

## Security and Risk Management Assessment for *Pampered Pets*

Team 1: David Abiodun; Nelson Akaffou; Mark Collins; Ilyas Demirtas; Stephanie Irina

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### 1. Background and Scope

This team will assess Pampered Pets' business risks, focusing on current practices and future growth. The evaluation will consider risks associated with online expansion, e-commerce improvements, and potential scenarios for development.

1. Do nothing (Section 2).
2. Mitigate existing risks without investing in e-commerce (Section 2).
3. Digitise business practices and invest in e-commerce (Section 4).

### 2. Current Business model

The current organisational structure is shown in Figure 1, and the current process for purchasing and manufacturing is shown in Figure 2.

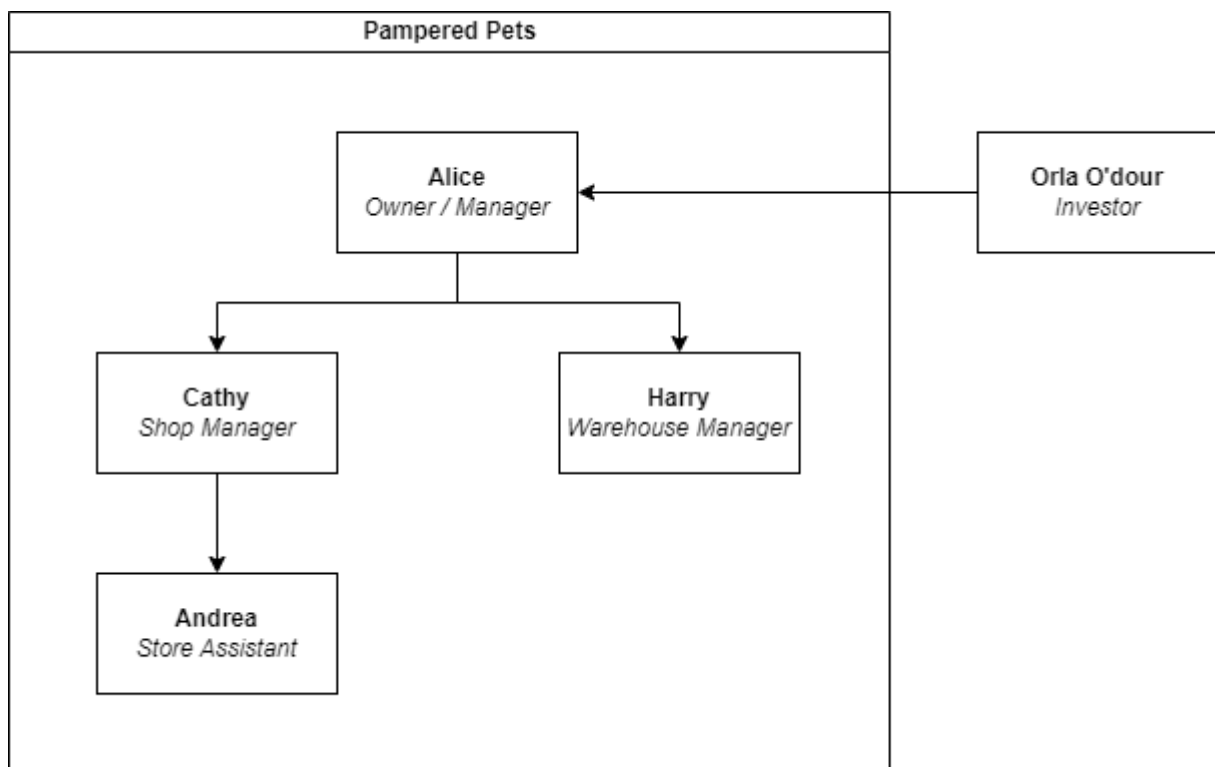


Figure 1: Organisational Structure of Pampered Pets.

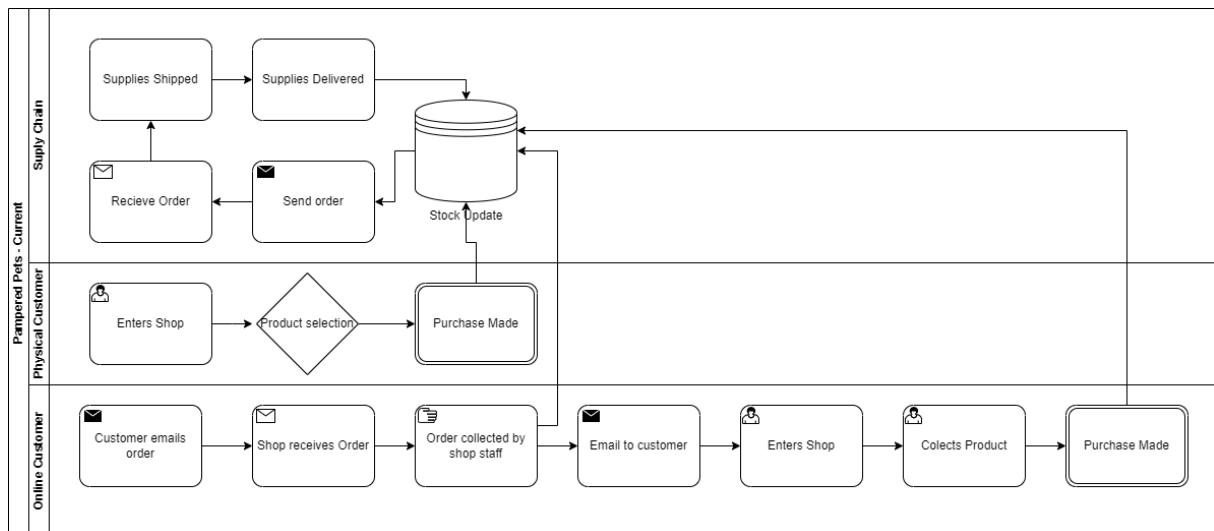


Figure 2: Current business processes.

Figure 2 shows that comparing the existing online purchasing to in-store purchasing is complex with many additional steps required. There is scope for improvement.

Pampered Pets employs some existing digital processes, for example, the use of a networked computer to track stock and purchases, which has the benefit of improved accounting, however, there are still associated risks, identified and assessed using an ISO31000 approach (Barafort et al., 2019) to Figure 2 and presented in Table 1.

Table 1: Risk assessment for existing business processes.

Source	Threats	Risks	Impact
<b>Network Vulnerabilities</b>	Unauthorised access, malware attacks, data breaches.	Loss of sensitive customer data, and operational disruptions.	High
<b>Old Computer Use</b>	System failures, outdated software vulnerabilities.	Data loss, inefficient tracking of inventory.	Medium
<b>Dependency on Local Suppliers</b>	Supply chain disruptions, supplier failures	Inability to meet customer demand, loss of business reputation	High
<b>Manual Handling of Orders</b>	Order errors, delayed processing	Customer dissatisfaction, loss of sales	Medium
<b>Lack of Digital Presence</b>	Inability to capture online sales, limited market reach	Stagnant growth, reduced competitiveness	High

<b>Data Backup and Recovery</b>	Data loss due to hardware failure or cyber incidents.	Loss of transaction records, financial and operational disruptions	High,
<b>Physical Security of the Premises</b>	Theft, vandalism	Loss of inventory, damage to property	Medium

To maintain business operations, the following mitigations are proposed:

1. **Security Enhancements:** Implement strong firewalls, antivirus software, and regular software updates. Utilise a reputable cybersecurity service to monitor and protect the network.
2. **Employee Training:** Regular training sessions for ALL EMPLOYEES on cybersecurity best practices.
3. **Data Backup:** Ensure all data is regularly backed up to a secure cloud service to prevent loss in a cyberattack.
3. Proposed business model

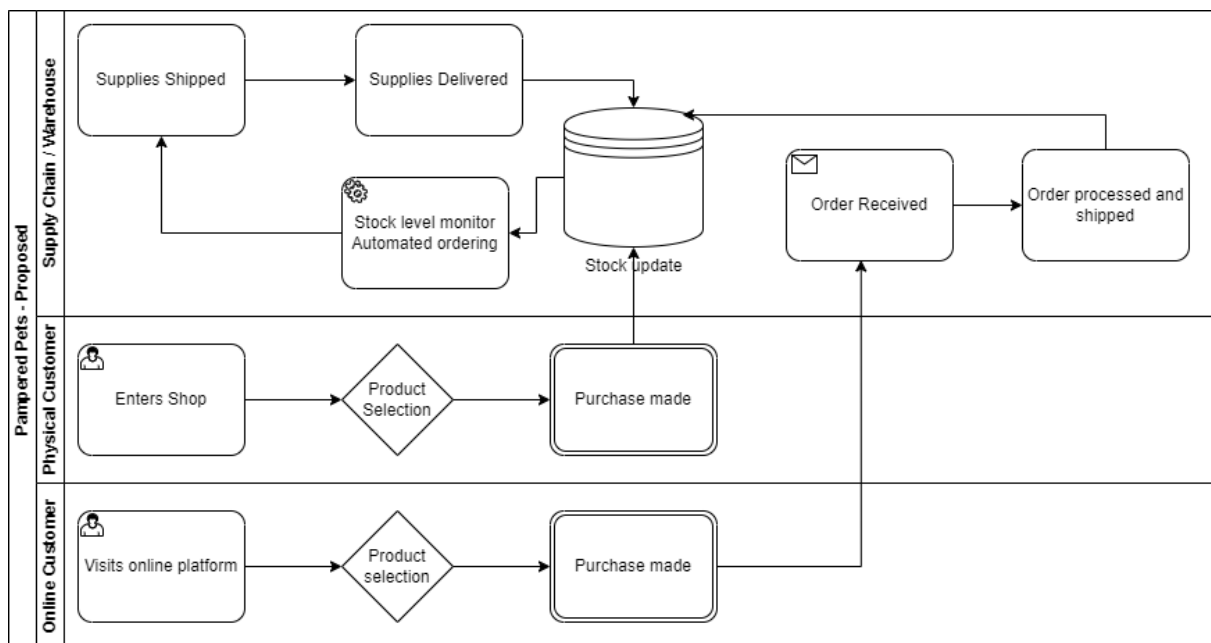


Figure 3: Proposed process for Pampered Pets

The benefits of Digitising the business and adopting an e-commerce platform are detailed in Appendix B, however it can be seen in Figure 3 that online purchasing has been simplified. It has however, increased the burden of work on the warehouse.

A risk assessment for a digital process, using a combination of STRIDE and OCTAVE (Shevchenko et al., 2018), has been produced (Figure 4), along with a more detailed attack tree in Appendix C. STRIDE and OCTAVE were chosen due to their easy application to a SME, whereas

models such as PASTA are more suited to larger, more mature organisations (Shevchenko et al., 2018).

Applying SWOT and ISO31000 (Shevchenko et al., 2018), these risks can be mitigated by:

**Cyber security:** To protect against cybersecurity threats such as data breaches and phishing attacks, comprehensive security measures should be implemented. This includes the installation of firewalls, antivirus software, and regular system updates. Additionally, all employees should receive training on cybersecurity best practices to ensure they are equipped to recognize and respond to potential threats.

**Operational:** To minimise disruptions during the digital transformation, a phased implementation approach is advised. Starting with backend systems, such as inventory management, and gradually progressing to customer-facing platforms will help maintain operational stability. Pilot tests should be conducted to identify and address any issues early in the process, ensuring a smooth transition.

**Employee Engagement:** Employee involvement is crucial for the success of digital transformation. Engaging employees from the planning stage onward will help mitigate resistance to change. Continuous training and support should be provided to ensure all staff members are comfortable with the new systems, thereby maintaining productivity throughout the transition.

**Supplier and Supply Chain:** When considering international suppliers, it is essential to conduct thorough vetting and maintain a balanced mix of local and international sources. This approach will help mitigate supply chain risks. Additionally, developing contingency plans to address potential disruptions is recommended to ensure continuity in supply.

**Customer Retention:** Developing a robust e-commerce platform is critical to meeting customers' digital expectations. This platform should be complemented by targeted digital marketing campaigns designed to drive traffic and retain customers who might otherwise be lost due to the absence of online services.

**Brand Integrity:** As Pampered Pets expands internationally, maintaining strict brand guidelines is essential to prevent brand dilution. Partnering with local suppliers who align with the brand's values will help preserve the company's reputation and core identity in new markets.

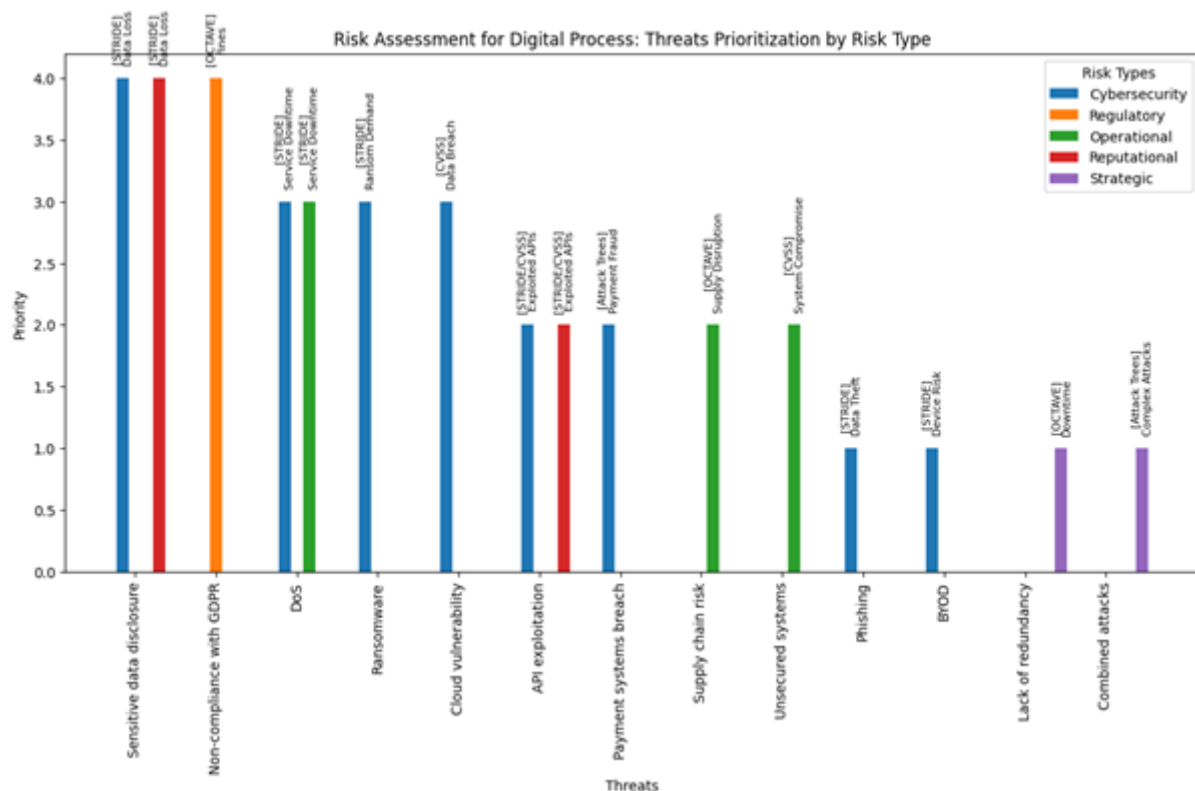


Figure 4: Risk assessment for the digital process. A 5-point context has been applied to severity.

#### 4. Project Outline

To mitigate many of the transition risks, a phased implementation is proposed. Phases 1 – 4 relate to digital transformation and will rely on significant investment. Any increase in profits can be re-invested to fund phases 5 & 6. Investment will be required for recruitment as outlined in Figure 6, however, additional premises can be funded with profits.

Due to the increased workload in the warehouse, it is recommended that additional staff are employed to fulfil on-line orders. Additionally, someone should be appointed as e-commerce / IT manager to ensure the digital risk mitigations are followed.

Phase Name	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12
Phase 1 - Physical Infrastructure												
Phase 2 - e-Commerce Set-up												
Phase 3 - Staff Training												
Phase 4 - Launch e-commerce												
Phase 5 - Staff and Premises upgrades												
Phase 6 - Update Supply Chain												
Phase 0 - Review suppliers												

Figure 5: Phased implementation of e-commerce.

During the entire process of digital transformation, it is suggested that Pampered Pets begin reviewing their suppliers. As demand for the products increases, so does the risk of supply chain interruptions, however Pampered Pets has a reputation for high-quality products, and this quality of product must be maintained.

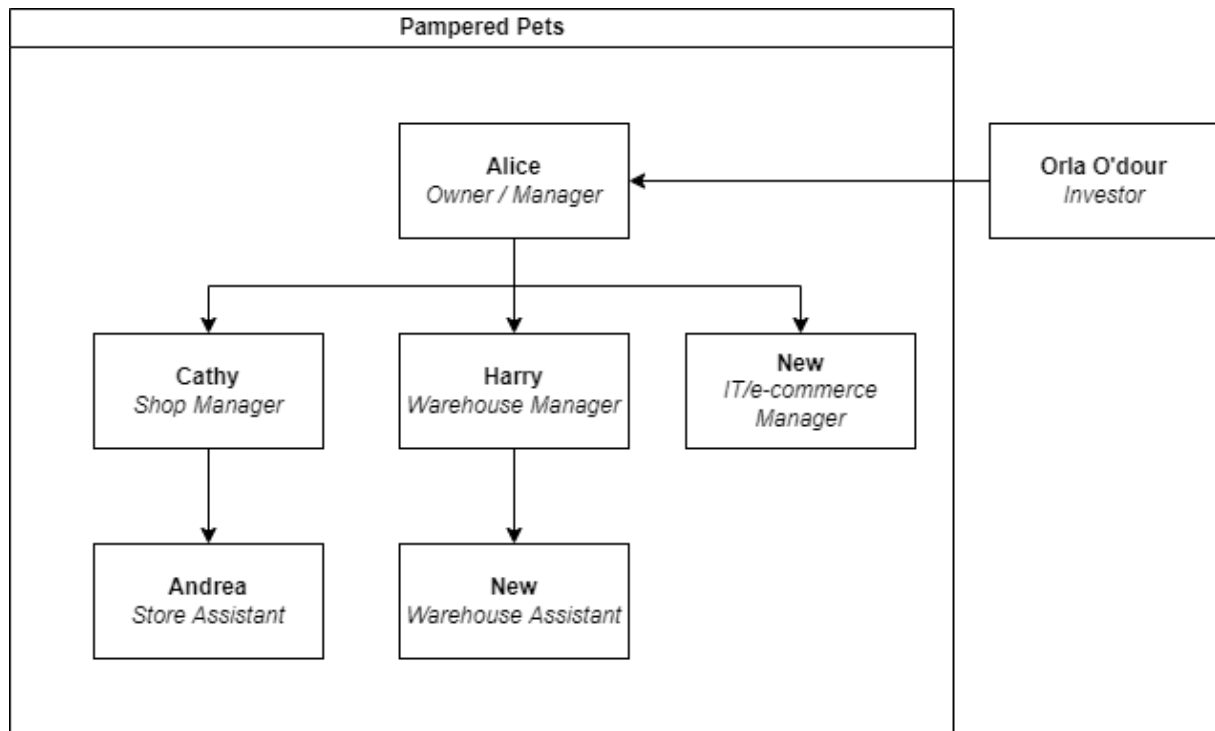


Figure 6: Proposed new organisational structure.

## 5. Conclusion

We recommend that Pampered Pets invest in an e-commerce platform to access at least an additional 6.6% of the market.

We also recommend that suppliers are reviewed to find savings where possible, however, quality control should be improved to ensure that the existing brand is not damaged in any way.

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## Appendix A – Risk Assessment Methodology

Using threat modelling techniques such as STRIDE, OCTAVE, Attack Trees, and CVSS, the analysis identifies and prioritises threats by considering cybersecurity, regulatory, operational, reputational, and strategic risks.

### Types of Risks Considered

- **Cybersecurity Risks:** These threats compromise digital systems, including hacking, ransomware, and security breaches (Vázquez-Ingelmo et al., 2020).
- **Regulatory Risks:** Non-compliance with regulations like GDPR, which could result in financial penalties and harm to reputation (Kuner et al., 2020).
- **Operational Risks:** These threats impact the continuity of operations, such as service disruptions and supply chain issues (Shostack, 2014).
- **Reputational Risks:** Impact on customer perception, primarily due to data breaches or service interruptions (Management Solutions, 2021).
- **Strategic Risks:** Threats that affect the company's ability to digitally evolve and meet customer demands (Anderson, 2020).

## Appendix B – Benefits of Digitalisation and e-commerce

There are several benefits to digitising workflow, one of which has already been realised – digital stock take and transaction recording makes accounting and tax returns simpler and easier.

In addition to the digitalisation of existing practices, moving to an e-commerce platform can provide additional benefits. Verhoef et al. (2021) identify three main driving factors for a bricks-and-mortar business adopting e-commerce:

1. **Financial** - E-commerce accounted for approx. \$4.8trillion in 2021, which accounts for around 10% of all retail purchases (Dolfen et al., 2023). AI and Automation also provide opportunities for efficiency savings.
2. **Competition** – more and more businesses are moving online. Verhoef et al. (2021) cite the rise of online services such as Amazon, combined with the failure to respond to the changing market, as a contributing factor to the bankruptcy of retail stores such as Toys ‘R’ Us.
3. **Consumer behaviour** - with the availability of online reviews, consumer behaviour is changing, empowering the customer to make more informed decisions.

In 2022, the UK pet food market was valued at £9.9 billion. Additionally, the online share of the pet food market is estimated to be about 3.6% in 2022, and expected to grow to 6.6% by 2027 (Shahbandeh, 2024).

## Appendix B – Pampered Pets Attack Tree