Management of ICT 561.785
ICT Portfolio - Part A

Preparation of an ICT Portfolio for The Warehouse

EXECUTIVE SUMMARY

The Warehouse Group's successes over the years have put it at the forefront of the market in almost all aspects. With high values and standards comes increased profitability and loyalty. The Warehouse Group is being presented with many challenges as more acquisitions are made. The primary challenge is the steep technological learning curve that innovations bring. This learning curve has shown to be a significant disruption in the business operations but ultimately proves to be a highly valued asset to The Warehouse Group and its subsidiaries. Hence, it is vital to have a solid, strategic ground to drive these disruptions forward in the right direction.

This strategic plan is directed toward The Warehouse Group's most successful subsidiary – The Warehouse (Red Shed). The Warehouse has seen unprecedented growth ever since its inception as customers continue to realise that the products and services that are offered are high-caliber by nature. To ensure that these successes continue into the near and distant future, it is paramount that the group invests into strategic plan documents, like this one, with specific, measurable, achievable and relevant goals in the most suitable time frame. Doing so will ensure the longevity of business in this fast-paced technology-driven world.

The objectives and goals outlined in this strategic plan for 2017 onwards, will provide the right steps to be taken to keep The Warehouse in line with the overall vision of becoming the leading digital retailer in New Zealand. Generally speaking, ICT fields are paving the way for the future, and it begins by empowering data. Data-driven analytics provide the best possible outlook on these prospects and allows the addressing of the relevant areas of concern. Customer needs are rapidly changing. Therefore, to continue to stay pertinent to the customers, The Warehouse Group must make it a priority to keep investing in omnichannel solutions. An omnichannel approach seeks to provide customers with a rich, fully integrated shopping experience on any platform they choose; whether that be online (mobile or desktop) or in-store. However, it is important to realise that it is simply not enough to just provide these shopping avenues. The primary emphasis should fall on the shopping experience itself. The platforms above offered to the customers must, therefore, be equipped with efficient, innovative technology to stand out from the competition.

This strategic planning document will cover these areas in more detail. Section one elaborates on The Warehouse Group holistically, the company mantra, functions and structure. From section one onwards, the focus of the document will shift towards the primary subsidiary – The Warehouse. Section two includes a detailed overview of The Warehouse's higher level operational processes including software and hardware. Section three focuses on different analyses in an attempt to provide more insight into The Warehouse as a whole. Section four and five outlines the recommended ICT strategic steps going forward based on the analyses. Recommendations are accompanied with SMART goals to better elaborate on the requirements needed to achieve them.

Table of Contents

1.0 ABOUT THE ORGANISATION

1.1 INTRODUCTION

Sir Stephen Tindall founded the Warehouse in 1982. It is a customer-led, store-focused and people-centred business. The first warehouse store was opened in Takapuna on Auckland's North Shore. It was a store unlike the high street shops and department stores of the time. It was a big red shed with concrete floors and racks overflowing with goods. The Warehouse was successful because it sold unique items at low prices that you could not get elsewhere in New Zealand. Such as Banana loungers, rattan blinds, and soccer ball radios.

After launching its first store, The Warehouse opened its second store on Market St, Hastings in 1988. In 1991, the first Warehouse Stationery store was opened, and The Warehouse at that point exceeded $100 million in sales. Over the years, The Warehouse continued to operate successfully, and as a result, in the year 2000, the company entered into the Australian retail market with 126 stores. However, later on in 2005, The Warehouse had to pull out its Australian operation and sold the business for $92 million. However, this was not a setback for the New Zealand owned brand which was exceeding expectations at the time. In the space of two years from 2012 to 2014, The Warehouse suddenly acquired Noel Leeming Group, Torpedo7 and also launched The Warehouse Group Financial Services. This group of subsidiaries now falls under The Warehouse Group branding we know today.

Continuing to expand rapidly, The Warehouse has become the largest retail group operating in New Zealand. As of now, The Warehouse employs over 12,000 people across the country in 225 retail stores, 13 online stores and a store support office that's based in Auckland as well as distribution and fulfilment centres across New Zealand.

1.2 VISION / PURPOSE

The Warehouse Group visions are to:

- Create a business that helps New Zealanders to flourish
- Become the leading digital retailer in NZ

To accomplish these visions, the group will advance efficiently, deliver an unprecedented customer experience, and be smart with acquired data and technology so that the customers have full control over their shopping. Being digital encompasses more than just having an e-commerce website. It is also about enabling The Warehouse to improve on customer experience, operational efficiency, and new revenue streams.

1.3 MISSION

The Warehouse Group's store network makes it reasonably easy for customers to shop on the go. However, trends show that retail is becoming much more than just in-store. Therefore, The Group is committed to using digital technology to create a retail experience that gives their customers access to the smartest solutions. As well the choice of a range of purchasing and fulfilment options suited to meet their needs, whether they live in Auckland CBD, on a remote farm in the South Island or even outside of New Zealand.

1.4 GOALS

"Our goal is to be New Zealand's most successful retail group, both in terms of relevance to customers and sustainable profitability."

The Warehouse Group goals are to provide customers with the opportunity to shop "anywhere, any way" as well as to continue to grow and improve while developing other retail and online brands. Moreover, it is also focused on being the leading multichannel retailer in New Zealand, leveraging The Warehouse Group scale to ensure that they deliver positive long-term results for their shareholders.

1.5 OBJECTIVES

Space (proper utilisation of the available space)

A warehouse whose open space is not effectively utilised it loses a significant amount of money in the form of various operating costs.

Equipment (a significant capital investment)

MHE, storage, docking, loading & unloading equipment, PCs, and so on.

To obtain an adequate rate of return on such investment, one must ensure efficient usage of all equipment and most importantly introduce a regular & detailed maintenance schedule.

Personnel (an important asset of warehouse resources).

One should aim for high labour productivity, excellent (two-way, win-win) relationships and personal satisfaction at all times.

Financial Services Strategy

The establishment of a financial services strategy that will add value to the Group in the longer term.

Operational efficiency

Removing duplication and fragmentation across the Group resulting from multiple acquisitions in the last six years, driving process effectiveness and automation.

Getting the retail fundamentals right

Making the business less complex, more efficient and operating on shorter, more flexible timeframes to better align products with customer demand.

1.6 VALUES

EXCELLENCE

Doing everything to the best of our ability and learning from our mistakes.

INNOVATION

Creating fresh ways to excite customers and finding simple solutions to solve problems.

PEOPLE FOCUSED

Caring and treating people right by asking the right questions and putting others needs before needs of our own.

PASSION
Caring deeply about what we do and always doing the right thing for our customers.

ACCOUNTABILITY
Saying it, doing it, owning it and exceeding it.

TEAM SUCCESS
Working together to achieve our goals, celebrating success and knowing we are never alone.

1.7 KEY BUSINESS FUNCTIONS

STORAGE OF GOODS
Storage of goods involves the idea of planned and extended storage. Planned storage is where certain products, on customer's demand, are stored for a period whereas extended storage deals with seasonality in demands.

MOVEMENT OF GOODS
Movement of goods through the transfer of goods from inbound to a storage area and processes through orders.

INFORMATION MANAGEMENT
Simply having the information updated in regards to products, orders, and data.

PROTECTION OF GOODS
Protection of goods refers to goods that are in working order, not spoiled, wasted and providing the best quality to the consumers.

OTHER KEY BUSINESS FUNCTIONS:
- Risk bearing
- Financing
- Processing
- Operating
- Logistics
- Fulfilment
- Warehouse stock management

1.8 ORGANISATIONAL STRUCTURE

The Warehouse Group is the largest retailer group in New Zealand. The main subsidiaries are The Warehouse, Warehouse Stationery, Noel Leeming, Warehouse Group Financial, Services and Torpedo7 Group. Refer to the chart in section *1.8.1* for more clarification.

1.8.1 THE WAREHOUSE GROUP OVERVIEW

THE WAREHOUSE (RED SHEDS)

The flagship company. Sells are a broad range of essential household items.

WAREHOUSE STATIONERY (BLUE SHEDS)

Second largest subsidiary. They specialise in the selling of basic office supplies.

NOEL LEEMING

A retail electronics store. Consumer electronics, small appliances and whiteware orientated.

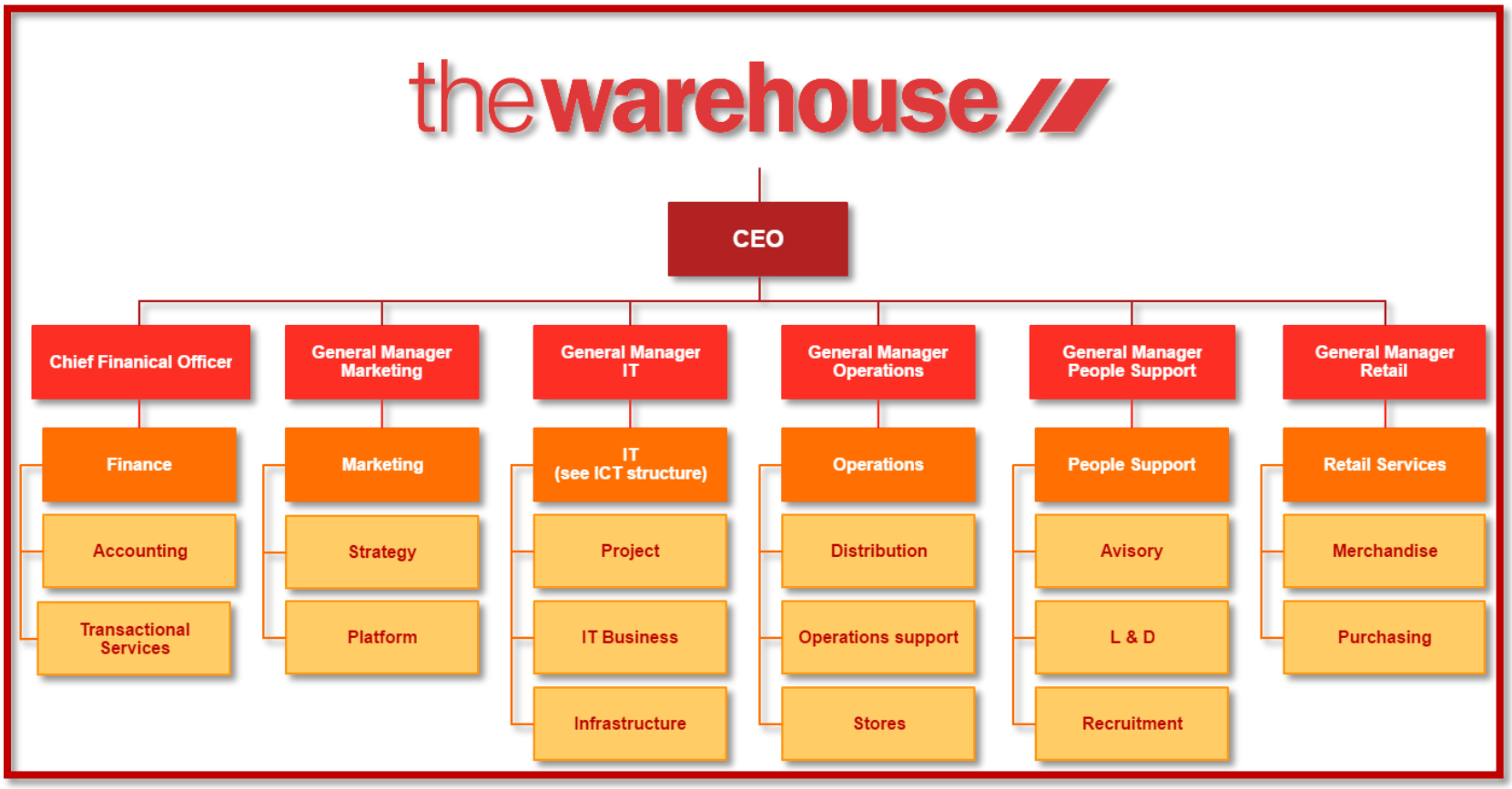
TORPEDO7 GROUP

A multi-channel subsidiary that maintains online stores Torpedo7, 1-day.co.nz, Number One Fitness, and Shotgun.co.nz.

THE WAREHOUSE GROUP FINANCIAL SERVICES LIMITED

Provides consumer credit cards and insurance through The Warehouse brand and distribution channels.

1.8.2 THE WAREHOUSE ORGANISATIONAL STRUCTURE



DESCRIPTION OF KEY ROLES (THE WAREHOUSE)

Chief Executive Officer – CEO

Oversees Chief Financial Officer and General Managers

Is responsible for the smooth running of the business. CEO Coordinates meetings with The Warehouse managers as well as the Warehouse Group Executive team to make decisions about the company.

Chief Financial Officer – CFO

Oversees the finance sector of The Warehouse

Is responsible for ensuring a profitable financial outlook for The Warehouse. Communicates and organises meetings with accounting and transactional services.

General Manager Marketing – GMM

Oversees the marketing sector of The Warehouse

Is responsible for ensuring that the marketing department produces effective campaigns. GMM Coordinates with upper management on what to market and communicates these ideas down the chain.

General Manager It – GMIT

Oversees the Information Technology sector of The Warehouse

Is responsible for ensuring that the IT project teams deliver on their requirements, as well as coordinates with an analyst to predict future IT trends.

General Manager Operations – GMO

Oversees the Operations sector of The Warehouse

Is responsible for ensuring smooth day-to-day operations across all services such as distribution and stores.

General Manager People Support – GMPS

Oversees the People Support sector of The Warehouse

Is responsible for ensuring that the needs of the employees in the company are being met. Coordinates strategies to effectively deal with any problems staff may have. Moreover, communicates with recruitment to find staff that other managers need.

General Manager Retail – GMR

Oversees the Retail sector of The Warehouse

Is responsible for ensuring that products are being managed effectively. Negotiates with purchasing to fulfil customer needs. Communicates with the other managers affected by any changes that must be made due to product availability.

1.9 SUMMARY

The Warehouse Group was founded in 1982 by Stephen Tindall. It is the largest retailing group in New Zealand. The five top-level subsidiaries include The Warehouse (Red Sheds), Warehouse Stationery (Blue Sheds), Noel Leeming, Warehouse Group Financial Services and Torpedo7 Group. The mission is clear – become the leading digital retailer. The Warehouse Group mantra is to empower their employees and customers. Employees are respected and trusted. The number one priority are the customers. The company makes every bit of effort to uphold these ideas by continuing to invest and innovate in the relevant fields. As the principal subsidiaries deal with warehousing processes, the business functions are relatively similar; storing, moving, managing and selling. The group's flagship company – The Warehouse – will be the subject for the remainder of the ICT strategic plan going forward.

2.0 ICT INFRASTRUCTURE

2.1 INTRODUCTION

The Warehouse has been providing their services through online means. ICT plays a significant part in the organisation, two primary examples being their app and website. These technologies allow customers some freedom in how they shop. As with any company hardware and software is the primary source of productivity – this will be explained in more detail in the sections to follow. Furthermore, The Warehouse and the group as a whole have begun to implement a virtual desktop solution (VDI) to better integrate with the rest of their ICT infrastructure. This solution is known as the 'Virtual Office Project'. Meaning, it can assist The Warehouse Group's employees to solve business continuity, remote worker and work-life balance challenges with one disaster-proof plan.

2.2 HARDWARE

Hardware plays a major role in every business; a business cannot be successful without it. Therefore, by investing and using high-quality equipment, The Warehouse will be able to increase their productivity, revenue, profits and it will also help them to operate more efficiently. The following is a high-level overview of the hardware that The Warehouse uses in their business operations.

COMPUTERS

Computers are the most important tool for every business. Selecting a computer hardware supplier and advisory partner is important for companies as they can help the business to design a custom computer system specifically for their needs of activities. The Warehouse has chosen to work with the company Lexel as Lexel will able to give specific advice about the appropriate desktop and hardware that they can use for their computer system.

PRINTERS

Printers are also an essential device for every business. Most companies choose to use high-quality printers that have multiple useful functions such as scanning, photocopying and faxing. The Warehouse is no exception as they will have to deal with a lot of contractual documents with their customer. This process requires them to print contracts and get their client to sign it. So, by using a good printer, The Warehouse will able to increase their productivity as well as save a lot of time and energy.

WIRELESS ROUTER

Wireless routers are an essential part of any Internet-connected business. The Warehouse uses wireless routers because it will enable them to keep connected to the internet without cables. That means any one of their devices can be connected from anywhere within router range. Furthermore, by using a wireless router, The Warehouse does not have to spend much money to buy the cables, and it will also help them to reduce the need for extra cables running around their workplace.

NETWORK EQUIPMENT

As the largest retailer in New Zealand, The Warehouse often has to deal with an enormous amount of databases, email applications, and development testing servers and more. So it is necessary for them to set up network servers to meet these demands. As mentioned in the computer section, The Warehouse is cooperating with the company Lexel and are working with them on a virtual desktop solution (VDI) for their business. Virtual desktop solutions have many benefits that can satisfy the operational requirements of The Warehouse. Most importantly, this solution will help them to solve business continuity, remote worker and work-life balance challenges with one disaster-proof solution.

TELEPHONE SYSTEM

All business are increasingly dependent on cellular services and smartphones. For The Warehouse, what's important to them is the ability to communicate with their customers and answer their questions about any of their products or services. Without this line of communication, there is a lack of coverage for clients who prefer to phone in to find out more information about a company's offerings. Customers aside, a telephone system will also allow The Warehouse employees to communicate with one another which apparently help the company to run more efficiently.

2.3 SOFTWARE

The Warehouse use many different systems and software for a multitude of business processes. Explained below are some of the areas where The Warehouse implements an IT system to increase the efficiency of their activities.

ACCOUNTING SYSTEMS

The Warehouse process over one million invoices annually valuing at $1.4 Billion they have over 1000 different suppliers in more than seven different countries. To manage this scale of money

coming in and out, they need a competent accounting software that can work efficiently on this sort of scale.

PAYMENT SYSTEM

The Warehouse employees can view their payments through a system called “MyPay”. The MyPay system also allows them to check and update their information as well as apply for their holiday leave.

SUPPLY/ORDERS

The Warehouse has a large number of suppliers worldwide; this requires a piece of software that can organise their orders. The Warehouse uses a vendor web portal called B2BE this portal makes it easy to connect them to their suppliers. B2BE is a web portal that allows Warehouse to place orders to it and vendors to view them and respond to the order.

WEBSITE/MOBILE APP

With the vision of being New Zealand's leading digital retailer. The Warehouse has a passion for technology and a desire to push the limits of digital shopping in New Zealand. Therefore, websites and mobile apps for online shopping are one of the most valuable tools which can help them to achieve their goal. For developing this online shopping environment, The Warehouse has chosen to use C#, HTML, CSS, JavaScript, ASP.NET Core and Azure.

INVENTORY MANAGEMENT

The Warehouse has many items in stock at any given time. As a result, they need a way to manage any outgoing or incoming items efficiently. For this, they may use an application like Cin7.

DATA ANALYTICS

A large retail chain like The Warehouse needs software to analyse things like sales performance of different items or individual store locations performance. They need this information to make many different business decisions.

DATABASE MANAGEMENT

The Warehouse use Teradata, Oracle and SQL for its database needs. They use Databases for employee management, Inventory management and Store management.

2.4 CURRENT ICT ORGANISATIONAL STRUCTURE

Currently, the ICT structure for The Warehouse is comprised of three main sections. The General Manager communicates directly with project managers to fulfil any project request. Project Managers ensure that their Analysts, Architects, Developers and Testers are working efficiently on their plans and follow up every Agile cycle. The IT business manager ensures that the IT sector is being driven in the correct directions. Analysts, Consultants, and Strategic Planners aid in this by providing useful metrics and data to the manager so that the right IT business decisions can be made. These decisions are coordinated with the other IT managers as well as the General Managers. The Infrastructure Manager is responsible for the underlying infrastructure for The Warehouse. System Administrators are responsible for the upkeep, configuration and operation of computer systems. IT Supports assists employees of The Warehouse with any IT-related issues they may be facing. Hardware Engineers are employed to upkeep and install new hardware related to IT in The Warehouse. Security Specialises in system security and data security to prevent cyber damage and theft.

2.5 SUMMARY

To summarise, The Warehouse use a wide variety of hardware and software to make sure they are operating efficiently. The Warehouse hardware helps immensely in the day to day operation of each store location things like printers, computers and telephones play a huge part in the functioning of a retail chain. The Warehouse's software also helps with day to day task such as their point of sale system and supplier channel software but also the software is used on a grander scale to analyse large amounts of data and to manage an enormous amount of outgoing and incoming currency.

3.0 ANALYSES

3.1 INTRODUCTION

Organisations have used five essential ICT strategic analysis tools for their understanding about the environment that the body operates with, understanding their interaction the organisation has with the environment and to create a better and more sustainable team. Five ICT strategic tools will be used for analysing The Warehouse will include SWOT analysis, PEST analysis, Gartner Quadrant analysis, ICT Balance Scorecard and Enterprise Architecture.

3.2 ICT SWOT ANALYSIS

STRENGTHS	WEAKNESSES
• The Warehouse has a well-functioning website where customers can browse and purchase goods online. • The Warehouse has in-store price checkers that customers can use to check the price of goods that may have lost their price tags. (Not many stores have these in New Zealand) • Many Warehouses across New Zealand have free Wi-Fi access in store.	• The Warehouse could look into expanding their mobile platform. • The Warehouse recently moved all ordering of products from suppliers to EDI (Electronic Data Interchange) this move was slow in comparison to other competitors.
OPPORTUNITIES	**THREATS**
• The Warehouse could look to implement self-checkouts in store. • Technologies such as PayWave and PayPass could be brought in to speed up transactions.	• Keeping up with competitor's technological advances in the customer experience, digital enablement and in-store point of sales systems. • Investing in new systems or technologies that don't make a positive change. • Stores are becoming more digital, less in store transactions. Online only stores

SWOT SUMMARY

In summary, the SWOT analysis shows that The Warehouses strengths are in the technologies they have in stores as well as their online presence in the form of their website. The Warehouse needs to stay vigilant for new technologies that competitors are looking at implementing so they can stay relevant. They have opportunities to introduce new technologies to improve the customer experience in store. The Warehouse needs to continue to maintain and enhance their digital platforms (Website, Mobile app) if they want to keep up with the market.

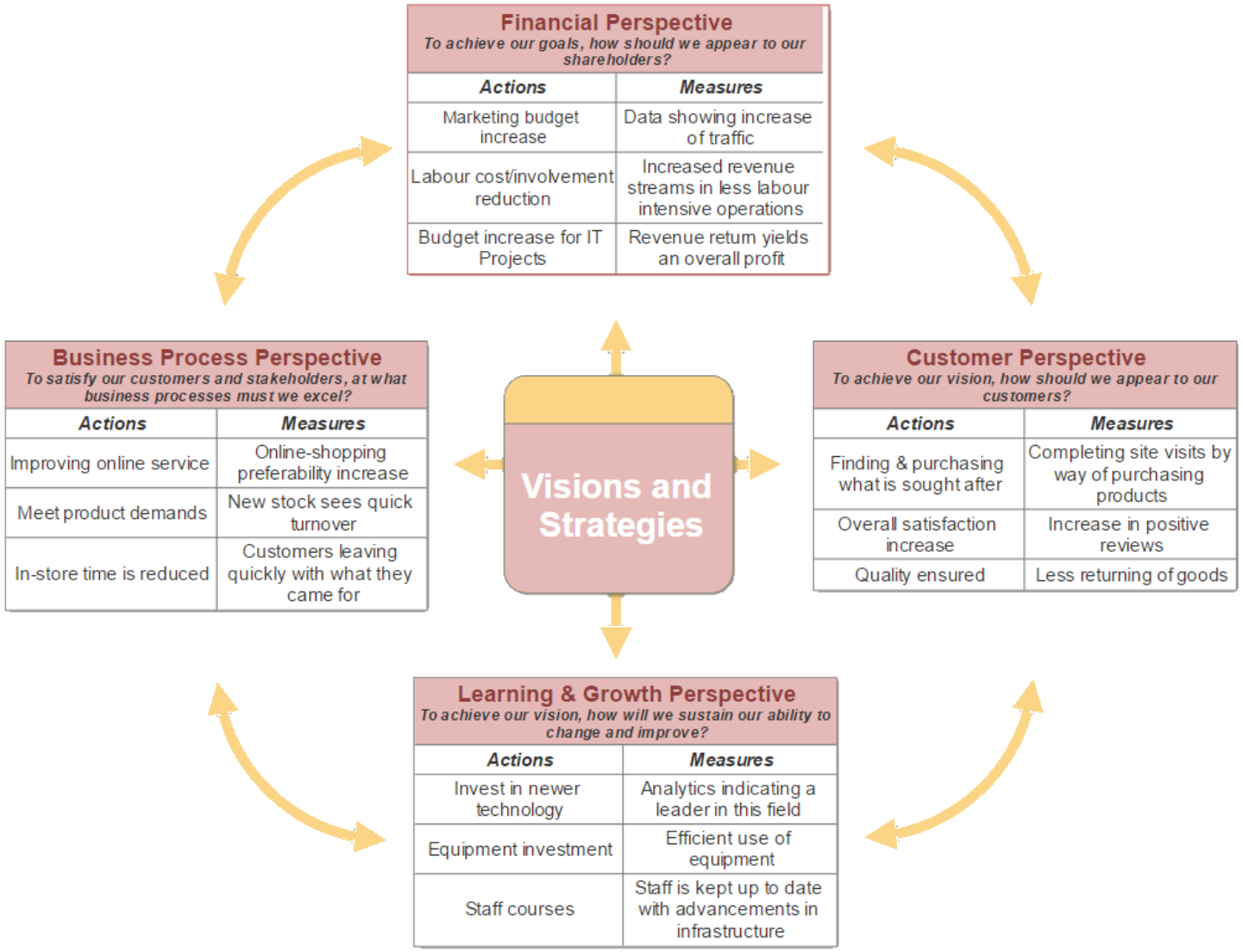
3.3 ICT PEST ANALYSIS

Political	***Economical***
• As New Zealand tightens immigration rules, it will be hard for The Warehouse Group to hire IT experts from overseas to help them to improve their ICT infrastructure. • The Warehouse Group must abide by the Privacy Law which states they cannot use or disclose personal information of any person, employee or customer, without their permission.	• Begin to implement VDI help The Warehouse solves business continuity, remote worker and work-life balance challenges with one disaster-proof solution • Online growth supported by a new platform and a strong promotional program. • As automation increases, more jobs will become redundant meaning decreased labour costs.
Social	***Technological***
• The learning curve for new retail-focused technology is much greater for the older demographic who may not be comfortable with these techniques. Younger generations are known to be able to adapt to the learning curve more quickly. • People are becoming more reliant on digital stores and online purchases; The Warehouse will have to continue to change if they want to stay competitive.	• Technology for retail stores is ever changing, e.g., Point of sale systems, Customer experience systems, Customer data management systems keeping up with it can be very expensive and exhaustive. • Successfully migrating the ex-Joint Venture with Westpac card and accounts onto Warehouse Money hosted systems. • Implement a new Order Management System that will underpin online fulfilment. • Implementation of technology changes to enable a more streamlined, efficient and lower cost retail operation that can support the business strategies to engage customers and shorten sourcing cycles.

PEST SUMMARY

The PEST analysis shows that for the Political factors, many government laws might affect The Warehouse such as with the current immigration law, it will be difficult for The Warehouse to hire employees from overseas to work for them. Not just that, as a retailer's business, The Warehouse always needs to collect information from the customers including their information. Therefore, The Warehouse must abide by the Privacy Law and ensure that they do not disclose this sensitive information to anyone without the permission from the customer. With the Economic factors, it is about increasing their profit by implementing a good desktop solution, investing in online shopping as well as reducing the labour cost with automation. For the Social factors, as people are becoming more reliant on technology, especially the younger generation. That is why The Warehouse must always adapt their business with what the customer needs and wants to be able to stay competitive with other retailer companies. Finally, the Technological factors, by implementing new technology and keeping it up to date, The Warehouse will be able to get more profit and reach closer to their vision of becoming the leading digital retailer in New Zealand.

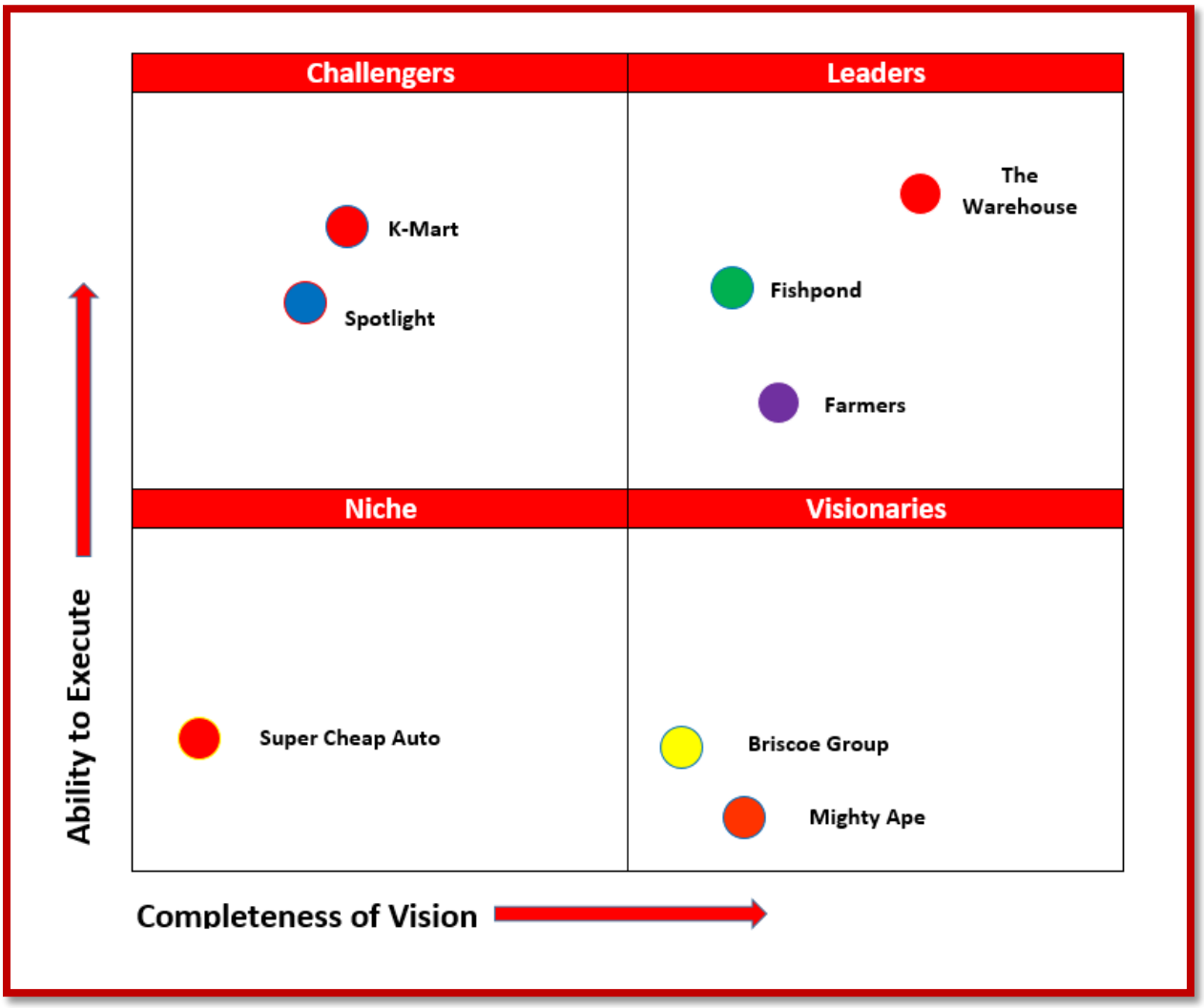
3.4 BALANCED SCORECARD



BALANCED SCORECARD REVIEW SUMMARY:

The Balanced Scorecard shows clear correlations between each of the card sections. For the visions and strategies to be executed, each area of concern must integrate cohesively. An example from the scorecard will help to clarify. Financial Perspective – Labour involvement reduction essentials equate to more automation. Customer perspective – If tasks are being automated then most likely the overall satisfaction for customers will increase. Learning and Growth Perspective – for this to take effect, investment in newer technology will need to be made. Business Process Perspective - Finally the last tie-in point is that there will be less time spent in-store. This shows the effectiveness of this analysis as each point feeds into the next.

3.5 ICT GARTNER QUADRANT ANALYSIS



GARTNER QUADRANT ANALYSIS SUMMARY

The Warehouse holds the top position as it has for many years. It is by far the largest retailer in New Zealand with almost $1 billion in sales.

Fishpond sells anything The Warehouse might sell but only online. Because of that, Fishpond has been making great strides by becoming a leader in the online market. This should pose a threat shortly for other leaders.

Farmers dominate the clothing retailing market. This earns them a spot as a leader in that market. They also sell general household items and electrical appliances.

K-Mart is a store much like The Warehouse. They have a much lower market share, though they still offer a broad range of services. K-Mart has self-checkout capability which implies that they are more innovative than The Warehouse.

Spotlight specialises in fabrics and other miscellaneous household items. Spotlight is dominant but leans towards a niche market. However they employee over 6000 employees making them a challenger.

Mighty Ape is a large online store much like fishpond. Mighty Ape started off just selling games and electronics, but over time their catalogue grew and are becoming increasingly prominent. Mighty Ape recently released their marketplace feature which allows the user to sell second-hand items on the site, earning their spot as a visionary.

Super Cheap is a store that sells mostly products relating to automobiles. Super cheap shows no signs of expansion into other markets, restricting them to a niche company.

Briscoes, much like Noel Leeming, provides general appliances and consumer electronic goods. A clear vision but not as much ability to execute as they have less market share and growth potential. (Noel Leeming not included as it is part of The Warehouse Group

3.6 ENTERPRISE ARCHITECTURE

Zachman Framework	What (Data)	How (Function)	Where (Network)	Who (People)	When (Time)	Why (Motivation)
Contextual (Planner - Scope)	thewarehouse.co.nz The Warehouse app In-store equipment	Purchase of goods/ services Register online for personalised experience	Various in-store locations, includes every major city Anywhere with an internet connection	IT Operations Distributors and suppliers Retail personale	Market trends	To be the leading digital retailer in New Zealand
Conceptual (Owner - Business)	Web Dev languages: Javascript, HTML/CSS, C# Mobile app languages: Java, Xamarin, Objective C, Swift	One major group of developers and architects that work together to cross-integrate platforms cohesively	The Warehouse main office	Architects Developers QA	New requirements make old implementations redundant. Anticipation of promised solutions	To be a leader, one must take the necessary steps to develop and maintain mobile and website platforms
Logical (Designer - System)	Angular 2/4 coupled with a robust C# server RESTful API Angular controls the data, look and feel of website C# server will feed angular the necessary information	C# is a good choice for back-end as Xamarin is used for mobiles and is written in C#. Knowledge can be easily transfered	IT Department On-site deployment	The architects will design the systems to integrate with each other Developers will implement the solutions QA will extensively test and ensure quality	AGILE methodologies to better keep track of new requirements SCRUM	A solid and reasonable foundation for development ensures smooth development cycles All the details are to be thoroughly fleshed out
Physical (Builder - Technology)	IDEs Development Servers Deployment Servers	Programming takes place on the IDEs Code will be managed by version control and pushed to development/ deployment servers	Development code will be hosted on interal servers	Architects, developers and QA will work together	Write code then test then push code to platforms Repeat	Developing in this way ensures that the requirements are being met one cycle at a time
Detailed (Sub-Contractor - Components)	The Warehouse development server is internal and seperate to ensure safer testing	IDEs are important for quick development cycles. They provide intellisense and bug-catching tools	Development servers will contain the code and any versions of the code base	Architects are needed to ensure a cohesive platform integration Developers know how to interface APIs QAs specialise in testing and ensuring quality	Following agile methodologies, code is produced and tested against requirments If it passes then it moves to deployment phase	It is essential that a logical process takes place. Not following a logical structure leads to buggy code and missed deadlines

3.7 SUMMARY

In summary, the SWOT analysis helps to identify the strengths, weaknesses, opportunities and threats of The Warehouse. It points out that The Warehouse strength is in the technologies, but at the same time, they must continue to invest, improve and implement new technologies which can help their business to stay competitive. The PEST Analysis contributes to reducing the effect of the potential threat to The Warehouse such as the Privacy Law and Immigration Law. It has also helped The Warehouse to take advantage of new opportunities in fields including economic, technological and social – Strengthen the business. The Balanced Scorecard shows how The Warehouse can implement their strategy by looking at four perspectives within the company. For example, if they increase the budget to invest in new technology for their online service, it will enable The Warehouse to improve the customer shopping experience and satisfaction. Gartner Quadrant Analysis educates The Warehouse about its competitor strength, weakness and ability to deliver what customers require. Based on this analysis, The Warehouse will be able to find out what is needed to improve their business. Finally, the Zachman framework provides a comprehensive representation of The Warehouse technology that has been implemented such as their website, application and in-store equipment.

4.0 ICT STRATEGY

4.1 INTRODUCTION

The Warehouse has made lots of effort to stay relevant. However, more can be done to align future trends with the goals of the company. The formula for the modern business is simple; drive innovation with information technology. The Warehouse must continue to plan by drafting and finalising ICT strategies. An ICT strategy is designed to emphasise on the fields in which would be most beneficial to the longevity of the business. Clear, SMART goals are imperative to the strategy as they build a solid foundation of the requirements. The section will go into more detail on the ICT strategies for The Warehouse.

4.2 ICT VISION, MISSION, OVERALL GOALS

4.2.1 VISION

Become the leading digital retailer in NZ.

4.2.2 MISSION

The Warehouse mission going forward is to give customers access to the best technology, the smartest digital solutions and a range of purchasing and fulfilment options to meet their needs. Continual omnichannel investment steps must take place to ensure that The Warehouse is implementing necessary changes in infrastructure that will benefit the customers in all these fields above.

4.2.3 OVERALL GOALS

- Digitise the in-store experience by implementing new technology that better serves customer needs.

- Improve the out-of-store experience by streamlining the back-end, logistics and fulfilment services, to better serve online orders.

4.3 STRATEGIC OBJECTIVES

- Introduce automated retailing machines that allow customers to have control over how they purchase items in-stores.

- Implement catalogue computers in the stores. These computers will be an extension of the existing item price scanners. They will allow customers to search for products available in the store, provide descriptions, and where to find them.

- Streamline online logistics and fulfilment so that the out-of-store experience is more rewarding for customers.

4.4 STRATEGIC DETAIL PLAN 2017 - 2022

Strategic Objective 1

Introduce automated retailing machines that allow customers to have control over how they purchase items in-stores.

Specific Goals	**Action Plan (What, How)**	**Key Performance Indicators (KPIs)**	**Person(s) Responsible (Who)**	**Budget (Resource Allocation)**	**Timeframe (When)**
Improve customer shopping experience and satisfaction	Purchase self-service checkout system	Customers are able to self-check-out by themselves.	BI team, IS teams, database engineer	Up to $300 thousand per store	2017-2019
Integrate back-end with the self-service checkout interface	Hire a team to integrate the back-end with the provided self-service API	Products are able to be purchased. Stock levels are updated automatically.	Developers, testers, database engineers	$150 thousand per store	2017-2019
Increase security to prevent theft	Cameras for each machine. Make it obvious that there are cameras watching	Little to no theft	Security team	Up to $50 thousand per store	2017 - 2019

Strategic Objective 2:

Implement catalogue computers in store. These computers will be an extension of the existing item price scanners. They will allow customers to search for products available in the store, provide descriptions, and where to find them.

Specific Goals	**Action Plan (What, How)**	**Key Performance Indicators (KPIs)**	**Person(s) Responsible (Who)**	**Budget (Resource Allocation)**	**Timeframe (When)**
Improve scanners by adding catalogue computers	Buy computers and screens and station them near or on top of item scanners	Computers are powerful enough to display basic information about stock and can integrate the scan function of existing item scanners to see more information about that product.	Network team, IS team, database engineer	Up to $100 thousand per store	2017 - 2019
Integrate new system which allows customers to see more information about in-store goods as well as able to search for it.	Hire a team to develop and do the necessary software implementation that will allow customers to read stock levels and in-store location.	Customer can easily find the goods and its related information quickly.	IS team, BI team, customer service team	Up to $800 thousand	2018 - 2020

Strategic Objective 3

Streamline online logistics and fulfilment so that the out-of-store experience is more rewarding for customers.

Specific Goals	**Action Plan (What, How)**	**Key Performance Indicators (KPIs)**	**Person(s) Responsible (Who)**	**Budget (Resource Allocation)**	**Timeframe (When)**
Implement a new Order Management System that will underpin online Fulfilment.	Starting with disconnecting fulfilment and enterprise systems, then installing a new layer that connects fulfilment, store POS, allocation, inventory and other systems.	It helps The Warehouse manage how inventory is deployed in response to demand across channels	IS Teams, Developers, testers, database engineers	Up to $5 million	2017-2020
Centralise a best practice capabilities and develop the necessary utility to support a next-day/same-day delivery model	Making improvements in the electronic transfer and management of product data and also developing a next-day delivery to the customer capability.	To reduce the cost of moving goods around The Warehouse network.	IS Teams, Developers, testers, database engineers, data analysis, and marketing teams.	Up to $2 million	2018-2021
Investing in developing website and app capability	Start investing in improving online shopping through application and website	A good website and application will allow the Warehouse customer to order goods more easily and efficiently.	BI Teams, IS Teams, Web designers, programmers, testers, database engineers	Up to $2 million	2019-2021

4.5 BACKGROUND RATIONALE

The Warehouse's mission is to become the leading digital retailer in New Zealand. For that to happen, dramatic steps must be taken to ensure that this mission achieves what it sets out to do.

Food markets are already adopting automated retailing technology. Recently, in the markets that The Warehouse is concerned with (not foods) some direct competitors to The Warehouse have been implementing this technology. Therefore it is clear that The Warehouse must do the same if it wishes to keep up with the competition. Doing so will increase satisfaction for those customers who want to fulfil their orders via this avenue. In the long run, this will also mean that less labour will be required from staff to check-out customers manually.

Item scanners in The Warehouse have been around for over a decade and are greatly appreciated by customers. The next step is to provide catalogue computers next to these scanners that will allow their customers to scan, lookup and request items to be in stock. The Warehouse should aim to provide this technology as many times customers do not know when they walk into a store whether they will be able to find what they are looking for. So by providing this interface, customers can quickly locate an item and complete their visit. This will in turn increase satisfaction. Having this system will also mean that any item a customer searches and can't find will be used as data to inform purchasing of current product trends and demands.

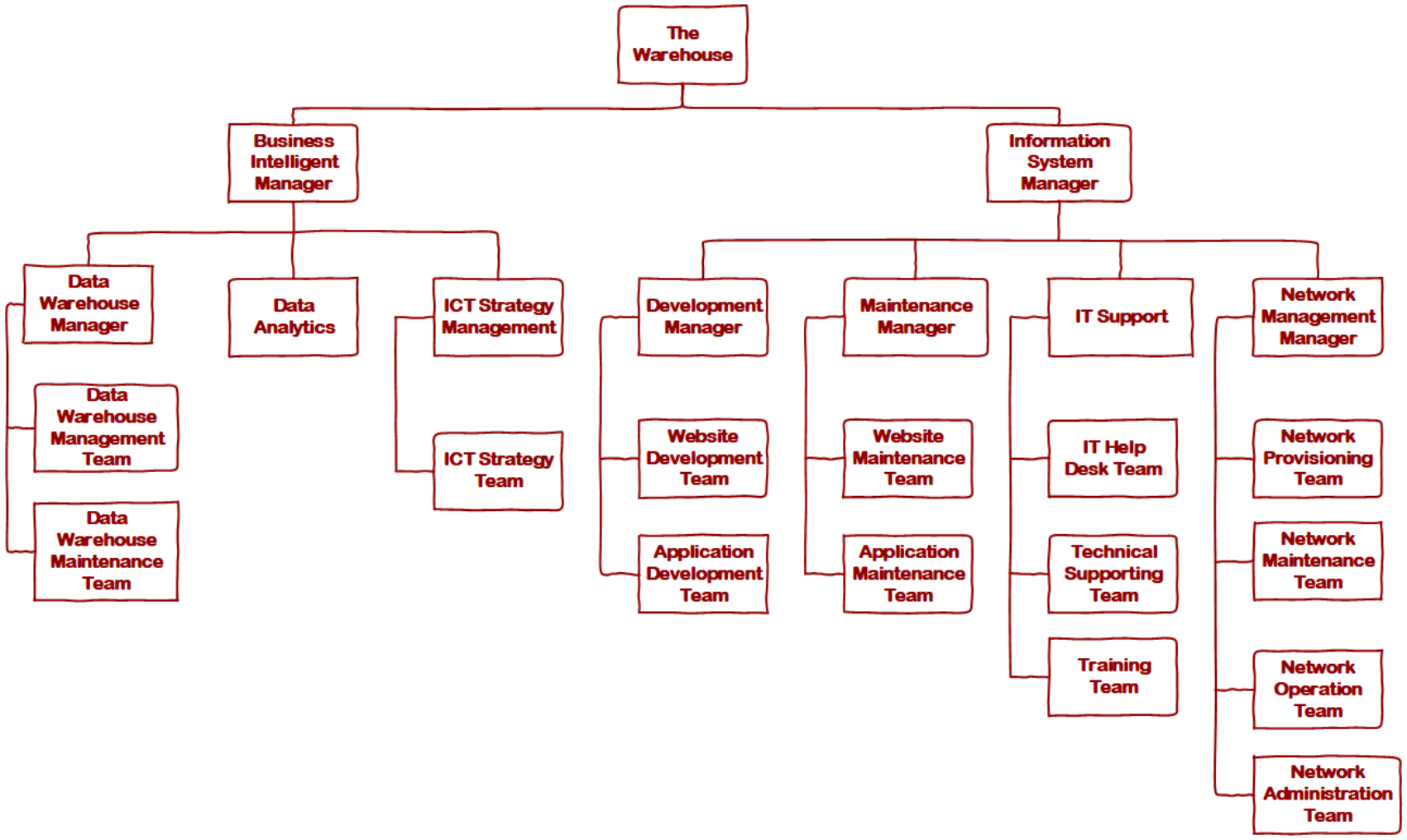
The Warehouse currently has online fulfilment options although the infrastructure in the back-end was never ready to support such features. By implementing a new order management system, it will better integrate online orders so that deliveries can be made exponentially faster. The Warehouse falls behind regarding online catalogue design. Therefore some investment to improve the online shopping experience is needed to sustain customer interest. Much of the market is being conducted online as the internet evolves thus it is imperative that The Warehouse is ready and able to handle more online traffic.

5.0 ICT INFRASTRUCTURE

5.1 INTRODUCTION

A good ICT Infrastructure will improve business performance, productivity and profitability. It is the key to helping the business run smoothly and efficiently. Therefore, in this section, we would like to propose some of the possible changes that we think The Warehouse can do to better their ICT infrastructure in the future. In the new ICT Infrastructure, the business intelligence and the information system department will still be separate. Under the business intelligence will be the data warehouse manager, data analytics and ICT strategy management. Data warehouse manager will be responsible for the data warehouse administration and maintenance team. The ICT strategy management will be liable for the ICT strategy team. Under the information system will be development manager, maintenance manager, IT support and network management manager. The development manager will be responsible for website and application development team. The maintenance manager will take care of the site and application maintenance team. Under IT support is the IT help desk, technical support and training team. Finally, the network management manager will be in charge of the network provisioning, network maintenance, network operation and network administration team.

5.2 PROPOSED ICT ORGANISATIONAL STRUCTURE



6.0 DESCRIPTION OF INDIVIDUAL ROLE IN GROUP

Below is a brief description of group member's contributions to this Portfolio

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DEVANSH MOHAN
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