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A process to help airlines choose loyalty application IT-systems

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The purpose of the present study was to build a selection process and selection criteria to select a modern and sophisticated loyalty system for airlines. Airline industry is one of the fastest growing and most demanding industries on the planet. One of the primary challenges faced by most airlines today is that they still use legacy or custom developed loyalty systems, which are too expensive to manage and less flexible to changes. This has led to problems in adapting to the changing dynamic needs in the global travel industry and meet travellers' expectations. The case was conducted in an airline's Loyalty and Marketing Unit, responsible for the loyalty and marketing operations for the airline.

The study was performed using qualitative research methodology. A well-defined research process and data plan was followed. The qualitative research data consisted of interviews and workshops with various stakeholders, such as a solution architect and an airline expert, in various phases of the study. For literature study, many existing research materials were collected and reviewed from various journal databases.

The study results revealed the there existed a lack of selection process within airlines to select a modern loyalty application which were available in the market. A further analysis also detailed the lack of clarity on the criteria, which can be used to evaluate a modern loyalty application. Overall the data collected was useful in understanding both the existing frameworks and defining the future selection process and selection criteria. The study further analysed the features of most popular loyalty solutions available in the market. The initial proposal on the new selection process was built which defined the key steps and associated functions of each phase, which the airlines can adopt in the selection of their loyalty application. Additionally, the proposed selection criteria enhanced the understanding of future needs and necessary metrics required to validate the loyalty application. The initial proposal was then reviewed and refined which resulted in the final version of the selection process and selection criteria.

The author recommends that the airline's loyalty and marketing units use and execute the new selection process and selection criteria to select a modern and flexible loyalty solution. The proposed process and criteria provided a concise process with outcome for each step and comprehensive list of criteria which enables airlines to choose a futuristic loyalty solution.

Keywords	Airlines Loyalty, Modern Loyalty Solutions, Flexible loyalty solution, Selection Process, Selection criteria

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1. Introduction

In this chapter, the background and the problem statement along with objectives of this thesis are presented, and the research questions defined. Objectives and delimitations are described to show the aims and limits of this study. Objectives with expected outcomes were discussed for the study.

1.1. Background

Today's constantly changing and ever competitive business environment is requiring technological awareness, and quicker abilities from the airlines in order to provide products and services to meet customers' expectations. Long and reliable customer's relationships are valued by the airlines and customers are expecting to receive personalized experience from loyalty services. The dynamic nature and severe competition in the airlines industry result in a need for modern technology or systems that enforce enhanced customer loyalty.

Over the years, the airline industry has become so dynamic and hyper-competitive that it is now imperative to enhance passenger loyalty. The airline management is investing in programmes that help in enhancing passenger loyalty. To the academics, it has also become crucial to conduct studies that would provide more insights about creating and sustaining customer loyalty (Han & Ryu, 2009). Importance of airlines loyalty has grown over the period and need for technology/systems which manage it needs more investments and evaluation.

In order to manage the customer more effectively across all lines of service, airlines must change their approach the way the customer relationship management tool operates within the IT landscape. It's even more important now, that steps are taken to implement a truly consumer-centric approach to relationship management (Loyalty system), an airline will be better positioned to acquire, develop and retain high-value customers.

Key features on Airlines Loyalty systems listed below in Figure 1:

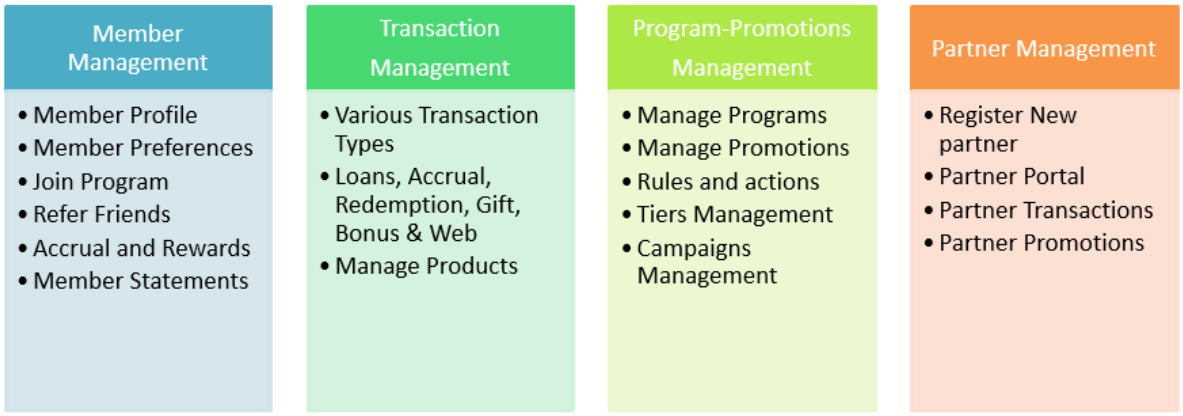

Figure 1 Features of Airlines Loyalty System

CRM and its variants are generally possible without sophisticated technology, IT is necessary for successful CRM at any firm of a significant size (Kim and Mukhopadhyay 2006). Especially for large firms CRM IT is indispensable for a coherent view of relevant information about the customers and their behaviour (Ryals and Payne 2001). Therefore, for many firms, the adoption of a CRM strategy takes into account the implementation of an IS (Hadaya and Cassivi 2009). On this basis, firms can increase customer profitability, loyalty, and satisfaction, for example by offering a higher level of service quality (Liu, C.-T., Guo, Y. M., & Lee, C.-H. 2011).

1.2. Problem Statement and Objective

The business problem presented in this thesis is that, most airline companies use conventional IT- based loyalty applications which have the following weaknesses:

- limited and/or time consuming ability to customize and/or adapt to changing marketing needs
- high management costs (service, up-date etc.)
- need for highly specialized work force
- Accordingly, many airline companies are considering more flexible, next generation application alternatives.

Given this, the objective of this thesis is to establish a process that helps airlines choose a more flexible and customizable airline loyalty application out of the available commercial alternatives and to establish related key selection criteria.

The outcome of the thesis is to build a Loyalty application selection process and Loyalty application selection criteria, which can be used to select the right Loyalty application for Airlines.

2. Research Approach

2.1. Process Flowchart of Thesis

This section explains in-depth on the Research process used for this thesis study. The research process is categorized into 5 major steps. The research starts with defining the research objective in order to define the Business problem. Once the Research objective is defined, the next key step will be the Current State analysis. The current state analysis will be performed through various Data Collection and Data analysis task. The data collection will be performed in the part of Interview and Workshop. The current state analysis will be defined based on the existing loyalty systems and architecture. Also this phase addresses the key features and available modern loyalty applications available in the market.

The current state analysis will be followed by Literature step. This step will be again involving the Data Collection and data analysis performed on various available literatures. This step will help in identifying the key selection criteria in order to select the application. This step will also be used to create the plan for System changes and Transition. Overall a conceptual framework to migrate to modern loyalty system will be formed.

Next step in the Research Process will be to build an adaptation plan. This step involves interviews and workshops with Airline Expert and Solution architect. Collected data will be analysed to build the selection criteria plan, system transition plan and summary.

Final step in the Research process would be the Feedback step on the proposed plan. The proposed plan will be used to collet feedback with Airline expert and Solution architects from Airline Industry via interviews and workshops. The data collected will then be analysed on the Thesis objective. Based on the analysis on the feedback and insights gathered, a final proposal plan will be defined for the Airlines loyalty for selecting modern loyalty. The final plan will then be summarized in detail.

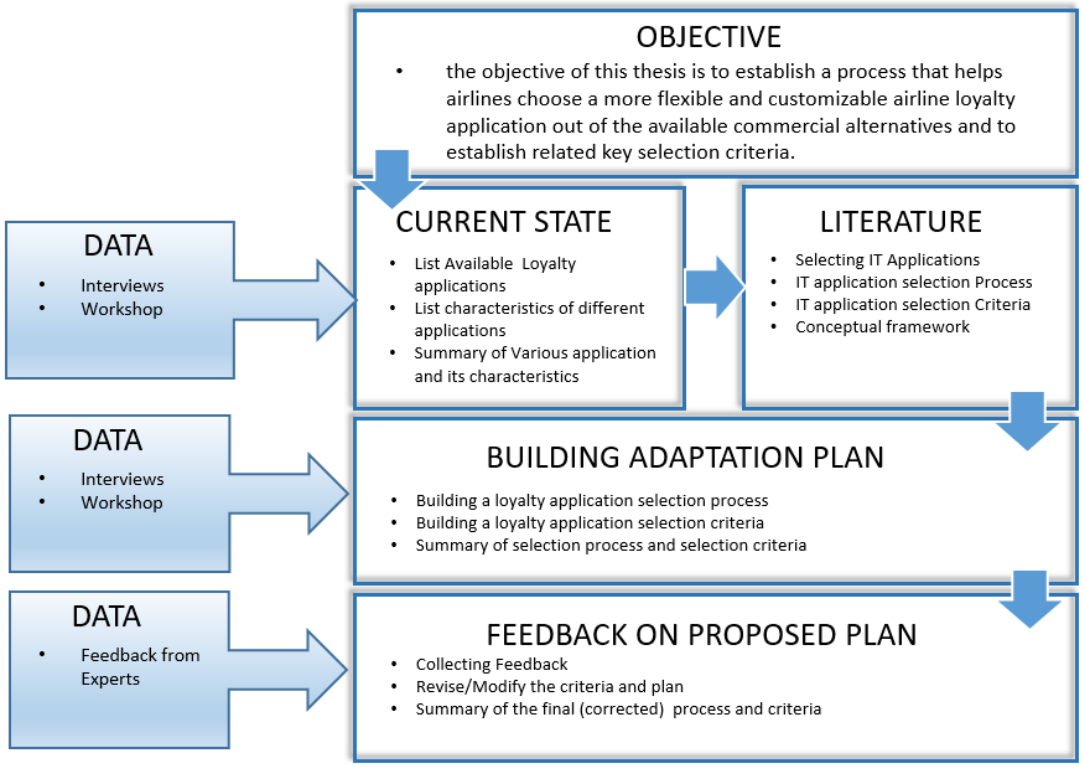

Figure 2 Process Flowchart for Thesis

2.2. Data Plan

This section describes the data collection and data analysis part used in this thesis study. Data are collected from various sources in many ways i.e. both Semi structured interviews, and workshops used. Data collection done at 3 different stages i.e. Current state analysis, Building Plan and Feedback stage. Two different roles were chosen for Data Collection i.e. Airline Domain expert and Solution Architect.

This research was done using qualitative method. Most of the data was collected through semi structured Interviews and workshops. Main key stakeholders were involved in all the data collection phases. Interviews and workshop are most commonly used methods in a qualitative research. All the data collections performed mainly using semi structured format and also set of questionnaires used for collecting overall feedback of the proposal.

First stage of the data collection was performed to understand the current limitations and problems faced by airlines. This interview was performed with the airline expert. This gave the initial overview of the business problem and also helped the research to evolve with

right scope. The next part of interview was to understand the major loyalty application alternatives available in the market. This set of interview was conducted with both the solution architect and airline expert. This ensured the focus on the top 3 loyalty application available in the market. In order to understand more in depth on the available loyalty applications a workshop was conducted to understand the features of each of these application.

In the next data collection workshop, all the important factors and perspectives to build the selection process and selection criteria was collected. This helped the research to build the actual proposal based on the objective. Later final feedback questionnaire was conducted to understand the feedback from stake holders on the proposed selection process and criteria. Based on the feedback, the selection process and selection criteria was updated. Also the questionnaire used to collect feedback was added as an appendix in this thesis.

Table 1 Data Plan for the Thesis

Data Collection Method	Data Source	Content of Data Collection	Outcome of Data Collection	Participants	Date & Duration
Current State Analysis					
Data 1a	Topic Interview	Understanding the limitations and challenges faced currently in custom built Loyalty applications in Airlines.	Current Limitations and Challenges	Airline Expert	5th Oct 2016
Data 1b	Interviews	Understanding the major players/loyalty applications available in the market. Major Features and Advantages of each of those application.	Top 3 Loyalty Application available in the market with Features and advantages	Airline Expert & Solution Architect	11th Oct 2016
Data 1c	Workshop	Understanding the major players/loyalty applications available in the market. Major Features and Advantages of each of those application.	Top 3 Loyalty Application available in the market with Features and advantages	Airline Expert & Solution Architect	27th Oct 2016
Data 1d	Workshop	Customer Perspective on Implementing modern Loyalty Solution	Pros and cons on Modern Loyalty Solution	Airline Expert & Solution Architect	2nd Nov 2016
Building Plan and Criteria Phase					
Data 2	Interviews / Workshops	Building selection Criteria and System Transition Plan	Inputs and suggestions for the Draft	Airline Expert & Solution Architect	11th Nov 2016
Feedback on Plan and Criteria					
Data 3	Interviews / Workshops	Getting Feedback on Proposed Criteria and Plan	Feedback on the Initial Proposal	Airline Expert & Solution Architect	18th Nov 2016

3.Current State Analysis

In this chapter I will compare the main characteristics of the three dominant modern/flexible airline loyalty systems. This will form a basis in order to be able to later on in the thesis to develop a process and criteria to help airlines to select a suitable modern loyalty application to their needs.

In order to evaluate and compare, the following Loyalty solutions were chosen based on the Interview/workshop with Airline Expert and Solution Architect:

- Oracle Siebel Loyalty Management
- Amadeus Loyalty Management
- Comarch Loyalty Management

3.1. Siebel Loyalty Management

Oracle's Siebel Loyalty Management, part of the Siebel Customer Relationship Management (CRM) suite, addresses all of these issues effectively. Siebel Loyalty Management brings critical functionality airlines need to streamline partner management, member management, ease of accrual and redemption management, and offer the real-time loyalty promotions that will allow airlines to recognize and engender loyalty management across the travel lifecycle. Siebel Loyalty Management helps airlines drive superior membership experiences, streamline partner management, and enhance operational effectiveness and reduce costs. (Source: http://www.oracle.com/us/products/applications/siebel/enterprise-marketing/loyalty-management/overview/index.html)

Siebel Loyalty Architecture

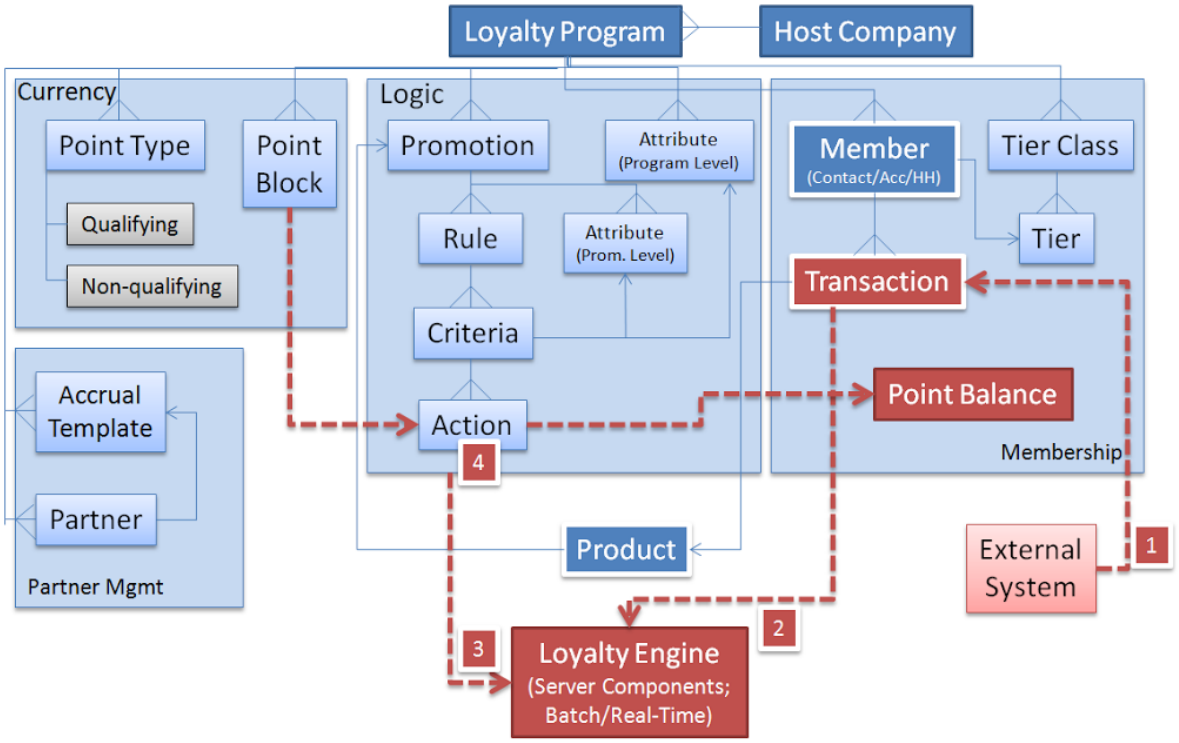

Figure 3 Siebel Loyalty Architecture diagram

Based on the product catalogue (www.oracle.com), In this section, some of the major features and benefits of Oracle Siebel Loyalty solution is listed.

Drive Superior Membership Experience

Every airline desires the right blend in a loyalty program- superior membership experience; innovative loyalty program features and personalized differentiated service across all customer touch-points.

Siebel Loyalty Management enables airlines to easily manage membership tiers with a variety of options to assign and modify tier status through configurable rule-based point calculation capabilities. A highly-scalable loyalty engine with easy web-service based integration with global distribution systems and passenger service systems allows airlines to offer real-time targeted loyalty promotions from check-in to baggage pickup. Airlines can address the key issue of award redemptions by offering dynamic redemption pricing with varying mileage requirements based on market prices and booking time windows. Siebel Loyalty Management will also offer bidding on award seats and packages built with

partners. Siebel Loyalty Management also supports pricing options based on member tiers and the ability to redeem using a combination of points and cash.

Streamline Partner Management

As loyalty programs grow—adding more partners in a variety of industries—airlines face a real challenge in integrating with partners, ensuring data integrity, and streamlining the entire partner management process.

Siebel Loyalty Management simplifies integration with partners with a variety of templates based on partner industry type. This results in quicker set-up of new partners; faster time-to-market of new partner products and joint promotions; and easier administration of the partnership program. The Unified Partner Point type offering reduces the complexity of selling multiple point types to each partner and tracking their balances. It further provides many enhancements to loyalty promotion management, enabling airlines to define a broader variety of innovative promotions and more tightly integrate loyalty promotions with outbound marketing efforts. It also provides new partner billing controls to implement billing-specific policies based on the partnership agreements.

Enhance Operational Effectiveness And Reduce Costs

Streamlining and optimizing business processes related to member enrolment, accruals, redemptions, and promotion management is key for a responsive loyalty program. Based on a state-of-the-art rules framework, Siebel Loyalty Management enables airlines to quickly compose and deploy loyalty program offerings by customer segment (e.g., corporate, individual, cargo, etc.) that align with airline objectives. For airlines considering a complete spin-off of their loyalty program, Siebel Loyalty Management provides seamless functionality and scalability. Out-of-the-box integration features with financial management systems support complete fiscal management of the loyalty program operation in congruence with the evolving accounting practices. Tight integration with enterprise applications such as marketing, service and sales, enables the much needed ‘single

customer view.' Siebel Loyalty Management also enables measurement of program effectiveness against airline business goals through a comprehensive set of key performance indicators that will allow airlines to make informed decisions and drive the success of their loyalty strategies. Siebel Loyalty Management integrates seamlessly with reservations, inventory and Departure Control Systems. This is integral to the operational delivery of an airline's CRM vision, of making mission-critical, actionable customer information available at all customer touch points throughout the travel lifecycle.

Oracle's End-to-End Solution

Airlines all over the world rely on Oracle to get better results. With Siebel Loyalty Management, airlines will be able to streamline their loyalty management, increase speed-to-market, and introduce the loyalty innovations they need to grow and retain their best customers.

3.2. Amadeus Loyalty Management

Amadeus provides the technology which keeps the travel sector moving - from initial search to making a booking, from pricing to ticketing, from managing reservations to managing check-in and departure processes. Our ambition is to facilitate the entire travel journey from door-to-door, in the process improving the travel experience for hundreds of millions of people every year. We do this by joining up and connecting key players in the travel industry: travel agencies, corporations, airlines, airports, hotels, railways and more. We give those companies the tools to serve travellers better and to manage their own business more effectively. Amadeus is at the heart of the global travel industry.

Loyalty programmes are a dynamic, fast-growing sector of the airline industry to the extent that airlines can generate substantial revenues by spinning off their loyalty programs into separate business units or companies. Travellers are increasingly solicited by competing airline loyalty programmes, which means that keeping customers loyal to your brand is a constant challenge. The key to building brand loyalty for your airline is to make offers and promotions that meet your customers' needs and expectations. (Source: http://www.amadeus.com/web/amadeus/en_1A-corporate/Airlines/Airline-

Systems/Travel-Intelligence-and-Personalisation-Systems/Loyalty-and-Awards-Management/Amadeus-Loyalty-Management/)

Amadeus Loyalty Architecture

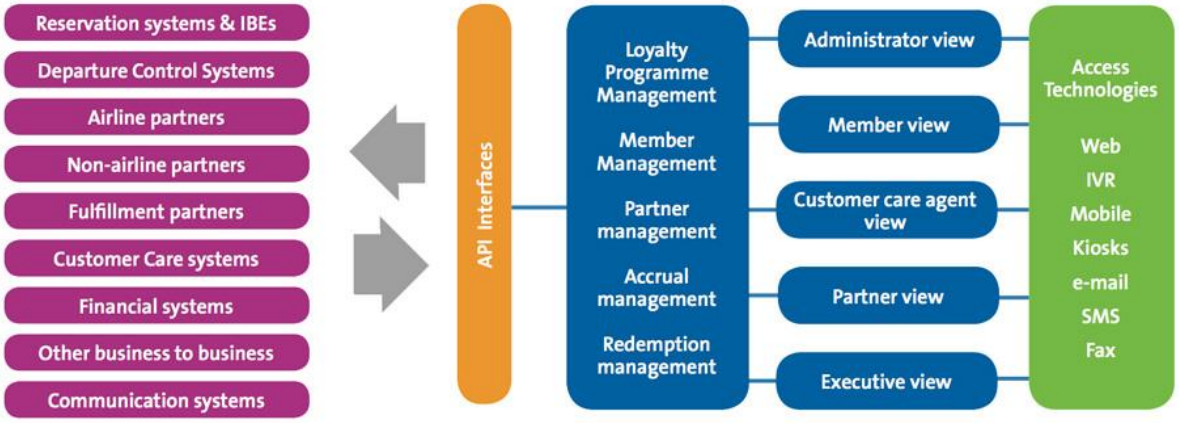

Figure 4 Amadeus Loyalty Architecture Diagram

Based on the product catalogue (www.amadeus.com), In this section, some of the major features and benefits of Comarch Loyalty management is listed.

Keep customers loyal to your brand

Amadeus Loyalty Management enables your airline to launch unlimited numbers of rule-based, targeted promotions providing incentives to keep loyalty programme members engaged with your company

Acquire new members

Acquire new loyalty programme members from online channels or through your partners. The stronger your member base, the stronger your loyalty programme

Personalise your customer offer

Amadeus Loyalty Management captures and stores every transaction made by a member: from flights to partner activities or website log-in. This provides you with a wealth of intelligence for developing and defining marketing and sales initiatives.

Boost revenues from ancillary services

There is no limit to the number of partners and promotions that can be handled through Amadeus Loyalty Management. programme members engaged with your company

Develop your loyalty brand value

Develop your loyalty programme as a marketable brand. Amadeus Loyalty Management helps you keep service levels high and anticipate future developments in the market. You can now turn your loyalty programme into a profit centre, managing the purchase of redemption inventory from the airlines that you operate with.

Seamless integration

Amadeus Loyalty Management works seamlessly with your existing systems as well as with those of other airlines, alliances, and both air and non-air programme partners and service providers.

3.3. Comarch Loyalty Management

All the product information was collected from Product company website such as product catalogues, webinars and various links. (Source: www.comarch.com)

Comarch is a world leading provider of IT solutions and expertise that help to manage and support the entire loyalty value chain. Our multi-industry experience with supporting marketing programs for best world's brands and deep understanding of loyalty strategy makes us a reliable partner for your business.

Comarch has been providing its clients with cutting-edge IT solutions for comprehensive management of customer loyalty programs, customer relations and support for marketing activities. With best-in-class Comarch Loyalty Management system you can create and execute unique customer engagement programs, effectively manage memberships and rewards, interact with customers across multiple channels and track loyalty system performance.

Comarch Loyalty Management offers all the tools needed in order to build a successful loyalty program (or coalition loyalty program), created for both individual and business customers. To maintain high levels of customer satisfaction, program participants can easily be engaged through the personalized contextual offers and promotion actions such as: lotteries, special auctions, coupons or benefits for the best customers. Loyalty program management is easier with innovative tools. (Source: http://www.comarch.com/trade-and-services/loyalty-marketing/loyalty-management/)

Comarch Loyalty Architecture

Figure 5 Comarch Loyalty Architecture

Based on the product catalogue (www.comarch.com), In this section, some of the major features and benefits of Comarch Loyalty management is listed.

Full Customer Insight

- Full management of customer data & behavioural information

- Detailed transaction history
- Social media data capture
- Multidimensional & dynamic segment/tier creation
- Multiple account hierarchy (individual & household accounts)
- Merging accounts
- Multiple ID support (plastic card, virtual card, NFC, key fob, invoices)
- Comprehensive support of customer enrolment
- Member preferences management

Flexible Program Currency Management

- Creation of different types of points
- Points transfer to other account
- Points purchase
- Points refund on returned products or services
- Multiple rules of points expiration
- Manual adjustment

Unlimited Business Rules & Offer Definitions

- Robust promotion designer
- Single or multi-partner promotions
- Multiple promotion benefits as a result of one transaction
- Automatic initiation of promotions related to specific events
- Ability to set different priority rules for promotions
- Creating & grouping business rules
- Geolocation-based offers
- Promotion calendar with a complete view of all active promotions
- Qualification & downgrade rules for membership tiers
- Various coupon types (paper and digital)

Omni-Channel Customer Interaction

- Mass or personalized messages via email/text message/ POS/mobile application/website

- Real-time messages with personalized content
- Sending surveys and collecting answers saved as new customer attributes
- Notifications on mobile application for geo-located push or pull offers
- Content publication on Facebook fan page
- Enhanced smart message editors for email, text message and POS channels
- Messages printed on a customer's receipt
- Multi-language message versions
- Import content prepared by marketing agencies
- Customized website for specific segments/tiers
- Access to central repository for all digital media
- Claim management within Contact Center module

3.4. Summary of Loyalty Applications

In the current state analysis, three dominant loyalty applications which are modern and flexible was listed and features were studied. In this section we will summarize the features and benefits, in order to understand these applications in comparison with each other. Also it provides a comprehensive view of all the three loyalty applications in tabular format. In order to compare, all the major features were listed and compared.

To begin with the major feature of any loyalty solution such as Member profile, Accrual transactions and Reward transactions were analysed. Oracle Siebel product and Comarch product stands out with its comprehensive list of transactions supporting various scenarios. Next set of features which were verified was about the Program, promotion and tier management. All the three products, support all the key features required for configuring promotions and managing tiers based on rules. Complexity of promotion rules is one of the key factor and Oracle Siebel product supports hierarchical promotions, whereas Comarch product does support complex promotions. While Amadeus product provides promotions to cater critical needs, but limited data available for supporting hierarchical and complex promotions.

All the three products have impeccable partner management features which are an essential part of Loyalty solutions. Partner management features including partner portal, managing partner transactions, partner members, etc. are well supported. Seamless integration part has a dominant role in selecting any loyalty solution. All the three products provide comprehensive connectors, solutions and framework for integrating with any third party applications either for real time or batch integrations.

Marketing automation and Social media features are covered by Oracle and Comarch in depth as a product of its own which can work seamlessly with Loyalty solutions. Oracle has a very matured Marketing application with comprehensive campaigns management solution. Comarch on the other hand addresses the need for Campaign management and Social media features with separate product entities listed as part of the Airlines industry solution. Amadeus loyalty solutions lacking behind the other 2 solutions in these areas, with no such features in their current solution.

Industry based solution has been developed by all the three players. Airlines model was the base for all the three products for their initial product development and design. But both Oracle and Comarch expanded the product base to serve other industries, which gives them the edge in handling vast range of requirements and features. Whereas Amadeus as a product company known for their Travel industry expertise. Amadeus provides a comprehensive range of critical applications for Airlines like reservation and booking systems. This enables a tight integration with airlines specific critical applications out of the box. Otherwise Integrations are complex and costlier to build with airlines booking or reservation system due to their nature. This feature gives a significant advantage for airlines which already uses Amadeus products.

Customer base for all the three products have grown significantly and continues to be on the upward drive. In order to maintain the customer base and growth, these companies have put enormous effort on defining a clear roadmap for these products. While Oracle has a huge landscape of applications in its kitty, has made all efforts to ensure Loyalty application coexists with the landscape and at the same time new, features specific to loyalty are added at good intervals. At the same time, Oracle Siebel solution can be expensive to maintain and support.

Comarch loyalty is growing in stature and market, one of the key challenge for Comarch is the lack of System integrator partners. Comarch loyalty implementation handled by its own team. Comarch as a company has built comprehensive CRM capabilities, social features and analytics or insights capabilities. This ensures the roadmap for loyalty solution is well defined. Comarch offers cost effective model for both implementation and maintenance, along with excellent platform capabilities.

Amadeus is a global leader in travel and hospitability products and expertise. Amadeus Loyalty solution is an extension of their existing travel applications or products landscape. Loyalty product has gained significance and importance for Amadeus customer base. Amadeus has made conscious efforts in building and continuous improvements for loyalty solutions. This solution is a right fit for customers who are already using Amadeus travel products, which gives significant advantage for Amadeus considering their wide customer base in Airlines sector. At the same time, any customization or support requires manpower from Amadeus.

Features	Oracle Siebel	Amadeus	Comarch
Member Profile Management	Yes	Yes	Yes
Accruals Mangement	Yes	Yes	Yes
Reward Management	Yes	Yes	Yes
Promotions Management	Yes	Yes	Yes
Hierarchial / Complex promotions	Yes	No	Yes
Program Management	Yes	Yes	Yes
Tier management	Yes	Yes	Yes
Social Media features	Yes	No	Yes
Partner Management	Yes	Yes	Yes
Multi channel support	Yes	Yes	Yes
Customer Insight	Yes	Yes	Yes
Marketing Automation	Yes	No	Yes
Seamless Integration	Yes	Yes	Yes
Customer feedback	Yes	No	Yes
Webportal solution	Yes	No	Yes
Industry solution	Yes	Yes	Yes
Other Airline Product features	No	Yes	No
Product Roadmap	Yes	Yes	Yes

Figure 6 Comparison table for 3 loyalty applications

4. Literature Review

In the last chapter, Current state analysis on airlines, with respect to loyalty systems was discussed. Also many commercially available alternatives were discussed with architecture and features. Key challenges and issues faced by airlines with custom developed and legacy loyalty system was analysed. The current state analysis also helped to list out the future requirements and system needed.

The purpose of this chapter is to review the various existing literature and information available. This will help to find out various ways to evaluate software/IT applications. This chapter will help, in order to understand the selection process and selection criteria to choose the required software/IT applications.

Business organisations have been investing heavily in business intelligence technologies, to enable a customer-focused relationship strategy (Swift, 2002). The success rate of CRM implementation projects is up to today still not satisfactory (Becker et al. 2009; Finnegan and Currie 2009). Reasons for failing the expectations of involved parties are diverse, but can be summarized under the three dimensions: people, process and technology. Due to the described quality problems and the speed of evaluation results becoming outdated, new CRM solutions or updated versions of established products continuously enter the market. (Ina Friedrich, Jon Sprenger, Michael H. Breitner, CRM Evaluation 2010)

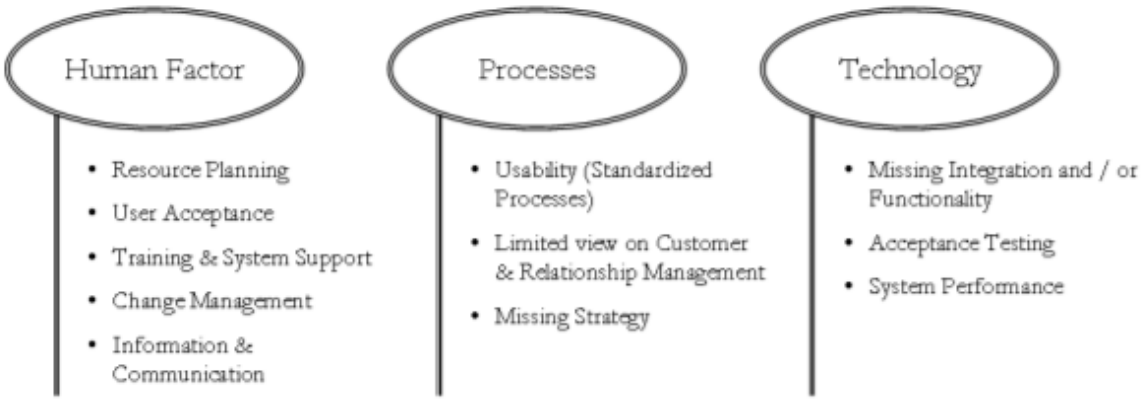

Figure 7 Three dimensions' failure reasons

4.1. Software Selection Process

Airlines immediate focus is on cost reductions in driving to more efficient operations. However, many airlines are turning to customer relationship management (CRM) as a tool for managing customer relationships. Unfortunately, in many cases, they have failed to recognize CRM as a holistic strategy, instead viewing it as synonymous with their frequent flyer programs. In order to manage the customer more effectively across all lines of service, airlines must change their approach to CRM in a number of ways:

• *Customer segmentation*—Airlines need to recognize that mileage-based segmentation is inadequate, whereas value-based and needs-based approaches can help guide investment decisions and drive greater insight into the needs of high-value customers.

• *CRM initiative development*—In order to differentiate themselves from the competition, airlines must abandon a "fast follower" approach to CRM initiative development, in favour of investing in initiatives with a high return, which respond to the needs and desires of their own customers.

• *Organizational design and management*—Airlines need to instill a service mentality in their employees, empowering them with a complete view of the customer and clearly articulating the employee's role in the CRM strategy.

By taking steps to implement a truly consumer-centric approach to relationship management, an airline will be better positioned to acquire, develop and retain high-value customers. (IBM 2012. The Future of Airlines CRM)

Despite the widespread adoption of packaged software across a range of organisations, there has been limited systematic research (aside from Howcroft and Light, 2006; Pollock and Williams, 2007; Tingling and Parent, 2004) on the decision making processes surrounding the acquisition of these technologies.

Although CRM and its variants are generally possible without sophisticated technology, IT is necessary for successful CRM at any firm of a significant size (Kim and Mukhopadhyay 2006). Especially for large firms CRM IT is indispensable for a coherent view of relevant information

about the customers and their behaviour (Ryals and Payne 2001). Therefore, for many firms, the adoption of a CRM strategy takes into account the implementation of an IS (Hadaya and Cassivi 2009).

According to Debra, Ben (Social Shaping of Packaged Software Selection) review of the functionalist literature on package software selection, drawing on research from the emerging critical/constructivist literature to critique the assumed simplicity surrounding decision-making processes. This is further developed to encompass a market-oriented view (Sawyer, 2001; Wybo, 2007) of packaged software selection, thus, expanding the focus of concern beyond the organisational parameters.

The Software selection process can be broadly classified into 4 steps process i.e.

- Understanding User Requirements
- Evaluation
- Final Selection and Purchase
- Entire Selection Process

(The Social Shaping Of Packaged Software Selection, Debra Howcroft, Ben Light)

Table 2 Software Selection Process

	Assumptions from the functionalist literature	Representative Studies	Alternative Readings
Understanding User Requirements	Understanding user requirements will help to determine the needed functionality and so achieve the 'best fit' between the product and the organisation. This will help reduce costly changes, misfits, and is more likely to result in success.	(Akkermans and van Helden, 2002; Al-Mudimigh et al., 2001; Chau, 1995; Gremillion, 1982; Janson and Subramanian, 1995; Nelson et al., 1996; Olsen and Saetre 2007; Sharland, 1991; Stefanou, 2001; Sherer, 1993).	Requirements are continually emerging and difficult to articulate (Truex et al, 1999). Many packages show lack of appropriate functionalities to meet unique organisational requirements (Pozzebon et al., 2006). They are built for generic users and so trade-offs occur (Keil and Tiwanan 2006). Transferability of standardised products across boundaries is fraught with problems (Pollock and Cornford 2004; Pollock and Williams 2007) and can lead to failure (Willis and Chiasson 2007)
Evaluation	Software packages can be compared and ranked based on objective criteria. This is based on functionality and the capabilities of the vendor.	(Akkermans and van Helden, 2002; Al-Mudimigh et al., 2001; Lynch, 1987; Martin and McClure, 1983; Sprott, 2000; Verville and Halingten, 2002).	Evaluation is far from objective and one person's technological success may be another person's failure (Hirschheim and Smithson 1999; Wilson and Howcroft 2005). Vendors are inclined to scope the problem to match the existing product rather than tailor it to the consumer organisation (Wybo 2007). Managers use dissimilar criteria for evaluation (Chau 1995) and this is often misaligned with end-user perspectives (Montazemi et al. 1996).
Final Selection and Purchase	Selection is based on a correct understanding of user requirements and appropriate evaluation procedures. A strong business case is needed to ensure the support of senior management.	(Kunda and Brooks, 2000; Shehab et al., 2004).	Selection and purchase is often based on the vendor's capabilities and anticipated development of their product (Chue 1994; Sawyer 2001). The decision is often directed by non-IS managers (Brown and Vessey; Hirt and Swanson 1999; Sawyer 2001)
Entire selection process	Viewed as a rational, linear process that is seen from within organisational boundaries.	(Butler 1999; Chau 1994; Martin and McClure, 1983; Sherer 1993)	The wider environment of the industry and the numerous actors within this (intermediaries, vendors) shape the decision-making process (Howcroft and Light, 2006; Pollock and Williams 2007; Pozzebon et al., 2006; Sawyer 2001; Wybo 2007)

4.1.1. Understanding User Requirements

This phase is the initial step in the software selection process and addresses all the key user requirements and classifications.

User requirements are then formal descriptions of the user needs which the design and development of the product ought to be based upon (Kujala, S., Kauppinen, M., and Rekola, S. 2001). User requirements are typically categorized into two i.e. Functional and Non Functional requirements. The requirements also vary depending on the type of User for e.g. Top management user will have expectations based on Return on Investment (ROI) or Total cost of Ownership (TCO).

User requirements also paves way to understand customer needs which are to be addressed as part of airlines loyalty system. This was explained in detail from an article “Gaining a deeper understanding of the profitability and the key satisfaction drivers of each segment will help airlines better assess the business value of potential customer-facing programs. Using a wide variety of direct and indirect customer input, airlines can map feedback they receive against individual customer segments. Then, in combination with advanced customer analytics, they can develop unique insights into the habits and needs of each customer segment. Thus, customer value segmentation becomes a valuable tool in CRM program definition and execution.” (IBM 2012. The Future of Airlines CRM)

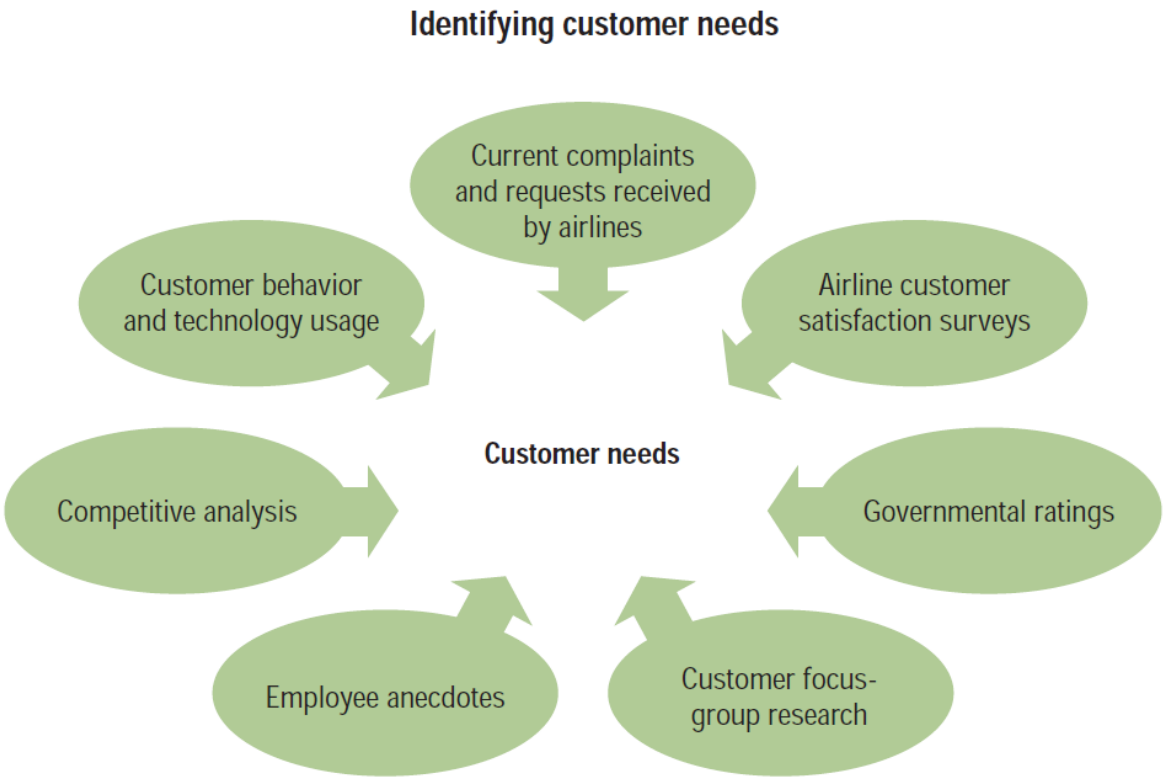

Figure 8 Customer Needs

4.1.2. Evaluation

This phase of the Selection process evaluates the existing Software applications available in the market with set of Criteria's and capabilities. "The criteria by which a system should be judged must reflect the nature and the purposes of that system." (Farbey B, Land F, Targett D 1992)

According to (R. Reicher et al), there were great differences in product selection criteria in the case of various CRM purchasers. Often the client has no expertise in CRM systems and the connected IT solutions.

Oketunji (2006) suggested a set of necessary criteria for selecting software: Enable users to do something they couldn't otherwise do, or to do things better or more efficiently; Criterias can be classified into many categories.

4.1.3. Final Selection and Purchase

The bulk of detailed fact gathering about the different solutions is during your evaluation meetings. The scoring meeting brings all this information together and reflects your particular combination of requirements and shortlisted candidates. Creating your scoring matrix to reflect this body of knowledge generates a project deliverable that is unique, entirely new and extraordinarily useful. The matrix produced by scoring identifies and articulates any differences between the candidate suppliers or their software. More importantly, it helps you reach a balanced overall view, despite facing an array of wins, losses and trade-offs (Off the Shelf IT Solutions).

4.1.4. Entire Selection Process

Buying a CRM solution involves a complex series of decisions, but it also requires an intimate understanding of your own business. Even if your company completes the mapping process but decides against implementing a CRM solution, the process can be remarkably useful and result in improved efficiency and a more customer-centric approach to business (Sugarcrm.com).

Buying CRM starts not with an external search for a solution but with an internal search for why a solution is needed in the first place. Laying the groundwork can make the difference between success and failure; many “failed” CRM projects were doomed before they started because the decision makers skipped the simple but vital first steps of the process (Sugarcrm.com).

4.2. Software Selection Criteria

Many studies are focussed on identify many factors that influence IT System adoption in organizations. A study by Themistocleous (2004) identified organisational factors such as

organisation support and management support which can influence the adoption of enterprise software.

Based on Literature "An Approach for Selecting Suitable Software Packages" (Ina Friedrich, Jon Sprenger, Michael H. Breitner), the following overviews summarize the criteria specified in the literature in the areas of functionality, quality and costs, accompanied by a description that supports evaluating a fitting CRM system ranked in the order of highest occurrence.

Table 3 Summary of criteria

Quality criteria:	*Cost criteria:*	*CRM functionality:*
• Portability • Usability • Data Integration • Modifiability & Maintainability • Resources • Training & Support • Reliability & Robustness • Performance & Practicability • Security • Timeliness • Popularity	• System costs (hardware/software licenses) • Preparation and installation costs • Maintenance costs • Resources (consulting, internal) • Training and support • Upgrade costs	• Reporting • Contact Management • Campaign Management • Call Center • Relationship Management • Field Service • Sales Management • Lead/Opportunity Management • Customer Service • Internet • Account Management

In this chapter we will analyse some of the key criteria's which discussed and analysed by literatures.

4.2.1. Quality Criteria

Based on literature from Robert Ellison, 2014 Software reliability is a statistical measure: the probability that a system or component performs its required functions under stated conditions for a specified period of time, i.e., no failures occur over that time period. It is not a measure of risk for a specific failure. For example, a highly reliable system is neither necessarily safe nor secure. Safety and security depend on mitigating specific kinds of faults.

According to Ahmad Mateen, 2016, Reliability is a non-functional characteristic of any system or software. It means probability of failure free operation in the system in a specified

time and in a required environment. The reliability of a system or software becomes low due to the faults and problems in the software.

The robustness of a software component is a measure of how it functions in the presence of exceptional inputs or stressful environmental conditions. Software robustness is gaining more and more significance among application developers. (Jiantao Pan, 1999)

Robustness is one such important quality attribute which is defined by the IEEE standard glossary of software engineering terminology as:

> The degree to which a system or component can function correctly in the presence of invalid inputs or stressful environmental conditions.

The maintainability is defined by IEEE standard glossary of Software Engineering as "the ease with which a software system or component can be modified to correct faults, improve performance or other attributes, or adapt to a changed environment".

Pahl (2004) posited that software's ability to adapt to its requirements and environment throughout its life cycle is critically vital for core business in continually evolving environment.

4.2.2. Cost Criteria

CRM software pricing varies widely despite near feature set parity among competing solutions. This is most evident with CRM market share leaders who leverage their brand to justify price premiums. However, as the CRM market continues to mature price premiums will erode. Also, CRM buyers must apply diligence to understand the unintended financial consequences of version upgrades, add-on capabilities and needed services. CRM buyers favour inclusive pricing without gimmicks and with no surprises. (Selecthub.com)

Gartner defines total cost of ownership (TCO) a comprehensive assessment of information technology (IT) or other costs across enterprise boundaries over time. For IT, TCO includes hardware and software acquisition, management and support, communications, end-user expenses and the opportunity cost of downtime, training and other productivity losses.

Software maintenance fees are usually calculated as a percentage of initial software license fees. Based on a typical maintenance fee range of 15 to 23 percent of license fees (not including annual inflation or cost of living adjustments), cumulative maintenance fees equal or exceed the initial software investment by year four or five. During a 10- to 15-year lifecycle, which is fairly common for many enterprise applications, cumulative maintenance payments far outweigh initial software purchases. Paradoxically, the value of maintenance depreciates rapidly in the first few years, much like a new car. This is natural as users become more familiar with software systems, and initial implementation and business process kinks are resolved. Yet, maintenance payments stay the same or increase over time, while support calls and other benefits decline. This results in IT departments paying more for less value over time, as most companies do not actively lower maintenance fees over time when user requirements change. The result: wasted maintenance spend for IT organizations and high-margin revenue for software providers. (Accenture.com)

4.2.3. CRM Functionality

Customer relationship management is a comprehensive approach that promises to maximize relationships with all customers, including Internet or Understanding CRM “e-customers”, distribution channel members, and suppliers. Getting to “know” each customer through data mining techniques and a customer-centric business strategy helps the organization to proactively and consistently offer (and sell) more products and services for improved customer retention and loyalty over longer periods of time. (Injazz J. Chen and Karen Popovich)

In an attempt to summarize the most important concepts of CRM, (Zablah & et.al., 2004, p.p. 475-489) demonstrated that there are five points of view for defining CRM. The points of view are the process, the strategy, the philosophy, the ability and the technology. Table (1) demonstrates the most important differences among the above points of view (zablah, 2004, p.578). It also demonstrates that since there are various points of view related to CRM concept, writers have not reached an agreement on that concept. In the light of the above, then, the researcher has tried to put a definition that suits the goal of the present study. This definition is: "CRM is the activity which is interested in the main customers of the organization, in the efficiency of organization and in the customer knowledge management, with the aim of enhancing the effectiveness of the organization decisions related to customers, leading, therefore, to the improvement of the marketing performance in particular and the organizational performance in general."

Table 4 CRM Functionality

Point of view	Description	Success requirement	Concept
As a process	Improving the relationships between the seller and the buyer; this relationships must be strong and endurable.	The institution should have the ability to discover the customer's desires and to respond to them.	CRM is creating and enhancing the engagement and relationships with the external parties, specially the agents and end-consumers.
As a strategy	The value of the life period of the customer with the institution determines the amount and kind or resources that the organization can invest in a relationship.	The institution should assess its relationship with the customer continuously. It should assign priorities in dealing with him/her on basis of the quantitative profitability during the life period of the customer.	CRM is the investment of the companies in the customers who are expected to be valuable for the institution, and the reduction of investment in the valueless customers of the company.
As a philosophy	Customer retention can be better achieved through focusing on establishing relationships and maintaining them.	The customer should be the focus of the attention of the institution, which should be oriented towards understanding the changeable needs of the customer.	CRM is not a temporary project, but a work philosophy, which aims at putting the customer in the focus of the attention of the organization.
As an ability	Profitable and long-term relationships only arise when the companies are able to customize its behavior continuously towards every customer.	The company should possess a group of tangible and intangible resources, which the company uses to flexibly remodel its behavior towards the customer continuously.	CRM means the desire and ability of the institution to custom its behavior towards every customer, on the basis of the information the customer tells and what the institution knows about that customer.
As a technology	Knowledge management and reaction represent the main resources that the institution needs to establish profitable and long-term relationships with the customer.	The institution should be directed with the functional method, and also the user's acceptance of the technology applied by the institution in order to establish the customer's knowledge and reaction management.	CRM is the technology used to integrate sales systems, marketing systems and information systems to establish relationships with customers.

4.3. Summary of Selection Process and Criteria

In summary, the most literatures on selection process explains the need to understand the User requirements as the most important step. At the same time, need to have a thorough evaluation methods and criteria's. Overall the selection process involves four stages:

- Understanding User requirements
- Evaluation
- Final Selection and Purchase
- Entire Selection Process

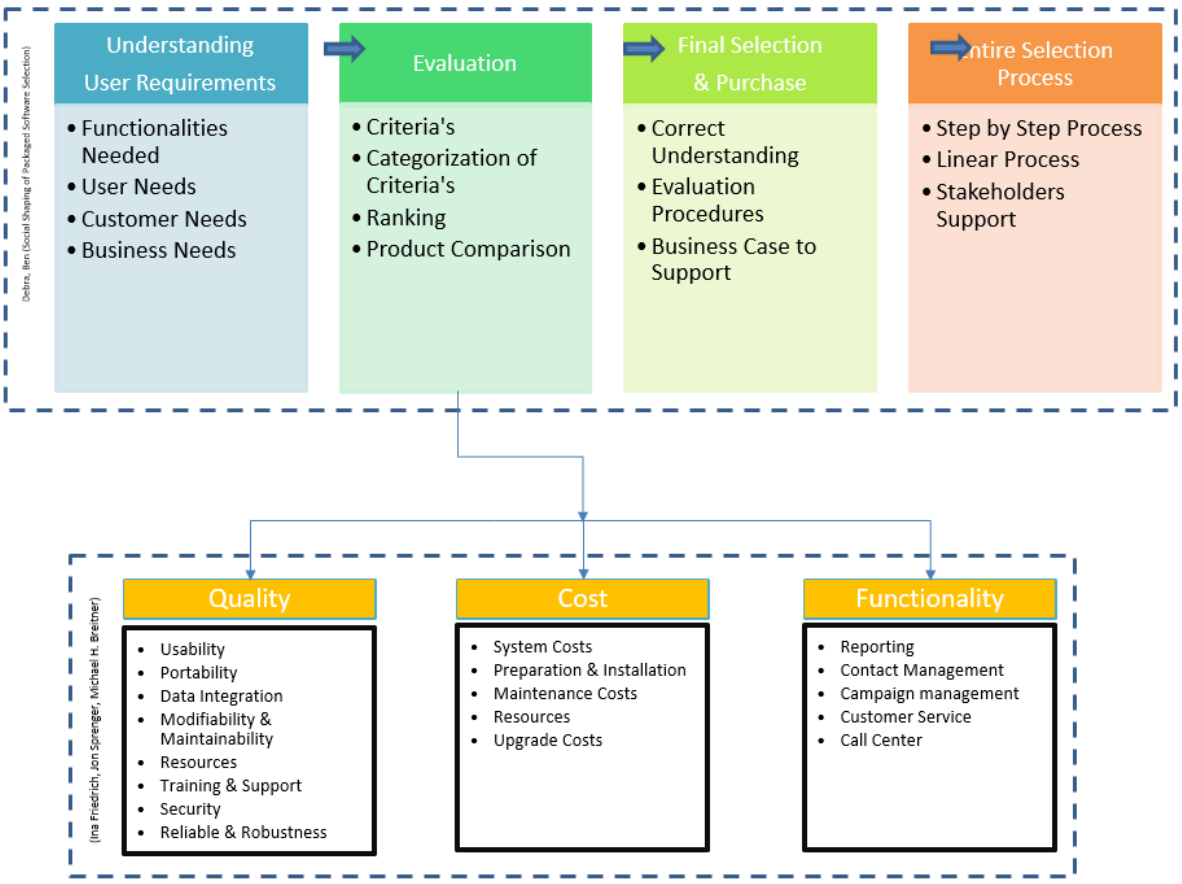

Figure 9 Summary of Selection Process and Criteria

Initial step explains the importance of understanding the user requirements in this overall selection process. User requirements are of multi-dimensional i.e. functionalities needed by the new application, user needs, customer needs and business needs. The requirements vary based on the user type and business goal. It's important to have a comprehensive set of requirements drafted in order to evaluate the applications.

Next step explains the Evaluation phase, which gives clarity in terms of criteria's going to be used in order to evaluate the applications. Criteria's also requires to be categorized in order to evaluate effectively. Once the criteria's are identified, it's important to highlight and use the key criteria's to evaluate the application. These criteria's assists the organization to arrive at product comparison.

The next two steps explain the details on Final selection of product along with purchase and also discusses the various aspects of overall selection process. These steps help the

organization to validate the user requirements to demonstrate fit. Most organizations validate reference customers who already implemented any of the shortlisted applications. These reference meetings with other customers, assist organizations to understand the advantage and disadvantage of these applications with a practical example. These steps also involve considerable efforts in negotiation and contract closure phase.

Another most important aspect of the thesis is to understand the key criteria's used in order to evaluate the applications. The most literatures referred and analysed as part of the study emphasises the need to look at the technological aspect, functionalities or features aspect, cost aspects, skilled people aspect and applications with clear roadmap.

Based on the article from (Ina Friedrich, Jon Sprenger, Michael H. Breitner), the criteria's categorized broadly into Quality, Cost and Functionality. This literature forms the basis in which the criteria's which will be listed and evaluated. The criteria's list addresses a wide range of expectations and necessities for future needs.

5. Building Selection Process and Criteria

Airlines operate in a highly volatile market characterised by dynamically changing technology, new emerging products and standards, and high expectations from customers. Future success of Airlines depends on the ability to understand the markets expectations, customer needs and deliver the appropriate products and services. This can be achieved only by having the capabilities to design, deliver, innovate and predict.

Based on the interviews with airline expert and solution architect, challenges faced and requires considerable attention are selection process and selection criteria's for selecting the modern loyalty application. In this chapter, based on data collected through interviews, workshops and from my background as solution architect worked with multiple airlines projects comes in handy for analysing and formulating the selection process and criteria's.

5.1. Building Selection Process

In this section, the details of proposed Selection process will be discussed with various stages and respective explanations. For Airlines to select a winning product, it's imperative to have a supporting and clear selection process. Overall the proposed selection process contains four steps:

- CORE GROUP
- FUTURE NEEDS
- EVALUATION PHASE
- FINAL SELECTION

5.1.1. Core Group

First and foremost, step for any IT Project is the creation of the Core Group. Core group is group of members or persons with diverse team and expertise. This team helps steer the

project through all phases of the project, in short start to end. It's important to form the team with all necessary expertise, in order to ensure a successful progress of the project.

In regards to airlines loyalty application selection process a wide range of skills are needed within the organization. This involves several stakeholders from various departments, functions with relevant expertise and skillsets. Some of the primary needs are members from Loyalty Business team (who understands the current business and future business needs), Loyalty IT Development team (who understands the current IT Development and future development needs), Loyalty Architecture team (who understands the current Architecture and future Architecture needs), Marketing Business team (who understand the current Marketing solutions and future requirements) and IT Procurement team (who understands the Organizations procurement process and contract negotiations).

In this chapter, we will analyse briefly on the skill sets and expertise needed in the core group of members:

Loyalty Business Manager

Loyalty business manager who primarily owns the business aspects of Frequent Flyer program. Some of the key responsibilities of such profile are as follows:

- Contribute to the development of the roadmap for the Loyalty System and ensuring alignment to the objectives and strategy of the organization.
- Create and manage budget requirements for Loyalty functions, and accordingly control expenses of the Loyalty Program function
- Responsible for new initiatives, in coordination with other Business Units, to improve active Member base for the Frequent flyer program and manage member profiles effectively
- Identify individual member segments, purchasing patterns and choices and recommend specific segment-focused campaigns and offers to drive revenue growth.
- Responsible to oversee Loyalty programme operations in coordination with IT Managers and External partners/suppliers.

- Provide leadership and direction to Organization and team towards the achievement of goals and objectives on Loyalty Programme.
- Responsible to Partnership management, adding New partners from Airlines and Non airlines background. Nurturing the partner relationship and improver the partner performance.

Loyalty Marketing Manager

Loyalty Marketing manager who primarily owns the Marketing aspects of Frequent Flyer program. Some of the key responsibilities of such profile are as follows:

- Create and lead the customer experience roadmap with a marketing strategy of the organization in mind
- Track, monitor and act on user responses and behaviour, use the customer insights for future campaigns
- Manage member retention and create marketing programs to improve Company branding and customer loyalty with improved purchases
- Articulate the vision for the customer experience, communicate the vision and required changes to achieve set goals and results.
- Responsible for owning Customer Insights and predictive analytics performed on Member profile data, in order to provide customized services and offers.
- Use customer segmentation and consumer behaviour information to strengthen customers experience.
- Utilize strong analytical ability to evaluate end-to-end customer experiences across multiple channels and customer touch points.
- Work to define the Customer Experience Strategy, including mapping the customer path, identifying key touch points, highlighting break points, and identifying behaviours required to deliver a superior customer experience
- Help research, identify, and create innovative site and service features to grow the customer community.
- Help create, manage and maintain Customer Loyalty projects and roadmap

- Provide data driven insights. This may include customer lifetime value, segmentation, behavioural data, and other sources of member specific insights.

Loyalty IT Development Manager

Loyalty Development manager who primarily owns the IT aspects of Frequent Flyer program. Some of the key responsibilities of such profile are as follows:

- Responsible to act as a Coordinator to understand Business team vision and provide solutions for implementing new features for Loyalty system
- Manage requirement and solution specifications related to Loyalty system
- Responsible for owning the complete lifecycle of development and implementation of Loyalty system
- Manage the Customer Loyalty development and enhancement process, including brainstorm sessions, development, implementation, and testing.
- Responsible for maintaining and configuration of Loyalty system
- Responsible for the IT Budget for the Loyalty system and related costs.
- Responsible for solution, technology, technical experts related to Loyalty system
- Responsible for developing test strategies with respect to Loyalty system and create an effective approach to deliver it within the organization.
- Responsible for all communications with External IT vendors and teams for all project communications and deliverables
- Proactively work with business to understand future needs and Must win battles to provide optimal and cost effective solution

Loyalty Architect

Loyalty Architect who primarily owns the Architecture aspects of Frequent Flyer program. Some of the key responsibilities of such profile are as follows:

- Develop architecture strategy and platform design, develop architecture features.

- Serve as a technical expert to Loyalty and Marketing units
- Work with other architects and others to ensure that the planned solutions are scalable and cost effective.
- Articulate architecture vision, IT strategies to Project owners, stakeholders, various units and senior leadership.
- Identify opportunities in the Loyalty and Marketing platforms that constantly improves performance, scalability, reliability and re-usability.
- Create architecture specifications to meet the sustainable needs. Manage and own proof of concept for new initiatives.
- Propose new architecture solutions for futuristic needs and growth opportunities.
- Maintain technology roadmap of the Loyalty platform and proactively work with the product vendor and other units in driving the technology roadmap.
- Partner with members of our development organization to develop and communicate a comprehensive IT strategy

IT Procurement Manager

IT Procurement Manager who primarily owns the Procurement and contracting aspects of IT Systems. Some of the key responsibilities of such profile are as follows:

- Responsible for Sourcing strategies
- Manage supplier's partnership and coordination with stakeholders
- Negotiate with external vendors to contractual terms and conditions
- Approve the order and contract for Products and Services
- Finalize contractual details for Products and deliveries
- Track and report key performance metrics to control cost and improve effectiveness
- Collaborate with key stakeholders to ensure clarity of the needs and expectations of the organization
- Foresee changes in terms based on various legal requirements and negotiate appropriately with suppliers
- Mange and mitigate risks for supply contracts and agreements

- Control spend and build a culture of long-term saving on procurement costs

5.1.2. Future Needs

In the last section, the initial step in the selection process was discussed in detail. In this section the next logical step i.e. the needs of the airlines toward loyalty system will be analysed. Every leadership team in the airlines have challenges in formulating the future needs of the industry. What kind of skills required in the team? What kind of technology is the future? What kind of systems will provide high quality customer needs and at the same time cost effect? These needs can be categorized in many ways i.e. customer needs, technology needs, user needs, growth Impacts and cost Impacts. Each needs will be analysed in this section.

Customer Needs

In the current digital age, the customer needs have grown exponentially. Customer knows more and expects a lot more personalized service and offers. Digital growth has created huge changes in the airlines industry and empowered customers. Need for innovation and faster enablement of service is a necessity for addressing customers' expectations.

Customer Experience is one of the key requirements for airlines industry to address. This need has grown in stature and significance in the last decade. Addressing customer needs still remains a biggest challenge and involves complexity due to airlines architecture and landscape of applications in addressing it. Some of the key customer experience requirements are improve the journey experience of the customer starting from booking to travelling; 360-degree view of customer to provide personalised service and offers; Builds relationship with airlines brand; empowered customer.

Technology Needs

Biggest challenge faced by airlines is due to aging technologies, key systems unable to adhere to latest development standards. Digital revolution has forced companies to look beyond the immediate growth and revisit roadmap on technologies for future needs. Linear changes in technologies have become history, as the technology grown in exponential terms. Not long ago printed tickets used to be the norm for airlines passengers, but the technological changes brought a phenomenal impact. Moving to e-tickets, iOS Passbook, QR code based self-check-in, SMS ticket, etc. and the list is long. But undoubtedly the technologies are going to define the future growth of airlines.

Technology related to loyalty system in airlines have changed the way Frequent flyer programme is operated. Technologies for the future needs to be reliable, scalable, secure, robust, integrate seamlessly with other systems, better performing and availability.

One of the most challenging question for airlines is to adopt a commercially available loyalty system or Improve the existing custom built loyalty system. Commercially available loyalty system provides huge list of benefits for any airlines like quicker implementation, technically skilled resources, system with latest technology and development standards and well defined product roadmap.

User Needs

As the saying goes “Employees are your first customers”, one of the key priority for the airlines is to improve the experience of their internal users. Improving the user experience goes a long way to improve the efficiency and effectiveness of the organization, which results in improving better customer service, Improves overall productivity of the employees and Better image for airlines brand.

Some of the key user needs related to loyalty system are ease use of system; Responsive system which supports multiple devices such as Mobile, Tablets, Various browsers; Quicker configuration for complex promotions and rules; Well integrated loyalty system; Easy partner management; Reports and statements;

Growth Needs

In spite of many turbulent times, the airline industry is growing at a rapid pace. Strong demand has kept growing exponentially which is creating enormous opportunity and advancing growth of this industry. Though the airlines robust profitability and market situation are elusive and vulnerable.

According to PwC (Aviation trends 2015), the airline industry has long struggled with margins, but the current growth phase in most markets, coupled with evolving technology and customer preferences, offers a real opportunity. By adopting the measures described here, airline carriers can forge better relationships with customers, cut costs selectively, and improve their financial performance in a sustainable way — either alone or with the right set of partners.

The key opportunities for airlines are to adopt to technology and addressing the customer preferences. The need for proper roadmap and investment in loyalty system is going to define the future growth of airlines.

Cost Needs

While the aviation industry growth is phenomenal in the last few decades, but it has resulted in huge impact to costs and prices upwards due to improved technology and services offered. Also the cost continues to be huge burden for the future needs as well. cost reduction in airlines IT systems is a high priority requirement for the industry to provide sustainable and long term solutions. Cost optimization and efficiency needs to be achieved without compromising the quality of service and product offered to end customers.

Some of the key costs elements associated with loyalty systems in airlines are as follows: Hardware costs to host the loyalty system; One-time initial software costs; Continuous licensing cost for software; Software and hardware maintenance costs; Development costs; Implementation costs; and User training costs.

5.1.3. Evaluation Phase

Next step in the selection process is Evaluation phase of loyalty system. During the initial steps, the Core Group with right members and Key needs or requirements are analysed and listed out in detail. In this phase of the process, it's important to create the list of criteria with categorization. These criteria's will be used to evaluate the commercially available loyalty products in the market.

Evaluation phase is never an easy task and involves considerable set of efforts, steps and people. Some of the key steps for the evaluation phase is Listing of criteria's; categorizing the criteria's; Prioritization of criteria's; Shortlist the products; apply the criteria's; provide the detailed feedback and analysis.

The following Process depicts the entire Evaluation Phase:

Figure 10 Evaluation Phase

5.1.4. Final Selection

Final step in the selection process is all about selecting the best fit product which involves negotiation of contract as well. Previous step enables the airlines to list out the criteria's along with categorization and give out the details on how products compare on these listed criteria's. The output of previous step acts as input and enables the airlines to thoroughly study and select the best fit.

This phase involves number of steps such as; 'Product selection' at this step the Airlines select the product based on the criteria's, 'Business case to Best FIT' at this step the initial

Business case is linked to best fit i.e. selected product, 'Contract Negotiation' at this step IT Procurement team will negotiate the contract to address various aspect such company guidance and process, 'Deal Done' at this step the officially signing and closing the deal with application product company, 'Feedback & Closure' at this step overall feedback on the selection process for future improvements and closure report submitted.

Figure 11 Final Selection

5.1.5. Summary of Selection Process

A comprehensive study based on various data collected over interviews, Literatures and other sources, the final selection process was arrived with multiple phases. The proposed selection process split into four steps as follows:

- Core Group
- Future Needs
- Evaluation Phase
- Final Selection

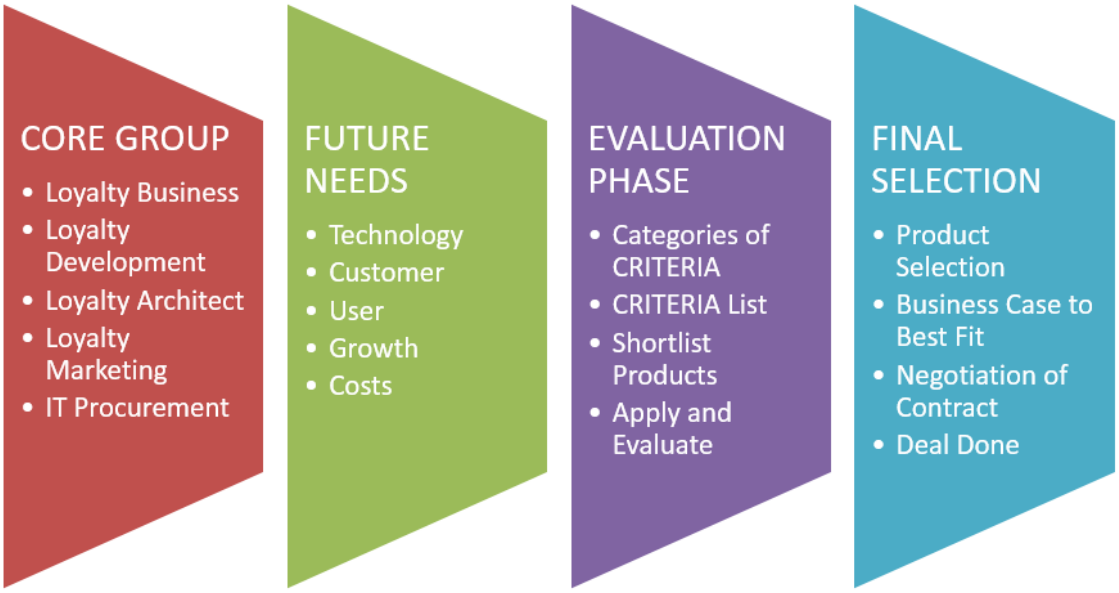

Figure 12 Proposed Selection Process

One of the major success factor in order to have the best selection, is all about the getting the best team in place. The Core group formation at the initial step, plays an important role in this overall selection process. It's important to have the right mix of members with right expertise required for selecting the best fit application for airlines loyalty solution.

Next important step, where the multi-dimensional needs were understood from various aspects and team. It was broadly classified here based on the data collected from architects and airline experts. It's important to prioritize the requirements and choose the relevant ones which are to be evaluated for Final selection.

Evaluation phase is discussed more in detail in the next section with data analysis. Final step is all about the selecting the right product with best fit into user requirements. Also the key aspect of choosing the right product also means getting the right contract in place. Based on the past experiences, the contract negotiation can be of multiple iterations. Contract includes a wide range of services and offerings i.e. License costs, Software roadmap, maintenance, Resourced skillset, fixes, Premium support, etc.

5.2. Building Selection Criteria

In this chapter, the selection criteria's used in order to evaluate the loyalty solution will be studied. Based on the data collected from solution architect and airline expert, the criteria selection is a difficult and long process. Considering the long list of needs collected from the initial phase in the selection process. Corresponding needs are matched with respective and matching criteria's. It's important for the airlines to choose and prioritize the right set of criteria's which are optimal for their size and market. Also, the need to categorize the criteria was discussed during the literature study. The categorization also defines the organizations vision for defining the future loyalty solution. Based on my study, three categories are suggested in order to define the criteria's i.e. Innovate, Optimize and Perform.

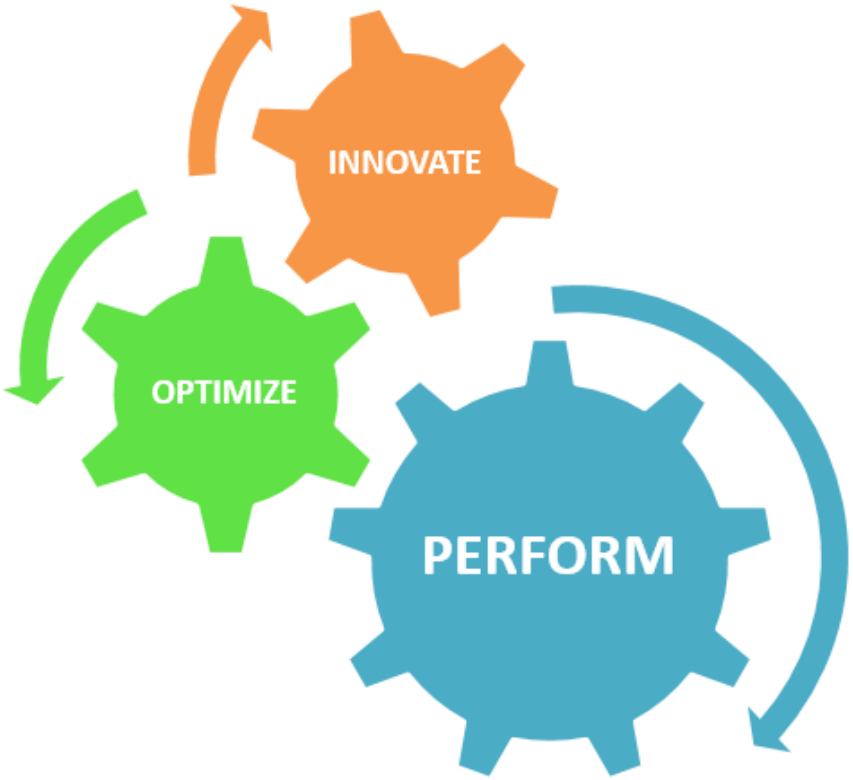

Figure 13 Proposed Selection Criteria Category

Airline loyalty need to innovate in order to stay high in the industry and market, at the same time there is a huge need to optimize their solutions and costs, finally high performing is the key requirement for any solutions which can cater increasing volumes and processing. In the next section, all the three categories will be discussed in detail along with the respective criteria's.

5.2.1. Innovate

One of the key for airlines loyalty solutions to be successful, is the ability to come up with new ideas for operations, Products and service offerings. Process which can bring new ideas,

which in turn provides the products and services to customer demands and expectations. Airlines loyalty should have the right capabilities, features and functions to provide innovative promotions, offers and timely service. Due to the high importance of innovation, now it's even more critical to set the right criteria's in order to evaluate the innovation capabilities for airline loyalty product selection. In this regard, we will discuss some of the criteria's selected under this section:

Flexible & Dynamic Promotions

One of the major drawback with legacy loyalty systems was the flexibility when it comes to configuring promotions dynamically based on the need. Current environment in the industry demands the airlines to have loyalty systems which can allow configuring promotions in a flexible and configure dynamically based on requirement.

Promotions configuration typically involves setting up various rules using member profile data, activity data such as flown information, booking information and many more. Outcome of the promotions usually the action performed as part of the promotion which is to award points or deduct points calculated based on the transaction amount or flight route. But the promotions in general can be used for various purposes in an airlines loyalty for e.g. Evaluating various tiers, Accrual or Redemption of points, capturing member activity behaviour, setting member attributes, Loans or Gifts promotions, Voucher redemptions, Joining bonus, Referral schemes, Priority check-in, etc.

Campaign Design & Delivery

According to Gartner, Campaign management applications help organizations segment, target and manage multichannel marketing messages. Elements of functionality include data mining, customer segmentation, customer-event triggering, next-best-action recommendation engines and campaign optimization.

Campaigns management has become an integral feature of all modern loyalty solutions and in any CRM solutions. Loyalty solutions have inbuilt member segmentation, member purchase history, member profiling, various reports and dashboards and customer insights in general. These features enable organization to have an effective solution to design campaigns and execute it in an efficient manner. Need for campaigns design and delivery to be an integral feature rather than a disconnected functionality.

Ease of Use or Usability

According to Brian Shackel (2009), Successful system design for usability requires much attention to various aspects of the user. However, the user must not be considered in isolation from other aspects of the situation; that would only be perpetuating in reverse the all too common fault in the past of considering the technological tool in isolation from the user. Good system design depends upon solving the dynamic interacting needs of the four principal components of any user-system situation: user, task, tool and environment.

Usability or Ease of use refers to how well the users can use the system both in terms of efficient and effective means. Users should have the clarity and supportive interface in order to use the capabilities and features the loyalty system may offer. Usability can be measured using the accessibility, functionality, compatibility, user satisfaction, easy to learn and interface itself.

Promotion Metrics

One of the key challenges for loyalty business team who are responsible for designing and configuring promotions is lack of metrics on how well promotions are performing. In order to understand the promotions performance, it requires additional systems or applications to perform the analysis. Or in some cases, many airlines still rely heavily on manual process or using Microsoft excel to analyse the promotions performance.

One of the future needs required by loyalty business team is to have reporting features with views to monitor or analyse the promotions metrics and dashboards. This enables user to have a clear understanding on promotions adaptation from customers. Also airlines can proactively act upon the response both through fine tuning the existing promotions or deploying new promotions.

Multi-Channel Engagement

Popularity of Smart phones/tablets and Social media enabled customers to use a wide range of devices and tools to reach out for services and companies. This raises the seriousness and importance to have a loyalty system to have a wide range of solutions inbuilt to engage customers through multiple channels.

Some of the possible channels required to enable customer engagement are social media, Short Messaging Service (SMS), Instant Messaging (IM), Web Chat, Phone, Email and Self-service. Loyalty solutions should possess the capabilities for enhancing the customer engagement process seamlessly and support integration through all the various channels.

Manage Customer Journey

According to Gartner, “Understanding the customer journey is critical to enhancing customer experiences and operational efficiency. IT application leaders must understand the related analytics technology offerings to select the best solutions for the many stakeholders in the organization.” (gartner.com)

Customer Journey is an important aspect in managing the customers behaviour, expectation and loyalty. Traditional loyalty solutions provide a disconnected functionalities and limited processes. But the need for enhanced and manageable customer journey is more evitable for a modern loyalty solution.

Customer Loyalty Insights

According to Paul Greenberg (2010), True customer insight has been elusive for most companies. CRM tools, which were purported to help, were actually not that successful in supporting any sort of actual knowledge of individual customers. As a management tool, the best CRM was able to provide was metrics that concerned what the monetary value of a customer over a lifetime was for a given company – giving that company a rough idea of the kinds of resources they needed to invest in that present or future high or low-value customer.

Modern day customer insights measure, monitor, value customers beyond the monetary value. Customers decision making to choose an airline, impacted by several factor such as Cost, Service, Preferences, Social, Time, etc. The need for a thorough Insight on customer's data needed in order to retain and extend customers loyalty. Customer loyalty Insights have become a norm for forecasting future growth and execution.

Extensibility

In software engineering, extensibility is a systems design principle where the implementation takes future growth into consideration. It is a systemic measure of the ability to extend a system and the level of effort required to implement the extension. Extensions can be through the addition of new functionality or through modification of existing functionality. The central theme is to provide for change – typically enhancements – while minimizing impact to existing system functions. (Wikipedia.org)

For airlines, it's imperative to have a loyalty solution which provides set of tools, framework, practices and methods for extending the application to suffice future developments. Also the loyalty solution need to adhere to common standards related to Development of IT applications.

5.2.2. Optimize

Further to the analysis on criteria selection, next set of criteria categorization is 'Optimize'. This category holds a wide range of optimization which the airlines loyalty solution should consist. Optimization involves several aspects how the solution minimizes the hosting or licensing costs, Cost associated with resource skillsets, Costs possibly associated due to training the employee pool and much more. There are several studies conducted around the optimization on projects/solutions/new initiatives. This is a major trend and growing need for any industry to select the future solutions which can control direct and indirect costs. Key issue faced by the IT departments within airlines is to enable optimization on all aspects of IT products and solutions proactively and maximize the IT value. In this regard, we will discuss some of the criteria's selected under this section:

Flexible Pricing Model

One aspect of application selection takes considerable efforts and time for deal closure is the pricing discussion and negotiation. All commercially available loyalty solutions have been defined with certain model by the respective product company. Pricing includes a wide range of services offerings and products with respect to loyalty application and related features.

One of the key need for future loyalty solution is to have a flexible pricing model, which doesn't bind airlines with long term commitment and easier way to manage cost based services. Also Flexible pricing is the way forward for airlines to maintain and advance competitive edge. Typical airlines loyalty solutions pricing includes the following services; User based License, Functionality based license, Software maintenance & fixes, Future releases, Expert services and Premium Support.

Quicker Deployment

Airlines loyalty architecture is complex in nature with a wide range of applications landscape tightly integrated, diverse functionalities, huge user groups and different vendors/partners

managing different applications in the landscape. Due to this complexity, it's very hard to manage deployments and it requires a huge amount of efforts to minimize impacts and great deal of coordination due to downtime for fixes or new releases.

Modern loyalty solutions should and must have the latest standards and suffice future needs to handle and manage deployments smoothly with less or no impacts. Some of the latest standards allow code isolation, deploying new version with easily revertible to older version with few clicks, enables inbuilt code validation and testing, deployments statistics and measures and automatic backup. Deployment solutions should also provide comprehensive roll back mechanism in case of any issues and need. Rollback should be simple and should not have any impacts to availability or data.

Seamless Integration

According to techopedia.com, Seamless integration is the process where a new module or feature of an application or hardware is added or integrated without resulting in any discernible errors or complications. It simply means that whatever change is being applied to a system, it happens without any negative impact resulting from the integration. It is often used in the context of software and systems development, as well as for computer hardware. The term seamless integration is used in the event that a new application, module or device is added and works smoothly with the existing system. It is also used to describe a future upgrade to an existing system, to assure stakeholders that there will be no problems resulting from the integration. A common example of this, or at least the lack of it, can be seen with many mobile applications where a feature update often results in multiple bugs and may even result in the application not working at all for some hardware configurations.

Airlines loyalty solutions are highly integrated with various systems such as booking system, reservation engine, partner systems, data warehouse, reporting system, etc. It's important to have a loyalty solution which adheres to latest standards and backward compatible to support older systems in the landscape. Modern loyalty solution should also possess a seamless integration layer with set of tools and methods (REST API, SOAP API, event based,

EAI methods, file based integration, FTP based & Batch processing) inbuilt to enable integration easily.

Security & Fraud detection

One of the serious issue faced by airlines is the challenges faced because of IT Security and Fraud prevention. While most organization adopts new standards, tighter security solutions, and maximize control mechanism. But the Fraud occurrence or security violation keeps reoccurring due to new ways to overpower the security mechanism.

Airlines in general need to have a stronger and deeper security controls, considering the volume of customers who engage through the websites or self-portal. Most airlines are vulnerable for various types of frauds including data theft, credit card stealing and fake booking. Loyalty solutions should have capabilities in enabling valid control measures to limit transactions or profile updates or data exchange. Another aspect on the security is the Integration layer, which should possess and adhere to security standards needed to connect, integrate and exchange data to other systems.

Mobility

Mobility is the trend which enables users/employees to work from remote locations and use multiple or various types of devices to connect and use the internal systems. Mobility has grown in the last 2 decades exponentially with the arrival of modern smarter devices and mobile apps/operating platforms. According to Gartner study (Enterprise mobility), the innovation rate in mobile devices, social software and cloud computing is accelerating faster than the enterprise adaptation rate. IT organizations that fail to adapt to this new reality will lose their relevance in the era of pervasive mobility.

Most Airline employees are mobile in nature and work out of their fixed desk. Airlines losing out on Customer experience and Loyalty due to lack of timely information available for employees who are interacting with customers. Many airlines want to adopt to smart

devices such as tablets for employees working at airports and Inflight crew. This raises the need for loyalty solutions to have interfaces which can work with various devices and locations. At the same time all the security aspects and functionalities are available to the end user, in some cases functionalities can be limited based on the devices or team. In some cases, the need for offline data caching mechanism is on the rise. For airlines crew members, it's important to have the data of the key members during the flight for e.g. Platinum members flying with them on the day. Mobility should also cover the need for smart phone notifications through mobile apps or loyalty membership card through electronic means.

Skilled Resources

According to Gartner, finding the resources and skill sets that can drive transformation, however, is a significant challenge. In a report "Service Providers Are Waging War Against U.S. Talent Shortage with Unconventional Methods", analysts Helen Huntley and Allie Young summarize the state of IT in the business world:

Businesses must have IT to survive, especially in a digitally enabled world. It is no surprise that the demand for IT talent is higher than ever. An apparent lack of IT talent is impeding the success of service providers that are currently expanding or wish to expand their onshore talent, or are new entrants to the domestic, onshore market. As a result of the IT shortage, service providers who are not using creative methods to attract and retain IT resources will be viewed as less competitive and their market growth will be inhibited.

Airlines have a unique challenge in imparting skills and knowledge at various levels and functions for constantly changing demands and expectations. New loyalty solutions also means a considerable skilled resources needed to maintain, develop and support it. It's important to have the necessary skilled resources available in the market and with optimal/affordable price.

5.2.3. Perform

The International Air Transport Association (IATA) released its updated passenger growth forecast, projecting that passenger numbers are expected to reach 7 billion by 2034 with a 3.8% average annual growth in demand (2014 baseline year). That is more than double the 3.3 billion who flew in 2014 and exactly twice as many as the 3.5 billion expected in 2015. The five fastest-increasing markets in terms of additional passengers per year over the forecast period will be China (758 million new passengers for a total of 1.196 billion), the US (523 million new passengers for a total of 1.156 billion), India (275 million new passengers for a total of 378 million), Indonesia (132 million new passengers for a total of 219 million) and Brazil (104 million new passengers for a total of 202 million). (source: iata.org)

The passenger growth forecast suggests the demand and importance of role played by loyalty solutions are of very high importance. Performing Loyalty solution is needed to address the expected volumes of member profiles, customer base both member and non-member, transactions processing, customer Insights, campaign performance, mobility and high availability. In this regard, we will discuss some of the criteria's selected under this section:

Real time monitoring

Loyalty systems processes huge number of transactions such creation or update of member profiles, processing flight transactions, reward flights, tier processing, promotion processing, etc. These systems require effective mechanism to manage and monitoring for the administrators of the loyalty system. Real time monitoring is a process through which an administrator can review, monitor and respond to the situation related to application or data or user.

Real time monitoring also helps in managing the key metrics of the loyalty solution and assists in ensuring data flow across the integration layer and service. Loyalty administrators need an effective solution such as view with key metrics, status, dashboards and alerts to monitor.

Cloud vs On premise

Most airline solutions still largely developed and implemented using either own data centre or 3rd party data centers. But the need for cloud computing is on the rise for various reasons such as quicker deployment, cost effective, no long term commitment and many more benefits. But traditional on premise deployments comes with its own benefits such as personalised monitoring/alert, addresses security concerns and own manpower.

Many articles and literatures have studied deeply on the comparison between Cloud and On premise solutions. But the decision purely lies on the factors which are important for the Airlines. Based on the report from GFI software on 'A dilemma for business', have listed out some key aspects and difference between Cloud and On premise solutions in the below table:

Table 5 On Premises vs Cloud

Topic	On-premises	Cloud	Advantage
Expertise	Top talent comes with top costs, and niche skills may be very expensive to attract and retain.	Cloud service providers specialize in an offering, and staff it with the necessary expertise.	Cloud
24x7x365 support and monitoring	Monitoring systems can run 24x7, but keeping staff around the clock can be very expensive.	Cloud service providers monitor 24x7, but may not monitor what is important to you, or notify you directly in a timely fashion.	On-prem
Scale	You can do anything for a cost, but can you do everything cost-effectively?	One of the big benefits to cloud service providers is the resource pooling. They can afford to offer scale of services you could not provision yourself at any cost.	Cloud
Trust	When you run it yourself, you have only to worry about yourself.	You have to trust someone sometime, and when it comes to cloud service providers, you are going to have to extend a lot of trust.	On-prem
Compliance	When you run it yourself, you have to worry about ensuring compliance with all the laws and regulations that apply to your business.	Cloud service providers have teams devoted to compliance, and can much more readily meet and maintain compliance. Trust, but verify, and you will be fine.	Cloud
SLA	When there's an outage, it is up to you to get things back up and running.	Most cloud service providers offer financially backed SLAs. They too will have outages, but at least you will get credit for downtime and not have to work around the clock to restore services.	Cloud
Understanding your business	Only you can understand your business as well as you do. You know which user, customer, or application is more important.	Cloud services are the great equalizer. Mailboxes are mailboxes, and until you escalate, a problem impacting your CEO and a problem impacting a part-time employee are just equal problems.	On-prem
Security	Security is critical, and you know your assets and your people.	Security is complex, expensive, and must be maintained 24x7. Cloud service providers can leverage economies of scale to provide security beyond anything you could practically do on your own.	On-prem
Customization	When you deploy it, you can do it any way you please, and can customize things, add plug-ins, etc. as you see fit.	Cloud based services offer lots of choices, and many configurable options, but they are still going to be limited in what you can do, and may not support all the options you want.	On-prem
Cost model	On-prem solutions involve assets that must be purchased, may need to be financed, and must ultimately be replaced.	Cloud solutions are services to which you subscribe, and as such, can be categorized as operational expenses. There's often great tax benefits to that.	Cloud

High Availability

Based on research, the systems or services which are available and accessible for 99,999% of the time are termed as Highly available. But high availability remains a major challenge for loyalty solutions, the modern solutions need to provide necessary setup in place such as load balancing, backup mechanism, clustered servers, etc.

As a customer facing application, loyalty solutions needs to be available for 24/7 on all days, any non-availability causes loss of new members, missed member profiles updates, prevention of reward booking, brand image and customer dissatisfaction.

Scalable Loyalty engine

Loyalty engine is a component which is part of airlines loyalty solution responsible for managing and processing of all promotions, rules, transactions, awards, vouchers and points. Loyalty engine should be capable of processing huge volumes depending on the airlines size and strength. Also need for scalability is of high importance considering the growth rate of passenger traffic and various services offered as part of loyalty membership.

Loyalty engine performance can be measured based on defined server capacity, defined volumes of transactions, defined number of promotions, defined set of members and with limited number of users. Usually these metrics are used in order to shortlist the candidates and best fit.

Partner Performance

For airlines loyalty, partner management and performance is key functionality considering the number of partner's airlines can have and services supported for them. Most airlines have huge number of partners which are of different type broadly classified as airlines and non-airlines partner. Airlines partners are other airlines who can be part of a common alliance or normal partner and Non Airline Partners could be from various industry such as Hotels, Retails, Cruises, etc.

Partner performance is a criterion which enables monitoring various services and functionalities enabled for partners in the Loyalty solutions. Major functionalities of partners are of partner member enrolment, partner transaction processing, partner rules management, partner profile management and partner promotions management.

5.2.4. Summary of Selection Criteria

A detailed study based on various data collected over interviews, literatures and other sources, the final selection criteria was arrived with various categorization. The proposed selection criteria split into three categories as follows:

- Innovate
- Optimize
- Perform

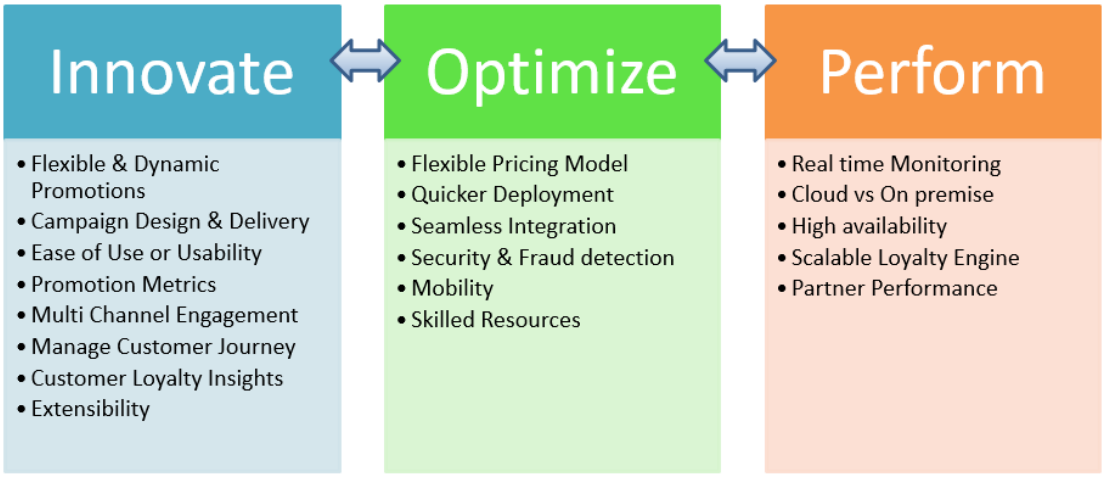

Figure 14 Proposed Selection Criteria

The most major success factor for airlines to maintain competitive edge is to Innovate. Innovation is the need of the hour, for respectable growth and succeed in fulfilling the customers' expectations. The first set of criteria is categorized with header 'Innovate', typically addresses the need for future loyalty solution to uphold. Various criteria's discussed under this category to provide detailed customer insights, a very flexible and dynamic promotion framework, Effective and efficient campaign management, Enable and manage customer Journey, Easy extensibility, Ease of use and Usability and Metrics on promotions easily available for decision making.

Next set of criteria are categorized as ‘Optimize’ which addresses need for the new loyalty solution optimize effectively on various aspects. Key aspects of these criteria’s is to address the cost effectiveness, pricing models provided by product companies, manage seamless integration with minimum impacts, minimized deployment time with maximum value for customers, need for mobility for growing customer service, proactive measures in place for addressing security concerns and skilled resource available for supporting the new application.

Final category named as ‘Perform’ with set of criteria’s which are defined for performance management of loyalty solution. One of the most aspect of the loyalty solution is to ensure the loyalty engine is scalable as the volumes of passenger traffic grows significantly. It’s important to have the loyalty solution adapts to this need and other needs such as high availability, Cloud vs On premise systems, Real time monitoring and Partner Performance.

6. Feedback on Selection Process and Criteria

6.1. Overview of the Feedback Process

In this chapter, we discuss the details on the feedback gathered from various stakeholders regarding the proposed selection process and selection criteria for modern loyalty solution and fine tune or improve the final process and criteria. The feedback was performed with two individuals i.e. 1 solution architect and 1 airline expert.

The next section will list out the details on the data collected as part of feedback. Then finally a conclusion on the feedback process with revised selection process and selection criteria.

6.2. Feedback on Selection Process

This section will summarize all the feedback received from both experts i.e. Airline Expert and Solution architect on the proposed selection process. The feedback overall highlighted the importance of having concise process with defined set of tasks. Though the initial proposal highlighted the purpose of each step in the process and possible outcome. The experts are of opinion to highlight the possible outcome as a milestone or outcome section. Another significant point highlighted was to enhance the core team with consulting expertise, which can significantly strengthen the selection process.

Core Group - Consulting Member

One of the key feedback received from the airline expert is to include a consulting member with transformational experience as part of core team. This expertise is needed in order to

define the transformation roadmap from legacy system to modern loyalty solution. Some of the key responsibilities of the resource are as follows:

- To develop key work streams of the transformation programme in close liaison with all key stakeholders
- Ability to Lead a large customer engagement that may involve multiple project teams from Internal or client or partner organizations
- Be the central point of contact throughout the life of the engagement of selection process, beginning during presales with engagement scoping till product selection
- Provides clear understanding on business objectives and technical requirements and deliver in the context of a statement of work
- Provides technology leadership and care for business
- Continually manage Organization expectations, manage scope, and identify/mitigate risks
- To ensure that all transformation projects are managed in accordance with the organization approach, including taking the lead on ensuring quality feasibility studies, business case study, and timelines for the evaluation of Transformation projects.

Milestone or Outcome for each Phases

Next feedback received for the Selection process is to list the outcome or milestones for each of the phases in the selection process. While the outcome has been discussed during the building process of the plan. In the current section, all the necessary milestones or outcomes have been listed based on the study.

Core Group – Milestone or Outcome

- Formation of Core Team
- Commitment from Core Team

Future Needs – Milestone or Outcome

- List of Requirements
- Requirements categorization

Evaluation Phase – Milestone or Outcome

- Prioritized criteria's
- Product comparison chart
- Summary of Product selection

Final Selection – Milestone or Outcome

- Final Product Selection
- Contract with Vendor
- Feedback on Selection Process

6.2.1. Final Selection Process

The final version of the selection process created according to feedback received. This process has few key impacts on the Core Group process with a new expertise or skillset and Outcome/Milestone for each of the phases mentioned explicitly.

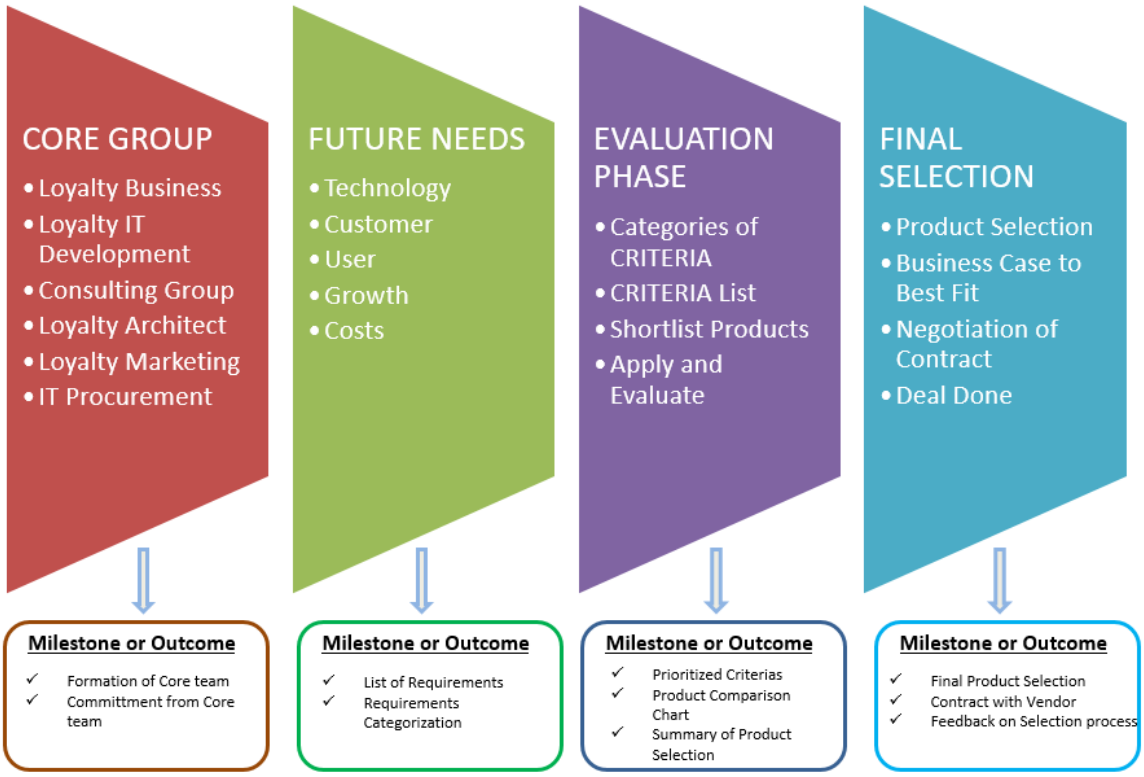

Figure 15 Final proposed Selection Process

6.3. Feedback on Selection Criteria

This section discusses about the feedback received from the airline expert and solution architect on the proposed selection criteria. Overall the feedback received is positive and adds immense value in the selection of loyalty solution. Few feedbacks were provided based on the trend and growing demands on certain areas like Brand advocacy, Social Connection, Gamification and Disaster recovery.

Brand Advocacy

Brand advocacy addresses the various advertisement needs, creating positivity among the brands, spread brand awareness, improving brand sentiment and develop strong brand

loyalty. For airlines industry, it's extremely important to have a positive sentiment across various channels, mediums and networks. A loyalty customer can act and serve as a Brand advocate, which means a customer can recommend products or services to others, spreading the positive news, creating more customers or customer value and flourish relationship with brand. Modern loyalty platforms consider this as an important factor to promote both customer loyalty and brand value.

Social Connection

Social media redefined the way people are connected across the globe and also provides numerous opportunities for Airlines to use this medium to stay connected, improve customer relationship and provide personalized services. There are many ways airlines can benefit by having a Loyalty system which is tightly integrated with Social media. For e.g. Customer can be rewarded for liking a Facebook page or Following in Twitter or Sharing a post in Facebook or Retweeting in Twitter or participating in opinion polls, etc.

Also the social media is an abundant source of information for airlines to listen to customers, Engage with customers, Reward active customers and measure response

Gamification

According to Gartner, Gamification is the use of game design and game mechanics to engage a target audience to change behaviours, learn new skills or engage in innovation. The target audience may be customers, employees or the general public, but first and foremost, they are people with needs and desires who will respond to stimuli. It is important to think of the people in these target audiences as "players" in gamified applications.

Gamification concept is all about understanding deeply about customer with the brand. Rewarding customers through set of tasks which are influenced and performed as a part of

game, defining set of Levels or status for customers who actively participate in the gamification process and strengthen the brand through proper rewards.

Disaster recovery

Disaster recovery is an essential part of any IT solutions and it's even more important for Loyalty solutions. In case of disaster or any failures or unavailability of key systems, the Airlines should be able to recover the services within a defined time frame. The new Loyalty solution should have the capabilities to support disaster recovery from the IT application point of view. Provides inbuilt solutions to taking backups on key metadata, repository and other key items.

6.3.1. Final Selection Criteria

Based on the feedback, the final proposal for selection criteria was updated. Two key categories i.e. Innovate and perform have been updated few additional Criterias suggested by airline expert and solution architect.

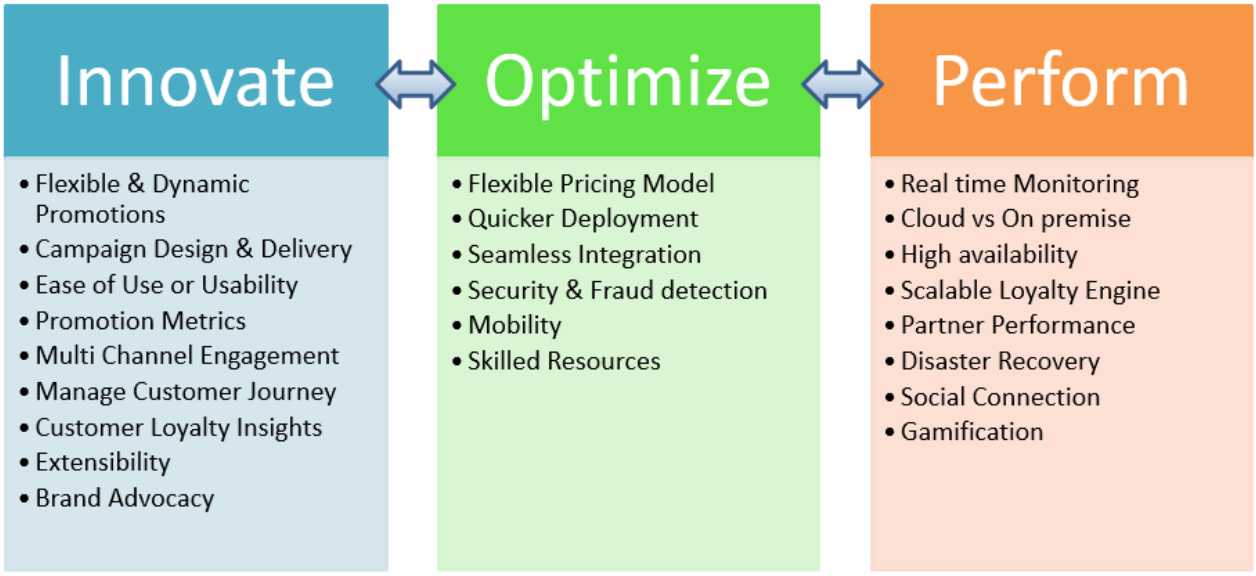

Figure 16 Final Proposed Selection Criteria

7.Conclusions

In this final chapter, we will summarise the overall research, process followed, submit the key findings based on the study, next steps, results on Reliability Vs Validity and possible recommendation for further studies.

7.1. Summary

The project was focussed mainly on building a new selection process and selection criteria to help airlines to choose a modern and commercially available loyalty solutions. New loyalty solutions will boost customer service, insights, marketing and brand image, but also assist airlines to have the competitive edge and advantage in the market.

Most airlines focussed on loyalty, as a simple CRM application, primarily to store customer information and serve them. But with the changing dynamics in the airlines industry, drifted away from a simple CRM solution to an insightful customer experience and profit generating centre. It's about customer value than customer spend, customer experience than customer interaction, dynamic promotions than a fixed promotions and personalized campaigns than a generic one.

Based on the current challenges faced by airlines to build customer value, the business problem was identified as the challenges and Issues faced due to custom built or legacy loyalty systems. With this problem statement, the objective and outcome of thesis was defined to develop and build a comprehensive selection process and set of selection criteria to select a flexible and modern loyalty solutions available in the market. This study was built with airlines industry in general, instead of one case company.

The study was carried out using the action research method with a defined Research process and well drafted data plan. The research process consisted of six steps to study the research question and define the outcome.

The initial step of the research defined the business problem and planned objective of the study. Business problem was identified due to my experience as solution architect who had worked for airline projects around the globe for 7 years.

The second step of the process, defines the research project plan and data collection / analysis plan. This chapter details out the research method and tasks, which will be used and performed to study and achieve the objective.

In the current state analysis step, the initial set of data was collected largely from airline expert and solution architect, to understand the challenges / limitations of the existing legacy loyalty solutions, roadmap of loyalty solutions. Data collection was performed through various interviews both through phone calls and face to face meetings. Experts also highlighted the modern airlines loyalty solutions which are available commercially in the market. These inputs assisted the study to gather the product information from the respective product websites through product catalogue, webinars and whitepapers.

Next step in the process was to study the conceptual framework available for the selection process and selection criteria from the various research articles. Also the literature study step also used to explain the importance of CRM systems in airlines. Study detailed out the various steps involved in the selection process to choose an IT system. Along with the selection process, various criteria used by organization to select a CRM system along with the categorization.

Building the proposed selection process and selection criteria's step started with a detailed Face to face Interviews with airline expert and solution architect. The Interviews highlighted the importance of having a well-defined selection process with a clear tasks laid out for each step. Data collected through various interviews lists out the long list of possible selection criteria's which are important for airlines. The data was carefully analysed in order to arrive a clear criteria categories and the selection criteria list.

The initial proposal was shared for further evaluation and review by both solution architect and airline expert. The feedback was collected and analysed, this resulted in the modification of the proposed selection process and selection criteria. The revised proposal

was shared again for further review after modification. The updated version was approved without further changes and made it to final version.

The thesis was aimed at assisting airlines to choose a modern and loyalty solutions through an evaluation framework which incorporates both the selection process and selection criteria.

7.2. Recommendations

In the age of globalized environment and as the markets change rapidly nowadays, customer loyalty can be seen as one of the most important strategies for airlines, as well as one of the most vital sources of enhancing market share and gaining competitive advantage in the industry. The initial purpose of the study was to build the selection process and selection criteria to choose a modern loyalty solution. The study concentrated mainly on the process and criteria with detailed analysis on various steps and tasks involved. This study assists airlines in general than a specific case company, the proposed model supports airlines across markets.

The framework of Selection Process presented in section 5.1 should be treated as the first step toward better process to choose a modern loyalty solution. If these proposed process are used, it will reduce time, optimise the efforts and enable the team to select a loyalty solution for the future. In addition to that the selection criteria's presented in section 5,2 enables the airlines to validate the future loyalty solution from various dimensions. These proposed criteria's addresses the most key driving needs for the future, as per the expert review.

While the proposed selection process and selection criteria addresses the needs for the airlines in general, but the next possible step is study and revise the proposed model as per the size of the airlines, customer base, markets it operates and employee strength.

7.3. Evaluation

The proposed framework for selection process and selection criteria was evaluated and validated through experts mentioned the chapter 6. This section evaluates the thesis comparing the outcome to the initial objective of the thesis as well as evaluating the validity of the research and the reliability of the results.

7.3.1. Outcome vs Objective

The main objective of the thesis was to build both the selection Process and selection criteria's for airlines industry to choose or select a modern loyalty solution which are available in the market. Based on the several interviews it's evident that there is no defined process or set of criteria's available for airlines as a framework to use. This thesis conceptualised based on expert's interviews, literature study and my own experience with many airlines project.

Based on the feedback received in the chapter 6 and reviews confirm the outcome of the research is in line with the initial objective. With the proposed selection framework, airlines will be able to effectively address the need for modern loyalty solution. This proposed model also addresses the challenges and issues highlighted in the current state analysis phase in an efficient way.

7.3.2. Trustworthiness

The four criteria of trustworthiness of qualitative research by Guba (1981) are applied here: credibility, transferability, dependability and confirmability. The aim of this section is to provide a comfort of the trustworthiness of this study.

Credibility

Credibility refers to the degree to which the research represents the actual meanings of the research participants, or the "truth value" (Lincoln and Guba 1985).

The following table lists out some of provisions made by researchers to promote confidence that they have accurately recorded the phenomena under scrutiny:

Table 6 Credibility Evaluation

Credibility Evaluation	Research Validation
Adoption of research methods well established	Well defined Qualitative research method was used. Data collection involved semi structured interviews and face to face workshop. Research process and Data plan is mentioned in the chapter 2.
Development of early familiarity with culture of participating organizations	The people who are interviewed as part of this research are experts in the Airline industry. They are part of big IT organization and Airline company.
Random sampling	No random sampling used as part of this research. The interviewees were targeted based on their expertise in this field and knowledge.
Triangulation	Data collected through multiple sources and different individuals both via Interviews and face to face meetings.
Tactics to help ensure honesty in informant	Semi structured interviews conducted and clarity on all questions or purpose. There is no suspect for any dishonesty noticed.
Iterative questioning	The interviews conducted were iterative in nature during the multiple phases and follow up stages. Interviewees responded

	positively for iterative process.
Negative case analysis	Not applied.
Frequent debriefing sessions	Face to face workshops organized to provide clarify on the progress and share the knowledge mutually.
Peer scrutiny of the research project	Project was reviewed by Representatives with expertise in the subject.
Researcher's "reflective commentary"	The project was self-evaluated and verified at all the phases through my own expertise and skill set.
Background, qualifications and experience of the investigator.	My experience as Solution Architect in CRM and airlines loyalty space has been of considerable value in this project.
Member check	During the initial phase of the project data was collected to form the current state analysis. Later literature study conducted through various available literatures. All the data collected and analysed to create the Selection Process and Selection criteria. It was provided to respective individuals for feedback.
Thick description of the phenomenon under scrutiny	The descriptions have been explained in the Chapter 1.
Examination of previous research findings	During Literature study phase, many existing findings and processes were validated.

Transferability

Transferability, a type of external validity, refers to the degree to which the phenomenon or findings described in one study are applicable or useful to theory, practice, and future

research (Lincoln and Guba 1985), that is, the transferability of the research findings to other contexts.

Table 7 Transferability Evaluation

Transferability Evaluation	Research Validation
The number of organizations taking part in the study and where they are based	Few individuals with vast Airline experience validated and supported the research. So not one individual case company was used.
Any restrictions in the type of people who contributed data	No individual case company was referred, but individual with experience across various airlines did the review. Otherwise, no restrictions in the project.
The number of participants involved in the fieldwork	Total 3 different profiles were used for data collection at various stages. 1 Airline Expert and 2 Solution Architects.
The data collection methods that were employed	Semi structured interviews and workshops.
The number and length of the data collection sessions	6 Different sessions with each 2 experts. Total 11.5 hours
The time period over which the data was collected	Please refer to section 2.2 on Data Plan

Dependability

Dependability is measured against the techniques used and outcome of the research study. If a similar technique in terms of data collection, research process is used against a similar study the outcome should be the same or similar. So dependability is measured in the thesis to study the reliability further to analyse the research practices used in the study.

Table 8 Dependability Evaluation

Dependability Evaluation	Research Validation

Research process and execution	Please refer to Chapter 2 which describes the Research process and design.
Data gathering and details	Please refer to section on data plan. This data plan was applied for data collection.
Reflective appraisal of the study	The research work was completely reviewed by experts who have worked across multiple airlines. The overall study was proved to be effective based on the feedback.

Confirmability

Confirmability is the measure in which the results are confirmed or validated by others. This also discusses about the researchers own belief, assumptions and bias. Research findings are interpreted and validated with others to confirm the validity.

Table 9 Confirmability Evaluation

Confirmability Evaluation	Research Validation
Triangulation to reduce the effect of investigator bias	Data collected through multiple experts and different individuals both via Interviews and face to face meetings.
Admission of researcher's beliefs and assumptions	The author has strong airlines experience as solution architect. This has assisted in the study but at the same time, the author had validated all the findings through interviews and workshop with other airline experts.
Recognition of shortcomings in study's methods and their potential effects	Research was conducted through best practices, literatures and data collected through expert interviews. Initial project plan and data collection methods were in line with the plan. No shortcomings noticed.
In-depth methodological description to	Research design is covered in detail in

allow integrity of research results to be scrutinized	Chapter 2.1, Conceptual framework in Chapter 4.3 and Proposal output is covered in Chapter 5.1, 5.2
Use of diagrams to demonstrate “audit trail”	Research Process explained in Chapter 2.1

The trustworthiness of the research was based on the criteria’s proposed by Guba (1981). It was used and measured with various sub category. All the measures were fulfilled with a valid answer and feedback. With the results carefully listed in this section, the study has reached a required level of trustworthiness.

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Appendix 1: Interview Questions & Answers

Selection Process (2 Tables)

Feedback Selection Process - Solution Architect

Feedback on Selection Process Interviewee: Solution Architect	
Question	**Feedback / Suggestion**
What is your feedback on the proposed Selection process steps?	The overall steps are concise and defined.
What is your feedback on the Core Group selection?	Team mix is optimal and right set of team members. The biggest challenge is the availability of these resources dedicatedly for the long selection process. Resources often change either due to resignation or organizational change. So it's important to document all the meetings / discussions / notes.
What is your feedback on the Future needs categorization?	Multi-dimensional needs are listed, which addresses a wide range of needs.
What is your feedback on the Evaluation Phase?	Evaluation phase addresses key steps but Product Demo's and review of case studies have to be included as part of Evaluation phase.

What is your feedback on the Final Phase?	Licensing model is one of the key discussion item which includes future releases, roadmap and support.
What could have been improved on the Overall Process for selection?	Overall the process of selection covers all the key areas with clear list of tasks under each phase.

Feedback Selection Process - Airline Expert

Feedback on Selection Process **Interviewee: Airline Expert**	
Question	**Feedback / Suggestion**
What is your feedback on the proposed Selection process steps?	Process covered most of the areas in selection process. It will be good to have defined milestone and outcome of each process
What is your feedback on the Core Group selection?	Team has the good mix of skillsets and expertise. Its recommended to have additional member from Consulting background with Transformation experience.
What is your feedback on the Future needs categorization?	Future needs addresses a wide range of requirements. One additional recommendation is to include Brand advocacy as part of future needs.
What is your feedback on the Evaluation Phase?	Evaluation phase looks fine and lists out the process well. For next steps or recommendations is to include future wish

	lists and include security compliances.
What is your feedback on the Final Phase?	Final phase process lists out the detailed steps which are needed and satisfies the expectation. In future, more emphasise should be given on the pricing models.
What could have been improved on the Overall Process for selection?	Overall the process addresses the key points and needs around the Technological aspects for transformation. And discusses the transformation need for business point of view in insightful manner. At the same time inclusion of Brand advocacy which is a latest trend is needed.

Selection Criteria (2 Tables)

Feedback on Selection Criteria - Solution Architect

Feedback on Selection Criteria Interviewee: Solution Architect	
Question	**Feedback / Suggestion**
What is your feedback on the proposed Selection Criteria categorization?	Categorization covers a wide range of needs in a concise manner.
What is your feedback on the Innovate criteria's?	Innovate criteria covers a good set of criteria's. But at the same time, the current trend requires active insights and response through Social media. It's important to have

	parameters related to social media are specified.
What is your feedback on the Optimize Criteria's?	The criteria's lists looks good.
What is your feedback on the Perform Criteria's?	Perform criteria's covers the important ones, but one key criteria to be addressed is Disaster recover options.
What could have been improved on the Overall set of selection criteria's?	Overall the selection criteria's covers a comprehensive set of needs for modern loyalty solutions. Some of the points should be included in order to make it more effective such as Disaster recovery and Social media.

Feedback on Selection Criteria - Airline Expert

Feedback on Selection Criteria **Interviewee: Airline Expert**	
Question	**Feedback / Suggestion**
What is your feedback on the proposed Selection Criteria categorization?	This categorization looks fine.
What is your feedback on the Innovate criteria's?	Set of Innovate criteria's addresses the key considerations. It is also suggested to consider Gamification which is one of the current trends in loyalty programs.
What is your feedback on the Optimize	The criteria's lists looks good. Maintenance cost is a key differentiator for the new

Criteria's?	solution.
What is your feedback on the Perform Criteria's?	The Perform criteria's covered the most important needs or areas for Loyalty solution.
What could have been improved on the Overall set of selection criteria's?	The comprehensive selection criteria's covers the most important needs. As a suggestion, consider latest trends in loyalty program when selecting product such as gamification, social media and brand advocacy.