

# SmartQuote+

**AI-Powered CPQ for Regulated Medical Products**

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## 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
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### 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 representors

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

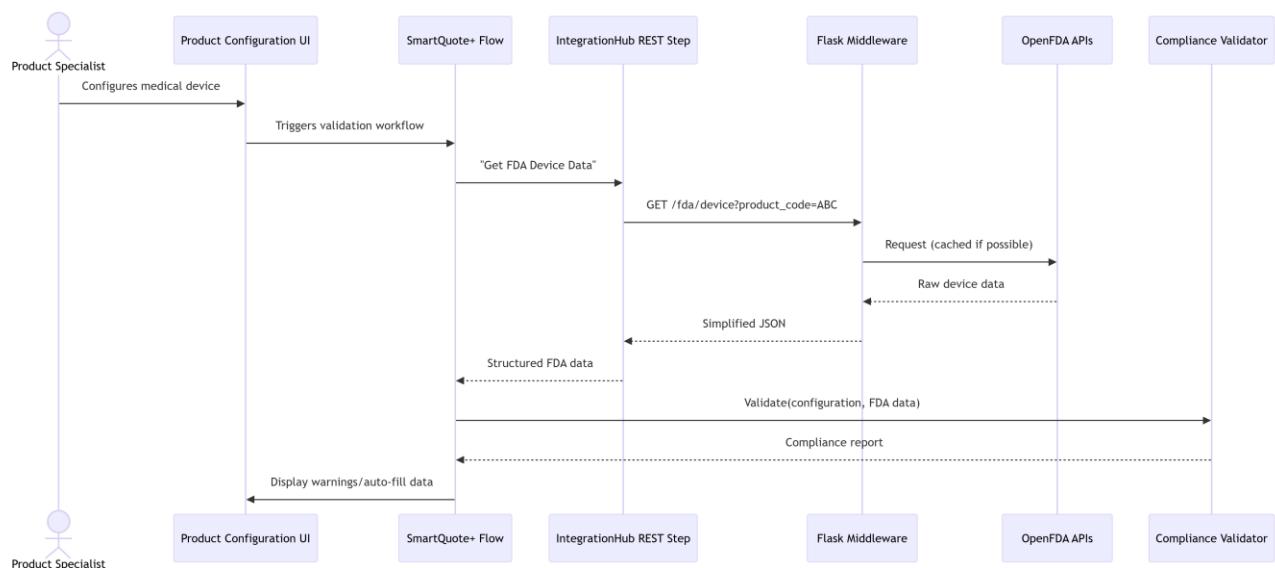
Our solution streamlines the end-to-end quoting process by:

- 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.

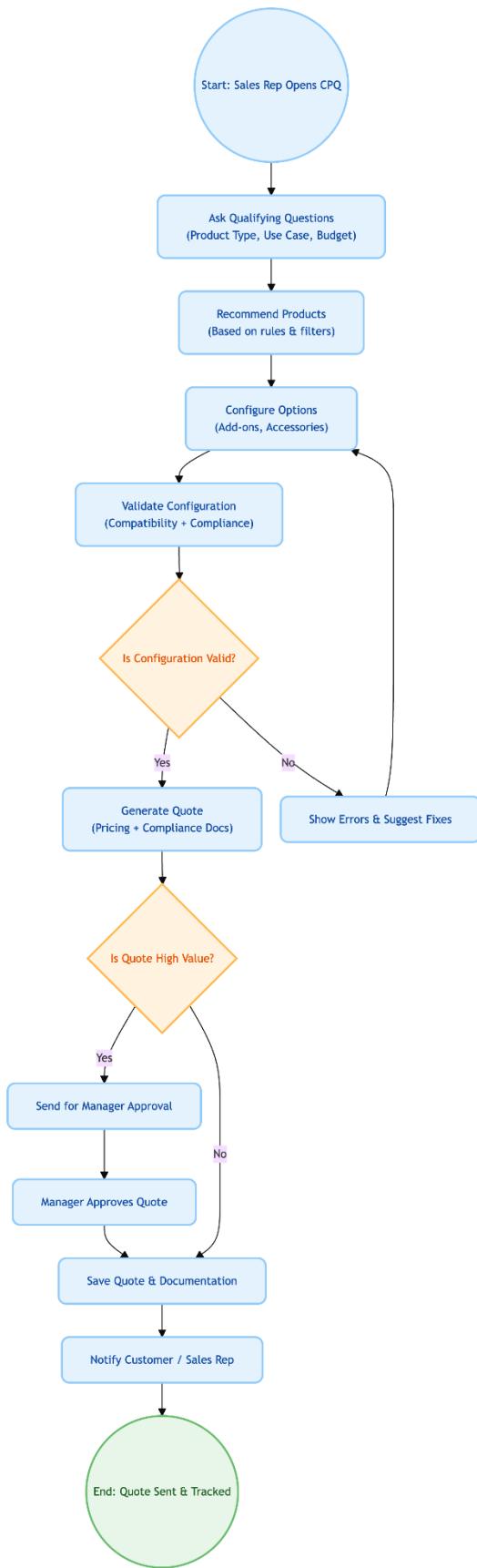
#### c. Architecture



## 1. Technological Stack

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

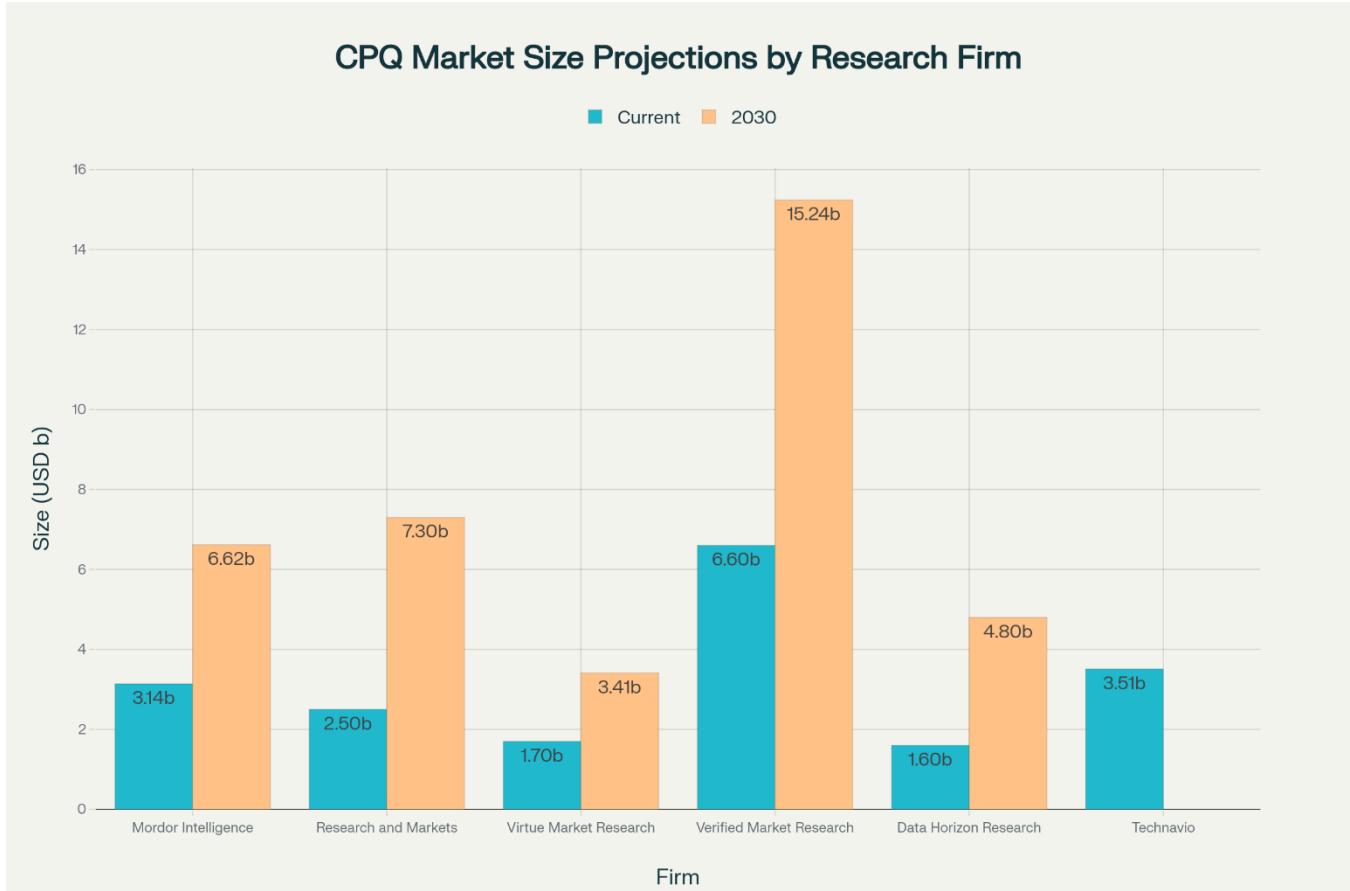
All configurations are automatically validated against region-specific compliance rules (FDA, BIS, CE) before generating a quote.

#### 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

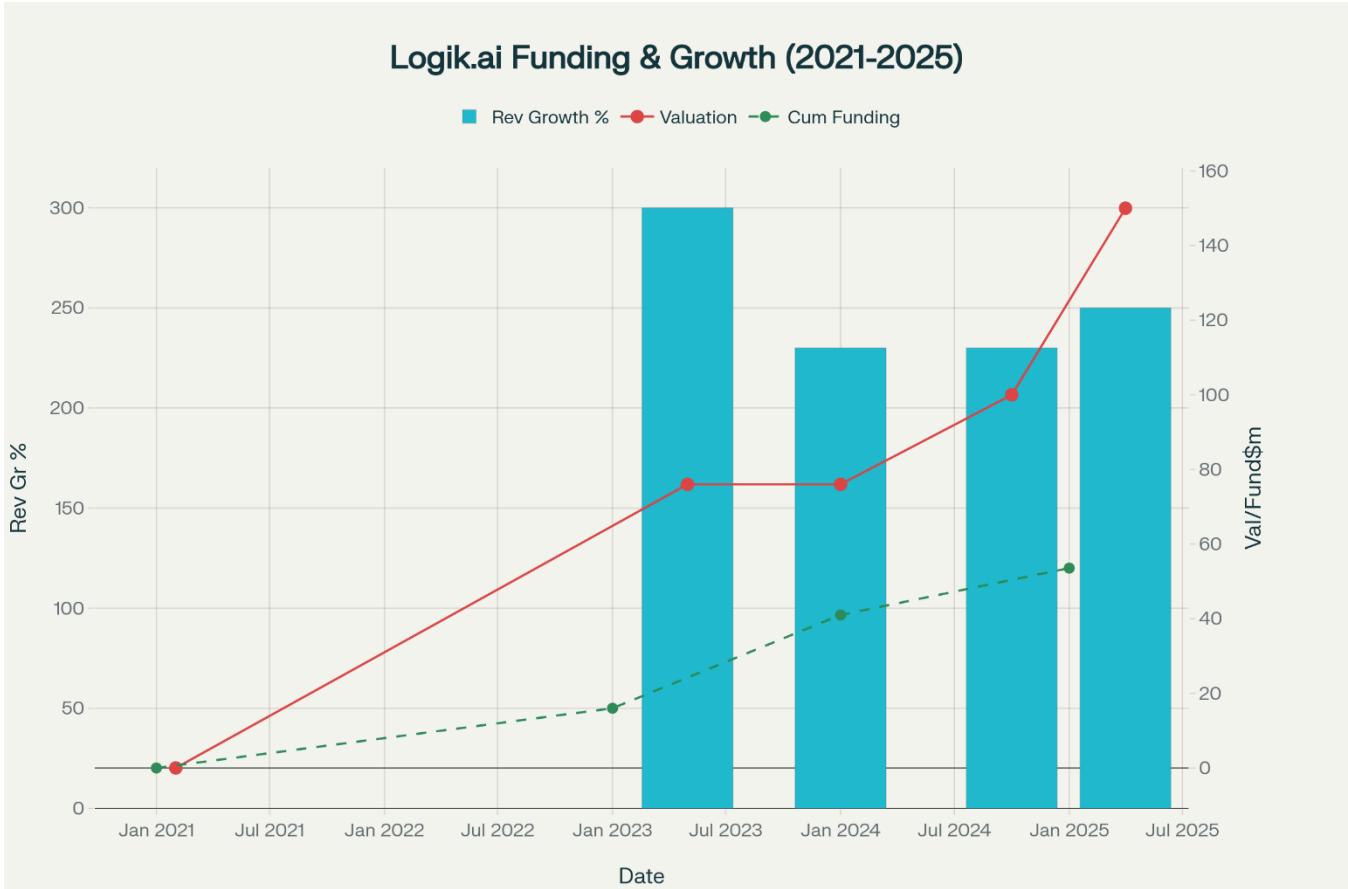


- The CPQ market is expected to grow significantly by **2030**.
- **Current market size estimates range from \$1.6 billion to \$6.6 billion.**
- **Projected 2030 market sizes range from \$3.4 billion to \$15.24 billion.**
- **Verified Market Research** forecasts the highest 2030 value at **\$15.24 billion**



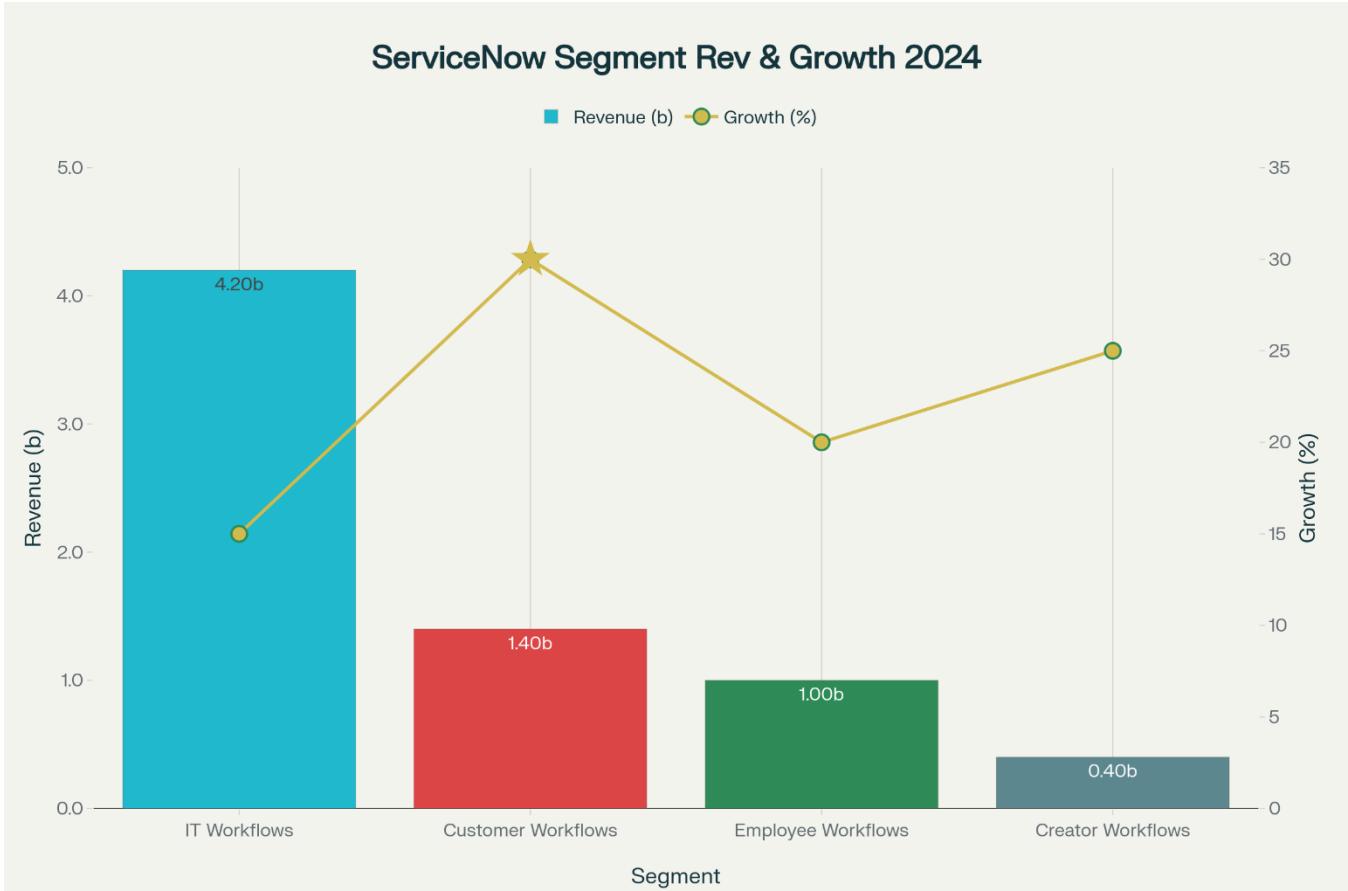
## CPQ Market Summary – 2024 (\$2.2B)

- **Top 3 vendors (65% market share):**
  - **Salesforce** – 28%
  - **Oracle CPQ** – 22%
  - **SAP CPQ** – 15%   **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 Funding & Growth Summary (2021–2025)

- **Revenue growth peaked** at 300% in 2023, then stabilized around 200% in 2024–2025.
- **Valuation grew steadily**, with a sharp jump in 2025, reaching ~\$150M.
- **Cumulative funding increased gradually**, crossing \$60M by 2025.
- Despite flat revenue growth post-2023, **valuation rose**, showing strong investor confidence.



- **IT Workflows**

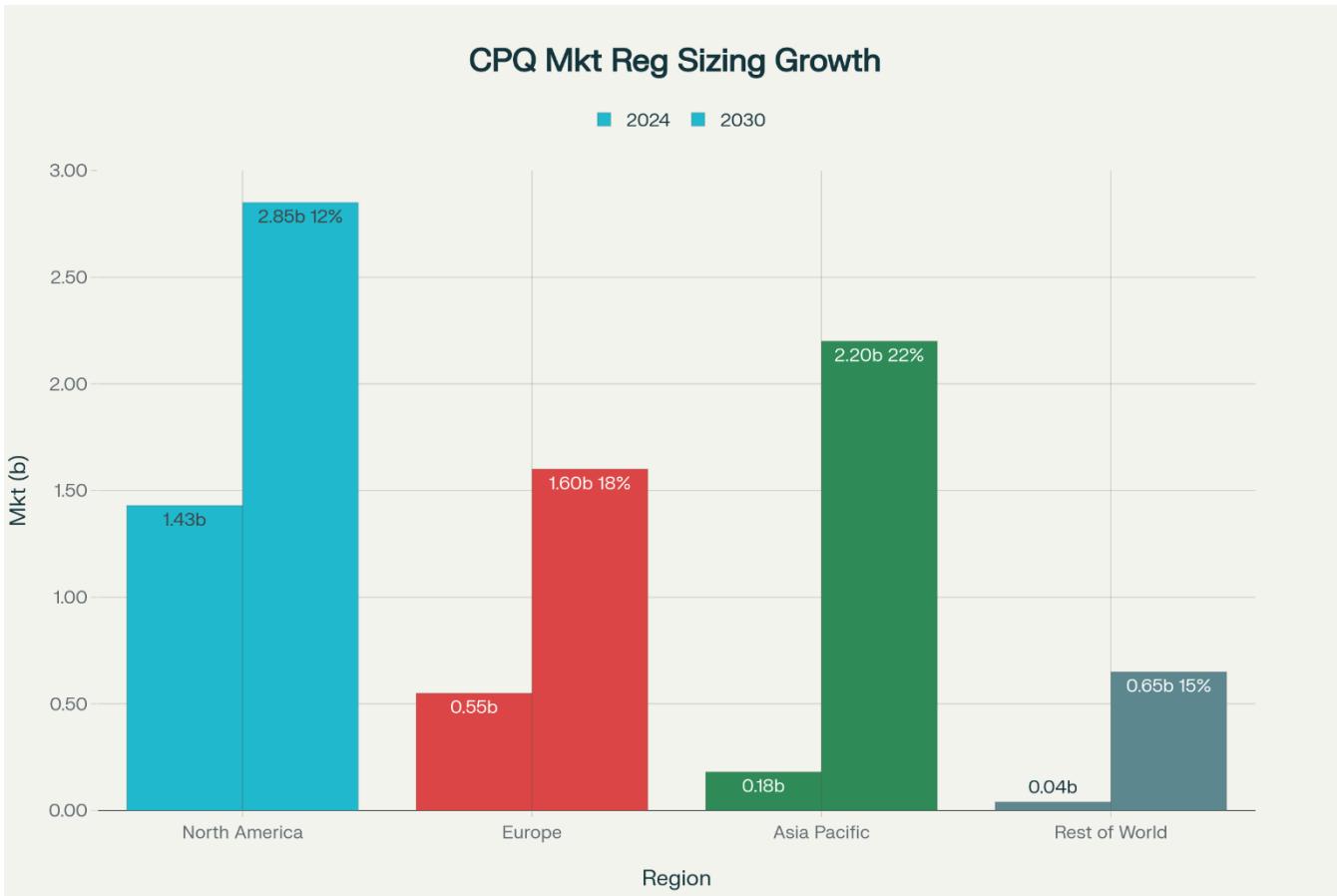
- **Revenue: \$4.2B (highest)**
- **Growth: ~22%**
- **Core revenue driver with solid growth.**

- **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?

- NLP enables sales reps to describe requirements in natural language.
- Predictive analytics optimize discounts and product suggestions based on deal history.
- Automated compliance checks ensure regulatory adherence before quoting.

Compared to traditional static CPQ systems, our solution reduces errors, increases speed, and empowers new reps with minimal training.

### 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

#### 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	<b>Harsha Vardhan Parnandi</b>	Backend, AI, Data	Architecture, Fast API, FDA data, AI integration
ServiceNow Expert 1	<b>Abhishek</b>	IntegrationHub, Tables, Workflows	Tables, Approval flows, Integration
ServiceNow Expert 2	<b>Supreetha</b>	UI & Client Scripts	Workspace UI, dynamic forms
Frontend & Docs	<b>Rahul</b>	UI polish, Docs, Testing	User experience, test cases, user manual
Business Analyst	<b>Sahithi</b>	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

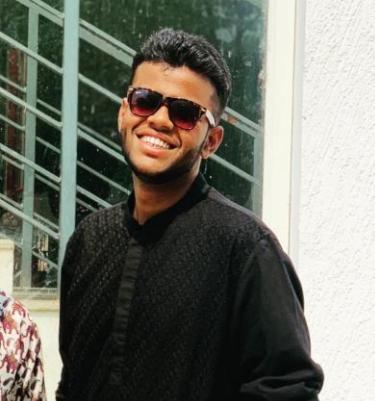
**Role:** Technical & Strategic Lead

**Responsibilities:**

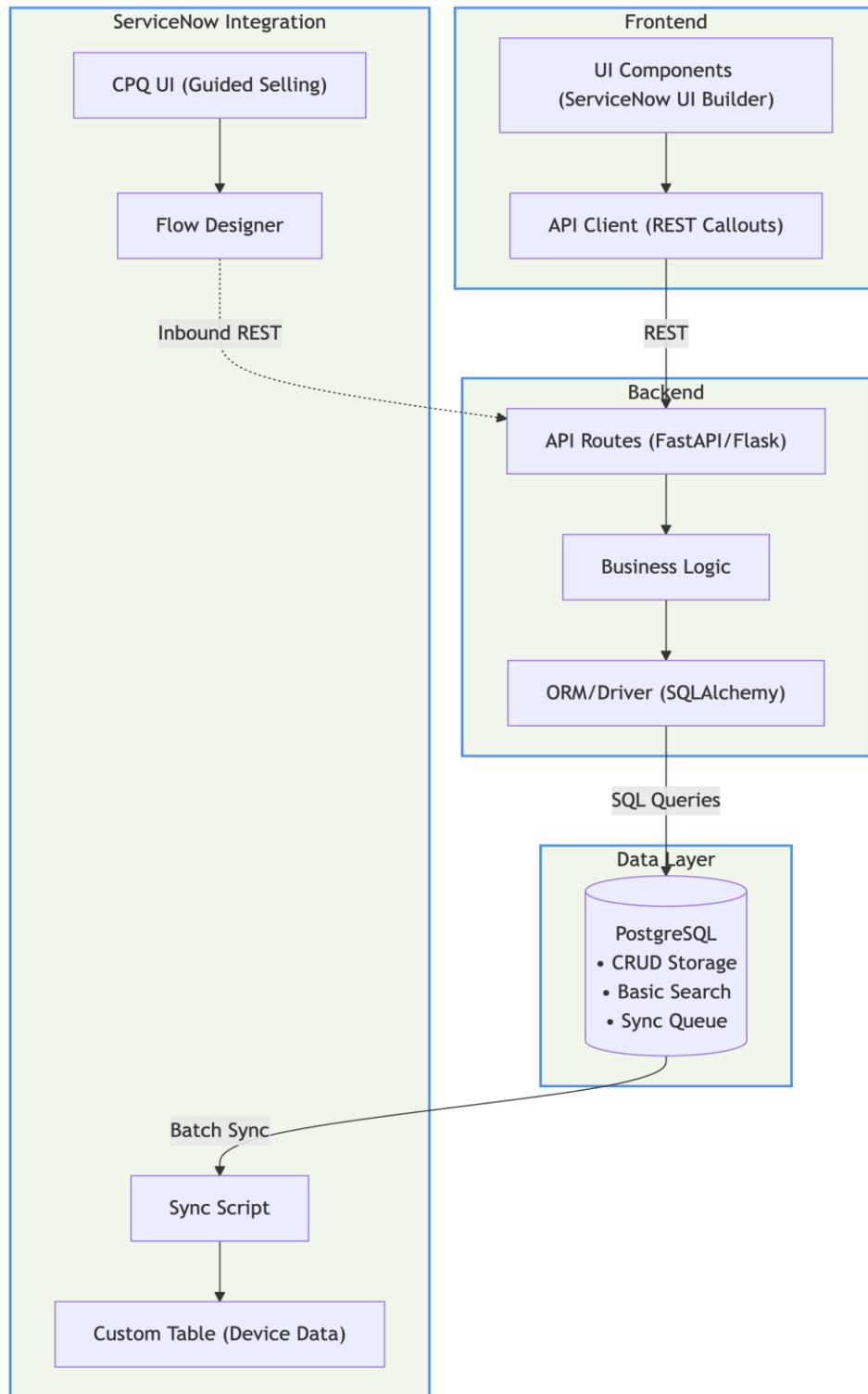
- Owns overall **project architecture, technical direction, and milestones**
- Coordinates between **backend, AI, and ServiceNow teams**
- Ensures timely integration of all components
- Tracks progress using **Microsoft Loop**
- Acts as the main **decision-maker and blocker resolver**
- Ensures **quality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

## 4. Visual Aids

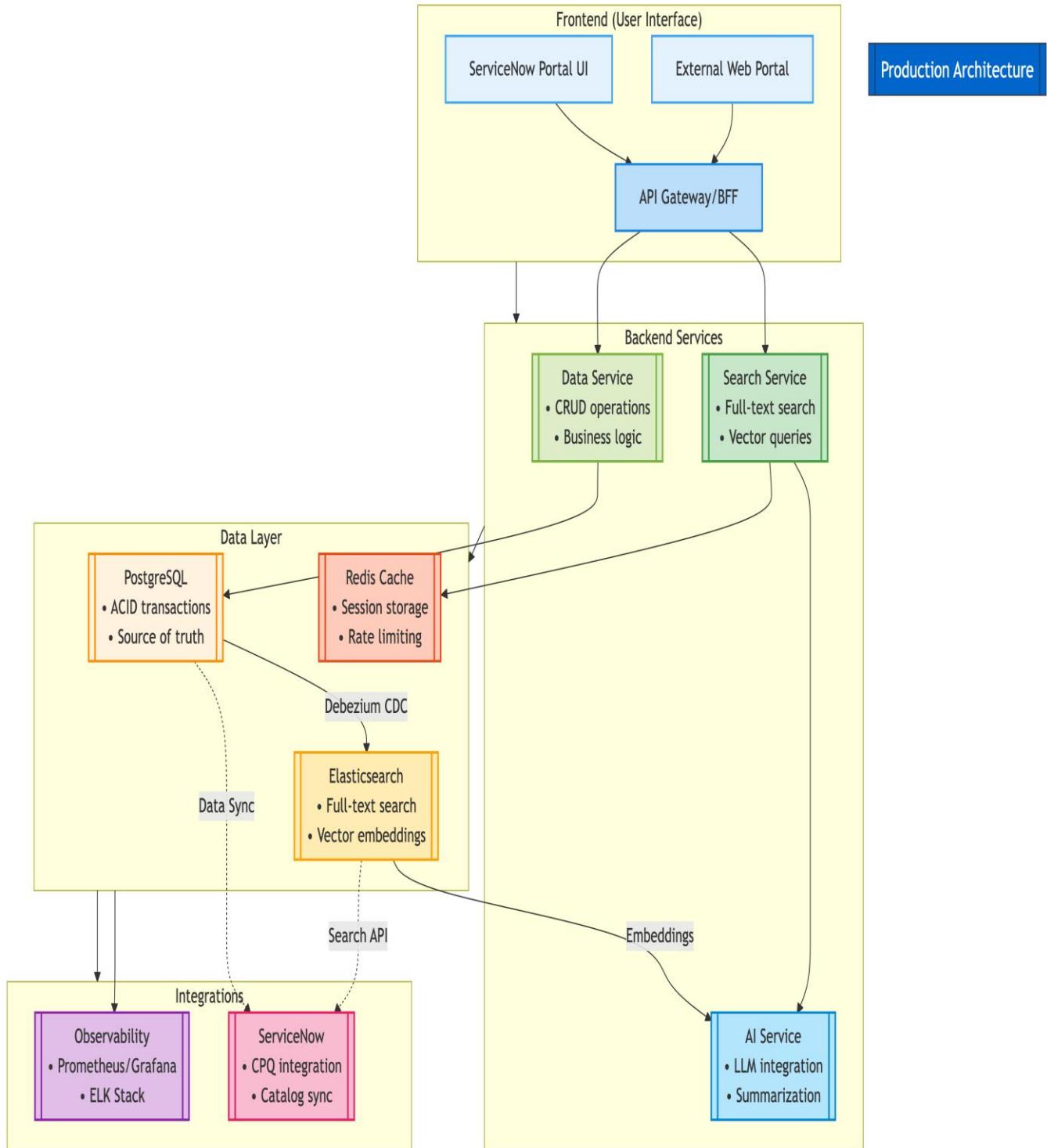
### i. Team members Photos

Name of the Member	Photo	Name of the Member	Photo
<b>Harsha Vardhan Parnandi</b>		<b>Rahul Sai Nulakala</b>	
<b>Abhishek Kunoju</b>		<b>Sai Supreetha Ravuri</b>	
<b>Sahithi Reddy Kadar</b>			

## ii.Hackathon Build Architecture



### iii. Production Build Architecture



## 5. References

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