Microscopic View to Enterprise Level Data

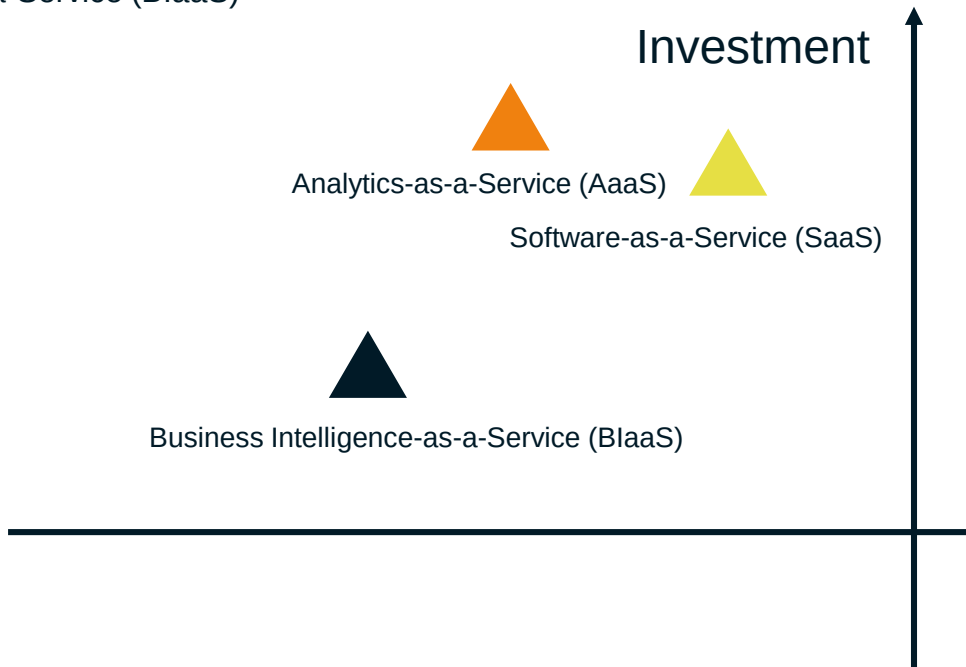
KPMG Advanced Research Laboratory in Analytics

Business Intelligence-as-a-Service

Enterprises are continuously seeking insights from the vast amount of data available from a multitude of sources. These data sources may include external data such as World Wide Web, market research etc. as well as internal data such as ERP systems, Sales Force Automation systems and Point of Sales systems etc. Enterprises today, are investing on different technological solutions to process and analyse this data in order to obtain actionable insights.

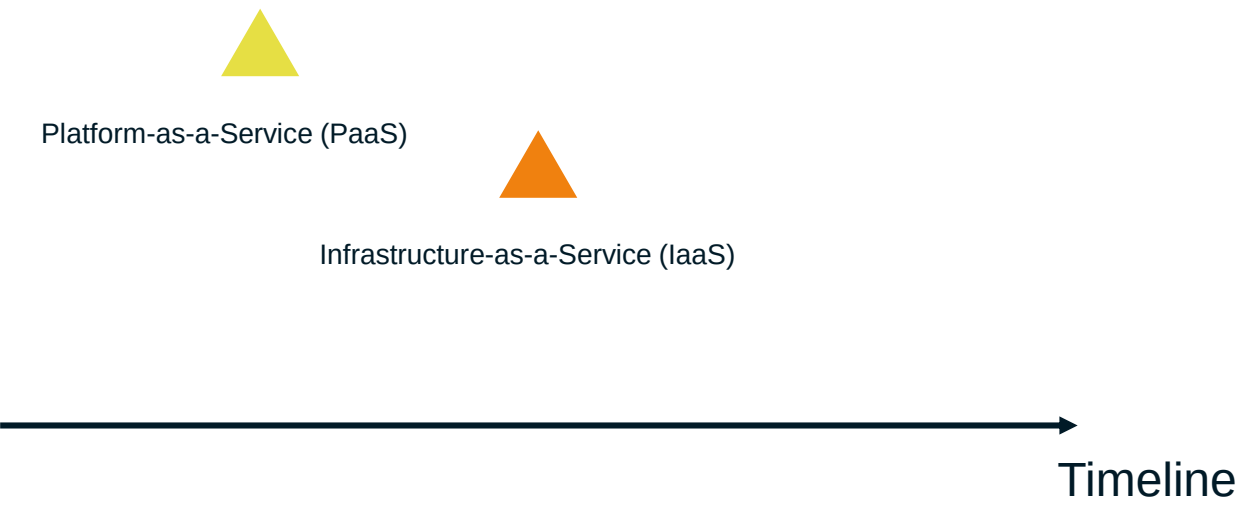
However enterprises often fail in identifying the correct technological solution which best suits for their specific requirement/s. Following are some of the common technologies which are used by the enterprises:

- Infrastructure-as-a-Service (IaaS)
- Platform-as-a-Service (PaaS)
- Software-as-a-Service (SaaS)
- Analytics-as-a-Service (AaaS)
- Business Intelligence-as-a-Service (BIaaS)



Business Intelligence-as-a-Service (BIaaS) is a fairly new term. The term BIaaS used to describe a total Business Intelligence and Analytics solution that consists of an integrated data platform, an analytical engine and a web based data visualization. In comparison to BIaaS, other solutions are limited to one or two components offered by BIaaS, for an example, SaaS or AaaS provides only the front end visualization and the enterprise has to allocate their internal IT resources, time and effort in integrating different data sources, data cleansing to plug the AaaS or SaaS solution to the backend systems.

Prior to an investment of this nature, there is a need for a systematic study to understand the specific requirements of the client. If the enterprise is already in the matured stage in terms of data and information, and has already invested on data warehousing, then SaaS or an AaaS solution will best fit the requirement since the internal IT or MIS team/s will have gathered necessary knowledge and expertise in data analytics. However, if the company is not in the matured stage where the internal IT resources are limited or have to extract different reports from different data sources such as ERP systems, Sales Force Automation systems, CRM systems and other external data from the World Wide Web, market research reports etc. which are scattered, or simply require an over the shelf BI Solution at the departmental level, then BIaaS will be a much more effective solution in terms of the investment and the implementation timeline.



Why KPMG Setup an

Data Science

The fundamental idea behind setting up “KPMG Advanced Research Laboratory in Analytics” is to develop a virtual platform (or a laboratory) for our BI & Analytics team to develop, test and deploy advanced data analytics models. Our BI & Analytics team consists of members with different scientific backgrounds ranging from Computer Science, Statistics, Business Management to Operations Research. Developing and testing advanced data analytic models require continuous research to be carried out by the team in different knowledge areas.

KPMG

Our BI & Analytics team closely work with the other KPMG advisory practices such as Supply Chain & Operations, Financial Management, Hotel advisory etc. to incorporate the KPMG knowledge and expertise developed in these practices into the advanced data analytics. This amalgamation with the data science and KPMG advisory practices enables effective insights customised to each industry or function. For an example, our team developed a BIaaS solution for Integrated Demand Planning function with advanced demand forecasting algorithms partnering up with the Supply Chain & Operations Advisory team. The proposed solution increased the accuracy of the forecast and thereby improved their planning efficiencies and overall profitability of the business.

Advanced Research Laboratory in Analytics?

BIaaS

‘KPMG Advanced Research Laboratory in Analytics’ is not just a software or an application, but a highly customized Business Intelligence-as-a-Service solution, where we identify the client’s specific data analytics requirements and conduct a comprehensive research on the business domain and the required data analytical models, develop and test models and finally deploy it as an online dashboard which is accessible to the client with a secured login. Therefore it provides a complete solution from the integrated data platform, analytical engine to the web based visualisation.

Technology

Technologies used for the ‘KPMG Advanced Research Laboratory in Analytics’ are the advanced and the latest technologies available. Microsoft Azure is used as the cloud platform and on top, the analytical engine is built using the advanced data analytical solutions such as R and Python. The top layer or the visualization layer utlises advanced visualization technologies such as Java Script, CSS and dynamic web technologies. Our development team continuously searches for latest technologies used and provide better user experience and performance. Amalgamation of these technologies facilitate a scalable and reliable BIaaS solution.

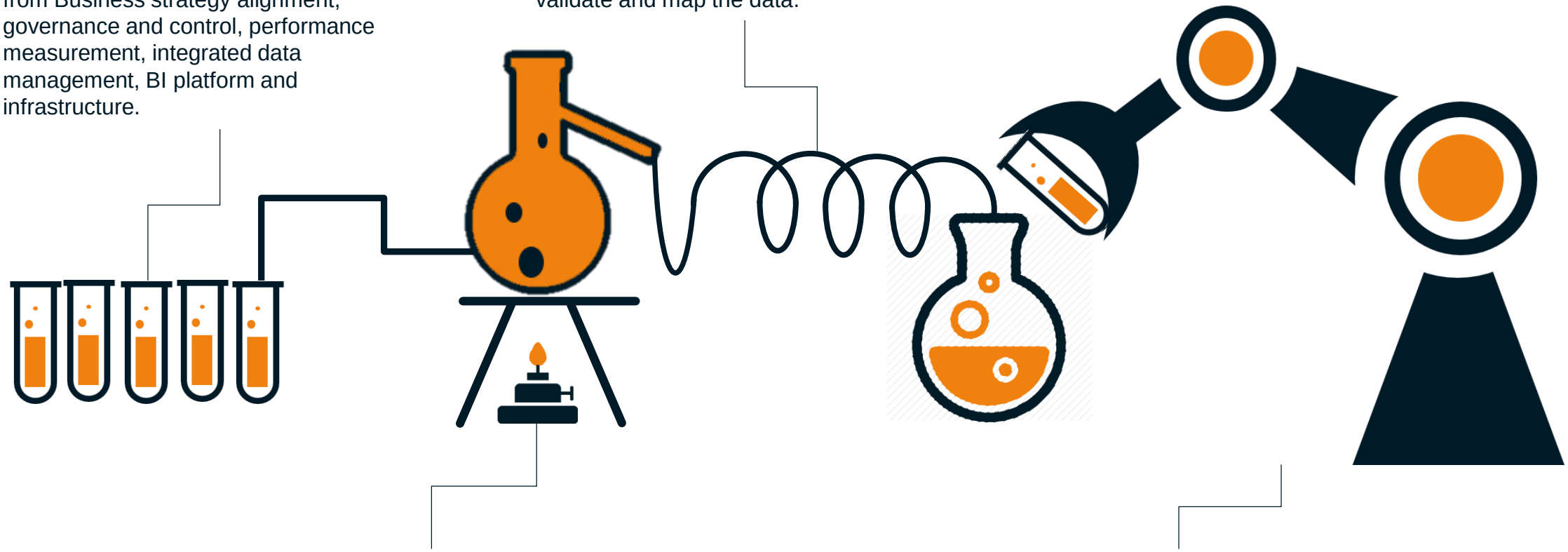
KPMG Advanced Research

BI Readiness assessment

The process starts with the BI Readiness assessment, where the maturity level of the enterprise BI function is identified. Assessment is further divided into 6 layers from Business strategy alignment, governance and control, performance measurement, integrated data management, BI platform and infrastructure.

Data Mapping

Corrected data needs to be mapped into the integrated data platform. This requires detailed understanding of the different data types and the business domain to validate and map the data.



Master Data Management

Quality and the consistency of different data sources has a significant impact on the BI accuracy level. Therefore each data source is evaluated and the necessary adjustments are carried out.

Data Integration

After mapping the individual data sources into the integrated data platform, the required merging between different data sets are conducted. At this stage, data is integrated irrespective of the data source by considering only the business need.

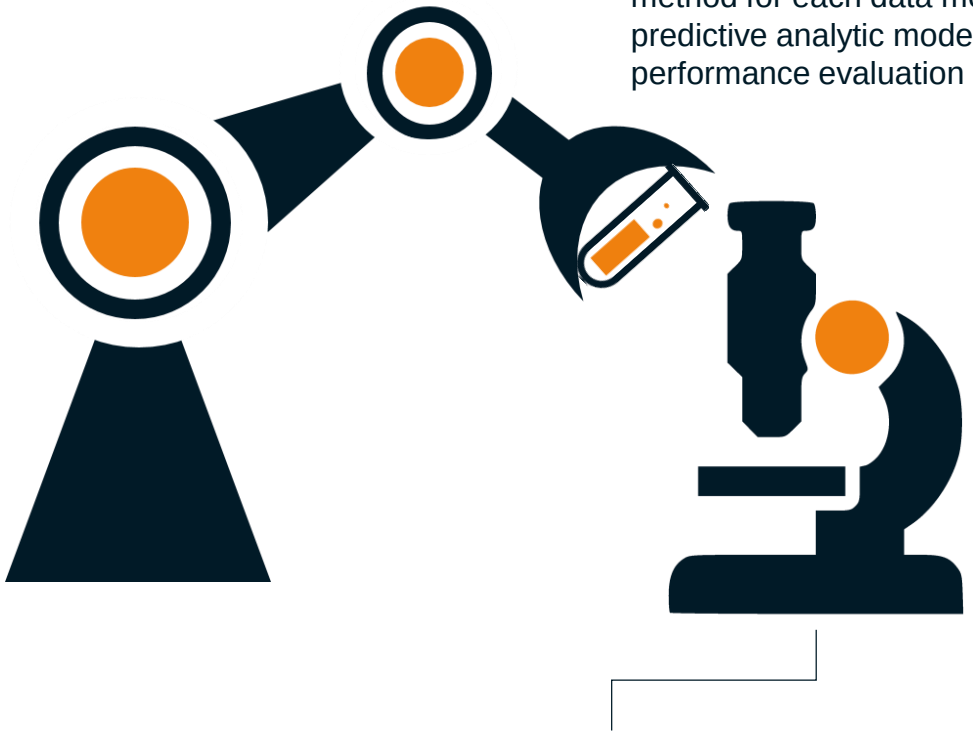
Laboratory Approach

Data Model Design and Validation

Based on the data mining results, the best suited data models are designed and validated. These models are then used to provide real-time data analytics and insights to the user. One critical success factor at this stage is to define a performance evaluation method for each data model. For an example, if the data model is a predictive analytic model, then the forecast accuracy is used as a performance evaluation method.

Visualizing and Deploy

At the end of the process, a web based dashboard is developed. All the data models developed are visualised with rich and dynamic graphic libraries. Users are given real-time analytical options with OLAP features such as slicing, drilldown etc. Each user is given a secured login. Using an internet connection and a web browser the user can access to the dashboard anytime, anywhere.



Data Mining

On top of the integrated data, required analytics are carried out. Advanced analytical models including statistical models, machine learning algorithms and classification algorithms are used at this stage to mine the data. This process identifies the hidden patterns and relationships. However the most important exercise is to interpret these data relating to the business domain.

Update and Maintenance

Users are subscribed to the BIaaS solution and charged a monthly subscription which is agreed at the end of the BI Readiness Assessment. The subscription includes a one year service agreement to provide user the required updates and maintenance service.

Client Success Stories 1

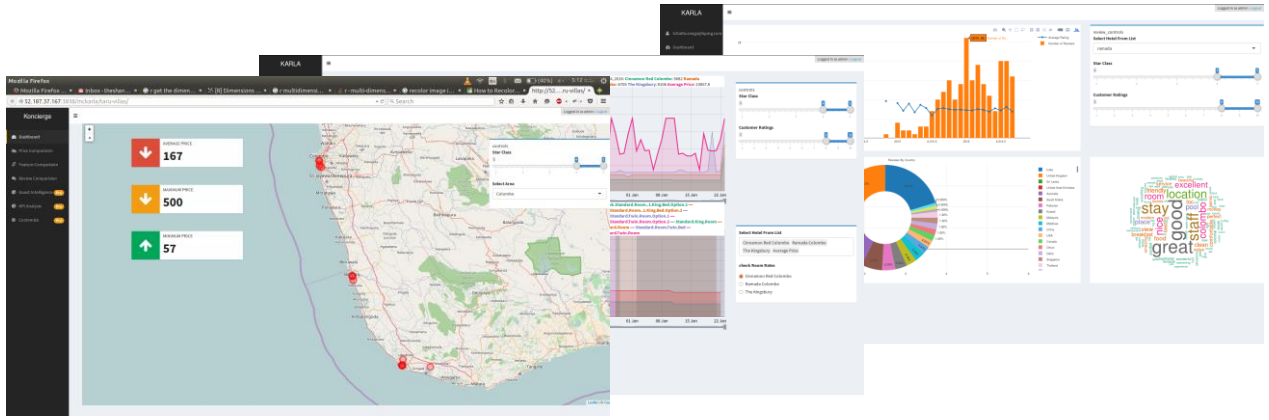
Industry: Hospitality
Year: 2016
Development Period: 4 weeks
Subscription Period: 12 Months

The Client is a well known luxury chain of boutique hotels in Sri Lanka. The award winning luxury holiday villas, which are scattered across the resplendent isle in 8 different locations.

KPMG has developed and deployed the Hotel Analytics Dashboard which integrates data from different sources such as World Wide Web (Web), Internal Transaction Processing Systems etc. which:

- Compares the prices of competitors listed online
- Compares the features of competitors listed online
- Obtains an overview of customer ratings and reviews for Taru Villas posted online
- Obtains an overview of customer ratings and reviews for competitors posted online

This dashboard also integrates external data with the internal information of the client to provide complete visibility over room pricing, feature analysis, customer behavior and operational performances real time.

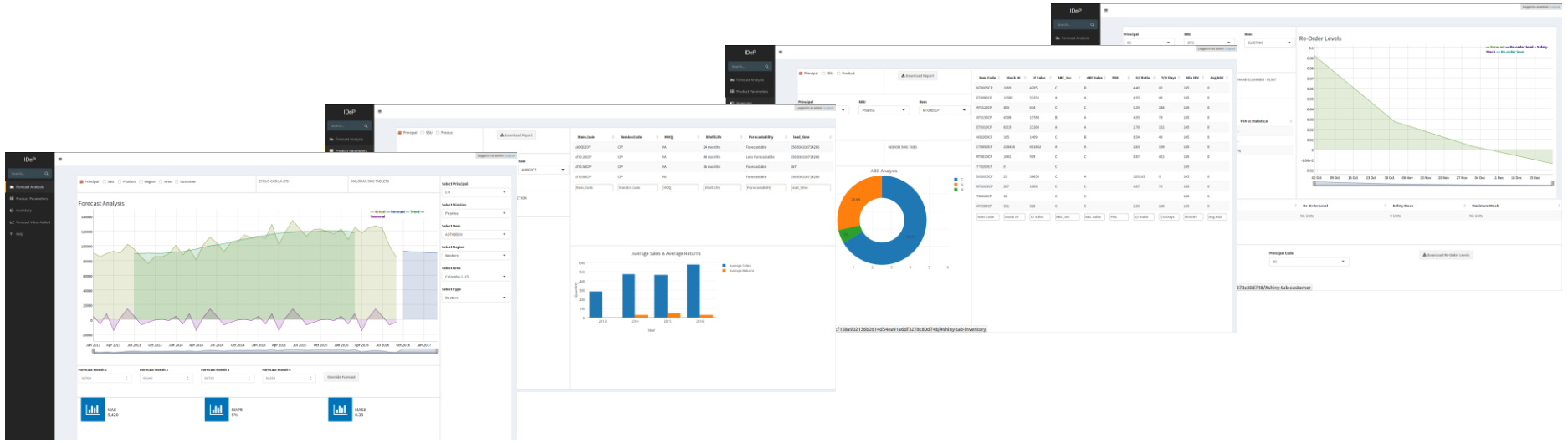


Client Success Stories 2

Industry: Healthcare
Year: 2016
Development Period: 12 weeks
Subscription Period: 6 Months

The Client is one of Sri Lanka's leading companies in the areas of pharmaceuticals, surgicals, diagnostics, medical devices and consumer health products. The Company has the largest specialized healthcare team of over 350 medical marketing & sales personnel; and an annual revenue of Rs. 5.5 Billion.

KPMG developed and implemented the Integrated Demand Planning dashboard. KPMG conducted an Integrated Demand Planning assignment to minimize the issues related to inventory stock-outs and over stock, after identifying that 95% of the Pharma SKUs are forecastable. KPMG deployed the Dashboard to forecast the demand and KPMG customized the dashboard to facilitate the client to override the statistical forecast. In addition, KPMG formalized the Demand Planning process with the relevant Key Performance Indicators (KPIs) to monitor the forecasting accuracy. These KPIs were visualized in a real time dashboard. KPMG also provided the dashboard ‘Usage Manual’ and conducted multiple training sessions to the identified key personnel of the client.



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