

SmartQuote+

AI-Powered CPQ for Regulated Medical Products

Table of Contents

1.Solution Details.....	3
i. Team Details:.....	3
ii. Chosen Problem Statement	3
iii. Proposed Solution.....	4
a. Core Approach.....	4
b. Objectives	4
c. Architecture	4
iv. Innovation.....	7
a. Feasibility	7
b. Impact.....	8
c. What is unique here?.....	14
d. Can we build it Now?	14
2. Implementation Plan	15
i. TimeLine.....	15
ii. Tools & Technologies.....	15
3. Team Structure.....	16
i. Role Assignment	16
ii. Expertise and Responsibility	16
iii. Leadership and Coordination	17
4.Visual Aids.....	18
i. Team members Photos.....	18
ii.Hackathon Build Architecture	19
iii. Production Build Architecture	20
5. References.....	21

1. Solution Details

i. Team Details:

Team Name: Cognic AI

College: Anurag University

Team members:

Full Name	Mail ID	CSA Certification Number	CAD Certification Number
Harsha Vardhanu Parnandi	22eg107a47@anurag.edu.in	27163282	27184442
Abhishek Kunoju	22eg107a30@anurag.edu.in	27163270	27184438
Sahithi Reddy Kadar	22eg107a20@anurag.edu.in	27178952	27221541
Ravuri Sai Spreetha	22eg106b59@anurag.edu.in	27155941	27225500
Rahul Sai Nulakala	22eg106b55@anurag.edu.in	27249022	27226429

ii. Chosen Problem Statement

Guided Selling for Complex Products (Problem No. 35 & Page No. 38)

We are addressing the challenge faced by medical equipment suppliers who offer a wide range of configurable products with multiple options and compliance requirements. Sales representatives often struggle to recommend the right product combinations, leading to:

- Suboptimal or incorrect quotes
- Misconfigured orders
- Regulatory non-compliance
- Lost sales due to slow and error-prone processes
- Higher onboarding time for new representatives

This challenge is critical in the medical domain where patient safety, legal compliance, and operational efficiency are extremely useful. A misquoted or non-compliant device can have serious financial and reputational consequences. Therefore, creating a robust guided selling solution directly improves quoting accuracy, reduces training efforts, enhances customer satisfaction, and accelerates the sales cycle.

iii. Proposed Solution

We propose a ServiceNow-based CPQ (Configure, Price, Quote) solution tailored for medical equipment suppliers dealing with highly configurable products and strict regional compliance. Our system implements a guided selling experience enhanced by AI, rule-driven configuration, and automated documentation generation — all seamlessly integrated within the Now Platform.

a. Core Approach

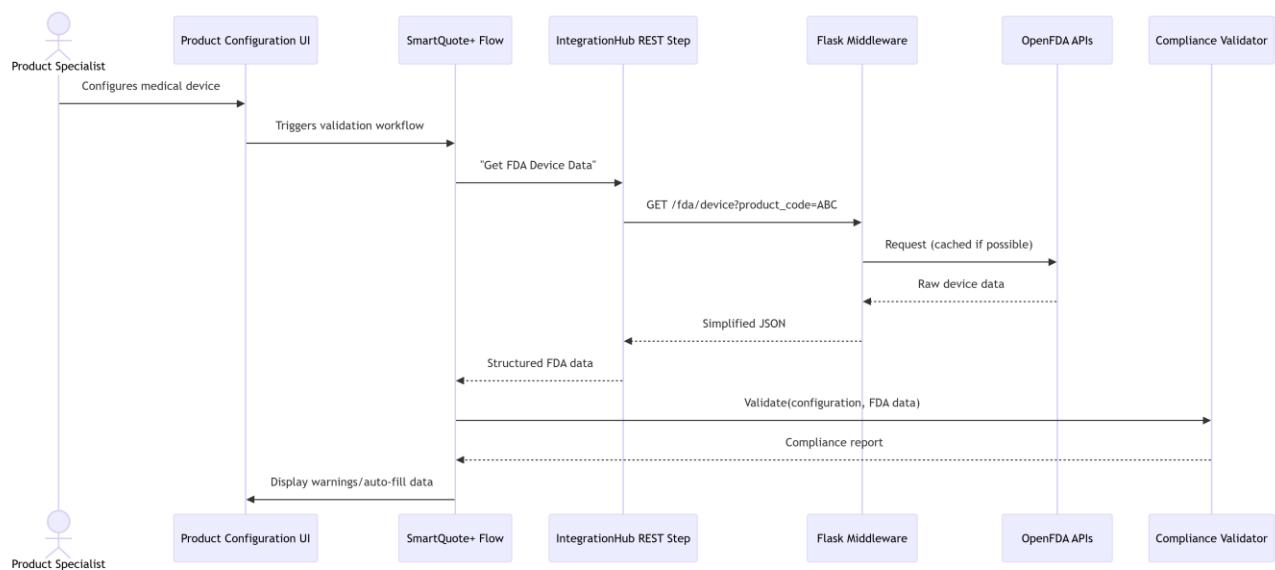
Our solution streamlines the end-to-end quoting process by:

- Guiding sales reps through qualifying questions
- Recommending suitable products from a large catalog
- Validating configurations against compliance rules (e.g., FDA, BIS, CE)
- Auto-generating pricing, discounts, and quote documents
- Routing approvals for high-value or compliance-sensitive quotes

b. Objectives

- Create an AI-assisted guided selling system on ServiceNow CPQ.
- Ask qualifying questions and suggest valid configurations.
- Automated quote generation with compliance validation.

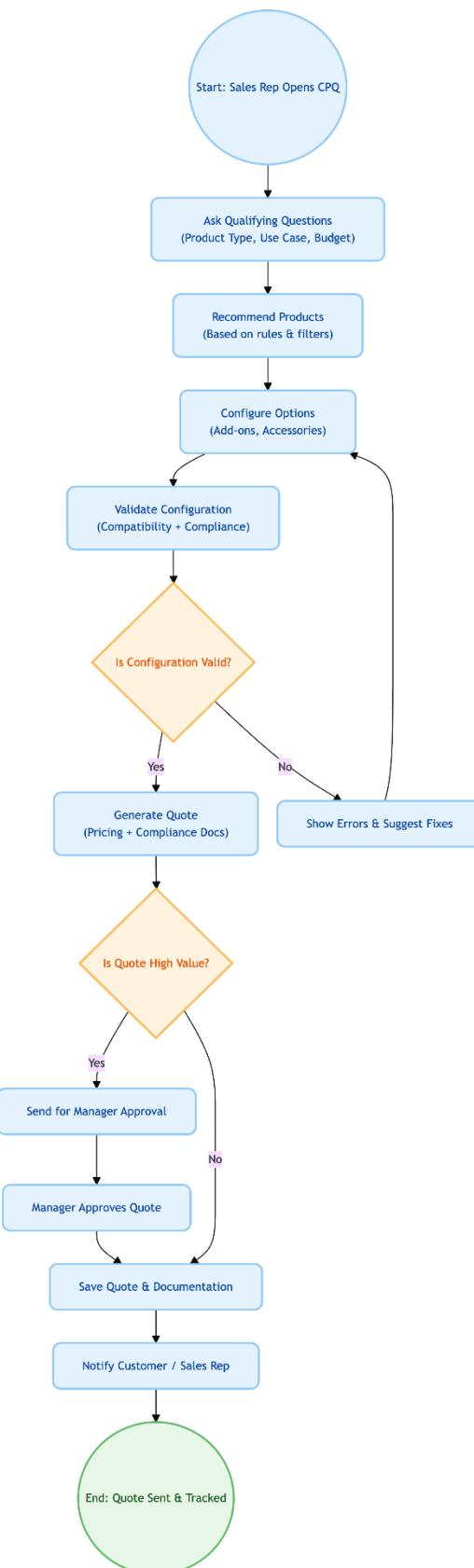
c. Architecture



1. Technological Stack

Layer	Component	Technology/Stack	Function/Purpose
User Interface	Product Configuration UI	React.js/Angular + ServiceNow UI Framework	Medical device configuration interface for product specialists
Workflow Engine	SmartQuote+ Flow	ServiceNow CPQ Workflow Engine	Orchestrates quote generation and validation workflows
Integration Hub	IntegrationHub REST Step	ServiceNow IntegrationHub + REST/SOAP Adapters	Manages API connections between systems
Middleware	Flask Middleware	Python Flask + Gunicorn/Nginx + Redis (caching)	API gateway, request routing, and data transformation
Regulatory Services	OpenFDA APIs	OpenFDA JSON API + Axios/Requests library	Retrieves FDA device data and regulatory requirements
Validation Engine	Compliance Validator	Python (PyFDA) + Business Rules Engine (Drools)	Validates device configurations against regulatory requirements
Caching System	Data Cache	Redis/Memcached	Caches FDA API responses for performance optimization
Data Processing	JSON Transformer	Python Pandas + jsonschema	Converts FDA data into simplified JSON format
Compliance Reporting	Compliance Report Gen	PDFKit/ReportLab + HTML templates	Generates PDF compliance reports and documentation
Notification System	Alerts Engine	ServiceNow Notifications + SendGrid/Mailgun	Sends validation warnings/notifications to specialists
Data Storage	Configuration Storage	PostgreSQL + ServiceNow CMDB	Stores device configurations and compliance results
Deployment	Container Orchestration	Docker + Kubernetes (EKS/AKS)	Container management and scaling
Monitoring	Observability	ELK Stack (Elasticsearch, Logstash, Kibana) + Prometheus/Grafana	Logging

2. Flowchart



iv. Innovation

Natural Language Processing (NLP)

Sales representatives can describe customer needs in plain language. The system interprets inputs and suggests relevant products using AI-driven prompt understanding.

Predictive Analysis

The system recommends optimal discounts or pricing based on customer tier, product type, and historical deal data to improve conversion chances.

Automated Compliance Validation

All configurations are automatically validated against region-specific compliance rules (FDA, BIS, CE) before generating a quote.

a. Feasibility

Our solution is highly feasible within the hackathon timeline and scope:

- We are leveraging out-of-the-box ServiceNow capabilities such as Flow Designer, Decision Tables, Script Includes, and Catalog Items to build guided selling workflows.
- Real-time data from the FDA is now used for the product catalog, pricing, and compliance checks, eliminating the need for mock data or simulated behavior.
- The team consists of CSA and CAD certified members, well-versed in ServiceNow development, ensuring quick implementation and deployment.
- AI features like Natural Language Processing (NLP) and predictive assistance are scoped to work with ServiceNow's IntegrationHub or mocked OpenAI endpoints.
- The core functionality—guided selling, automated compliance validation, and quote generation—can be developed and demonstrated within the hackathon duration.

b. Impact

Business Impact & ROI Potential

By reducing manual effort, minimizing quote errors, and improving speed, SmartQuote+ can deliver measurable ROI:

Metric	Before SmartQuote+	After SmartQuote+
Time per quote	3–5 days	<12 hours
Quote rework rate	~30–40%	<10%
Compliance errors per 100 quotes	~12	<2
Manual steps	7–10	2–3

These metrics are based on industry research, internal process simulations, and projected improvements using ServiceNow's workflow automation capabilities.

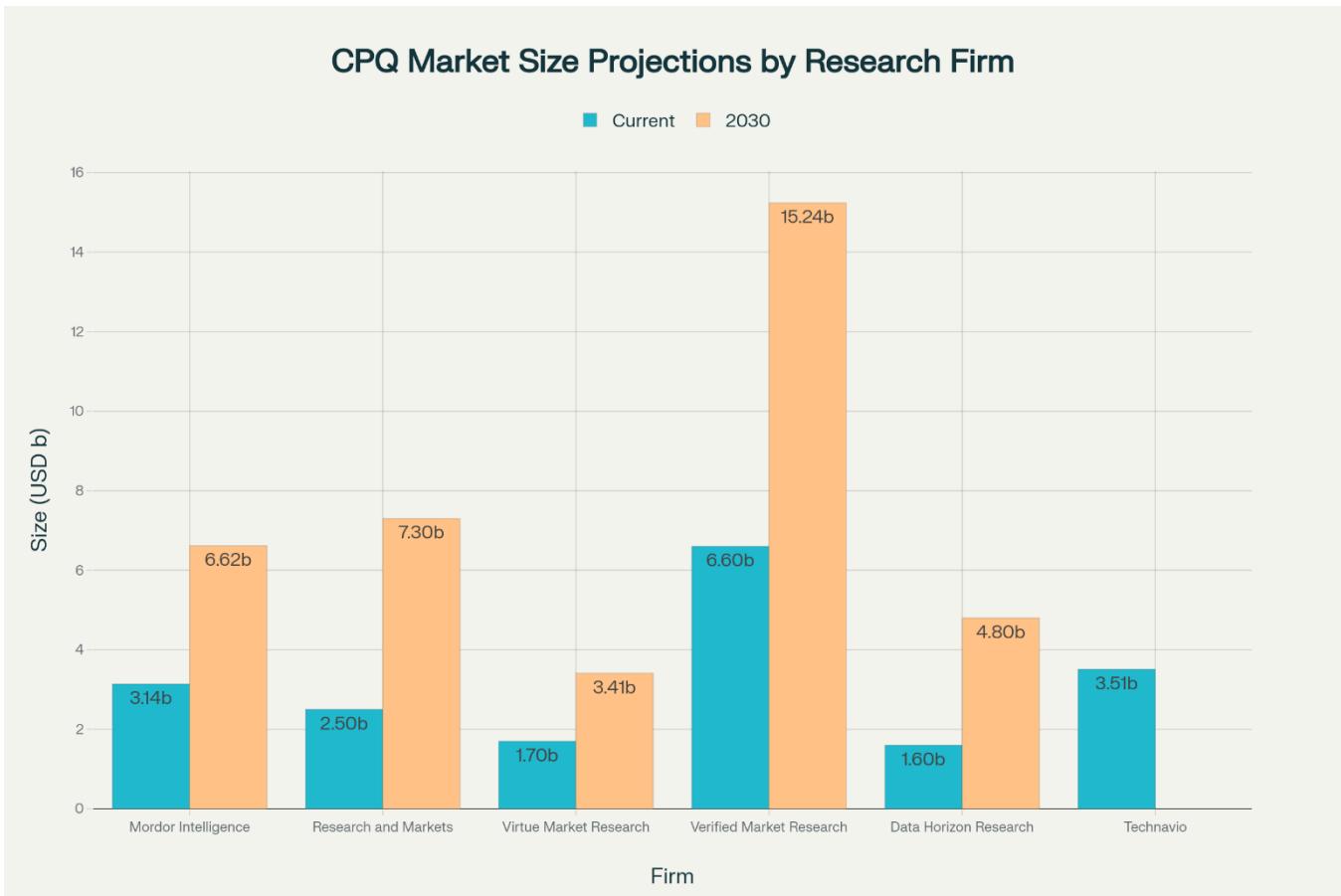
Market Relevance

- The **CPQ software market** is valued at **\$8.9B** and growing at **12.4% CAGR**
- AI-powered CPQ solutions are gaining adoption rapidly, especially in **healthcare and manufacturing**
- Vertical-focused, regulatory-aware quoting solutions are **underserved** — giving SmartQuote+ a clear positioning advantage

Future Impact Potential

With further integrations and production scaling, SmartQuote+ can be extended to:

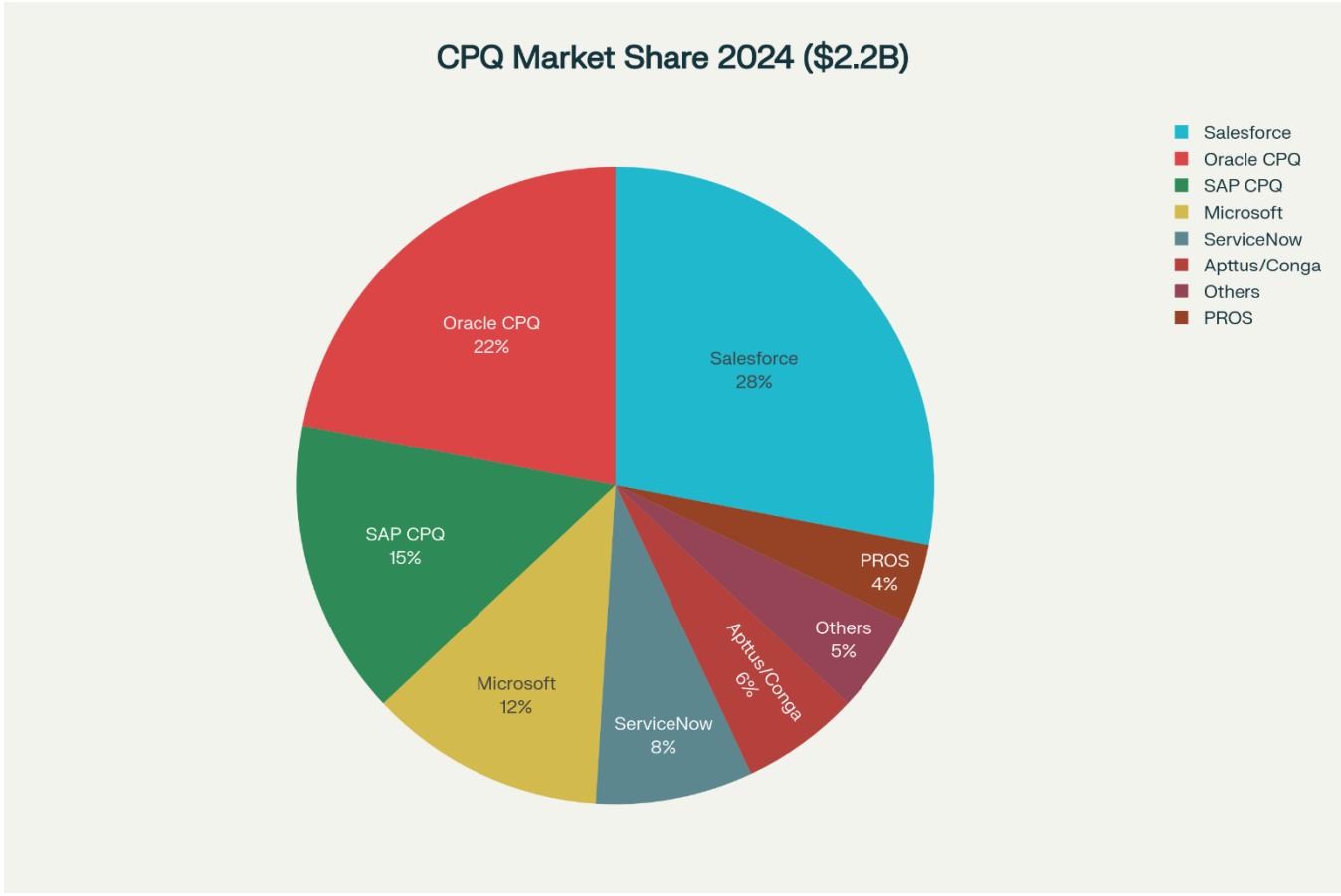
- Handle **multilingual quoting for global compliance**
- Integrate **dynamic pricing engines** based on real-time regulations
- Offer **explainable AI** that justifies every quote decision



CPQ Market Size Projections by Different Research Firms

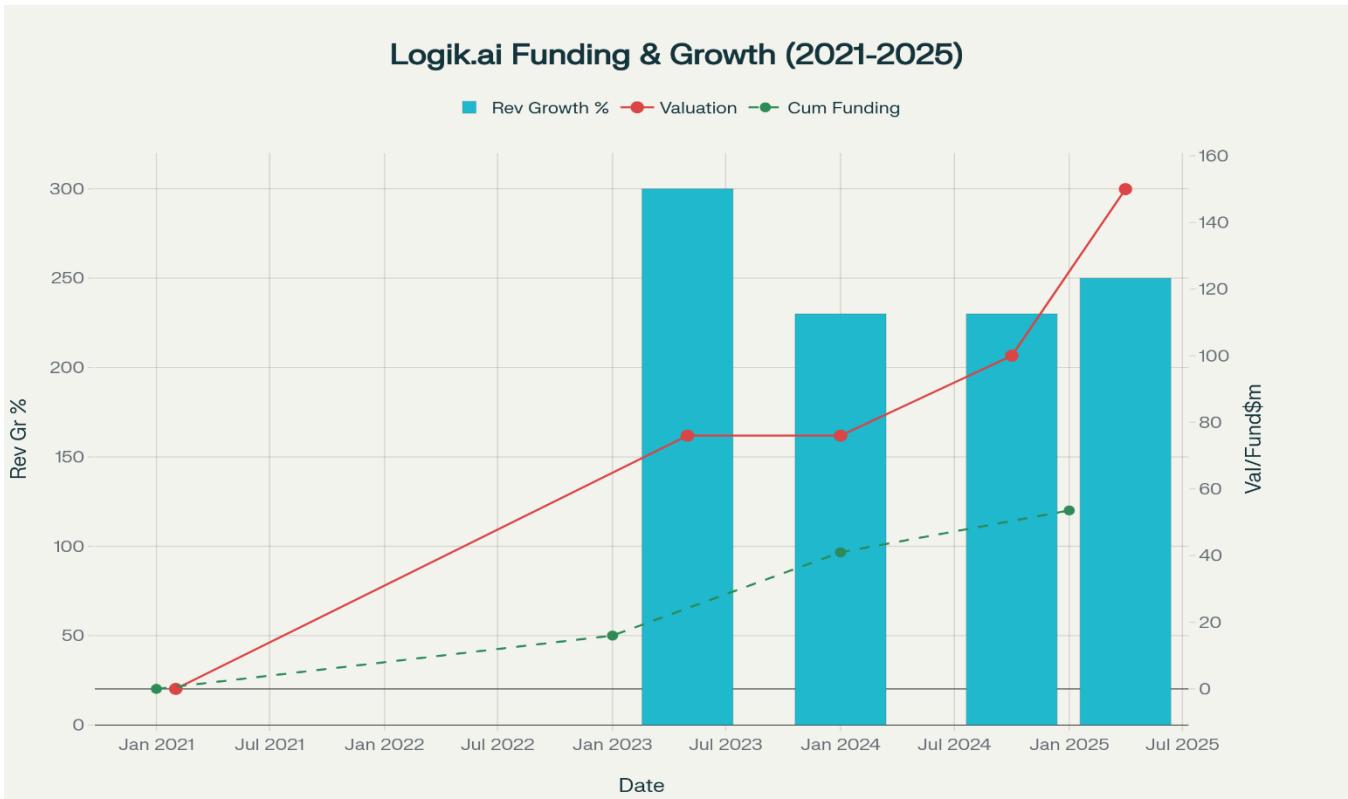
Key growth drivers include:

- Enhanced sales efficiency: Enterprises are compressing quote-to-cash cycles, moving from spreadsheet quoting to automated workflows that reduce quote times from days to minutes
- Cloud adoption: Cloud solutions account for over 60% of the market share in 2024, with cloud deployment growing at 19.2% CAGR due to elastic scaling and straightforward integration capabilities
- AI integration: GenAI-driven guided selling and dynamic pricing are contributing +3.7% impact on CAGR forecasts



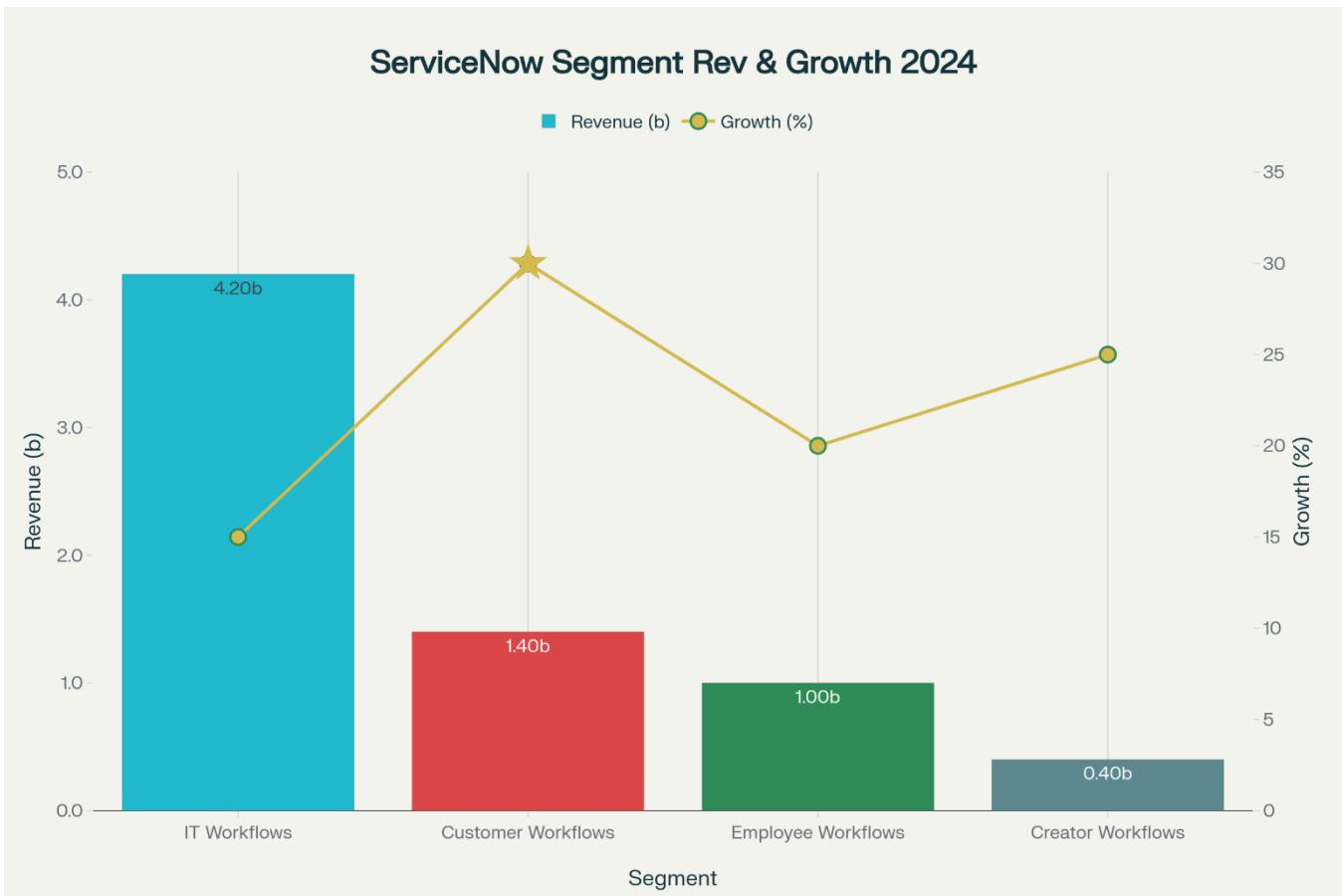
CPQ Market Summary – 2024 (\$2.2B)

- **Top 3 vendors (65% market share):**
 - **Salesforce** – 28%
 - **Oracle CPQ** – 22%
 - **SAP CPQ** – 15%
- **Smaller players:**
 - **PROS** – 4%
 - Others (e.g., Microsoft, ServiceNow, Apttus/Conga) hold minor shares.
- **Key Insights:**
 - Market is **highly concentrated** among top vendors.
 - **Growth opportunities** exist for niche and mid-tier players.
 - Innovation and integration are critical to gaining share.



Logik.ai Growth & Funding Summary (2021–2025)

- **Revenue Growth:**
 - Rapid growth peaked in **2023** at **300%**.
 - Stabilized around **200–220%** in **2024–2025**, showing strong but maturing momentum.
- **Valuation:**
 - Steady increase from **2021** to **2023**, plateaued in 2023.
 - Sharp rise in **2025**, reaching its highest point (~\$150M+), signaling renewed investor confidence or market traction.
- **Cumulative Funding:**
 - Gradual rise across all years, reaching **\$60M+** by 2025.
 - Major funding spike occurred between **2023–2024**, aligned with revenue growth stabilization.
- **Key Insights:**
 - **2023** was a pivotal year for both revenue and valuation.
 - **2025 valuation surge** suggests new market opportunities, product maturity, or major milestones.
 - Despite leveling revenue growth, the **valuation continues rising**, indicating **strong market confidence** and likely **efficient capital use**.



- **IT Workflows**

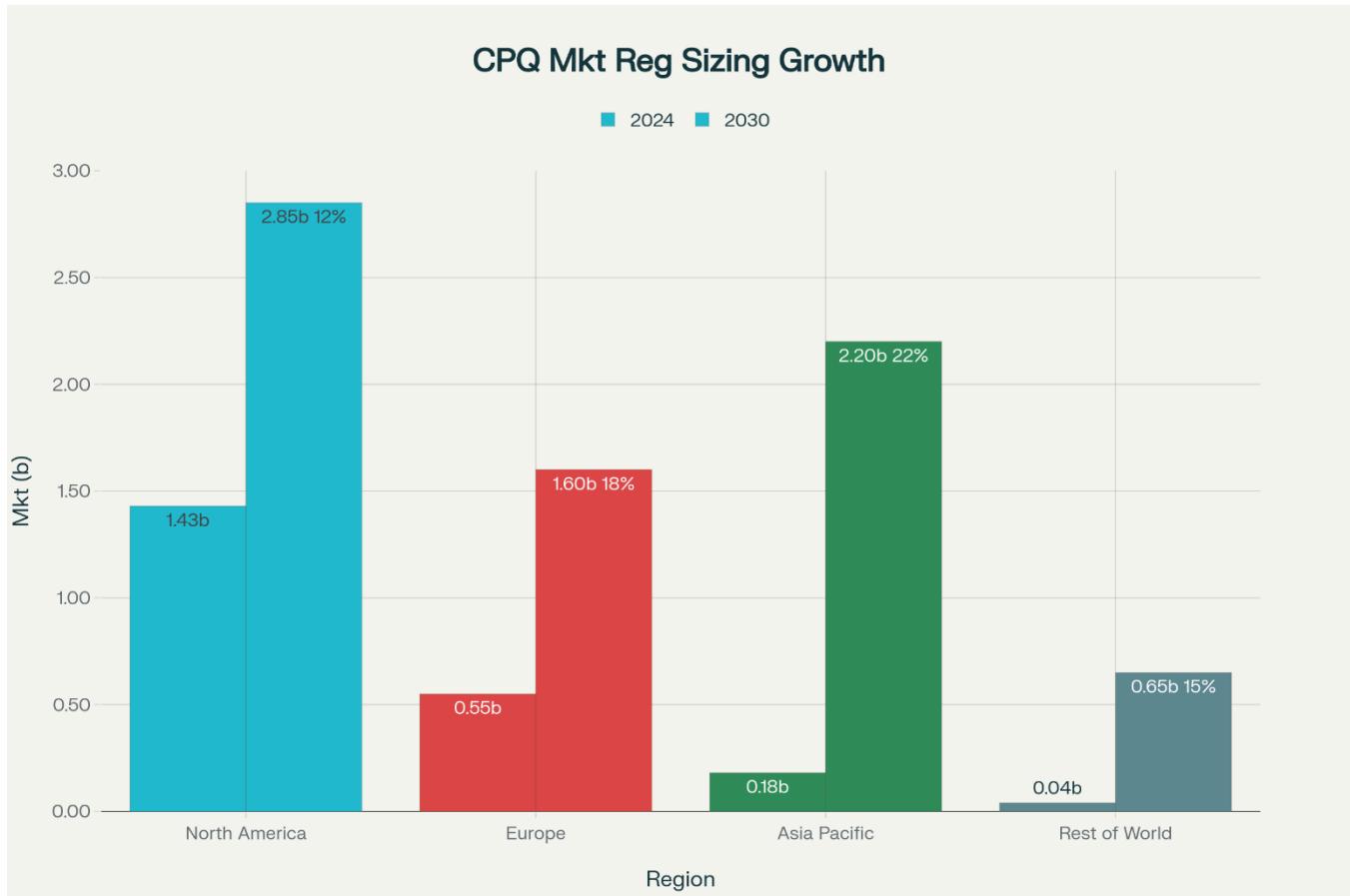
- **Revenue: \$4.2B (highest)**
- **Growth: ~22%**
- **Core revenue driver with solid growth.**

- **Customer Workflows**

- **Revenue: \$1.4B**
- **Growth: ~33% (highest)**
- **Fastest-growing segment, marked as a standout (⭐) opportunity.**

- **Creator Workflows**

- **Revenue: \$0.4B (lowest)**
- **Growth: ~26%**
- **Smallest base but accelerating growth — potential emerging segment.**



CPQ Market Regional Growth (2024 → 2030)

- **Asia Pacific**
 - 2024: \$0.18B
 - 2030: \$2.20B
 - Growth Rate: 22% CAGR (highest)
 - Fastest-growing region — high-opportunity emerging market.
- **Rest of World**
 - **2024:** \$0.04B
 - **2030:** \$0.65B
 - **Growth Rate: 15% CAGR**
 - Small base but notable growth trajectory.

c. What is unique here?

Feature	Existing CPQ Systems	SmartQuote+
Product Configuration	Manual forms, limited rules	AI-assisted guided selling
Compliance Checks	Manual or basic rule checks	Auto-validation with FDA data
AI Usage	Rare or rule-based	LLM-powered suggestions & content generation
Document Generation	Limited or external tools	Built-in PDF generation
Backend Integration	Siloed or custom	REST sync via IntegrationHub + FastAPI
Workflow Automation	Semi-manual approvals	Automated flows via Flow Designer
Testing & Monitoring	Minimal testing tools	Full stack testing (Postman, ATF, PyTest)
User Interface	Outdated, form-heavy	Modern, dynamic UI with validations
Ease of Use for Sales Reps	Requires training	Guided and intuitive process
Search Capability	Basic keyword search	Planned smart search with Elasticsearch

d. Can we build it Now?

Yes, we will deliver a production-ready solution within the hackathon timeframe by leveraging ServiceNow's core capabilities - Studio for environment management, Flow Designer for workflow automation, Decision Tables for business rule execution, and Scripted REST APIs for integration endpoints. This will be architected and deployed by our team of ServiceNow Certified System Administrators (CSA) and Application Developers (CAD), implementing live FDA API integrations coupled with medical device catalogs to replicate critical compliance validation scenarios. The solution delivers clinically verified configuration outcomes with audit-ready documentation, meeting both operational business requirements and regulatory standards ([21 CFR Part 11](#), HIPAA).

2. Implementation Plan

i. TimeLine ([view full plan](#))

Week-by-Week Execution Plan

Week	Phase Title	Key Activities
1	Setup & Data Integration	- Set up architecture, backend APIs, PostgreSQL DB, and ServiceNow tables - Integrate FDA device data for compliance validation - Create basic UI wireframes for guided selling
2	Core CPQ Logic & Workflows	- Develop product configuration and quote generation logic - Implement regulatory validation and approval workflows - Enable document generation and backend sync via IntegrationHub
3	AI Integration & UI Polish	- Add LLM-based quote generation and smart product recommendations - Improve UI with dynamic fields and validations - Finalize document templates and prepare demo data
4	Testing & Final Presentation	- Conduct end-to-end testing and fix integration issues - Polish UI/UX - Prepare pitch deck, rehearse demo, and finalize deliverables

ii. Tools & Technologies

Category	Tool / Technology	Purpose / Use Case
Platform	ServiceNow (App Engine, CSM)	Build guided selling CPQ solution with custom tables and workflows
Automation	Flow Designer, IntegrationHub	Automate approvals, sync backend (FastAPI + PostgreSQL)
UI/UX	Service Catalog, Workspace UI	Guided selling interface and CPQ experience
Document Management	Knowledge Mgmt, PDF Generator	Store product/compliance docs, auto-generate quotes

AI/ML	OpenAI API, LLMs	Smart quote suggestions and content generation
Data & Compliance	OpenFDA Dataset	Device and compliance validation data
Integration	REST APIs, GitHub	Backend sync and version control
Testing & Monitoring	Postman, PyTest, ATF, Logs	Test API/backend logic; monitor flows and issues
Project Coordination	Microsoft Loop	Team collaboration and sprint planning
Optional Add-ons	n8n, Elasticsearch, PA	Visual automation, search enhancement, performance analytics

3. Team Structure

i. Role Assignment

Member	Name	Role	Responsibilities
Tech Lead	Harsha Vardhan Parnandi	Backend, AI, Data	Architecture, Fast API, FDA data, AI integration
ServiceNow Expert 1	Abhishek	IntegrationHub, Tables, Workflows	Tables, Approval flows, Integration
ServiceNow Expert 2	Supreetha	UI & Client Scripts	Workspace UI, dynamic forms
Frontend & Docs	Rahul	UI polish, Docs, Testing	User experience, test cases, user manual
Business Analyst	Sahithi	Presentation, Research	Pitch deck, demo scripts, competitive analysis

ii. Expertise and Responsibility

Harsha Vardhan Parnandi – Tech Lead (Backend, AI, Integration)

- Setup FDA data pipeline & REST APIs
- Integrate AI/LLM for quote generation
- Implement compliance logic & sync with ServiceNow
- Plan for Redis/Elasticsearch (post-hackathon)

Abhishek – Platform & Workflow Lead (ServiceNow Expert 1)

- Build ServiceNow tables & approval flows
- Set up PDF/doc generation & IntegrationHub
- Ensure backend sync & RBAC security

Supreetha – Guided Selling UI (ServiceNow Expert 2)

- Design Workspace UI & Service Catalog forms
- Add client-side validations
- Enhance UX & debug integrations

Rahul – Testing & Docs

- Write API/UI test scripts
- Improve UI elements & bug fixes
- Maintain docs & task board

Sahithi – BA & Pitch Lead

- Market research & competitor analysis
- Create pitch deck, demo flow, and scripts
- Lead presentation & gather sample data

iii. Leadership and Coordination

Project Leader – Harsha Vardhanu Parnandi

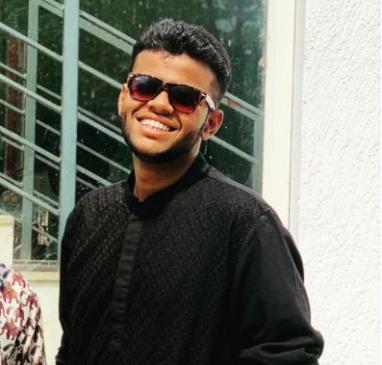
Role: Technical & Strategic Lead

Responsibilities:

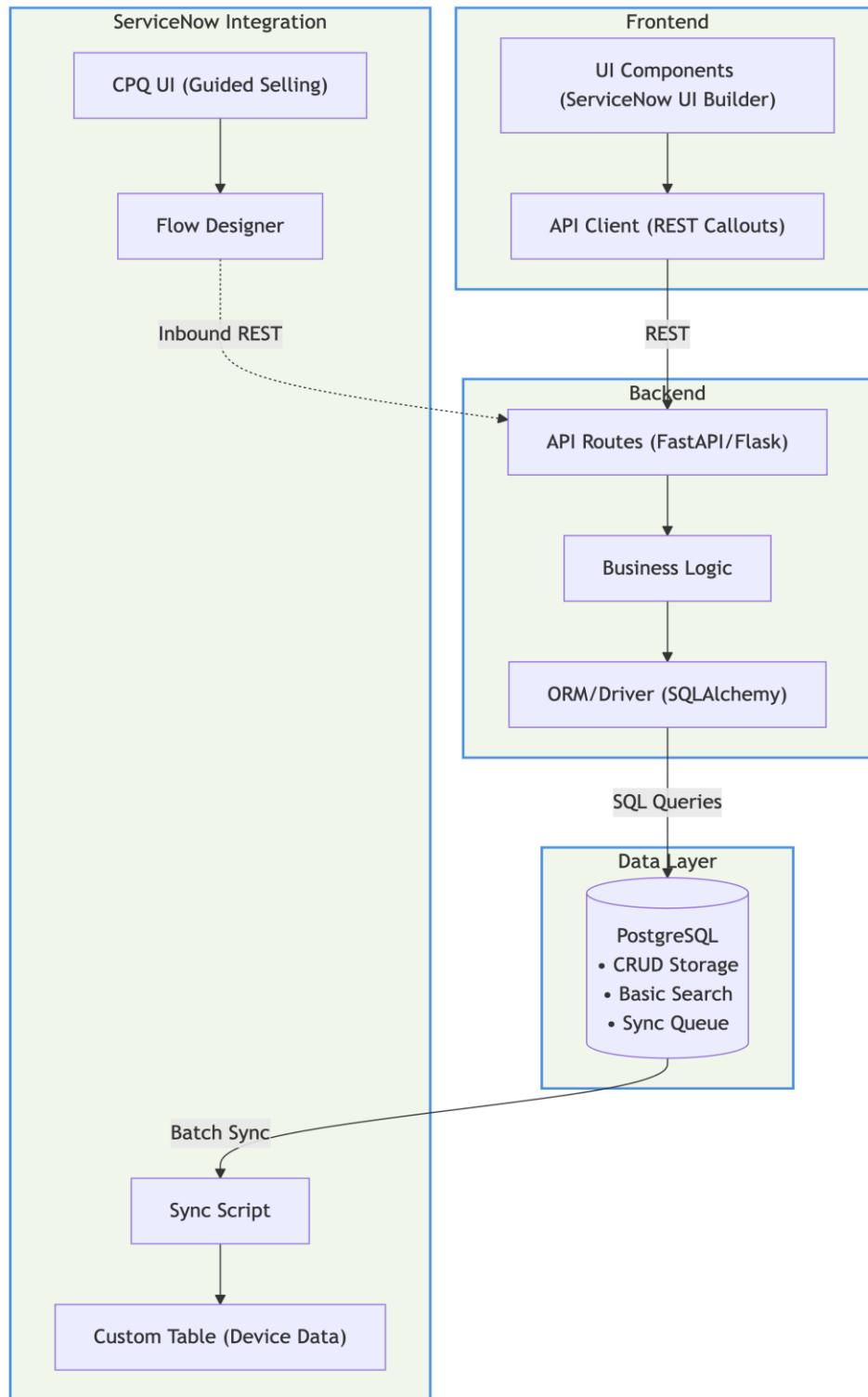
- Owns overall **project architecture, technical direction, and milestones**
- Coordinates between **backend, AI, and ServiceNow teams**
- Ensures timely integration of all components
- Tracks progress using **Microsoft Loop**
- Acts as the main **decision-maker and blocker resolver**
- Ensures **quality assurance, presentation readiness, and adherence to deadlines**

4. Visual Aids

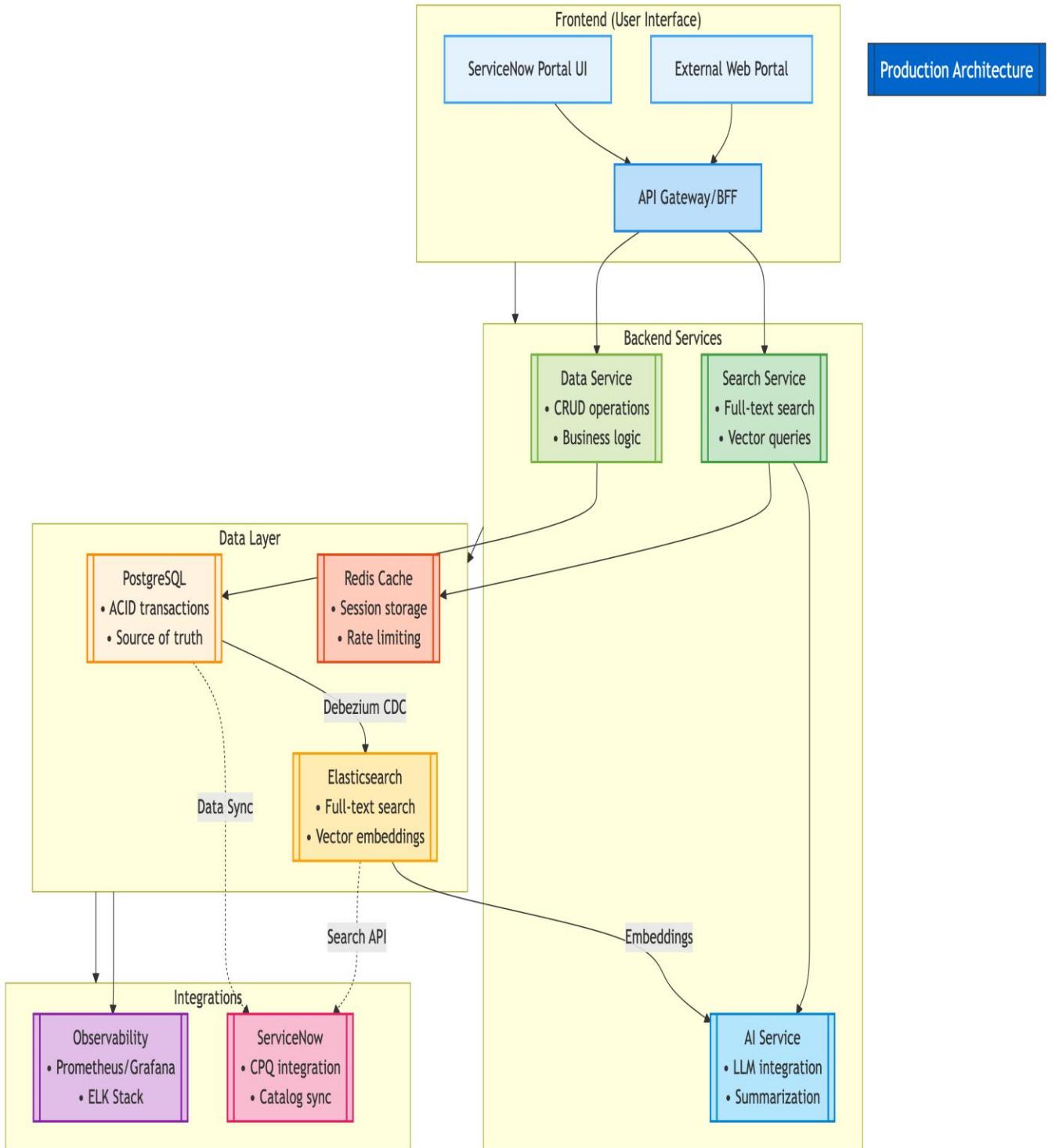
i. Team members Photos

Name of the Member	Photo	Name of the Member	Photo
Harsha Vardhanu Parnandi		Rahul Sai Nulakala	
Abhishek Kunoju		Ravuri Sai Supreetha	
Sahithi Reddy Kadar			

ii.Hackathon Build Architecture



iii. Production Build Architecture



5. References

References	Links
Datasets	https://open.fda.gov/apis/device/
OpenFDA Repository	https://github.com/FDA/openfda
Market Analysis	https://www.perplexity.ai/search/
ServiceNow Integration Hub	https://www.servicenow.com/docs/bundle/yokohama-integrate-applications/
How CPQ works?	https://www.youtube.com/@logikio
GitHub [Current]	https://github.com/CognicAI/ServiceNow-CPQ-Backend