



TsukiCo Technology Strategy 2024

Transforming smart living through a
intuitive and personalized application



INFS5731

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TsukiCo is a leader in the smart home industry in Australia & New Zealand, offering high-functionality products with elegant designs at affordable prices. It has proven that creating a modern smart home doesn't have to be expensive. By managing multiple smart home devices in a single mobile app, TsukiCo delivers significant value to customers, strengthens its market position, and transitions towards an ecosystem-based business model.

This strategy has proven successful, resulting in increased market share. However, the rapid growth in customers has outpaced their IT infrastructure capability. While the mobile app has effectively gathered customer feedback and provided basic functionality, it currently lacks the capacity to manage growing user demands and data processing needs as its development is still in the early stages.

The smart home market revenue is projected to grow 8.7% annually and reach AU\$8.2bn by 2028 (Statista 2024). As the category matures, smart home products are expected to have longer lifespans,

reducing the replacement rate (Koenig 2023). Therefore, TsukiCo must future-proof its customer retention through a robust digital and business strategy.

TsukiCo is currently facing 3 critical challenges: limited data storage and processing capacities, misalignment between business and technology strategy, and an undefined technology vision. As mentioned in the problem statement, TsukiCo is committed to pursuing 3 strategic objectives in the next 5 years: developing a new app to provide a personalised & top-notch user interface, shifting into a cloud-based platform, and redesigning its IT governance framework as well as operating model.

After extensive research, we propose that positioning the **development of the new app as a flagship project would aid in achieving the other two strategic objectives**. This initiative will not only define the cloud computing requirements for the new system but also serve as a practical testing ground for the revamped IT governance framework.

"development of the new app as a flagship project would aid in achieving the other two strategic objectives."

Adapting to Current Industry and Technology Advancements

Smart Home Technology Revolution (PwC 2021)

Smart Home 1.0

Standalone devices such as smart speakers & robotic cleaners are developed to address specific needs.

Smart Home 2.0

Diverse advanced smart products are integrated within a single ecosystem through an application

Smart Home 3.0

Smart products are customizable & update automatically

Technology Trend Development (McKinsey 2022)

Connectivity technologies like optical fiber, Wi-Fi 6, 5G/6G, LEO satellites ensure real-time device management & seamless integration with smart home systems, regardless of location.

Enhance performance, scalability, analytics, and security through **edge networks and hybrid cloud configuration**.

Application of AI has unlocked new capabilities and opportunities using classification, prediction, and control capabilities through machine learning algorithm e.g. **Natural-language processing**.

Evolving User Needs

Smart home ecosystems fulfill diverse and complex emotional needs. As living standards have significantly improved, users now seek satisfaction beyond basic functionalities (PwC 2021).

We identified key areas of customer value and reasons for using smart home devices.

By understanding these preferences, TsukiCo can develop a smart home app that offers a highly intuitive user experience.

Smart home primary use (Australian Competition & Consumer Commission 2023; PwC 2021)

Convenience

- Automation
- Routine
- Remote control
- Touchless control

Energy Efficiency

- Usage optimisation
- Adaptive control
- Real-time monitoring

Improved Security

- More control
- Remote monitoring
- Alert & Notification

Entertainment

- Novelty
- Immersive experience
- Options availability

Health

- Hygiene
- Cleanliness
- Fitness
- Purifier

Smart Home User Persona

(PwC 2021)



Name: Sarah Thompson
 Age: 32
 Occupation: Marketing Manager
 Location: Sydney, Australia
 Tech-savvy: Moderate
 Smart Home Experience: Beginner to Intermediate

Sarah recently purchased several TsukiCo smart home devices, including a robot vacuum cleaner, smart lighting, and a digital door lock. She's excited about building her smart home ecosystem but finds the current app frustrating to use.



Name: Ethan Chen
 Age: 10
 Location: Melbourne, Australia
 Tech-savvy: High (digital native)
 Smart Home Experience: Beginner

Ethan, a tech-savvy 10-year-old, received a TsukiCo smart speaker for his birthday. Fascinated, he convinced his parents to add smart bulbs and a door sensor to his room. Now, Ethan experiments with voice commands and simple routines, turning his bedroom into a mini smart home playground.



Names: Robert and Linda Carlson
 Ages: 48 and 52
 Occupations: Accountant (Robert) and Small Business Owner (Linda)
 Location: Brisbane, Australia
 Tech-savvy: Moderate (Robert), Low to Moderate (Linda)
 Smart Home Experience: Beginner to Intermediate

Robert and Linda, nearing retirement, embraced smart home technology to modernize their empty nest. Initially skeptical, they've grown to appreciate the convenience and security TsukiCo devices offer. They're now eager to explore more advanced features, balancing Robert's tech enthusiasm with Linda's practical approach to enhance their daily lives.

Industry benchmark & competitive landscape analysis

Based on the identified usage, common features from competitors include: **remote control, notifications & alerts, automation, and voice control integration.**

By offering a blend of the best features from industry leaders while adding unique functionalities, TsukiCo will strengthen its market position .

| | Xiaomi | Google Home | Philips Hue |
|-------------------|--|---|---|
| Convenience | Voice Control Integration, Device Management, Automation | Native Voice Control, Routines | Voice Control Integration, Remote Control, Routines |
| Energy Efficiency | Energy Monitoring, Remote Control | Energy Monitoring, Auto Adjusting | Routines |
| Improved Security | Notifications & Alert Remote Control, Stream Video | Notifications & Alert Remote Control, Stream Video | Notifications & Alert Remote Control, Stream Video, Automation |
| Entertainment | Voice control | Voice control | Voice control |
| Health | Monitoring, Reminder | Monitoring, Reminder & Alert | Monitoring, Automation |

As TsukiCo IT/IS evolves, it's shifting from a reactive approach to strategic focus on medium-term market positioning (appendix 3). **The goal is to not only compete but surpass competitors** by leveraging emerging technologies and developing top notch features that align with user demands.

To achieve this, TsukiCo aims to enhance its value proposition through a cost leadership strategy and ecosystem business model.

Given that TsukiCo is a SME with limited resources, we propose focusing on technologies and features that meet the criteria below:

- **Technologies that are not just hype but will deliver tangible business value** (appendix 6).
- **Proven technologies that have the potential to capture a large market share.**
- **Technologies essential for enabling or sustaining TsukiCo's current and future strategies.**

Prioritised Features to match competitors:

Remote Control

Notifications & Alert

Automation

Voice Control Integration

Promising Features to overcome competitors:

Self learning & auto adjusting

TsukiCo must evolve its "Smart Home 2.0" quality to match current industry standard, with the ultimate objective of achieving "Smart Home 3.0".



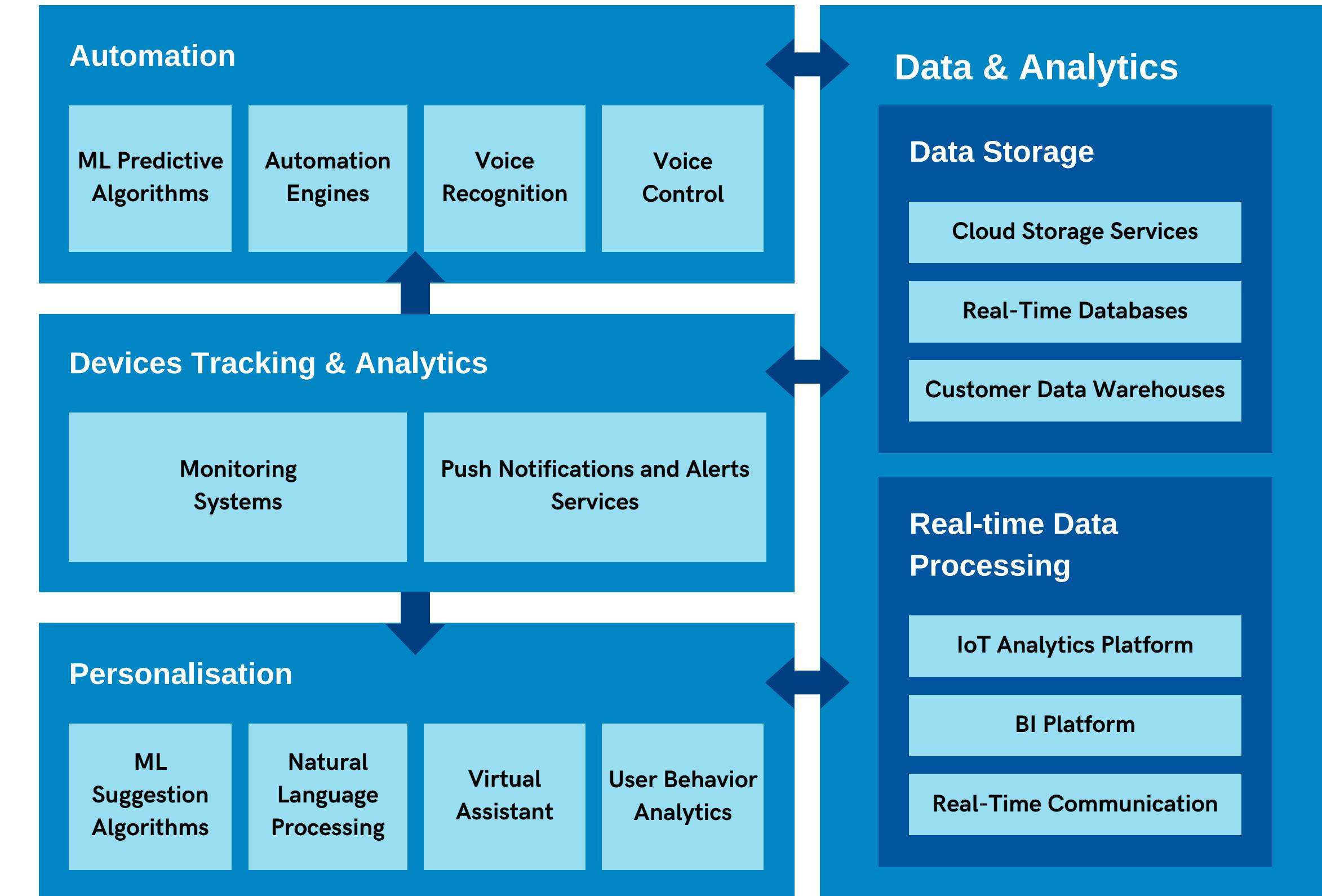
Proposed Vision & Core Values

"To revolutionise the smart home experience by creating an intuitive, data-driven, and highly personalised app, empowering users to effortlessly control, optimise, and automate their ecosystem."

| Core Values | Significance |
|------------------------------|---|
| Enhanced UI/UX | A sleek and user-friendly design ensures easy navigation and accessibility for all users. |
| Personalised experience | Storing customer preferences and usage patterns to tailor the experience, providing custom suggestions for device settings. |
| Data-driven device analytics | Detailed analytics on usage, helping users understand their consumption patterns and optimise usage. |

The app architecture to deliver the vision and core values to TsukiCo's users

TsukiCo's new application will focus on providing three main capabilities: **Automation**, **Devices Tracking & Analytics**, and **Personalization**. These capabilities will be supported by robust **Data & Analytics** technologies covering multiple use case.



Technologies Portfolio for TsukiCo's application after 5 years

In the next 5 years, TsukiCo will focus on **Machine Learning Algorithms** and **Natural Language Processing** to create competitive advantages. To further strengthen their position in the Australian smart home market, they will research on **Cloud Storage Services**, **Real-time Databases**, and **Virtual Assistant**.

STRATEGIC

- ML Predictive Algorithm
- ML Suggestion Algorithm
- Natural Language Processing

HIGH POTENTIAL

- Cloud Storage Services
- Real-time Databases
- Virtual Assistant

- Automation Engines
- Monitoring Systems
- User Behavior Analytics
- IoT Analytics Platform
- BI Platform
- Customer Data Warehouses

KEY OPERATIONAL

- Voice Recognition
- Voice Control
- Push Notifications and Alerts Services
- Real-Time Communication

SUPPORT

Technology Implementation Costs (Estimated)

Total cost: \$350,000

| | Outsource (\$150,000) | In-house (\$50,000) | Backsource (\$100,000) |
|--------------|--|--|--|
| Technologies | 1. IoT Analytics Platform 2. BI Platform 3. Cloud Storage Services 4. Real-time Databases 5. Virtual Assistant 6. Voice Recognition 7. Voice Control 8. Push Notifications and Alerts Service 9. Real-Time Communication | 1. Automation Engines 2. Monitoring System 3. User Behavior Analytics 4. Customer data warehouse | 1. ML Algorithm Predictive 2. ML Suggestion 3. Natural Language Processing |
| Rationale | Access to specialised expertise, cost efficiency, latest advanced technology & tools, compliance & regulatory requirements. | Direct insight & management of customer data will allow TsukiCo to align business objectives and use of customer data and insight both in short & long-term. | All tech is important, but we assume TsukiCo lacks expertise and competency to develop it by themselves. |

Cost - Benefit Matrix

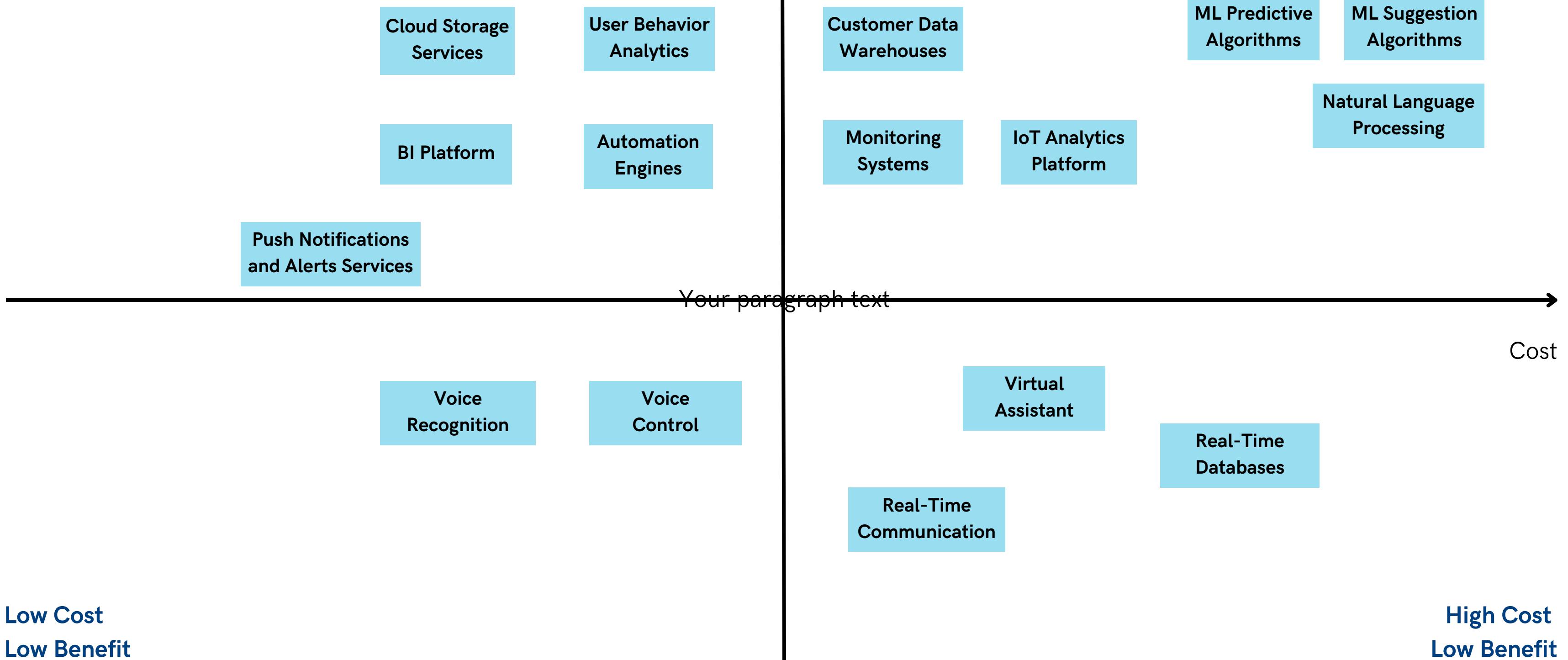
**Low Cost
High Benefit**

**High Cost
High Benefit**

Benefit



Cost



**Low Cost
Low Benefit**

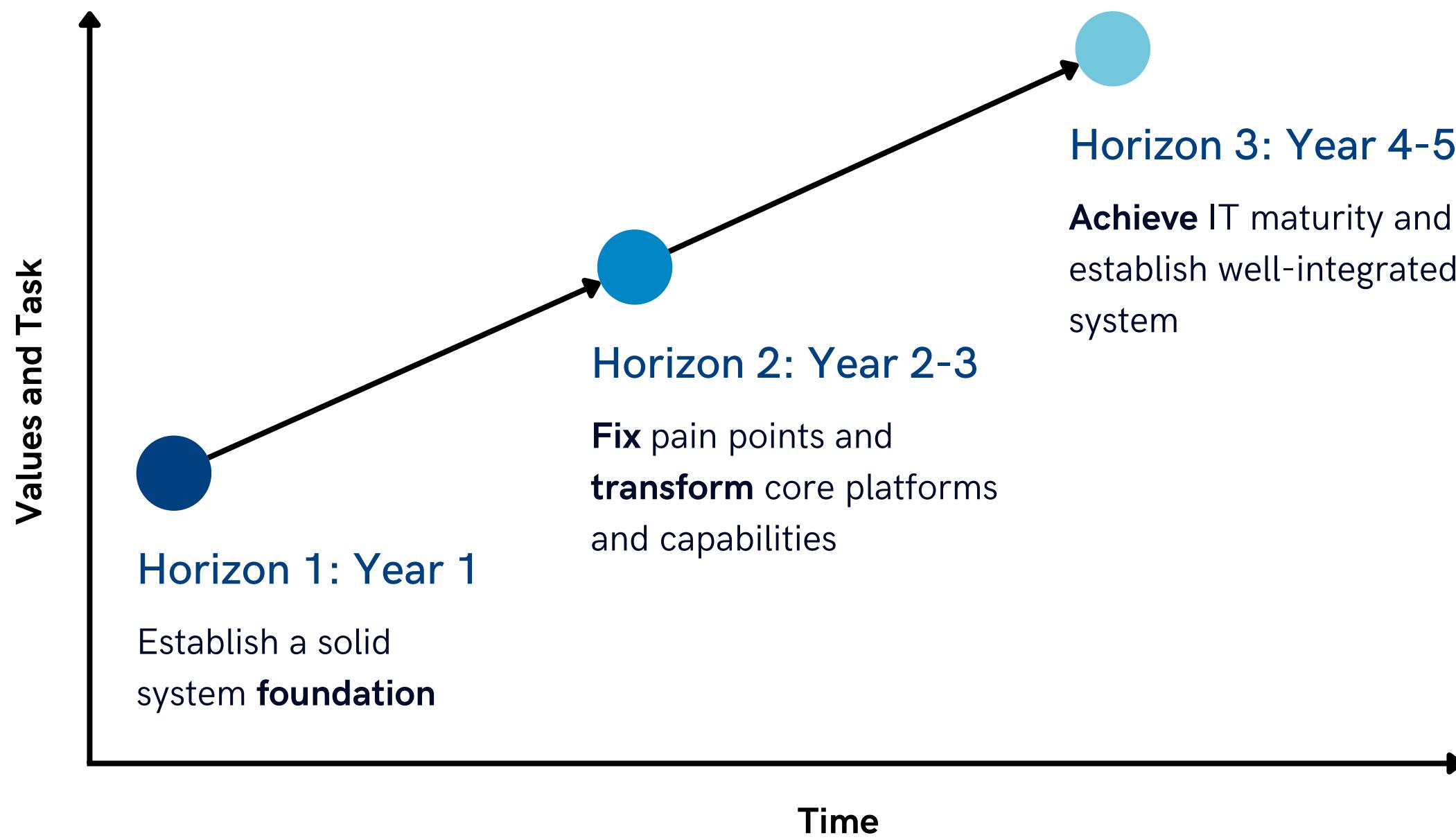
**High Cost
Low Benefit**

Development Process & Maintenance Costs (Estimated)

Total cost: \$185,000

| Project management (\$30,000) | Design and Prototyping (\$5,000) | Testing and Quality Assurance (\$20,000) | Security (\$50,000) | Maintenance (\$50,000) | Employee Training & Customer education (\$20,000) |
|---|--|--|---|--|---|
| <ul style="list-style-type: none"> 1. Kick-off meeting with stakeholders 2. Planning & business analysis 3. App design-research 4. Finalize launch plan 5. Marketing and branding activities | <ul style="list-style-type: none"> 1. UI design 2. Architecture planning 3. Create wireframes and prototypes 4. Get feedback and iterate | <ul style="list-style-type: none"> 1. Functional testing 2. Performance testing 3. Security testing 4. User acceptance testing (UAT) 5. Bug fixing and optimisation | <ul style="list-style-type: none"> 1. Simulation & System audit (Independent assessments) 2. Encryption (Service) 3. Patch management 4. Anti-virus & Malware detection 5. Cyber Insurance | <ul style="list-style-type: none"> 1. System performance & Monitoring 2. Server Cost 3. Code Optimization 4. System Updates & Upgrades | <ul style="list-style-type: none"> 1. Training Guidelines and Instruction 2. Workshops 3. IT support |

The Development Horizons



Horizon 1

- Application Development and Launch
- Brand Positioning and Marketing
- Risk Assessment and Management
- Data Integration
- App Performance Metrics
- User Feedback Collection

Horizon 2

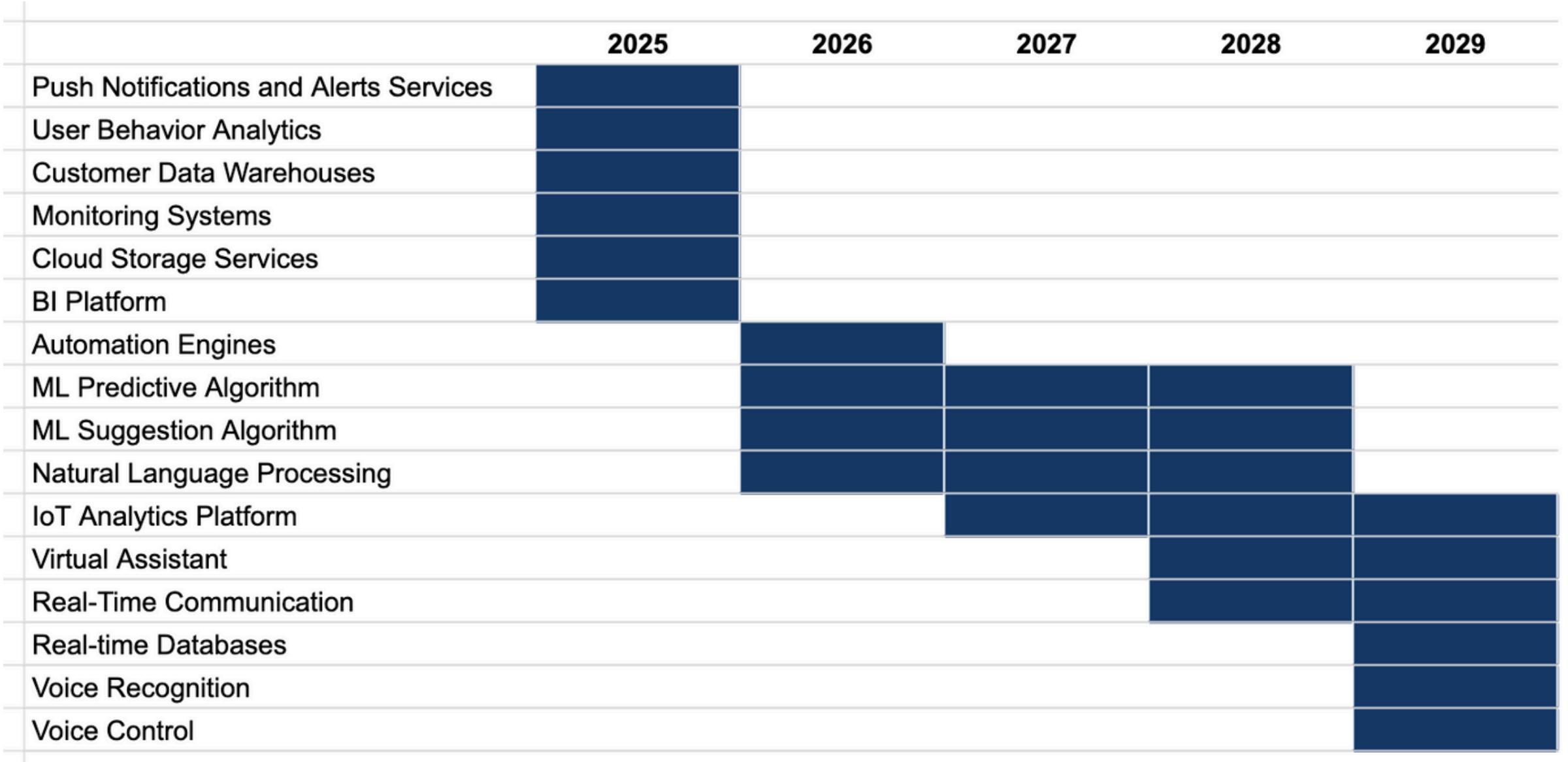
- Technology Upgrades and Innovation
- Strategic Partnerships
- Talent Acquisition and Development
- Stakeholder Communication
- Customer Support
- Risk Mitigation Strategies

Horizon 3

- Continuous Innovation
- Risk Mitigation Strategies
- Customer Support
- Application Consolidation and Modernization

Technology Implementation 5 Year Roadmap

From the Appendix 5:
Cost - Benefit Matrix and
level of importance, the
technologies are
prioritised and arranged in
a 5 years roadmap.



Risks & Challenges

As TsukiCo plans to launch a new app, they must be aware of several technical and operational risks & challenges that require mitigation plans.

TsukiCo should establish **robust data backup and recovery processes**, **accurately document protocols and standards**, and develop a minimum viable application to test core functionalities and **gather user feedback early**.

Regular user acceptance tests will help identify and resolve issues, ensuring the app meets user expectations. **Maintaining consistent communication with internal and external stakeholders** will keep everyone informed, aligned, and engaged throughout the project to ensure a successful implementation.

IT&IS (Technical)

System Integration and Data Migration

- Inconsistent data formats
- Data corruption or loss
- Compatibility Issues

Third-Party

- Blind Trust
- Miscommunication/ Misunderstanding
- Shared-responsibility (Unclear Accountability)

Security & Privacy

- Data Breach
- Infrastructure Failures
- Privacy Compliance
- IT/IS Governance

Operational (Business)

Operational Risks

- Internal Team Collaboration
- Customer Support Pressure
- Development Delays
- Change Management

Financial Risks

- Additional Compliance Costs
- Cost Overruns
- Post-Launch ROI

User Acceptance

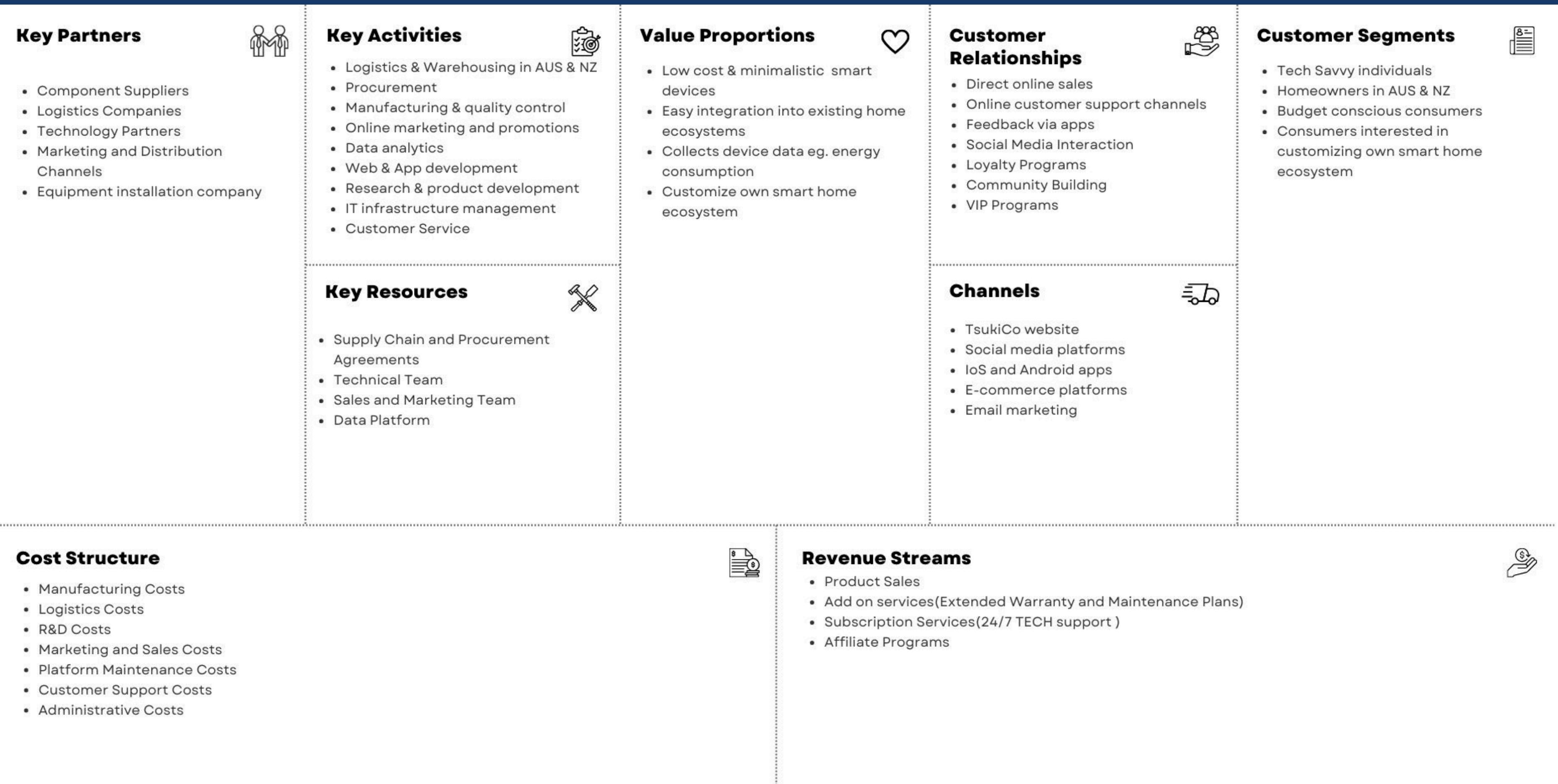
- User Resistance
- Long Learning curve

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Appendices

Appendix 1: Business Model Canvas



Appendix 2: PESTEL Analysis

| | | |
|---|--|---|
| P | <ul style="list-style-type: none">• Australia-China trade relations.• Australian and New Zealand regulatory compliance• Tariffs and taxes |  |
| E | <ul style="list-style-type: none">• Market growth 2023: \$2.5B => \$3.7B. CAGR: 8.7% (2024-2028)• 7.6M out of 10.4M household• Cost decrease of smart home device• Cost of living pressure |  |
| S | <ul style="list-style-type: none">• Growing consumer adoption.• Raising awareness on data privacy.• Varying levels of digital literacy.• Growing demand for personalised experiences |  |
| T | <ul style="list-style-type: none">• Gen AI voice/virtual assistant• IoT integration / Homebots• Analytics & Alert• IoT Security, authentication |  |
| E | <ul style="list-style-type: none">• Demand for energy-efficient products.• Growing awareness of environmental sustainability |  |
| L | <ul style="list-style-type: none">• Product Safety Standards.• Data Privacy Regulations.• Consumer Protection Laws.• Intellectual Property. |  |

Appendix 3: Maturity Model

Phase 1

- Annual cash flow and budgeting
- No prediction, only reacting

Phase 2

- Short-term prediction 1-3 years
- Gap analysis
- Based on historical performance

Phase 3

- Industry Competition understanding
- Understand threats & how to gain advantages
- New app development

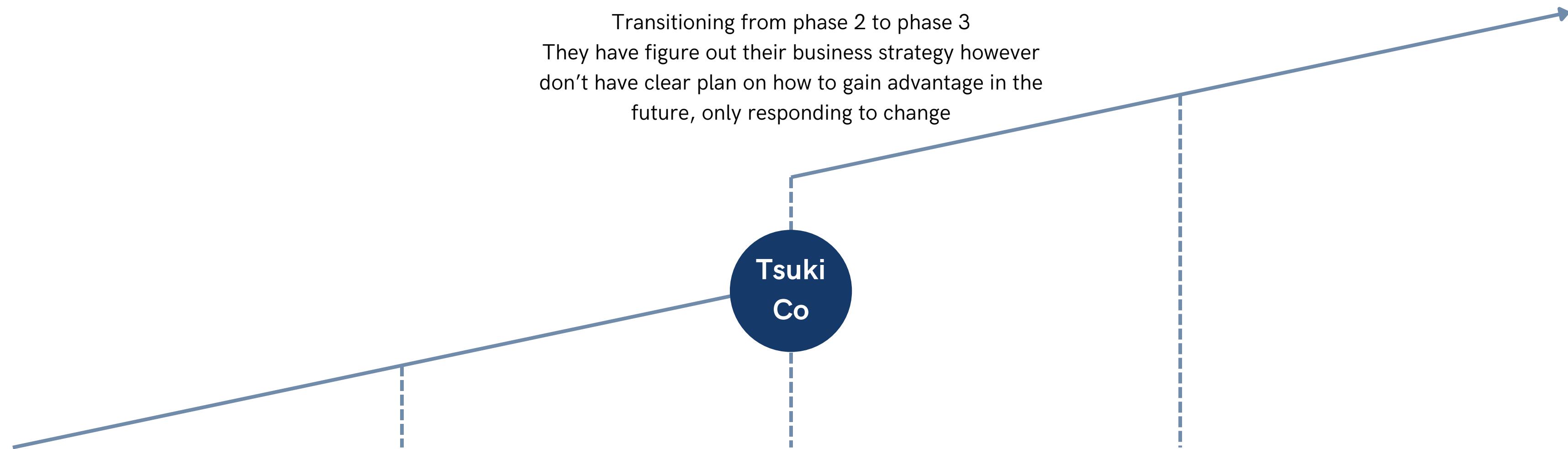
Phase 4

- Well-defined and organised strategy
- Dynamic capabilities
- Innovation driven
- Able to create changes
- Able to react quickly to changes

Transitioning from phase 2 to phase 3

They have figure out their business strategy however don't have clear plan on how to gain advantage in the future, only responding to change

Tsuki
Co



Appendix 4:

Persona & Application Use Case

| App Installation and Login | Device Discovery and Connection | Device Configuration | Routine Creation | Notifications and Alerts Setup | Data Analytics and Insights | Remote Access and Security | Health and Cleanliness Optimization | Troubleshooting |
|---|---|---|--|---|---|---|--|---|
| <p>Step Details:</p> <ul style="list-style-type: none"> Sarah downloads the new TsukiCo app from the App Store. She opens the app and sees a welcome screen with options to log in or create a new account. Sarah selects "Existing User" and is prompted to enter her email and password. The app recognizes her old account credentials and offers to import her existing device data. <p>Requirements:</p> <ul style="list-style-type: none"> Seamless database migration/connection from old app to new app Remember login feature with appropriate security measures | <p>Step Details:</p> <ul style="list-style-type: none"> Sarah is guided to a "Add Devices" screen after login. The app automatically scans for nearby devices. A list of discovered devices appears, including Sarah's smart speaker, robot vacuum, smart lights, and digital door lock. Sarah selects all devices and taps "Connect All". The app provides real-time feedback on the connection status of each device. Once all devices are connected, Sarah setting up all devices to be able controlled remotely via app and voice. Sarah tests a command: "Hey TsukiCo, turn on the living room lights." The lights turn on, and the app shows a success message for the voice integration. <p>Requirements:</p> <ul style="list-style-type: none"> Multi-device discovery using Bluetooth & Wi-Fi Batch device connection feature Support connection type for diverse device types (smart speakers, robot vacuums, lights, locks, etc.) Feedback on connection progress and status Option to manually add devices if automatic discovery fails Real-time data processing Voice command configuration and testing feature within the app | <p>Step Details:</p> <ul style="list-style-type: none"> The app guides Sarah to the "Devices" section to configure her smart home. She starts with light configuration for her lamps. A list of discovered devices appears, including Sarah's smart speaker, robot vacuum, smart lights, and digital door lock. Sarah selects foyer, kitchen, and living room lights, setting them to warm white color. Sarah going to input "Pattern 1" but the app have area selection, sarah choose kitchen, living room, and foyer. The name automatically change to "Light - Kitchen, Living Room & Foyer" The app also suggests an energy-saving automation: "Would you like to turn off all lights when no motion is detected for 30 minutes?" Sarah agrees, and the app sets up this automation rule. Next, she configures her vacuum robot, covering the kitchen and living room and name it "Vacuum - Kitchen & Living Room" The app suggests optimal settings based on room size and floor type. Sarah also sets the air purifier to "Auto" mode, allowing it to adjust based on air quality. <p>Requirements:</p> <ul style="list-style-type: none"> Ability to group devices and create custom patterns/areas Integration with device mapping capabilities Auto adjusting device settings capability Option to save and name configurations Automatic pattern/area naming based on selected rooms with option for user customization Remote monitoring and control multiple devices Ability to apply settings across multiple devices | <p>Step Details:</p> <ul style="list-style-type: none"> Sarah navigates to the "Routines" section of the app. She creates an "Office" routine, scheduling all lights to turn off and the robot vacuum to clean "Vacuum - Kitchen & Living Room" at 3 PM. Sarah then creates an "Arrive Home" routine to unlock the digital door lock, set air purifier to "Max", and activate "Light - Kitchen, Living Room & Foyer" lighting. Sarah enable voice command for the "Arrive Home" routine <p>Requirements:</p> <ul style="list-style-type: none"> Voice command integration for routine activation Integration with device patterns/areas created earlier AI-powered suggestions for routine optimisation Ability to simulate routines before saving Support for multi-device actions within a single routine | <p>Step Details:</p> <ul style="list-style-type: none"> Sarah enables alerts for unexpected motion detection, air quality changes, and device malfunctions. She sets quiet hours from 10 PM to 7 AM for non-critical notifications. The app suggests setting up a low battery alert for the door lock, which Sarah accepts. <p>Requirements:</p> <ul style="list-style-type: none"> Customizable alert system for various device events Ability to categorize notifications as critical or non-critical Quiet hours feature with customizable time ranges Granular control over notification types for each device Low battery alerts for battery-powered devices Ability to simulate routines before saving Support for multi-device actions within a single routine | <p>Step Details:</p> <ul style="list-style-type: none"> Sarah accesses the "Insights" dashboard in the app. She views a breakdown of energy consumption by device and room. The app presents usage patterns for her vacuum robot and suggests optimizing its schedule. Sarah accepts the recommendation to change the cleaning schedule to Mondays and Thursdays. The app shows projected energy and time savings based on this change. Sarah notices that the air purifier has been running more often and checks the air quality history. <p>Requirements:</p> <ul style="list-style-type: none"> Energy consumption tracking and historical data Machine learning algorithms for pattern recognition and optimization Actionable recommendations with projected benefits Notification history log for reviewing past alerts Quick-action buttons within notifications for immediate response to alerts History log for reviewing past activity | <p>Step Details:</p> <ul style="list-style-type: none"> While at work, Sarah receives an alert about unexpected motion at home. She opens the app and navigates to the security camera feed. Sarah reviews the routine, which includes scheduled vacuum cleaning, air purifier activation based on air quality, and humidity control. She accepts the routine and asks the app to start it immediately via voice command. The app confirms the routine has begun and shows real-time status of each device's activity. <p>Requirements:</p> <ul style="list-style-type: none"> Secure remote access to live security camera feeds Ability to remotely arm/disarm the security system Remote activation of individual smart home devices Able to save and review security camera footage Customizable motion detection sensitivity to reduce false alarms Activity log to track all remote actions and security events Ability to share limited access with trusted contacts for emergency situations Integration with AI to potentially identify common false alarm triggers | <p>Step Details:</p> <ul style="list-style-type: none"> The app notifies Sarah that it has created a "Clean Home" routine based on her usage patterns. She navigates to the "Help & Support" section in the app. Sarah reviews the routine, which includes scheduled vacuum cleaning, air purifier activation based on air quality, and humidity control. Unable to find a solution, Sarah initiates a customer service request through the app. She can choose between chat support, video call, or scheduling a technician visit. She also grants temporary remote access to the support team for diagnostics. <p>Requirements:</p> <ul style="list-style-type: none"> AI-powered suggestions for usage optimisation Ability to customize AI-generated routines before accepting Voice command integration for routine activation Real-time status tracking for active routines Individual device status updates within a running routine Adaptive scheduling for routine activities based on environmental factors Historical data logging of routine executions and their effects Ability to set conditions for routine activation | <p>Step Details:</p> <ul style="list-style-type: none"> Sarah notices her digital door lock is malfunctioning. She navigates to the "Help & Support" section in the app. The app presents a list of common issues for her specific door lock model. Unable to find a solution, Sarah initiates a customer service request through the app. She can choose between chat support, video call, or scheduling a technician visit. She also grants temporary remote access to the support team for diagnostics. <p>Requirements:</p> <ul style="list-style-type: none"> AI-powered chatbot for initial troubleshooting Integration with customer service platforms (chat, voice, video) Secure, temporary remote access granting system for support team Integration with device warranty information and service history Privacy controls for sharing device data and granting remote access |

Appendix 6: Hype Cycle

