

Pampered Pets' Risk Identification Report

Table of Contents

[1. Introduction](#)

[2. The Current System \[264 words\]](#)

[2.1 Current Business Model](#)

[2.2 Current Digital Network](#)

[2.3 Critical Assets and Threats](#)

[3. Why Digitization is the Right Move](#)

[3.1 Customer increase](#)

[3.2 Supply Chain](#)

[3.3 Lose 50% of customers if not digitalized?](#)

[4. Threat Comparison – Current vs Digital \[200\]](#)

[4.1 OCTAVE](#)

[4.2 STRIDE](#)

[4.3 Mitigation Strategy](#)

[5. Final Summary/Conclusion](#)

[References](#)

[Appendix A](#)

Please see [report_self_draft](#) for the most recent version; sorry I'm too lazy to copy/paste all the graphs, etc.

Points to consider: Assumptions, background context

1. Introduction

This report aims to present a digital risk assessment of the business Pampered Pets to facilitate the identification and mitigation of digital risks that are unique to Industry 4.0

(Ghernaouti-Helie, Tashi, & Simms, 2011; Liu, Kuhn, & Rossman, 2009; Nikolic & Ruzic-Dimitrijevic, 2009). The assessment focuses on the current system, a digitized system, threat comparisons, and mitigation suggestions. A final summary is provided identifying system assets and security measures compliant with I4.0 and current security standards to ensure data and system security (GDPR, 2021, HIPAA, etc.).

2. The Current System [264 words]

To better understand Pampered Pets' risk potential, the OCTAVE-S model, designed for enterprises with fewer than 100 employees (Alberts et al., 2005), was utilized. A summary of the results are provided below.

2.1 Current Business Model

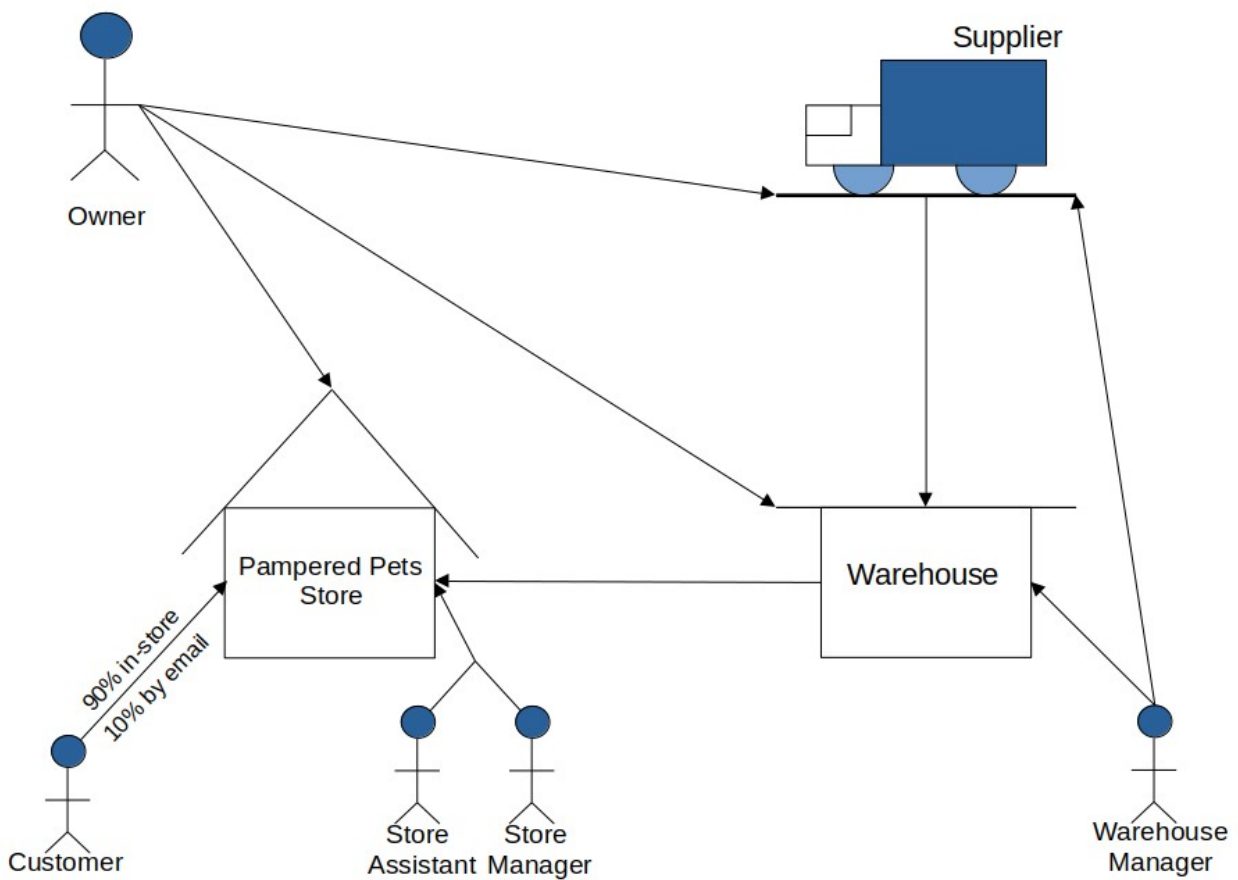


Figure 1: Current Business Model

Pampered Pets (Figure 1) is a brick and mortar enterprise comprised of

- An owner and three staff
- A warehouse
- A storefront

Supply chain logistics consist of a local supplier network:

- Owner and warehouse manager are in contact (email, telephone, in-person)
- Product is delivered to warehouse

Customer traffic has two sources:

- 90% in-store traffic
- 10% email orders with in-store pickup

2.2 Current Digital Network

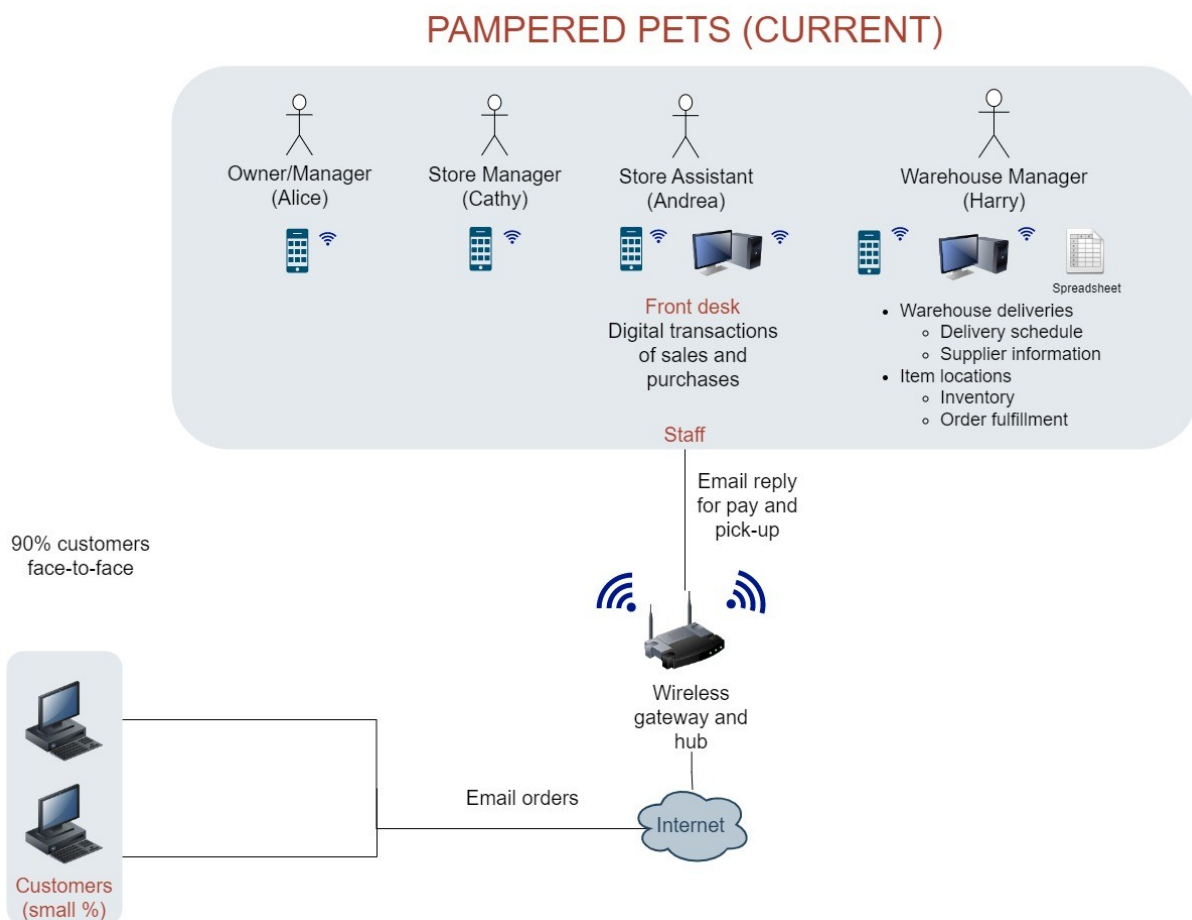


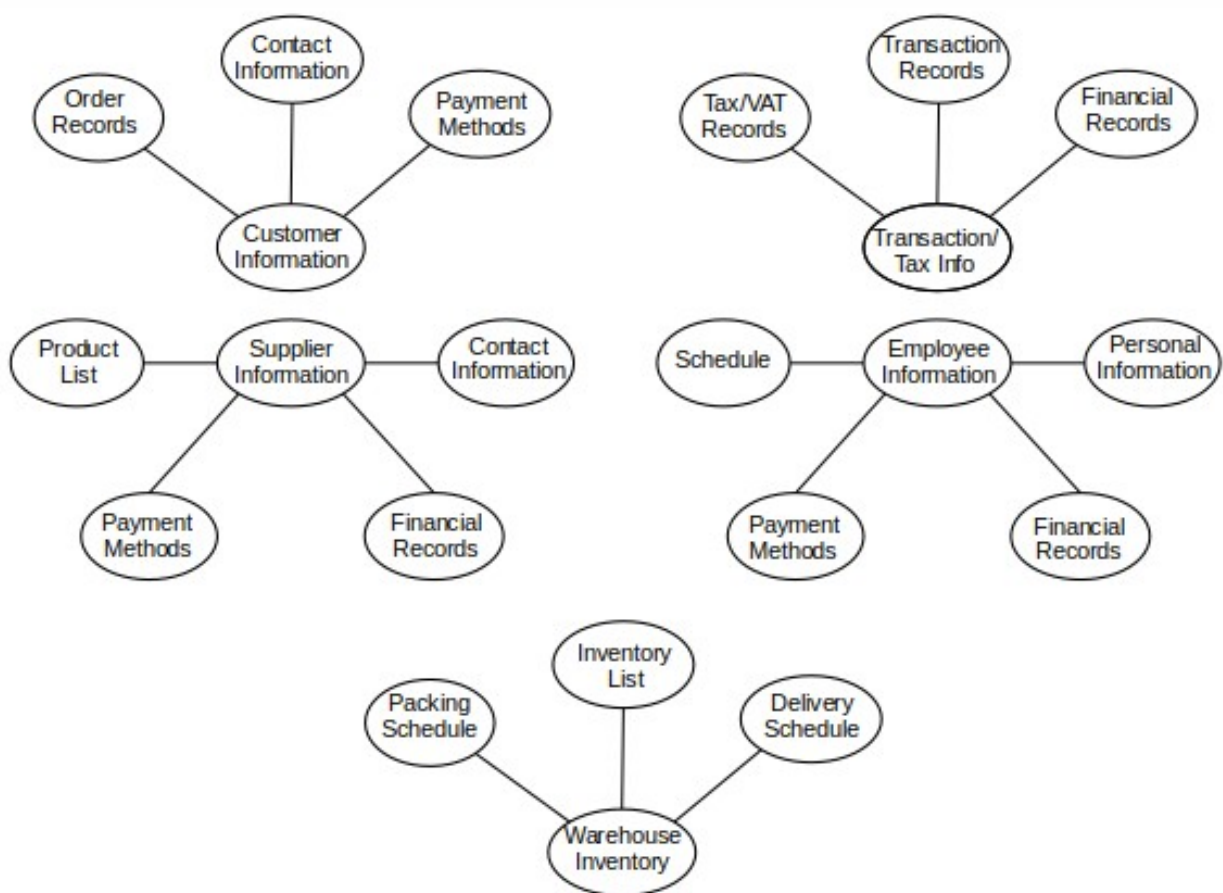
Figure 2: Current Digital Network

Though Pampered Pets has a localized business model, there exists a digital attack surface for potential security breaches (Figure 2). The attack surface can be summarized as follows:

- A single Wifi network for multiple devices, including employees' personal devices

- A storefront PC with an email server and 3rd party transaction software, both containing sensitive customer and Tax/VAT information
- A warehouse PC with an email server and Excel software, both containing sensitive supplier information

2.3 Critical Assets and Threats



Fig

Figure 3: Critical Assets

Pampered Pets has five critical assets (Figure 3) in need of fortification against digital and/or physical attack (see Appendix 1). Each asset contains sensitive information which could be disclosed and/or modified.

According to the “globally-accessible [attack] knowledge base” (Mitre, 2022) CAPEC ATT&CK list, of 177 possible digital security breaches 128 are applicable to Pampered Pets’ current digital network (Figure 2), or 78% (Figure 4). These attacks are discussed in more detail in section 3.x.x.

ATTACKS APPLICABLE TO THE CURRENT ORGANIZATION STRUCTURE

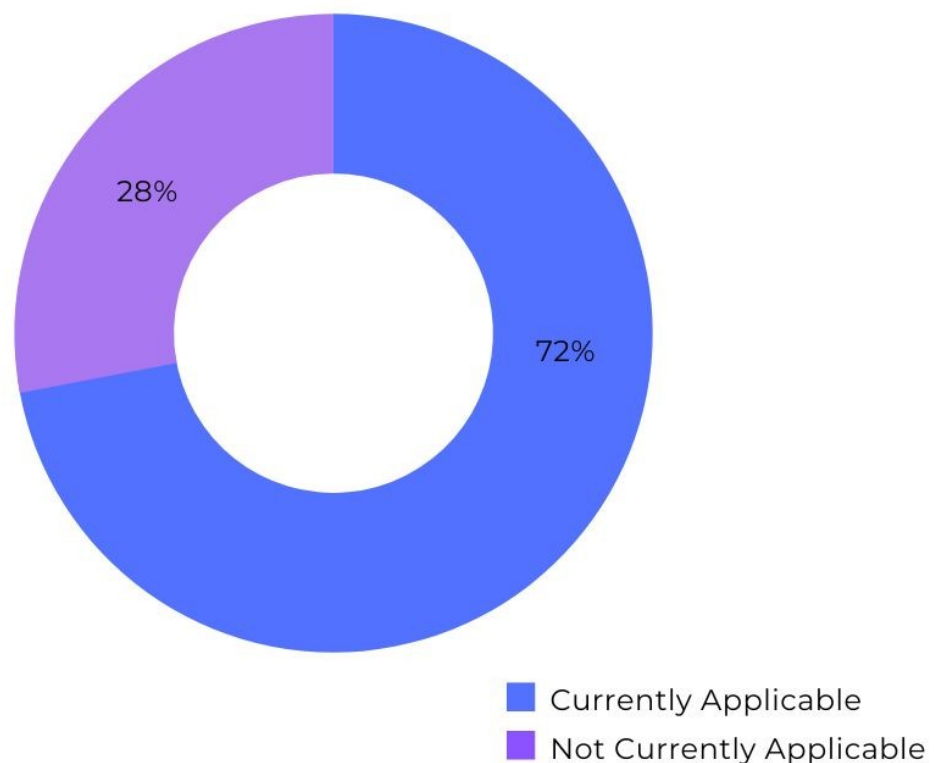


Figure 4: Applicable Attacks

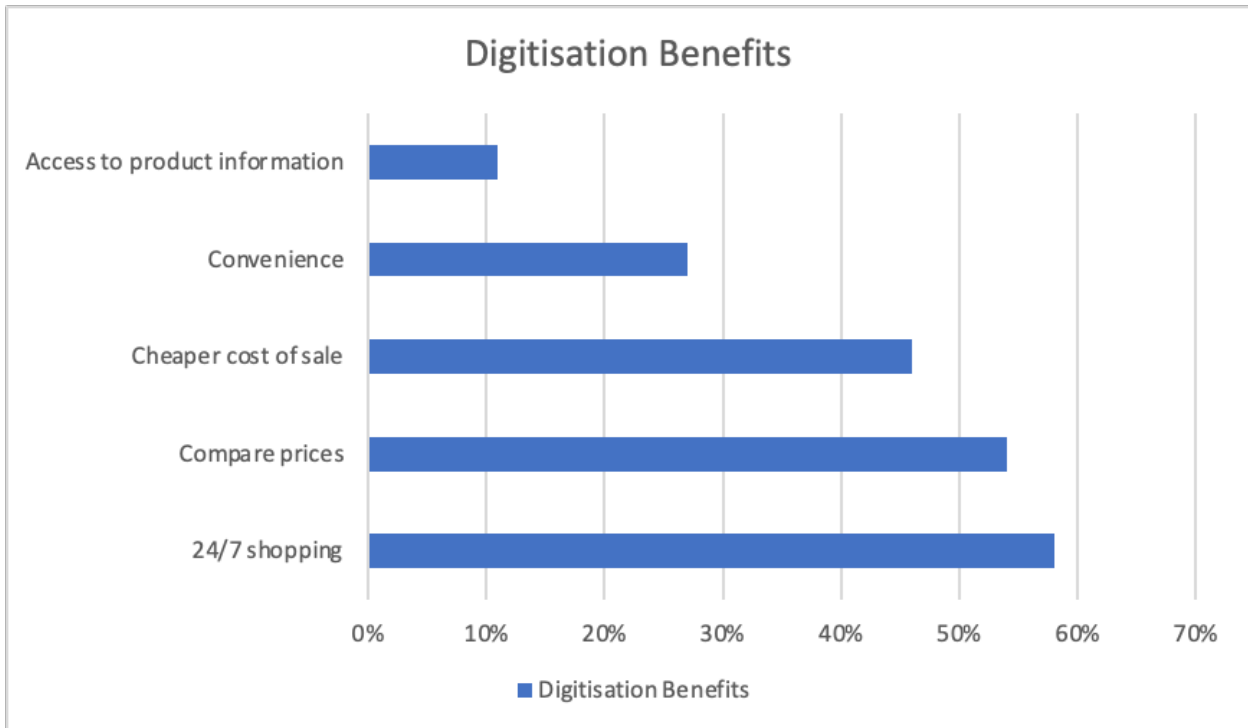
3. Why Digitization is the Right Move

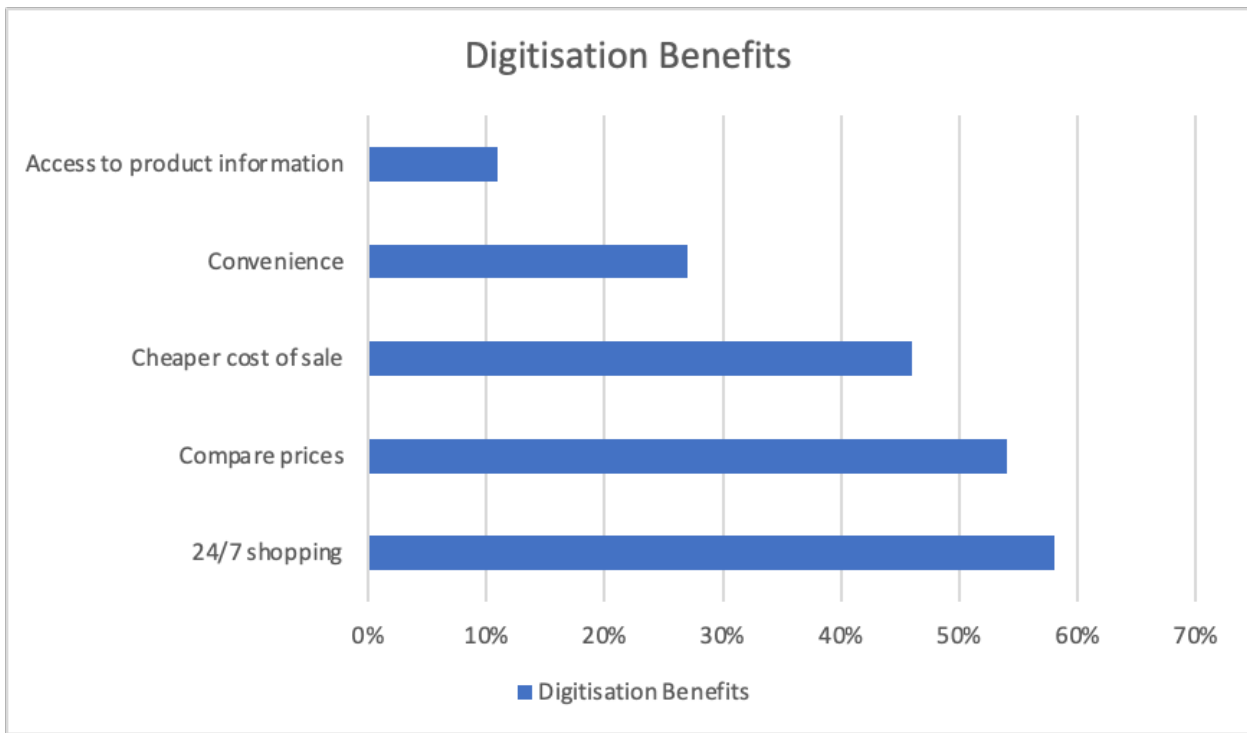
Basic facts about Industry 4.0

According to World economic Forum digital transformation initiatives are a priority for retail and consumer sector companies given the potential for significantly higher value realised throughout the entire value chain.

3.1 Customer increase

- Web app for more/int'l customers
 - Streamlined for in store customers
 - Payment system - online/click and collect
 - Safety/Health issues, health regulations – food regs





3.2 Supply Chain

Changes to an initial supply chain

-

3.3 Lose 50% of customers if not digitalized?

In 2010, only 6.3 % of pet owning households bought pet products online, but by 2019 this figure increased to 20.4%. (Pet Food Industry 2019) Over the years the number has steadily increased to 40 % pet owners opting to make online purchases (Chain Store Age 2017).

According to Food Engineering Magazine (2020), there has been a trend with pet product manufacturers opting to provide their full inventory online so a customer can make an informed decision about their product choice prior to visiting brick and mortar shops.

By not digitizing Pampered Pets stands to lose in excess of 40% of the market share. This tips the scale when justifying the implementation of digitisation despite the inherent risks.

4. Threat Comparison – Current vs Digital [200]

Main threats to financial security is privacy of information – various ways privacy can be violated

4.1 OCTAVE

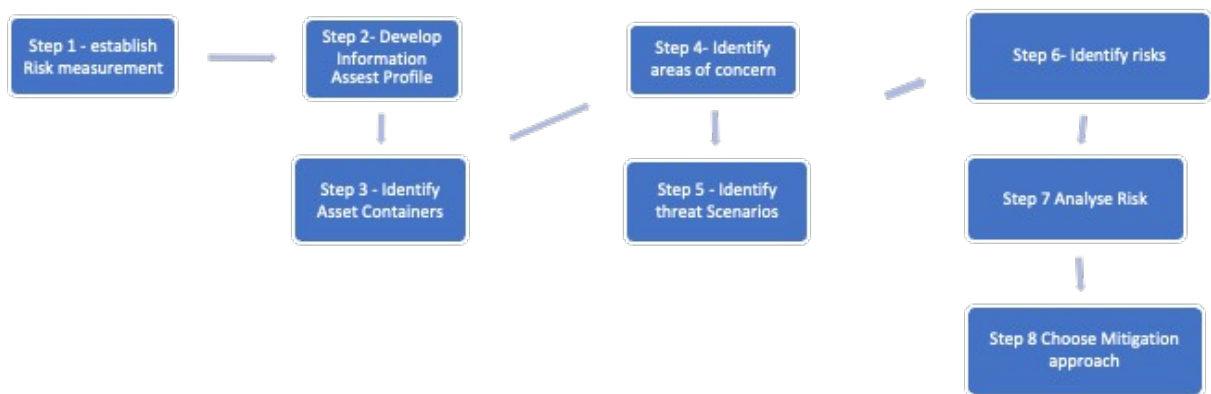


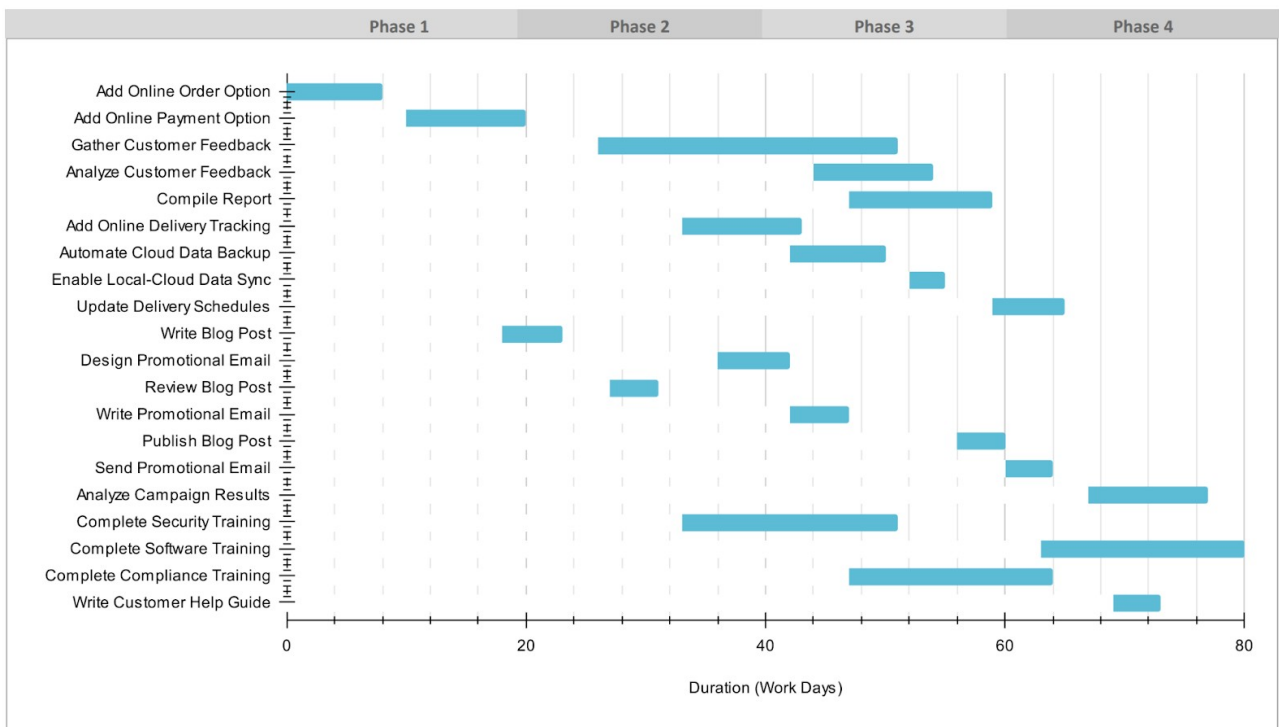
Figure 5: OCTAVE Steps and Phases

4.2 STRIDE

4.3 Proposed/Recommended Changes

Figure 6 is a Gantt chart which illustrates the timeline of the changes to be implemented over four phases across several months, starting towards the end of 2022 until the beginning of 2023 (See

Appendix A).



4.4 Mitigation Strategy

Regulators are challenged by the complexity of businesses hosting their stores online and the potential for cross border transactions which raise a series of policy concerns. Regulation constraints lead to an unjustified regulatory cost burden for traditional, digitally enabled and hybrid companies.

Industry regulation is an additional change especially when it pertains to maintaining user privacy. While it is mandatory to retain records of user activity and transactions due to data retention laws , this adds an additional layer of risk surrounding the securing of information and the cost of retaining that information for the specified time frame.

Security standards in place such as GDPR, HIPAA and PCI-DSS to protect customers' privacy.

5. Final Summary/Conclusion

In conclusion, a hybrid model is most suitable for Pampered Pets and recommended by the Security and Risk Management team.

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Regulatory And Legislative Mitigations

Easily view, sort, and prioritize a Common Vulnerability Scoring System (CVSS) score, and filter impacted supply chain blocks.

Understand how many and which part of the new system will be affected, and assess the potential risk to the Pet Shop revenue.

Remediate known CVEs based on business risk and relevance.

Compare current system profiles to the suggested systems to identify differences and troubleshoot operational issues.

Generate comma-separated value (CSV) reports to keep relevant stakeholders and regulators informed.

Determine which systems are noncompliant to one or more policies for customers using the purchasing system.

Determine the percentage of policy compliance. For example, the proposed system might be xxx% compliant with the Data protection Act 2018 , xxx% compliant with the general product safety Act and only xxxx % compliant with the Payment Card Industry Data Security Standard.

Remediate known issues of noncompliance.

Force	Strength of Force	Comments
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1. Threat of new entrants	High-Moderate	Highly saturated market. Having an online presence will reduce this force
2. Degree of rivalry	High	Smaller stores like Pampered Pets must compete for market share against bigger retailers with better inventory
3. Threat of substitutes	Low	Increases the probability of returns
4. Power of buyers	High-Moderate	Better online presence translates to customers becoming price savvy as its easier to compare prices from different retailers
5. Power of suppliers	High-Moderate	Opportunity to create a niche market

Appendix A - Gantt Chart (Table)

Pampered Pets Digitalisation 2022-2023

Website e-commerce portal + brick & mortar = Hybrid model

* = an automatically calculated cell

	TASK NAME	START DATE	END DATE	START ON DAY*	DURATION* (WORK DAYS)	TEAM MEMBER
Sales: Online Order + Payment System						
<i>Digital transactions, VAT, tax</i>	Add Online Order Option	12/1	12/8	0	8	Andrea
	Add Online Payment Option	12/11	12/20	10	10	Harry
	Gather Customer Feedback	12/27	1/20	26	25	Alice
	Analyze Customer Feedback	1/14	1/23	44	10	Andrea
	Compile Report	1/17	1/28	47	12	Cathy
Logistics (Supply Chain)						
<i>Warehouse deliveries, item locations</i>	Add Online Delivery Tracking	1/3	1/12	33	10	Andrea
	Automate Cloud Data Backup	1/12	1/19	42	8	Harry
	Enable Local-Cloud Data Sync	1/22	1/24	52	3	Harry
	Update Delivery Schedules	1/29	2/3	59	6	Cathy
Marketing						
<i>Social media, blogs</i>	Write Blog Post	12/19	12/23	18	5	Alice
	Design Promotional Email	1/6	1/11	36	6	Andrea
	Review Blog Post	12/28	12/31	27	4	Harry
	Write Promotional Email	1/12	1/16	42	5	Cathy
	Publish Blog Post	1/26	1/29	56	4	Andrea
	Send Promotional Email	1/30	2/2	60	4	Harry
	Analyze Campaign Results	2/6	2/15	67	10	Cathy
Training						
<i>Upskill staff, enable customers</i>	Complete Security Training	1/3	1/20	33	18	All
	Complete Software Training	2/2	2/18	63	17	All
	Complete Compliance Training	1/17	2/2	47	17	All
	Write Customer Help Guide	2/8	2/11	69	4	Andrea