

Project: VoiceCAD-AI

Product Development Plan

Authors

1. Anish Kulkarni
2. Mehrad Haghighat
3. Aashay Shah
4. Atharva Deshpande
5. Diya Shah

Abstract

This Product Development Plan for VoiceCAD AI outlines a phased approach to achieving sustainable growth and market readiness. The plan is structured across three time ranges - Short-Range (0-2 years), Mid-Range (2-6 years), and Long-Range (6-10 years) - with each phase focusing on specific objectives and milestones aligned with our sales forecast and operational requirements. In the short term, initial development and ERP setup are prioritized to establish a foundational market presence. The mid-range plan focuses on product enhancements, MRP integration, and scaling operations to support anticipated rapid growth. Long-term objectives emphasize full ERP/MRP optimization for new product development and R&D, global reach, and high production efficiency. An aggregate planning solution supports resource allocation, production leveling, and cost management across all phases, enabling a dynamic response to market demands. This phased strategy positions VoiceCAD AI for sustainable expansion and competitive advantage in the evolving field of AI-driven CAD solutions.

Table of Contents

Authors.....	1
Abstract.....	1
Table of Contents.....	2
Sales Forecast Overview.....	3
Short-Range Planning.....	3
1. Product Finalization and Launch.....	3
2. Marketing and Sales Activation.....	3
3. Infrastructure and Digital Inventory Setup.....	4
4. ERP and MRP Foundational Setup.....	4
5. Customer Support and Retention Setup.....	4
Cost estimation and timeline overview.....	4
Mid-Range Planning.....	5
1. Supply Chain Optimization (2026-2028).....	5
2. Marketing Module Upgrade (2026-2028).....	5
3. MRP System Activation (2027).....	6
4. PM Module Expansion with Jira Integration (2027-2028).....	6
5. Staffing and Integration Needs (2026-2028).....	6
6. Service Provider Partnerships (2026-2028).....	6
7. Anticipating Plateauing Sales Forecast (2031-2032).....	7
Long-Range Planning.....	7
1. Research & Development (R&D) (2031-2032).....	7
2. New Products/Services (2031-2033).....	7
3. New Markets (2031-2032).....	7
4. Facility Locations (2031-2032).....	8
5. Capital Investments (2025-2035).....	8
Summary of ERP, MPS, and MRP in Long-Range Planning.....	8
Citations.....	8

Sales Forecast Overview

Based on Fig. (1), the product development planning is divided into three sections, namely, short-range (2025-2026), mid-range (2026-2031), and long-range (2031-2035). All these ranges tackle different challenges that are anticipated as the product grows into a diverse market on a large scale.

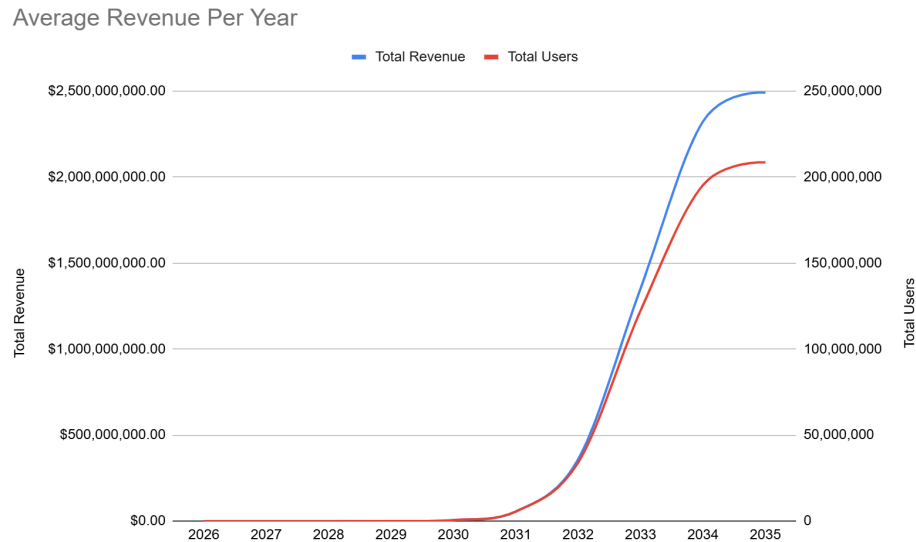


Fig. (1)

Short-Range Planning

Timeframe: 0-18 months

Objective: Leveraging ERP, PM tools, and basic IT systems to facilitate initial product launch, infrastructure setup, customer acquisition, and support scaling.

1. Product Finalization and Launch

- **Objective:** Complete product development and achieve early adoption by reaching 6,000 subscriptions within the first year.
- **Resources:** Product Development Team (3 AI developers, 1 CAD engineer), Support Staff (3 specialists)
- **Budget:** \$400,000
- **Tools:**
 - **ERP:**
 - CRM module to manage user interactions and feedback
 - Financial Management (FM) to track development costs,
 - Human Resources (HR) module to manage employee onboarding and salary
 - **Jira + Git:** Agile Project Management using Scrum boards manually set up by the Product Manager. Integrated with Git for version-controlled development.

2. Marketing and Sales Activation

- **Objective:** Drive customer acquisition to reach 3,000 subscriptions within six months, with a revenue target of \$750,000.

- **Resources:** Marketing Team, CRM System
- **Budget:** \$150,000 allocated to digital marketing campaigns and customer acquisition efforts.
- **Tools:**
 - **ERP:** Basic CRM to monitor early adopter behavior, track conversion rates, and adjust sales strategies.
 - **Microsoft Office:** Manual preliminary analysis using marketing team using MS Office tools like MS Excel, PowerBI, etc.

3. Infrastructure and Digital Inventory Setup

- **Objective:** Scale cloud storage, server infrastructure, and digital resources to ensure 95% uptime and support user growth.
- **Resources:** IT Infrastructure Team, Cloud Service Provider
- **Budget:** \$200,000 for scaling server capacity, storage, and securing software licenses.
- **Tools:**
 - **ERP:** Supply Chain Management (SCM) for real-time monitoring of cloud capacity and resource usage.
 - **Microsoft Office 365:** Enterprise License for MS Office for emails, documents, and tools.

4. ERP and MRP Foundational Setup

- **Objective:** Implement essential ERP modules to manage HR, CRM, finance, and order tracking efficiently.
- **Resources:** ERP Integration Team, Finance Team
- **Budget:** \$250,000 for ERP setup and integration.

5. Customer Support and Retention Setup

- **Objective:** Establish a dedicated customer support system and achieve a 15% improvement in user retention by year-end.
- **Resources:** Support Team (4 staff members), CRM System
- **Budget:** \$100,000 for hiring and training support staff.
- **Tools:**
 - **ERP:** CRM for tracking customer interactions, managing support tickets, and gathering user feedback.

Cost estimation and timeline overview

Fig. (2) showcases a breakdown of development costs to prototype and launch the first version of VoiceCAD-AI in the US market. The breakdown covers all costs mentioned in the short-range planning, including purchasing licenses for ERP systems, development tools, salaries, hardware, software, and other facility/utility costs.

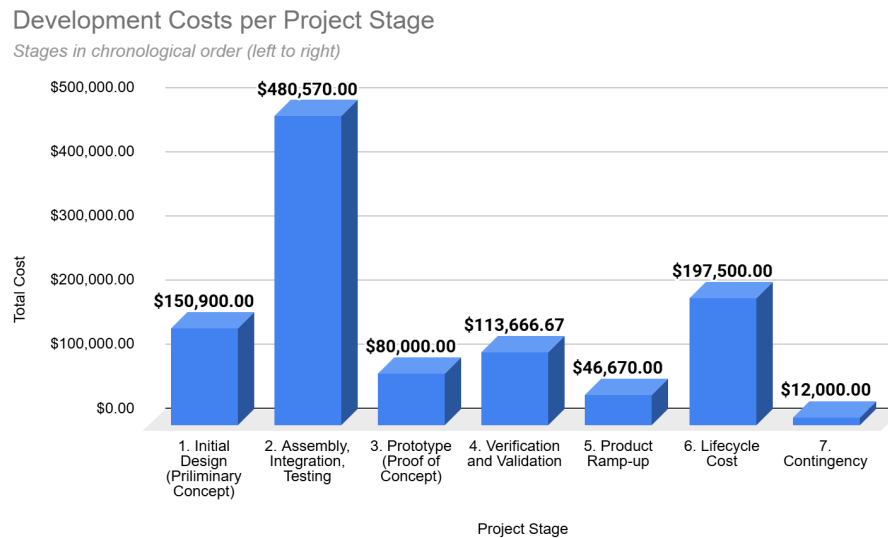


Fig. (2)

Mid-Range Planning

Timeframe: 2-5 years

Objective: To support exponential user growth by enhancing the ERP (Supply Chain Management and Marketing modules), launching the MRP (Material Requirements Planning) system, and integrating it with our project management (PM) system on Jira. This will ensure robust, data-driven decision-making for efficient operations through the mid-range planning period.

Prerequisites:

- Forecasted User Growth and Operational Requirements (2026-2030)
 - Key Metrics:
 - Initial Users (January 2026): 3,530
 - Projected Users (December 2030): 1,210,089
 - Compound Annual Growth Rate (CAGR): Approximately 330.3% per year

1. Supply Chain Optimization (2026-2028)

- **Objective:** To support real-time inventory management and demand forecasting for the rapidly increasing user base. This prevents stock-outs, estimated to save 10% in potential lost revenue (~\$292k by the end of 2028).
 - SCM Capacity (January 2026): 3,530 users
 - Target SCM Capacity (December 2028): 24,408 users
- **Resources:** Marketing team, administration, and finance team
- **Budget:** \$50,000^[1]
- **Tool:**
 - **ERP:** Upgrading SCM module to support rapid increase in users

2. Marketing Module Upgrade (2026-2028)

- **Objective:** Enhance targeted campaigns and analytics for user acquisition and retention as the user base grows exponentially.
- **Expected Impact:**

- **Conversion Rate:** 15% improvement, translating to an estimated additional 3000 new users monthly by 2028.
- **Churn Rate Reduction:** From 35% in 2026 to 25% by 2028, significantly improving user retention.
- **Budget:** \$550,000 for comprehensive marketing analytics integration and automation tools.

3. MRP System Activation (2027)

- **Objective:** Ensure production aligns with exponential demand growth
 - **Live Users:** Current user data (projected 4,019 users in January 2027)
 - **Forecasted Users:** Projected growth to 10,000 users by December 2027
 - **Live Production Costs (BOM):** Real-time Bill of Materials for accurate cost estimation
- **Resources:** Operations and Product Management Team
- **Budget:**
 - Initial Software Setup: \$50,000^[2]
 - Training: \$150,000 for comprehensive onboarding and team training sessions.

4. PM Module Expansion with Jira Integration (2027-2028)

- **Objective:** Seamless data flow to facilitate issue tracking, task allocation, and project timelines across teams.
 - **Target Go-to-market Time Reduction:** 25%, translating to a productivity gain of approximately \$300k annually by 2029.
 - **Facilitate Data-Driven Decision-Making:** Enhanced analytics for quicker insights and responsive adjustments to project scopes.
- **Resources:** Solution Architects, ERP Integration Team, IT team
- **Budget:** \$10,000

5. Staffing and Integration Needs (2026-2028)

- **Objective:** Meet exponential growth and integration demands, anticipating a 300% increase in IT and project management staff over the next three years (2026-2028).
- **Budget:**
 - \$200,000/year for salaries
 - Integration (one-time): \$300,000, including ERP/MRP module enhancements and onboarding costs.

6. Service Provider Partnerships (2026-2028)

- **Objective:** To expedite integration and manage exponential growth, we will engage multiple IT service providers (e.g., Accenture, TCS, Infosys). These IT companies have proven expertise to mitigate risks, ensure faster implementation, and support scalability for millions of users.
- **Budget:** \$4 million over three years.

7. Anticipating Plateauing Sales Forecast (2031-2032)

- **Objective:** The growth rate is expected to slow from 20% to 15% monthly by early 2032^[1]. Focus shifts from rapid expansion to optimization and user retention. Adjust system capacity to handle over 60 million users by the end of 2032.

Long-Range Planning

Timeframe: 6-10 years

Objective: Using ERP, MPS, and MRP to drive R&D, product extension, market penetration, plant establishment, and infrastructure expansion.

1. Research & Development (R&D) (2031-2032)

- **Objective:** Spend 15% of the revenue on improving the accuracy level of NLP to 95% and integration of AR/VR features with immersive CAD in seven years.
- **Resources:** R&D Team (5 AI researchers, 2 CAD engineers)
- **Annual Budget:** \$2 Million
- **Tools:**
 - **ERP:** Budget and milestone management, effective resource allocation.
 - **Jira + Git:** Version-controlled collaborative development with Agile Project Management
 - **MPS:** Schedules R&D output into production as new features are developed.
 - **MRP:** Manages procurement of hardware/software for prototyping, ensuring timely availability.

2. New Products/Services (2031-2033)

- **Objective:** To launch a new product, "VoiceCAD Pro", in eight years with AR/VR capabilities and industry-specific tools for automotive and architecture.
- **Resources:** Product Team (4 AI engineers, 3 CAD specialists, 2 AR/VR developers, 1 Product Manager)
- **Budget:** \$3 Million
- **Tools:**
 - **ERP:** Aligns CRM data with customer needs, coordinating R&D with sales.
 - **Jira + Git:** Pull CRM data from ERP and create Scrum boards for Agile Project Management.
 - **MPS:** It works out a plan for VoiceCAD Pro, balancing scalability and demand.
 - **MRP:** Manages inventory, lead times, and BOM for AR/VR components.

3. New Markets (2031-2032)

- **Objective:** Enter Europe and Asia. For each, ensure a market share of 20% within 7 years.
- **Resources:** Localization and Sales Teams (3 localization experts, 2 marketers, 5 sales representatives)
- **Budget:** \$500,000/year
- **Tools:**
 - **ERP:** For multi-language CRM support and regional compliance.

- **MPS:** To adjust production for demand in new markets.
- **MRP:** Manages sourcing and logistics for region-specific inventory, ensuring timely adaptation for local standards.

4. Facility Locations (2031-2032)

- **Objective:** To have opened a European support facility within 7 years; be prepared to expand into Asia in the foreseeable future.
- **Resources:** Facility Setup and Support Teams (3 facility managers, 2 IT staff, 5 customer representatives)
- **Initial Setup Cost:** \$300,000; **Operations:** \$200,000/year
- **Tools:**
 - **ERP:** Tracks the setup and operating costs and integrates facility management.
 - **MPS:** Helps in scheduling the staff for matching support with demand.
 - **MRP:** Ensures timely procurement of equipment and resources for launch.

5. Capital Investments (2025-2035)

- **Objective:** Invest \$2 million over 10 years in server infrastructure, cloud storage, and security.
- **Resources:** IT and Cybersecurity Teams (2 IT specialists, 1 security expert)
- **Annual Budget:** \$200,000
- **Tools:**
 - **ERP:** Manages the capital, tracks returns, and ensures compliance.
 - **MPS:** Forecasts the needs of servers and storage based on growth.
 - **MRP:** Plan for long lead times on server and security upgrades.

Summary of ERP, MPS, and MRP in Long-Range Planning

- **ERP:** It helps to manage budgets, insights from CRM, and project timelines, thus allocating resources properly to R&D, production, and expansion into markets.
- **MPS:** Plans for production and staffing at any selected scale of markets and products.
- **MRP:** Manages inventory needs for prototyping, product launches, and infrastructure.

Citations

1. Top Supply Chain Management Software From SAP | Navigator Cloud ERP (<https://www.nbs-us.com/supply-chain-management#:~:text=Factors%20such%20as%20the%20complexity,much%20as%20%24200%2C000%20or%20more>)
2. How much does ERP implementation cost? - Blog for Manufacturers and Distributors (<https://www.mrpeasy.com/blog/erp-implementation-cost/>)
3. Cooper, R. G. (2001). *Winning at New Products: Accelerating the Process from Idea to Launch*. Basic Books.
4. Orlicky, J., Plossl, G. W., & Wight, O. W. (1975). *Orlicky's Material Requirements Planning*. McGraw-Hill.
5. Vollmann, T. E., Berry, W. L., Whybark, D. C., & Jacobs, F. R. (2005). *Manufacturing Planning and Control for Supply Chain Management*. McGraw-Hill Irwin.
6. Monk, E. F., & Wagner, B. J. (2008). *Concepts in Enterprise Resource Planning*. Cengage Learning.