

## **BUSINESS INFORMATION SYSTEMS AND TECHNOLOGY (INFO123)**

### **INDIVIDUAL COMPONENT OF GROUP PROJECT** **TECHNOLOGY LENS ANALYSIS (10%)**

**Student name:**

DAX ANSHUMAN BABARIA

**Student ID:**

**Group ID/name:**

Dax

**Your group's chosen technology:**

Predictive analytics for customer churn prevention

**Your chosen Lens:**

Data/Analytics/BI

**AI Usage Acknowledgment (Tick only one):**

- I acknowledge that I have used AI tools in the development of this assignment, but only for the authorized uses, as documented in my AI Consultation Log.
- I have not used any AI tools in the development of this assignment.

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## **1. Context Analysis**

*Instructions: Provide a concise overview of your chosen technology and the specific business context/case you are examining. Clearly state the scope of your analysis - what aspects you will focus on and what you will not cover.*

Predictive analytics for customer churn prevention is a process which relies on data-driven approach. It predicts churn, which means how likely customers are to stop using or buying from the company (Neslin et al., 2004). Customer churn prediction requires advanced statistical and machine learning techniques. This report's focus is on Sprint's use of predictive models (Survival Analysis) within the Data/Analytics/BI lens. It will not cover any other operations related to "Sprint communications". The focus is on how data is managed by the company and how they use it to make meaningful decisions.

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## **2. Lens Application**

*Instructions: Apply your chosen lens to analyse the technology within your business context.*

*Your analysis must include:*

- *Thorough and correct application of lens concepts and frameworks: Apply relevant concepts, frameworks, and theories from your chosen lens.*
- *Integration of at least one required course reading, with proper citation*
- *A mini case or example that demonstrates practical relevance, with proper citation*
- *A unique, original visual representation you have created to illustrate or summarise key concepts*

Data/Analytics/BI

This lens focuses on the collection of data, its transformation, analysis of insights and finally, the application in business processes. Data is one of the most important business resources. When processed and turned into information, it can create significant value for the organisation (Baltzan, 2025). Sprint Communications, a US-based telecom company, uses data to identify which customers are likely to churn at any point in time by creating predictive models.

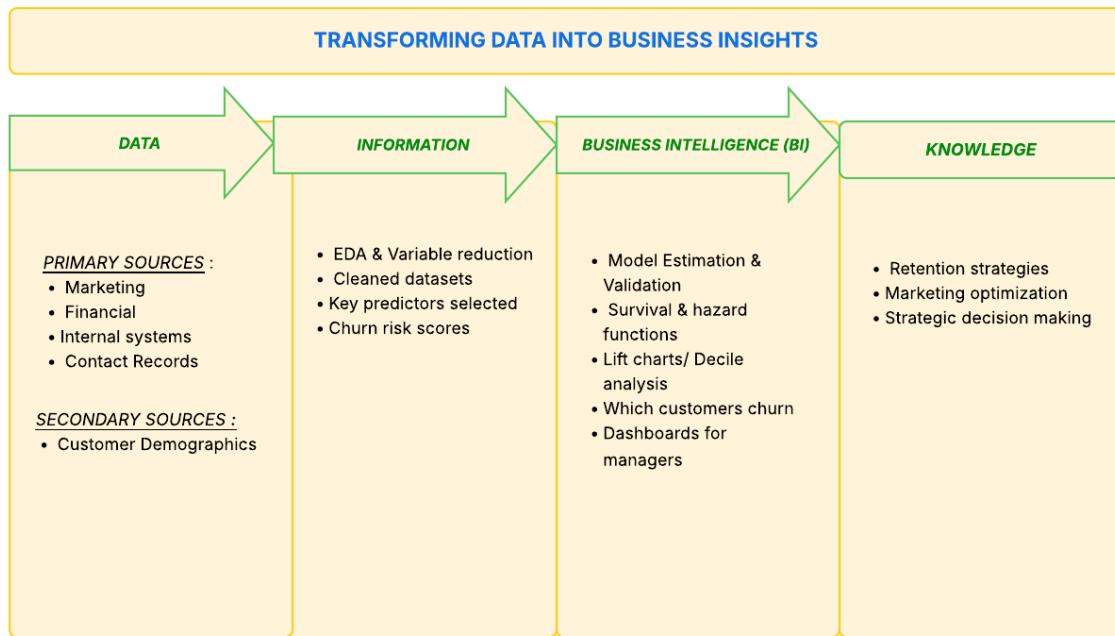
Data goes through a lot of processes, i.e. raw data to Information, then analyzed to produce BI and knowledge (application of data) (Baltzan, 2025). Sprint used four major data sources: marketing and financial information, customer-level demographic data through third party provider, customer internal data and customer contact records. This includes various primary and secondary sources (Lu, J. 2002). With these sources Sprint built a detailed database, which can be converted to analytical data (data used for analysis rather than daily transactions or operations) (Derham, R. 2025a).

Sprint followed 4 processes to create their Survival Analysis Model:

1. Explanatory Data Analysis (EDA) – Sprint analyzed distributions, missing values and outliers. Later, it eliminated outliers. Variables with more than 20% missing values were removed and missing values were replaced with most frequent values (Lu, J. 2002).
2. Variable reduction – The original dataset had 212 variables; by using various statistical techniques they narrowed it down to 29 variables (Lu, J. 2002). The data after this process was accurate, complete, consistent and unique, which are characteristics of high-quality data (Baltzan, 2025).
3. Model Estimation – After narrowing down the variables to 29, the survival function and hazard function were estimated and later, the survival analysis procedure was applied to the final dataset (Lu, J. 2002).
4. Model Validation – At the end customers were segmented according to the churn risk and split into 10 equal groups (deciles). The top two groups captured 55% of churners whereas top 5 captured 90% of churners (Lu, J. 2002).

The modelling process shows entire data to BI process, raw data (original dataset with primary and secondary data), transformed into information (churn risk scores) and analysed into BI (lift charts). Sprint is an excellent example of showcasing the value of data analytics in competitive industry.

## Visual Representation



### Caption:

Illustrates the flow of data in context of Sprint Communications case study (Derham, R. 2025a)

### 3. Integration Preparation

*Instructions: Describe two specific ways your analysis connects with your teammates' research. For example, you can consider:*

- *Which aspects of your analysis will be most useful for your teammates?*
- *How might your lens perspective complement or challenge assumptions in other lenses?*
- *Where do your topics connect or influence each other?*

My analysis showcases how Sprint's predictive analysis can be vital for digital strategy to create value for the business and customers. Sprint's use of predictive analysis reduces the guesswork, and the company can obtain accurate data which they can use in their digital strategy. The data obtained can be used to enhance customer experience and create personalised service for them, or instead of offering fixed plans they can provide personalised plans according to where the customer is currently on

churn scale. The polished data is a great tool to create digital strategies and target high quality consumers.

Sprint uses a process to collect, transform, and analyse data which is a core part of the business process management. The data should be accurate, complete, consistent and unique, which is the responsibility of the business process management team. The results such as churn risk and segmentation can be easily integrated within the CRM and ERP systems of the company. This will automate the targeted campaigns leading to more effective campaign results.

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#### **4. References**

*Instructions: List all sources cited in your analysis using APA format. You can use ZoteroBib to help you format your citations (do not forget to select American Psychological Association 7<sup>th</sup> edition in the Bibliography dropdown menu):*  
<https://zbib.org/>

Baltzan, P., & Phillips, A. (2025). *Business-driven information systems* (9th ed.). McGraw-Hill Education.

Derham, R. (2025a). *INFO123 Week 5 – Data and data modelling*. University of Canterbury

Lu, J. (2002). *Predicting customer churn in the telecommunications industry – An application of survival analysis modelling using SAS*. Sprint Communications Company.

Neslin, S. A., Gupta, S., Kamakura, W., Lu, J., & Mason, C. (2004). *Defection detection: Improving predictive accuracy of customer churn models*. Dartmouth College, Columbia University, Duke University, Comerica Bank, University of North Carolina.

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## **5. AI Consultation Log**

For this assignment, you are permitted to use generative AI tools for the following tasks:

- Brainstorming ideas and generating initial concepts
- Summarizing complex technical materials to aid comprehension
- Explaining difficult concepts in simplified language
- Checking grammar and improving writing clarity
- Supporting group dynamics as a neutral facilitator to help make team decisions

You are NOT permitted use AI tools:

- To draft an outline of your assignment
- To generate the required visual representation of #2 above for you

If AI tools suggest a company case or examples, you are required to verify the case/example and find alternative public sources to support the example.

All use of GenAI tools must be properly cited in your work. While these tools can enhance your learning process, the critical thinking, analysis, and final submission quality remain your responsibility. Do not ask GenAI tools to directly write up the assignment for you.

### **AI Tool(s) Used:**

CHAT GPT AND CO-PILOT

### **Key Prompts Used (maximum 5):**

If you have less than 5, that's okay, just delete the unused rows.

5 prompts is the maximum that can be listed.

The prompts and the links do not count toward the word limit.

1.	Goal: Help me complete my INFO123 individual assignment over 2 weeks. I need a step-by step plan to write a 750-word analytical report on Predictive Analytics for Customer Churn Prevention using Sprint as the business case and applying Data/Analytics/BI lens. Context: This is Part B of a university group project. My lens focuses on how data and analytics are used to identify and prevent customer churn. The report must include: A context analysis (~150 words) A lens application (~400 words) An integration preparation section (~200 words) A visual representation (created by me, not AI) An AI consultation log APA references Source: Use publicly available information about Sprint's use of predictive analytics. Include one course required reading and cite all sources in APA format. I will verify any examples or claims. Expectations: Structure the guidance as a 2-week plan with daily or milestone-based tasks. Include tips for research, writing, visual design, and AI reflection. Make sure the plan aligns with the INFO123 assignment brief and avoids using AI for the visual component. INFO123 Group Project Assignment Brief vFinal.pdf
2.	Analyze the following paragraph for grammar and conceptual clarity. Do not rewrite or rephrase the paragraph. Instead, provide: Grammar suggestions – Identify any

	grammatical errors or awkward phrasing. Conceptual suggestions – Highlight unclear ideas, logical gaps, or areas that could benefit from elaboration. Statistical insights – If relevant, suggest how statistical data or evidence could strengthen the argument or explanation. Paragraph: []

### Links to Relevant Chat Transcripts:

*Instructions:*

*Provide links to the AI conversation(s) you referenced. See the next pages of this document for specific instructions on how to share a conversation's link. Double-check that the links are accessible.*

*If you used CoPilot and you copied your chat transcripts in a separate Word document, please tell us below.*

1.	Separately provided in doc
2.	<a href="https://chatgpt.com/share/68b29f1f-7ae8-8006-95cc-49dea1973320">https://chatgpt.com/share/68b29f1f-7ae8-8006-95cc-49dea1973320</a>

[] My CoPilot chat transcripts are copied in a document I uploaded to LEARN alongside this assignment (*tick this box if yes, otherwise leave empty if you provide links to ChatGPT or other tools instead*)

### REQUIRED: Reflection on AI Usage

*Instructions: Reflect on how AI aided your analysis. Consider the quality of information provided, any errors you noticed, how you verified information, and what you learned about effectively using AI for completing this assignment. Provide specific example(s) from your experience.*

AI helped me a lot in providing ideas, correcting my grammar errors and making me a roadmap for the assignment. I used Co-Pilot at first because as a student I get to use the upgraded version of it and the prompts I used were designed by the prompt coach in Co-Pilot 365 which is really a good thing, it solves lot of prompting problems. But I faced some issues with Copilot when working with split screen and the output speed was slow or sometimes laggy therefore I used Chat GPT for basic grammar corrections.