Abstract

This contains proposed and recommended business analytics solution for BanhMi2u and how it can be achieved using agile methodology by applying themes, epics, user stories and INVEST Evaluation.

MIS701- BUSINESS REQUIREMENTS ANALYSIS

ASSIGNMENT 2 – BANHMI2U BUSINESS ANALYTICS PROPOSAL

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| **Executive Summary (based on findings of parts 1, 2 and 3)** |
| This is a business analytics proposal created by a team of 5 business analysts, at analytics consulting firm and proposed to BanhMi2u, a food service company located at Melbourne, Australia to help harness and apply the potentials and benefits attached to analytics and big data.  **PURPOSE OF THE PROJECT**  The goal for proposing a business analytics solution is to help BanhMi2u understand and apply the potentials and benefits attached in the application of analytics to its business. This project helps to gather the present analytics requirements of the business to better understand the business needs to recommend ways through which those needs can be met using big data and business analytics. This would enable Banhmi2u, effectively use analytics to improve marketing, sales and customer relationship.  **METHODS / TECHNIQUES USED**  1. Communication with stakeholders to understand need  2. Creation of Business Analytic proposal showing value, analytics model and data sources  3. Epics and Themes  4. User Stories and INVEST assessment  **OVERALL FINDINGS**  The business analytics solutions proposed to help the business meet its needs are:  **a**. **Proposal 1:** Predicting Customer behaviour and purchasing pattern  Using **Descriptive Modelling**, customers will be segmented into groups to help the business understand customers which would strengthen positive relationship. Knowledge about customer’s behavioural patterns, purchasing habits, customer preferences, satisfaction level of customers, preferred medium of communication would be known to aid the provision of personalised service; food offerings and delivery options to customers that are tailored to their preferences. When the relationship between the business and the customer is strengthened there would better return on investment in sales and marketing due to more patronages and increased loyal customers.  **b. Proposal 2:** Forecasting BanhMi2u Performance  Using **Predictive Modelling / Forecasting**, BanhMi2u business performance history will be gathered and analysed and based on the analysis, used to predict or forecast future performance. This would help give the business an idea of their current state, strengths and weaknesses and show their future trend and performance based on past data. With this knowledge, BanhMi2u can understand its problems and find ways in which it can optimize its business operations efficiently to aid marketing and sales.  **c. Proposal 3:** Predicting the growth of customer retention and loyalty  Using **Predictive Modelling**, to help improve customer loyalty, retention and reduction in the cost of retaining customers by predicting customer churn rate. Knowing customers that are likely to stop patronizing and finding reasons why, would enable the business to prevent customers from churning since change would be implemented. With this change, new customers will be attracted to the services of BanhMi2u. This solution would aid sales and marketing.  **User Stories** has been created and **INVEST** Evaluation done to help use agile methodology accurately to meet stated goals and objectives of the business. Stated user stories are independent, negotiable, estimable, small /scalable and testable. This aids prioritization of the project task based on **the Level of Value, Size, Cost, Time Frame and Skill Set of the Agile Team Members.**  **RECOMMENDATIONS**  Proposal 1: Predicting the customer behaviour and purchasing pattern has been recommended by the team to help meet BanhMi2u’s analytics needs. All analytics solutions proposed would help improve the business performance, increase customer base and retention and aid sales and marketing but only proposal 1 will help in building a strong and positive customer relationship which would aid sales and marketing likewise. This solution would help to meet all the stakeholder’s requirements efficiently. It would give the opportunity for BanhMi2u to know customers and provide exceptional offerings leaving customers satisfied and increasing referrals amongst customers which would reduce the cost of retaining customers and increase usage of online food ordering application, all in all, improving BanhMi2u’s performance. |

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| **Business Analytics Proposal** | **Business Goal and Needs (state a Problem /Opportunity to address)** | **Solution (Analytics Model and expected analytics outcomes)** | **Dataset Description and Source(s)**  **(data inputs to develop Solution)** | **Value**  **(Benefits – Possibly Quantified)** |
| **Proposal 1:**  Predicting Customer behaviour and purchasing pattern | Understanding customers to foster positive relationship and grow customer base. | Analytics Model: Descriptive Modelling.  Text mining and social Media analysis for sentiment analysis  Description:  Identify and segment customers, understand their needs and behaviour to accurately predict their behaviour and purchasing pattern, food offerings and delivery options they may likely take up that are tailored to their preference to increase or grow and retain customer base. | **Customer Demographic** **Data:** Gender, age, location, education, marital status, kids, education, hobbies.  **Source**: BanhMi2u customer database, social media, surveys, etc.  **Behavioural data:** order frequency, food ordered most, service subscribed to, purchase value, etc.  **Source:** order history, transactional database.  **Customer Preferences:** reviews, ratings  **Source:** survey, social media and websites   * **Online Activity/Engagement**   **Source:** Website visit, application usage, preferred media channel and communication channel. | 1. More than 50% growth in customer base 2. Reduction in the cost of retaining existing customers 3. Increase in the rate of customer retention and loyalty 4. Optimization of marketing campaigns 5. Better ratings and reviews due to increase in customer satisfaction 6. Improvement in purchase and sales there by yielding profit 7. Improvement in the overall performance of BanhMi2u. |
| **Proposal 2**  Forecasting BanhMi2u Performance | Improvement and optimization of business operations including marketing and sales. | Analytics Model: Predictive Modelling /Forecasting and Time series analysis  Text mining and social Media analysis for sentiment analysis  Identify, analyse business performance and predict / forecast its future performance to get insights needed to improve and optimize the present state of the business to yield better profit and growth. | **Transactional Data:** Purchase Frequency, price, cost, order, etc.  **Source**: Sales history, marketing return on investment, order history  **Customer Demographic** **Data:** Gender, age, location, education, marital status, kids, education, hobbies.  **Source**: BanhMi2u customer database, social media, surveys, etc.  **Customer Satisfaction data:** Frequency of complaints, type of complaints, ratings, reviews  **Source:** surveys, social media and websites, customer database  **Staff Performance Data:** Staff demographic, order handled, time of arrival, etc.  **Source**: Employee database | 1. Improvement in business Performance 2. Increase in sales and purchases 3. Better yielded profit 4. Efficient management of staff and restaurant 5. Increase in marketing return on investment. |
| **Proposal 3**  Predicting the growth of customer retention and loyalty | Increase in customer retention and reduction in the cost of retaining customers. | Analytics Model: Predictive modelling.  Text mining and social Media analysis for sentiment analysis  Identify and predict customers that are likely to churn and why they would churn, to reduce loss of customers and increase loyalty | **Customer Demographic** **Data:**   * **Description:** Gender, age, location, education, marital status, kids, education, hobbies.   **Source**: BanhMi2u customer database, social media, surveys, etc.  **Customer Satisfaction data**  **Description:** Frequency of complaints, type of complaints, ratings, reviews  **Source:** surveys, social media and websites, customer database  **Order Data:**  **Description:** Purchase frequency, purchase value, payment method, date of purchase  **Source:** Transactional database | 1. Increase in the usage of online food ordering application and customer registration which increases sales and profit. 2. Growth in the customer base since loyal customers can recommend company to others. 3. Better sales and profit 4. Reduction in the cost of retaining customers 5. An increase in customer retention. |

**DOCUMENT EXPLANATION / ASSUMPTIONS**

To better apply business analytics correctly, there must be a proper understanding of the wants, needs, goals and objectives of banhmi2u. It is discovered that the company would like to harness the potentials in big data and analytics to have positive customer relationship by understanding customers’ needs and their behaviour, growth in customer base and loyalty, reduction in cost of retaining customers and generally helping with the overall performance of the business as it relates to sales, marketing and customer relationship management. Based on these needs, 3 business analytics proposals have been made. These proposals would help meet the present needs of exploring and applying the benefits attached to business analytics. With the business analytics application proposed, pending business questions would be answered to aid prompt decision making by the stakeholders of the business.

**Proposal 1:** Predicting Customer behaviour and purchasing pattern

Using descriptive modelling; customers can be segmented and identified into groups based on patterns and common interests or similarities. This helps to understand their needs and behaviour to accurately predict their behaviour and purchasing pattern, food offerings and delivery options they may likely take up that are tailored to their preference to increase or grow and retain customer base. Text mining and social media analysis would also be used to gather sentiment data for analysis. These can be gotten from customers social platforms based on their posts, reviews and ratings. Other sources of data are customer demographic, transactional data, behavioural data, etc. This would help to meet the sales, marketing and customer relationship management present needs.

**Proposal 2:** Forecasting BanhMi2u Performance

Using Predictive modelling, BanhMi2u present performance can be analysed to better understand their performance as it relates to marketing and sales to better predict / forecast its future performance to get insights needed to improve and optimize the present state of the business to yield profit and growth. This would help to improve the marketing and sales ROI.

**Proposal 3:** Predicting the growth of customer retention and loyalty

Using Predictive Modelling, analyse data to predict customers that are likely to stop patronizing based on past information of customers who have churned. This would also allow the business know reasons why customers have churned based on reviews and rating and sentiment analysis carried out. This would help reduce the cost of retaining customers and improve growth in customer base.

Predicting Customer behaviour and purchasing pattern

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| **A3.P2. User Stories** | | | | |
| **Theme 1** | **Epic** | **Title** | **As a <User role>, (Who) I want to <action>, (What) So that <benefit>. (Why)** |
| Know and understand customers to foster positive relationship | **Identify and Segment Customers to know their Preferences and Wants.**  **Identify Customer Satisfaction Level** | Administrator | As an Administrator, I want to know the geographical location of most customers so that I can manage order efficiently to aid reach and timely delivery of orders. |
| Marketer | As a Marketer, I want to be able to know the ordering habits of customers so that I can design relevant targeted email campaigns that resonate with them to enable efficient marketing |
| Customer Service Officer | As a Customer Service Officer, I want to know customers preferred medium of communication so that I can efficiently communicate to customers and provide good customer service. |
| Chef | As a Chef, I want to track what meals are ordered frequently so that I can place greater focus on making the meal tastier and more appealing. |
| Administrator | As an Administrator, I want to know customers reviews about the delivery services so that I can know how well the drivers or riders are performing to better manage and provide timely delivery of customers’ orders. |
| IT manager | As an IT manager, I want to know customers ratings on the user interface of the food ordering application, so that I can effect changes where necessary to the application to provide better graphical user experience. |
| Manage Performance and operations efficiently to attract new customers. | **Provide Personalized food delivery options to customer to gets referrals**  **Identify and target Customer access Point** | Application Developer | As an Application developer, I want to know individual meal preferences so that I can create a recommendation system that offers recommended searches and meal suggestions tailored to customer’s preference and wants. |
| Restaurant Manager | As a manager, I want to know the times of the day when restaurant has the lowest and highest traffic so that I can manage inventory and staff scheduling to provide enough man power needed for adequate and quality service to customers as well as tailored meals to customers. |
| IT Manager | As an IT manager, I want to track customer’s ordering process on the application from the searching of menu to the checkout so that I can help personalise their experience to increase loyalty and retention. |
| Marketer | As a marketer, want to know what online platform has the most customer engagement and conversion rate so that I can position adverts and promotions appropriately to maximize the potential of attracting new customers. |

**Team’s members, analysis, assumptions, recommendation and justification:**

**ANALYSIS/ RECOMMENDATIONS**

Amongst all 3-business analytics solution proposed, **proposal 1: Predicting customer behaviour and purchasing pattern** is being recommended to BanhMi2u. This proposal not only beneficial to sales and marketing but also helps in fostering positive and strong relationship with customers yielding to growth in customer loyalty and retention. This would optimize BanhMI2u’s performance, increase usage of the online food ordering application reduce cost in retaining customers and overall, help meet all the present needs of the business.

Using themes, epics and user stories, the proposal: Predicting Customer behaviour and purchasing pattern has been broken down into smaller tasks to aid understanding and agile application to achieving the desired objectives. To achieve the proposed business analytics solution, Business needs to:

1. **Know and understand customers to foster strong relationship**

This can be done by identifying and segmenting customers into groups. This is referred to **as customer segmentation.** This helps to profile customers according to buying patterns, demographics, media usage, lifestyle, location using **descriptive modelling.** With this segmentation, BahMi2u would be able to know customer preferences and behaviour. The level of satisfaction of customers with the services can also be known from ratings or reviews and posts from social media using **text mining** and **social media analysis**.

2. **Manage Performance and operations efficiently to attract new customers.**

With the information gotten from customer segmenting and profiling, BanhMi2u can use this information to provide more efficient and quality performance to the customers through provision of personalised food offering and delivery options, targeting customers via their preferred channel for communication via which emails and promotional adverts can be sent to reach potential customers.

**JUSTIFICATION**

This proposed business analytics solution would help meet all the analytics requirements of all BanhMI2u stakeholders affected which includes:

a. Having good understanding of customers’ needs and wants

b. Increase in the usage of online ordering application since there will be more customers patronizing

c. Reduction in the cost of retaining customers since there would be an increase in customer loyalty since services are now personalised to customers

d. Stronger relationship with customers

e. Better marketing return on investment

f. Increase in sales yielding higher profit margin

g. Growth in loyal customers due to an increase in customer satisfaction.

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| *Recall your user stories and then enter them against INVEST criteria (select* ***4 best*** *developed user stories)*   |  |  |  | | --- | --- | --- | | **User story text** | **INVEST notes (assessment, recommendation and justification)** |  | | User Story 1: As a Chef, I want to know what meals are ordered frequently so that I can place greater focus on making the meal tastier and more appealing | I: 5; The user story is free from all dependencies and can be done in any order. | | N: 4; The user story is very much negotiable since there is space for further discussions and reviews about meals due to the ever-changing taste buds of the customers. | | V: 5; The user story is valuable since it adds value to the customer, chef and the business. With this the chef gets better in his craft whilst providing customers with tastier meals that would in turn yield more orders and purchases leading to increase in sales caused by growth in customer base and retention. | | E: 5; It is easy to estimate since it is not dependent on any other user stories and easily sized so that it can be prioritized. | | S: 4; It is small since it can be done within 2 weeks iteration. | | T: 4; An acceptance criterion can be used. Given when there is an increase in the number of purchases or order request for that meal, then it can be concluded that it has been tested and works fine. | | User Story 2: As an Application developer, I want to know individual meal preferences so that I can create a recommendation feature on the application that offers recommended searches and meal suggestions tailored to customer’s preference and wants. | I: 2; This user story cannot be done in any order as it is dependent on the user story 3. If the IT manager cannot efficiently track the customer’s ordering process, meal preferences cannot be known, and recommendation feature cannot be added to the application. | | N: 3; It is negotiable since the actual result would be from collaborative discussions between stakeholders involved including customers. | | V: 5; It is valuable since the “why” of the user story is known. It helps to provide tailored food offerings and recommendations to customers. | | E: 5; it is estimable. It is valuable and adds high value to the business and does not come with extra cost so can be prioritized. | | S: 4; This is small and might likely take about 40 hours of work with iterations to meet purpose. | | T: 5; It is testable as it has an acceptance criterion to test if customer’s need is met. Given when customers get offers recommended that are tailored to their needs efficiently and correctly, then we know it meets the stakeholder requirements and add values. | | User Story 3: As an Administrator, I want to know customers reviews about the delivery services so that I can know how well the drivers or riders are performing to better manage and provide timely delivery of customers’ orders. | I: 4; It is independent as it can be developed and delivered independently. | | N: 4; It is negotiable amongst the stakeholders and further clarifications and reviews can be made. | | V: 5; Yes; The user story adds customer and business value by providing timely delivery leading to high level of customer satisfaction. | | E: 4; It is estimable. The product and process owners involved can ask more questions to get the desired understanding of the project to enable better estimation | | S: 4; It is small enough to be completed within a sprint | | T: 5; It is testable since it can be verified whether the value is being delivered or not. | | User Story 4: As a marketer, I want to know what online platform has the most customer engagement and conversion rate so that I can position adverts and promotions appropriately to maximize the potential of attracting new customers. | I: 3; The story can be worked on following an order, so it is not dependent on any other user story. However, the right agile team to handle the project should be put in place so that the user story would not be dependent on various members from different team | | N: 5; It is negotiable as there is a possible space for conversation initiation to better achieve the value stated. | | V: 5; It is very valuable to the business as it helps to target potential customers for adverts to increase customer base. | | E: 3; Based on value and time taken to complete it can be estimated. | | S: 4; It is small enough to be completed by an adequate team with enough skill set within 1 sprint. | | T: 5; It is testable. If using the preferred platform to reach out to customers using adverts and promotions does not in any way increase customer base, then we can say the value was not added or needs were not fulfilled. | |

**Explanation and Assumptions**

For better application of agile methodology user stories have been created and assessed using INVEST. Each user story has been assessed based on how independent, negotiable, valuable, estimable, small and testable it is.

**User Story 1:** As a Chef, I want to know what meals are ordered frequently so that I can place greater focus on making the meal tastier and more appealing.

**Assumptions:** Chef receives data on a real time basis to make changes if necessary, to improve the taste vectors of each dish.

Total: 27, this score has been deduced by calculating the importance of each of the INVEST criterion.

**User Story 2**: As an Application developer, I want to know individual meal preferences so that I can create a recommendation feature on the application that offers recommended searches and meal suggestions tailored to customer’s preference and wants.

**Assumptions:** If user story 3 is carried out in the necessary fashion, we can prioritize this and tailor each customer also ensuring browsing data and cache is captured.

Total: 24, this total is deduced by considering all the factors in the INVEST criterion, it also shows that this is a dependent user story which plays an important role in ensuring each customer feels special.

**User Story 3:** As an Administrator, I want to know customers reviews about the delivery services so that I can know how well the drivers or riders are performing to better manage and provide timely delivery of customers’ orders.

**Assumptions**: Driver delivery data is recorded, and timely information is provided with each driver in specific. This can be done by text ranking and introducing page ranking frameworks which help evaluate customer reviews.

Total: 25; this total is deduced by considering all the factors in the INVEST criterion, it also shows that this is an independent and noticeably an important factor which helps access customer needs regarding delivery.

**User Story 4:** As a marketer, want to know what online platform the most customer engagement and conversion rate has so that I can position adverts and promotions appropriately to maximize the potential of attracting new customers.

**Assumptions:** All customers use multiple online platforms to place orders, keeping into account the conversion rate is recorded as well.

Total: 25; this total is deduced by considering all the factors in the INVEST criterion, it also shows that this is not dependent on multiple teams and ensuring that a skilled team will deliver as per requirement by assessing each online platform on a comparative basis.

**JUSTIFICATION**

**INVEST Assessment:** All 4 user stories have been properly chosen to help meet the requirements of the business.

All user stories are negotiable, estimable; within 2 weeks of iteration and are small / scalable. Except for user story 2 which is dependent on user story 3, all other stories are very much independent.

They are also valuable as they all in one way or more helps to provide quality food service to customers, improve business operational efficiency, aid sales and marketing, attract new customers and increase loyal customers.

They are testable likewise since an acceptance criterion can be done to check if each user stories fulfil requirements by meeting the needs of the user.

**User story 1** is valuable to the business and customer since if done properly the meals become appealing and satisfying to the customers and this drives sales for the business.

**User Story 2** is valuable as it helps to provide personalized services to customers.

**User Story 3:** is valuable as it helps to manage staff scheduling and man power to aid in provision of timely delivery of customer’s orders.

**User Story 4:** is valuable as it helps to identify and target customers via their preferred access point or communication channel.

**RECOMMENDATIONS**

For a better achievement of all user stories using agile methodology it is advisable that the right agile team members with the right skill sets should be allowed to handle the project. This would help avoid every form of dependency on external factors like team members of other groups or teams which might likely affect the time estimation or sprint.

The **3 C’s** should be used: **Card, Conversation and Confirmation**. This would aid for proper negotiation leading to minimal or avoiding errors in totality that would help meet requirements.

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