



iLoyal-CRM

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THE ANALYTICS AND RELATIONSHIP MARKETING SOLUTION FROM IBS

WHITEPAPER



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1 Introduction

Airline loyalty schemes have become ubiquitous, and to a large degree, commoditised. For many airlines, a loyalty or frequent flyer programme (FFP) is a must-have, defensive strategy which no longer creates differentiation in the eyes of the customer. Yet through their loyalty programmes, airlines have compiled databases of valuable customer information on millions, sometimes tens of millions, of their best customers. Many airlines now seek to capitalise on these information assets by pursuing a strategy of customer intimacy – using customer knowledge to differentiate and personalise services, and maintain a targeted and relevant communications dialogue, which reinforces customer loyalty.

Yet customer information is often difficult to access and poorly integrated. Loyalty and marketing managers lack the tools to gain insight, and are stuck in the age of mass marketing communications due to processes and systems which require too much IT involvement. Those airlines trying to implement customer data warehouses and marketing automation systems have been forced to assemble solutions from disjointed components, few of which are tailored to the airline industry: the result has been expensive integration projects often running to tens of millions of dollars.

As a loyalty manager, can you easily measure and analyse the performance of your programme? Can you gain insight into the behaviour of different customer segments? Do you understand customer value, and can you identify those customers who will be valuable in future? Can you drive highly targeted personalised, trigger-based communications, and measure the response rates and customer impact of campaigns? Can you identify and analyse cases of fraud? Are you able to construct a positive business case for investment in these capabilities?

If you are answering 'no' to these questions, read on: this paper is for you.

IBS, a software firm specialising in the travel and transportation industries, is developing iLoyal-CRM, the first analytics and relationship marketing solution for the airline industry. iLoyal-CRM will provide powerful tools for management analytics, customer analytics, fraud analytics and marketing campaign management. These tools are pre-built and delivered "out-of-the-box" for the airline loyalty marketing environment, thereby dramatically lowering the cost of achieving such capabilities.

2 Why the Airline Industry Needs iLoyal-CRM?

Through their loyalty schemes and FFPs, airlines have collected valuable information on their best customers. This information can be clearly useful in understanding customer behaviour, measuring customer value, and targeting relevant communications to each individual. However, the information often remains inaccessible and poorly integrated: profiles and loyalty activity reside in the loyalty system; purchase behaviour is captured in the reservations systems; ticket revenue is held in revenue accounting; and customer service history is generally scattered across a multitude of systems (DCS, baggage tracing and others). None of these systems is designed to



support flexible, ad-hoc query and analysis. The role of a data warehouse is to bring all these different types of data together into a single, 360° view of customer behaviour, supporting different types of analysis, data mining and list extraction, with good performance, and without interfering with normal operational tasks.

But designing and implementing a customer data warehouse is a long and expensive project. While some data warehouse technology vendors offer industry data models, these are logical only and still require significant customisation to fit to each airline's environment. We believe that much more progress can be made towards an out-of-the-box data warehouse solution for airlines that lowers the implementation cost and duration, while remaining flexible and extensible.

When asked how a programme is performing, most loyalty managers will turn to paper reports that provide top-level summaries of membership figures, activity levels and other Key Performance Indicators (KPIs). These reports are static, often out of date, and provide little insight into underlying trends and patterns. Membership may be growing, but which markets are driving the growth? Which partners are generating the most enrolments, and what is the demographic profile of new members? Is overall membership growth disguising a churn problem? It is a lucky loyalty manager indeed who has a graphical "dashboard" of programme performance, and can drill down into the figures.

Customer analytics, including customer value models, attrition models, and various types of customer segmentation, are known to play an important role in relationship marketing, yet they remain out of reach for many airline loyalty managers. The development of these models has required teams of consultants armed with expensive data mining tools, and often the resulting models are too complex to be trusted or used. In our opinion, what is needed is a hands-on toolkit that allows loyalty managers to define and test analytical models themselves, using all of the available customer information.

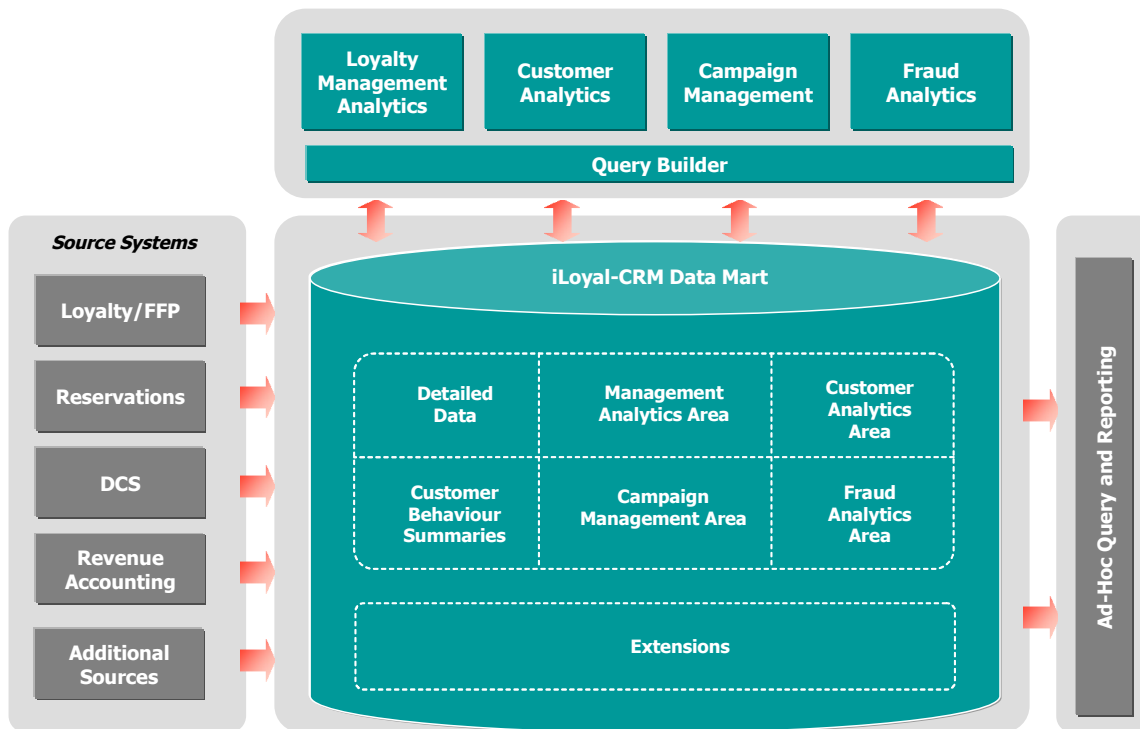
More knowledge about customers drives more variety and personalisation of marketing communications. Typically, once airlines have assembled a customer data warehouse with complete customer information, and have implemented customer analytics, they seek to introduce many different communications types (campaigns, offers, incentives, rewards, recognition), which reflect the most appropriate message for each (smaller and smaller) group of customers. Traditionally, each campaign has required significant IT development work to extract the customer list, detect the responses, and credit bonuses: clearly this cottage industry approach cannot scale to 'mass customisation', where hundreds of finely-targeted campaigns run simultaneously. Coordinating so many different campaigns, and ensuring that customers are not bombarded with overlapping or conflicting messages, requires sophisticated campaign management software. These tools, again, are expensive, and do not specifically address the unique requirements of the airline industry, such as detecting campaign response which is "implied" by customer travel behaviour.

Fraud and malpractice on the part of members, staff and partners, can be a serious problem and most airlines simply don't have the manpower to search for suspicious patterns, chase down every possible loophole and investigate every dubious transaction. Yet tools to automate this process do not exist.

Overall, airlines’ requirements for analytics, including management insight, customer analytics, and fraud detection, and relationship marketing are simply not met by today’s offerings. Some airlines have beaten an expensive path to customised solutions; others are stuck, unable to build a business case, which justifies the high costs of software and integration work. With iLoyal-CRM, IBS will deliver the first pre-built analytics and relationship marketing solution for the airline industry, thereby putting powerful tools into the hands of loyalty managers at a fraction of the cost of traditional development.

3 iLoyal-CRM Overview

iLoyal-CRM consists of a customer-centric data mart and a set of analytic applications, as shown below:



The iLoyal-CRM Data Mart contains a rich set of integrated customer information, covering loyalty membership, loyalty activities and other key airline transactions such as reservations, ticketing and check-in. iLoyal-CRM as an applications cover’s Loyalty Management Analytics, Customer Analytics, Campaign Management and Fraud Analytics. The following paragraphs describe each module in more detail.

iLoyal-CRM Data Mart

The data mart is the store of current and historical information on loyalty members and their transactions, including reservations, DCS and revenue accounting data. This information is integrated to form a single view of the customer and all their interactions with the airline. The data mart comprises a number of distinct areas, each with a specific purpose:

- **Detailed Data:** This area contains customer profiles and all transaction history, at the lowest level of detail.
- **Customer Behaviour Summaries:** In addition to detailed, granular data, a number of additional variables provide a more concise snapshot of customer behaviour. Each customer's travel pattern is described through a series of attributes, which are automatically recalculated. These include simple aggregates (such as the number of trips, the number of redemptions and the overall revenue for both travel and points sales), as well as more insightful descriptions of customer behaviour including the mix of long-haul/short-haul, or domestic/international; the tendency to fly front-end; the ratio of booking direct, and booking online; the number of different destinations used; and the mix of business and leisure travel (which is derived through analysis of the booking – for example, an inclusive tour or a family travelling together are strong indicators of leisure travel). These variables provide a layer of insight into customer behaviour; they can form the input for other more sophisticated models; and they can be used as the basis for customer selection for campaigns.
- **Management Analytics Area:** This area contains partly summarised data, in star-schema format, to support management analytics and the production of KPI dashboards. Storing the data in a pre-summarised form improves response time.
- **Campaign Management Area:** This area stores information on campaigns (including objectives, budgets and costs), customers targeted, and responses.
- **Fraud Analytics Area:** This area stores information about cases of suspicious behaviour, which have been identified by the Fraud Analytics module.

Loyalty Management Analytics

iLoyal-CRM includes a series of configurable KPI dashboards, tailored for each management role. The loyalty programme manager, partnerships manager, marketing communications manager, service centre manager, and finance manager are each presented with a set of relevant business measures which reflect their own areas of interest. Actual performance is graphically compared to budgets and targets, and deviations are highlighted using a traffic-light approach. The user may drill down into the detail to understand underlying patterns and trends.

iLoyal-CRM is pre-configured with a broad set of KPIs (and more can be added):

- Membership: growth, acquisition rate, churn rate, activity rate
- Airline Contribution: share of airline traffic & revenue from FFP
- Partner Contribution: enrolment, activity, revenue
- Accrual: air and non-air
- Redemption
- Liability
- Breakage & Expiry
- Campaign Effectiveness: Response rate, revenue generated, ROI
- Database Quality/Member Contactability
- Revenue
- Cost

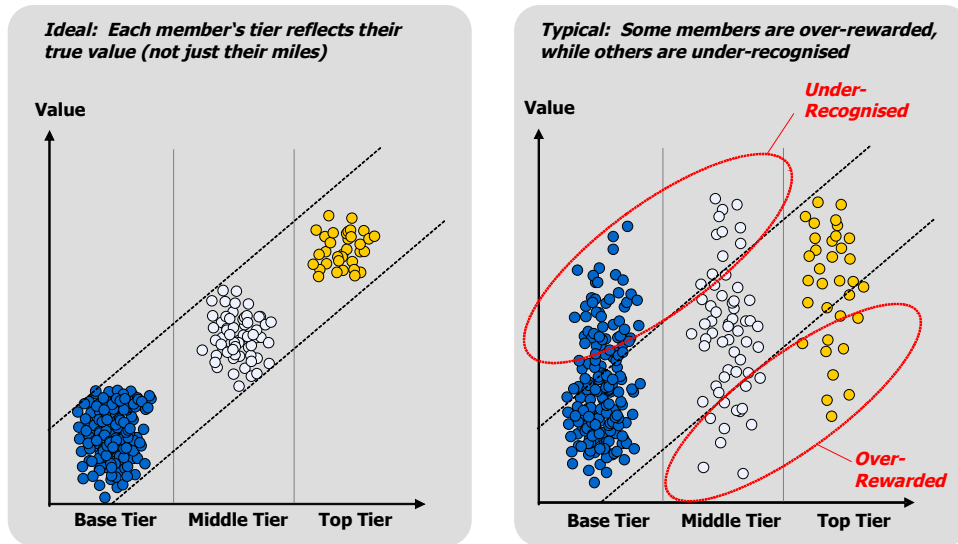
Customer Analytics

A range of different analytical models allow loyalty managers to gain deeper insight into the current, and even the future behaviour of customers:

- **Current Value Model:** Each airline measures 'value' differently. Some base their measure purely on revenue, while others are able to allocate costs at a customer level and can therefore measure profitability. Others lean towards a 'good customer' approach, where desirable behaviours such as booking online and paying high fares are recognised as 'value'. The iLoyal-CRM Current Value Model allows marketing managers to define their own measures of value, using all available customer information, through a simple point-and-click interface.

Once defined, each customer's current value 'score' can be used in campaign selection, and exported to other systems to drive prioritisation of services. A built-in iLoyal-CRM chart (shown below) gives a valuable insight into the correlation between membership tier and actual value. Ideally, tier and value would be closely linked, but in reality, many elite members contribute

surprisingly little value (revenue or profit) while many base-tier members, flying full-fare on profitable routes, are under-rewarded.



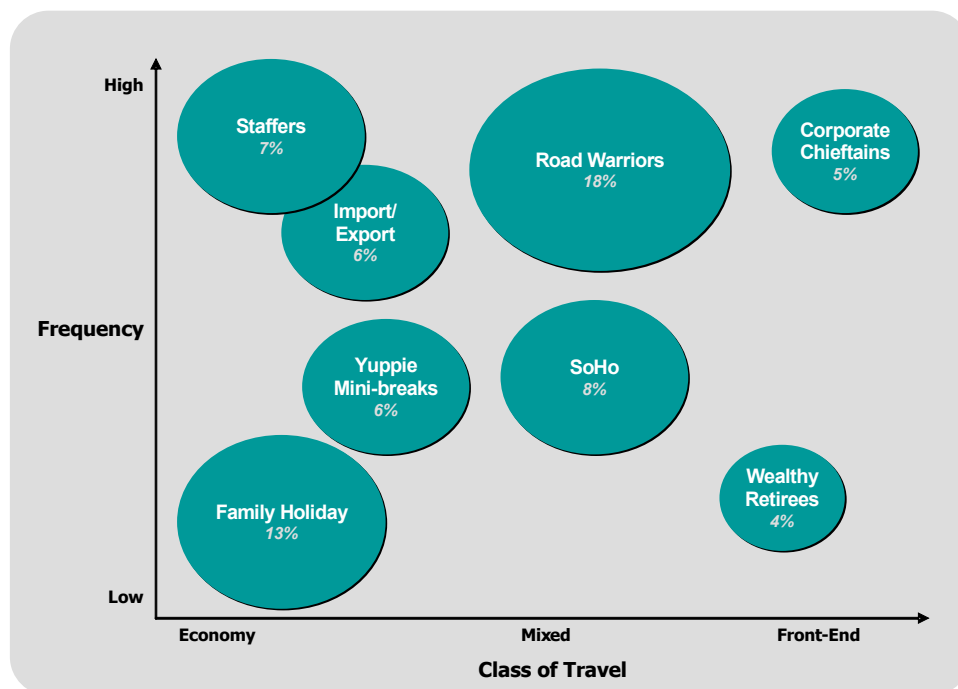
- **Lifetime Value Model:** If an airline could estimate the long-term future worth of a customer, then it could focus its resources to make sure that high-potential customers receive preferential treatment and therefore remain loyal. Such treatment might include priority service in call centres, waitlist and seating priority, preferred handling during disruptions and accelerated promotion to elite tiers of the loyalty programme. The factors which influence future value will vary from airline to airline: for example, job type and seniority are important factors for business travel, while leisure travel is more sensitive to disposable income; a hub-and-spoke operator will attach greater value to customers living in or near its hub city; age and gender might play an important role for airlines addressing niche markets. iLoyal-CRM allows a future travel model to be defined to reflect the factors that drive value in *your* airline, using all available demographics as well as any prior travel history.

For example, a business-oriented airline might develop a lifetime value model based on a weighted combination of job type, education level, corporate account, age, gender and place of residence – having first performed some analysis to see how each of these variables correlates with actual value.

- **Segmentation Models:** Segmentation allows unique sub-groups of customers, each with common travel behaviour and wants and needs, to be identified. Once each customer has been placed in a segment, the marketing and service treatment of that customer can be tailored to their specific needs.

For example, a 'Corporate Chieftains' segment might be defined as those members who hold senior positions in large companies; travel frequently and exclusively in first or business class; and use a wide range of routes. These members are unlikely to respond to discounts (they are not price sensitive), or to offers of bonus miles (they have high balances already), but they would respond favourably to offers of recognition, which confer status and prestige. Conversely, 'Staffers', junior professionals who staff projects for technology, consulting and accounting firms, and travel in economy on discounted corporate fares, might be hungry for bonus miles, and the occasional cabin upgrade.

The graphical interface provided by iLoyal-CRM allows the user to select the various segmentation drivers from a list of all available customer attributes, including the behaviour summaries such as frequency, tendency to travel front-end and business-leisure mix. The resulting segments can be displayed, as shown below, by frequency and class of travel, or any other dimensions:

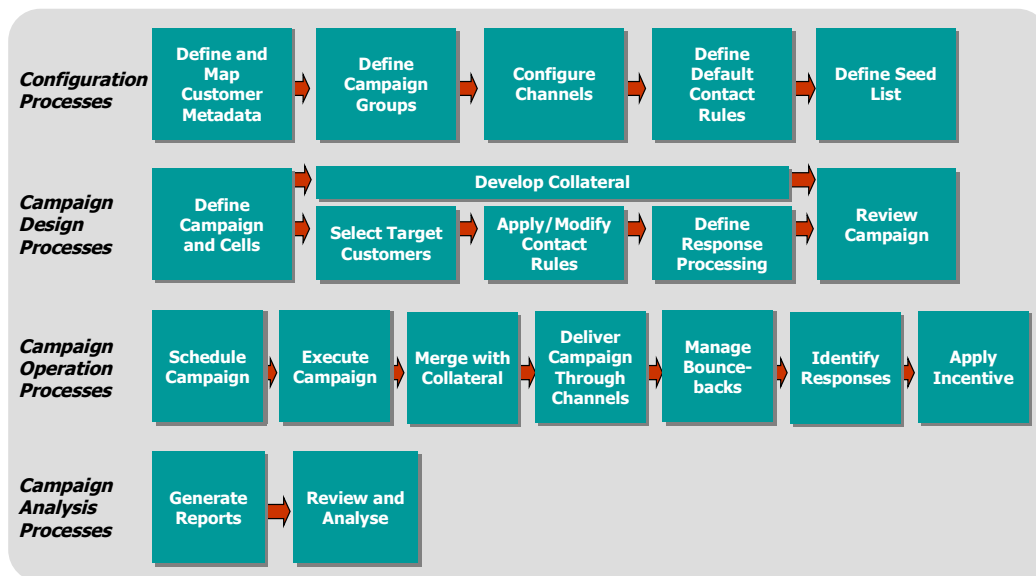


- **Churn Model:** Measuring customer churn, for airlines, is often more art than science. Customer behaviour patterns are clouded by seasonality and external factors such as economic cycles and events like SARS and 9/11. Often, airlines are only alerted to churn when a customer's tier is downgraded or they become inactive – by that time, it is generally too late for action. What is required is an 'early warning indicator' that highlights customers that have shown a significant decrease in their 'performance', relative to their peer group: these customers can then be targeted with retention measures.

iLoyal-CRM's churn model ranks customers for the biggest drop in performance, relative to their own history, and only flags customers when both the short-term and long-term moving averages turn downwards. In this way, loyalty managers can quickly focus on those customers showing the most significant downward trend, and can intersect with them quickly, before they completely disengage from the programme (for example, through loss of tier status or expiry of miles).

Campaign Management

iLoyal-CRM's Campaign Management module is a powerful engine for managing highly targeted, multi-channel, closed-loop campaigns. It is based on a best-practice process model for campaign management, as illustrated below:



A wide range of campaigns can be defined, from simple, one-time email "blasts", to newsletters sent in multiple languages, to complex, recurring event-triggered campaigns. Target selection can be based on any available data in the data mart, including raw transaction data, customer behaviour summaries (as outlined above), and the scores generated by analytical models. The target customer set can be subdivided into cells, enabling variations in language, offer, or collateral. Sophisticated contact management rules can be defined to control the volume, frequency, recency and priority (precedence) of communications: these rules help to prevent channel overload, customer saturation, and conflicting messages. A range of contact channels is supported, and integrated templates allow communications to be highly personalised. The response detection mechanism allows any customer behaviour to be treated as a response, enabling complex, multi-partner campaigns to be easily defined and tracked (for example, alliance-wide campaigns, or fly/stay/rent campaigns with non-air partners, or campaigns requiring on-line booking). Bonus points may be automatically posted to members' accounts. The use of control groups, combined with full tracking of cost and revenue, allows campaign effectiveness to be measured and analysed.



Fraud Analytics

As each loyalty programme has its own process loopholes and system vulnerabilities, iLoyal-CRM allows each airline to define its own types of fraud analysis. A set of queries identifies suspicious patterns of behaviour, and these can be further investigated and analysed by member or by agent. For example, a high number of retro-claims, and frequent changes to the redemption group, may not arouse suspicion individually, but if a single member is exhibiting these and other behaviours, further investigation may be warranted. iLoyal-CRM is delivered with a set of fraud detection queries already defined, including:

- Frequent Retro-Claims
- Frequent PIN Changes
- Frequent Redemption Group Changes
- Impossible Itineraries
- Double Credits
- Manual Credits

Ad-Hoc Query and Reporting

iLoyal-CRM contains a powerful, intuitive query builder, which supports the construction of analytical models and selection of customers for campaigns.

In addition, ad-hoc queries, reports and analysis may be performed using any common Business Intelligence tools such as Cognos or Business Objects. The data mart data model is documented and published, and is easily navigated using such tools.

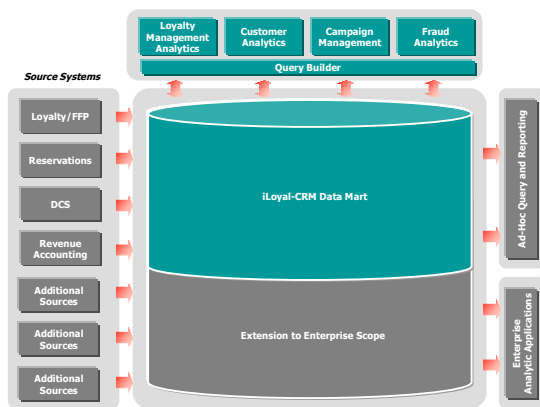
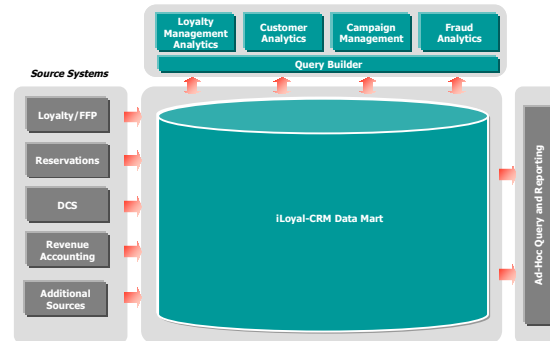
4 Technology Architecture

iLoyal-CRM is designed to be open, scalable and extensible.

iLoyal-CRM runs on either Oracle or DB2 databases, on an underlying platform of your choice such as Windows Server, UNIX or Linux. As with any data warehouse solution, a parallel platform or cluster is recommended to achieve best performance. Data can be sourced from any operational systems, whether they are home-grown or off-the-shelf application packages.

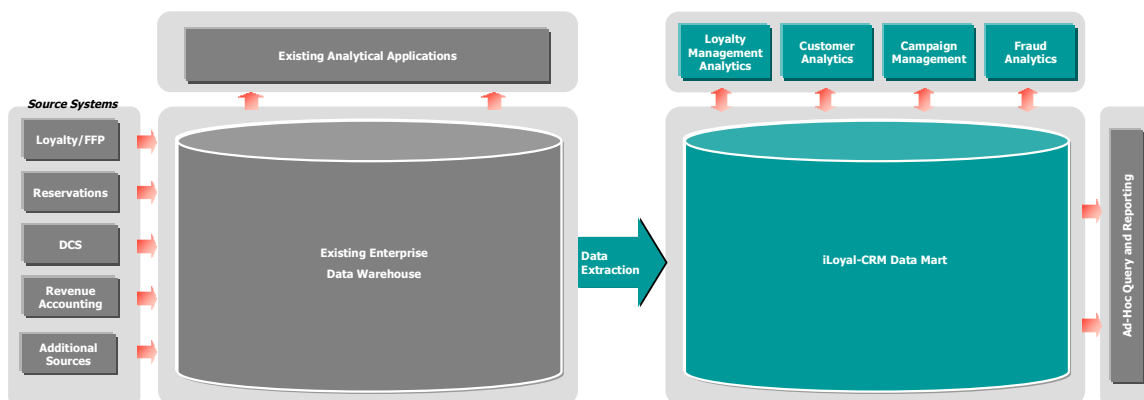
Apart from publishing the data mart layout, we also publish our underlying design standards. This enables airlines to extend the data mart with additional types of data – and this data can then be fully used in all of iLoyal-CRM's analytical applications. In fact, iLoyal-CRM can evolve into an enterprise data warehouse, or can support an existing data warehouse. The different possible configurations are shown below:

If your airline does not currently have a data warehouse, iLoyal-CRM can be installed as a standalone system, with its data mart populated from operational systems.



If you see the customer data warehouse as the first step towards an enterprise data warehouse solution, the iLoyal-CRM data mart can evolve to enterprise scale.

Alternatively, if you already have an enterprise data warehouse, it can be used to populate the iLoyal-CRM data mart, thereby allowing you to take advantage of iLoyal-CRM's powerful analytical applications within consistent enterprise data architecture:



In this way, no matter whether your airline is a mature data warehouse user, or just beginning the journey to business intelligence, you can take full advantage of the analytic applications that iLoyal-CRM provides:



5 iLoyal-CRM Product Roadmap

iLoyal-CRM is currently under development, and planned for release in April 2008.

6 Conclusion

Airline loyalty programmes, with memberships climbing into the millions, have enabled their airline operators to gather vast databases of valuable customer information. Naturally their attention is turning to exploitation of these information assets. With appropriate insight, more relevant and targeted communications, and more personalised services, customer relationships can be strengthened, leading to increases in loyalty, travel spend, and ultimately, profit.

In the past, these goals could only be achieved through custom development of the required analytic and marketing solutions, using components from a multitude of different vendors which had limited applicability to the airline industry. Such integration projects were costly, time-consuming and risky, to the extent that many airlines have been unable to justify the investment in the analytic and marketing capabilities they need to compete.

Now, IBS is releasing the first analytics and relationship marketing solution which is specifically tailored to the airline industry. Covering customer data mart, loyalty management analytics, customer analytics, campaign management and fraud analytics, it is a single integrated toolset which empowers loyalty managers to improve programme management, develop new customer insight and dramatically increase marketing effectiveness.

7 About IBS

The IBS Group is a leading software solutions provider to the global Travel, Transportation and Logistics industry. IBS offers a range of software products that manage mission-critical operations of major airlines, airports, oil and gas companies, seaports, cruise lines and tour operators world-wide. In addition, IBS offers services that include software development, business & technology consulting, application maintenance, and onsite software development services.

With some of the world's leading corporations as clients, IBS has business operations in North America, Europe, the Middle East and Asia Pacific, and Group companies operate out of offices in Atlanta, London, Dubai, Sydney, Melbourne, Hong Kong and Tokyo. SEI CMMI Level-5 assessed, ISO 9001:2000 and TickIT certified, IBS operates software production and competence development centres at Trivandrum and Cochin, India. IBS has grown from an initial size of 60 staffers in 1997, to over 1000 today.



Beginning operations in 1997, IBS has consistently provided new generation software solutions for airline operations, airport management, airline cargo management and logistics operations of oil and gas companies. Along the way, IBS acquired Avient Technologies (now Avient Solutions), from Honeywell International. Avient is currently IBS' global centre of excellence for flight operations and headquarters for IBS' operations in Europe. In March 2006, IBS acquired the assets of Discovery Travel Systems based in Virginia, USA, a provider of business-to-business travel technology systems to the cruise, tour, and vacation travel industry. This move marked IBS' entry into the leisure travel and tour industry.

The technology and business domain competence that we have acquired over the years has helped us take the initiative to develop two new generation products, aiRES and iCargo, both meant to replace the legacy systems currently in use in the air transportation industry. In 2006 we commence development of iLoyal, a next-generation loyalty management application. With iLoyal-CRM, we are complementing iLoyal with the most advanced solution for loyalty analytics and relationship marketing.

For us at IBS, how we do something is as important as what we do. What makes us a cut above the rest is our excellence in IT process management and proficiency in managing multicultural sensitivities. Growing and adapting since inception, we have never veered from our mission to be the best, striving to live up to the credo of 'Inventing future' by providing transformational solutions that help clients redefine their businesses.

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