

Hospital Digital Twin Platform

Project Scope & Preliminary Investment Estimate

Confidential | March 2026

This document provides a preliminary estimate for the design and development of a Hospital Digital Twin Platform — comprising a real-time simulation engine (DTwin) and an AI-powered data layer (TwinDB). Estimates are based on comparable healthcare technology implementations and are subject to refinement following a detailed discovery engagement.

Note: These are preliminary estimates. A Discovery & Architecture session is recommended prior to final proposal — covering data sources, integration points, clinical workflows, and compliance requirements — to enable firm and precise pricing.

Phase 1 — Discovery, Architecture & Initial Prototypes (Weeks 1–4)

Foundation work: requirements gathering, technical architecture, data mapping, and first working prototypes to validate approach and de-risk the full build.

Deliverable	Duration	Team	Estimated Cost
Discovery, Requirements & Architecture Blueprint	1 wk	2 architects	\$4,000–\$5,500
Data Audit & Integration Mapping (EHR, IoT, PACS)	1 wk	1 architect	\$3,000–\$4,000
Initial 3D Model Prototype (OR room + anatomy)	1–2 wks	2 engineers	\$4,500–\$6,000
Cloud & Security Infrastructure Setup	1 wk	1 DevOps	\$2,500–\$3,500
Phase 1 Subtotal	3–4 weeks		\$14,000–\$19,000

Phase 2 — Digital Twin Engine (DTwin) (Weeks 4–12)

Core simulation platform: real-time 3D models, physics engine, equipment models, and live data synchronization across hospital systems.

Deliverable	Duration	Team	Estimated Cost
3D Anatomy Model Library	2 wks	2 engineers	\$7,000–\$9,500
Hospital OR & Facility Environment Models	2 wks	2 engineers	\$6,000–\$8,000
Physics & System Behavior Simulation Engine	2 wks	2 engineers	\$7,500–\$10,000
Equipment & Device Digital Models	1 wk	1 engineer	\$3,500–\$4,500
Real-Time Data Sync (IoT, EHR, sensor feeds)	1 wk	2 engineers	\$4,000–\$5,500
Phase 2 Subtotal	~8 weeks		\$28,000–\$37,500

Phase 3 — AI & Twin Database Engine (TwinDB) (Weeks 8–18)

AI/ML layer running on top of the twin: clinical decision support, predictive models, and structured hospital knowledge database. Runs in parallel with Phase 2.

Deliverable	Duration	Team	Estimated Cost
Data Ingestion & Normalization Pipeline	1–2 wks	2 engineers	\$4,500–\$6,000
Predictive Maintenance & Anomaly Detection	2 wks	2 ML engineers	\$6,500–\$8,500
Computer Vision Module (imaging & monitoring)	2 wks	2 ML engineers	\$6,500–\$9,000
Clinical AI — Tumor Detection, Surgical Planning, Implant Optimization	2 wks	2 ML engineers	\$7,000–\$9,500
Vector Store, Knowledge Graph & Retrieval Layer	1 wk	1 engineer	\$2,500–\$3,500
API Layer, Dashboards & Access Control	1 wk	2 engineers	\$3,000–\$4,000
Phase 3 Subtotal	~9 weeks		\$30,000–\$40,500

Phase 4 — Integration, Validation & Go-Live (Weeks 18–22)

Deliverable	Duration	Team	Estimated Cost
End-to-End Integration & Performance Testing	1–2 wks	2 engineers	\$3,500–\$5,000
Clinical Validation & Workflow Acceptance Testing	1 wk	1 eng. + clinical	\$2,500–\$3,500
HIPAA Compliance, Security Review & Documentation	1 wk	1 security eng.	\$2,000–\$3,000
Deployment, Handover & Team Training	1 wk	2 engineers	\$1,500–\$2,000
Phase 4 Subtotal	~4 weeks		\$9,500–\$13,500

TOTAL PROJECT INVESTMENT	20–22 Weeks	\$81,500 – \$110,500 USD
---------------------------------	--------------------	---------------------------------

** Final pricing confirmed after Discovery & Architecture engagement. Phases 2 and 3 run in parallel, reducing total delivery time. Estimates reflect a cross-functional team inclusive of engineering, ML, clinical advisory, DevOps, and project management.*