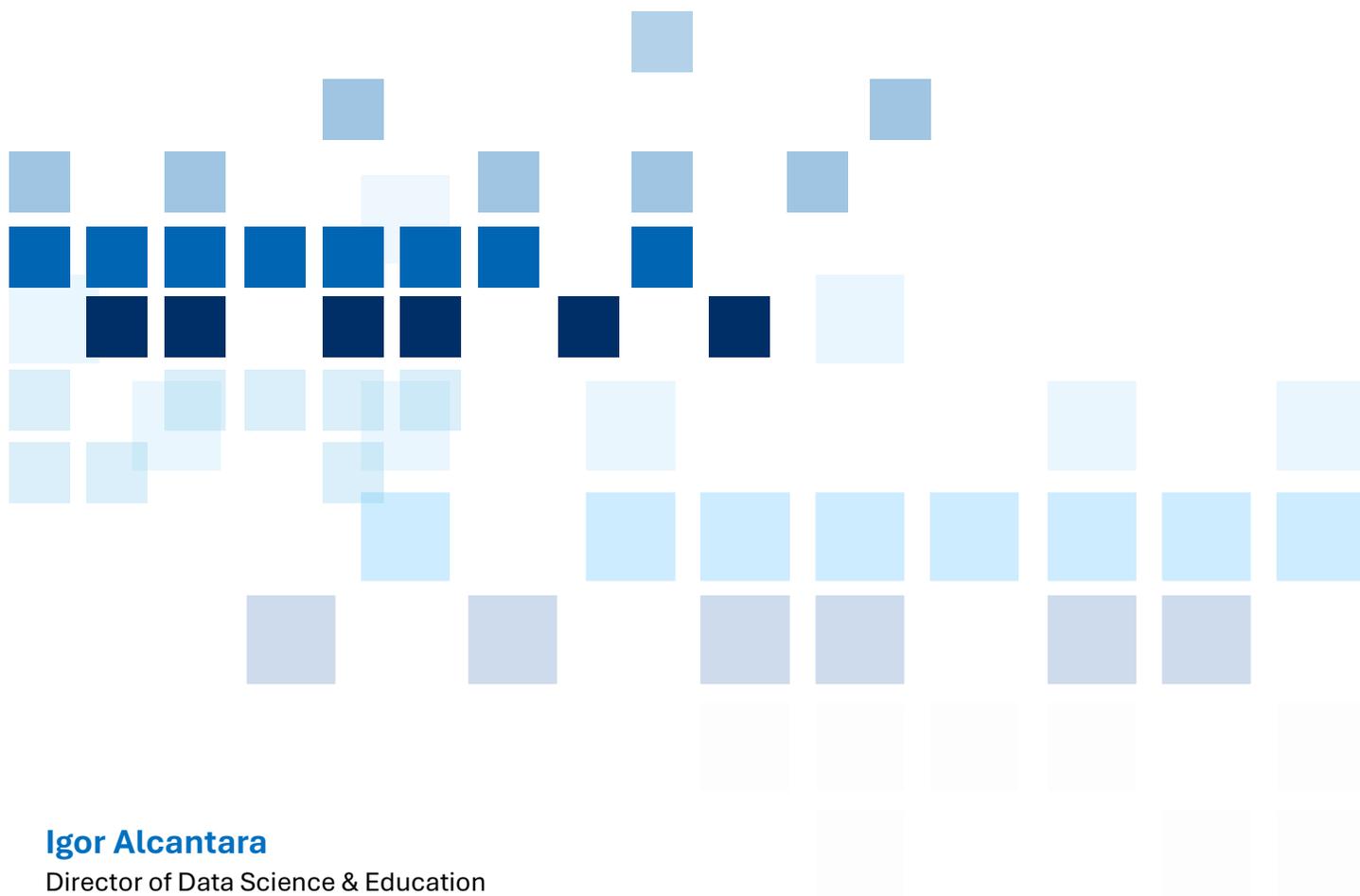


Qlik vs Power BI

Use Case Study



Igor Alcantara

Director of Data Science & Education

Igor.alcantara@ipc-global.com

[linkedin.com/in/igoralcantara](https://www.linkedin.com/in/igoralcantara)

Executive Summary

Today, Analytics platforms are a fundamental business tool used to gather, analyze, and interpret data, providing actionable insights that can inform strategic decisions and drive positive business outcomes. Understanding the differences, associated costs, and business impact is important. This white paper provides a comprehensive comparison of **Qlik Cloud** and **Microsoft Power BI** based on a simulated use case: a data analytics project involving 20 data tables, 5 dashboard applications, 25 developer users, and 100 basic users. Both platforms were evaluated across critical dimensions including development effort, cost, scalability, and feature capabilities. These requirements are based on real prospects requirements handled by IPC Global team in the last 18 months.

Key Findings:

- **Cost Efficiency:** Qlik Cloud offers a significantly lower total annual cost and lowest technical debt when compared to Microsoft Power BI and its associated services. This makes Qlik a more budget-friendly choice, for all businesses' sizes in terms of software and man hours.
- **Development Time:** Qlik Cloud demonstrated greater efficiency, with an estimated development time nearly half that of Microsoft Power BI. Qlik does not require resources to develop and maintain data models (aka views) which are automated in QIX engine through the Associative Model. Moreover, the engine handles full outer, inner and left joins simultaneously, showing in and out of scope data within filters, reducing the number of different views are required to be develop for specific requirements.
- **Ease of Use:** Qlik's all-in-one platform simplifies data integration, modeling, and visualization. In contrast, Microsoft's solution requires managing multiple services, which can increase setup and maintenance complexity.
- **Advanced Features:** While Microsoft Power BI benefits from its integration with Azure services for large-scale enterprise applications, Qlik Cloud's **Associative Engine, AutoML**, and workflow **Automation** capabilities make advanced analytics more accessible to business users without taking IT and Data Scientists resources.
- **Scalability:** Both platforms offer scalable solutions, but Qlik Cloud's **capacity-based model** provides flexibility without the need for complex configurations nor gaming the system to avoid costs.

Project Requirements

The requirements for the project are as follows:

1. **Cloud-Ready Solution**
 - The platform must support a fully cloud-based implementation to ensure scalability, accessibility, and ease of management. No fat-client, 3rd party tools, or developer specific hardware are needed.
2. **Data Source Integration**
 - The solution must connect to an on-premise data source comprising 20 tables.
 - Secure and reliable data connectivity must be established for seamless data retrieval and updates.

3. Data Landing and Transformation

- The platform must support loading data from the source, landing it in the analytics platform, and performing the necessary transformations for analysis and reporting.

4. Dashboard Development

- Development of **five (5)** dashboard applications to visualize and analyze data effectively.
- This development is intended as just the initial implementation. Further dashboard development will be handled internally by the analytics team.
- Dashboards must provide interactive and user-friendly experiences.

5. Machine Learning Capabilities

- The solution must enable the creation and deployment of **one (1)** machine learning model.
- Machine learning outputs should integrate seamlessly into dashboards for advanced analytics and predictive insights.

6. Full User Licenses

- Licenses for **25 full users** are required to ensure that all users can fully interact with the platform, including creating, editing, and consuming reports and dashboards.

7. Basic User Licenses

- Licenses for **100 basic users** are required to ensure that all users can consume the dashboards developed.

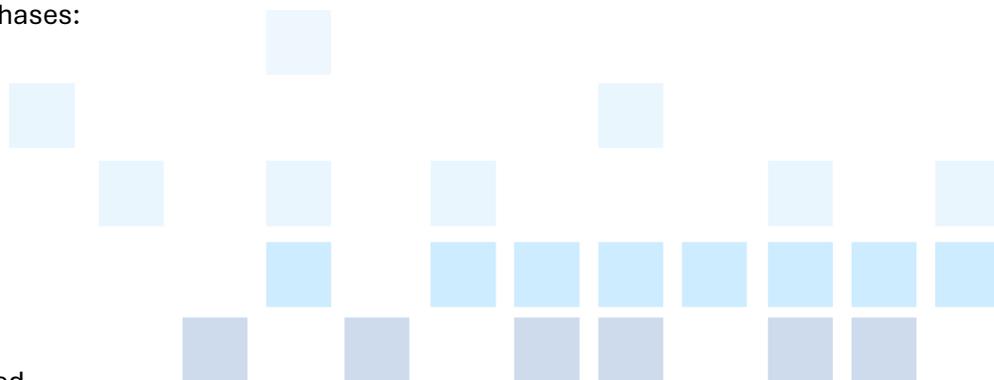
Additional Notes:

- Tools and techniques for this project are selected based on official product documentation, use cases from public forums, white papers, and insights from experienced professionals.
- The evaluation will consider cost, time to implement, scalability, and ease of use for both Qlik Cloud and Microsoft Fabric.

Project Overview:

The project consists of the following key phases:

1. Setup environment
2. Provide software to personnel
3. Connect to data sources
4. Load and transform data
5. Prepare data models
6. Build and publish dashboards
7. Schedule data refreshes
8. Implement Machine Learning
9. Additional functionalities as needed



Microsoft Power BI, Fabric, and Azure Solution

Key Tools and Services

The Microsoft solution leverages an integrated ecosystem of tools and services designed to handle end-to-end data workflows. The following components are used to meet the project requirements:

1. Microsoft Fabric F64:

- A unified analytics platform combining data integration, storage, transformation, and analytics capabilities.
- The **F64** is the ideal choice for this project because it provides the Power BI, Machine Learning and Data Transformation capabilities needed.

2. Power BI Pro Users (25 users):

- Power BI enables interactive data visualization and report creation.
- The solution uses Power BI Pro to support advanced features, performance optimizations, and collaboration.

3. Microsoft Enterprise Gateway:

- A secure bridge for connecting on-premises data sources to the Power BI Service and other Azure services. It is required.

4. Azure Machine Learning:

- Provides tools for building, training, and deploying machine learning models to enhance predictive analytics.

5. Data Activator:

- Allows users to automatically trigger actions based on real-time data analysis, essentially monitoring data for specific patterns or conditions and initiating predefined actions like sending alerts or launching workflows when those conditions are met.

Development Phases

The implementation of the Microsoft Power BI solution involves the following key phases:

1. Setup Environment:

- Provision the **Microsoft Fabric F64** and configure security settings.

2. Provide Software:

- Assign Power BI Pro 25 full users.
- Deploy Power BI Desktop to developers and analysts.

3. Connect to Data Sources:

- Use **Microsoft Fabric** for data ingestion and configure the **Enterprise Gateway** for secure on-premises connectivity.

4. Load and Transform Data:

- Perform data loading and transformations using standard capabilities of **Microsoft Fabric F64** to create a structured and ready-to-use dataset.

5. Prepare Data Models:

- Design and optimize data models in Power BI and Fabric for consumption in dashboards and reports.

6. Build Dashboards:

- Develop interactive dashboards using Power BI Desktop, incorporating filters, slicers, and KPIs for user-friendly navigation.

7. Publish Dashboards:

- Deploy dashboards to the Power BI Service for access via web and mobile applications. Utilize **Microsoft Fabric** capacities for scalability.

8. Schedule Data Refreshes:

- Set up data pipelines in **Microsoft Fabric** and schedule refreshes in Power BI Service to ensure up-to-date analytics.

9. Machine Learning Integration:

- Develop and integrate machine learning models using **Azure Machine Learning**, with predictions feeding directly into Power BI dashboards.

10. Additional Functionalities:

- Enable collaboration via **Microsoft Teams** for sharing insights and managing discussions.
- Employ **Microsoft Purview** for data governance and compliance management.
- Configure **Data Activator** to proactively engage users and automate business processes

Technology Workflow

1. Data Ingestion and Transformation:

- Extract data from on-premises sources using the **Microsoft Enterprise Gateway** and **Microsoft Fabric** for initial transformation.
- Load transformed data into **Fabric** native file storage or **One Lake** for delta parquet files if that is the choice of implementation.

2. Data Warehousing and Modeling:

- Store data in a structured format within Fabric or One Lake for analytical querying.
- Build Star Schema views for each dashboard.
- Build relationships and calculated measures in Power BI for further analysis.

3. Data Analytics and Visualization:

- Use Power BI Desktop to connect to data models and create interactive dashboards.
- Publish dashboards to the Power BI Service for end-user access.

4. Machine Learning Integration:

- Develop machine learning models in **Azure Machine Learning** and integrate predictive insights into Power BI dashboards.

5. Collaboration and Sharing:

- Utilize **Microsoft Teams** for sharing reports, dashboards, and fostering collaboration among users.

6. Unified Platform:

- Leverage the capacity and scalability of **Microsoft Fabric F64** to seamlessly manage the entire workflow.

Qlik Cloud Solution

Key Tools and Services

Qlik provides an end-to-end analytics platform with robust tools for data integration, visualization, and advanced analytics. The following components are utilized in the proposed solution:

1. Qlik Cloud Capacity:

- A **50 GB tenant** to store and manage data and analytics assets.
- Licenses for **25 Full Users**, granting full access to create, edit, and consume analytics applications.
- 100,000 basic users are included in the license, making sure the whole organization has access to the dashboards created by the analytics team.

2. Qlik Data Gateway:

- Ensures secure and seamless data connectivity between on-premises data sources (20 tables) and Qlik Cloud.
- **Qlik Script**: Services to connect, load, and transform data leveraging both SQL, functions, and Reporting logic.

3. Qlik Cloud Services:

- **QIX Engine**: Service to model data and dynamically build views base on business rules and user selections.
- **Qlik Analytics**: Tools for creating, publishing, and sharing interactive dashboards and visualizations.
- **Qlik AutoML**: Enables users to develop, train, and deploy machine learning models within the Qlik Cloud ecosystem.

Development Phases

The implementation of Qlik Cloud for this project involves the following phases:

1. Setup Environment:

- Configure the Qlik Cloud tenant, allocate 50 GB capacity, and establish security settings.

2. Provide Software:

- Onboard all 25 users with full licenses to enable full platform functionality.

3. Connect to Data Sources:

- Establish secure connections to on-premises data using **Qlik Data Gateway**.

4. Load and Transform Data:

- Utilize **Data Load Editor** to extract and transform data into QVD files for optimized storage and processing.

5. Prepare Data Models:

- Optimize data models using the **Data Model Viewer** for efficient reporting and visualization.

6. Build Dashboards:

- Develop interactive dashboards and applications using **Qlik Sense App Development Environment**.

7. Publish Dashboards:

- Publish applications to managed spaces in Qlik Cloud, ensuring appropriate access control.

8. Schedule Data Refreshes:

- Manage reload tasks using **Qlik Automation** to ensure up-to-date data availability.

9. Machine Learning:

- Build, train, and deploy machine learning models using **Qlik AutoML** to enhance analytics with predictive insights.

10. Additional Functionalities:

- Enable collaboration through shared dashboards, track data lineage, and provide embedded analytics for broader usability.

Technology Workflow

1. Data Connectivity and Integration:

- **Qlik Data Gateway** ensures secure connections to the on-premises data source (20 tables), facilitating real-time data extraction and updates.

2. Data Storage and Capacity:

- **Qlik Cloud Capacity** offers 50 GB of storage to host data, analytics applications, and machine learning models, ensuring efficient resource management.

3. Analytics Development and Consumption:

- Applications are developed, published, and shared using **Qlik Sense Cloud**.
- All 25 Full Users have the capability to create, edit, and interact with analytics content, ensuring a collaborative analytics environment.
- All 100 end-users have the ability to access the dashboards created by the analytics team, making sure its adoption in an enterprise level.

4. Advanced Analytics and Machine Learning:

- **Qlik AutoML** enables users to seamlessly integrate machine learning insights into dashboards, providing actionable predictions and enhancing decision-making.

5. Collaboration and Decision-Making:

- Qlik Cloud facilitates real-time collaboration through shared dashboards and interactive visualizations, empowering teams to make data-driven decisions.
- Qlik Automations actively engage in business communications and IT tasks that are exceptional events or routinely done manually.

Estimated Development Hours

The estimated development hours for the Qlik Cloud and Microsoft Power BI solutions were calculated based on historical project data, expert judgment, and references from industry sources. For Power BI estimate, we quoted the project with 15 different senior consultants. Outliers were removed. The numbers displayed are the average of the median 10 consultants quoted. Below is a detailed breakdown of the hours required for each phase:

Phase	Qlik Hours	Microsoft Hours
Setup Environment & Software provision	4	20
Connect and load data sources	16	20
Transform data	44	56
Prepare Data models	24	30
Build dashboard applications (5 apps)	60	80
Publish dashboards, configure access	4	10
Schedule data refresh tasks	6	12
Machine Learning model (1 deployment)	8	46
TOTAL	164	274

Observations and Insights

1. Setup Environment & Software Provision:

- **Qlik Cloud:** Requires minimal setup time due to its unified cloud platform and simplified user onboarding process.
- **Microsoft Power BI:** Involves configuring multiple Azure services (e.g., Fabric, Machine Learning), which significantly increases the time required.

2. Connect and Load Data Sources:

- **Qlik Cloud:** Leverages Qlik Data Gateway for streamlined, secure data integration, reducing complexity.
- **Microsoft Power BI:** Requires configuring both Microsoft Fabric and Microsoft Enterprise Gateway, resulting in additional setup time.

3. Transform Data:

- Both platforms involve substantial effort for cleaning, transforming, and preparing data for analysis. **Microsoft** requires more time due to managing separate pipelines in Fabric.

4. Prepare Data Models:

- **Qlik Cloud:** Offers different options, including a no-code Data Manager, creation of Data Model apps that can be binary loaded or directly in the dashboard application.
- **Microsoft Power BI:** While powerful, modeling in Fabric and Power BI involves more steps and higher complexity.

5. Build Dashboard Applications (5 apps):

- **Qlik Cloud:** Efficient dashboard creation through its user-friendly App Development Environment.
- **Microsoft Power BI:** Requires additional time due to advanced customization requirements and integration with other Fabric services.

6. Publish Dashboards and Configure Access:

- **Qlik Cloud:** Streamlined publishing process using managed spaces.
- **Microsoft Power BI:** Slightly longer due to additional steps for configuring roles and permissions in Power BI Service.

7. Schedule Data Refresh Tasks:

- **Qlik Cloud:** Uses Qlik Automation for a straightforward scheduling process.
- **Microsoft Power BI:** Requires configuring pipelines in Fabric and schedules in Power BI, which increases time requirements.

8. Machine Learning Model Deployment:

- **Qlik Cloud:** Qlik AutoML simplifies the creation, training, and deployment of machine learning models, significantly reducing time.
- **Microsoft Power BI:** Azure Machine Learning provides powerful features but requires substantial time to set up and integrate with Power BI.

Software Cost Estimation

This section presents a comparative cost analysis between the Qlik Cloud and Microsoft Power BI solutions for a data project with 25 full users, and 100 basic users. The total annual costs were calculated based on licensing, infrastructure, and service usage fees for each platform.

Qlik Cloud Cost Breakdown

Item	Qty	Monthly Unit Cost	Annual Cost
Qlik Cloud Capacity (includes 20 users)		\$2,500	\$30,000
Full User Licenses	+5	\$70	\$4,200
Basic User Licenses	100	\$0	\$0
Qlik Data Gateway		\$0	\$0
Qlik AutoML		\$0	\$0
TOTAL ANNUAL COST			\$34,200

Notes:

- **Qlik Data Gateway** is free but requires a server to host it, which incurs a small cost for hosting via AWS EC2, if the company does not want to use one of their on-premise servers .
- Both **Qlik Analytics** and **Qlik AutoML** are included with no additional cost.

Microsoft Power BI and Azure Cost Breakdown

Item	Qty	Monthly Unit Cost	Annual Cost
Microsoft Fabric F64		\$5,003	\$60,036
Power BI Pro Licenses	25	\$14	\$4,200
Power BI end-users	100	\$0	\$0
Microsoft Enterprise Gateway		\$0	\$0
Azure Machine Learning		\$0	\$0
Networking Cost		?	?
TOTAL ANNUAL COST			\$64,236

Notes:

- **Microsoft Enterprise Gateway** is provided at no cost but requires a server on premise to host the gateway.
- Microsoft Fabric F64 includes the cost of Gateway, and Machine Learning.
- Microsoft Fabric F64 includes unlimited number of end-users and 64 TB of data storage.
- Microsoft announced a price increase in Power BI Pro licenses to \$14/user/month starting on April, 2025.
- Microsoft announced that Network billing is coming soon. Details are yet to be known.

TCO: Qlik Cloud vs. Microsoft Power BI

The following comparison provides a comprehensive overview of both solutions estimated **software costs**, **implementation costs**, and **functionality**. The analysis highlights the key strengths and limitations of each platform. The Year 2 cost used a standard industry calculation of Subscription Cost + 20% of Implementation cost.

Qlik Cloud

- **Software Subscription Cost: \$34,200**
- **Implementation Estimated Cost: \$31,980** (based on 164 hours at \$195/hour)
- **Total Year 1 Cost: \$66,180**
- **Total Year 2 Cost: \$40,459**

Advantages:

1. **Cost Transparency:**
 - Subscription-based pricing with no hidden costs.
 - Includes full analytics, data preparation, and machine learning capabilities at no extra charge.
2. **Unified Analytics Platform:**
 - A single platform for data integration, visualization, and machine learning.
 - No need for additional tools or services, reducing complexity.
3. **Simpler Implementation:**
 - Faster deployment due to a streamlined, unified platform.
 - Requires fewer technical specialties, making it more accessible for small-to-medium-sized teams.
4. **Ease of Use:**
 - One language (script) for both data preparation and UI development.
 - User-friendly interfaces and workflows simplify adoption.
5. **Unlimited Features for Basic Users:**
 - Basic users can interact with analytics content without incurring additional costs.
 - Unlimited machine learning experimentation with no charges for computation.

Disadvantages:

- Qlik Cloud capacity standard file storage size for this proposal is lower: 50 GB instead of 64 GB for Microsoft Fabric F64. Additional storage is charged separately. Each 25GB cost an additional \$1,250 per month. Optionally the customer can purchase a 250GB package for 10,000 a month. Data could be stored externally (i.e. AWS) as a cost-saving alternative.

Microsoft Power BI

- **Software Subscription Cost: \$64,236**
- **Implementation Estimated Cost: \$53,430** (based on 274 hours at \$195/hour)
- **Total Year 1 Cost: \$117,666**
- **Total Year 2 Cost: \$74,922**

Advantages:

1. **Enterprise Ecosystem:**
 - Integration with Azure services like Fabric, and Machine Learning.
 - Used for organizations already invested in the Microsoft ecosystem.
2. **Scalable for Large Workloads:**
 - Azure services provide flexibility and scalability for enterprise-level projects.
3. **Collaboration Features:**
 - Tight integration with Microsoft 365 tools like Teams, enhancing collaboration across teams.

Disadvantages:

1. **Higher Costs:**
 - Total cost is approximately **100% higher** than Qlik Cloud.
 - Costs increase further with additional usage of Azure services (e.g., machine learning execution).
2. **Complex Implementation:**
 - Requires multiple platforms and tools (Power BI, Fabric, Machine Learning).
 - Demands expertise in various specialties (DAX, SQL, M language), leading to longer implementation times and higher labor costs.
3. **Additional Charges:**
 - Basic users require licenses for access, increasing costs for larger teams.
 - Machine learning experiments are billed based on execution, RAM, and CPU usage.
4. **Fragmented Workflow:**
 - Separate tools for data preparation, modeling, and analytics lead to more complex workflows.

Conclusion

This study highlights the critical factors that organizations must consider when evaluating analytics platforms: cost, development effort, scalability, and features. Based on the simulated use case, **Qlik Cloud** emerges as the superior choice for most businesses due to its:

1. **Cost-Effectiveness:** With an annual cost nearly half that of Microsoft Power BI and its associated services, Qlik Cloud delivers high value without compromising on functionality.
2. **Unified Platform:** Qlik's seamless environment for data integration, modeling, and visualization eliminates the need for multiple tools, reducing complexity and saving time.
3. **Time-to-Value:** Faster implementation with fewer hours required for development enables quicker deployment of analytics solutions.
4. **Accessibility:** Features like Qlik's Associative Engine and AutoML empower non-technical users to explore data and uncover insights without relying heavily on IT support.

While Microsoft Power BI offers strong integration with Azure and is suitable for organizations with large-scale data and advanced requirements, it comes with higher costs and longer development timelines. For companies prioritizing agility, affordability, and ease of use, **Qlik Cloud offers a compelling advantage.**

In today's competitive landscape, choosing a platform that delivers insights quickly and efficiently can be the difference between staying ahead or falling behind. With its focus on delivering actionable insights through a cost-effective and user-friendly solution, Qlik Cloud is well-positioned to meet the analytics needs of modern businesses.

About IPC Global

IPC Global is a diverse, nationwide team of experienced, engaging, and effective data analytics experts. We provide advisory, consulting and managed services to solve your organization's Enterprise Intelligence challenges.

For more than 20 years we have been the go-to source for Artificial intelligence, Data Analytics, Data Science & Research, Business intelligence, Cloud Solutions, Data Integration, Education, Advisory services and more.