

Total Value of Ownership (TVO) Assessment of the IBM Cloud Pak for Data Solution for Analytics

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Executive Summary

The speed and scope of the business decision-making process is accelerating because of several emerging technology trends – Cloud, Social, Mobile, the Internet of Things (IoT), Analytics and Artificial Intelligence/Machine Learning (AI/ML). To obtain faster actionable insights from this growing volume and variety of data, many organizations are deploying Analytics solutions across the entire workflow.

For strategic reasons, IT leaders are focused on moving existing workloads to the cloud, or building new workloads on the cloud and integrating those with existing workloads. Quite often, the need for data security and privacy makes some organizations hesitant about migrating to the public cloud. The business model for cloud services is evolving to enable more businesses to deploy a hybrid cloud, particularly in the areas of big data and analytics solutions.

IBM Cloud Pak for Data is an integrated data science, data engineering and app building platform built on top of IBM Cloud Pak for Data – a hybrid cloud that provides all the benefits of cloud computing inside the client's firewall and provides a migratory path should the client want to leverage public clouds. IBM Cloud Pak for Data clients can get significant value because of unique capabilities to connect their data (no matter where it is), govern it, find it, and use it for analysis. IBM Cloud Pak for Data also enables users to collaborate from a single, unified interface and their IT staff doesn't need to deploy and connect multiple applications manually.

These IBM Cloud Pak for Data differentiators enable quicker deployments, faster time to value, lower risks of failure and higher revenues/profits. They also enhance the productivity of data scientists, data engineers, application developers and analysts; allowing clients to optimize their **Total Value of Ownership (TVO)**, which is Total Benefits – Total Costs.

The comprehensive TVO analysis presented in this paper compares the IBM Cloud Pak for Data solution with a corresponding In-house solution alternative for three configurations – small, medium and large. This cost-benefit analysis framework considers cost/benefit drivers in a 2 by 2 continuum: Direct vs. Derived and Technology vs. Business mapped into four quantified quadrants: Costs, Productivity, Revenues/Profits and Risks.

Compared to using an In-house solution, IBM Cloud Pak for Data **can improve the three-year ROI for all three configurations**. Likewise, the Payback Period (PP) for the IBM Cloud Pak for Data solution is shorter than the In-house solution; providing clients faster time to value. In fact, these ROI/PP improvements grow with configuration size; offering clients better investment protection as they progress in their Analytics and AI/ML journey and as data volumes and Analytics model complexities continue to grow.

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Technology Matters to Harness the Growing Value of Analytics

Data central to key emerging technology trends



Data volumes growing exponentially 18-fold

AI initiatives require trusted and efficient infrastructure solutions

Hybrid clouds are growing rapidly for Analytics

The relentless rate and pace of technology-enabled business transformation and innovation are astounding. Several fast-growing intertwined technology trends (Figure 1) – Cloud, Big Data Analytics, Social, Mobile, Internet of Things (IoT) and Artificial Intelligence (AI)/Machine Learning (ML) – continue to be profoundly disruptive, reshaping the information technology (IT) industry. Central to these trends is Data which is growing exponentially. Data analytics are fast becoming the lifeblood of IT. Big data, machine learning (ML), deep learning (DL), data science — the range of technologies and techniques for analyzing vast volumes of data are expanding at a rapid pace.

By 2025, the world is expected to have a total of 180 zettabytes of data (or 180 trillion gigabytes), up from less than 10 zettabytes in 2015¹. In 2018, about 4.3 exabytes (10¹⁸ bytes) of data is expected to be created daily – over 90% will be unstructured² including language-based data (e.g. emails, Twitter messages, books) as well as non-language based data e.g., images,

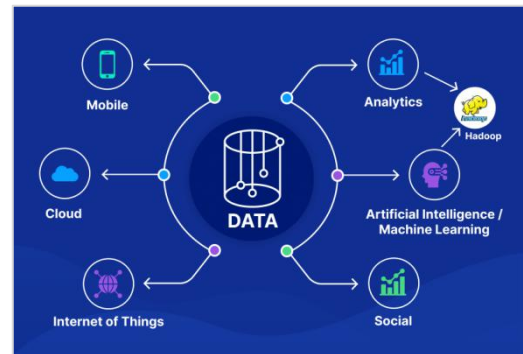


Figure 1: Intertwined Technologies of Cloud, Social, Mobile, IoT, AI/Machine Learning and Analytics

Supporting AI initiatives requires that clients collect all the data they need, govern it to ensure it is trustworthy, analyze and build the algorithms necessary for the project in hand and, finally, to be able to put the results of this exercise into production. The individuals responsible for these activities are often disparate and disconnected and it requires a collaborative approach to make this work efficiently.

For strategic reasons, IT leaders are focused on moving existing workloads to the cloud, extending existing workloads to the cloud, or building new workloads on the cloud and integrating those with existing on-prem workloads. Quite often, the need for data security and privacy makes some organizations hesitant about migrating to the public cloud. Considering the regulatory and security challenges, this is perfectly understandable. The business model for cloud services is evolving to enable more businesses to deploy a hybrid cloud, particularly in the areas of big data and analytics solutions.

A hybrid cloud is a combination of on-premises and local cloud resources integrated with one or more dedicated cloud(s) and one or more public cloud(s). The combination of on-premises and local cloud with dedicated cloud(s) is referred to as the “private environment”. Public cloud and private environments are structured so that they operate independently but communicate with each other via a secure connection on a private and/or public network, using technologies that facilitate the portability of applications and data movement as shown in Figure 2.

¹ "IoT Mid-Year Update From IDC And Other Research Firms," Gil Press, Forbes, August 5, 2016.

² <https://storageservers.wordpress.com/2016/02/06/how-much-data-is-created-daily/>

Integrating data from private and public environments generate higher value insights

Global hybrid cloud market growing at 22.7% CAGR

Data Scientists spend about 79% of their time with data prep and cleansing

IBM Cloud Pak for Data accelerates data driven processes particularly AI

A hybrid cloud allows organizations to integrate data from enterprise systems on the private environment with applications running on the public cloud, while leveraging the public cloud's computational resources and storage. For example, organizations can generate actionable insights by integrating the data from Systems of Record (private environment) with Systems of Engagement in a public cloud or by applying edge-analytics on the devices in the public cloud

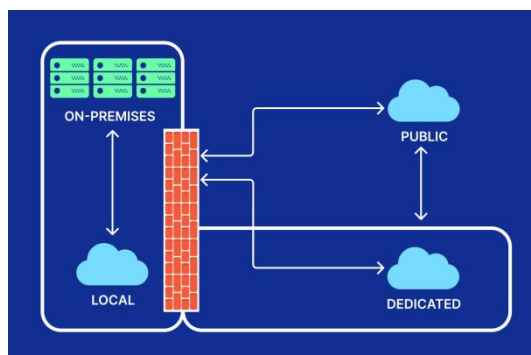


Figure 2: Hybrid Cloud Components

Hybrid Cloud leverages the best of what each environment has to offer, providing the flexibility to locate data and services based on business need. Consequently, the global **hybrid cloud market**, valued at USD 40.62 billion in 2017 is expected to reach a value of USD 138.63 billion by 2023, at a healthy cumulative annual growth rate (CAGR) of 22.70%³. The use of Hybrid Cloud for Analytics, and Machine Learning is growing rapidly.

However, deploying higher-value Analytics and AI/Machine Learning is complex and labor intensive. Data Scientists typically spend about 79%⁴ of their time with cumbersome data preparation and cleansing tasks. Fortunately, continuous improvements in software are fueling the rapid adoption of higher-value Analytics and enabling organizations to generate time-critical insights and maximize their Total Value of Ownership (TVO).

This paper uses a TVO model that quantifies some of the key interrelated cost and benefit drivers and differentiators of the IBM Cloud Pak for Data solution over an In-house alternative. These cost and value drivers were identified using over a dozen in-depth interviews representing IBM customers and Analytics experts, IBM input and other research. This holistic cost-benefit analysis examines various configuration sizes (small, medium and large) for the entire Analytics workflow.

IBM Cloud Pak for Data is an integrated data science, data engineering and app building platform built on top of IBM Cloud Pak for Data (a key building block for a hybrid cloud) that delivers all the benefits of cloud computing inside the client's firewall and provides a migratory path should the client want to leverage public clouds. IBM Cloud Pak for Data for Data provides an environment that makes it easier to implement data driven processes and operations and, more particularly, to support both the development and deployment of AI/ML.

³ <https://www.mordorintelligence.com/industry-reports/hybrid-cloud-market>

⁴ CrowdFlower, "2016 Data Science Report"

Optimizing the Analytics Workflow with IBM Cloud Pak for Data

Most Analytics projects are complex and iterative (AI/Machine Learning is highly iterative) with four phases and centered on Data (Figure 3 – below left):

1. **Business Understanding:** Determine the business objectives and success criteria. Assess the situation including available resources, requirements, assumptions, constraints, risks, terminology, costs and benefits.
2. **Data Understanding and Preparation:** Collect initial data, then describe, explore and verify data, particularly for quality. For data preparation, select, include/exclude with rationale, clean, construct, integrate/merge and format/re-format data.
3. **Modeling and Evaluation:** Select modeling technique with assumptions. Generate test design, build the model, set parameters, describe and assess the model and revise parameter settings as needed. Evaluate results against success criteria, approve models, review process and determine next steps/actions.
4. **Deployment:** Plan, monitor and maintain model deployment. Produce reports/presentations and review/document project experience/results.

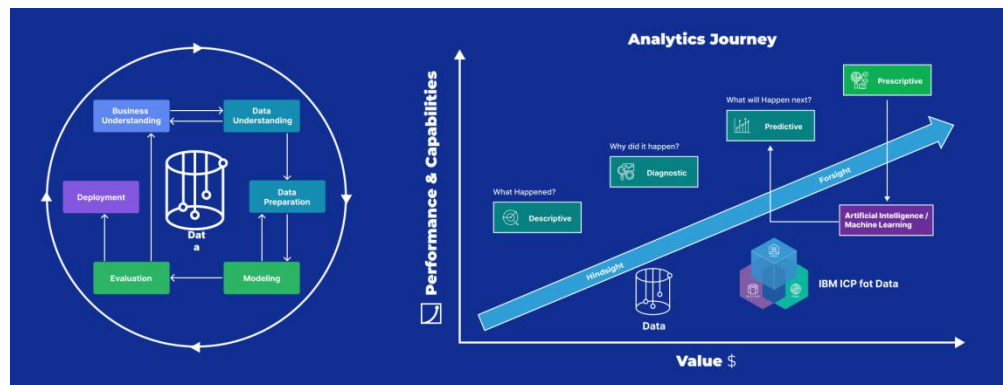


Figure 3: Analytics Workflow and Journey

To deploy these complex Analytics workflows, many organizations use cumbersome manual processes and/or multiple disparate tools that don't easily integrate or interoperate. This impedes realization of business value and lowers the Total Value of Ownership (TVO).

Organizations also need a single platform for data integration, governance and quality for the entire Analytics workflow. The IBM Cloud Pak for Data solution provides this and more; enabling companies to progress on their value-enhancing Analytics journey from Descriptive to Predictive to Prescriptive with Artificial Intelligence/Machine Learning (Figure 3 - right). This helps maximize their TVO for Analytics.

High Level TVO Framework for Analytics

The TVO framework (Figure 4 – next page) categorizes the interrelated cost/value drivers (circles) for Analytics by each quadrant: Costs, Productivity, Revenue/Profits and Risks. Along the horizontal axis, the drivers are arranged based on whether they are primarily Technical or Business drivers. Along the vertical axis, drivers are arranged based on ease of measurability: Direct or Derived.

Need to optimize entire Analytics workflow to maximize Total Value of Ownership (TVO)

IBM Cloud Pak for Data provides a single platform for data integration, governance and quality throughout the Analytics and AI journey

TVO Framework organized by Technical/ Business and Direct/ Derived cost and value drivers

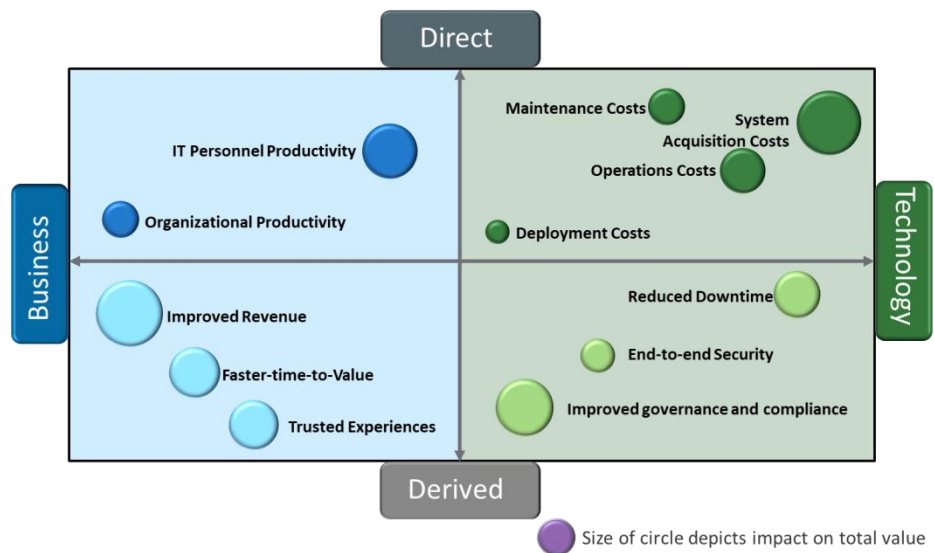


Figure 4: TVO Framework for Analytics Workflows with Cost/Value Drivers

The cost/value drivers for Analytics are depicted as circles whose size is proportional to the potential impact on a client's Total Value (Benefits – Cost) of Ownership or TVO as follows:

1. **Total Costs of Ownership (TCO):** Typical costs include: one-time acquisition costs for the hardware and deployment, and annual costs for software, maintenance and operations.
2. **Improved Productivity:** The TVO model quantifies the value of productivity gains of data scientists, data engineers, applications developers and the organization.
3. **Revenue/Profits:** Faster time to value with better performance-optimized parallel and in-memory processing and a single open, flexible and agile platform. Greater innovation and better decision-making capabilities spur growth, revenues and improve profits.
4. **Risk Mitigation:** Lower risk of project failure (even well-planned Analytics projects have up to 60% failure rate⁵) with a streamlined workflow with reusable components, better ecosystem and business/IT collaboration and enhanced security/ privacy. Improved governance with better data cleansing/quality and process consistency.
5. The TVO for both IBM Cloud Pak for Data and In-house solution typically grow with data/configuration size, with key differentiated features in the IBM Cloud Pak for Data (detailed in the Results Discussions section) driving added value over the In-house solution.

TVO for IBM Cloud Pak for Data – Assumptions/Results

The Cost-Benefit Analysis presented here quantifies the Total Value (Total Benefits – Total Costs) for three years of operations. The IBM Cloud Pak for Data solution is compared with an In-house solution alternative.

⁵ Why big data projects fail and how to make 2017 different, Expansion of Gartner's prediction that 60% of big data projects fail; By Sameet Agarwal, Network World Feb 16, 2017.

IBM Cloud Pak for Data vs. In-house alternative

TVO analysis for three configurations: small, medium and large

Software and operational people costs are typically the largest cost component of Analytics projects

Data professionals with high-value skills scarce

Key assumptions: The basic difference between the IBM Cloud Pak for Data and the In-house solution is that IBM Cloud Pak for Data includes key integrated capabilities from IBM's entire Analytics portfolio (e.g. Watson Studio, Information Analyzer, Information Governance Catalog and other key analytics products) and integration of products from Business Partners (e.g. Datameer). Whereas, in the In-house solution alternative, the software components must be individually procured and a System Integrator (or IT staff) must install, integrate and test to make sure that they work in unison.

Table 1 shows the cost elements for 3 configurations: small, medium and large. Both IBM Cloud Pak for Data and the In-house solutions have the same number of Virtual Processor Cores (VPC) for all three configurations. Hardware acquisition and maintenance costs IBM Cloud Pak for Data are assumed to be smaller because of better utilization and other features. For IBM Cloud Pak for Data, software is purchased. Whereas in the In-house case, it is assumed that the system integrator charges include both the software and implementation charges. Costs for training and deployment are higher for the In-house solution because of the cumbersome manual processes. Whereas, the IBM Cloud Pak for Data solution has streamlined these steps at several customers and is hence more efficient. Other costs are higher for In-house due to the lack of economy of scale, efficiency and other factors.

Configuration/Costs	Small		Medium		Large	
	IBM Cloud Pak for Data	In-house	IBM Cloud Pak for Data	In-house	IBM Cloud Pak for Data	In-house
Number of Virtual Processor Cores (VPC)	36	36	72	72	144	144
Software acquisition costs/VPC	\$16,320	N/A	\$16,320	N/A	\$16,320	N/A
System integration costs/VPC/year	N/A	\$23,664	N/A	\$24,480	N/A	\$25,296
Software maintenance costs/VPC/year	\$3,264	N/A	\$3,264	N/A	\$3,264	N/A
System integration maintenance costs/VPC/year	N/A	\$4,733	N/A	\$4,896	N/A	\$5,059
Hardware acquisition costs/VPC	\$1,153	\$1,672	\$1,153	\$1,730	\$1,153	\$1,787
Hardware maintenance costs/VPC/year	\$208	\$301	\$208	\$346	\$208	\$393
Space, power, and cooling costs/year	\$26,253	\$31,504	\$52,506	\$57,757	\$105,012	\$115,513
Staff costs required to plan, configure, and implement/project/year	\$22,678	\$30,238	\$50,397	\$70,555	\$60,476	\$100,793
Training and education costs/year	\$20,000	\$48,000	\$40,000	\$90,000	\$60,000	\$120,000
Deployment costs/project/year	\$19,200	\$28,800	\$38,400	\$60,000	\$51,200	\$81,920

Table 1: Costs – Configurations and Assumptions

Table 2 (next page) details the assumptions made in deploying staff (by roles) associated with the development and deployment of Analytics projects. These skills are often very scarce, and organizations compete for them and pay a premium. Operational people costs are typically the largest cost component of Analytics projects. So, solutions that reduce staff costs and enhance personnel productivity help improve the TVO of Analytics projects. IBM Cloud Pak for Data has many features and functions that lend to improved productivity of developers and Analytics staff and as such it is assumed that number of hours and consequently the costs associated with Analytic projects is less for IBM Cloud Pak for Data compared to the In-house solution.

IBM Cloud Pak for Data improves productivity of all Data professionals

Role	Yearly Salary	Small (#of hours/year)		Medium (#of hours/year)		Large (#of hours/year)	
		IBM Cloud Pak for Data	In-house	IBM Cloud Pak for Data	In-house	IBM Cloud Pak for Data	In-house
Data Scientists	\$139,840	1,664	1,768	3,120	3,328	4,056	4,368
Data Engineers	\$110,000	2,912	3,120	4,056	4,368	4,922	5,408
Application Developers	\$82,483	2,912	3,120	4,056	4,368	4,922	5,408
Data Stewards	\$66,197	1,664	1,768	3,120	3,328	4,056	4,368
Business Analysts	\$77,172	2,912	3,148	4,826	6,240	6,240	8,112
Business Users	\$68,720	3,640	4,056	6,032	7,800	7,800	10,140

Table 2: Personnel Time and Assumptions

Table 2 also shows the annual salary assumed for the various skilled positions. The same salary rate has been assumed for both IBM Cloud Pak for Data and the In-house solution.

This TVO analysis considers a conservative IBM Cloud Pak for Data configuration. First, the application in the IBM Cloud Pak for Data configuration is not considered to be “Cloud Native”. A Cloud native application would result in lower software and computing costs as the application is built for the cloud. Secondly, IBM Cloud Pak for Data reduces data movement requirements by 50% with Data Virtualization (DV) and since it is very hard to quantify the benefits of DV, the cost benefits of this feature have not been taken into account in this analysis. Together these factors will improve the ROI substantially than the ones suggested in this paper.

Results for a Small Analytics Configuration: Figure 5 depicts the costs and benefits mapped by each quadrant and value driver. IBM Cloud Pak for Data costs are much lower especially the System acquisition and Operational costs while the benefits gained from improved IT personal and organizational productivity are much higher. The benefits gained from improved security, governance and reduced downtime are also higher.

Small Configuration (36 VPC) ROI and Payback Period

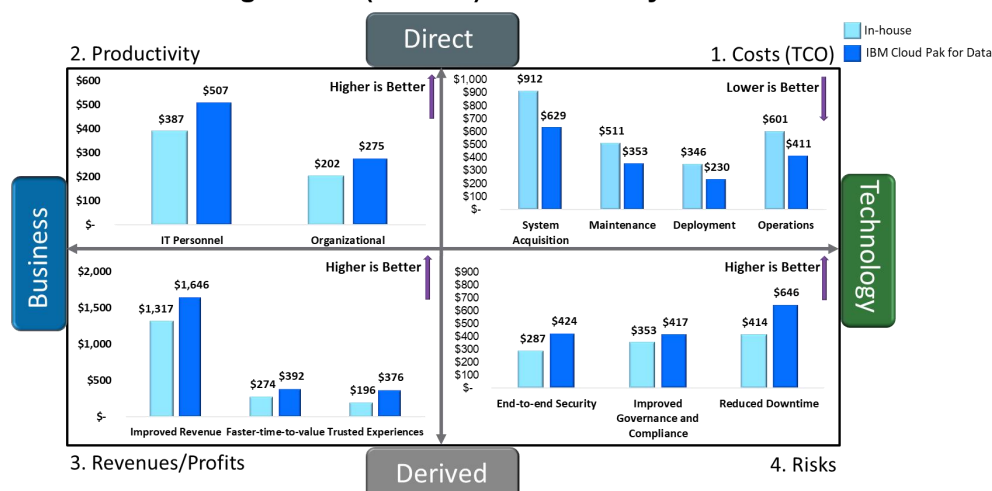


Figure 5: Costs and Benefits for IBM Cloud Pak for Data versus In-house solution - Small

The 3-year ROI and Payback Period for a small configuration for IBM Cloud Pak for Data are better than the In-house solution (Figure 6 – next page). The ROI is more than 300% better and payback period improves by over 90%.

Small Configuration (36 VPC) ROI and Payback Period

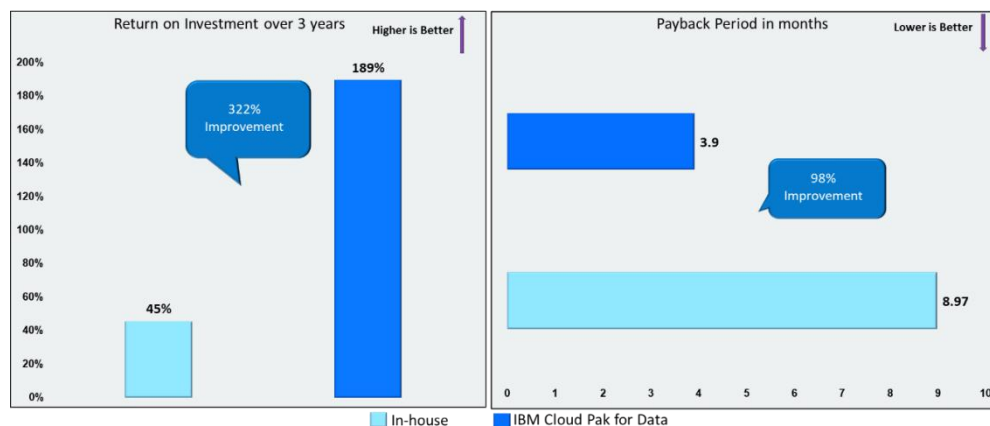


Figure 6:ROI and Payback for IBM Cloud Pak for Data Over In-house Solution - Small

Results for a Medium Analytics Configuration: Figure 7 depicts the costs and benefits mapped by each quadrant and value driver for a medium configuration. The results are like a small analytics configuration only better for IBM Cloud Pak for Data whose costs are much lower especially the System acquisition and Operational costs while the benefits gained from improved IT personnel and organization productivity is much higher. The benefits gained from improved security, governance and reduced downtime are also higher.

Medium Configuration (72 VPC) ROI and Payback Period

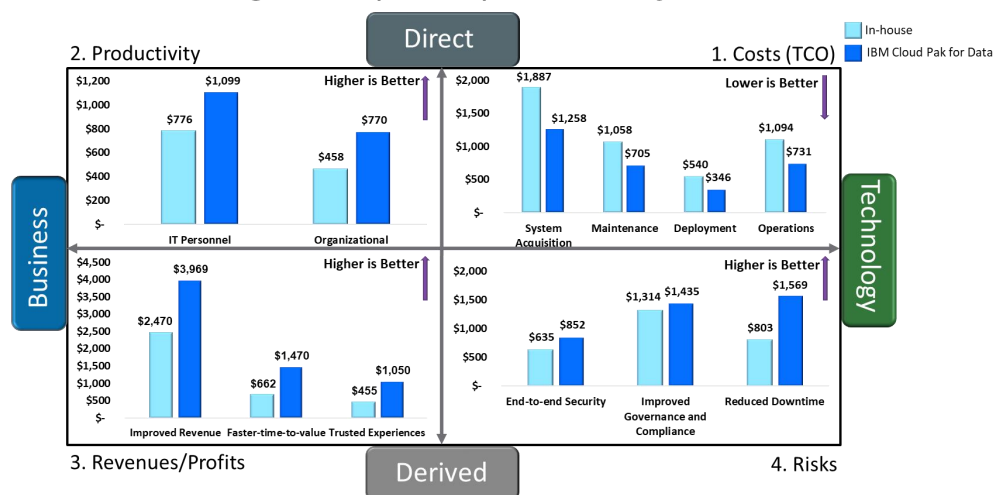


Figure 7: Costs and Benefits for IBM Cloud Pak for Data versus In-house solution - Medium

The 3-year ROI and Payback Period for a medium configuration for IBM Cloud Pak for Data are better than the In-house solution (Figure 8 – next page). The ROI is more than 360% better and payback period improves by 130%.

Medium Configuration (72 VPC) ROI and Payback Period

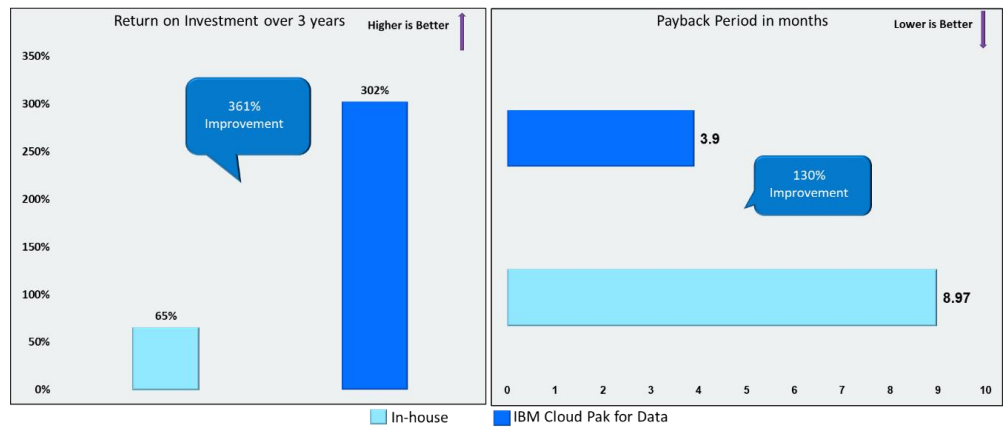


Figure 8: ROI and Payback for IBM Cloud Pak for Data Over In-house Solution - Medium

Results for a Large Analytics Configuration: Figure 9 depicts the costs and benefits mapped by each quadrant and value driver for a large configuration. Again, the results are similar to small and medium analytics configurations. IBM Cloud Pak for Data costs are much lower but higher benefits are gained through improved productivity, higher revenue and profits and lowered risk.

Large Configuration (144 VPC) ROI and Payback Period

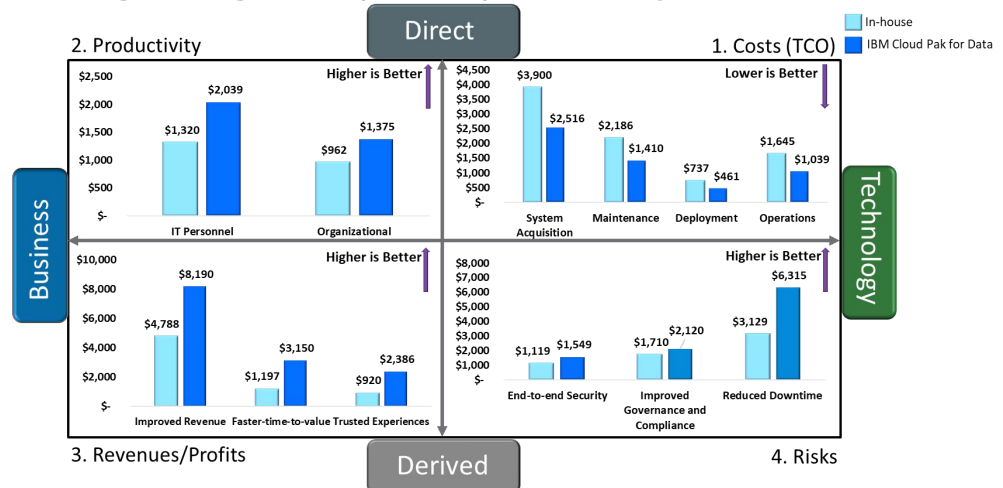


Figure 9: Costs and Benefits for IBM Cloud Pak for Data versus In-house solution – Large

The 3-year ROI and Payback Period for the large configuration for IBM Cloud Pak for Data are better than the In-house solution (Figure 10 – next page) by over 400% and 170% respectively

ROI is more than 360% better

Payback period reduces by 130% for medium configs

For large configs, the large IBM Cloud Pak for Data can further drive radical innovation and create entirely new business opportunities

Large Configuration (144 VPC) ROI and Payback Period

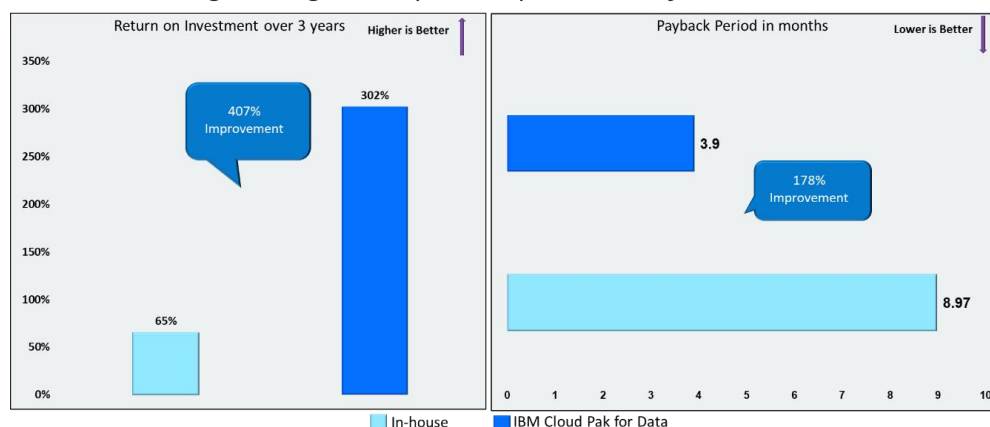


Figure 10: ROI & Payback for IBM Cloud Pak for Data Over In-house Solution - Large

These large configurations can be very complex to manage and operate. However, with the IBM Cloud Pak for Data, clients can get significant value because of its unique capability to connect to their data (no matter where it lives), govern it, find it, and use it for analysis. IBM Cloud Pak for Data also enables all users to collaborate from a single, unified interface and the customer's IT organization doesn't need to deploy and connect multiple applications.

Discussions of Results from the TVO Model

Most Total Cost of Ownership (TCO) models only quantify the costs in top right quadrant (Figure 4). The TVO model outlined here not only considers these costs but also the benefits from the value drivers in the remaining three quadrants. Compared with the In-house solution, the IBM Cloud Pak for Data solution reduces costs and drives additional benefits for all configurations by:

1. **Lowering Operational/Deployment Costs:** IBM Cloud Pak for Data can significantly reduce hardware costs with better utilization of hardware and IT operations. The in-house solution calls for purchasing, installing, integrating and managing about a dozen products for a minimum configuration totaling over 300 VPCs. IBM Cloud Pak for Data includes a large portfolio of products (e.g. Data virtualization, Data warehouse, Governance catalogues, policies and rules, machine and Deep Learning and many other strategic products) installed in a much lesser number of VPCs. This results in about 50% cost savings in server hardware and software, deployment labor and facilities costs (i.e. power, cooling, backup...etc.)

IBM Cloud Pak for Data also reduces data movement requirements by 50% with Data Virtualization. This feature allows the data to be kept where it resides. Queries can be distributed to the edge nodes. Leveraging computing capacity at the edge nodes for distributed query in a computational mesh architecture results in a reduction of operational costs to gain access to data by 70% because of simpler ETL/integrated data lake, leading to less labor and complexity

2. **Enhancing Productivity:** IBM Cloud Pak for Data offers a tightly integrated collection of data and analytics micro-services built on cloud native architecture (based on Kubernetes). It is built to interoperate with Watson studio on public cloud so that underlying data, meta-data and ML models can

For large configs, the ROI is over 400% better with IBM Cloud Pak for Data

Payback is 170% better

IBM Cloud Pak for Data lowers operational deployment costs especially with Data Virtualization

Enhances Productivity of staff and organization

Supports multi-cloud

Increases revenues/
profits with faster
time to value and
innovation

Mitigates risks with
improved
governance/ data
quality and security/
privacy

Enhances regulatory
compliance

easily be ported back and forth to meet the needs of customers. This gives IBM customers an option to either buy standalone offerings or an integrated experience with cloud benefits such as Resiliency, Elasticity / Scalability, Serviceability, Portability and so on behind their firewall. IBM Cloud Pak for Data comes bundled with IBM's private cloud offering and supports other clouds such as Red Hat OpenShift providing customers multi-cloud support. In addition, developer productivity is enhanced using DevOps with containers and container cluster managers.

Organizational productivity is further enhanced with other IBM value-added capabilities/expertise to advise, deploy, integrate and support throughout the Analytics journey.

3. **Increasing Revenues/Profits:** IBM Cloud Pak for Data empowers customers to reduce development cycle from months to days with reduced provisioning time for data and analytics stacks thereby impacting the bottom and top lines of the business. It brings the power of IBM data management, information governance, integration and data science offerings to a customer's private cloud. Moreover, because it is based on the open source Kubernetes technology stack, it can significantly reduce the inefficiencies of maintaining and managing multiple data science analytics tools in different environments. There's no need to use different tools to manage data access, preparation, exploration, statistics, machine learning and other data services.

Greater innovation and better decision-making capabilities with trusted data help improve customer service and support, reduce time to market, identify new customers/markets/products/services, build better pricing models and more.

4. **Mitigating Risks:** IBM Cloud Pak for Data's integrated containerized platform approach makes sure there is little room for security breaches and data risks - a fundamentally better approach than wiring the data portfolio together from discrete products. IBM Cloud Pak for Data accelerates transformation for compliance with GDPR and adds new capabilities for securing, managing, and scaling a customer's platform. Additionally, it includes support for both Microclimate and select open source runtimes. Other enhancements such as: Role-Based Access Control (RBAC), Service IDs and Service API keys, end to end encryption of the ELK stack, Audit logging of authentication and authorization logs enhance security.

IBM Cloud Pak for Data also provides several robust data governance characteristics for data preparation, indexing for search and to find appropriate data and analytics assets in the enterprise catalogue. Time and costs associated with identifying and correcting errors in the data are reduced. Better governance also lowers risks associated with regulatory non-compliance in highly regulated industries.

Better ROI/Payback from IBM Cloud Pak for Data

Key financial metrics for a 3-year time horizon for all three configurations for IBM Cloud Pak for Data and In-house solution (Figure 11) include: Return on Investment (ROI) and Payback Period (PP).

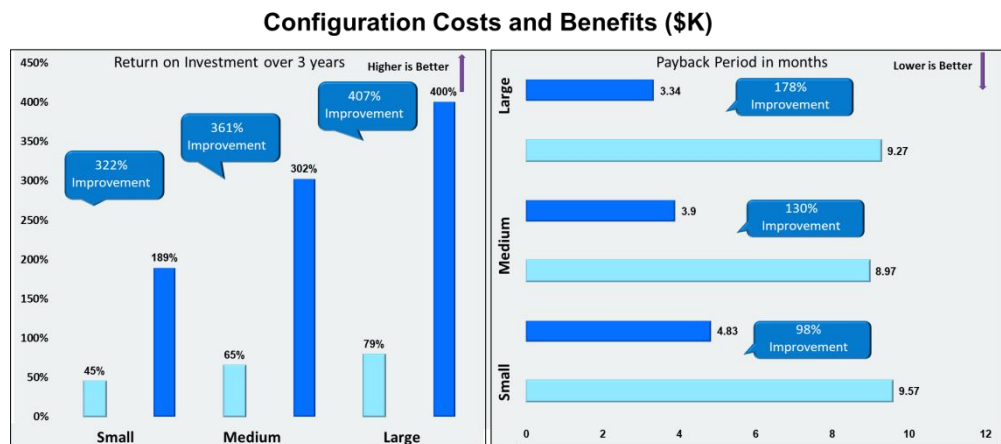


Figure 11: ROI & Payback for IBM Cloud Pak for Data Over In-house – Consolidated View

For all cases, the ROI and Payback Period improve as configuration sizes grow from small to medium to large. This is to be expected. Clients typically increase the configuration size as they tackle bigger projects with increased investments and the benefits accrued due to improved productivity are also higher. The percent improvements in ROI and Payback Period for IBM Cloud Pak for Data over an In-house solution also improve (Figure 11) with configuration size. This means as clients grow their footprint to drive more innovation, the IBM Cloud Pak for Data solution delivers even more value.

Conclusions and Recommendations

Analytics is a game-changing business opportunity for companies to deliver exceptional customer experience, enhance marketing effectiveness, increase operational efficiencies, reduce financial risks, improve product quality and reliability, and more. To obtain faster actionable insights from a growing volume and variety of data, many organizations are deploying Analytics solutions across the entire workflow.

However, as the volume and variety of data grow and as organizations implement higher-value Analytics, they need enterprise-grade solutions including cloud-like solutions to produce more realistic, reliable, actionable and time-critical analyses. IBM Cloud Pak for Data is one such leading solution.

ROI and Payback Period improve as configuration sizes grow

IBM Cloud Pak for Data consistently delivers better ROI and Payback compared with In-house

ROI and Payback differentials improve with configuration size

IBM Cloud Pak for Data enables faster insights from data

IBM Cloud Pak for Data is a cloud-like Data/ Application Integration platform with a common interface and repository to accelerate decision-making



Considerable ROI improvement with IBM Cloud Pak for Data of 322% (small) to 407% (large) over an In-house solution

IBM is a reliable partner with one of the most comprehensive cloud-like data and application integration solutions for Analytics and AI

IBM Cloud Pak for Data is an integrated data science, data engineering and app building platform built on top of IBM Cloud Pak for Data which is a hybrid cloud intended to provide all the benefits of cloud computing inside the client's firewall and provide a migratory path should the client wants to leverage public clouds. IBM Cloud Pak for Data clients can get significant value because of unique capabilities connect to their data (no matter where it lives), govern it, find it, and use it for analysis. It also enables all users to collaborate from a single, unified interface and the customer's IT organization doesn't need to deploy and connect multiple applications. IBM Cloud Pak for Data reduces data movement requirements by 50% with Data Virtualization. IBM Cloud Pak for Data's Virtual Data Lake allows the data to be kept where it resides and distribute queries to the edge nodes. Leveraging computing capacity at the edge nodes for distributed query in a computational mesh architecture results in a reduction of operational cost to gain access to data by 70% (due to less ETL, much smaller data lake, less labor and less complexity).

The 3-year TVO analysis presented here quantifies all these cost/value drivers holistically for three configurations: small, medium and large. The ROI for the IBM Cloud Pak for Data solution ranges from 189% (small) to 400% (large) while a corresponding In-house solution delivers a ROI of 45% (small) to 79% (large). This implies that IBM Cloud Pak for Data delivers a considerable ROI improvement of 322% (small) to 407% (large) over an In-house.

Likewise, the Payback Period (PP) in months for the IBM Cloud Pak for Data solution ranges from 4.8 (small) to 3.3 (large) while the corresponding In-house solution delivers a PP in months of 9.57 (small) to 9.27 (large). This implies that the IBM Cloud Pak for Data solution also delivers better Payback improvements from 98% (small) to 178% (large) over In-house.

Clients deploying Analytics workflows should seriously consider the IBM Cloud Pak for Data solution for the following reasons:

1. The cost-benefit analysis and business case are compelling for all configurations.
2. The business value and ROI/PP differential improve as configurations get larger.
3. This investment is protected and can continue to deliver even greater marginal value for more complex analytics including the rapidly growing use of Artificial Intelligence and Machine Learning (AI/ML) techniques coupled with the Internet of Things (IoT) – all areas where IBM continues to make substantial investments.
4. IBM is a reliable partner and offers one of the most comprehensive cloud-like data/application integration solutions for Analytics and AI.

For a free trial of IBM Cloud Pak for Data, please click:

<https://www.ibm.com/account/reg/us-en/signup?formid=urx-34120>

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