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Executive Summary

1.1 Project Overview

Birsa Arogya Doot is a district-level healthcare initiative designed for mining-affected communities of Jharkhand. It combines mobile diagnostics, emergency response, and rehabilitation in a phased model, ensuring services reach the last mile.

1.2 Why It Matters

Mining areas face high cases of lung disease, accidents, and limited healthcare access. This project directly tackles these gaps through:

1. Health at the doorstep – Mobile Diagnostics Van with basic lab, X-ray, ultrasound, and digital health records.
2. Faster emergency care – Drone-based medicine delivery and 500+ trained community responders with AEDs.
3. Long-term support – A prosthetics and rehab hub for accident victims and those with disabilities.

1.3 Phased & Affordable

1. Each phase costs under ₹2 crore, total < ₹5 crore.
2. District can approve one phase at a time, with scope to add more later.

1.4 Immediate Benefits

1. Early detection of chronic and mining-related diseases.
2. Reduced emergency response time in remote villages.
3. Rehabilitation and livelihood restoration for injured workers.
4. Real-time dashboards for Civil Surgeon and DC, ensuring transparency.

1.5 Why Birsa Arogya Doot

Named after Birsa Munda, the people's leader, this program is designed as the messenger of health for Jharkhand's villages. It starts simple, can be scaled up, and ensures every rupee spent under DMFT shows visible results on the ground.

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2. Problem & Need Assessment

2.1 Health Burden in Mining Districts

1. Jharkhand's mining-affected areas face unique and severe health challenges:
2. Respiratory diseases (dust exposure, silicosis, asthma, TB).
3. Accidents and injuries in mines and on roads leading to disability.
4. Lack of diagnostics – villagers often travel 30–50 km for a simple X-ray or blood test.
5. Delayed emergencies – no system to deliver medicines or trauma kits quickly.
6. Rehabilitation gap – amputees and accident victims rarely get prosthetics or physiotherapy support.

2.2 Systemic Gaps

1. Public health facilities are overstretched, with shortages of doctors and equipment.
2. Private services are costly, pushing poor households into debt.
3. Geography and remoteness mean villages are cut off during emergencies.

2.3 Why Intervention is Needed

1. Without targeted health support, communities in mining regions will continue to suffer from:
2. Untreated chronic diseases ⟶ reduced working capacity.
3. Avoidable deaths due to delayed emergency care.
4. Long-term disability with no chance of livelihood restoration.

2.4 Proven Global & Local Models

1. Mobile health vans (Brazil, India) bring care directly to villages.
2. Drones for medicine (Rwanda, Telangana) cut delivery times from hours to minutes.
3. Community First Responders (Kerala, UK) save lives during the "golden hour".
4. 3D-printed prosthetics (IITs, US) provide affordable, customized rehabilitation.

2.5 Why DMFT

1. Health is already a priority sector under PMKKKY, with over 60% of DMFT funds allocated for it.
2. Birsa Arogya Doot directly addresses these gaps in a phased, affordable, transparent, and upgradeable manner, ensuring maximum impact for the community.

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3.0 Technical Design: Birsa Arogya Doot
The project is designed in three simple phases, each with clear deliverables, under ₹2.0 crore.

Phase 1 – Diagnostics + Digital Backbone
What it brings:

1. One Mobile Diagnostics Van equipped with:
    a. Portable X-ray, ultrasound, ECG, spirometry, lab analyzers.
    b. Cold chain for vaccines/medicines.
    c. Telemedicine kit for remote doctor consultations.
    d. Digital Health Platform: ABDM-compliant software for patient records, dashboards for Civil Surgeon & DC.
2. Staff: Nurse, Lab Technician, Driver.
3. Impact: Villagers get early diagnosis in their own area. Health records are digital and transparent.

Phase 2 – Emergency Response (Drone + CFR)
What it brings:

1. Drone Logistics: Two DGCA-approved drones for medicine/trauma kit delivery in remote villages.
2. Community First Responder (CFR) Program:
   Training of 500+ local youth and ASHAs in CPR & first aid.
3. Deployment of 10 AEDs (Automated Defibrillators) in public spaces.
4. Staff: Certified Drone Pilots, CFR Trainers.
5. Impact: Faster response during medical emergencies, lives saved during the golden hour.

Phase 3 – Rehabilitation & Ortho Hub
What it brings:

1. 3D-printed Prosthetics & Orthotics Lab:
2. 3D printers, scanner, CAD software to design low-cost customized devices.
3. Clinic & Physiotherapy Unit: For fitting, rehab, and follow-up.
4. Tele-Ortho Consultations: Remote specialist support through the digital platform.
5. Staff: Prosthetist, Physiotherapist, 2 Technicians.
6. Impact: Restores mobility, dignity, and livelihoods for accident victims and disabled persons.

Key Features Across All Phases

1. Each phase is modular – can run independently.
2. Each phase < ₹2 crore, total < ₹5 crore.
3. Built-in transparency with dashboards for monitoring.
4. Scope for upgradation (add more vans, expand drones, enlarge rehab hub as needed).

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4.0 Implementation Plan & Milestones
The rollout will be completed in three phases, with clear timelines and easy monitoring.

Phase 1 – Diagnostics + Digital Backbone (0–6 months)
- Months 1–2: Procurement of van, medical equipment, and digital platform.
- Months 3–4: Vehicle fabrication and IT integration.
- Months 5–6: Staff recruitment, training, and pilot operations in select blocks.
- Milestone: Van operational, digital dashboard live, first 1,000 beneficiaries screened.

Phase 2 – Emergency Response (6–15 months)
- Months 6–9: DGCA permissions, drone procurement, pilot training.
- Months 9–12: Initial drone sorties, mapping of delivery routes.
- Months 12–15: CFR training (500+ volunteers), installation of 10 AEDs.
- Milestone: Drone network active, CFR force deployed, 50+ emergency cases supported.

Phase 3 – Rehabilitation & Ortho Hub (15–21 months)
- Months 15–18: Setup of 3D-printing lab, clinic, and physio unit.
- Months 18–21: Hiring of prosthetist and technicians, patient intake begins.
- Milestone: First 50 prosthetics fabricated and fitted, rehab unit fully functional.

Built-in Flexibility
- Each phase can start independently if funds are released separately.
- No duplication of costs; later phases upgrade the system.
- Clear exit and handover pathways if DMFT wants to replicate in other districts.

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5.0 Governance & Management Framework
A clear governance structure ensures accountability, transparency, and expert oversight.

Advisory Mentors
Role: Strategic guidance, government process alignment, credibility.
- Dr. Sanjay Jayaswal, Retired Civil Surgeon, Hazaribagh
- Shri Manoj Jaiswal, Retired Divisional Commissioner, Ranchi

Clinical Governance Board
Role: Protocol validation, tele-consult support, 5 hrs/week commitment.
- Dr. Varisth Vardhan – Orthopedics Specialist
- Dr. Tanushee Wason – Pulmonology Specialist
- Dr. Vashishth Raj – Anesthesiology & Emergency Medicine Specialist

Operations & Management
- Project Director: Proprietor, Dakshayani Enterprises
- Project Management Unit (PMU):
  - Monitoring & Evaluation (M&E)
  - **IT & Digital**
  - Finance & Administration
- **Field Teams:**
  - Mobile Diagnostics Van Team (nurse, technician, driver)
  - Drone & CFR Team (pilots, trainers, volunteers)
  - Rehabilitation Hub Team (prosthetist, physiotherapist, technicians)

Reporting & Transparency
- Monthly: Reports to Civil Surgeon & Deputy Commissioner.
- Quarterly: Review with DMFT Governing Council.
- Real-Time: Digital dashboard access for designated officials.

Key Principle
- One-point accountability (PMU) ⟶ ensures no duplication or ad-hoc spending.
- Expert oversight (Clinical Board + Advisors) ⟶ ensures quality and trust.
- Continuous transparency (Dashboard) ⟶ ensures confidence of DMFT.

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6.0 Feasibility & Risk Mitigation
The project is practical, proven, and designed for phased rollout with built-in safeguards.

6.1 Technical Feasibility
- Mobile Diagnostics Vans are already used across India (validated model).
- Drones for medical delivery tested in Telangana, Himachal, Rwanda – proven in tough terrains.
- Community First Responder (CFR) training adopted in Kerala and globally.
- 3D-printed prosthetics successfully piloted in IITs and low-cost labs in India.

6.2 Risks & Mitigation

Risk Area	Challenge	Mitigation Strategy
Regulatory	DGCA approvals for drones may take time	Start with Visual Line of Sight (VLOS) ops; partner with DGCA-approved agencies for BVLOS permissions.
Operational	Vehicle or equipment downtime	Preventive maintenance contracts with OEMs; contingency van arrangement.
Technology	Drone performance in bad weather	Select drones with higher endurance; battery insulation; alternative ground delivery in monsoon.
Human Resources	Retaining specialized staff (prosthetist, drone pilots)	Competitive salaries + local hiring + training incentives.
Connectivity	Poor internet in remote villages	ABDM platform designed for offline mode; data syncs when network available.
Financial	Risk of cost overruns	Phased funding release tied to milestones; monthly audits by PMU.

6.3 Why Low Risk
1. Each phase is standalone and modular → failure of one phase does not stall others.
2. Proven models from India and abroad reduce experimentation risk.
3. Transparency via dashboards ensures trust and continuous oversight.

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7.0 Monitoring & Evaluation (M&E) Framework
A clear M&E system ensures accountability, transparency, and measurable impact for every rupee of DMFT funds.

7.1 Objectives
- Track inputs (spending and resources).
- Measure outputs (services delivered).
- Assess outcomes (health improvements).
- Document long-term impact (reduced mortality, improved livelihoods).

7.2 Key Performance Indicators (KPIs)

Category	Indicator	Measured In	Phase
Diagnostics	# of patients screened in van	Monthly dashboard	Phase 1
	# of ABHA IDs created	Digital records	Phase 1
Emergency Response	# of drone deliveries completed	Drone logs	Phase 2
	# of CFRs trained & certified	Training records	Phase 2
	# of AED installations & uses	Device logs	Phase 2
Rehabilitation	# of prosthetics fabricated & fitted	Clinic records	Phase 3
	# of patients completing physiotherapy	Follow-up reports	Phase 3
Overall	Beneficiary satisfaction score	Quarterly surveys	All
	Emergency response time reduction	Before/after analysis	Phase 2

7.3 Reporting Mechanism
- Monthly: PMU → Civil Surgeon & Deputy Commissioner.
- Quarterly: PMU → DMFT Governing Council (summary of KPIs + financials).
- Real-time: Digital dashboard for officials with live data on patients, drone sorties, prosthetics delivered, etc.

7.4 Assurance of Quality
- Independent clinical oversight by Governance Board.
- Financial audits every quarter.
- Community feedback loops built into dashboard surveys.

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8.0 Sustainability & Scale-up Plan
The project is designed to start lean, operate efficiently, and grow step by step with DMFT support.

8.1 Financial Sustainability
- Phase-wise budgeting: Each phase under ₹2 crore → low upfront burden.
- Convergence with schemes: Diagnostic and rehab services can be linked to Ayushman Bharat reimbursements.
- CSR & PPP options: Mining companies and corporates can support operations after DMFT proof-of-concept.

8.2 Operational Sustainability
- Local capacity building: 500+ trained CFRs and community volunteers remain active even after funding cycles.
- Solar-powered systems: Vans and hubs can run partly on solar → lower recurring costs.
- Digital health records: ABDM platform ensures data continuity even if project ownership shifts later.

8.3 Scale-up Strategy
- Replication: Model can be easily replicated in other mining districts (same design, new district funding).
- Expansion: Additional vans, more drones, and larger rehab hubs can be added as demand grows.
- Integration: Can later expand to dental, eye, or maternal health services without disrupting core model.

Key Principle
Start with a practical, compact version → prove success in one district → scale across Jharkhand in future DMFT cycles.

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9.0 Budgeting & Costing
Each phase is designed to remain within ₹2.0 crore, with total cost < ₹5.0 crore.

Phase 1 – Diagnostics + Digital Backbone (₹1.90 crore)
- Mobile Van (vehicle + medical fit-out): ₹0.80 cr
- Portable equipment (X-ray, USG, ECG, lab analyzers, tele-kit): ₹0.60 cr
- Digital platform (ABDM-compliant): ₹0.10 cr
- Staff (nurse, technician, driver – 1 yr): ₹0.20 cr
- Opex (fuel, consumables, maintenance): ₹0.20 cr
  Total: ₹1.90 cr

Phase 2 – Emergency Response (₹1.75 crore)
- 2 Medical drones + lockers + training: ₹0.80 cr
- DGCA approvals, insurance: ₹0.05 cr
- CFR program (training 500 responders + kits): ₹0.40 cr
- 10 AEDs + installations: ₹0.30 cr
- Staff & operations (pilots, trainers – 9 mo): ₹0.20 cr
  Total: ₹1.75 cr

Phase 3 – Rehabilitation & Ortho Hub (₹1.30 crore)
- 3D prosthetics lab (printers, scanner, CAD software): ₹0.30 cr
- Clinic & physiotherapy setup: ₹0.30 cr
- Staff (prosthetist, physio, technicians – 6 mo): ₹0.30 cr
- Consumables (filament, resin, raw materials): ₹0.20 cr
- Opex & digital integration: ₹0.20 cr
  Total: ₹1.30 cr

Grand Total (All Phases): ₹4.95 crore

Why This Budget Works
- Compact, modular, transparent – each phase stands alone.
- No duplication – digital platform and governance serve all phases.
- Room for expansion – additional vans, drones, or prosthetic labs can be added later.

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10.0 QCBS-Style Evaluation Matrix (100 Points)

The project will be assessed using a Quality-cum-Cost Based Selection (QCBS) approach, ensuring best value, not just lowest cost.

Technical Evaluation (70 points)

Criteria	Description	Points
Understanding of Problem & DMFT Context	Clarity on mining health issues, alignment with PMKKKY priorities	15
Technical Design & Innovation	Three-phase model (van + drones + prosthetics), ABDM integration	20
Implementation Plan & Timelines	Feasible, milestone-driven rollout	10
Governance & Team Credibility	Advisory mentors, clinical board, PMU structure	15
Sustainability & Scale-up	Financial + operational continuity, replication potential	10
Total (Technical)		**70**

Financial Evaluation (30 points)

- Formula: Sf = (Lowest Cost ÷ Bidder's Cost) × 30
- Ensures cost-efficiency without compromising quality.

Composite Score (100 points)

- Final Score = Technical (70%) + Financial (30%)
- Highest scoring proposal recommended for approval.

This evaluation style reassures DMFT that the project is transparent, competitive, and designed for long-term value.

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11.0 Annexures (Ready-to-Attach)
The following annexures will support the DPR, providing credibility and technical depth without crowding the main document.

Annexure A – Clinical Governance Board
- Doctor undertakings (commitment of 5 hrs/week).
- Abbreviated CVs of:
    - Dr. Varisth Vardhan – Orthopedics
    - Dr. Tanushee Wason – Pulmonology
    - Dr. Vashishth Raj – Anesthesiology & Emergency Medicine

Annexure B – Advisory Mentors
- Abbreviated CVs of:
    - Dr. Sanjay Jayaswal – Retd. Civil Surgeon
    - Shri Manoj Jaiswal – Retd. Divisional Commissioner

Annexure C – Drone Pilot Affidavit
- Undertaking of compliance with DGCA Drone Rules 2021
- Proof of Remote Pilot Certificates (RPC) from DGCA-approved RPTOs

Annexure D – OEM Authorizations
- Authorization letters from equipment suppliers for:
- Mobile van chassis & fabrication
- Diagnostic medical devices
- Drones & accessories
- 3D printers & consumables

Annexure E – Standard Operating Procedures (SOPs)
- Mobile Diagnostics Van (daily ops, patient intake, data entry)
- Drone Operations (pre-flight, safety, payload handling)
- Prosthetics Hub (assessment, design, fabrication, follow-up)
- CFR Program (training & AED use)

Annexure F – Bill of Materials (Excel-ready)
- Item-wise costing for each phase (vehicle, equipment, staff, consumables, contingencies)
- Structured to match DMFT audit and monitoring needs

Annexure G – Infographics
- Roadmap: 3 phases → diagnostics, emergency response, rehabilitation
- Governance structure (Advisors → Clinical Board → PMU → Field Teams)
- Budget pie-chart (showing all phases within ₹5 cr)

Key Benefit
- Officials see the main DPR as lean and easy.
- Annexures act as backup depth if questions arise during Council review.
- Builds credibility without overwhelming the reader.

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Annexure A – Clinical Governance Board
Undertaking

I, Dr. _____, Specialist in _____, hereby commit to serve as a member of the Clinical Governance Board for the Birsa Arogya Doot project. I shall provide professional oversight, tele-consultation support, and protocol validation for approximately 5 hours per week, ensuring high standards of medical care.

Signed,
Name: _____
Specialization: _____
Date: _____

Abbreviated CVs (Samples):

- Dr. Varisth Vardhan – Orthopedics Specialist | Experience in trauma care, rehabilitation, tele-consult support.
- Dr. Tanushee Wason – Pulmonology Specialist | Expertise in respiratory disorders and dust-related lung conditions.
- Dr. Vashishth Raj – Anesthesiology & Emergency Medicine Specialist | Expertise in emergency response, life-saving skills, AED/CPR training.

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Annexure B – Advisory Mentors

Abbreviated CVs:

- Dr. Sanjay Jayaswal – Retired Civil Surgeon, Hazaribagh | 30+ years in district health services, experienced in public health planning and DMFT implementation.
- Shri Manoj Jaiswal – Retired Divisional Commissioner, Ranchi | 35+ years in IAS, expertise in administration, finance, and multi-agency coordination.

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Annexure C – Drone Pilot Affidavit

UNDERTAKING FOR DRONE PILOT COMPLIANCE

Dakshayani Enterprises commits that all drone operations under Birsa Arogya Doot will strictly comply with DGCA's Drone Rules 2021.

1. All drone pilots engaged shall hold valid Remote Pilot Certificates (RPCs) issued by DGCA-approved RPTOs.
2. All drones shall be registered on the Digital Sky Platform with Unique Identification Numbers (UINs).
3. All flights will follow the No Permission, No Takeoff (NPNT) protocol.
4. BVLOS operations (if required) will be conducted only after DGCA approval.
5. Full insurance and safety protocols will be followed.

Signed,
Proprietor
Dakshayani Enterprises

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Annexure D – OEM Authorizations

To Whom It May Concern,

Dakshayani Enterprises will procure equipment only from authorized Original Equipment Manufacturers (OEMs) or certified distributors, ensuring compliance with quality and safety standards. This includes:

- Mobile van chassis and fabrication from Force Motors/Tata certified body builders.
- Medical diagnostic devices (portable X-ray, ultrasound, ECG, analyzers) from BIS/IEC-certified OEMs.
- DGCA-approved medical delivery drones.
- 3D printers, CAD software, and medical-grade consumables from certified suppliers.

Sincerely,
Proprietor, Dakshayani Enterprises

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Annexure E – Standard Operating Procedures (SOPs)

1. **Mobile Diagnostics Van**
    a. Pre-shift vehicle inspection, equipment calibration.
    b. Digital registration of all patients; ABHA ID creation.
    c. Structured patient assessment → diagnostics → treatment/referral.
    d. Data entry on ABDM platform (offline sync when needed).
    e. Preventive maintenance schedule for van and equipment.

2. **Drone Operations**
    a. Pre-flight checklist (battery, payload, weather, propellers).
    b. Flight plan logged on Digital Sky platform.
    c. NPNT compliance mandatory.
    d. Chain of custody for medicines and cold-chain items.
    e. Emergency protocols for low battery or signal loss.

3. **Prosthetics & Ortho Hub**
    a. Patient assessment: medical history + 3D scan.
    b. Prosthetic design: CAD software → 3D print → quality check.
    c. Fitting & physiotherapy with clinical oversight.
    d. Scheduled follow-up care.

4. **CFR Program**
    a. Training modules: CPR, first aid, AED usage.
    b. 500+ local responders trained & certified.
    c. Deployment of 10 AEDs in public spaces.
    d. Periodic refresher trainings every 6 months.

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Annexure F – Bill of Materials (Excel-ready)

Phase 1 – Diagnostics + Digital (₹1.90 cr)
- Mobile van (vehicle + fabrication): ₹0.80 cr
- Medical equipment (X-ray, USG, ECG, lab analyzers, tele-kit): ₹0.60 cr
- ABDM digital platform: ₹0.10 cr
- Staff & Opex (1 yr): ₹0.40 cr

Phase 2 – Emergency Response (₹1.75 cr)
- 2 drones + lockers + training: ₹0.80 cr
- DGCA fees & insurance: ₹0.05 cr
- CFR program (500 trainees, kits): ₹0.40 cr
- AEDs (10 units + install): ₹0.30 cr
- Staff & Opex: ₹0.20 cr

Phase 3 – Rehab Hub (₹1.30 cr)
- 3D printers, scanner, CAD: ₹0.30 cr
- Clinic & physiotherapy setup: ₹0.30 cr
- Staff (prosthetist, physio, technicians – 6 mo): ₹0.30 cr
- Consumables & Opex: ₹0.40 cr

Total: ₹4.95 cr

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Annexure G – Project Infographics

This document contains key project infographics, formatted for easy use in a printable A4-sized document.

1. Project Roadmap

A 21-month timeline showing the three phases of the project.

Phase 1: Diagnostics (Months 1-6)
Phase 2: Emergency Response (Months 7-12)
Phase 3: Rehab Hub (Months 13-21)

2. Problem ⟶ Solution Bridge

Illustrating how DMFT funds bridge the gap between community health challenges and the project's solutions.

Problem: Mining Health Issues

- Respiratory Illnesses
- Injuries & Accidents
- Musculoskeletal Disorders

⟶ DMFT Funds as the Bridge ⟶

Solution: Birsa Arogya Doot Solutions

- Screening & Early Detection
- Rapid Medical Aid & Transport
- Rehabilitation & Follow-up

3. Governance Organizational Chart

A hierarchical view of the project's reporting structure.

- **Advisors**
  - **Clinical Board**
    - **Project Management Unit (PMU)**
      - **Field Teams**
        - (Reports to DMFT)

4. Budget Allocation

The budget distributed across the project's three phases.

- **Phase 1 (Diagnostics):** 38%
- **Phase 2 (Emergency Response):** 35%
- **Phase 3 (Rehab Hub):** 27%

5. Outcomes at a Glance

A summary of key projected results.

1. 10,000 patients screened
2. 500 Critical First Responses (CFRs) managed
3. 50 prosthetic limbs provided
4. 10 Automated External Defibrillators (AEDs) deployed
5. 1 Real-time project dashboard implemented
6. Roadmap (3 Phases, 21 Months): Arrow timeline with Phase 1 (Diagnostics) ⟶ Phase 2

(Emergency Response) → Phase 3 (Rehab Hub).

7. Problem → Solution Bridge: Mining health problems on left → Birsa Arogya Doot solutions on right → DMFT funds as the bridge.
8. Governance Org Chart: Advisors → Clinical Board → PMU → Field Teams → DMFT reporting lines.
9. Budget Pie Chart: Phase 1 = 38%, Phase 2 = 35%, Phase 3 = 27%.
10. Outcomes at a Glance: Icons with numbers (10k patients screened, 500 CFRs, 50 prosthetics, 10 AEDs, real-time dashboard).