areas include the personnel involved with supporting and maintaining the architecture, and a one-time spend with a third-party consultant.

LESSONS LEARNED

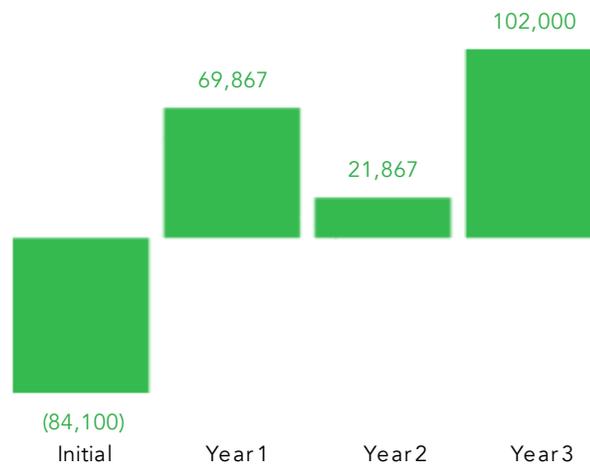
This project was a long-term investment that serves as a platform to generate all the value-add BI and analytical insights Ewals uses to drive its own decision making. These returns are unquantifiable, but still important to mention, since without this modernization project none would be possible. It serves as a solid foundation to support new data sources and digital initiatives for years into the future. Partnering with Snowflake and Qlik allows for the scale needed to make this long-term relationship feasible (while remaining financially viable to do so).

Qlik delivered several unique benefits that enable this project to be successful also. Its data replication automatically copies data table structures and data description language (DDL) and is generally extremely easy-to-use compared to the legacy system, helping to deliver the profound time savings described above. It automatically updates changes to the data and DDL, among other automations and shortcuts. Qlik's data warehouse automation automatically create structures similar to a data vault with data history, addressing one of the major goals of the modernization project. Another key feature is ability to automatically

create compensating records for late-arriving dimensions which eliminates reporting issues with missing rows in tables that would otherwise cause errors.

This project speaks to the need for a modern data architecture that can flexibly incorporate new sources and enable large-scale BI use to drive business decision-making. It is critical to unify all of a company's data sources (or at least those that will be used together for analytics) to the same backend repository to ensure silos aren't created. With this project, Qlik was able to upgrade its architecture to support all its existing data sources (while still being able to accommodate additional systems as they are needed). In turn, this has created a modern, non-obsolete architecture that supports high-volume BI requests and will be viable well into the future as Ewals adds new data sources and systems to its environment. While it may not appear flashy, without a resilient, performant, and flexible platform to build upon, a company cannot unify data at the organizational level and leverage analytics at scale. Ewals addressed this problem in its own architecture and is now well-positioned for the future.

NET CASH FLOWS



CALCULATING THE ROI

Nucleus Research analyzed the costs of software, hardware, personnel, professional services, and user training over a three-year period to quantify Ewals Cargo Care's total investment in Qlik technology.

Direct benefits include reduced development costs for data warehouse and data vault construction, eliminated Oracle database licenses, and retired third-party Oracle support.

Indirect benefits were not quantified for this report.

FINANCIAL ANALYSIS

Annual ROI: 77%

Payback period: 1.7 years

BENEFITS	Pre-start	Year 1	Year 2	Year 3
Direct	0	138,000	102,000	102,000
Indirect	0	0	0	0
Total per period	0	138,000	102,000	102,000

COSTS - CAPITALIZED ASSETS	Pre-start	Year 1	Year 2	Year 3
Software	0	0	0	0
Hardware	0	0	0	0
Project consulting and personnel	0	0	0	0
Total per period	0	0	0	0

COSTS - DEPRECIATION	Pre-start	Year 1	Year 2	Year 3
Software	0	0	0	0
Hardware	0	0	0	0
Project consulting and personnel	0	0	0	0
Total per period	0	0	0	0

COSTS - EXPENSED	Pre-start	Year 1	Year 2	Year 3
Software	50,000	62,000	74,000	0
Hardware	0	0	0	0
Consulting	20,000	0	0	0
Personnel	14,100	6,134	6,134	0
Training	0	0	0	0
Other	0	0	0	0
Total per period	84,100	68,134	80,134	0

FINANCIAL ANALYSIS	Results	Year 1	Year 2	Year 3
All government taxes	45%			
Cost of capital	7.0%			
Net cash flow before taxes	(84,100)	69,867	21,867	102,000
Net cash flow after taxes	(46,255)	38,427	12,027	56,100
Annual ROI - direct and indirect benefits				77%
Annual ROI - direct benefits only				77%
Net Present Value (NPV)				45,956
Payback period				1.7 years
Average Annual Cost of Ownership				77,456
3-Year IRR				52%